



SUSTAINABILITY STATEMENT

LAND SOUTH OF ROMSEY ROAD, WHITEPARISH

JSP SUSTAINABILITY LTD
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EXECUTIVE SUMMARY

- The proposed residential development off Romsey Road, Whiteparish includes the construction of 25 no. properties.
- The developer proposes to construct each home to an efficient fabric and building services specification capable of delivering CO₂ and fabric energy efficiency savings in line with the Building Regulations Part L.
- Low carbon heating, in the form of air source heat pumps (houses) and electric panel heaters with exhaust air heat pump cylinders (maisonettes), will be included in the service designs of every home.
- A photovoltaic array will be installed on the roof slope of every property.
- Each home will achieve a low internal water consumption.
- A site waste management plan will operate during the construction phase of the development.
- The site's forecasted emission rate represents a 65.46% saving over Part L.



1 INTRODUCTION

JSP Sustainability Ltd has been commissioned by Bargate to prepare a Sustainability Statement to accompany the planning application for the proposed residential development at the land south of Romsey Road, Whiteparish, Salisbury. The application planning permission for the development of 25 no. dwellings including affordable housing, public open space, associated landscaping and infrastructure works.

This Statement provides details on the energy efficiency, water efficiency and material selection measures proposed by Bargate to address local policy and deliver a sustainable development. A number of documents have been used to complete this report. These include;

[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 – Conservation of Fuel & Power](#) sets fabric efficiency standards and together with SAP, establishes a maximum CO₂ emission rate and primary energy 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](#) includes Core Policy 41, Sustainable construction and low carbon energy. The policy requires “new development...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.”



2 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. However local policy requires a lower consumption rate of no more than 110 litres per person per day. The developer 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 1 – Flow Rates & Capacities

Fitting	
Toilets	6 & 3 litre dual flush
WHB Taps	3 litres/min
Kitchen Taps	4 litres/min
Bath	190 litres
Shower	8 litres/min



Table 2 - 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)
		(1)	(2)	(3)	(4)
WC (Dual Flush)	Full Flush (litres)	6.00	1.46	0.00	8.76
	Part Flush (litres)	3.00	2.96	0.00	8.88
Taps (excluding kitchen tap)	Flow rate (litres/min)	3.00	1.58	1.58	6.32
Bath (where shower present)	Capacity to overflow (litres)	190	0.11	0.00	20.90
Shower (where bath present)	Flow rate (litres/min)	8.00	4.37	0.00	34.96
Kitchen/utility room sink taps	Flow rate (litres/min)	4.00	0.44	10.36	12.12
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)				113.60

(5)	Total Internal Water Consumption	113.60
(6)	Normalisation Factor	0.91
(7)	Internal Water Consumption [(5) x (6)]	103.38
(8)	External Water Use	5.00
(9)	Part G Water Consumption [(8) + (7)]	108.38

An internal water consumption of 108.38 litres per person per day is calculated.



3 MATERIAL SELECTION

Bargate and their contractors operate ethical timber procurement policies which has at its core a commitment to purchase legally and sustainably sourced timber. Suppliers of timber must produce full Chain of Custody Certificates right through the supply chain; from the initial timber yard, manufacturing process, transformation and distribution. Secure certificates must be produced by valid accrediting bodies – FSC, PEFC, CSA, SFI & MTCC.

When specifying materials at the design stage the sustainable credentials of a product are rated alongside their affordability, lifecycle costs, durability, availability and ease of use. This exercise guarantees due consideration to the environmental impact of materials at the earliest design and procurement stage.

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 3 – Green Guide Rating

	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	Screed on insulation laid on grouted beam and medium dense solid block flooring	820140031	B
Intermediate Floor	T&G floorboards on timber I joists	807280024	A+
Internal Wall	Timber stud, plasterboard, paint	809760003	A+
Glazing	PVC-U window, double glazed	813100009	A
Roof	Timber trussed rafters and joists with insulation, roofing underlay, counterbattens, battens and tiles	812410008	A+



4 WASTE MANAGEMENT

In 2012 the Government repealed the Site Waste Management Plan Regulations. However, as an environmentally responsible developer Bargate intends to operate such a Plan at the application site. The following briefly summarise the policies contained within the waste management plan for Romsey Road;

- Design to minimise wastage during the construction phase;
- Maximise the value of recycled aggregates through the separation of physical and chemical contaminants and through the careful matching of the materials generated with appropriate site use;
- Regular inductions and toolkit talks to all contractors and sub-contractors are standard. Careful site management of stockpiling and storage, segregation of waste groups and the prevention of cross contamination are implemented as standard;
- Agreements are in place with suppliers to reduce the amount of packaging on goods delivered to site. Take back agreements and *“just in time delivery”* are in place with key suppliers;
- All waste contractors are required to segregate demolition waste off site and provide records of such; and
- Landfill will be the last option when no economic solution can be found.



5 ENERGY STRATEGY

5.1 Local Policy

Core Policy 41 of the Core Strategy benchmarks new development to Code for Sustainable Homes Level 4. The Code was suspended in 2015 and the latest revisions to Part L exceed the associated 19% saving in CO₂ emissions.

5.2 National Policy

Paragraph 164b) of the National Planning Policy Framework (NPPF) asks that new development should be planned for in ways that *“can help reduce greenhouse gas emission, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government policy for national technical standards.”* As it relates to buildings, the Governments technical standards are those contained in the Building Regulations, specifically Part L.

Paragraph 166 requires new development to *“comply with any development plan policies on local requirements for decentralised energy supply....and take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.”*

5.3 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

5.4 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 revisions are expected to provide the industry and supply chains with the incentive, skills and time to prepare for the FHS. The Part L 2021 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.

5.5 Proposed Strategy

In response to the recent revisions to Part L of the Building Regulations and the planned introduction of the Future Homes Standard, Bargate will construct each home at the application site to a robust energy efficient specification capable of complying with the Fabric Energy Efficiency standard. Furthermore, the services specification of every house will include low carbon air source heat pumps providing the space heating and hot water for each home.

5.6 Energy Efficiency Measures

The strategy proposed for the new homes at Romsey Road has been tailored to the lean and clean principles 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. This will lower heat loss in the building fabric and reduce energy consumption;
- Each home 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 the thermal bridging guidance produced by Recognised Construction Details and others and include the specification of thermally broken lintels, thereby reducing a significant source of heat loss in the building fabric;
- Energy efficient lamps will be installed in every light fitting;
- Each property will be naturally ventilated using efficient decentralised extract fans to ensure the internal living environment will be healthy and comfortable;
- Each home will have openable windows with cross ventilation possible, thereby ensuring each home has a sufficient air change rate to lessen the possibility of a summer overheating risk. As part of the Building Regulations submission for the site, SAP and Part O calculations will be submitted to the relevant Building Control Body confirming each home has a low risk of summer overheating without the need for mechanical cooling;



- 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 SAP methodology takes into consideration the positive benefits of solar gain when assessing energy consumption. Each of the principal rooms will have sufficient glazing to take advantage of solar gain; and
- The glazing specification will achieve an overall solar transmittance value, or g-value of 0.71, thereby assisting the potential for solar gain.

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

Table 4 – Specification Summary

Element	Part L 2021	Bargate Specification
Wall	0.26W/m ² K	0.24W/m ² K
Party Walls	0.20W/m ² K	0.00W/m ² K
Cold Roof	0.16W/m ² K	0.09W/m ² K
Floor	0.18W/m ² K	0.12W/m ² K
Glazing	1.60W/m ² K	1.30W/m ² K
Door	1.60W/m ² K	0.90-1.10W/m ² K
Air Permeability	8 m ³ /(h.m ²) @ 50 Pa	4.80 – 5.01 m ³ /(h.m ²) @ 50 Pa

The Government has consulted on the technical specification and the operation of transitional measures for the Future Homes Standard. A response is expected before the close of 2025. At the time of writing, one cannot say with certainty if any of the plots at the application site will be constructed post the implementation of the Standard. However, Bargate will comply with any revised Regulations, and where necessary adhere to revised energy efficiency standards on plots that may start following the introduction of the Future Homes Standard.



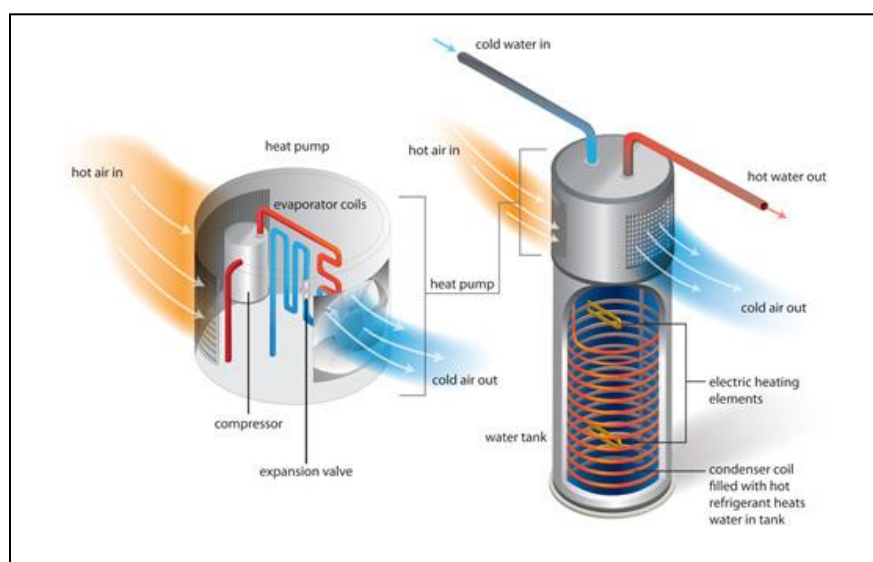
5.7 Air Source Heat Pumps

The services specification of each house will include low carbon air source heat pumps to provide 100% of each property's space heating and hot water requirement. An ASHP works by extracting ambient heat from external air, via a network of refrigerated pipes in a small compact unit located outside the property. The energy is then compressed and passed through a heat exchanger before being used to condition the internal space and provide hot water. The system is highly efficient. Correctly designed, commissioned and installed systems operate with efficiencies of 300-400%.

The system is fed by mains electricity and their carbon reduction performance is expected to accelerate further as the National Grid continues to decarbonise. The technology has also been identified by the Climate Change Committee and the Government as the preferred mass market solution to low carbon heating.

The proposed maisonettes will benefit from an electrified heating and hot water strategy, incorporating exhaust air heat pump hot water cylinders. The technology is a stand-alone hot water solution which utilises the ambient energy in the air of each apartment. The internal fan within the unit draws in the surrounding air, passing it through an evaporation coil filled with refrigerant, turning it into a vapour. This passes through a compressor, increasing its temperature. The vapour then passes through a hot water coil within the integral water tank to heat the domestic hot water supply.

Image – Hot Water Heat Pump





5.8 Forecasted Emission Rate & Energy Requirement

The specification summarised overleaf was modelled in SAP 10 to determine the anticipated emission rate and regulated energy requirement of the site. The table below summarises the results calculated.

Table 5 – Romsey Road Emission Rate

House Type	Target Emission Rate (kg/year)	Calculated Emission Rate (kg/year)	Energy Consumption (kg/year)	Energy Requirement (kWh/year)
2 Bed Terraced	5,810.18	1,835.33	12,502.95	31,654.56
3 bed Terraced	2,873.74	977.99	6,636.00	16,518.20
3 Bed Detached	5,328.29	1,801.96	12,149.43	31,502.49
4 Bed Detached	10,059.02	3,443.64	23,046.48	61,127.73
5 Bed Detached	1,785.61	625.42	4,152.22	11,357.46
Maisonettes	1,566.74	788.10	5,221.73	7,910.44
Total	27,423.58	9,472.44	63,708.81	160,070.88

The site's forecasted emission rate of 9,472.44kg/year, represents a saving of 65.46% over and above the Building Regulations 2021. As an electrified scheme, the emission rate will lessen in the years ahead as the National Grid is decarbonised.

While heat pumps use electricity in operation, they deliver more energy to a home than they consume in operation (this is the co-efficient of performance). The energy generated by the heat pump is sourced from the ambient air adjacent to the external monobloc and for this reason is considered renewable. Afterall, the energy within the adjacent environment is not depleted by the heat pump and is continually renewed. The calculations confirm that 96,362.07kWh/year of energy will be generated by the heat pumps. This equates to 60.20% of the site's energy requirement.

5.9 Photovoltaic Panel

Each home will benefit from a photovoltaic array. The arrays will provide each with a free and sustainable source of electricity. A conservative two panel, or 0.8kWp provision is forecast to generate approximately 16,467kWh/year of electricity and offset a further 2,288.91kg/year of CO₂.



6 EVALUATION

JSP Sustainability was instructed by Bargate to review the sustainable development strategy for the proposed development off Romsey Road, Whiteparish and confirm they are in line with national and local policy. Full details on the strategy are included on the previous pages, however the key conclusions are;

- Each home will achieve an internal water consumption rate less than 110 litres per person per day;
- The material specification achieves A+ and A ratings against the BRE Green Guide; and
- A site waste management plan will operate at the development.
- Each home will be constructed to a specification which incorporates insulation levels and fixings capable of complying with the revised Fabric Energy Efficiency Standard and any subsequent revisions to the Building Regulations;
- Low carbon heating, in the form of air source heat pumps and exhaust air heat pump cylinders, will be included in the service specification of every house and maisonette. This is in advance of the introduction of the Future Homes Standard;
- Each home will be zero carbon ready at the point of first occupation;
- The heat pump specification will generate 96,362.07kWh/year of energy, equivalent to 60.20% of the site's energy requirement;
- Each home will benefit from a photovoltaic array; and
- The site's forecasted emission rate betters the Building Regulations Part L by 65.46%.

On the basis that the measures proposed by Bargate will achieve a sustainable development in line with national and local policy, we can recommend the approval of these measures by the local planning authority.