



SUSTAINABILITY STATEMENT

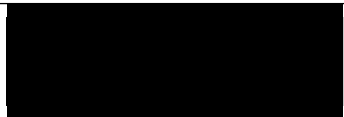
RAF RUDLOE 2, CORSHAM

JSP SUSTAINABILITY LTD
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EXECUTIVE SUMMARY

- Taylor Wimpey's proposed residential development at the former RAF Rudloe Site 2, Corsham includes the construction of 167 no. properties.
- Measures will be enacted throughout the construction phase to ensure a sustainable development is created.
- Taylor Wimpey operates a nationwide timber procurement policy and affords advantage to materials with a lesser environmental impact.
- Eco-sanitary ware and flow restriction devices will be included in the construction of every property.
- Energy efficiency measures will be included in the construction specification of every home to comply with the revised Fabric Energy Efficiency Standard.
- Photovoltaic panels will be installed on the roof slopes of every house and apartment block.



1 INTRODUCTION

JSP Sustainability Ltd has been commissioned by Taylor Wimpey to prepare a Sustainability Statement to accompany the planning application for the residential development at former RAF Rudloe 2 site, off Westwells Road, Corsham. The application seeks approval for the design and construction of 167 no. homes by Taylor Wimpey, public open space, landscaping and associated highway works. A number of documents have been used to complete this report;

National Planning Policy Framework (NPPF) includes a presumption in favour of sustainable development. The Framework expands upon the guiding principles and objectives of a successful planning system. These include the building of a strong and competitive economy, delivering high quality housing, requiring good design and meeting the challenges of climate change.

Approved Document L sets fabric efficiency standards and together with SAP, establishes a maximum CO₂ emission rate for new build residential properties. The Approved Document is the Government's sustainable design benchmark in England.

The Future Homes Standard: 2019 Consultation on changes to Part L and Part F of the Building Regulations for new dwellings. (January 2021) provides a summary of the received responses to the 2019 consultation and the Government's intentions to revise Part L of the Building Regulations in 2022 and introduce a FHS in 2025.

The Future Homes and Buildings Standards: 2023 Consultation was published in December 2023. Within the consultation the Government presented two options for the technical specification of the Future Homes Standard. Both options confirm a shift to low carbon electric heating.

Wiltshire Core Strategy adopted 2014 includes Core Policy 41, Sustainable construction and low-carbon energy. This policy sets out to *"reduce Wiltshire's contribution to climate change through improved design and construction methods"*. Core Policy 41 notes that *"All proposals for major development will be required to submit a Sustainable Energy Strategy alongside the planning application outlining the low-carbon strategy for the proposal"*.



2 MATERIAL SELECTION

Significant amounts of energy and natural resources are consumed in the production, transportation and disposal of building materials. Two issues are of significant importance in the procurement of materials: the environmental impact of materials and the sourcing of materials. Taylor Wimpey is dedicated to taking pro-active measures to addressing these issues.

Taylor Wimpey operates a nationwide timber procurement policy. At its core is a requirement that timber products are only sourced from suppliers who can adequately demonstrate and provide appropriate evidence that the supplied material is responsibly and legally procured from a sustainable source. In all instances, suppliers must present Chain of Custody or FSC certificates demonstrating compliance prior to the purchase of materials.

Included within Taylor Wimpey's environmental procurement policy is a commitment to afford advantage to those materials which have a lesser environmental impact than rival products and to review alternative materials that have a lower environmental impact when developing material specifications. As part of the procurement policy Taylor Wimpey reviews the Environmental Management Systems of all suppliers and where possible sources materials from suppliers who have Environmental Management Systems in place which conform to the BES or ISO standard.

As part of the review of the proposed Sustainability Strategy the environmental impact of the proposed build specification was assessed against the BRE Green Guide. The Guide assesses the relative environmental impact of construction materials commonly used in buildings. Materials are given an overall rating of A+ to E, based on Life Cycle Assessments using the BRE's Environmental Profiles Methodology. The table below summarises the ratings anticipated;

Table 1 – Green Guide Ratings

	Description	Green Guide Reference	Rating
External Wall	Brickwork outer leaf, insulation, aircrete blockwork inner leaf, cement mortar, plasterboard on dabs, paint	806170615	A+
Party Wall	Twin leaf 100mm min. solid medium dense blocks (1350-1600kg/m ³), with 100mm min. cavity including proprietary glass wool acoustic roll, type A wall ties, with gypsum-based board (9.8kg/m ²) on dabs and paint to each side	1118190007	C
Ground Floor	Structural topping on beam and expanded polystyrene flooring	820140015	A+



Intermediate Floor	T&G floorboards on timber I joists	807280024	A+
Internal Wall	Timber stud, plasterboard, paint	809760003	A+
	Concrete block with cement:lime mortar, plasterboard, pain	809180018	B
Glazing	PVC-U window, double glazed	813100009	A
Roof	Timber trussed rafters and joists with insulation, roofing underlay, counterbattens, battens and tiles	812410008	A+



3 WATER EFFICIENCY

Approved Document G of the Building Regulations requires each new home to achieve a water consumption rate of no more than 125 litres per person per day. Taylor Wimpey proposes to incorporate low flow sanitary ware and eco-sanitary products into the design of each property to achieve a low water consumption rate. This strategy will permanently reduce water consumption. The tables below summarise the proposed flow rates and capacities and the water efficiency calculation.

Table 2 – Flow Rates & Capacities

Fitting	
Toilets	4.6 & 2.9 litre dual flush
WHB Taps	4 litres/min
Kitchen Taps	3.8 litres/min
Bath	170 litres
Shower	9 litres/min



Table 3 - Water Efficiency Calculation

Installation Type	Unit of Measurement	Capacity/Flow Rate	Use Factor	Fixed Use (litres/person/day)	Litres per Person day. = [(1) x (2)] + (3) (4)
		(1)	(2)	(3)	(4)
WC (Dual Flush)	Full Flush (litres)	4.00	1.46	0.00	5.84
	Part Flush (litres)	2.60	2.96	0.00	7.70
Taps (excluding kitchen tap)	Flow rate (litres/min)	4.00	1.58	1.58	7.90
Bath (where shower present)	Capacity to overflow (litres)	156	0.11	0.00	17.16
Shower (where bath present)	Flow rate (litres/min)	6.00	4.37	0.00	26.22
Kitchen/utility room sink taps	Flow rate (litres/min)	3.80	0.44	10.36	12.03
Washing machine	Litres/kg dry load	8.17	2.10	0.00	17.16
Dishwasher	Litres/place setting	1.25	3.60	0.00	4.50
TOTAL	(5)				98.51

(5)	Total Internal Water Consumption	98.51
(6)	Normalisation Factor	0.91
(7)	Internal Water Consumption [(5) x (6)]	89.64
(8)	External Water Use	5.00
(9)	Part G Water Consumption [(8) + (7)]	94.64

A water consumption of 94.64 litres per person per day is calculated.



4 ENERGY STRATEGY

4.1 Local Policy

The Wiltshire Core Strategy includes Core Policy 41, Sustainable construction and low carbon energy which notes;

“New development, building conversions, refurbishments and extensions will be encouraged to incorporate design measures to reduce energy demand. Development will be well insulated and designed to take advantage of natural light and heat from the sun and use natural air movement for ventilation, whilst maximising cooling in the summer”.

“New homes (excluding extensions and conversions) will be required to achieve at least Level 4 (in full) of the Code for Sustainable Homes”.

The Code for Sustainable Homes was suspended in 2015. Furthermore the 2021 amendments to the Building Regulations Part L surpass the CO₂ targets associated with Code Level 4.

4.2 Future Homes Standard

In January 2021 the Government responded to the public consultation on the Future Homes Standard (FHS) and proposed revisions to Part L. The Government confirmed;

“The introduction of the Future Homes Standard will ensure that an average home will produce at least 75% lower CO₂ emissions than one built to current energy efficiency requirements...Homes built under the Future Homes Standard will be “zero carbon ready”, which means that in the longer term, no further retro-fit work for energy efficiency will be necessary to enable them to become zero carbon homes as the electricity grid continues to decarbonise.”

“The Building Regulations will continue to set a performance based standard rather than mandating or banning the use of any technologies. However, to ensure that new homes are zero carbon ready, we intend to set the performance standard of the Future Homes Standard at a level which means that new homes will not be built with fossil fuel heating, such as natural gas.”

“Currently electrification is one of the few proven scalable options for decarbonising heat. As set out in the consultation, we expect heat pumps will become the primary heating technology for new homes under the Future Homes Standard.”



A consultation on the full technical specification for the FHS was launched in December 2023. Within the consultation the Government presented two options for the notional dwelling within the new Home Energy Model. However, both recipes include the specification of electric heat pumps with a co-efficient of performance greater than one.

Importantly the Government concluded that further improvements to fabric energy efficiency were not desirable or necessary;

The performance requirements in this consultation closely resemble the fabric standards in the 2021 Part L uplift to the Building Regulations. We investigated including better walls, floors, roofs, triple glazing and improved thermal bridging. However, the only cost effective and practical improvement we found could be made to the standard was an improvement in airtightness. This improvement in airtightness is matched with the change to a decentralised mechanical extract ventilation system, in line with Approved Document F, Volume 1: Dwellings.

The decision to keep fabric standards largely the same is driven by several factors. Firstly, the level set in 2021 will ensure that (with adequate ventilation) new homes do not generally experience damp and mould or excessive temperatures; an increase in fabric beyond this level does not give significant additional benefit. Secondly, it allows efficient low carbon heating, including modern heat pumps, to function well. The move to low carbon heating is central to the government's commitments to decarbonise housing, and so fabric must be set at a level that allows these systems to work efficiently. Again, increasing fabric beyond the proposed level does not deliver significant gains to the efficiency of heating systems. Thirdly, because the electricity grid is decarbonising rapidly, and the efficiency of heat pumps significantly reduces energy demand, further reducing total energy use is relatively less important than switching to electric sources of heat in efforts to decarbonise. Grid decarbonisation also means that fabric improvements are increasingly not a cost-effective intervention to reduce carbon. This means that as we increase fabric beyond the proposed level, the monetary value of carbon saved by increasing fabric efficiency is less than the cost of installing that additional fabric. As such, there are other interventions that decrease carbon and consumer bills in a more cost-effective way, such as (above) switching heat source and including solar PV panels."

Paragraph 4.2.3, Future Homes & Building Standard Consultation 2023

4.3 Part L of the Building Regulations

In anticipation of the FHS, the Government amended Part L of the Building Regulations on June 15th 2022 to deliver a saving of 31% in CO₂ emissions. The Regulations include improved u-value backstops, the inclusion of a new Primary Energy target, updated CO₂ emission factors to take account of the progressive decarbonisation of the national grid and the retention of the Fabric Energy Efficiency Standard. The formulation of the target recipe also makes it necessary to



include renewable generation or low carbon heating to deliver compliance with the target metrics.

At the time of submission Part L 2021 remains the national benchmark for sustainable design and construction in England. However, in March 2026 the Government published its response to the FHS consultation and Part L 2026. An implementation date of March 24th 2027 was confirmed with a one-year transition for plots commenced prior to this date. The new Approved Document confirms the transition to low carbon heating and the introduction of a functional requirement for renewable energy generation on every plot.

4.4 Proposed Strategy

Taylor Wimpey will construct every home at the application site to a robust energy efficient specification capable of delivering compliance with the Fabric Energy Efficiency standard. Furthermore, each home will be serviced by a high efficiency, low NOx emissions natural gas boiler and will benefit from a solar photovoltaic array installed on the roof slope of every home.

4.5 Energy Efficiency Measures

Taylor Wimpey's exposure to the marketplace has confirmed that purchasers demand energy efficient homes with low operating costs and technologies. As such the Group's current construction specification has been tailored to these demands and incorporates many of the lean and clean measures of the Energy Hierarchy. Listed below are some of the measures that will be incorporated into the detailed design of the scheme;

- The construction specification of every home will include high levels of insulation in the ground floor, external walls and roof spaces, capable of exceeding the minimum benchmarks of Part L and delivering compliance with the revised Fabric Energy Efficiency standard;
- Each house will be constructed using a traditional masonry method including the specification of an insulating aircrete block. This form of construction delivers thermal mass to the fabric of each home, which assists in the retention of beneficial heat but also aids in lowering the risk of summer overheating;
- The detailed house type designs will incorporate intelligent thermal bridging guidance, including the specification of thermally broken lintels, reducing a significant source of heat loss;
- The heating designs of each house type will include dual zone time and temperature controls with smart controls;



- Energy efficient lamps will be installed in every light fitting;
- Each property will be naturally ventilated using efficient decentralised continuous system 3 extract fans to ensure the internal living environment will be healthy and comfortable;
- High performance triple glazed units will be installed in every home; and
- Each entrance will be illuminated with an energy efficient external light or provision will be made for a purchaser to install such a fixture.

The table below provides a summary of the energy efficiency standards to be achieved in the design and construction of each new home;

Table 4 – Specification Summary

Element	Part L	Specification
Wall (houses)	0.26W/m ² K	0.25W/m ² K
Party Walls	0.20W/m ² K	0.00W/m ² K
Cold Roof	0.16W/m ² K	0.11W/m ² K
Floor	0.18W/m ² K	0.14-0.16W/m ² K
Glazing	1.60W/m ² K	0.86-1.10W/m ² K
Door	1.60W/m ² K	0.90-1.20W/m ² K
Air Permeability	8 m ³ /(h.m ²) @ 50 Pa	4.50 m ³ /(h.m ²) @ 50 Pa

Homes that commenced on or after 24th March 2028 may be constructed to differing energy efficiency standards than those stated above. However in all instances they will be compliant with Part L 2026.

4.6 Photovoltaic Panels

Photovoltaic panels will be installed on the roof slopes of every home. The arrays will be sized to deliver compliance with the Building Regulations and will range in size, dependent on house type and orientation. However, arrays in the range of 0.81kWp to 2.835kWp are forecasted, based on initial SAP 10 modelling. The installations will provide each home with a free and zero carbon source of electricity.



4.7 Waste Water Heat Recovery

The heating designs of each house will include the specification of waste water heat recovery. This technology, in the form of a heat exchange pipe connected to the shower drain pipe, recycles the heat from shower waste water to pre-heat the cold mains supply before it is brought to temperature by the central boiler. The technology lowers the workload of the boiler, delivering a saving in CO₂ emissions.



4.8 Energy Requirement & CO₂ Emissions

The specification summarised overleaf was modelled in SAP 10 to determine the anticipated CO₂ emission rate and energy requirement of the proposed development. The table below summarises the results calculated. Note that the calculations assume the minimum size of PV array necessary to comply with Part L 2021.

Table 5 – Rudloe Phase 2 Reduced Emission Rate

House Type	Target Emission Rate (kg/year)	Calculated Emission Rate (kg/year)	Total Energy Consumption (kWh/year)	PV Energy Generation (kWh/year)
EMA22	21,414.78	18,448.84	100,524.24	16,788.72
EMA33	38,892.62	35,209.20	189,260.80	27,981.20
EMA42	22,316.38	21,139.66	114,558.66	18,887.40
EMA44	9,800.88	9,255.26	52,020.88	11,192.48
EMA46	2,505.47	2,370.11	13,268.12	2,798.12
EMAP22	12,048.03	10,441.63	56,671.68	9,093.89
EMAP32	8,765.21	7,916.69	42,579.27	6,295.77
EMAP41	1,062.22	1,010.25	5,366.91	699.53
Apartments	7,025.62	6,550.01	33,506.49	2,647.29
EMG44	13,847.01	13,589.79	74,700.90	13,990.60
EMG45	2,852.59	2,826.86	15,467.58	2,683.22
EMT31	17,579.16	16,708.32	87,747.30	10,492.95
EMT32	2,083.31	1,887.51	10,080.72	1,384.22
EMT41	13,886.05	13,069.98	70,679.73	11,542.30
EMT45	2,513.28	2,455.20	14,098.50	3,497.66
EMTP31	998.52	923.16	4,943.82	699.53
TOTAL	177,591.17	163,802.50	885,475.60	140,674.88

The calculations confirm that the site has a predicted energy requirement of 885,475.60kWh/year. The addition of photovoltaic panels, necessary for compliance with the Building Regulations Part L, is forecast to generated 140,674.88kWh/year of electricity, or 15.89% of the site's total energy requirement.



5 EVALUATION

This Statement accompanies the planning application for the proposed residential development at the former RAF Rudloe Site 2, off Westwells Road, Corsham and includes details on material selection, water efficiency and energy efficiency. The key endeavours are;

- Taylor Wimpey operates a robust Sustainable Procurement Policy which emphasises the legal and sustainable sourcing of building materials;
- The construction specification for the site achieves A+ and A ratings when assessed against the Building Research Establishments Green Guide;
- Eco sanitary ware and flow restriction devices will be installed in every property. Water consumption levels compliant with Part G will be achieved;
- The house type designs and glazing specification will facilitate each home in benefiting from the beneficial effects of solar gain;
- Energy efficiency measures, including the specification of thermally broken lintels, high levels of insulation and triple glazing will be included in the design and construction of every home;
- Waste water heat recovery will be included in the heating designs of every house. This technology will lower the water heating requirement and emission rate of every house; and
- PV panels will be installed on the roof slopes of every house and flat block. The arrays will provide home owners with a free and zero carbon source of electricity. The arrays are forecast to generate as much as 15.89% of the site's total energy requirement.

In conclusion the strategy addresses energy efficiency, water efficiency and material selection. When assessed against the definition included in the NPPF, the proposals can be described as sustainable. We therefore recommend the approval of these measures.