Planning Issues Ltd

68-70 Keymer Road, Hassocks

Energy Statement

November 2023

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1.0 Introduction

1.1 Purpose of the Report

Instructions were received from Planning Issues to produce an Energy and Sustainability Statement for the proposed development at 68 & 70 Keymer Road, Hassocks BN6 8QP. This report has been produced to support the planning application to be submitted for the proposed development, which is situated within the boundaries of Mid Sussex District Council.

This statement provides a response to the relevant Mid Sussex District Council documents and policies:

- **Mid Sussex District Plan 2014-2031** – DP39: Sustainable Design and Construction.
- **SDP Mid Sussex Design Guide Adopted November 2020** - Principle DG37: Deliver high quality buildings that minimise their environmental impact.

1.2 Site and Building Description

The development will be located at 68 & 70 Keymer Road, Hassocks BN6 8QP. The application seeks approval for the construction of a retirement living complex consisting of 41 apartment dwellings (a mix of 1- & 2-bed). Associated parking spaces, landscaping and communal areas are also included within the application. The communal areas comprise circulation spaces, coffee bar, a communal lounge and staff facilities. A proposed site layout has been included in Appendix 1.

1.3 Methodology

The proposed specifications, representative house type drawings and site plan were reviewed to gain a good understanding of the development; following this, sample SAP & representative SBEM calculations for all proposed house types have been completed to determine the As Designed performance of the development. The application will be considered under the new Part L1A 2022 regulations. Therefore, the new Elmhurst SAP 10 & SBEM software have been used to conduct the above calculations.

In relation to the Part G water requirements, a proposed sanitaryware specification has been assessed against the 110 litres/person/day limit outlined in the building regulations requirements.

2.0 Planning Policy

2.1 Mid Sussex District Plan 2014-2031 - DP39: Sustainable Design and Construction.

The Mid Sussex District Plan 2014-2031 outlines the requirements for new developments regarding sustainability, with Policy DP39: Sustainable Design and Construction having been identified as relevant.

2.2 DP39: Sustainable Design and Construction

Strategic Objectives: 1) To promote development that makes the best use of resources and increases the sustainability of communities within Mid Sussex, and its ability to adapt to climate change.

Evidence Base: Gatwick Sub Region Water Cycle Study; West Sussex Sustainable Energy Study, Mid Sussex Sustainable Energy Study.

All development proposals must seek to improve the sustainability of development and should where appropriate and feasible according to the type and size of development and location, incorporate the following measures:

- *Minimise energy use through the design and layout of the scheme including through the use of natural lighting and ventilation;*
- *Explore opportunities for efficient energy supply through the use of communal heating networks where viable and feasible;*
- *Use renewable sources of energy;*
- *Maximise efficient use of resources, including minimising waste and maximising recycling/ re-use of materials through both construction and occupation;*
- *Limit water use to 110 litres/person/day in accordance with Policy DP42: Water Infrastructure and the Water Environment;*
- *Demonstrate how the risks associated with future climate change have been planned for as part of the layout of the scheme and design of its buildings to ensure its longer term resilience.*

2.3 SDP Mid Sussex Design Guide Adopted November 2020

The SDP Mid Sussex Design Guide outlines the requirements for new developments regarding sustainability, with Policy DG37: Deliver high quality buildings that minimise their environmental impact identified as relevant.

2.4 DG37: Deliver high quality buildings that minimise their environmental impact

The Council welcomes innovative and inventive designs that respond to the sustainability agenda by minimising the use of resources and energy both through building construction and after completion.

Applicants must demonstrate how this has informed their design and should consider in particular:

- *Orientation and design of buildings and roofs to maximise daylight / sunlight penetration and solar gain, whilst also avoiding overheating.*
- *The use of green roofs or walls to reduce storm water run-off, increase sound-proofing and biodiversity.*
- *The use of materials with low embodied energy (for example, renewably sourced timber and recycled materials).*
- *The use of sustainable materials that are locally sourced wherever possible.*
- *Incorporating high levels of insulation (in combination with air tightness and temperature control systems) including the use of materials with a high thermal mass, such as stone or brick, which store heat and release it slowly.*
- *Incorporating renewable energy including photovoltaics, solar thermal water heating, ground and air source heat pumps.*
- *The use of low flow technology in water fittings, rainwater harvesting systems and grey water recycling systems to reduce water consumption to 110 litres/person/day (maximum); and*
- *Laying out development to support identified opportunities for decentralised renewable or low carbon energy systems.*

3.0 Policy Response

3.1 Energy Efficiency & Sustainable Construction

In efforts to reduce the overall carbon emissions associated with the development and to maximise the energy efficiency, the developer has a robust 'fabric first' approach to the build specification, which allows it to achieve compliance with all metrics under the recently adopted and revised Approved Document Part L 2022.

This will be achieved in this project through building fabric improvements with an uplift on the minimum requirements of Approved Document Part L1A 2022, and also specification of efficient mechanical and electrical services, including a number of 'add-on' measures to improve efficiency and performance.

Fabric Energy Efficiency is a measure of the efficiency of the building fabric, the key areas being building fabric U-values, thermal bridging, air permeability, thermal mass and features which affect lighting and solar gains. A higher fabric energy efficiency means that the building will require less energy to heat and cool thus reducing the energy demand of the property and the CO_2 released.

Table 1 below demonstrates how the specification of the development at 68 & 70 Keymer Road, Hassocks compares to the limiting values and minimum efficiencies allowed within Part L 2022.

Table 1: Comparison with Building Regulations Part L 2022

Building Element	Limiting Part L 2022 Specification	Proposed Specification Part L
External Walls U-Value	0.26	0.17
Roof U-Value	0.16	0.11
Ground Floor U-Value	0.18	0.12
Window U-Value	1.60	0.80
Party Wall U-Value	0.20	0.00
Heating Efficiency	100%	100%
Pressure Test	8.00	5.00
Lighting Lumens	75 lm/w	80 lm/w

The development is proposed to adopt a 'fabric first' approach to the specification and as detailed above, the proposed U-Values are a significant uplift on the minimum requirements under Part L.

The build-up of external walls for the apartments is a fully filled cavity that achieves a u-value of **0.17W/m²K**.

With regards to the thermal envelope as a whole, well insulated cavity walls, roof, floors and openings provide a comfortable environment within the development and reduce the buildings' reliance on the main heating system. The high thermal mass, achieved through the use of dense blocks to the inner face of the external wall, will be key to temperature regulation. The air permeability target is **5.00 m³/(h.m²)**, again providing a large improvement over the Notional Building target.

Triple Glazed windows are currently proposed for the scheme, which is a significant improvement over the requirements of ADL1 and is more in line with the proposed specification for the 2025 Future Homes Standard. This improved U-Value will provide benefit to the overall performance of the scheme, minimising heat loss through this construction element.

Intelligent construction methods are also utilised in the specification of this development. The use of bespoke calculated thermal bridge details and a relatively simple building form ensures that thermal performance is enhanced by minimising heat and energy losses through thermal bridges and air gaps.

3.2 Fabric Energy Efficiency

Table 2 below demonstrates the development's approximate average building fabric energy efficiency based on the representative domestic building types modelled.

Table 2: Fabric Energy Efficiency Breakdown	
Domestic	**Average (kWh /m²/yr)**
Target Fabric Energy Efficiency (TFEE)	22.35
Dwelling Fabric Energy Efficiency (DFEE)	20.07
Percentage Reduction (%)	**10.20%**

As a result of the sample SAP outputs for the development, Table 2 shows the average Target Fabric Energy Efficiency (TFEE) of the development to be **22.35 kWh/m²/yr**. The average Predicted Dwelling Fabric Energy Efficiency (DFEE) is demonstrated to be an improvement against this amount, currently modelled to achieve **20.07 kWh/m²/yr**.

Overall, this is an improvement in fabric energy efficiency, equating approximately to a **10.20%** reduction against the notional amount. This highlights the design specification performance of the development being an uplift to Building Regulations requirements.

3.3 Carbon Emissions and Energy Breakdown

In addition to the robust fabric specification as detailed above, the client is also proposing an efficient M&E strategy.

Space Heating is serviced through direct electric panel heaters which provide efficiencies of up to 100%. The use of an electric heating solution strategy also brings the client in line with what appears to be the Government's preferred direction of travel for domestic heating going forward and given the continuing decarbonisation of the grid, electricity can be seen as an increasingly low carbon solution.

A Mechanical Ventilation System (MEV) will be installed to all apartments. MEV is a whole house ventilation methodology which consists of a system of extract fans and background ventilators in bathrooms and kitchens. These are set to run constantly at low speeds to draw moisture-laden air out of the home. As such, they provide the same benefits as intermittent fans in wet rooms, but do so with a higher degree of efficiency, minimising the need for electricity use for ventilation.

Solar Photovoltaic panels will be provided to the suitable roof areas of the scheme. The installation of PV panels helps to reduce the CO_2 emissions from the development, as electricity generated from solar panels is considered to be an on-site zero carbon renewable energy and doesn't release any harmful carbon dioxide or other pollutants.

An EVCP control unit is used to monitor electricity use within the building and assists with distribution of the solar photovoltaic (PV) output around the building and to elements such as Electric Vehicle (EV) charging points. Each apartment also benefits from its own individual smart meter.

To understand the overall approximate performance of the development, sample SAP and representative SBEM calculations have been undertaken. The initial calculations have been undertaken on a sample of the proposed dwellings at the development. Software outputs of the calculations completed can be made available on request.

Table 3 demonstrates the development's total approximate breakdown of carbon emissions based on the domestic and representative non-domestic building types.

Table 3: Carbon Emission Breakdown - Average Sample	
Domestic	**Predicted Carbon Emissions ($kgCO_2$ /yr)**
Target Emissions (TER)	25,370.16
Dwelling Emissions (DER)	12,044.84
Non-Domestic	**Predicted Carbon Emissions ($kgCO_2$ /yr)**
Target Emissions (Actual)	5,848.63
Building Emissions (Notional)	5,905.88
Total Reduction	**13,268.07**
Percentage Reduction (%)	**42.50%**

As a result of the sample SAP and representative SBEM output for the development, Table 3 shows the Target CO_2 emissions (TER) of the development to be **31,218.79kg/CO_2/yr**. The Predicted Carbon Emissions (DER) are demonstrated to be a substantial improvement against this amount, currently modelled to achieve **17,950.72kg/CO_2/yr.**

Overall, this is a **13,268.07kg/CO_2/yr** reduction in carbon emissions, approximately **42.50%** reduction against the notional amount. This highlights the design specification performance of the development being a significant improvement above Building Regulations requirements.

This improvement over building regulations requirements has been achieved through the incorporation of high-performing fabric, efficient services and solar PV into the design, to minimise and offset predicted CO_2 emissions in use.

Table 4 displays the development's predicted energy consumption breakdown.

Table 4: Predicted Energy Consumption		
	Notional Energy Use (kWh/yr)	Predicted Energy Use (kWh/yr)
Residential Areas	150,336.64	74,683.13
Non-Residential Areas	21,238.78	57,627.64
Sub-Total	**171,575.42**	**132,310.77**
Less PV Energy Use	-50,291.95	**-45,082.77**
Total Energy Use	**121,283.47**	**87,228.00**

Table 4 shows the notional and predicted energy use for the development less the PV energy use as a result of the sample SAP and representative SBEM outputs for the development. The development's total notional energy use is shown as **121,283.47 kWh/yr**. The total estimated energy consumption for the development is **87,228.00 kWh/yr**.

Overall, this amounts to a total reduction of **34,055.47 kWh/yr** in energy consumption across the development, or approximately **28.08%** less than the notional amount. This provides additional evidence that the development's design has contributed to significant reductions in energy consumption.

3.4 Building Orientation & Solar Gains

The vast majority of apartments benefit from orientations which will allow them to receive solar gain from the sun later in the day, encouraging a passive form of heating.

The development will not be significantly shaded by surrounding buildings and there is sufficient space around the building so that overshadowing will not be an issue and there will be significant potential for solar gain.

The use of high thermal mass and good insulation levels in this proposed scheme provides an effective medium for managing solar gains, both having the ability to both hold heat and cool. These materials have high levels of thermal mass meaning they can absorb excess heat throughout the day, keeping the surrounding area cooler, and then slowly release and re-radiate the stored heat as the temperature drops. This reduces rooms from becoming uncomfortably hot in summer and stores warmth in winter.

The proposed development will have associated green amenity space for residents and is maintaining landscaping already on site to serve as green infrastructure, as well as providing new planting areas. This green infrastructure has the potential to reduce the risk of heat island effect, acting as a heat soak for the scheme.

Given the timescales of the proposed scheme, it will be assessed against the new Part O Overheating Building Regulations. The apartments will be assessed using the Dynamic Thermal Modelling method, which follows the CIBSE TM59 methodology.

It is currently expected that compliance will be achieved through a combination of passive measures and mechanical ventilation, and the client is currently in the process of developing a rigorous strategy to ensure Part O Compliance. Where further measures are required to ensure Part O Compliance, these will be installed in full by the client.

3.5 Renewable Energy

3.5.1 Photovoltaics

Photovoltaic panels (PV) convert solar radiation into direct current electricity. In principle, they are an ideal source of renewable energy as they harness the most abundant source of energy on the Earth, the sun, and they produce electricity, which is the most useful form of energy.

PV's are silent in operation, have no moving parts and have a long life with low maintenance levels. PV systems can be connected to the grid or battery arrays in remote locations. Grid connected systems consist of PV arrays connected to the grid through a charge controller and an inverter. PV cells are more efficient at lower temperatures so good ventilation should be allowed around the PV modules where possible.

As part of the design proposals, the development at 68 & 70 Keymer Road, Hassocks will include a Solar PV array to contribute to total energy demand and reduce CO_2 emissions in operation.

Table 5 shows the modelled PV energy reduction for the development.

Table 5: Energy Reduction from PV

System	Proposed Energy Reduction (kWh/yr)	Kilowatt-peak Equivalent (kWp)
Photovoltaic Systems	45,082.77	50.09

Based on an average generation of **900kWh per 1kWp** of PV, the results of the sample SAP outputs & representative SBEM modelling demonstrate this will generate energy equivalent to an amount of approximately **45,082.77 kWh/yr**.

The overall array will be apportioned correctly to support the performance of the apartments and communal spaces within the apartment block.

Whilst an average figure of 900kWh per 1kWp of PV has been used, actual generation may vary depending on a number of factors, including orientation, angle and any shading to the PV panels installed.

3.6 Water Use Efficiency

In order for the development to not exceed the building regulations target of 110 Litres/person/day, the development at 68 & 70 Keymer Road, Hassocks, will incorporate efficient, water saving sanitaryware to meet this goal. Where this is not possible, flow restrictors will be installed to limit water use of sanitaryware items.

Representative specifications are shown below in Tables 6 and 7. Based on these specifications, the 1 bed apartments at the site will achieve a predicted water consumption of **98.20** litres/person/day and the 2 bed apartments will achieve a predicted water consumption of **104.70** litres/person/day.

Table 6: Proposed Sanitaryware Specification Flow Rates (1 Bed Flats)	
Component	**Water Usage**
WC's	4.5 Litres (Full Flush Volume), 3 Litres (Part Flush Volume)
Showers	8 Litres/Minute
Wash-hand basin taps	4 Litres/Minute
Kitchen taps	5 Litres/Minute
Bath	N/A
Washing Machine	8.17 Litres/kg (Default Figures)
Dishwasher	1.25 Litres/Place Setting (Default Figures)

Table 7: Proposed Sanitaryware Specification Flow Rates (2 Bed Flats)	
Component	**Water Usage**
WC's	4.5 Litres (Full Flush Volume), 3 Litres (Part Flush Volume)
Showers	8 Litres/Minute
Wash-hand basin taps	4 Litres/Minute
Kitchen taps	5 Litres/Minute
Bath	155 Litres Capacity
Washing Machine	8.17 Litres/kg (Default Figures)
Dishwasher	1.25 Litres/Place Setting (Default Figures)

Both specifications provide expected flow rates in line with the policy requirement of maximising opportunities for the use of water efficiency measures

Whilst the final flow rates of individual sanitaryware items may change as detailed design progresses, performance sufficient to comply with the policy will be maintained. A full breakdown of calculations is available in Appendix 2.

3.7 Waste & Materials

3.7.1 Material Selection

The new development at 68 & 70 Keymer Road, Hassocks will strive to incorporate sustainable design into the building. Material selection will endeavour to show preference to suppliers who operate responsible sourcing practices and have current environmental management certificates. Examples including FSC/PEFC certified timber products will be utilised, this ensures all products have been obtained from sustainable and legal sources.

Where feasible contractors and site personnel required will be selected who are local to the site to aid the construction efforts. This again will reduce the associated CO_2 emissions of travel, in addition to supporting the local economy.

In efforts to reduce waste throughout the construction process, as part of the design development, the design team have implemented a number of efficiency measures to eliminate potential waste. The development design is to standard material dimensions to avoid waste generation. This reduces waste not only at the manufacturing stage, but also during construction as it reduces the need to re-size materials on site. In addition, the use of standardised materials increases the ease of deconstruction and improves the likelihood that the materials will be reused, in the eventuality that the site is redeveloped in the future.

3.7.2 Waste and Recycling

In efforts to reduce waste throughout the construction process, as part of the design development, the design team have implemented a number of measures to eliminate potential waste.

The contractor will be required to have an effective site waste management system adopting waste hierarchy principles of reduce, reuse, or recycle. All waste will be handled by a licensed waste contractor who will segregate, and process waste produced. Such waste will be separated into key waste groups and recycled at a waste processing plant to be refined into new products or reused in other projects where they cannot be reformed. A target will be set for the contractor in terms of reduction of waste that is taken to landfill that will be a significant improvement on standard market practices, and they will be expected to demonstrate compliance with this. Site hoarding or materials where safe and appropriate will be transported from other sites for reuse.

The design of the dwellings looks to incorporate recycling facilities for residents further encouraging the principles of recycling. Mid Sussex District Council operate an alternative collection for refuse waste & recycling waste, allowing for residents to segregate waste types in a more sustainable manner. To enable efficient segregation of operational waste for their residents, sufficient spacings and access will be provided to dwellings to enable waste bins to be collected in line with Mid Sussex District Council waste collection regime. The potential for on-site composting facilities for use on the communal garden areas will also be explored, subject to other requirements and considerations.

4.0 Conclusion

This statement has reviewed the proposed development at 68 & 70 Keymer Road, Hassocks, a retirement living complex consisting of 41 apartment dwellings (a mix of 1- & 2-bed), and has provided a response to the relevant Mid Sussex District Council documents and policies:

- **Mid Sussex District Plan 2014-2031** – DP39: Sustainable Design and Construction.

- **SDP Mid Sussex Design Guide Adopted November 2020** - Principle DG37: Deliver high quality buildings that minimise their environmental impact.

The development's approximate average building fabric energy efficiency, based on the representative domestic building types modelled, shows the development's average Target Fabric Energy Efficiency (TFEE) to be **76.38 kWh/m2/yr**. The average Predicted Dwelling Fabric Energy Efficiency (DFEE) is shown to be an improvement over this amount, which is currently estimated to be **68.58 kWh/m2/yr**. Equating approximately to a **10.21%** reduction against the notional amount.

As a result of the sample SAP and representative SBEM output for the development, Table 3 shows the Target CO_2 emissions (TER) of the development to be **31,218.79kg/CO_2/yr**. The Predicted Carbon Emissions (DER) are demonstrated to be a substantial improvement against this amount, currently modelled to achieve **17,950.72kg/CO_2/yr.**

Overall, this is a **13,268.07kg/CO_2/yr** reduction in carbon emissions, approximately **42.50%** reduction against the notional amount. This highlights the design specification performance of the development being an improvement above Building Regulations requirements.

The total notional energy use for the development, less the PV energy use, as a result of the sample SAP and representative SBEM outputs for the development, is **121,283.47 kWh/yr**, compared to the total estimated energy consumption for the development of **87,228.00 kWh/yr.**

Overall, this amounts to a total reduction of **34,055.47 kWh/yr** in energy consumption across the development, or approximately **28.08%** less than the notional amount.

The statement has highlighted that the scheme currently proposes to utilise a robust, well insulated thermal envelope to minimise heat loss, as well as efficient heating and lighting systems, which will drive energy efficiency in the building. Solar PV panels will be provided to the suitable roof areas of the scheme. It is currently proposed that an array with a total predicted output of **45,082.77 kWh/yr** will be applied to the scheme. This is in line with the objective of promoting development which minimises energy consumption, and in turn carbon emissions

Two proposed sanitaryware specifications have been detailed, both of which provide a noted improvement over the Building Regulations requirement of 110 Litres/per person/per day. The client's commitments and strategies with regards to solar gain and overheating mitigation have also been detailed.

Whilst the proposed construction specification, use of renewable technologies and water sanitaryware flow rates are the preferred specification at this present time, it may be subject to change as detailed design progresses. Nonetheless, it will be ensured that where any changes are made, the policy requirements listed will be maintained.

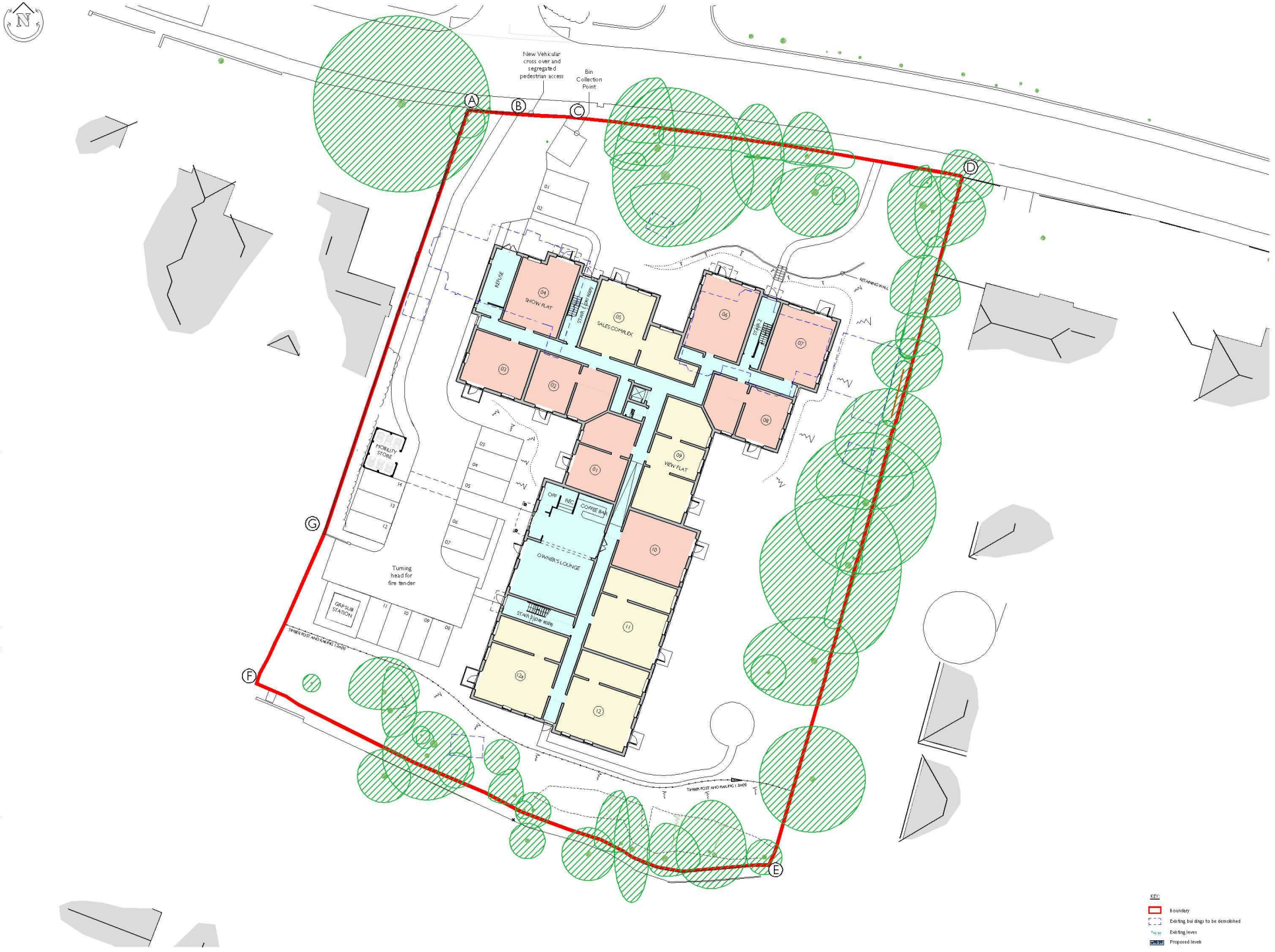
Appendix 1

Proposed Site Plan

REVISIONS

Rev		Date	By
P1	Planning Issue	01.11.23	AS

Proposed Retirement Living Apartments at 68 & 70 Keymer Road, Hassocks, West Sussex, BN6 8QP



PROPOSED FLAT MIX

	1BED	2BED
GRD	11	03
1st	12	04
2nd	04	07
TOTAL	27	14

TOTAL - 41 units (34.1% 2Bed)

- 1 BED APARTMENTS
- 2 BED APARTMENTS
- COMMUNAL AREAS

BOUNDARY TREATMENT

A - B	:	1.2m (h) Railing
B - C	:	New vehicular access with 1.5m segregated foot path. Brick piers to either side of opening
C - D	:	1.2m(h) Railing with gated access for escape from stair 2
D - E	:	Make good existing 0.7h fence as required
E - F	:	Open boundary along length of stream
F - G	:	New 1.8m (h) fence
G - A	:	Existing boundary wall made good

KEY:

- Boundary
- Existing buildings to be demolished
- Existing levels
- Proposed levels

0 2m 20m

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Project Title
PROPOSED RETIREMENT LIVING APARTMENTS
68 & 70 Keymer Road
HASSOCKS, West Sussex
BN6 8QP

Drawing Title
SITE PLAN
PLANNING

Scale	1: 200@A1	Date	DEC'23
Drawn	AS	Checked	BS
Drawing No.			Rev.
20090HK_PL_002			P1

PLOT DATE - 14 November 2023

Appendix 2

Part G Water Calculations

breglobal

Job no:	R3784
Date:	November 2023
Assessor name:	Adam Revill
Registration no:	
Development name:	68-70 Keymer Road, Hassocks

PRINTING: before printing please make sure that in "Page Setup" you have selected the page to be as "Landscape" and that the Scale has been set up to 70% (maximum)

WATER EFFICIENCY CALCULATOR FOR NEW DWELLINGS - (BASIC CALCULATOR)

	House Type:	Type 1		Type 2		Type 3		Type 4		Type 5		Type 6		Type 7		Type 8		Type 9		Type 10	
	Description:	1 Bed Properties		2 Bed Properties																	
Installation Type	Unit of measure	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day
Is a dual or single flush WC specified?		Dual		Dual		Select option:		Select option:		Select option:		Select option:		Select option:		Click to Select		Click to Select		Click to Select	
WC	Full flush volume	4.5	6.57	4.5	6.57		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
	Part flush volume	3	8.88	3	8.88		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Taps (excluding kitchen and external taps)	Flow rate (litres / minute)	4	7.90	4	7.90		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Are both a Bath & Shower Present?		Shower only		Bath & Shower		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:	
Bath	Capacity to overflow		0.00	155	17.05		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Shower	Flow rate (litres / minute)	8	44.80	8	34.96		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Kitchen sink taps	Flow rate (litres / minute)	5	12.56	5	12.56		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Has a washing machine been specified?		Yes		Yes		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:	
Washing Machine	Litres / kg	8.17	17.16	8.17	17.16		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Has a dishwasher been specified?		Yes		Yes		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:	
Dishwasher	Litres / place setting	1.25	4.50	1.25	4.50		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Has a waste disposal unit been specified?		No	0.00	No	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00
Water Softener	Litres / person / day		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
	Calculated Use		102.4		109.6		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
	Normalisation factor		0.91		0.91		0.91		0.91		0.91		0.91		0.91		0.91		0.91		0.91
Code for Sustainable Homes	Total Consumption		93.2		99.7		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
	Mandatory level		Level 3/4		Level 3/4		-		-		-		-		-		-		-		-
Building Regulations 17.K	External use		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0
	Total Consumption		98.2		104.7		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
	17.K Compliance?		Yes		Yes		-		-		-		-		-		-		-		-

Appendix 3

SAP/SBEM Calculations (Available on request due to size)