3.1 SITE AND AREA APPRAISAL (Existing Page 22 replaced as follows)

A site appraisal should be prepared at an early stage to inform the proposal preferably prior to or during pre-application discussions. At application stage it would normally be presented in a design statement or within separate reports.

The appraisal should include some or all of the following and further details on how to undertake each appraisal is included in this section:

Wider, Local and Site context
A three stage approach to appraising the context of the site, views in and out of the site, along the street, links between paths and nearby facilities and surrounding land uses. Also, understanding the features of the site such as walls, structures, paths, hedges, archaeologically sensitive areas.

Detailed sun path and wind analysis
This will ensure your building or extension can capture the sun and is not directly located in the prevailing wind. It helps orientate the building in relation to the wind and sun.

Drainage and flooding
Your design should be informed by natural flow paths of water through the site and nearby watercourses and lochs.

Habitats and species inc Trees
Every development should aim to make a positive contribution to biodiversity and make a net gain. You should ensure that wildlife habitats are enhanced or create new ones. The first step is to survey the site to identify what is present before more detailed species or tree surveys are undertaken.

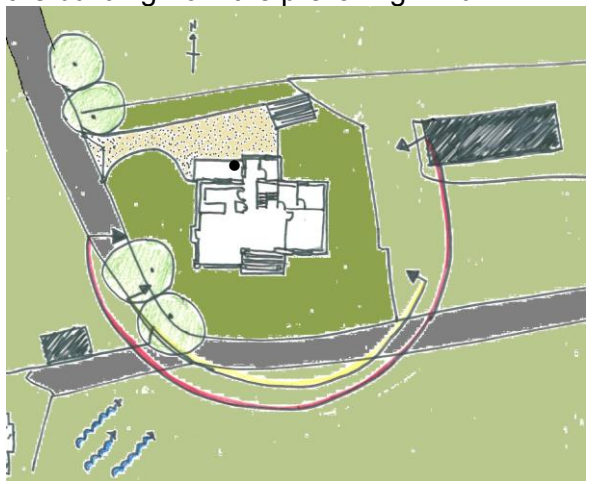
SITE AND AREA APPRAISAL – Energy conservation (Existing Page 24 replaced as follows)

In order to comply with part (a) of Overarching Policy 2 of the climate friendly design, you are required demonstrate how the proposed building will meet a reduction in greenhouse gas emissions through minimising overall energy requirements through conservation measures.

One of the best ways to reduce energy use in a new building is to ensure the building is sheltered from prevailing winds and is capturing the sun's heat and light by design, orientation, landscaping including hedges and trees, other buildings or landform.

Your design statement should illustrate your analysis of the sun path and prevailing winds. This is relevant for sites both within towns and villages and in a rural setting. Where there are other built considerations such as existing building line, road frontages then they need to be balanced with considering orientation for the sun and wind. It is important to acknowledge that every site is different and this guidance is generic.

IMAGE REPLACED
Replace with site plan image – annotation needed – blue arrows – prevailing wind – red arc is summer sun, yellow arc is the winter sun. Then state "The principal elevation with main living area is facing directly south, give or take 15 degrees, to ensure passive solar gain as well as optimised use of natural light." "Trees are planted to shelter the building from the prevailing wind"



North Elevation

South Elevation

Passive Solar Gain – The cumulative surface area of the windows on the southern elevation should be greater than on the northern elevation.

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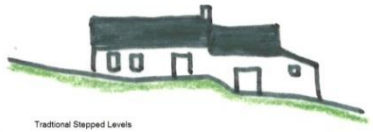
Density - Flats and terraced properties have higher energy efficiency than a detached or semi-detached property due to fewer elevations exposed to the elements. Higher density is a more efficient use of land and infrastructure. It is recognised that higher density is not always appropriate, where local context suggest a lower density response, the principles of placemaking apply.

Topography/Landscape – The slope, tree belts and nearby landforms should be used to shelter your building as this will reduce the impact of prevailing winds thereby reducing energy demands and it would also improve integration with the land reducing visual impact.



- **Avoid undue prominence and exposure of proposed buildings.**
- **Improve integration within the site and surround land to reduce impact of prevailing winds and improve visual impact.**

Daylighting and sunlight

Daylight is different from sunlight. New buildings should be designed to capture daylight to provide natural light to reduce the use of artificial lighting. New buildings and extensions should be designed to minimise overshadowing of neighbours properties. Overarching Policy 2 states that proposals need to address the loss of privacy/sunlight and daylight on neighbouring properties. It is considered unacceptable if there is a significant loss of sunlight leading to overshadowing for the majority of the day or where daylight is being lost in habitable rooms of a neighbouring property. A useful guideline is the British Research Establishment (BRE) guide 'Site Layout Planning' which sets out empirical guidelines and methods for assessing natural light.

Designing in Renewable Technology – Future Proofing the Building

In the building details section of this guidance there is information on renewable and low zero carbon technologies and the options available to comply with part (b) of Overarching Policy 2. However, at the site appraisal stage you ensure that you are considering:

- the pitch of the roof for solar technology optimisation;
- space in the garden for free-standing solar panels, micro wind turbine or air/ground source heat pump.
- Space for storage of wood if using biomass and access for deliveries of wood chip.

Appendix 1 – Amended text for Design and Placemaking Guidance

SITE AND AREA APPRAISAL – Water environment

(Existing page 26 replaced as follows – note: Protected Species info moved to pg27)

The water environment includes burns, rivers, loch, wetlands, groundwater, field drains and reservoirs. The water environment should be left in its natural state avoiding culverts, watercourse diversions, bank modifications where possible. Developments should be designed to avoid engineering activities in the water environment and avoid any impacts on Groundwater Dependent Terrestrial Ecosystems (GWDTE). A drainage impact assessment and/or flood risk assessment may be required. You should check with us if you are unsure. Development will not be supported if it does not comply with our policies on drainage and flooding (see Natural Environment Policies 11, 12 and 13).

The assessment should identify opportunities for adaptive measures e.g. deculverting, balancing ponds should be explored for multiple benefits including landscape/visual amenity and commercial benefits and access as well as flood prevention. If there is a man-made watercourse then there may be an opportunity to re-naturalise the channel, add appropriate buffer strips and remove man-made barriers to improve fish passage and sediment transport.

You need to demonstrate how the layout and design of your proposal including any hard standing has avoided impact on wetland.

Any sewers that might affect the layout of the proposals and drinking water supplies should also be considered. Further details on how to treat drainage innovatively in your proposal is included in Section 2.2, water management p44.

Tips box

- If required, always submit your Drainage Impact or Flood Risk Assessment with your planning application or it will cause delay in determining your application.
- Always use a suitable qualified person to undertake the survey.
- Be willing to speak to us about possible mitigation measures where flooding is identified.

Water Management (Existing pages 44 and 45 replaced as follows)

Surface Drainage
Surface drainage should not be treated as waste and simply flushed down pipes into overloaded sewerage systems. In order to reduce the impact of a development the aim is to ensure the water goes back into the natural systems i.e. the immediate ground rather than down pipes. Sustainable drainage solutions will help us adapt to climate change – rising temperatures and increasingly extreme weather events but also it is a great way to provide for wildlife and local people. Sustainable urban drainage (SUDs) is mandatory as required by the Water Environment (Controlled activities) (Scotland) Regulations 2011. Some developments may require construction phase or completion phase SUDS.

The aim is to integrate drainage considerations into the design from the outset. Surface water runoff and attenuation must not be an afterthought and must be handled sustainably. You may be asked to submit a drainage plan or drainage assessment with your application but ideally should be incorporated into the design statement.

Solutions should be sustainable and green not grey, utilising the existing site features and integrating with existing habitat networks. This benefits people and wildlife. This is known as green infrastructure and includes green roofs, ponds, wetlands, rain gardens, and planter boxes to capture rainwater as well as adaptive measures such as retention of existing watercourses rather than hard surfaces like engineered swales, cells or modules and soakaways. Grey solutions allow surface water to be stored underground and dissipate into the ground but they offer no benefits to people or wildlife. Solutions such as green infrastructure offer multiple benefits for landscape and visual amenity, recreation and, access, biodiversity and commercial benefits like attractiveness to customers, lower maintenance and flood prevention.

The reed pond shown below is a detention pond as it stores and releases water from the roof back into the environment and does not have permanent water. It also provides a habitat for wildlife and makes an attractive landscape feature. You could also consider a rain garden or retention pond. Retention ponds are permanent pools of water and have more amenity benefits for local residents than a reed pond. A rain garden would be planted with aquatic plants rather than reeds and is suitable for a single house.

Rainwater harvesting is another option where water is collected and reused. It is different benefits, see example below. On a small scale, water butts can be used to collect and store water for re-use in a garden, a simple form of rainwater harvesting.

Permeable paving; can store and release surface water into the environment in a controlled manner but they are not a green solution.

Swales; direct the water flow whilst slowing down the transfer of water into the ground. Vegetated swales are preferred over gravel or stones and they could be planted boxes not just grass ditches.

Ponds can store surface water and also have multiple benefits for the landscape, recreation, biodiversity. There are commercial benefits such as lower maintenance.

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Rainwater Harvesting

It may seem strange to incorporate rainwater harvesting into your design in Scotland but saving on the use of treated water from a private or public system is beneficial to the environment as it saves on treatment and energy.. The water collected does not have to be treated if it is not for drinking, so can be used in toilets and washing machines.

Innovative solutions
This timber house near Oban incorporates a system for the collection and use of rainwater as the sole source of domestic water and has a reed-bed filtration system which treats sewerage.

Waste Water Management

Foul drainage needs to be treated to remove contaminants; raw sewage can no longer be directly discharged into the sea or watercourses. The Natural Environment Policy 12 states that development within or adjacent to publicly sewered areas must connect to the public network. The policy provides a list of the instances where a private waste system may be agreed. Where a private waste water treatment system is required then the preference is to consider a reed bed system to enhance the biodiversity if the space is available. Other options include a septic tank (biodisc system) that discharges to a soakaway on the land (which is SEPAs preference) rather than a watercourse. Within the National Park area are a number of areas with sensitive water bodies. In these locations detailed specification and site specific information may require to be submitted with application to ensure that any new private treatment systems have a neutral effect on water quality and in some cases improvements to existing septic tank systems in these areas may be required. If you wish to know if your proposal is within one of these areas then please contact us or make a pre-application enquiry.

De-culverting and retention of existing watercourses

You should consider the removal of an existing culvert, ditch realignment or ditch re-profiling and where possible retain existing watercourses to enable better integration of natural watercourses in a development proposal as part of the sympathetic design process. This will not only protect and enhance the quality of the watercourse but provide recreational opportunities and wider benefits. These measures should be considered where physically possible and would not damage ecological or historical interests.

The benefits include reducing flood risk by re-establishing a more natural flow regime and watercourse profile. The local environment would be enhanced significantly by more natural profile ie landscape/visual amenity, local biodiversity and naturalness qualities

Water Pollution

Developments should implement measures to prevent pollution to surface and ground water such as drain interceptors and bunded areas.

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ENERGY CONSERVATION AND ZERO/ LOW CARBON TECHNOLOGY (Existing Pages 60 and 61 replaced as follows)

Any new building requiring mass heating should be designed to minimise energy use through conservation measures and providing on-site low and zero carbon generating technologies.

Overarching policy 2 requires you to demonstrate how your proposed building will meet a reduction in greenhouse gas emissions through:
a) minimising overall energy requirements through conservation measures, and
b) incorporating on-site low and zero carbon generating technologies to meet 10% of the overall energy requirement of the building rising to 20% by December 2021.

All proposed buildings including extensions to householders need to comply with part (a) of the policy which requires you to demonstrate how the building is designed to minimise overall energy requirements through conservation measures. Energy conservation measures are the first step in reduction the carbon footprint of buildings. Ultimately, the greater the level of conservation the less energy needed to service/operate the building.

Building standards energy conservation measures are largely based on internal factors such as insulation, types of windows, wall formation, materials used etc. As described in the sections 3 and 4 of this guidance we are looking for you to demonstrate how you should reduce energy use by considering external planning factors of; orientation, topography, scale, massing, solar gain and integrating your proposal into the landscape, using trees and hedges to minimise the heat loss of prevailing winds and providing shading in hotter months. This can be part of your design statement.

The second part of the policy requires incorporating on-site low and zero carbon generating technologies to meet 10% of the overall energy requirement of the building. This is also a building standards requirement but we are seeking buildings to reach the higher standards rather than the minimum. There are a few buildings that are exempt from policy requirement (b) and these include:

- A building that does not use any energy for heating other than frost protection.
- Temporary buildings of less than 2 years.
- Extensions to houses and other existing buildings less than 50sqm; and
- Other ancillary domestic buildings less than 50sqm.

In exceptional circumstances, there may be some flexibility for change of use/conversions where there are technical constraints but it is expected that an attempt is made to include low and zero carbon generating technologies. A planning application must be accompanied by a

justification for not including the technology. Financial considerations do no constitute a technical constraint. Where technologies cannot feasibly be provided in a conversion it is expected that there is significant improvement to the energy performance of the existing building.

We appreciate that the planning stage is too early in the process to ask for detailed calculations, to demonstrate that the technology would supply 10% of the overall energy requirements as required for Building Standards regulations. Consequently, we are asking for basic information about the energy conservation measures adopted and low and zero carbon technology to demonstrate that the policy requirements are met.

Your **planning application must be accompanied by a design/energy statement** that includes details of how you have addressed the policy parts a) and b). For part (b) you must detail the on-site renewable energy or low carbon technology you intend to include in your proposed building, as suggested below. We need simple calculations at planning application stage to ensure it meets 10% of the overall energy requirement of the building.

Calculating your energy use

You would presume that the building meets current building standards (i.e. internal conservation measures e.g. insulation) and calculate the energy use based on:

- Type of building – detached, semi-detached, flat, terraced
- Footprint – sqm
- Height of building i.e. number of storeys
- No. of liveable rooms – bedrooms, kitchen, dining, study etc. not halls

We would not expect you to take in other factors that affect energy use such as–

- every site is different in terms of topography and landscaping,
- the land use of the building may change over the lifetime of the building,
- the number of people using the building will change over the lifetime of the building,
- the energy use will change throughout the year .

Once you have calculated this basic energy use then you need to tell us the low or zero carbon technology proposed and how this is providing a minimum of 10% of the energy requirements for the building. The energy output from the technology should be evidenced from the manufacturer or supplier. Below is a list of technologies that are currently available.

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This list is not exhaustive and we recognise that new technologies may become available in the lifetime of this guidance.

- **Solar Thermal (solar hot water)** usually consists of roof-mounted panels which harness energy from the sun to heat water. Solar thermal can reduce consumption of fossil fuels normally used to heat water by up to 55-70%. A water storage tank or existing traditional boiler is needed. They are very effective in non-domestic buildings that have a high demand on hot water. Unfortunately they rely on direct sunlight and therefore generate high levels of hot water in the summer when demand is lower.

- **Solar Electric (Electricity/Photovoltaic)** consists of roof-mounted or free-standing panels or tiles which harness energy from the sun to generate electricity. These are more expensive than solar thermal panels but electricity may be sold back to the grid. The benefits are that they have no moving parts and are silent. They can harness the sun's energy on sunny and cloudy days.

- **Water, Ground and Air Source Heat Pumps** extract heat from the air, water or ground (also known as geothermal) to be used for space and water heating, heat recovery, space cooling and dehumidification. Heat pumps are ideally suited for use with under floor heating. For large rural sites then the cheaper option of the horizontal loop system in trenches of 1.5m deep can be used rather than a pit of 60-100m which is more expensive.

- **Ground cooling** uses the relative constant ground temperature to provide summertime cooling through ground heat exchangers.

- **Small Scale Wind Turbines** usually require separate planning permission and the sensitive landscape setting of the National Park is a key consideration and situations where a 3 to6 kilowatt standlone turbine would be acceptable is limited.

- **Biomass** is mainly the use of logs, wood chips, wood waste or wood pellets to create heat and electricity. The flue and ventilation needs to be considered and space is required for, wood storage and access for deliveries. Small boilers are available that are no larger than a standard kitchen unit but you may need additional space for a hot water storage tank.

- **Small scale hydroelectric** is usually in the form of 'run of river' and is usually not available to small scale developments. However, you may be able to connect to a local or community run hydro electric scheme.

- **Small combined heat and power (CHP)** for individual houses, group residential units and non-domestic premises are becoming available. Most systems link to an electric generator and they can replace a domestic sized boiler. The common energy source at the moment is gas or oil but fuel cells are under development.

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- **Home Fuel Cells** are similar to batteries but differ as the consume fuel (usually oxygen and hydrogen) to generate power and heat on site. It could replace heating by burning oil or gas or a grid connection. Home fuel cells can either be sited an interior mechanical room or outside and they run 24/7. Since hydrogen has to be produced using coal, natural gas and oil, it is not a carbon neutral technology and its storage and transportation may indirectly lead to pollution. However they still offer a net reduction in energy consumption and CO2 emissions. Other fuel sources for fuel cells may become available in the future and consideration should be given to the full life cycle of the fuel cell.

- **Heat exchange recovery systems** is usually an air-to-air heat exchanger which recovers the heat produced in the house through a series of ducts around the house and in the loft space, a heat exchanger and a vent through the roof. They ventilate a house without losing heat (unlike opening of a window). The fresh air coming into the building passes through the unit and is heated by the warm air trying to escape from the house.

Further guidance on wind turbines, biomass and hydroelectric can be found in our planning guidance on renewable energy.

Passivhaus, Gartocharn

Well thought out utilisation of solar and internal gains

Water saving devices and rainwater harvesting for garden use

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CARAVAN AND CAMPSITES (Existing Pages 71 replaced as follows)

We are supportive of more camping, glamping and touring caravan/motorhome facilities in the Park in order to improve the outdoor experience of the National Park. Once a suitable location is identified for a site (in line with Visitor Experience Policy 1 – with safe access from public roads and, ideally, located with direct access to recreation routes and near to services and facilities), the following criteria should be considered when developing the site layout:

- The area and site appraisal should be undertaken to inform the landscape design concepts for the site and ensure that the presence of important habits, conservation features and scenic qualities are taken into account.
- Innovative design solutions for pitches, landscaping and car parking areas should be considered.
- A path network could be used to limit the need for road to pitches that do not require vehicle access.
- Caravan pitches should be grouped together interspersed with trees and shrubs. In some instances naturalistic screening bunds may be appropriate. Where hard standing is required try to utilise existing areas first and reduce hard standing as much as possible.
- Barbeque/campfire areas with picnic benches could be found at each pitch if appropriate and on more formal sites, barbeque huts may be appropriate.
- Toilet and kitchen blocks, the reception building and shop should be sited and designed to fit with the unique setting rather than being standardised. If there is an existing building on site then this should be reused or sites could be located near hotels where existing facilities can be used.
- Consideration should be given to the signage, lighting, telecoms equipment, the bin area and other ancillary structures for example foul drainage system or water tanks, and how the visual impacts from this infrastructure can be reduced.

Sallochy campsite, Loch Lomond

Pine Trees Caravan and Camping site, Tyndrum