Design & Access Statement

Racecommon Quarry
Oxspring Road
Penistone
Sheffield

Revision A

designSpace

architecture sustainable design yorkshire

Contents

Context: Penistone

Penistone (g) is a market town on the edge of the Pennines. The buildings range from C1500 to the present day; the historical buildings are predominantly sandstone with stone or slate roofs (a);the last 20 years has seen a high number of brick built housing estates (b). Penistone is surrounded by green belt agricultural land and scattered with old stone farm houses and associated farm buildings (c) a large number of barn conversions (d) have occurred throughout the green belt. Planning permission has been given for two earth sheltered homes in the green belt near Hepworth by Architect Arthur Quarmby, designer of Underhill (f) in Huddersfield (the first earth sheltered home) these have not currently been built. Wind turbines can be seen on the horizon around Penistone with further planned (e).

a

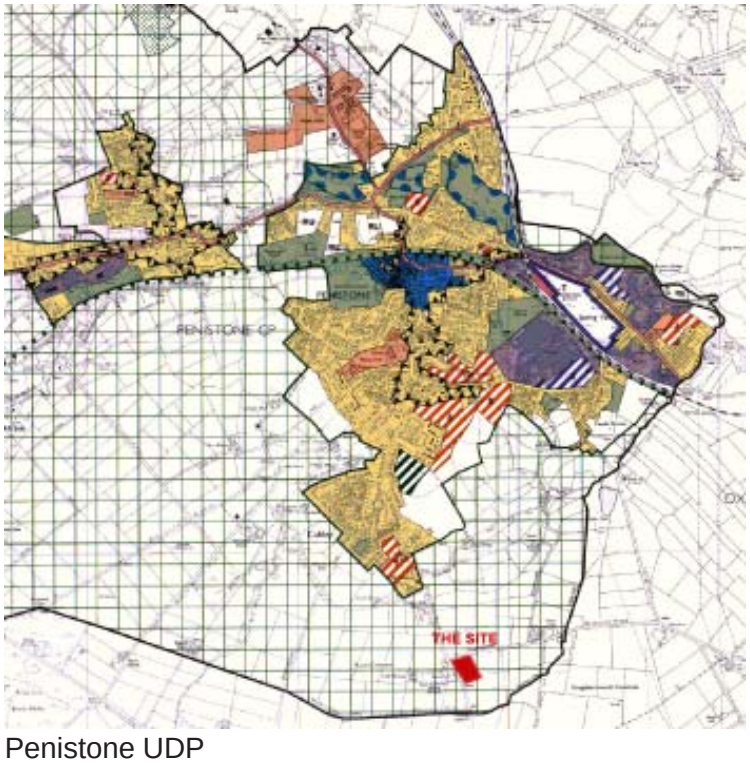
b

c

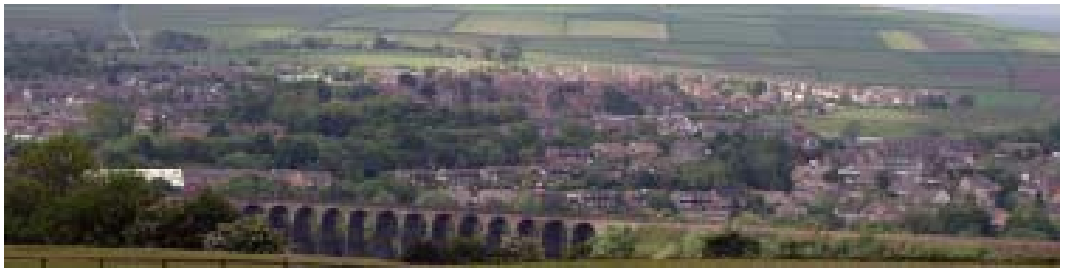
d

e

f



Penistone UDP



g

Context: Around the site

The site is surrounded by agricultural land (pasture and crop) and directly bordered by Mortimer Road and Oxspring on the North and West boundaries. It is approximately half a mile to the outskirts of Cubley (d). The land gradually climbs from North to South. Directly adjacent the site is land that was also associated with the quarry now containing a number of farm buildings (a), across from the current entrance on Mortimer/ Oxspring Road is a stone built bungalow (b) dating back to around 1990. Further along Mortimer Road is the old waterworks building (c) now converted and extended into residential use.

a

b

c

d

Context: The site

The site along with an area of land on the opposite side of Mortimer Road was quarried for sandstone until around the turn of the 19th century; since which the site has not been used and has become populated witha mixture of wild grasses and heather, the original quarry pits and spoil mounds are still visible. The main quarry now being filled with water and forming a picturesque lake, rocky outcrops exist around the two quarried areas.

The overall site measures approximately 12 hectares, is bordered on two sides by dry stone wall, the others by wire fencing, the entrance to the site is currently on the corner of Mortimer Road and Oxspring Road where a dirt track leads down to the main water filled quarry to the south. Trees dominate the western side of the site and the remainder is rough grass and heath growing on and around the spoil mounds from the original quarrying, there is a second shallower quarried area to the East.

An ecological stage one survey and subsequent protected fauna survey have taken place, this highlighted redundant badger sets to the south east corner and the possibility of bat roosts in the rock face, the site was not deemed suitable for great crested newts.

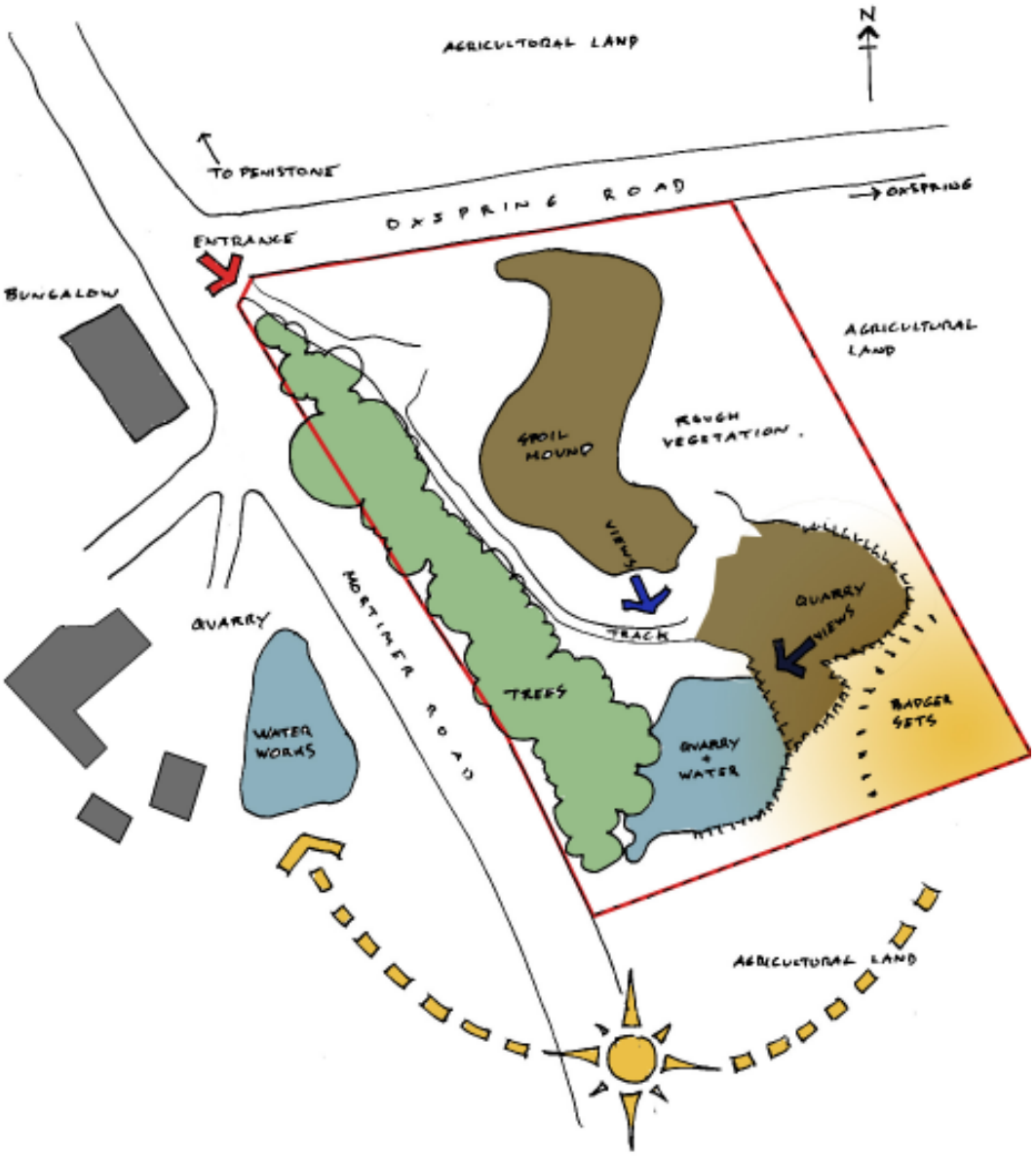
The central area of the site is very secluded with no views in from either of the adjoining roads.

The site is not overlooked by any properties.

The site has often been used as a dumping ground for stolen cars, it is used in the summer months by youths, that go to drink & swim in the water filled quarry and often light bonfires.

The site has no agricultural value, as the land is too uneven and the soil would not support crops or pasture.

The site has one previous planning refusal by a previous owner for a basic bunglaow of no architectural merit.



Site analysis

Panorama of the site

Context: Planning policy

The site is within the green belt.

Relevant Extracts from Planning Policy Statement 7: Sustainable Development in Rural Areas

New building development in the open countryside away from existing settlements, or outside areas allocated for development in development plans, should be strictly controlled; the Government's overall aim is **to protect the countryside for the sake of its intrinsic character and beauty,** the diversity of its landscapes, heritage and wildlife, the wealth of its natural resources and so it may be enjoyed by all.

All development in rural areas should be well designed and inclusive, in keeping and scale with its location, and **sensitive to the character of the countryside** and local distinctiveness.

Isolated new houses in the countryside will require special justification for planning permission to be granted. Where the special justification for an isolated new house relates to the essential need for a worker to live permanently at or near their place of work in the countryside, planning authorities should follow the advice in **Annex A** to this PPS.

Very occasionally the exceptional quality and innovative nature of the design of a proposed, isolated new house may provide this special justification for granting planning permission. **Such a design should be truly outstanding and ground-breaking**, for example, **in its use of materials, methods of construction or its contribution to protecting and enhancing the environment, so helping to raise standards of design more generally in rural areas**. The value of such a building will be found in its reflection of the highest standards in contemporary architecture, **the significant enhancement of its immediate setting** and its sensitivity to the defining characteristics of the local area.

Planning authorities should take a positive approach to innovative, high-quality contemporary designs that are sensitive to their immediate setting and help to make country towns and villages better places for people to live and work.

Context: Consultation

A meeting took place between designSpace architects and Mr Matthew Smith senior planner of Barnsley planning department, the scheme opposite was presented. Mr Smith along with his colleague Laura Bibby (who visited the site) although acknowledging the quality and originality of the design and the unique isolated setting, stated that they would not support the application as there are already two earth sheltered homes approved in the district.

Consultation took place with tree preservation officer Marcus Pinker who had no objections to removal of trees as detailed on the technical drawings; a full tree survey forms part of the submission.

Highways have no objection to the scheme.

A stage 1 ecological survey and a protected fauna survey have been undertaken and consulation taken place with the Environment Agency and Natural England, who are in support of the development.

The protected fauna survey also includes suggestions for ecological enhancements to the site, the majority of which are incorporated in this revised scheme.

Context: Consultation

In order for the schemes merit to be assessed by a professional body a presentation was made to the Barnsley Urban Renaissance Design Advisory Panel, the scheme was well received and a number of suggestions were made that it was felt could elevate a good design to an outstanding design (which would be required to meet PPS7) many of the suggestions were centred around improvements to the surrounding site; consequently a landscape consultant was commissioned to develop the landscaping. The BURDAP recommendations are included in the appendix.

Recommendations of the Design Panel

- The design of the dwellings needs to be part of a whole site strategy - incorporated, see landscape plan
- Details of the treatment of the outer edge of the site need to be developed and agreed at this stage - incorporated, see landscape plan
- All visiting vehicles should be brought to the rear of the dwellings or should remain near the entrance to the site - incorporated, see site plan
- Develop design solutions which will mitigate against future abuse of the founding design concepts through ownership changes
- Consider more separation between the 2 dwellings - the rear access creates further privacy for both dwellings
- Develop a scheme which is truly zero carbon as an exemplar - See sustainability section of D&A
- Develop a watertight and sophisticated environmental management plan for the site which includes;
    - Protection for existing habitats
    - The creation of new habitats
    - Habitats for endangered species
    - Possible self sufficiency scheme for fuel and food

The protected fauna survey highlights the key points that will be included in the development, it is suggested that the full environmental management plan should form a condition of the approval, this can then be developed alongside the planners and Natural England to ensure a watertight strategy is in place prior to development commencing.

Design: Use

Two dwellings are proposed for the site, this will be the permanent residence of brothers Gregg and Dave Walters and their families, who currently live and work in Penistone.

They have begun a program of cleaning the site, having removed abandoned cars and rubbish from in and around the quarry and have begun to encourage and protect the wildlife on the site. If the proposal is built they will more readily be able to manage, encourage and protect the natural wildlife, flora and fauna of the site

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Design: Amount

The proposal is for two, three bedroom dwellings of approximately 200sqm each. They are single storey dwellings, this is dictated by the land levels and contours.

The buildings utilise a very small proportion of the entire site and an area of the site that is primarily harstanding (compacted earth and gravel) and some rough vegetation (as shown opposite); a few trees and shrubs of no ecological merit will be disturbed by the development (see tree survey). The proposed quantity of the buildings can be easily accommodated on the site without harm to the ecology.

Two houses afford security to each other through natural surveillance in line with ‘secured by design’ principles.

Two houses create a more sustainable development in terms of bringing utilities onto the site; energy generation, water recycling, transport can all be shared.

The amount can be accommodated without being seen from outside the site, the area allows for a long strip of south facing elevation to maximise light and heat gains and also maximises views of the lake.

Existing Site Plan

Proposed Site Plan

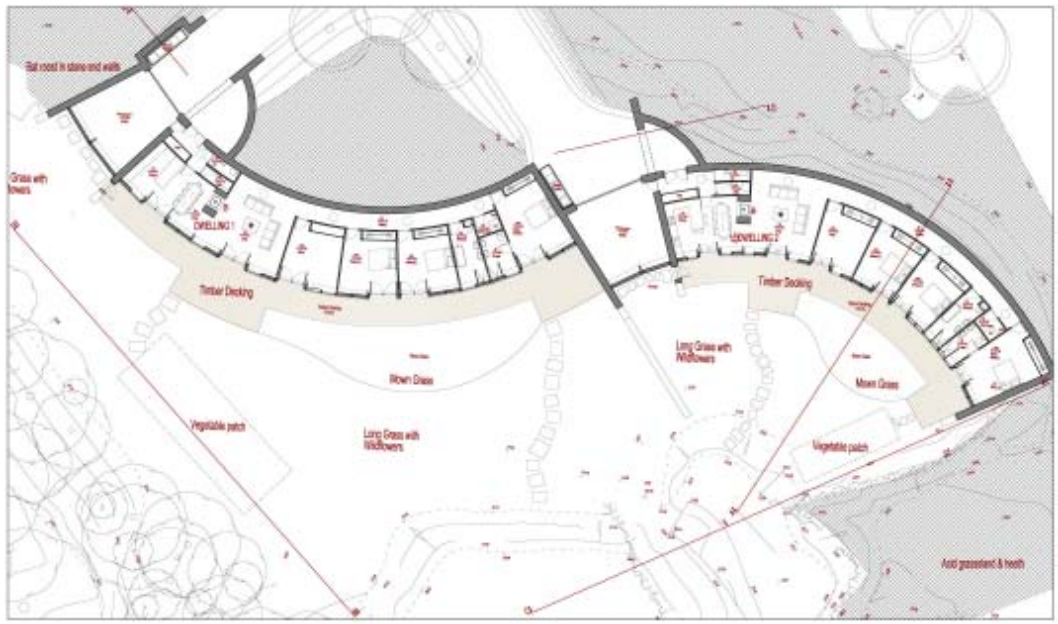
The location of house 1

The location of house 2

Design: Layout

The buildings are located centrally in the site, cut into a natural basin and a spoil mound. The approach is from the North where a new road access will be formed with field gates, an existing ravine will be widened to create an access road of crushed stone bordered by grass verge and dry stone retaining wall. A visitor parking area is set aside near the road, this is away from the buildings and allows an approach on foot through the ravine. The entrance to the buildings is at the rear of the homes and is intended to create a sense of approach and surprise, climaxing in the views out through the glazed wall, to wildflower meadow and lake beyond.

The homes follow the contours of the land, dwelling 2 is sat in the basin created by quarried stone, dwelling one is cut into the banking of the quarry spoil mound, both have their glazed elevations facing south to capture the solar gains and views out to the lake. The buildings appear joined and as one sweeping around the hillside, both are based on a radial grid, one concave the other convex. The structure is a timber post and beam system, with the beam sitting on the curved retaining wall at the rear. A decked area runs the full length of the elevations, beyond this is a small area of mown grass for further amenity and the remainder of the site to the quarry edge will be grass and wildflower meadow.



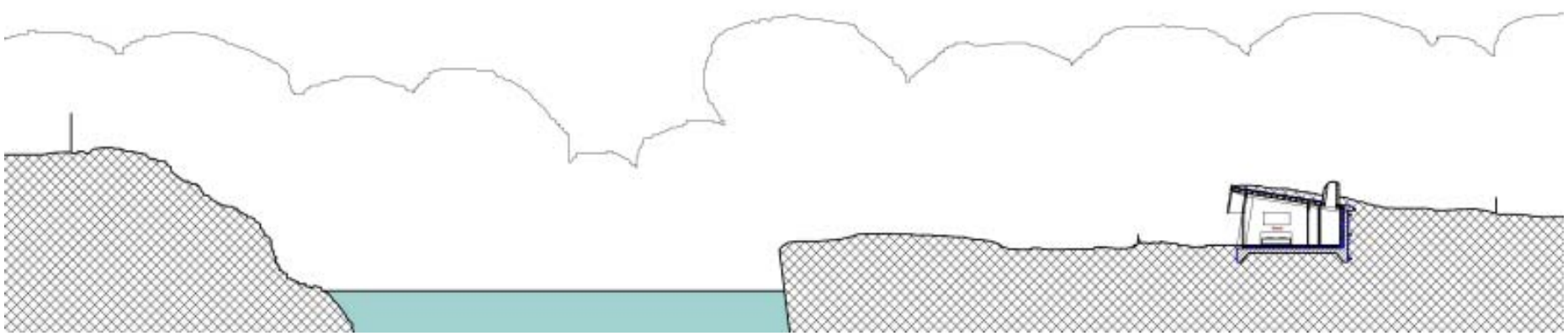
Floor Plans

Site Layout

Design: Scale

The scale is very low key, the buildings will not be clearly seen from the road, only hints of rooflights and the peaks of the cross walls will give away the homes location to passers by. The landscaping will be a crucial element, the mix of wildflower, heather and woodland planting will make the site instantly identifiable amongst the sea of agricultural land.

The scheme will subtly improve the area, as opposed to making a ‘big statement’



Section showing the building cut into the landscape

Design: Appearence

Design: Appearence

The buildings approach is all important and sets the mood, approaching through a natural ravine you arrive at an entranceway cut into the hillside and the visitor is given the impression of truly entering an underground building. It is only on passing through the entrance door that the wall of glass and views of the wildflower meadow and lake are revealed; a bright/ light interior turns the traditional idea of a dark musty underground house on its head.

A low impact, subtle, yet ground breaking development, a 21st century building, bringing the only other example of earth sheltering in the area (Underhill at Huddersfield) up to date, it has much in common with Future Systems example of earth sheltering in Devon but unlike that example it uses timber and stone to cleverly connect it to the Yorkshire landscape.

Natural materials are used throughout:

Sandstone dug up from the excavations will be used in a ‘dry stone wall’ manner to form the raked cross walls that divide up the development.

Responsibly sourced glulam timber, post and beam construction forms the superstructure.

The green roof using native grasses and flowers will blend seamlessly with the landscape.

Untreated cedar cladding forms the full height panels and the garage doors; these will be allowed to weather down to their natural silver colour and sit comfortably amongst the trees.

Cedar louvres run around the full length of the buildings protecting them from excess summer sun, these will be ineterspersed with panels for solar water heating and electrcity generation. Below the louvres sits the timber decking, protected partially from the weather by the large metal clad overhang, allowing autumn evenings to be enjoyed outside.

Glazing with Accora (sustainable timber) window frames require no further treatment, they are sustainably sourced and will last a lifetime. Multiple glazed doors offer easy access to outside.

Small glazed domes with metal clad sides and the stone feature chimneys pop up above the green roof, hinting at something special hidden below.

The south elevations and wildflower gardens

Future Systems

Underhill

Design: Landscaping

The entire 12 hectare site has been considered in this proposal and how the site can be improved and managed to return it to how it may have been before the advent of intensified farming. An opportiunity exists not only to create a haven for wildlife from the surrounding farmland but also to create an island of unspoilt Yorkshire countryside containing indigenous grasses, wildflowers and heathland

Areas of wildflower grassland will be sown and developed alongside Oxspring Road. The Woodland will be reinforced and additional areas planted to encourage wildlife, this will be thinned and coppiced for fuel at intervals. Existing patches of acid grass and heathland will be improved and extended. The intension is to create a biodiverse habitat of indigenous species, a small snippet of what the countryside once looked like for education and enjoyment.

A new access will be formed a safe distance from the junction, vehicles will have space to pull off the road before passing through the field gates, the dry stone walls will be extended up to the new gates with a grass verge. The new access road of crushed stone will be cut into an existing ravine, a visitor parking area on the left will be surfaced with reinforced grass, dry stone retaining walls will lead you to the entrance of the development. New drystone walls, hedges and tree planting will reinforce the edge of the site while ‘gaps’ in the wall will allow wildlife to come and go.

A shallow pond will be formed to encourage rare species of amphibian, this will be reinforced with refugias cut into the surrounding landscape, further information can be found in the protected fauna report

Acid Grassland & Heath

Landscape Plan

Extensive Green Roof

Wildflowers & Grasses

Design: Sustainability

The house will look to achieve code for sustainable homes level 6, a true zero carbon home and the first of its kind in the area. The building will do this with:

Orientated with glazing to the south, louvres will obstruct high summer sun but allow the low winter sun through giving beneficial heat gains.

A super insulated fabric, using sustainable insulation such as sheep's wool.

Natural stack effect ventilation will occur through the domed light wells to keep the building cool in the summer

Timber structure and cladding from sustainably managed sources.

Extensive planted roof gives an environment for ecology to prosper, reduces rainwater run off, increases insulation values and has low maintenance.

Earth sheltering of the cold northern wall means the building will benefit from the near constant ground temperature throughout the year, meaning the internal temperature remains more constant and so requires less hea t input and less cooling

Electric vehicle charge point to encourage green transport.

Photovoltaic panels generating the electricity to power the heat pump, ventilation and electric car charge point.

High thermal mass creates constant internal temperature

Heat recovery ventilation system will create an air tight building.

Wood burning stoves to each development powered by co[ppicing from the woodland

Providing the relatively small amount of extra heat the super insulated fabric will require, is a water source heat pump from the quarry water.

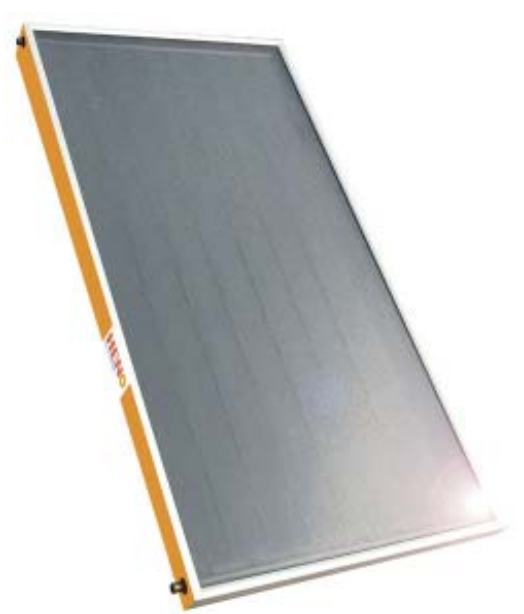
A+ rated and water saving appliances will reduce demand.

Grey water recycling system will reduce the potable water required.

All external landscaping surfaces will be porous the green roof significantly reduces rainwater run off.

Green Roof

Heat Pump



Solar Water Heating

Photovoltaics

Access:

A new highway access on Oxspring Road will be formed 80m from the junction to improve visibility; the current excess on the junction will be closed and walled off.

Attempts will be made to encourage green transport plans. An electric car charge point will be provided in each garage, powered partially by the photovoltaic panels, the owners will also facilitate a car sharing system.

Emergency services can gain access to the property from Oxspring Road.

Refuse and recycling will be left at the gated entrance on Oxspring Road fortnightly. The building will be designed to facilitate a high level of recycling in line with code for sustainable homes level 6.

Two means of escape are provided from all habitable rooms, safe distance from the building in the event of fire can be achieved.

Pedestrian access to the entrance from the parking area will be level with level thresholds into the building; The main living space and an accessible WC is provided at ground floor level, corridors and doorways will meet part M of the building regulations.

The building is intended to be fully adaptable to meet the changing needs of the occupants.

A small sewerage treatment plant will deal with the on site sewerage.

Grey water will be recycled to flush toilets.

All surfaces will be porous, but any remaining surface water will be directed into the lake

Summary:

A plot of ‘left over’ land from stone quarrying, in the green belt yet unsuitable for agriculture

The sites secluded lake area has created problems with flytipping and youths

The area of the site that the houses will be constructed has little ecological value

Development is part of a whole site package, to improve and manage the ecology of the site and create an oasis of indigenous plants and a haven for wildlife

The houses are not overlooked from public road/ footpaths or neighbouring houses

Two houses create natural surveillance and security for each other in line with ‘secured by design’ principles

The dramatic sweeping facade is achieved only with two houses; the two appear as one continuous building

The development is in line with rural planning policy PPS7; ‘a design should be truly outstanding and ground-breaking’ and ‘its contribution to protecting and enhancing the environment’

Approval of this development does not set a precedent for further green belt developments as it is unique to this site, being formed from the land contours.

The only earth sheltered house in the area is Arthur Quarmbys, Underhill, now nearly 20 years old.

The design is completely original and unlike anything else seen in the district, if not the country.

This could be Barnsley’s first zero carbon home, a ground breaking development that could help to encourage further sustainable development in the area in line with government policy.

The homes and site could be used as exemplars of ecological development, hosting educational group visits .

It is suggested conditions be attached to an approval to cover the development of an environmental management plan for the whole site to expand on the details and strategy set down in this application

Appendix: BURDAP Recommendations

Barnsley Urban Renaissance Design Advisory Panel

11th May 2010

Review of proposals for 2 single storey earth sheltered dwellings in the Green-belt (pre-application stage).

Present:

Tom Lonsdale -CABE Enabler and Landscape Architect – Chaired the Panel Meeting

Robert Powell - Placemaker/ Public Art

Graham Roberts - Placemaker/ Public Realm/ Public Art

Simon Baker - Architect

Chris Wyatt - Barnsley Development Agency

Mahmood Azam - Barnsley Development Agency

Simon Harrison - Architect

Recommendations of the Design Panel

- **The design of the dwellings needs to be part of a whole site strategy**
- **Details of the treatment of the outer edge of the site need to be developed and agreed at this stage**
- **All visiting vehicles should be brought to the rear of the dwellings or should remain near the entrance to the site.**
- **Develop design solutions which will mitigate against future abuse of the founding design concepts through ownership changes**
- **Consider more separation between the 2 dwellings**
- **Develop a scheme which is truly zero carbon as an exemplar**
- **Develop a watertight and sophisticated environmental management plan for the site which includes;**

  Protection for existing habitats

  The creation of new habitats

  Habitats for endangered species

  Possible self sufficiency scheme for fuel and food

The full BURDAP report can be viewed in the planning file.

Appendix: designSpace portfolio

Andrew Brown is the founder of designSpace and was born and educated in Penistone. designSpace are specialists in one off sustainable, contemporary homes; established for two years their first completed building won the Home Building & Renovating competition for best do it yourself project.

Highfield, Sheffield

The first sedum roof and environmentally aware building in the area, with a striking form on a hilltop location overlooking the market town and conservation area.

Two storey extension to an existing bungalow, Sheffield

On the edge of the river Don Valley, in the Thurlstone conservation area, particularly noted for its weavers cottages. A wooded riverside setting is reflected in the tree house balconies and leaf coloured render, a contemporary solution that was praised by the local planning authority.

Broad Close Farm, Sheffield

A second agricultural dwelling in the green belt, received high praise from the planners for the contextual solution and high quality of the design.

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Notes.
All illustrations in this document are indicative only and should not be used for detailed consideration of massing or heights in relation to other buildings, please consult the technical drawings in this regard.