



# SUSTAINABILITY STATEMENT



WYKHAM PARK ROAD, BANBURY

JSP SUSTAINABILITY LTD  
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## GLOSSARY OF TECHNICAL TERMS

**U-Values** – a measure of heat loss through a structure, for example an external wall or ground floor.

**U-Values Backstops** – The Building Regulations Approved Document L1A sets minimum u-values that new homes must achieve. These represent backstops. Standards worse than these represent failures.

**Standard Assessment Procedure (SAP)** – The approved methodology for calculating the energy requirement and associated CO<sub>2</sub> emissions of a residential property.

**SAP Target Recipe** – A schedule of u-values, heating and ventilation specification used by approved SAP software to determine the Target Emission Rate, Target Fabric Energy Efficiency Rating and Target Primary Energy Rating. The Government proposes to amend the Recipe to deliver progressive reductions in CO<sub>2</sub> emissions.

**Target Emission Rate** – The maximum CO<sub>2</sub> emissions a new build home can emit, as determined by SAP.

**Fabric Energy Efficiency** – A measure of the energy efficiency of a new home. It is the forecasted space heating and cooling requirement of home. The target is determined by SAP and only considers u-values, thermal bridging, thermal mass, solar gain and air leakage.

**Target Primary Energy Rate** – A new metric of assessment, to be incorporated into the forthcoming version of SAP and Part L. It considers the total amount of energy required to heat, light and ventilate a home and the total amount of energy expended to deliver energy to the home, dependent on the fuel source.



## EXECUTIVE SUMMARY

- The proposed development at Wykham Farm Park, Banbury includes the construction of 240 no. homes
- The developer, Persimmon Homes, is required by local and national policy to construct energy efficient homes capable of complying with national sustainable design benchmarks.
- The energy strategy for the development includes robust standards of energy efficiency capable of complying with the revised Fabric Energy Efficiency Standard.
- Photovoltaic arrays will be installed on the roof spaces of every house.
- The site's emission rate will comply with the recently amended Part L of the Building Regulations.
- Electrical vehicle charging points will be provided to every home.
- Water efficiency standards of 110 litres per person per day or less will be achieved.
- A site waste management plan will operate at the site.



# 1 INTRODUCTION

JSP Sustainability Ltd has been commissioned by Persimmon Homes to prepare a Sustainability Statement to accompany the planning application for the proposed residential development off Wykham Park Road, Banbury. The application seeks approval for the detailed design of 218 no. homes, access, landscaping and associated highway works.

This Statement has been prepared in response to the sustainable development policies included in the Cherwell District Local Plan and the Local Authority's Declaration of a Climate Emergency in July 2019. In the sections that follow it is demonstrated that the development will comply with national standards, including the most recent amendments to the Building Regulations Part L. By constructing energy efficient homes and incorporating sustainable design features into the design of the site at large, Persimmon Homes will deliver a low carbon development lessening the impact of climate change and promoting climate resilience. The following topics are considered in detail;

- Material Selection
- Pollution
- Waste Management
- Health & Well-being
- Water Efficiency; and
- CO<sub>2</sub> Emissions

A number of documents have been considered when completing this Statement. 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 CO<sub>2</sub> 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.



[Cherwell Local Plan 2011-2031](#) includes policy ESD1, Mitigating and Adapting to Climate Change. The policy requires development to “reduce carbon emissions and use resourced more efficiently, including water” and promotes “The use of decentralised and renewable or low carbon energy”. Policies ESD3, Sustainable Construction, ESD5, Renewable Energy, expand on the policy.

[Cherwell District 2020 Climate Action Framework](#) sets out the Local Authorities ambition to achieve a 50% reduction in CO<sub>2</sub> emissions by 2030 and a clear trajectory to zero carbon by 2050. With regards to buildings the Council will “support policy for net zero carbon development in line with industry best practice in the Oxfordshire Plan 2050 and Cherwell Local Plan review.”



## 2 SUSTAINABLE DEVELOPMENT & RESPONSE TO CLIMATE EMERGENCY

In Autumn 2019 the Government consulted on proposed revisions to Part L and the proposed introduction of the Future Homes Standard in 2025. The Persimmon Homes Group responded to the consultation and established an internal working group to work through the implications of future Part L revisions to their house type designs, national specifications and supply chain networks. These works continue until the expiration of transitional arrangements in June 2023. Notwithstanding this, the Persimmon Homes Group supports the transition to the Future Homes Standard and a zero or low carbon housing stock within the context of a low carbon national grid network and indeed zero carbon economy.

In July 2019 Cherwell District Council declared a climate emergency. The details that follow are intended to demonstrate the measures the Persimmon Homes Group has taken in response to the climate emergency and the necessary transition to a zero-carbon economy;

- Across the nation, an average SAP rating of 86B is achieved;
- The Group monitors and tracks CO<sub>2</sub> emissions arising from all site construction activities, including transportation to and from site. All sites are connected to the national grid at the earliest opportunity to limit diesel consumption and all Group owned JCDs are fitted with diagnostic tools to monitor fuel efficiency;
- In 2021 greenhouse gas emissions per home sold were 1.90 tonnes of CO<sub>2</sub>. This was a 12% reduction over 2020's performance. The Group has introduced energy efficiency module training to all site managers;
- The Group owns and operates the Space 4 timber frame manufacturing facility at Castle Bromwich. Not only is it a modern and efficient form of construction, but timber frame homes have a lower embodied CO<sub>2</sub> footprint and therefore lesser impact on the environment. Since 2012 Persimmon Homes has delivered c43,000 energy efficient timber frame homes;
- The Group owns and operates the Brickwork manufacturing facility in Doncaster. The carbon footprint of this facility is 30% lower than traditional gas fired clay brick facilities; and
- Persimmon Homes, like all in the house building industry, will install renewable technologies on new developments where there is a planning requirement to do so, or where the Building Regulations require it.



- In 2021 Persimmon Homes sourced 100% of its office and manufacturing facilities power from renewable sources.





### 3 NATIONAL LEGISLATIVE AND POLICY CONTEXT

Today, buildings account for 39.2% of all CO<sub>2</sub> emissions, with homes accounting for 18.5% alone. Necessarily legislation and national standards must tighten or evolve to address the energy efficiency of buildings, thereby reducing consumption, but also to address the source of energy delivered to homes and other buildings if the UK is to meet its carbon dioxide reduction targets.

On the latter point, the UK has made significant progress. Low or zero carbon energy generation accounts for 52% of today's electricity mix. This increase, together with a rapid fall in coal fired electricity generation has delivered a 59% decrease in the CO<sub>2</sub> emissions of the energy supply sector of the economy. In total, CO<sub>2</sub> emissions for the whole economy have fallen by 44% from 1990 levels. It is within this context and the opportunity offered by a rapidly decarbonised generation sector that the Government consulted on Part L and the Future Homes Standards in 2019/2020.

#### 3.1 Legislation

The Climate Change Act 2008, established a carbon budgetary framework which initially sought to achieve an 80% reduction in CO<sub>2</sub> emissions from a 1990 baseline by 2050. In 2019, the Government legislated to increase this to a 100% reduction or net zero by 2050. The Act established the Climate Change Committee, which has provided a roadmap to Government on how to achieve low carbon buildings and housing. Its 2019 publication "*UK housing: Fit for the future?*" provides a template on future Part L amendments and indeed has proven to be the basis for the recently completed Part L1A consultation.

The Planning and Energy Act 2008 provides Local Planning Authorities (LPAs) with the means to include targets for renewable energy generation in new development within local development plans. The Act also enabled local plan policies to include higher energy efficiency targets than those stipulated by the Building Regulations. However, the Written Ministerial Statement (WMS) of 2015 placed a gap or 19% improvement ceiling on such policies.

#### 3.2 National Planning Policy Framework

Paragraph 150b) 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 153 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.*”

### **3.3 Local Plan**

Policy ESD2, Energy Hierarchy and Allowable Solutions, confirms that the Local Authority will “promote an energy hierarchy” to deliver carbon reductions.

Policy ESD3, Sustainable Construction, confirms that all “new residential development will be expected to incorporate sustainable design and construction technology to achieve zero carbon development through a combination of fabric energy efficiency, carbon compliance and allowable solutions in line with Government policy.” Government policy is benchmarked to the energy efficiency and CO<sub>2</sub> targets associated with Part L of the Building Regulations. The policy further establishes a water efficiency target of no more than 110 litres per person per day for residential development. All development proposals are encouraged “demonstrate sustainable construction methods including...”

- Minimising both energy demands and energy loss;
- Maximising passive solar lighting and natural ventilation;
- Maximising resource efficiency;
- Incorporating the use of recycle and energy efficient materials; and
- Reducing waste and pollution and making adequate provision for the recycling of waste

Policy ES5, Renewable Energy, encourages the significant provision of renewable energy to new development. However, the policy does not establish a target generation or measurable reduction in CO<sub>2</sub> emissions to quantify compliance with the policy.



## 4 CO<sub>2</sub> EMISSIONS

The Government has legislated to achieve net zero carbon by 2050 at the latest and this necessarily will have considerable impacts on how new homes are constructed and heated. In January 2021 the Government published its response to the Future Homes Standard (FHS) consultation. In the response document the Government confirmed it would proceed with the Standard in 2025, subject to a public consultation on the full technical specification. The Standard is expected to deliver a 75% reduction in CO<sub>2</sub> emissions and require new homes to be heated from a low carbon heat source such that homes will be “zero carbon ready”. It is expected that the Standard will represent the final step for the house building industry and further decarbonisation will be delivered as a consequence of the decarbonisation of the National Grid network.

In anticipation of the 2025 Standard, the Government amended Part L of the Building Regulations on June 15<sup>th</sup> 2022 to deliver a saving of 31% in CO<sub>2</sub> emissions. The revisions are expected to provide the industry and supply chains with the incentive, skills and time to prepare for the FHS in 2025. Transitional measures will operate such that all plots commenced on or after June 15<sup>th</sup> 2023 will be constructed to the updated Regulations.

### 4.1 Energy Efficiency Measure

The Part L 2021 Regulations include improved u-value backstops, the inclusion of a new Primary Energy target, updated CO<sub>2</sub> emission factors to take account of the progressive decarbonisation of the national grid and the retention of the Fabric Energy Efficiency Standard. The table overleaf provides a summary of the Part L 2021 backstops, associated Target Recipe and a comparison to previous standards.

**Table 1 – Part L 2013 & 2021 Fabric Efficiency Comparison**

Element	Part L 2013 Backstops	Part L 2021 Backstops	Part L 2021 Target Recipe
Wall	0.30W/m <sup>2</sup> K	0.26W/m <sup>2</sup> K	0.18W/m <sup>2</sup> K
Floor	0.25W/m <sup>2</sup> K	0.18W/m <sup>2</sup> K	0.13W/m <sup>2</sup> K
Roof	0.20W/m <sup>2</sup> K	0.16W/m <sup>2</sup> K	0.11W/m <sup>2</sup> K
Glazing	2.00W/m <sup>2</sup> K	1.60W/m <sup>2</sup> K	1.20W/m <sup>2</sup> K
Door	2.00W/m <sup>2</sup> K	1.60W/m <sup>2</sup> K	1.00W/m <sup>2</sup> K
Air Leakage	10 m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa	8 m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa	5.0 m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa
Thermal Bridging	N/A	N/A	0.05

It should be understood that Recipes do not represent minimum standards or fabric and service backstops. Instead, they are used by SAP to determine the correct Target Emission Rate and Primary Energy Rate. Developers still maintain a degree of flexibility to craft specifications which adhere to the fabric and services backstops, whilst also achieving the required emission and primary energy rate.



Persimmon Home's exposure to the marketplace has confirmed that purchasers demand energy efficient homes with low operating costs and familiar user-friendly 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 and delivering compliance with the revised Fabric Energy Efficiency standard;
- Each house will be constructed using a traditional construction method which will deliver sufficient thermal mass to each home. This will aid homes in retaining heat during winter months and assist in cooling in the summer;
- The detailed house type designs will incorporate intelligent thermal bridging guidance, including the specification of high performance thermally broken lintels, thereby reducing a significant source of heat loss;
- Each home will be heated using an efficient natural gas boiler with confirmed NOx emissions of 40mg/kWh or less;
- The heating designs of each house type will include dual zone time and temperature controls with delayed start thermostats;
- 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;
- The house type designs will have sufficient glazing in each of the principal living rooms to allow natural daylight to penetrate into each room, thereby lessening the lighting requirement, but also lessening the space heating requirement as each home can take advantage of passive solar gain;
- To aid in this, the glazing specification will have a solar transmittance value, or g-value, of 0.71 or better;
- Detail Part O calculations will be submitted to the relevant building control body prior to the commencement of works. These will confirm a low risk of summer overheating; 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.

**Table 2 – Specification Summary**

<b>Element</b>	<b>Part L</b>	<b>Persimmon Homes Specification</b>
<b>Wall</b>	0.26W/m <sup>2</sup> K	0.24W/m <sup>2</sup> K
<b>Party Walls</b>	0.20W/m <sup>2</sup> K	0.00W/m <sup>2</sup> K
<b>Roof</b>	0.16W/m <sup>2</sup> K	0.09W/m <sup>2</sup> K
<b>Floor</b>	0.18W/m <sup>2</sup> K	0.12W/m <sup>2</sup> K
<b>Glazing</b>	1.60W/m <sup>2</sup> K	1.30W/m <sup>2</sup> K
<b>Door</b>	1.60W/m <sup>2</sup> K	1.00W/m <sup>2</sup> K
<b>Air Permeability</b>	8 m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa	4.50m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa

## **4.2 Heat Recovery Technologies**

The heating designs of every house will include waste water heat recovery (WWHR). WWHR extracts the energy from a shower waste pipe to preheat the cold mains supply before it is brought to the desired temperature by the boiler or heating system. The technology lessens the workload of the primary heating system and therefore delivers a CO<sub>2</sub> emission saving.

## **4.3 Photovoltaic Arrays**

The Target Recipe within SAP 10 assumes a provision of PV in proportion to footprint. Therefore, the installation of PV panels is one means by which home builders can comply with Part L. As a consequence Persimmon Homes will install photovoltaic arrays on the roof slopes of each home at the application site. The arrays will be installed on the most favourable orientation and will provide each home with a zero carbon and free source of electricity. This addition will lower the site's forecasted emission rate and has the potential to shield home owners from the full cost of wholesale electricity. Any electricity not consumed by the home owner can be exported to the National Grid and home owners can benefit from the Smart Export Tariff.

## **4.4 Electrical Vehicle Charging**

To assist in the transition to low carbon transport, ultra low emission vehicle charging points will be provided to all new homes.



## 4.5 Forecasted Emission Rate

Each of the proposed house types were modelled in SAP 10. The table below summarises the results calculated.

**Table 3 – Wykham Farm Emission Rate**

House Types	2021 Target Emission Rate (kg/year)	Emission Rate (kg/year)
Wychwood	11,647.90	11,128.42
Foxford	6,473.52	6,453.54
Kielder	5,160.00	5,015.52
Marston	12,308.80	12,006.40
Greenwood	18,306.12	17,591.28
Himbleton	7,029.40	6,910.81
Whinfall	22,482.42	21,931.92
Ashdown	3,526.28	3,311.45
Barnwood	12,373.24	11,774.86
Charnwood	5,568.00	5,168.96
Sherwood	11,775.76	11,133.98
Kingley	10,991.50	10,671.10
Deepdale	12,391.52	11,608.45
Danbury	17,167.26	16,211.18
Alnmouth	25,154.02	22,762.68
Rendlesham	13,174.84	12,430.43
Haldon	15,971.90	15,239.02
Ashridge	4,796.82	4,728.78
Type 50	8,342.76	8,306.79
<b>Total</b>	<b>219,845.20</b>	<b>214,385.60</b>

The SAP 10 modelling confirms that the energy efficiency and renewable energy proposals will deliver an emission compliant with Part L 2021. Within the calculations, the provision of PV panels contributes to a direct 23,704.30kg/year or 9.96% reduction in CO<sub>2</sub> emissions.



#### 4.6 Future Homes Standard

The Government confirmed its intention to formally consult on the full technical specification for the Future Homes Standard in 2023, with a proposed introduction date of 2025. Though it is reasonable to assume that a transitional period will operate, such that plots commenced in 2026 will be required to adhere to the Standard, including at the application site. In 2021 the Government published a draft technical recipe.

**Table 4 – Future Homes Standards**

Element	Draft recipe
Wall	0.15W/m <sup>2</sup> K
Floor	0.11W/m <sup>2</sup> K
Roof	0.11W/m <sup>2</sup> K
Glazing	0.80W/m <sup>2</sup> K
Door	1.00W/m <sup>2</sup> K
Air Leakage	5 m <sup>3</sup> /(h.m <sup>2</sup> ) @ 50 Pa

In concert with the FHS, the Government intends to ban new connections to the natural gas grid from 2025. Homes constructed to the Standard will have to be heated by a low carbon electric source, most likely an air or ground source heat pump. Homes constructed to the standard will be “zero carbon ready” from the point of first occupation.



## 5 HEALTH AND WELLBEING

In achieving ever stricter levels of sustainability, it is important that one does not lose sight of the fact that the industry is building homes that people can live in and not just occupy. This is an integral part of sustainability. While it is quite difficult to measure health and wellbeing, the following are a sample of the measures that will be included in the detailed design to address this issue.

- Each property will have a large living/dining space or family space;
- Each of the principal living rooms will have sufficient glazing to allow natural light to penetrate into the rooms, reducing the need for artificial lighting. Numerous studies have also shown this to be beneficial to the general health and happiness of occupants. This also allows for each home to take advantage of solar gain. This is taken into account by the SAP methodology and reduces the forecasted energy consumption of each home;
- Where possible the site layout tries to position plots so that one of the principal elevations is orientated in a south-easterly to south-westerly direction. Obviously, it is not possible to do this for every plot on a housing scheme;
- Each property will include a suitable room that can be operated as a home office should it be needed in the future;
- All properties will benefit from a garden or private space for recreation. Each property will also have a designated space for recycling facilities;
- Many of the properties will have private detached or integral garages. Each will be large enough to store bicycles;
- The development will include open landscaped spaces;
- The site layout will be designed to ease travel for cyclists and pedestrians;
- The party wall specification will reduce sound transmission between properties providing comfort to future residents;
- The scheme will comply with the security standards included in Approved Document Q; and
- A home user guide will be placed in the home of each property.





## 6 MATERIAL SELECTION

Persimmon Homes operates a nationwide timber procurement policy. At its core is a requirement that timber products are 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 Persimmon Homes Environmental Policy is a commitment to minimise environmental impacts from all operations and activities, to be efficient with materials, avoid the creation of waste, and a requirement to use sustainable, re-usable or recyclable materials where possible. This policy is applicable to all Persimmon Homes suppliers. As part of the procurement process, Persimmon Homes reviews the environmental credential of suppliers, and requires compliance with its Supplier Principles, which includes requirements on environmental compliance, use of materials, use of toxic and hazardous materials, health and safety, working hours, age and benefits, discrimination and ethical behaviour.



## 7 WASTE MANAGEMENT

In 2012 the Government repealed the Site Waste Management Plan Regulations, therefore there exists no legal obligation to operate such a plan at the application site. However, as an environmentally responsible developer Persimmon Homes intends to operate such a Plan at Wykham Park Road.

As an engaged partner in the WRAP initiative Persimmon Homes conducts regular reviews of the Group's performance. At the present time the Group is engaged in a drive to reduce the volumes of waste generated on site and increase the percentage of waste diverted from landfill through reuse and recycling. In 2021 the Persimmon Homes Group achieved a recycling rate of 97% and continues to implement measures to reduce total waste volumes per home constructed.

This level of performance is enforced through the adoption of a robust Site Waste Management Plan but also through effective and coordinated design and procurement. The following briefly summarises the policies contained within the Groups waste management policies.

- Design to minimise wastage during the construction phase.
- Landform design and mass balance exercises are undertaken to retain as much material on site and reduce disposable volumes. There should be careful sub and topsoil storage and accommodation within the predetermined landform.
- 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.
- Work with suppliers to specify the correct size of materials, thereby reducing cuttings and waste material.
- Each regional office has a waste champion and on site there is a clear delegation of roles.



- All waste contractors are required to segregate demolition waste off site and provide records of such.
- The regular monitoring and reporting of waste volumes with cross reference to previous performance and annual targets.
- Landfill will be the last option when no economic solution can be found.



## 8 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. Persimmon Homes 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 5 – Flow Rates & Capacities**

<b>Fitting</b>	
<b>Toilets</b>	6 & 4 litre dual flush
<b>WHB Taps</b>	5 litres/min
<b>Kitchen Taps</b>	12 litres/min
<b>Bath</b>	181 litres
<b>Shower</b>	6 litres/min



**Table 6 - Water Efficiency Calculation**

Installation Type	Unit of Measurement	Capacity/Flow Rate (1)	Use Factor (2)	Fixed Use (litres/person/day) (3)	Litres per Person day. =[(1) x (2)] +(3) (4)
WC (Dual Flush)	Full Flush (litres)	6.00	1.46	0.00	8.76
	Part Flush (litres)	4.00	2.96	0.00	11.84
Taps (excluding kitchen tap)	Flow rate (litres/min)	5.00	1.58	1.58	9.48
Bath (where shower present)	Capacity to overflow (litres)	181	0.11	0.00	19.91
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)	12.00	0.44	10.36	15.64
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
<b>TOTAL</b>	<b>(5)</b>				<b>113.51</b>

<b>(5)</b>	<b>Total Internal Water Consumption</b>	113.51
<b>(6)</b>	<b>Normalisation Factor</b>	0.91
<b>(7)</b>	<b>Internal Water Consumption [(5) x (6)]</b>	103.29
<b>(8)</b>	<b>External Water Use</b>	5.00
<b>(9)</b>	<b>Part G Water Consumption [(8) + (7)]</b>	108.29

The calculations above confirm a water consumption of 108.29 litres per person per day, with an internal consumption of 103.29 litres per person per day.



## 9 EVALUATION

This Sustainability Statement accompanies the planning application for the proposed development at Wykham Park Road, Banbury. The Statement has detailed the measures that will guide the construction of the development and considers a number of categories including; materials, pollution, water consumption and energy efficiency. These measures can be summarised as follows;

- Persimmon Homes will operate a robust Sustainable Procurement Policy which emphasises the legal and sustainable sourcing of building materials;
- A comprehensive, efficient and robust SWMP will be implemented. This plan will adhere to the waste hierarchy of reduce, re-use and diversion from landfill;
- Measures will be incorporated into the design of each property to achieve a water consumption lower than 110 litres per person per day;
- Electrical vehicle charging points will be provided to every home;
- Each home will achieve robust levels of energy efficiency through the careful selection of insulation and intelligent building design and will comply with the amended Fabric Energy Efficiency Standard;
- The services specification of every house will include efficient natural gas boilers and waste water heat recovery technology;
- Photovoltaic arrays will be installed on the roof slopes of each house, providing each with a zero carbon and free source of electricity;
- The site's emission rate is forecasted to be 4.56% below Part L 2021, with renewable technologies contributing to a direct 9.96% reduction in CO<sub>2</sub> emissions; and
- Homes commenced following the introduction of the Future Homes Standard will be heated using air source heat pumps.

In conclusion, the measures above take account of current best practice guidance and are in line with the letter and spirit of the NPPF. As such a sustainable development is proposed and we recommend the approval of these measures by Cherwell District Council