

Appendix F

Eco Impact Checklist

Minimising energy requirements; 2. Incorporating renewable energy sources; 3. Incorporating low-carbon energy sources.

Disposal of Land (We Can Make pilot)				
Report author: Bryony Stevens Enabling Manager				
Anticipated date of key decision 14.12.2021				
Purpose of Report: To seek Cabinet approval for the disposal of BCC under-utilised garden micro-sites for the further roll out of 14 We Can Make homes; according to the approved decision-making framework for the selection and transfer of the micro sites; and to be subject to the approved process and timescale for review of the pilot prior to any further roll out of the We Can Make project on BCC owned sites.				
Will the proposal impact on...	Yes/ No	+ive or -ive	If Yes...	
			Briefly describe impact	Briefly describe Mitigation measures
Emission of Climate Changing Gases?	yes	-ive	There will be emissions from construction materials, works and in use.	<p>Efficiency: The dwellings have been designed to exceed Building Regulations requirements (Part L1A 2013) and to maximise energy and CO2 reduction through demand reduction measures including a combination of passive design measures (e.g. building design and efficient building fabric) and building services such as – Decentralised Mechanical Extract Ventilation (dMEV), low energy LED fittings throughout. Overall 50% better than conventional brick/masonry homes in embodied carbon of homes.</p> <p>Renewables and heating: There will be a 20.53% saving on typical energy use per home through the use of solar</p>

				<p>electricity generation and heating using air source heat pumps. This equates to 1.9 tonnes per annum. Solar generation will be reduced if panels are shaded at certain times of day.</p> <p>Embodied emissions: There will be a 50% reduction in embodied emissions for MMC modules than for typical construction materials.</p> <p>Travel: Bike sheds and EV charging provision will make zero carbon transport easier.</p>
Bristol's resilience to the effects of climate change?	yes	-ive	<p>Homes may be subject to flood risk or overheating during extended periods of hot weather.</p> <p>Increasing housing will add to the pressure on the city's utilities, transport and green infrastructure.</p>	<p>The approach to development is soft-densification of existing neighbourhoods. Infill development enables adaptation of existing housing stock to add resilience, increase density, and efficient use of existing urban infrastructure (roads, services etc). and thereby provides an alternative to more carbon intensive new build on new greenfield sites.</p> <p>Flood risk will be considered during planning applications.</p> <p>Overheating will be addressed in the design. Dual aspect opening windows and roof lights will allow good cross-ventilation and mechanical extract ventilation will also be</p>

				<p>included. The modular micro-homes units are designed to make it easy to clip on shade canopies where needed.</p> <p>Prefabricated MMC usually provides better airtightness than traditional construction methods.</p>
Consumption of non-renewable resources?	No	+ive	Heating will be from renewables	A feasibility study evaluating the suitability of various low/zero carbon and renewable technologies was undertaken and recommended installation of air source heat pumps and Solar PV Panels.
Production, recycling or disposal of waste	yes	+ive	Will create waste	Recycling facilities will be provided and waste reduction encouraged for residents. MMC approach and local production of panellised components reduces construction waste.
The appearance of the city?	Yes	+ive	Will impact on appearance of established low rise residential developments in Knowle West by creating additional dwellings on under used garden sites.	<p>Developed Design Code for micro-sites to ensure development is high-quality and adds to character of the neighbourhood.</p> <p>Development of micro-site includes improvement of front gardens of host homes, including bin & bike stores, bio-diverse planting and training for residents in how to manage their gardens.</p> <p>Where parking spaces are needed in front gardens, they will be</p>

				green planted spaces.
Pollution to land, water, or air?	No	-tive	Will not increase pollution	<p>Local manufacture of panelised construction components will reduce pollution caused by transport of construction materials. On site use of MMC will reduce on site waste and pollution during construction process.</p> <p>Engagement with neighbours, adequate sound insulation of new homes, shorter construction times and compliance with Considerate Constructor guidance will minimise the risk of noise or dust nuisance.</p>
Wildlife and habitats?	yes	+ive	Development of new homes in existing gardens could adversely impact wildlife and habitats.	<p>Development of the micro-sites includes landscape and planting of micro-site and host home which will actually enhance wildlife habitats and support biodiversity. This includes bio-diverse planting, bin and bike stores with green roofs, and wildlife supporting kit including bug hotels, hedgehog homes, and sensors to remind people to water thirsty plants.</p> <p>The aim is both to create new homes that make space for nature, improve existing gardens, and build people's connection and confidence to engage with nature through training, and community events.</p> <p>Green roofs on the</p>

				micro-homes and other options for achieving biodiversity net gain will be considered after the first two pilot homes.
Consulted with: We Can Make CIC				
Summary of impacts and Mitigation - <u>to go into the main Cabinet/ Council Report</u>				
<p>The significant impacts of this proposal are the creation and use of additional dwellings that will create CO2 emissions and waste.</p> <p>The proposals include the following measures to mitigate the impact with 20% reduction in CO2 emissions through use of renewables, ASHP heating systems, LED lighting and fabric first design. MMC with components produced locally to reduce waste and transport pollution in construction and 50% reduction in carbon emissions compared to traditional masonry construction. Homes and gardens designed to enhance biodiversity and reduce run off through addition of green roofs. Recycling encouraged by provision of new waste/recycling stores. The effectiveness of mitigation will depend in part on planting decisions and any shading of solar panels.</p> <p>The net effects of the proposals are likely to be an increase in short and long term emissions, and a loss of green space, but these will be mitigated as far as reasonably possible. Changes in the appearance of homes and gardens are likely to be beneficial and there may be small improvements in climate resilience.</p>				
Checklist completed by:				
Name:		Bryony Stevens		
Dept.:		Housing Delivery		
Extension:		Mobile		
Date:		06/09/2021		
Verified by Environmental Performance Team		Giles Liddell, Project Manager - Environmental		

Extracts from Energy Report on Novers

The building has been designed to exceed Building Regulations requirements (Part L1A 2013) and seeks to maximise the energy and CO2 reduction through demand reduction measures.

These typically include a combination of passive design measures (e.g. building design and efficient building fabric) and active design measures (e.g. Building services).

From the outset a high standard of sustainable design and construction has been incorporated into the design of the proposal. To reduce CO2 emissions high level of high-performance insulation has been specified. Through increased thickness and an improved thermal conductivity of the insulation the UValues for the thermal elements will exceed the Building Regulations Part L1A standards.

These high levels of insulation will help to contain heat within the dwelling therefore reducing demand on the heating and associated CO2 emissions.

The buildings use a range of MMC systems and environmental performance is a critical part of the PPQ selection process, matching the right MMC system to the right site.

For the first two homes, WCM used the blokbuild construction system. This is a digitally enabled, offsite timber construction system that uses CNC technology in controlled factory environments to provide adaptable, efficient and creative solutions for the built environment.

This assists with maximising the fabric efficiency by minimising thermal bridging.

The ventilation strategy consists of system 3 – Decentralised Mechanical Extract Ventilation (dMEV). Continuously running mechanical extract fans will be located in kitchens and bathrooms to remove odours and excessive humidity. A boost facility provides rapid extraction when necessary to remove higher levels of pollutants. Although on for longer hours, these units have a low specific fan power which means that the system requires reduced amounts of energy to run effectively.

The lighting used will be low energy LED fittings throughout defined as having an efficacy greater than 45 Lumens/circuit Watt.

As part of the Bristol heat hierarchy Stage 6, consideration has been given to renewable technologies to supply the heating to the development.

The Be Green emissions improve upon the Be Lean stage by 20.53%. This satisfies Policy BCS14 of the Bristol Core Strategy as more than a 20% reduction in CO2 emissions has been achieved directly through the use of renewable technologies.

When compared with the Building Regulations Target Emission Rate the dwellings have improved upon CO2 emissions by a margin of 20.53%. 9.13 The inclusion of ASHP reduces the energy demand by 50.83% when compared with Building Regulations target energy demand.