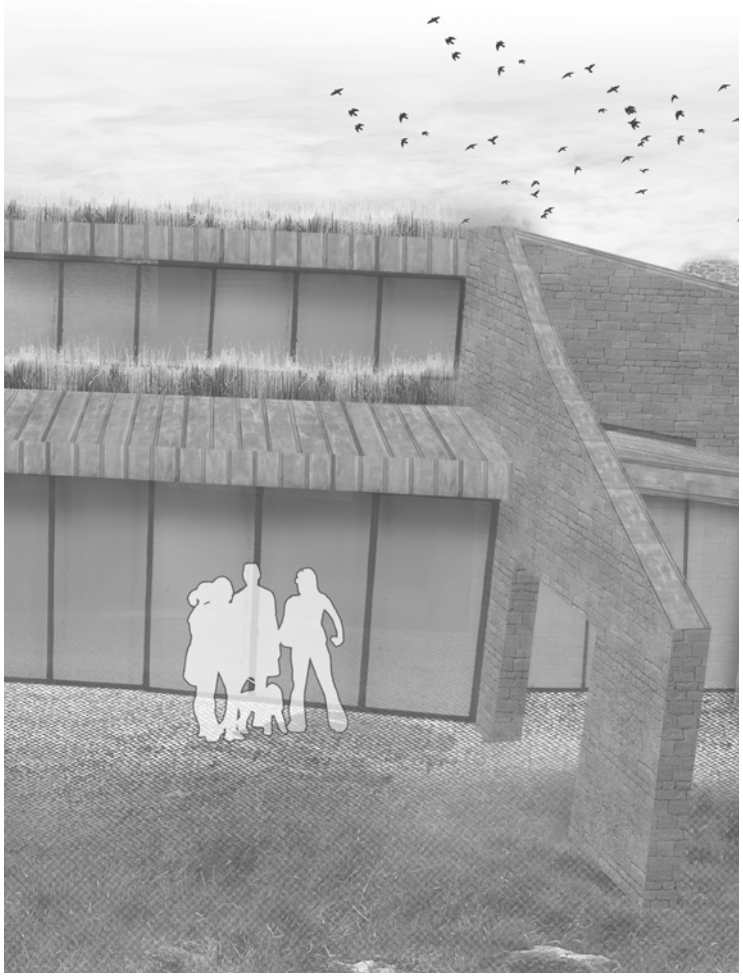
The Burrows Design & Access Statement



The Burrows Design & Access Statement

Contents

"No house should ever be on a hill or on anything. It should be of the hill. Belonging to it. Hill and house should live together each the happier for the other." Frank Lloyd Wright

1. Summary

1.1 This supporting Planning, Design and Access Statement has been prepared by Paul Testa Architecture on behalf of Mr Needham. It accompanies a planning application for a single family earth-sheltered dwelling at Briery Busk Farm, Hunshelf Bank, Stocksbridge, Sheffield

1.2 The proposed scheme has been developed following detailed site analysis and extensive physical modeling to provide a proposal that makes best use of the site whilst positively contributing to the landscape.

1.3 The house has been designed to meet the stringent Passivhaus energy and comfort standard. Whilst the standard is growing in popularity in the UK, it will be the first of its kind in South Yorkshire.

1.4 Due to its earth-sheltered design, the scheme will have no material impact on the openness of the countryside and will positively enhance the visual amenity of the site itself.

1.5 The proposed scheme has developed following pre-application design advice provided by the Barnsley Urban Renaissance Design Review Panel.

1.6 **In summary, the scheme would provide:**

1.7 A single detached, earth sheltered, residential unit;

1.8 An exceptional and sensitive design that sits well in, and enhances, the surrounding landscape;

1.9 Car parking to meet the council parking standards.

1.10 High performance Passivhaus standard building enevlope for ultra low energy useage and the highest of comfort standards.

1.11 Positively enhanced biodiversity to the site.

2. Introduction

2.1 This supporting Design and Access Statement has been prepared by Paul Testa Architecture on behalf of Mr Needham.

2.2 The statement forms part of a planning application for development at Briery Busk Farm, Hunshelf Bank, Stocksbridge, Sheffield.

2.3 The site is identified on the location plan PT19-001 an extract of which is included overleaf. It is situated in Greenbelt at the brow of the valley overlooking Stocksbridge to the south. The site is currently used for the storage of building materials and is in a poor condition.

2.4 The proposal is for the erection of a single family, earth-sheltered 3 bedroom dwelling.

2.5 Pre-application advice was sought on the scheme and Barnsley Development Control issued pre-application advice by letter on the 05th April 2012.

2.6 Part of the above advice was that the scheme was presented to the Barnsley Urban Renaissance Design Review Panel. The presentation was made on 17th April 2012. The feedback on the proposal was very positive with the main concern being that the scheme made a positive enhancement to the biodiversity of the landscape in which it is situated.

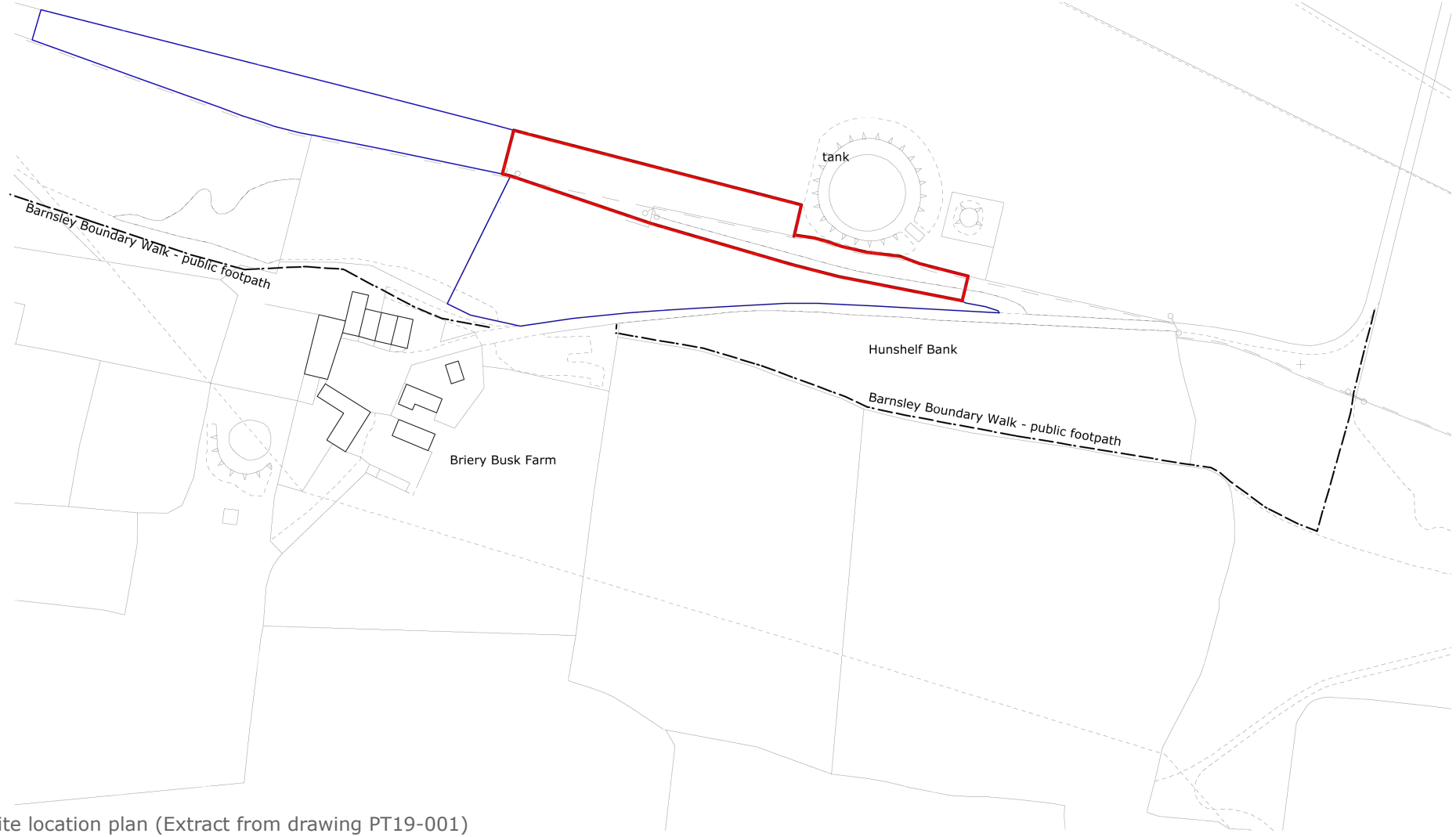
2.7 The current proposal has been designed by Paul Testa Architecture. The detailed drawings to accompany the application are:

2.8 List drawings

2.9 This supporting statement examines the site, the surrounding area and initial site response in section 3. Section 4 details the design development up to the final proposal. The approach to sustainability is contained in section 5 and the conclusion in section 6.

Aerial photo of site from Google Earth showing material storage

2. Introduction



site location plan (Extract from drawing PT19-001)

3. The Site & The Surrounding Area

3.1 **The Site**

3.2 The site is located in the green belt, up the hill from Briery Busk Farm. Its southerly edge follows the boundary of the Sheffield City and Barnsley Metropolitan Borough authorities. Although the site sits wholly in Barnsley, the site is only visible from Sheffield.

3.3 The site is a brownfield site that has been used for building material storage for many years. It's located up the hill Briery Busk Farm and is a narrow, relatively level strip of land at the top of a very steep slope. There are no short distance public views of the site, although it is visible from across the valley. At this distance a sensitively designed building would be difficult to spot and would certainly not disrupt the open nature of the green belt.

3.4 There is a public footpath that forms part of the Barnsley boundary walk that passes some distance to the south of the site at the bottom of the slope behind the old farmhouse. However, because of the nature of the topography and the steep slope, the site is not visible at any point along this walk.

3.5 Photos of the long views of the site have been included opposite and photos of the site itself are included on page 7 of this document.

3.6 **The main strategies that came out of the initial site analysis were as follows:**

3.7 The linearity of the site - maintaining an axis through the building to the landscape beyond;

3.8 The need to nestle into the bank to become part of the landscape and to minimise the visual impact on the greenbelt as well as providing sheltered areas on the exposed hillside;

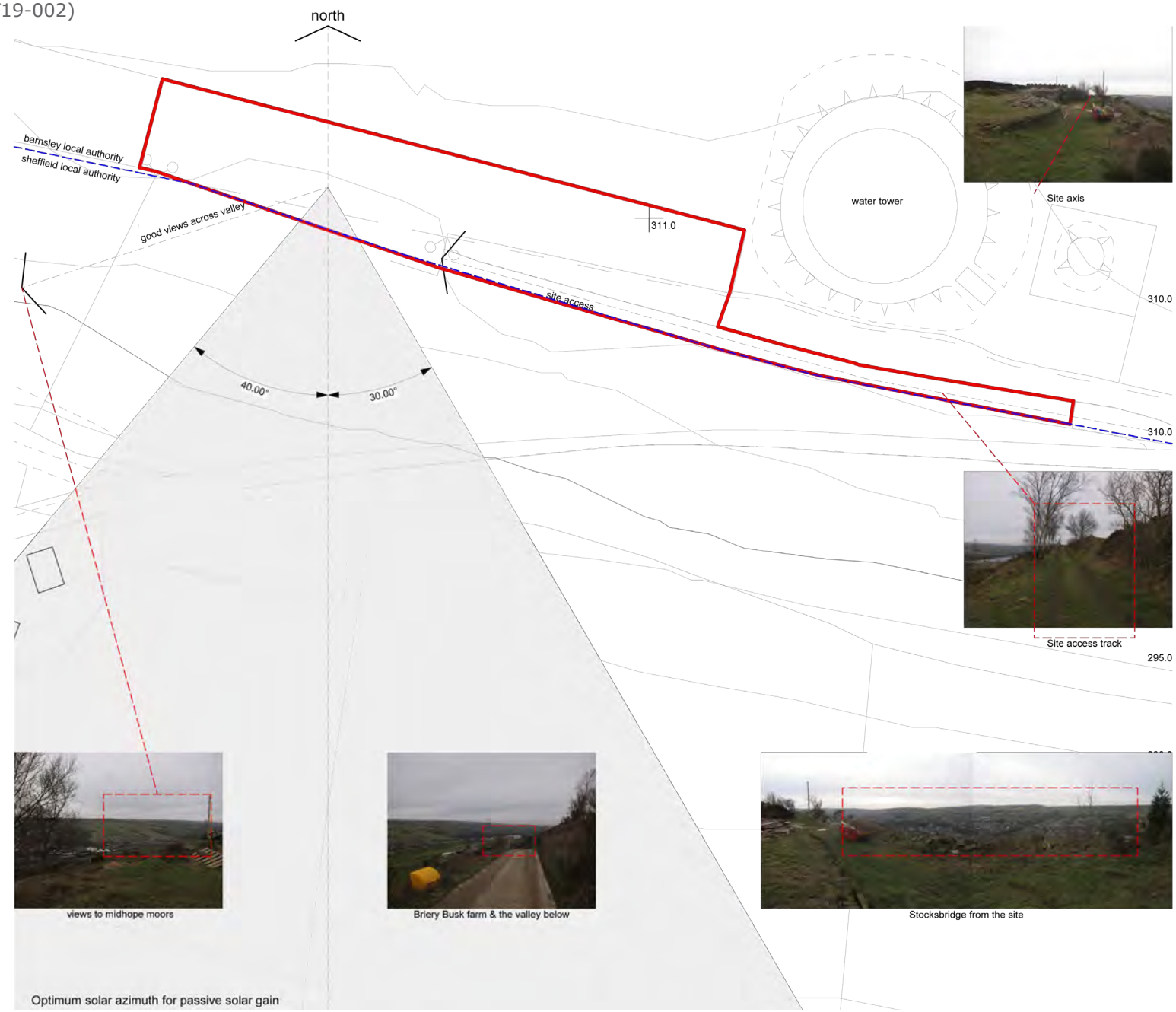
3.9 To maximise the use of passive solar gain from the south and to take advantage of the good views out to the Midhope Moors across the valley;

3.10 To utilise the language of the dry-stone field boundary walls in the design approach.

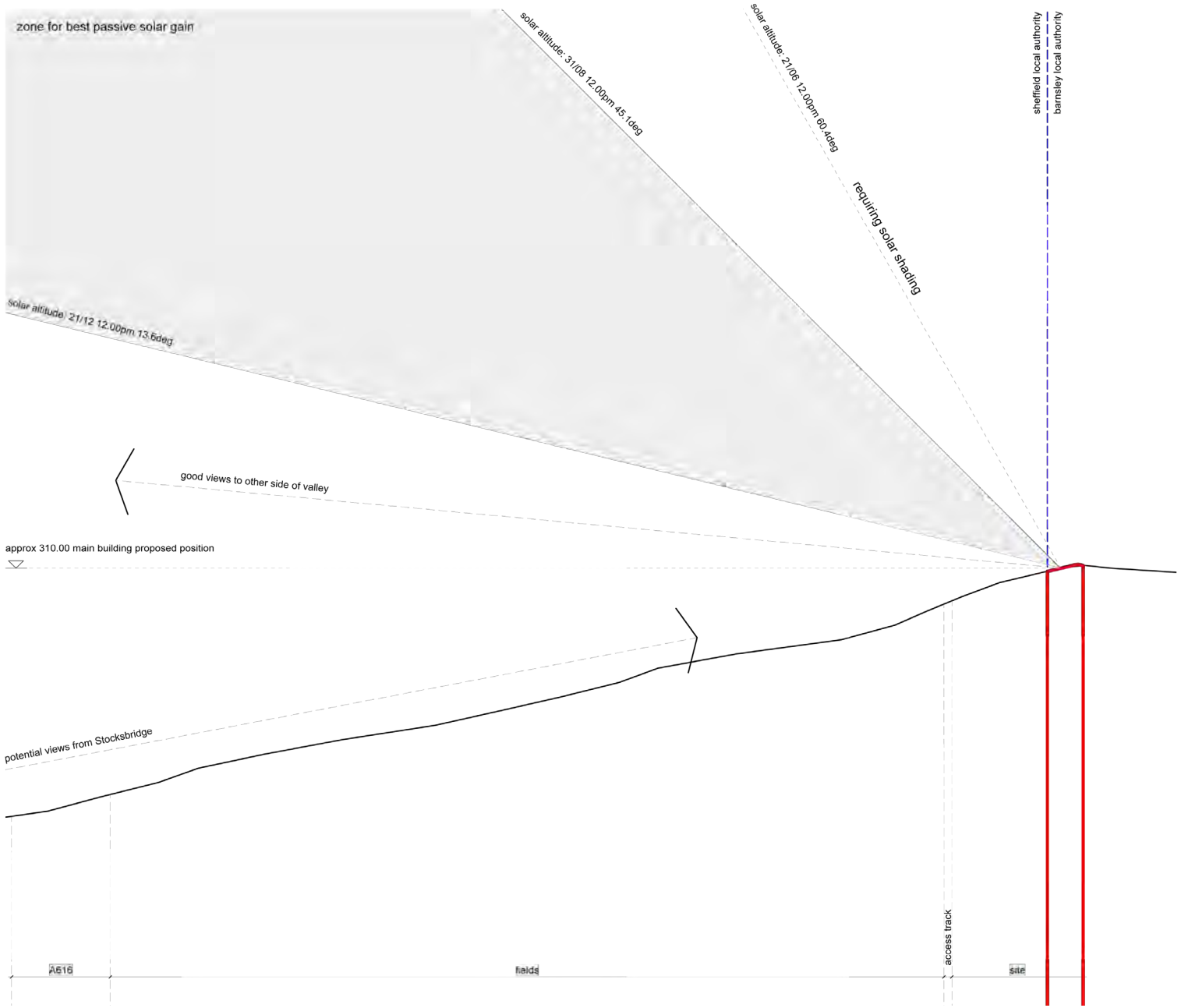
3.11 These strategies are clearly defined in the extract of drawings PT19-002 (site analysis plan) and PT19-003 (site analysis strategy) on the following two pages of this document.

above: view from Stocksbridge
middle: view from Bolsterstone
top: zoom of view from Bolsterstone

site analysis plan (Extract from drawing PT19-002)



site analysis section (Extract from drawing PT19-003)



3. The Site & The Surrounding Area

3.12 Site access is via a shared private road that services 8 existing dwellings at the converted Briery Busk Farm. A single additional family dwelling is unlikely to cause a significant change in traffic along this access road or in the surrounding area.

3.13 The residents committee at Briery Busk Farm, of which the client is a member, have been consulted about the project and no objections were raised.

3.14 A presentation about the scheme was made to Hunshelf Parish Council on 10th May 2012 and no objections were raised.

left: site entrance from access road
middle: view of site looking East
right: view of site looking West

3. The Site & The Surrounding Area

3.15 **The Surrounding Area**

3.16 Briery Busk Farm is no longer a working farm. The original workers' cottages are listed and the working buildings have also been converted into dwellings. In total there are now 8 dwellings that are served by the access road to the farm. The farm itself is in Sheffield.

3.17 Greenmoor is the location of the nearest other dwellings on the Barnsley side, yet they are some distance away and the building of a new house on the site is unlikely to have any material effect on those residents.

3.18 The farm and the site are set on Hunshelf bank above the steel town of Stocksbridge. Adjacent to the site is the water tower that serves the Stocksbridge steel mill. This adds further weight to the feeling that, although in greenbelt, the site is part of a working landscape.

3.19 The site is just visible from the other side of Stocksbridge, although this is from such a distance that the building is unlikley to have any visual impact on that view. The water tower is clearly visible from the town and would remain the major visual focus of the view up to Hunshelf Bank.

3.20 The language of building in the area is that of solidly built sandstone buildings and boundary walls with occasional timber clad agricultural buildings. The stone is very much part of the working landscape and the proposed dwelling house will continue that material approach in an innovative and site specific manner.

4. The Design

4.1 **Design Concepts and Development**

4.2 Using the principals set out from the site analysis, the scheme was developed in both model and drawing. The design was conceived as a clear circulation axis from the front entrance, through the building and out into the landscape beyond. The axis is then disected with a number of thick stone walls or fins that are like an extension of the dry stone wall to the back of the site. It's in between these fins that the various rooms are situated.

4.3 The entrance porch and the large window at the end of the axis are objects providing visual book ends to this progression. They provide moments of delight to connect with the landscape.

4.4 As you progress through the building the section changes so that optimum sun and daylight access is achieved for the relevant spaces. The building form has been generated to maximise passive solar gain during the winter months whilst minimising overheating in the summer. One of these development sections is on the following page.

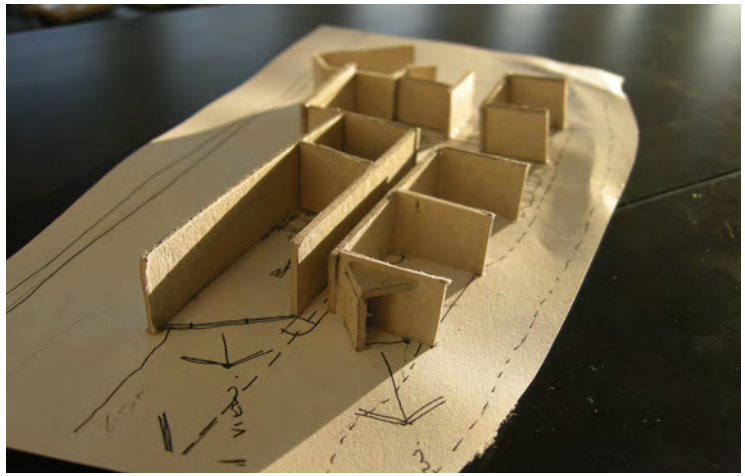
4.5 The whole building is set into the hillside and the grass and heather carry on over the roof so that the building appears completely part of the landscape and almost like an inhabited ruin. Apart from the stone fins and the green roof, the infill walls are vertical timber cladding and the eaves and porch are clad in a matt zinc.

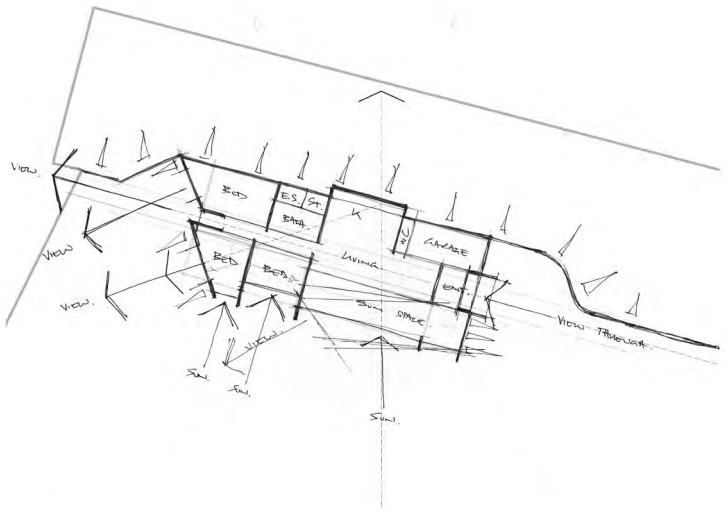
4.6 The building is designed so that it is barely visible above the dry stone wall on the Barnsley side to the North. Only the vegetated roof will be visible and this will look like the surrounding moorland.

4.7 As the outer fin walls extend out into the landscape they enclose a sheltered garden space to the south of the house. These walls start to break down as they reach the existing rubble berm to the edge of the site to enhance the idea of the house as an inhabited ruin.

4.8 Two early montages were produced to give an idea of the sensitive and contaxtual Architectural intent and language of the proposal. These are on page 11 of this report.

4.9 The roof form allows the biodiverse green roof to be accessed from ground level for maintenance purposes.





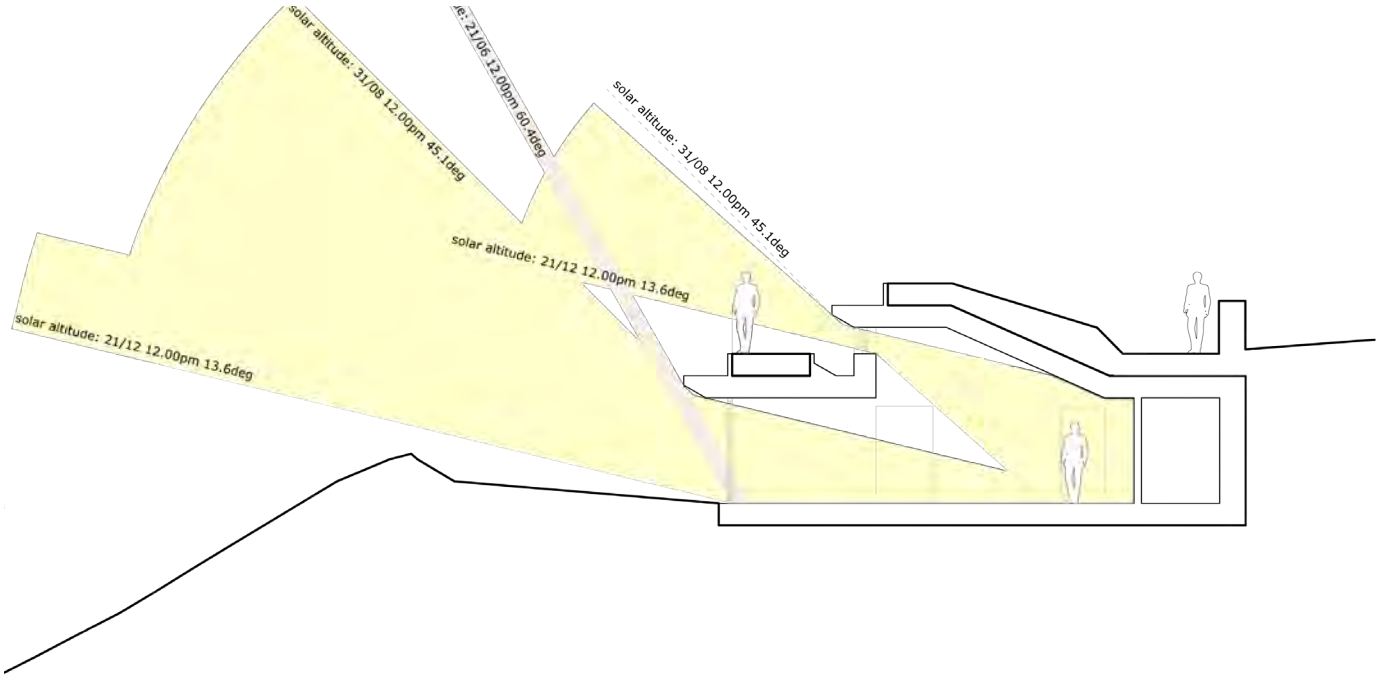
physical model and sketch development

4. The Design

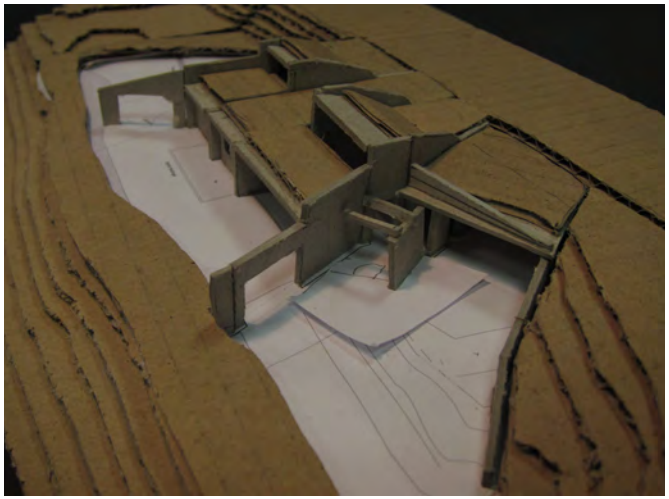
4.10 The building is designed to fit into the landscape. As the biodiverse roof matures and the stone walling weathers and grows moss, the building will feel like it is part of the landscape.

4.11 The deep overhanging eaves and fin walls will minimise reflections of glazed surfaces to, again, reduce any visual impact this building might have. To this end, the balustrade to the front of the green roof area will be of light galvanised steel construction, to minimise its reflectance.

4.12 The external domestic paraphernalia of clothes drying, garden storage etc is restricted to the driveway area where a garden store is located along with retractible washing lines.



left: design section through living space
right: latest design model



4. The Design

4.13 **The Accommodation**

4.14 The Accommodation is relatively modest with a large open plan kitchen, living and dining area, three bedrooms one with an ensuite and a walk-in-wardrobe, bathroom, storage, utility room and shower room and a large single garage.

4.15 The gross internal floor area of the building is 184m2.

left: visualisation from the south
right: visualisation of the building approach

4. The Design

4.16 **Access**

4.17 The building is primarily accessed by car. There is sufficient parking provision to comfortably meet the Council's standard.

4.18 The garage is sized to allow a wheelchair user to get in and out of a car comfortably. The entrance from garage is level and wide enough for a wheelchair user to access the building without having to go outside again.

4.19 The front entrance to the building directly off the driveway is also level and generously sized so that visitors with impaired mobility are not impeeded in their use of the building.

4.20 The house itself is level throughout with no steps or stairs. All openings and doorways have a generous structural opening of 1000mm or more. Every part of the building is fully accessible whether wheelchair bound or not.

4.21 These measures will ensure that the house will remain a useful and enjoyable place to live for the life of its occupants.

4.22 **Drainage**

4.23 Rainwater run-off will be directed off the roof to the new pond to the West end of the site as described in section 5.

4.24 Waste water will be collected and treated in a domestic package water treatment plant situated below ground within the site boundary.

5. The Sustainability Approach

5.1 The building has been designed to and will be built to full Passivhaus standards. Although Passivhaus is growing in popularity in the UK, the proposed dwelling is likely to be the first PassivHaus building in South Yorkshire

5.2 Passivhaus is about getting the building fabric right first before looking to additional "green" measures.

5.3 **Passivhaus is an energy standard:**

5.4 It sets a maximum space heating and cooling demand of less than 15 kWh/m2.year or a maximum heating and cooling load of 10W/m2. This is comparable to the upwards of 150 kWh/m2.year in the average UK house.

5.5 Maximum total primary energy demand of 120 kWh/m2/year which includes lighting and appliances.

5.6 To achieve this U values of at least 0.15 W / m2. K for opaque building elements and 0.80 W / m2. K for windows and doors are required which are considerably more onerous than current building regulations.

5.7 Air permeability of less than 1m3/m2/h @50 Pa compared to current building regulations requirements of 10m3/m2/h @50 Pa

5.8 **and a comfort standard:**

5.9 17 degC minimum internal surface temperature of building elements, making condensation incredibly unlikely, and building surfaces comfortable to touch no matter what the external temperature.

5.10 A ventilation rate of 30m3 per hour per person keeping the air quality very high.

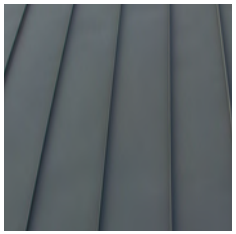
5.11 Passivhaus is estimated to provide at least an 80% reduction in CO2 emissions compared to the average UK house.

5.12 Additionally to the stringent Passivhaus standard the grass and heather biodiverse roof and the site landscaping is designed to replace and enhance local biodiversity and ecology.

Stone fin walls

timber infill walls

zinc porch & eaves



5. The Sustainability Approach

5.13 By cleaning up the site and constructing a green roofed building the ecology of the site will be repaired and brought to a reasonable level that is a considerable improvement on the current situation. It is the desire of the client, though, to go above and beyond their duty in this regard and to enhance the biodiversity of the site so that it offers a true benefit to the immediate area.

5.14 To this end, an ecological survey of the site has been undertaken and its recommendations have been fed into the design of the surrounding landscape. **Measures for the enhancement of the site's biodiversity to be incorporated are:**

5.15 Approximately 50% of the site will be left wild and uncultivated.

5.16 Log and sandstone piles are to be left to the west of the building to encourage insects and lizards. This will complimet the existing stone rubble berm to the southern boundary of the site.

5.17 Green roof using excavated topsoil, cut turf from the site plus additional mixed heather seeding to give a natural, site specific vegetation layer for maximum ecological amenity.

5.18 Clearance of bulrush from the existing dewpond near to the site.

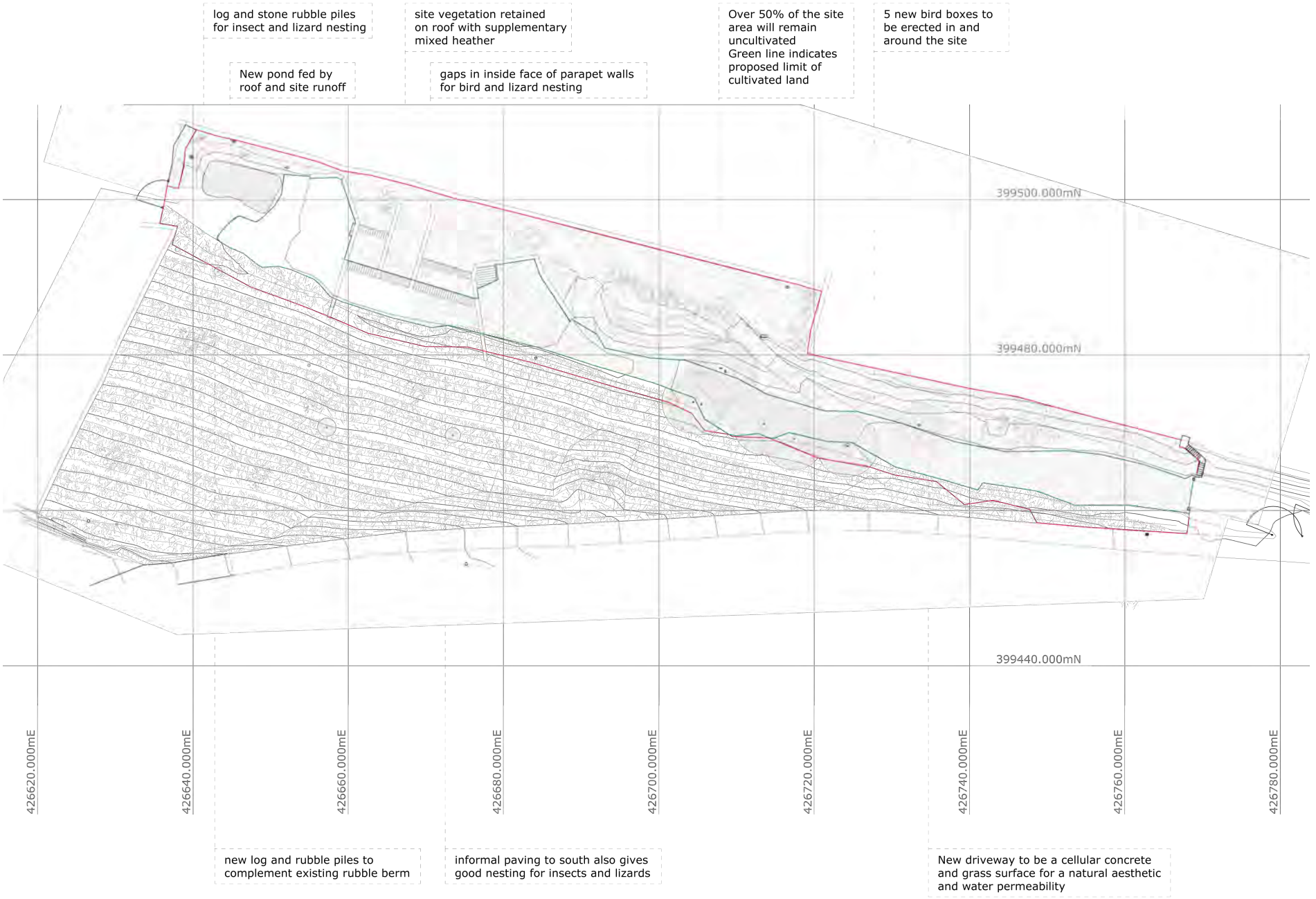
5.19 A new pond to be constructed collect rainwater runoff from the roof to encourage newt and other water life.

5.20 The paving to the driveway and to the enclosed garden will be informally laid to leave cracks and gaps for permeabiloty and lizard nesting. The access track will be a cellular concrete system sewn with grass to minimise rainwater run-off.

5.21 Gaps in the inside face of the stone parapet walls will give nesting locations for bats, birds and reptiles. To complement this, five new bird boxes will be erected in, or around, the site.

5.22 As the Passivhaus approach to the building fabric will make the energy use in the building so minimal, there will be no additional external measures such as solar panels and wind turbines. A ground source heat pumpmay be used, but this will have no affect on the external appearance of the building.

proposed site plan (Extract from drawing PT19-201)



6. Conclusion

6.1 The proposal will provide a single detached, earth-sheltered dwelling set into the brow of the valley overlooking Stocksbridge to the south.

6.2 The proposed dwelling will cause no loss of amenity to nearby properties as it will not be visible from any of them and will not add significantly to the traffic along the access road.

6.3 The proposal will have no material affect on the open nature of the Green belt. It will be effectively invisible from Barnsley and is only visible from long distances on the Sheffield side. The material and design choices are as such that it will sit very well into the landscape and visually blend into the background.

6.4 In April, the Barnsley Urban Renaissance Design Advisory Panel were very positive about the proposals. It was commented that the design was "witty and interesting, and strong in arguing the case for an exceptional and unrepeatable scheme". The main comments regarding visual impact, domestic paraphernalia and landscape enhancement have been taken on board with the design development.

6.5 The scheme demonstrates exceptional design quality, bourne out of rigorous design development, a site specific approach and a sensitive use of the landscape and materials. The proposal is pushes forward housing design in a rural context.

6.6 The proposed dwelling will also be at the forefront of sustainable design innovation in the UK. It will be the first Passivhaus building in South Yorkshire and will set a benchmark for low energy, high thermal comfort buildings in the region.

6.7 The overall proposal will see a significant enhancement to the ecology and biodiversity of the site and the immediate surroundings. As well as a visual benefit, the scheme will provide more native plant species, and increased breeding and nesting opportunities for a variety of wildlife.

6.8 As well as its exceptional and innovative design, the proposal will give positively to the site and the landscape and makes an extremely strong case for approval.

Visualisation of the building from part way along the access track. - even here the building is barely visible.