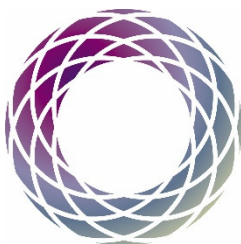


Sustainability Statement



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1.0 Executive Summary

This report considers the energy and sustainability measures to be incorporated within the proposed development at the Marketfield Road site in Redhill. The proposed development comprises the demolition of existing buildings and redevelopment to provide new multi-screen cinema and retail, restaurant and cafe units (use classes A1 and/or A3 and/ or D2) at ground and first floor level and residential apartments within buildings comprising part five, part six, part ten and part thirteen storeys together with basement car parking and access, cycle storage and associated facilities including new amenity space and public realm. This document reviews the requirements at both National and Local level, as set out in the National Planning Policy Framework (2012) and the Reigate and Banstead Borough Council local policies.

The results of energy modelling recommend development sustainability features that will reduce the CO₂ emissions of the development by 12.14% and the energy consumption by 10.39% from a base Part L 2013 compliant build, in conjunction with local planning policy. This is to be achieved through passive design, energy efficient measures incorporating design features such as energy efficient lighting, sub-metering of relevant areas, upgrading of 'U' values and occupancy sensing in relative areas Combined Heat and Power serving the residential element and Air Source Heat Pumps serving the commercial element.

It is anticipated further measures will be adopted as a means of reducing carbon emissions associated with the development such as using construction materials that are responsibly and legally sourced, as well as having high Green Guide ratings. In addition to this, it is anticipated any new insulation materials specified, for both the structure and building services, will also have suitable Green Guide ratings and are responsibly sourced.

To reduce the energy demand of the development as well as help to conserve water resources within the local area, it is anticipated that the fit out works will provide for sanitary fittings which will be water efficient through measures such as dual flush toilets and low flow taps.

Flood maps sourced from the Environment Agency highlight that the development is located within Flood Risk Zone 2 and has a medium probability of flooding. It is anticipated a Flood Risk Assessment will be undertaken to determine the potential flooding from a 1 in 100-year storm event, while also taking into effect the potential impacts of climate change.

The development is located in central Redhill and as such is in proximity to a number of public transport nodes, as well as primary local amenities such as a postal services, cash points and food outlets. The development itself will also introduce amenities such as restaurants. These features allow for the reduction of car-based travel and transport related pollution.

The incorporation of these sustainability measures allow for the proposed Marketfield Road site to be deemed sustainable whilst targeting compliance with local and national policy.

2.0 Introduction

This report has been prepared by Cudd Bentley Consulting Ltd, to investigate the issues of energy and sustainability surrounding the mixed use development at the Marketfield Road site in Redhill. Government policies have been reviewed for guidelines and recommendations on each issue, at both national and local level. The proposed Marketfield Road development in Redhill comprises the demolition of existing buildings and redevelopment to provide new multi-screen cinema and retail, restaurant and cafe units (use classes A1 and/or A3 and/ or D2) at ground and first floor level and residential apartments within buildings comprising part five, part six, part ten and part thirteen storeys together with basement car parking and access, cycle storage and associated facilities including new amenity space and public realm. The proposed ground and first floor plans can be seen in Figures 2.1 and 2.2.

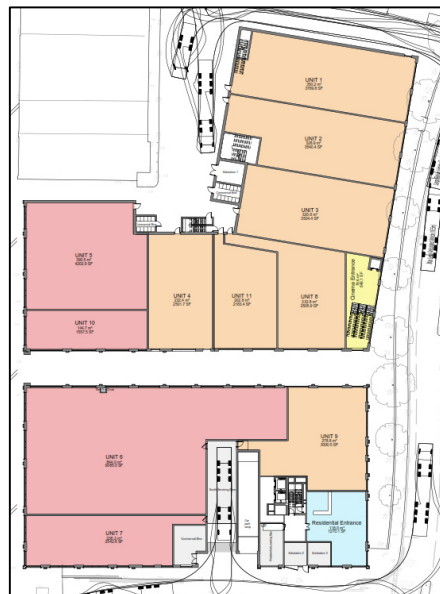


Figure 2.1 Proposed Ground Floor Plan



Figure 2.2 Proposed First Floor Plan

3.0 Drivers of Sustainability

The term *Sustainable Development*, is defined by the Department for the Environment, Food and Rural Affairs as ‘... making sure people throughout the world can satisfy their basic needs now, while making sure that future generations can also look forward to the same quality of life. It recognises that the “three pillars” – economy, society and environment – are interconnected.’- DEFRA 2011.



United Nations
Framework Convention on
Climate Change

To achieve this objective of sustainable development in any industry sector strict regulations have been put in place that have filtered down through EU Directives from the European Climate Change Programme, to

National UK Acts such as the Climate Change Act 2008, to Local Policy in the form of Core Strategies. However, there are larger drivers behind the concept of sustainable development.

Kyoto Protocol

In 1997, the Kyoto Protocol was adopted as part of the United Nations Framework Convention on Climate Change, to which the UK is a signatory. The key feature of the protocol was the binding targets that were set for industrialised countries to reduce their Green House Gas emissions by 12.5% below 1990 levels by 2008-2012.

Cancun Agreements

Since the initial adoption of the Kyoto Protocol, extensive research has been put forward as to the causes and markers of climate change from the Intergovernmental Panel on Climate Change, which has led to new targets and objectives being made. In 2012, the international community met to discuss new directions for responding to climate change by adopting new agreements. The key objectives of the Cancun Agreements are:

- Establish clear objectives for reducing human-generated greenhouse gas emissions over time to keep the global average temperature rise below two degrees;
- Mobilise the development and transfer of clean technology to boost efforts to address climate change, getting it to the right place at the right time and for the best effect;
- Assist the particularly vulnerable people in the world to adapt to the inevitable impacts of climate change;
- Protect the world’s forests, which are a major repository of carbon;
- Establish effective institutions and systems which will ensure these objectives are implemented successfully.

COP21: Paris Global Climate Agreement

In December 2015, a global climate deal was reached in a summit involving all of the world’s nations. The targets of this aimed principally to curb the dangerous levels of climate change and drive an increase low-carbon infrastructure investment. Numerous organisations and corporations also committed to helping create a greener future by making their own pledges through the course of the summit. The key elements of the agreement are:

- To keep global temperatures "well below" 2.0C above pre-industrial times and "endeavour to limit" them even more, to 1.5C;
- To limit the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100;
- To review each country's contribution to cutting emissions every five years so they scale up to the challenge;
- For rich countries to help poorer nations by providing "climate finance" to adapt to climate change and switch to renewable energy.

BRE's COP21 Climate Pledge (December 2015)

"We commit to continue to drive best practice and carbon reduction, as we have through the use of BREEAM for the past 25 years. By reaching over 9,000 BREEAM rated buildings we predict emissions savings will be in excess of 900,000 tonnes of CO₂, compared to regulatory minimum performance requirements, by 2020. Saving not only carbon, but bringing wider benefits to both the owner and occupiers."

4.0 National Policy

This section aims to highlight the guidance available and the minimum requirements at national level regarding sustainable development, through the key objectives set out in the Government's National Planning Policy Framework (2012).

Section 4 – Promoting Sustainable Transport

30. Encouragement should be given to solutions which aim to reduce greenhouse gas emissions and congestion.

35. Plans should protect and exploit any opportunities for the use of sustainable transport modes.

Section 7 – Requiring Good Design

56. Good design is a key aspect of sustainable development.

57. It is important to plan positively for the achievement of high quality and inclusive design for all developments, including individual buildings, public and private spaces and wider area development schemes.

58. Local authorities should develop robust policies that set out the quality of developments. Policies and decisions should aim to ensure that developments:

- Will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;
- Establish a strong sense of place, using streetscapes and buildings to create attractive and comfortable places to live, work and visit;
- Optimise the potential of the site to accommodate development, create and sustain an appropriate mix of uses (including incorporation of green and other public space as part of developments) and support local facilities and transport networks;
- Respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation;
- Create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion;
- Are visually attractive as a result of good architecture and appropriate landscaping.



Section 10 – Meeting the Challenge of Climate Change, Flooding and Coastal Change

94. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations.

95. Local Planning authorities should:

- Plan for new developments in locations & ways which reduce greenhouse gas emissions;
- Actively support energy efficiency improvements to existing buildings.

96. Local authorities should expect new developments:

- To comply with adopted Local Plan policies on local requirements for decentralised energy supply unless this can be demonstrated that this is not feasible or viable;

- To take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

97. Local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:

- Have a positive strategy to promote energy from renewable and low carbon sources;
- Design their policies to maximise renewable and low carbon energy development;
- Consider identifying suitable areas for renewable and low carbon energy sources and supporting infrastructure;
- Identifying opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

100. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.

Section 11 – Conserving and Enhancing the Natural Environment

109. The planning system should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, geological conservation interests and soils;
- Recognising the wider benefits of ecosystem services;
- Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability;
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Local Plans

156. Local plans should set out strategic priorities for the area; this should include strategic policies to deliver the provision of infrastructure for transport, telecommunications, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat).

5.0 Local Policy

This section aims to highlight guidance available and the minimum requirements at local level from Reigate and Banstead Borough Council, which states the Council's vision, spatial strategy and policies for the future development of the area.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS2: Valued Landscapes and the Natural Environment

In considering the allocation of land and/or proposals for significant development, the Council and developers will be required to protect and enhance the borough's green fabric.

- The Surrey Hills Area of Outstanding Natural Beauty (AONB) is a landscape of national importance and therefore will be provided with the highest level of protection.
- All areas of countryside have their own distinctive landscape character. The landscape character of the countryside outside the current (or revised) AONB boundary will be protected and enhanced through criteria based policies in the DMP including, if and where appropriate, new local landscape designations.
- The borough's commons will be maintained and enhanced for the benefits of farming, public access and biodiversity.
- Sites of Special Scientific Interest (SSSIs), Sites of Nature Conservation Importance (SNCIs), Local Nature Reserves (LNRs) and ancient woodland will be protected for their biodiversity value and where appropriate enhanced.
- Urban green spaces, green corridors and site specific features which make a positive contribution to the green fabric and/or a coherent green infrastructure network and will, as far as practicable, be retained and enhanced.

Policy CS10: Sustainable Development

Development will:

- Make efficient use of land, giving priority to previously developed land and buildings within the built-up areas.
- Be at an appropriate density, taking account of and respecting the character of the local area and levels of accessibility and services.
- Contribute to the creation of neighbourhoods which are supported by effective services, infrastructure and transport options and which are designed to be safe, secure and socially inclusive.
- Protect and enhance the green fabric, and respect and contribute to the borough's green infrastructure network.
- Respect the ecological and cultural heritage of the borough including the historic environment.
- Minimise the need to travel, whilst increasing opportunities to walk, cycle or use public transport, including as part of the green infrastructure network.
- Minimise the use of natural resources and contribute to a reduction in carbon emissions by re using existing resources, maximising energy efficiency, minimising water use, and reducing the production of waste, including through sustainable construction methods. Encourage

renewable energy/fuel production whilst ensuring that adverse impacts are addressed, including on landscape, wildlife, heritage assets and amenity.

- Be designed to minimise pollution, including air, noise and light, and to safeguard water quality.
- Be designed reflecting the need to adapt to the impacts of climate change (for example higher temperatures, increased flooding, increased pressure on water resources, impacts on ecology and built heritage and impacts on ground conditions).
- Be located to minimise flood risk, through the application of the Sequential Test and where necessary the Exception Test, taking account of all sources of flooding including fluvial, surface water, sewer and pluvial flooding, and reservoir failure, and manage flood risk through the use of SuDS and flood resistant/ resilient design features, and where necessary provide floodplain compensation.

Policy CS11: Sustainable Construction

The Council will expect new development to be constructed to the following standards:

- New housing: to a minimum of Code for Sustainable Homes Level 4, or future nationally described standards (justified by local evidence if required).
- Relevant non-residential development of new or replacement buildings, or extensions to existing structures: to a minimum of BREEAM 'Very Good'.

The Council will work with developers and other partners to encourage and promote the development of decentralised and renewable or low carbon energy (including combined heat and power) as a means to help future development meet zero-carbon standards affordably.

- Where a major development is planned that generates, is within, or is adjacent to an area of significant heat density, it will be expected that the potential to create, or connect to, a district heating network is fully investigated. Such developments will be identified in the DMP where possible.
- Where a district heat network exists or is planned, or where there is potential to utilise waste heat, the Council may require - where feasible and viable - development in these areas to be designed to facilitate its use and connect to it.

Policy CS17: Travel Options and Accessibility

The Council will work with Surrey County Council, the Highways Agency, rail and bus operators, neighbouring local authorities and developers to:

- Manage demand and reduce the need to travel, by:
 - Allocating land for development and directing development to accessible locations in the borough
 - Securing provision of - or easy access to - services, facilities and public transport as part of new development.
- Facilitate sustainable transport choices, by:
 - Improving travel options through enhanced provision for bus, rail, walking, cycling and bridleways
 - Promoting walking and cycling as the preferred travel option for shorter journeys
 - Promoting non-car travel

- Requiring the provision of travel plans and transport assessments for proposals which are likely to generate significant amounts of movement
- Seeking to minimise parking provision in the most sustainable locations, and secure adequate parking provision relative to patterns of car ownership elsewhere.

6.0 BREEAM Review

Cudd Bentley Consulting Ltd. have been appointed early on in the design stage of this project to advise on the feasibility of achieving the required BREEAM rating of 'Very Good'. The development was assessed under the BREEAM New Construction 2014 version by Sushil Pathak who is licenced to undertake BREEAM assessments as an Accredited Professional. The pre-assessment report (Cudd Bentley Consulting, Ver 1) shows that if all the measures are implemented, the development shall achieve a BREEAM pre-assessment rating of 58.83% (Very Good). Table 6.1 below lists the target scoring of each credit applicable under the BREEAM categories.

Credit Description	Credits Available	Indicative Credits Achieved
Management		
Man 1 Project Brief and Design	4	4
Man 2 Life Cycle Cost and Service Life Planning	4	1
Man 3 Responsible Construction Practices	6	6
Man 4 Commissioning and Handover	4	4
Health & Wellbeing		
Hea 1 Visual Comfort	3	1
Hea 2 Indoor Air Quality	2	0
Hea 4 Thermal Comfort	2	0
Hea 5 Acoustic Performance	1	1
Hea 6 Safety and Security	2	2
Energy		
Ene 1 Reduction of Energy Uses and Carbon Emissions	12	1
Ene 2 Energy Monitoring	2	2
Ene 3 External Lighting	1	1
Ene 4 Low Carbon Design	3	1
Ene 6 Energy Efficient Transportation Systems	3	3
Transport		
Tra 1 Public Transport Accessibility	5	5
Tra 2 Proximity to Amenities	1	1
Tra 3 Cyclist Facilities	2	1
Tra 5 Travel Plan	1	1
Water		
Wat 1 Water Consumption	5	2
Wat 2 Water Monitoring	1	1
Wat 3 Water Leak Detection and Prevention	2	1
Wat 4 Water Efficient Equipment	1	1
Materials		
Mat 1 Life Cycle Impacts	6	4
Mat 2 Hard Landscaping & Boundary Protection	1	1
Mat 3 Responsible Sourcing	4	3

Credit Description	Credits Available	Indicative Credits Achieved
Mat 4 Insulation	1	1
Mat 5 Designing for Durability and Resilience	1	1
Mat 6 Material Efficiency	1	0
Waste		
Wst 1 Construction Waste Management	4	2
Wst 2 Recycled Aggregates	1	0
Wst 3 Operational Waste	1	1
Wst 5 Adaption to Climate Change	1	0
Wst 6 Functional Adaptability	1	0
Land Use & Ecology		
LE 1 Site Selection	2	1
LE 2 Ecological Value of Site and Protection of Ecological Features	2	2
LE 3 Mitigating Ecological Impact	2	1
LE 4 Enhancing Site Ecology	2	1
LE 5 Long Term Impact on Biodiversity	2	2
Pollution		
Pol 1 Impact of Refrigerants	3	3
Pol 2 NOx Emissions	3	3
Pol 3 Surface Water Run Off	5	2
Pol 4 Reduction of Night Time Light Pollution	1	1
Pol 5 Noise Attenuation	1	1
Total	112	66
Total BREEAM Percentage Score		58.83%

Figure 6.1 BREEAM Scoring

7.0 Energy Usage and Carbon Emissions

Government policies require significant energy reductions from buildings which are achieved through a planned trajectory (delivered via Part L of the Building Regulations 2013). The Climate Change Act (2008) sets the UK targets of; CO₂ reduction of 34% by 2020 and CO₂ reduction of 80% by 2050 compared to the 1990 baseline.

7.1 Policy Review

National Planning Policy Framework (2012)

Section 10 – Meeting the Challenge of Climate Change, Flooding and Coastal Change

New developments should comply with local requirements regarding decentralised energy, unless this is not feasible. Developments should comply with local strategy to promote generation of energy from renewable and/ or low carbon sources.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS10: Sustainable Development

Development will:

- Minimise the use of natural resources and contribute to a reduction in carbon emissions by re using existing resources, maximising energy efficiency, minimising water use, and reducing the production of waste, including through sustainable construction methods. Encourage renewable energy/fuel production whilst ensuring that adverse impacts are addressed, including on landscape, wildlife, heritage assets and amenity.

Policy CS11: Sustainable Construction

The Council will work with developers and other partners to encourage and promote the development of decentralised and renewable or low carbon energy (including combined heat and power) as a means to help future development meet zero-carbon standards affordably.

- Where a major development is planned that generates, is within, or is adjacent to an area of significant heat density, it will be expected that the potential to create, or connect to, a district heating network is fully investigated. Such developments will be identified in the DMP where possible.
- Where a district heat network exists or is planned, or where there is potential to utilise waste heat, the Council may require - where feasible and viable - development in these areas to be designed to facilitate its use and connect to it.

7.2 Development Sustainability Features

An Energy Assessment has been undertaken for the development (Cudd Bentley Consulting, April 2016), which confirms the total baseline energy and carbon emissions for the notional development (built to Part L 2013), taking into account regulated energy demands are:-

- **1,378,540 kWh/annum**

- **513.04 Tonnes CO₂/annum**

Unregulated energy use is not covered by existing regulations and includes energy consumed by the occupants through activities and appliances; in this case it would typically be cooking and small power usage (appliances, computers etc.). The following unregulated energy use for the development has been calculated:-

- **716,677 kWh/annum**
- **336.95 Tonnes CO₂/annum**

In order to go beyond the base build Part L 2013 compliant development, the following passive design and energy efficiency measures have been incorporated:

- Additional improvements to the thermal performance of the fabric of the buildings;
- The provision of energy efficient lighting (passive infrared controls and occupancy sensing in relevant areas);
- The provision of energy efficient display lighting;
- The provision of zonal thermal and lighting controls;
- The provision of variable speed pumps and fans;
- The provision of energy metering;
- The enhancement of pipework and ductwork, thermal insulation;
- The provision of Power Correction Factor ≥ 0.95 and;
- Specific Fan Powers improved beyond Part L requirements.

Following the above measures being incorporated into the design, the total baseline energy and carbon emissions for the notional development (built to Part L 2013), taking into account regulated energy demands are reduced to:

- **1,353,089 kWh/annum**
- **494.53 Tonnes CO₂/annum**

In accordance with local policies, the following two energy strategies have been considered for the development:

1. Connection to an existing Combined Cooling Heating and Power (CCHP)/CHP distribution networks;
 - There is no existing CHP distribution network to connect to.
2. A central CHP plant for base heating and hot water demand.
 - A CHP system has been recommended to serve the residential heating and hot water requirements.

The following use of on-site renewable low / zero technologies are considered as the most appropriate technologies for this development.

1. Air Source Heat Pumps have been specified to serve the heating and cooling demand in the commercial units.

Following the inclusion of renewable low/zero carbon technology on site, the total baseline energy and carbon emissions for the development (built to Part L 2013), taking into account regulated energy demands are reduced to:

- **1,235,287 kWhr/annum**
- **450.77 Tonnes CO₂/annum**

Proposed Energy Strategy for the Marketfield Road development

In summary the energy strategy comprises of:

1. Passive Design and Energy Efficient Measures;
2. CHP to serve 55% of the residential element's heating and hot water demands;
3. Air Source Heat Pumps have been specified to serve the heating and cooling demand in the commercial units.

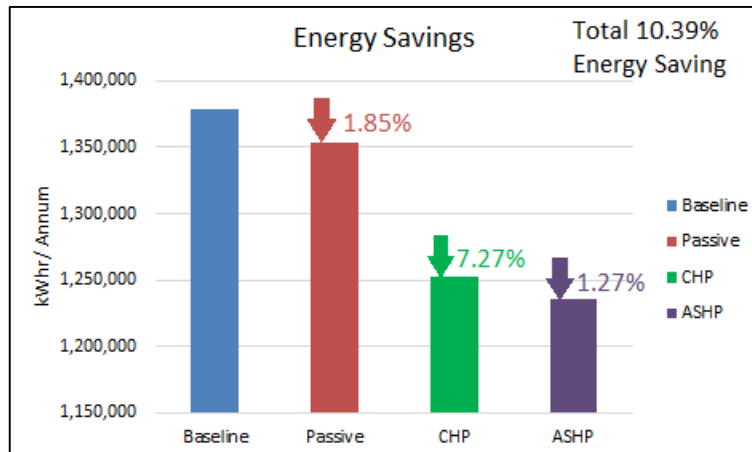
Energy and carbon savings are possible through the utilisation of passive design and energy efficiency measures as well as the recommended renewable LZC energy options that have been considered, these are highlighted in Table 7.1 below.

Building	Energy Saving kWhr/annum	Carbon Saving TonnesCO₂/annum	Residential Carbon Savings
Passive Design and Energy Efficiency Measures	25,451.35 kWhr/annum (1.85% Saving)	18.51 Tonnes CO ₂ /annum (3.61% Saving)	1.28 Tonnes CO ₂ /annum (0.75% Saving)
Combined Heat and Power To serve the base heating and hotwater demand for the residential units	100,263.64 kWhr/annum (7.27% Saving)	34.17 Tonnes CO ₂ /annum (6.66% Saving)	34.17 Tonnes CO ₂ /annum (19.88% Saving)
Air Source Heat Pumps To serve the commercial units	17,537.97 kWhr/annum (1.27% Saving)	9.58 Tonnes CO ₂ /annum (1.87% Saving)	N/A
Total Saving (Percentage)	143,252.96 kWhr/annum (10.39% Saving of site energy demand)	62.27 Tonnes CO₂/annum (12.14% Saving of site carbon production)	35.45 Tonnes CO₂/annum (20.63% Saving of site carbon production)

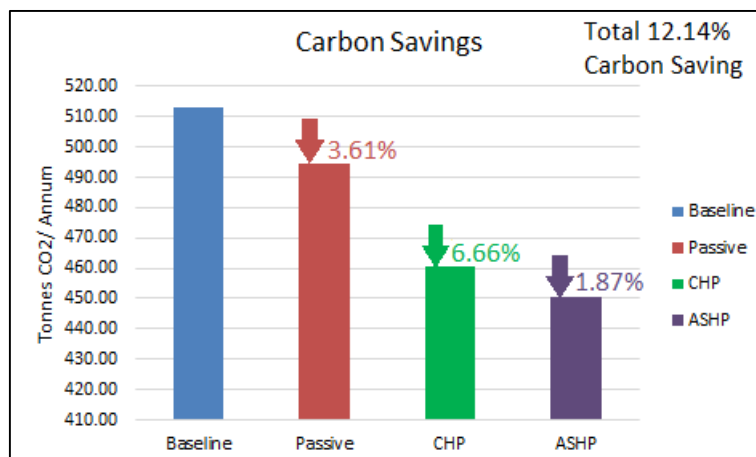
Table 7.1 Energy and Carbon Savings for the Development

The proposed Energy Strategy provides a total 20.63% carbon saving for the residential element alone, this is in compliance with Local policy requirements and exceed the 19% reduction required under Code for Sustainable Homes.

The energy savings that are shown in Table 7.1 above can also be visually presented as per the following Graphs 7.1 and 7.2:



Graph 7.1 Site Energy Savings



Graph 7.2 Site Carbon Savings

8.0 Water Consumption

The ever increasing impacts of climate change are continuously inflating demand for water, as well as increasing a need for awareness towards water usage. The South of the UK is already under a large amount of pressure regarding water resources. To contribute towards mitigating this issue, the Marketfield Road site will consider various means of being economical with water consumption.

8.1 Policy Review

National Planning Policy Framework (2012)

Section 10 – Meeting the Challenge of Climate Change, Flooding and Coastal Change

94. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS10: Sustainable Development

Development will:

- Be designed reflecting the need to adapt to the impacts of climate change (for example higher temperatures, increased flooding, increased pressure on water resources, impacts on ecology and built heritage and impacts on ground conditions).

8.2 Development Sustainability Features

In order to ensure the reduction and management of water consumption within the Marketfield Road site, it is anticipated that various measures shall be undertaken and specific features installed to reduce the building's potable water consumption by a target of 25% against a notional baseline for the commercial element of the development and limited to a target of <110 litres per person per day for the residential element.

It is anticipated that an improvement in the consumption of potable water will be achieved, through the specification of water efficient components during the fit out works. Such features include low flow taps in both kitchen and WC areas as well as dual flush toilets with low flush volumes.

It is anticipated that water meters shall be specified on the mains supply. It is expected that all water meters installed into the commercial elements of the development will have a pulsed output to allow connection to a Building Management System should one be specified at a later date.

To further conserve water consumption on the site it is expected that all proposed landscaping will rely solely on precipitation throughout all seasons of the year as a form of irrigation, rather than using a mechanical alternative.

8.3 BREEAM New Construction 2014

Water Consumption

The following fittings where present, will be specified with low flush volumes and flow rates in order to provide a 25% reduction in potable water consumption:

- WCs;
- Urinals;
- Taps;
- Showers;
- Dishwashers.

Water Monitoring

It is anticipated water meters with a pulsed output will be supplied on the mains water supply to the commercial element of the development. Meters should be pulsed to allow future occupants to monitor water consumption through connection to a Building Management System.

8.4 Summary

To ensure the sustainability of the development it is anticipated that water efficient fixtures will be incorporated into the design, such as low flow taps and dual flush toilets with reduced and limited flush volumes.

To be further sustainable, it is anticipated that water meters to the commercial element of the development will be installed on the mains water supply, with pulsed output capability to effectively monitor water consumption.

The inclusion of the above sustainability features allow for the Marketfield Road site to be deemed sustainable with regard to water consumption.

9.0 Transport

Transport produces a large proportion of the country's greenhouse gas emissions, something which government at both national and local level are striving to combat, especially through planning frameworks for new developments. Solutions to transport issues are to be incorporated into the design of the Marketfield Road site.

9.1 Policy Review

National Planning Policy Framework (2012)

Section 4 – Promoting Sustainable Transport

30. Encouragement should be given to solutions which aim to reduce greenhouse gas emissions and congestion.

35. Plans should protect and exploit any opportunities for the use of sustainable transport modes.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS17: Travel Options and Accessibility

The Council will work with Surrey County Council, the Highways Agency, rail and bus operators, neighbouring local authorities and developers to:

- Manage demand and reduce the need to travel, by:
 - Allocating land for development and directing development to accessible locations in the borough
 - Securing provision of - or easy access to - services, facilities and public transport as part of new development.
- Facilitate sustainable transport choices, by:
 - Improving travel options through enhanced provision for bus, rail, walking, cycling and bridleways
 - Promoting walking and cycling as the preferred travel option for shorter journeys
 - Promoting non-car travel
 - Requiring the provision of travel plans and transport assessments for proposals which are likely to generate significant amounts of movement
 - Seeking to minimise parking provision in the most sustainable locations, and secure adequate parking provision relative to patterns of car ownership elsewhere.

9.2 Development Sustainability Features

The development is located in central Redhill and as such is of an urban nature, as seen within Figure 9.1. This central location allows for good provisions of public transport in the form of both buses and rail services (both within 0.1 miles from Marketfield Road).

There are frequent bus services from Redhill bus station which provide services within the town centre, across Redhill and to nearby towns. The development is located 0.1 miles from Redhill train station which has train services to London and Gatwick airport every 10 minutes; thus making the area a suitable commuter location and reducing the requirement for journeys in private vehicles. The proposed development's location also provides building users with access to the town's cycle route network, as seen within Figure 9.2. To encourage residents and building users to cycle as a sustainable means of transport, it is anticipated that cycle storage spaces will be provided in a secure and sheltered location.

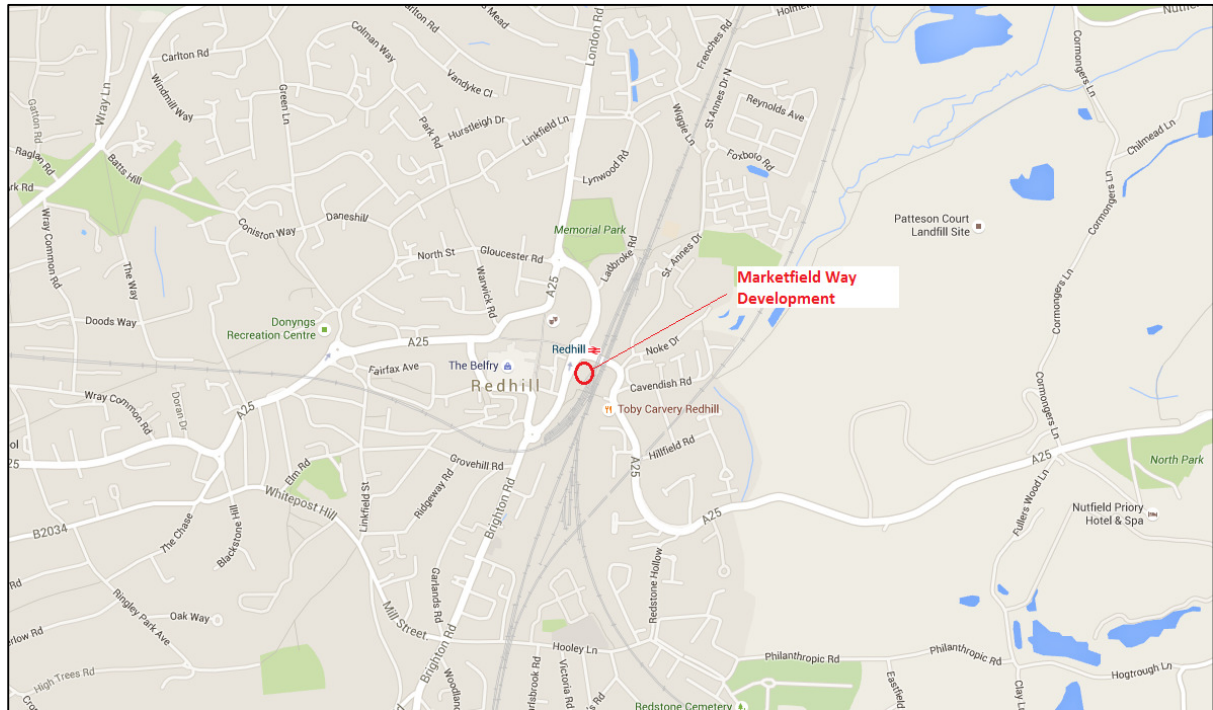


Figure 9.1 Location of Marketfield Road Site

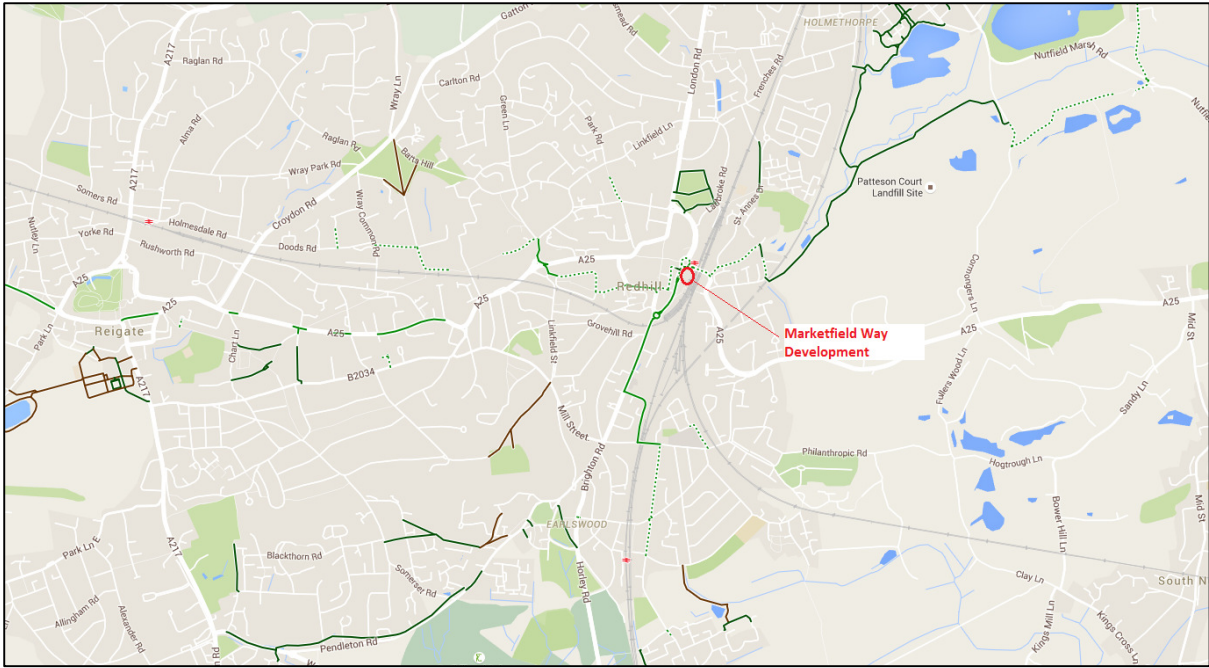


Figure 9.2 Redhill Cycle Network

The location of the development is in close proximity to a number of primary amenities which are within walking distance, including The Belfry Shopping Centre (less than 400 ft away distance).

The development itself will also introduce amenities via the cinema, restaurants and retail units. In addition to this there are various other amenities such as cash points and food outlets located nearby which also reduce the need for extended journeys by car.

A Transport Survey has been undertaken for the proposed development (David Tucker Associates, March 2016) which confirms a Travel Plan will be developed which through Welcome Packs to new residents the following information will be provided:

- Bus and train timetable information;
- Maps of local public transport services;
- Walking and cycling route maps;
- Details of local shops and services;
- Information on the range of car share websites.

9.3 BREEM New Construction 2014

Public Transport Accessibility

The proposed development is set within central Redhill and as a result of this it has a good public transport accessibility index with a selection of BREEM compliant public transport nodes and services available, e.g. bus stops, train station.

Proximity to Amenities

The development is in close proximity to a number of primary amenities required by BREEAM, including postal services, food outlets and a cash machine. The development itself will also introduce amenities due to the construction of a cinema, restaurant and retail units.

Cyclist Facilities

It is anticipated that cycle storage spaces (up to 154 spaces) will be provided for building users in the form private cyclist facilities for residents and public cyclist facilities for customers. The cycle storage should be sheltered and in a location that is either secure or easily viewed from the site's various buildings.

Travel Plan

As confirmed within the Transport Assessment (David Tucker Associates, March 2016) a Travel Plan will be developed for the site taking into consideration the findings of the Transport Statement.

9.4 Summary

The above provisions aim to make the Marketfield Road site easier to access for all building users, as well as offering a sustainable means of traveling as an alternative to using private transportation. The development is located in the centre of Redhill, and therefore is already situated in close proximity to a selection of public transport nodes and a significant number of local primary amenities including a cash point, post boxes and food outlets, minimising the need for extended car based travel. The Marketfield Road site can be deemed sustainable with regards to transport.

10.0 Construction Site Management

In the South of the UK, according to the Environmental Agency's findings in 2009, 53% of all waste is due to construction and demolition. The requirement for new materials needs to be minimised, by re-using existing buildings and materials where possible and providing a Site Waste Management Plan for all construction sites. This responsibility lies with the contractor and needs to be clarified at an early design stage. It is becoming a greater requirement now to construct buildings that are flexible and can be re-used.

10.1 Policy Review

National Planning Policy Framework (2012)

Local Plans

156. Local plans should set out strategic priorities for the area; this should include strategic policies to deliver the provision of infrastructure for waste management, water supply and wastewater.

10.2 Development Sustainability Features

In order to comply with national and local policy, it is anticipated that certain measures will be put into place for this development, such as a Site Waste Management Plan which monitors the site energy and water consumption and ensures that all site timber is reclaimed, reused or responsibly sourced and is also legally sourced in compliance with the UK Government's Timber Procurement Policy. Further to this the Site Waste Management Plan will also monitor the resource efficiency of the development construction works as well as the percentage of non-hazardous waste produced from both demolition and construction phases, which have been diverted from landfill. Monitoring of such actions can encourage contractors to become more resource efficient to meet given targets. As part of such monitoring processes fuel consumption from transport of construction materials may also be tracked; as a result it may encourage the use of locally sourced construction materials.

In addition to this, it is expected the main contractor will comply with best standards as set out in the Considerate Constructors Scheme, achieving a score which is considered as exceeding compliance with the criteria of the scheme.

To ensure the sustainable construction of the Marketfield Road site, the project will consider the concept of waste hierarchy as seen in Figure 10.1. The waste hierarchy recognises the need for waste to be considered for a variety of waste streams before being sent to land fill as a last resort. The hierarchy is as follows:

- Waste minimisation;
- Reusing of waste or up cycling;
- Recycling of all applicable materials;
- Recovery of energy from waste (anaerobic digestion plants);
- Waste is sent to landfill.

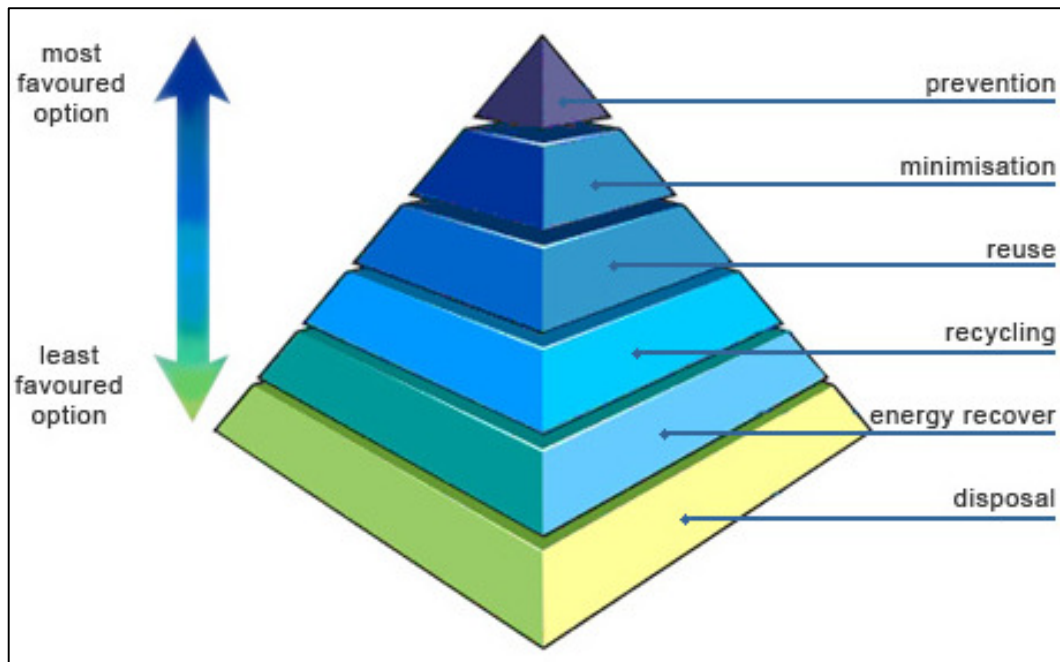


Figure 10.1 Waste Hierarchy Diagram

10.3 BREEAM New Construction 2014

Responsible Construction Practices

It is anticipated that the principal contractor will operate an Environmental Management System such as ISO 14001. Further to this it is also anticipated that the principal contractor will also undertake the following actions:

- Adhere to a Considerate Constructors Scheme and achieve a score which significantly exceeds compliance;
- Monitor and record all energy consumption data from construction works;
- Monitor and record all water consumption data from construction works;
- Monitor and record transport movements and impacts from construction works;
- Ensure all timber used on site has been legally and responsibly sourced.

Construction Waste Management

It is expected that the principal contractor will develop a Resource Management Plan or a Site Waste Management Plan (SWMP), which considers the waste streams of non-hazardous waste generated from site activities and the ability to divert such waste from landfill.

10.4 Summary

It is anticipated that this development will produce a Site Waste Management Plan, highlighting the correct waste streams for recycling waste materials. In addition to this, during construction it is anticipated there will be a target resource efficiency for non-hazardous demolition and construction waste.

The development should adhere to a Considerate Constructors Scheme, achieving a targeted score which exceeds 'compliance' with the criteria of the scheme.

As a result of these measures, the proposed development is considered sustainable as regards to construction site management.

11.0 Sustainable Design

Good urban design is essential in providing a varied and sustainable environment, which can facilitate opportunities for positive contributions within communities. As part of sustainable design for developments, it is essential that suitable design principles are followed to maximise opportunities for energy reduction through design as well as ensuring buildings follow or enhance the character of an area. Developments should also give further consideration to the level of security and comfort that is provided for future building users, including thermal and visual comfort, inclusivity and safe access.

11.1 Policy Review

National Planning Policy Framework (2012)

Section 7 – Requiring Good Design

Good design is a key aspect of sustainable development and local authorities should aim to ensure that developments establish a strong sense of place while responding to local character and supporting local transport links.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS10: Sustainable Development

Development will:

- Make efficient use of land, giving priority to previously developed land and buildings within the built-up areas.
- Be at an appropriate density, taking account of and respecting the character of the local area and levels of accessibility and services.
- Contribute to the creation of neighbourhoods which are supported by effective services, infrastructure and transport options and which are designed to be safe, secure and socially inclusive.
- Protect and enhance the green fabric, and respect and contribute to the borough's green infrastructure network.
- Respect the ecological and cultural heritage of the borough including the historic environment.
- Minimise the need to travel, whilst increasing opportunities to walk, cycle or use public transport, including as part of the green infrastructure network.
- Minimise the use of natural resources and contribute to a reduction in carbon emissions by re using existing resources, maximising energy efficiency, minimising water use, and reducing the production of waste, including through sustainable construction methods. Encourage renewable energy/fuel production whilst ensuring that adverse impacts are addressed, including on landscape, wildlife, heritage assets and amenity.

11.2 Development Sustainability Features

The development shall include a variety of features which are regarded as having a good sustainable design. It is anticipated that any external lighting specified will be designed to reduce unnecessary light pollution during night time hours, this can be achieved through the use of time switches or daylight sensors which switch off lighting between 2300hrs and 0700hrs as well as cut off luminaires which reduce light spill into neighbouring properties.

In order to provide visual comfort it is anticipated that all fluorescent lamps will be fitted with high frequency ballasts. It is further anticipated that the development will achieve good daylight levels through the provision of glazing with suitable light transmittance values.

It is expected that in order to prevent solar gains and overheating within the building, glazing with suitable shading coefficients will be specified. Further to this it is also anticipated that the commercial elements will have air conditioning to provide building users with a form of thermal comfort control. To further ensure that overheating will not occur during summer months and the building is suitably insulated as well as allowing for adaptation due to the effects of climate change, it is anticipated that the development will use building fabrics with 'U' values that exceed the threshold requirements of Part L (2013); additionally energy efficiency measures as discussed within Section 6.0 will be incorporated into the design of the development. It is anticipated that such measures will lower the buildings' energy requirements making its operation feasible and practical for years to come. The use of suitable and functional building fabrics will also allow for the change of use of the development, should the community require it in future years.

The development will be designed to prevent an 'Urban Heat Island' effect occurring. This may be caused by large areas of paving and concrete and potentially further heating the site's buildings and increasing cooling demands. To prevent this occurring, it is anticipated that the landscaping incorporated across the development site will comprise of light paving materials.

To provide a fully sustainable development it is also anticipated that the materials used for the following main elements of the development shall be assessed under the Green Guide to Specification:

- External walls;
- Ground floor;
- Upper floors;
- Roof;
- Windows.



It is expected that the main contractor shall source the materials specified for the above elements from responsible sources which are certified with an Environmental Management System such as ISO 14001/ BES 6001 or an equivalent scheme. As well as this materials should be from responsible

sources, which include finishing materials where applicable. All insulating materials should also be assessed under the Green Guide to specification and be responsibly sourced.

It is anticipated adequate sound insulation between attached residential units will be provided, to reduce the likelihood of disturbance to building users and residents.

11.3 BREEAM New Construction 2014

Visual Comfort

To provide a comfortable environment it is anticipated that all internal and external lighting levels will be designed to be in accordance with the guidelines set out by Chartered Institute of Building Services Engineering.

Safety and Security

The design team will consult with the local Crime Prevention Design Advisor (CPDA). Measures recommended by the CPDA should be reflected within the development design, as well as 'secured by design' features.

Responsible Sourcing

All materials specified for the main building elements, including insulation materials (structural and building services) should be responsibly sourced with certification under and ISO 14001/ BES 6001 or equivalent scheme.

Design for Durability

To prevent damage to vulnerable areas of the buildings where there may be high pedestrian footfall, trolley movement or vehicle manoeuvring, it is anticipated that durability measures will be incorporated into the design of the development. Such measures may include:

- Raised curbs;
- Bollards;
- Kick plates on doors;
- Hard wearing floors;
- Corner protectors.

Life Cycle Impacts

Materials used for the external walls and roof will be assessed under the Green Guide to Specification.

Reduction of Night Time Light Pollution

To prevent potential light pollution it is anticipated that external lighting will be minimal and will be connected to timers or dimmers in order to reduce light levels during hours of darkness.

11.4 Summary

In order to comply with national and local policies, the Marketfield Road site shall strive to provide both to building users and the local community a building of sustainable design.

Measures should be taken to ensure thermal comfort, through efforts such as ensuring no occupied areas will result in excessive solar gains and in turn over heating.

External lighting except safety and security lighting should be designed to be switched off automatically through the use of timers of day light sensors as well as the specification of cut off luminaires to reduce any potential light spill. The above design features allow for the Marketfield Road site to be of sustainable design.

12.0 Flood Risk

The Flood and Water Management Act 2010, puts emphasis on rather than managing floods through defences, to instead make space for water storage. The extent of potential flooding for the proposed development from fluvial sources can be seen in Figure 12.1, sourced from The Environment Agency.

12.1 Policy Review

National Planning Policy Framework (2012)

Section 10 – Meeting the Challenge of Climate Change, Flooding and Coastal Change

In order to adapt to climate change, inappropriate development in areas at risk of flooding should be avoided.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS10: Sustainable Development

Development will:

- Be located to minimise flood risk, through the application of the Sequential Test and where necessary the Exception Test, taking account of all sources of flooding including fluvial, surface water, sewer and pluvial flooding, and reservoir failure, and manage flood risk through the use of SuDS and flood resistant/ resilient design features, and where necessary provide floodplain compensation.

12.2 Development Sustainability Features

Flood map sourced from The Environment Agency seen in Figure 12.1, demonstrates that the development site within Flood Zone 2 and therefore has a 1 in 100 chance of flooding (medium risk).

The existing site for the Marketfield Road site consists primarily of hard standings and impermeable surfaces and as such the proposed development will not increase the impermeable area of the land; as such there should be no increase in surface water run-off. The rate of any potential surface water is anticipated to be minimally attenuated through the introduction of soft landscaping, which will act as a small scale precipitation storage system during storm events.

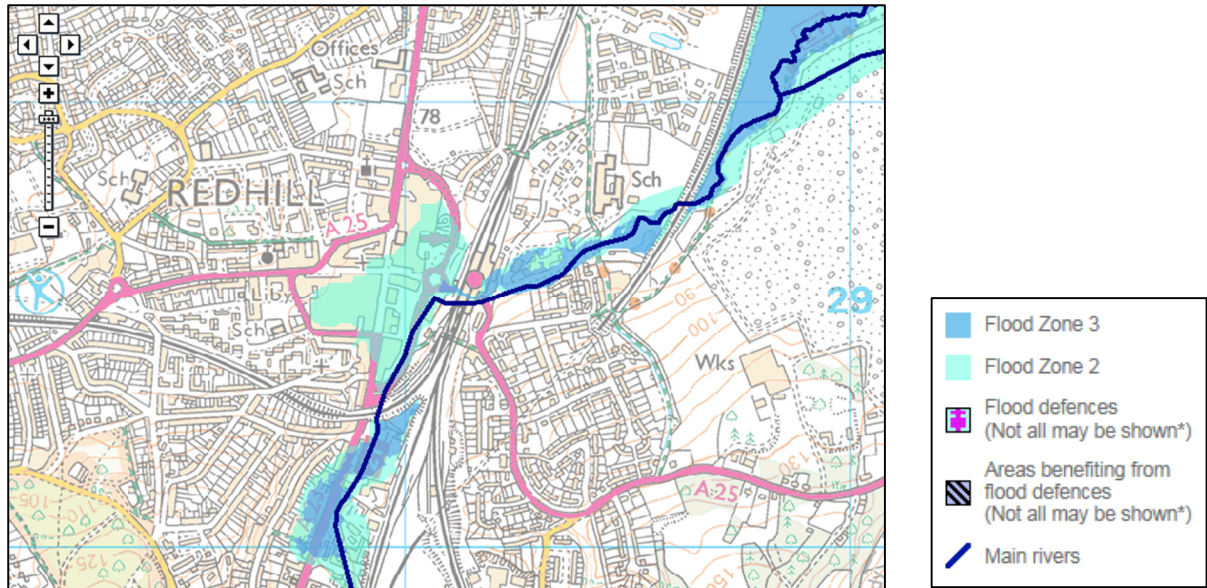


Figure 12.1 Fluvial Flooding at Marketfield Road (Sourced from the Environment Agency)

12.3 BREEM New Construction 2014

A Flood Risk Assessment will be undertaken which details the potential risk of flooding from all sources including fluvial, ground water, surface water and failure of the drainage system.

It is anticipated that the Flood Risk Assessment will also analyse and recommend potential Sustainable Urban Drainage systems to mitigate the impact of the proposed development on the surrounding areas, taking into consideration the impact of a 1 in 100 storm event and the effects of climate change.

12.4 Summary

Flood map sourced from the Environment Agency confirm the proposed Marketfield development site is located within Flood Zone 2 and as such is at medium risk of flooding from fluvial sources.

It is anticipated that a Flood Risk Assessment will confirm the risk of flooding from other sources as well as providing recommendations to mitigate the effects of storm events on the site.

13.0 Noise

Noise is a subjective concept that can affect people differently, however there are set standards as to acceptable levels of noise, for different areas and times of day. In this instance, the Marketfield development would be subject to potential noise pollution from main roads.

13.1 Policy Review

National Planning Policy Framework (2012)

Section 10 – Meeting the Challenge of Climate Change, Flooding and Coastal Change

In order to adapt to climate change, inappropriate development in areas at risk of flooding should be avoided.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS10: Sustainable Development

Development will:

- Be designed to minimise pollution, including air, noise and light, and to safeguard water quality.

13.2 Development Sustainability Features

The proposed development site is located in the centre of Redhill and as such would be subject to potential noise pollution in the form of main roads and general town activity.

Further to this, the proposed development is situated within close proximity to Redhill train station and as such it is anticipated that the proposed buildings will be subject to rail noise pollution until services stop during night time hours. A Noise Impact Assessment has been undertaken (WYG Planning and Environment, April 2016) which confirms the background noise levels range from 53.9dB to 70.3dB during day time hours and between 50.5dB and 61.9dB during night time hours.

These are relatively high existing background noise levels and as such it is expected that the construction of the proposal will not impact upon the surrounding area with regard to noise. Any noise from plant equipment may be mitigated through appropriate Acoustician recommendations.

13.3 BREEAM New Construction 2014

It has been specified that there are noise sensitive areas within 800m of the proposed development and as such a Noise Impact Assessment has been undertaken to ensure that the development is able to meet the requirements for sound insulation, indoor ambient noise levels and reverberation times. The report additionally provides details on the existing background noise levels.

13.4 Summary

Due to the location of the proposed development it is likely that that the site will be subject to noise pollution from road and rail sources, the exact levels for which are determined within the Noise Impact Assessment undertaken (WYG Planning and Environment, April 2016). It is unlikely that the site itself will increase noise levels to surrounding areas and as a result the proposed Marketfield development can be deemed sustainable with regard to noise.

14.0 Ecology

Ecology is essential within many communities, with the mix of flora and fauna facilitating benefits such as flood alleviation and pollution amelioration. In addition to this, areas with a wealth of green spaces and an abundance of biodiversity are seen to provide a positive contribution to a community.

14.1 Policy Review

National Planning Policy Framework (2012)

Section 11 – Conserving and Enhancing the Natural Environment

The planning system should protect and enhance valued landscapes, minimise impacts on biodiversity:

- Emphasis on retaining green belt areas;
- Working with others to ensure green infrastructure;
- Ensure green belts do not get moved;
- Provide developments which fit in with local character;
- New developments should provide soft landscaping.

Reigate and Banstead Local Plan: Core Strategy (July 2014)

Policy CS2: Valued Landscapes and the Natural Environment

In considering the allocation of land and/or proposals for significant development, the Council and developers will be required to protect and enhance the borough's green fabric.

- The Surrey Hills Area of Outstanding Natural Beauty (AONB) is a landscape of national importance and therefore will be provided with the highest level of protection.
- All areas of countryside have their own distinctive landscape character. The landscape character of the countryside outside the current (or revised) AONB boundary will be protected and enhanced through criteria based policies in the DMP including, if and where appropriate, new local landscape designations.
- The borough's commons will be maintained and enhanced for the benefits of farming, public access and biodiversity.
- Sites of Special Scientific Interest (SSSIs), Sites of Nature Conservation Importance (SNCIs), Local Nature Reserves (LNRs) and ancient woodland will be protected for their biodiversity value and where appropriate enhanced.
- Urban green spaces, green corridors and site specific features which make a positive contribution to the green fabric and/or a coherent green infrastructure network and will, as far as practicable, be retained and enhanced.

14.2 Development Sustainability Features

The proposed development site is to be located on a previously developed land which is due to be demolished as part of the proposed development works, and as such compromises predominantly manmade impermeable surfaces.

An Ecology Assessment has been undertaken (WYG, April 2016) which confirms that the existing site consists of habitats which are considered to be of minimal ecological value, though does highlight that clearance of the site should be undertaken outside of the bird nesting season.

The Assessment provides the following recommendations for enhancing the site ecology and on site valuable species:

- Inclusion of a green/ brown roof;
- Provision of log piles for invertebrates;
- Provision of bird boxes on walls.

Analysis has been undertaken of the site to determine the presence of any conservation areas within proximity to the site. As seen within Figure 14.3 below, there are no statutory conservation sites within proximity to the site though there are areas of deciduous woodland approximately 0.23 to the south of the site and 0.32 miles to the east of the of the site. It is expected that suitable air (dust) pollution measures will be implemented during the construction phase to mitigate the potential impact on the local areas.

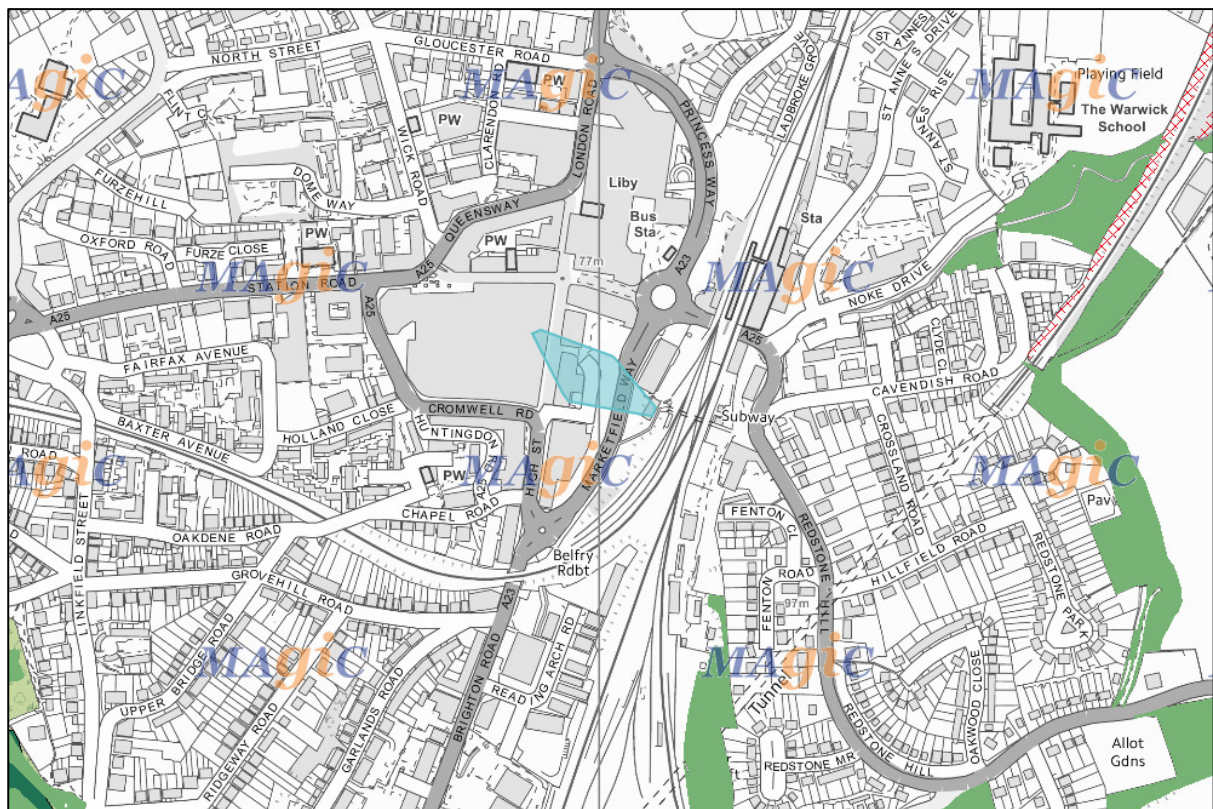


Figure 14.1 Ecological Analysis of Area (Postal Code Analysis)

14.3 BREEAM New Construction 2014

Ecological Value of Land

An Ecology Assessment of the site has been undertaken (WYG, April 2016) which confirms that the site is of low or negligible ecological value.

Enhancing Site Ecology

To enhance the ecology of the Marketfield development it is proposed within the Ecology Assessment that green or brown roofs are included within the scheme design. Additionally, it is also recommended that log piles and bird boxes are provided.

14.4 Summary

The proposed development has had an Ecological Assessment undertaken which confirms that the site is of low or negligible ecological value. The Ecology Report also puts forward recommendations for enhancing the site ecology. Such measures include green or brown roofs which include plant species which are native to the locality. Should these recommendations be included within the design of the development, the proposal may be deemed sustainable with regard to ecology.

