

**LAND At PARCELS B3 & B5  
HAMPTON PARK LITTLEHAMPTON  
WEST SUSSEX**

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**ENVIRONMENTAL & SUSTAINABILITY STATEMENT  
FOR BOVIS HOMES DEVELOPMENT**

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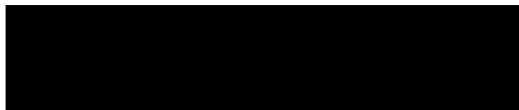
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## **Executive Summary**

- The proposed development is for 117 new residential dwellings containing mix of market (93) and affordable (24) properties.
- 10% of affordable dwellings will be built to Lifetime Homes standards.
- In line with Arun District Council's adopted planning documents, all dwellings will be designed to meet the Code For Sustainable Homes level 3. In achieving this there will also be a reduction in CO2 emissions by 10% compared to 2010 Part L1A.
- Carbon dioxide emissions will be significantly reduced from all dwellings through the use of energy efficient design "fabric first".
- Cycle storage facilities will be provided to encourage the use of sustainable transport.
- Potable water consumption will be reduced to below 105 litres per person per day by incorporating low water use fittings described in more detail in the Code for sustainable homes pre- assessment reports.
- The building site is deemed to be of Low Flood Risk There is a low annual probability of flooding. It is anticipated that there will be connections to existing infra-structure.
- All materials used in the construction of the dwelling will come from approved sources with lower environmental impacts over their lifecycle in line with the Building Research Establishment's Green Guide.

## **1. Introduction**

This Sustainability statement has been prepared to accompany all relevant documentation.

The proposed development will include a mix of affordable and private dwellings built to energy standards that surpass those in the 2010 Part L building regulations

All dwellings will be built to level 3 of the code for sustainable homes.

## **2. Energy Conservation**

Our climate is changing rapidly, global temperatures have risen by 2 degrees centigrade in the last century. This has caused increases in extreme weather events such as heatwaves, widespread drought, famine, wildfire, storms and flash flooding. Global scientists predict that global temperatures will rise by more than 5 degrees centigrade by the end of this century. This is believed to be directly linked to man made emissions of carbon dioxide. Households produce 25% of the UK's carbon emissions, equivalent to 41.7 m tonnes per annum. The government is committed to reducing carbon emissions by 80% by 2050. Improving new and existing housing stock will play a key role in achieving this target.

Bovis Homes intend to achieve an energy performance level which meets the Code for Sustainable Homes level 3 for all dwellings. Bovis Homes operate to a "fabric first" approach to energy performance.

By applying the method of approach mentioned above the following criteria can be met or surpassed.

1. Level 3 of CSH
2. Part L1A Building regulations 2010

The Bovis fabric design ensures superior levels of energy and carbon dioxide savings above the 2010 Part L Building regulations. The table below demonstrates how this is achieved with the basic fabric envelope.

| Attribute | 2010 Building Regulations | Bovis CSH            | Percentage Improvement |
|-----------|---------------------------|----------------------|------------------------|
| Floor     | 0.25W/m2K (U value)       | 0.15 W/m2K (U value) | 40%                    |
| Wall      | 0.30W/m2K (U value)       | 0.18 W/m2K (U value) | 40%                    |
| Roof      | 0.2 W/m2K (U value)       | 0.13 W/m2K (U value) | 35%                    |
| Windows   | 2.0 W/m2K (U value)       | 1.4 W/m2K (U value)  | 30%                    |
| Doors     | 2.0W/m2K (U value)        | 1.0 W/m2K (U value)  | 50%                    |

The floors are made from a block and beam construction with superior insulation to achieve a low U value. (The lower the value the better the construction)

The walls are constructed 350 mm thick with a filled 150 mm cavity. The cavity is filled with a flocked glass material. The width of wall enables a superior insulation value to be achieved. The normal width of wall is 300 mm with a 100mm cavity.

The roofs are insulated with a fibre glass material 300 mm thick to reduce heat loss.

Windows are double glazed filled with a low conductive gas (argon) with a low emissivity coating to prevent heat loss and solar gain.

SAP 2009 calculations will be undertaken by an accredited assessor on each dwelling type to ensure that the criteria are met.

Table 1 lists the attributes that will go into the dwellings to achieve the criteria.

Table 1.

| Attribute                 | 4 bed house                                    | 3 bed house                                    | 2 bed house                                    | 2 bed flats                                    |
|---------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| Floor                     | Hanson Jetfloor type 3                         | Hanson Jetfloor type 3                         | Hanson Jetfloor type 3                         | Hanson Jetfloor type 3                         |
| Walls                     | 350 mm wide with fully filled 150mm cavity     | 350 mm wide with fully filled 150mm cavity     | 350 mm wide with fully filled 150mm cavity     | 350 mm wide with fully filled 150mm cavity     |
| Roof                      | 300mm Knauf loft insulation                    | 300mm Knauf loft insulation                    | 300mm Knauf loft insulation                    | 300mm Knauf loft insulation                    |
| Boiler                    | Promax 15 SL gas boiler                        | Promax 15 SL gas boiler                        | Promax combination boiler                      | Promax combination boiler                      |
| Hot water                 | Megaflow cylinder                              | Megaflow cylinder                              |                                                |                                                |
| Controls                  | Time and temperature, delayed start thermostat | Time and temperature, delayed start thermostat | Time and temperature, delayed start thermostat | Time and temperature, delayed start thermostat |
| Air permeability          | 5.5m3/hm2                                      | 5.5m3/hm2                                      | 5.5m3/hm2                                      | 5.5m3/hm2                                      |
| Thermal bridges           | Bovis enhanced y value 0.04                    | Bovis enhanced y value 0.04                    | Bovis enhanced y value 0.04                    | Bovis enhanced y value 0.04                    |
| Low energy lighting       | 100 %                                          | 100 %                                          | 100 %                                          | 100 %                                          |
| Windows                   | PVCu 1.4 w/m2K                                 | PVCu 1.4 w/m2K                                 | PVCu 1.4 w/m2K                                 | PVCu 1.4 w/m2K                                 |
| Waste water heat recovery | Yes                                            | yes                                            | yes                                            | No                                             |

Other energy saving initiatives incorporated into the design of the development are as follows:-

Energy efficient boilers with the latest control technology.

Air tightness to prevent draughts but allow natural ventilation.

Low energy lighting where 100% will be energy efficient.

Provision for drying space for each dwelling type. For houses a suitable drying line externally will be provided, 4m + of drying line for 1 to 2 bed dwellings and 6m+ of line for 3+ dwellings. For flats where external space is restricted, internal drying lines are provided in either bathrooms or utility rooms.

Information will be provided relating to the provision of energy efficient white goods, or where energy efficient white goods are supplied in accordance with criteria outlined in the CSH technical manual. Information on the EU Energy Efficiency labelling scheme of efficient white goods will be provided to each dwelling.

Low energy exterior electrical lighting. Compliant lighting will be supplied with movement detecting control devices (PIR) and daylight cut off sensors.

Adequately sized, safe, secure, convenient and weather-proof cycle storage will be provided for each dwelling. It is planned to provide the following. Studios or 1 bedroom dwellings- storage for 1 cycle per dwelling, 2 and 3 bedroom dwellings- storage for 2 cycles per dwelling, 4 bedrooms and above- storage for 4 cycles per dwelling.

Provision of space and services that enable a room to be used effectively as a home office.

Large windows with good daylight factors to improve the quality of life in homes through good daylighting and to reduce the need for energy to light the home.

10% of affordable dwellings will be built to Lifetime Homes standards with the aim to promote the construction of homes that are accessible and easily adaptable to meet the changing needs of current and future occupants.

### **3. Water Conservation and Flood Risk**

A flood risk assessment has been produced which covers the entire site. In accordance with "The Interim Code of Practice for Sustainable Drainage Systems" (ICP SuDS) the building site is considered to be in Flood Zone 1 and has a low probability of flooding. A surface water strategy report will be produced. This outlines the surface water drainage strategies for the site with accompanying calculations needed as evidence to comply with the mandatory part of the CSH as well as legislative requirements.

To reduce the consumption of potable water in the dwellings the fittings installed by Bovis Homes are designed to restrict the indoor water use to below 105 litres per person per day. This is calculated by a Water Efficiency Calculator designed by the Communities and Local Government. The table below indicates the suggested water demand for each type of dwelling.

### **SUGGESTED WATER DEMANDS**

| <b>Installation type</b>    | <b>Average capacity/Flow rate<br/>Affordable Housing</b> | <b>Average capacity/Flow rate<br/>Private Housing</b> |
|-----------------------------|----------------------------------------------------------|-------------------------------------------------------|
| Dual flush WC               | 4/6 litres                                               | 2.6/4                                                 |
| Kitchen / Utility room taps | 6 litres/min                                             | 6 litres/min                                          |
| Basin taps                  | 6 litres/min                                             | 5 litres/min                                          |
| Baths                       | 156 litres                                               | 199 litres                                            |
| Showers                     | 7 litres/min                                             | 8 litres/min                                          |
| Dishwashers                 | Not supplied default 1.25                                | Indesit IWE126 1.00                                   |
| Washing machines            | Not supplied default 8.17                                | Hotpoint BHWM 8.3                                     |
| Water softener              | Not supplied                                             | Not supplied                                          |
| Waste disposal unit         | Not supplied                                             | Not supplied                                          |
| Water consumption           | 103.8 litres per person per day                          | 103.7 litres per person per day                       |

To reduce the consumption of potable water further, a system for collecting rainwater for use in irrigation will be provided in the form of suitably sized rain water butts attached to the dwelling rainwater downpipes. These will be specified to comply with the CSH specification. The consumption of water during construction will be monitored and recorded.

## 4. Pollution

Pollution will be considered in several categories.

1. Construction site. Bovis Homes Limited have procedures in place to ensure compliance with the following:
  - a) Best practice policies for reducing/ eliminating air (dust) pollution arising from site activities.
  - b) Best practice policies for reducing/ eliminating ground and surface and waterway pollution occurring on site.
  - c) Bovis Homes Limited register the site with the Considerate Constructors Scheme which independently audit the site and assess under 8 categories one of which deals with noise pollution. Working hours are between 0800 to 1800. Unavoidable noisy /disruptive works are informed to neighbours in advance.

In the construction of the dwellings care is taken to ensure that the emissions that arise from the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials are kept to a minimum. Bovis Homes have an approved list of suppliers and all insulating materials are certificated as having a Global Warming Potential (GWP) less than 5 for manufacture and installation.

Gas boilers are selected on the basis that the dry nitrogen oxides emissions are below 40 mg/Kwh, currently the best in the market.

2. Noise pollution in completed dwellings will be dealt with in the following manner.
  - a) Considered in the design and layout of the site to shield noise.
  - b) The incorporation of double glazing to reduce sound transmittance.
  - c) The design and installation of sound insulated party walls and floors which are an improvement above Part E building regulations for impact and air transmitted sound. The design of Bovis houses ensure that the sound levels transmitted through party walls is half that of a standard Part E compliant dwelling.

3. Light Pollution in completed dwellings will be minimised by selection, design and the correct siting of exterior lighting to ensure that light spillage is kept to a minimum with low impact to the residential community, wildlife and the landscape. Security and space

lighting will meet the secure by design standards. With PIR and daylight sensors. A local CPDA will be consulted in this area.

## **5. Materials and Waste**

These two categories are inextricably linked. The construction industry in England and Wales consumes in the order of 400 million tonnes of materials each year many of which come from primary sources.

The waste hierarchy lists waste in the following way. At the top is the most favoured option going down to the least favoured option.

Prevention

Minimisation

Re-use

Recycling

Energy recovery

Disposal

Bovis Homes is experienced in producing and implementing site waste management plans. The aim is to promote the reduction and effective management of construction related waste through the use of a SWMP. The plans are created in line with guidance from bodies such as WRAP, Envirowise, Building Research Establishment and DEFRA.

The SWMP will include procedures and commitments for reducing waste generated on site in accordance with best practice and the defined waste groups. Also the SWMP will include procedures and commitments to sort and divert waste from landfill (re-use, recycle, compost or otherwise recover) according to the defined waste groups. This will be performed on site or through a licensed external contractor in accordance with best practice.

The environmental impact of materials will be assessed using CSH methodology.

There is a mandatory requirement to achieve a Green Guide rating of between A+ and D for at least three of the following elements of the building envelope.

**Roof**

**External walls**

**Internal walls including separating walls**

**Upper and ground floors including separating floors**

**Windows**

#### **ANTICIPATED GREEN GUIDE RATINGS**

| <b>Issue</b>         | <b>Flats</b> | <b>Houses</b> |
|----------------------|--------------|---------------|
| Roof                 | A+           | A+            |
| External walls       | A+           | A+            |
| Internal walls stud  | A            | A             |
| Internal walls block | B            | B             |
| Upper floor          | C            | A             |
| Ground floor         | A+           | A+            |
| Windows              | A            | A             |

These ratings are entered into the Mat1 calculator tool to assess the number of credits awarded for the five key elements described above. The ratings shown are typical of the Bovis Homes Limited fabric and build specification.

#### **RESPONSIBLE SOURCING OF MATERIALS-basic building elements**

**Aim:** To recognise and encourage the specification of responsibly sourced materials for the basic building elements. Points are awarded where materials used in key building elements are responsibly sourced according to the following criteria. Where 80% Of the assessed materials in the following Building Elements are responsibly sourced:-

- a) Frame
- b) Ground Floor
- c) Upper floors including separating floors
- d) Roof
- e) External walls
- f) Internal walls including separating walls
- g) Foundation/substructure excluding sub-base materials.
- h) Staircase

Additionally, 100% of any timber in these elements must be legally sourced.

| Issue          | Flats        | Houses       |
|----------------|--------------|--------------|
| Frame          | Not assessed | Not assessed |
| Ground floor   | Assessed     | Assessed     |
| Upper floors   | Assessed     | Assessed     |
| Roof           | Assessed     | Assessed     |
| External walls | Assessed     | Assessed     |
| Internal walls | Assessed     | Assessed     |
| Foundations    | Assessed     | Assessed     |
| Staircase      | Assessed     | Assessed     |
| TOTAL CREDITS  | 2            | 3            |

Bovis Homes Limited has a controlled list of suppliers who have submitted relevant certification. This ensures that the assessment criteria is met as per table Cat3.1 in the 2010 version of the CSH

### MAT 3 RESPONSIBLE SOURCING OF MATERIALS-finishing elements

**Aim:** To recognise and encourage the specification of responsibly sourced materials for the finishing elements. Credits are awarded on the basis of the requirements in the table below.

Where 80% of the assessed materials in the following Finishing Elements are responsibly sourced.

- a) Stair
- b) Window
- c) External and internal doors
- d) Skirting
- e) Panelling
- f) Furniture
- g) Fascias
- h) Any other significant use.

Bovis Homes Limited has a controlled list of suppliers who have submitted relevant information. This ensures that the assessment criteria is met when details are entered into the Mat 3 calculator tool.

The certified documentation that is held can be FSC, PEFC, Chain of Custody COC, or other certified environmental management schemes such as ISO 14001.

When the dwellings have been constructed the facilities for the adequate internal and external storage space for non recyclable waste and recyclable waste will be provided.

Arun District Council offer a household recycling service collected weekly in a chargeable blue bin. Non-recyclable waste is collected weekly in a bin or black sacks. A subscription green wheelie bin with a brown lid can be supplied for garden waste.

Internal recycling bins with a capacity of 30 litres will be provided to each dwelling.

For houses external hard standing storage areas will be provided with a minimum turning circle of 1500mm. ( disabled accessibility) These will have a minimum space for 170 litre bin

for each 2 bedroom house, 240 litres for each 3 bedroom house, 310 litres for each 4 bedroom house, 380 litres for each 5 bedroom house.

The facilities will be in a dedicated position, be accessible to disabled people and an information leaflet explaining composting delivered to each dwelling.

## **6. Transport**

Petrol and Diesel being finite resources and vehicles that are powered by these create emissions of carbon dioxide, carbon monoxide, oxides of nitrogen and other chemicals that have an impact on global warming and local air quality.

To promote the use of bicycles the houses will all contain a secure weatherproof cycle store sited in such a position for ease of access and egress.

Each dwelling will have one room with the ability to provide space and services to be used effectively as a home office. The aim is to reduce the need to commute to work by providing residents with the necessary space and services to be able to work from home.

## **7. Land Use and Biodiversity**

Under section 40: Natural Environment and Rural Communities Act 2006 national policy requires planning policy to minimise the impacts of development on biodiversity and geodiversity.

In line with planning policy and code for sustainable homes level 3 requirements an ecological survey has been undertaken by a suitably qualified ecological consultant.

Detailed mitigation and enhancement strategies are being prepared.

The Bovis development team will liaise with the appointed ecologist to protect any existing ecological features from substantial damage during the clearing of the site and completion of the construction works.

The Bovis development team will liaise with the appointed ecologist to engage in a commitment to enhance the ecological value of the development by adopting all key

recommendations and 30% of the additional recommendations. In addition the team will take steps to minimise reductions and to encourage an improvement in the site ecological value.

## **8. Health and Social Benefits**

The proposed dwellings are a mixture of private and affordable properties as published at the beginning of this report.

The following measures will be incorporated into the design with the aim to improving the quality of life in homes.

1. Daylighting. A comprehensive study of the amount of daylight that each room in every dwelling will receive will be undertaken. An average daylight factor of at least 1.5% will be achieved in the living and dining rooms and the room designated as a home office. 80% of the working plane in each kitchen, living room, dining room, study and home office will receive direct sunlight from the sky.
2. Sound Insulation. As mentioned earlier superior sound insulation will be employed on party walls.
3. To improve the occupiers quality of life each of the houses will be provided with an enclosed private garden which is only accessible to the occupants, and will be large enough for all occupants to sit outside including wheelchair users.

An outdoor space could be:

1. A private garden
2. A communal garden or courtyard.
3. Balconies
4. Roof terraces.
5. Patios

As mentioned earlier a CPDA officer will be consulted to ensure the security and safety of the development where people feel safe and secure and where crime and disorder, or the fear of crime, does not undermine the quality of life or community cohesion.

A Home User Guide will be provided to the occupants of each dwelling enabling understanding and how to operate the home efficiently and to make the best of local facilities. The guide will include operational issues;-

1. Environmental strategy and design features.
2. Energy information
3. Water usage guidance.
4. Recycling and waste guidance.
5. Details of sustainable DIY such as low VOC products and certified timber.
6. Information on smoke detectors.
7. Public transport.
8. Local amenities.
9. Responsible purchasing such as low energy/ water usage white goods.
10. Contact details for emergency services local minor injury clinics, surgeries and local police/fire station.

Procedures for alternative formats such as foreign languages or Braille will be in place.

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