



# One Planet Development Management Plan

Laura Mears and Rob Smith

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## CONTENTS

1.	Introduction .....	2
1.1	About the applicants .....	2
2.	Management plan overview .....	2
2.1	Summary .....	2
2.2	Base line .....	3
2.3	Design/Strategy .....	18
3.	Business and improvement plan .....	20
3.1	Land based activity .....	20
3.2	Land-based business .....	21
3.3	Land management .....	26
3.4	Energy .....	27
3.5	Water .....	28
3.6	Waste assimilation .....	29
4.	Zero carbon buildings .....	30
4.1	Proposed dwelling .....	30
4.2	Visual impact .....	32
5.	Community impact assessment .....	32
5.1	Social and economic impacts .....	32
6.	Transport assessment and travel plan .....	33
6.1	Baseline .....	33
6.2	Public transport .....	33
6.3	Transport assessment and mitigation strategy .....	33
6.4	Travel plan .....	34
6.5	Monitoring .....	34
7.	Ecological footprint analysis .....	35
7.1	Summary of Ecological Footprint Analysis .....	35
7.2	Explanation of our calculations .....	35
7.3	Other footprints .....	35
8.	Phasing, monitoring and exit strategy .....	36
8.1	Phasing of proposals .....	36
8.2	Monitoring .....	37
8.3	Responding to emerging problems .....	37
8.4	Exit strategy .....	38
9.	List of supporting documents .....	38

## 1. INTRODUCTION

### 1.1 ABOUT THE APPLICANTS



Rob has a degree in Wildlife Studies and Photography and after spending time working abroad, in 2009 Rob began volunteering with the Wildlife Trust of South and West Wales which inspired a new career path in woodlands. In 2010 he participated in a green working course with [Tir Coed](#) under the guidance of experienced local woodsman Bob Shaw. Following on from this, Rob has been contracted by Tir Coed, initially as a Support Worker and then as Lead Tutor on a number of courses and projects. He has also

worked as the Warden at [Longwood Community Woodland](#), Lampeter and Operations Manager at [Wisewoods Wales](#), Tir Coed's social enterprise based at Coed Tyllwyd, Llanfarian. He has been full-time self-employed since September 2014 working in Allt Cefn Ffynnon to produce firewood, fulfilling private commissions (benches, chairs, bridges etc.) and producing charcoal. He also works locally, undertaking woodland management for private woodland owners; spent four years working alongside Ben Grey at [Pen yr Allt](#) with young people from the pupil referral units of Ceredigion schools; on the Ceredigion Coast Path installing steps and making access improvements and continues as a tutor for Tir Coed at Coed Tyllwyd where he has taught the Sustainable Woodland Management course for the past three years (2015-2017). Recently other work for Tir Coed has included a spoon carving day for members of the Bronglais Palliative Care Team and bench building with the Youth Justice Service. In September he began tutoring Tir Coed's first winter management course in Pembrokeshire, as they pilot expansion into new counties.

Laura has a degree from Swansea in Marine Biology and Spanish and an MSc from Bangor in Marine Environmental Protection. In November 2009, Laura began working as the Project Officer at the [Cardigan Bay Marine Wildlife Centre](#) in New Quay but sadly, owing to lack of funding, that post came to an end in March 2015. However, she now works part-time as an administrator and paddleboard instructor at [Cardigan Bay Watersports](#) and also from home for the [Jon Egging Trust](#) as their Operations Officer.

Outside of our work, Laura is a crew member on the New Quay lifeboats and we are both active members of Clwb Rhwyfo Crannog (Celtic longboat rowing).

We are committed to living a low impact, sustainable life and it is our wish to be able to fulfil this ambition in the area that is our home.

## 2. MANAGEMENT PLAN OVERVIEW

### 2.1 SUMMARY

This is a prospective application for a low impact dwelling house at Allt Cefn Ffynnon, close to our rented home in New Quay, to provide permanent accommodation for Robert (Rob) Smith and Laura Mears in accordance with One Planet Development (OPD) guidance set out by the Welsh Government in TAN 6. Our proposed dwelling will be a modest single story 6x12m building, designed to be zero carbon in both construction and use. We have taken a great deal of time and care to show how we can fully meet the stringent requirements of the planning policy. We received pre-application advice in a meeting with Rhydian Williams on 20<sup>th</sup> January 2016 and have followed the advice we received. We have consulted with our neighbours at Ffynnon Gloch farm, Berllan, Woodlands Holiday Park and The Woodland Trust, providing them with a copy of this document, and we have received no objections.

We purchased Allt Cefn Ffynnon in April 2012. It is a 6.48 hectare (16 acre) parcel of land comprised mainly of mixed broadleaf woodland with half a hectare (1.25 acre) of scrubland where the proposed dwelling will be sited. Full planning permission was granted in January 2014 for construction of a workshop and timber storage area (application number A130898). This was built by Rob using traditional timber framing techniques with all timber used in construction coming from the site or other local woodlands that Rob helps to manage.

Our land based enterprise will centre on firewood and charcoal production, bespoke furniture, high quality sawn timber and other woodland crafts. Guided by our own knowledge and experience of our land and woodland management in general, and in conjunction with advice from Coed Cymru, we have set out our vision for sustainable use of the land. To demonstrate our ability to meet the criteria for an OPD, within this management plan we have assessed the baseline characteristics of the site to show its suitability for our proposed development, described in detail our Design Strategy and Business Plan, calculated our minimum needs and addressed how these will be met from the site. We have given a timeline for development which shows how we intend to phase the development to complete the tasks to meet our needs in terms of food production, business income and enhancement of the site.

We have thoroughly assessed all community impacts and we have identified many ways in which our development will positively affect the surrounding community. Positive impacts include conservation and enhancement of local biodiversity, the supply of charcoal and firewood from our sustainably managed woodland and the preservation of traditional rural crafts. We have detailed how we intend to mitigate any negative impacts.

We have undertaken a Transport Assessment and Traffic Plan which details how living on site will in fact reduce our traffic impact on the site.

In our Ecological Footprint Analysis (EFA) we have provided projections of how our ecological footprint will decrease when we live on site and that we will be able to meet the requirement for a footprint of 2.4gha per person.

Finally, we also explain how we will monitor our progress against our goals and the planning requirements and have given a detailed exit strategy to be implemented in the event of failure.

The Design and Access Statement (supporting document E1) has been prepared in line with the guidance issued by Ceredigion County Council and covers accessibility, character, community safety, environmental sustainability and movement to/from/within the development.

## 2.2 BASE LINE

### Location, area, shape and boundaries

Grid reference: SN420583

Nearest postcode: SA45 9ST (Woodlands Holiday Park)

The land is located along the Llethi valley, off the B4342 from Llanarth to New Quay.



**Figure 1. Annotated Google Earth image showing the location of Allt Cefn Ffynnon (circled) in relation to the surrounding settlements**

Llanarth is an ancient settlement less than 1km to the south of the site and is among the oldest settlements in Ceredigion. Set just inland from the Cardigan Bay coast, it is centred on the crossroads formed where the A487 coast road meets the B4342 to New Quay. There is a pub (Llanina Arms), a petrol station, butcher's and farm shop, a convenience store, garden centre and primary school.

Gilfachreda is a small village in the community of Llanarth, approximately 1.3km to the northwest of the site.

New Quay is a popular seaside holiday resort but the town was once a thriving port and important for shipbuilding with wooden boats being built on the local beaches, including Cei Bach. It is situated approximately 3.5km from the site.

Allt Cefn Ffynnon is a site of 16 acres in total, of which 14.75 acres is mixed deciduous woodland and 1.25 acres of scrubland.



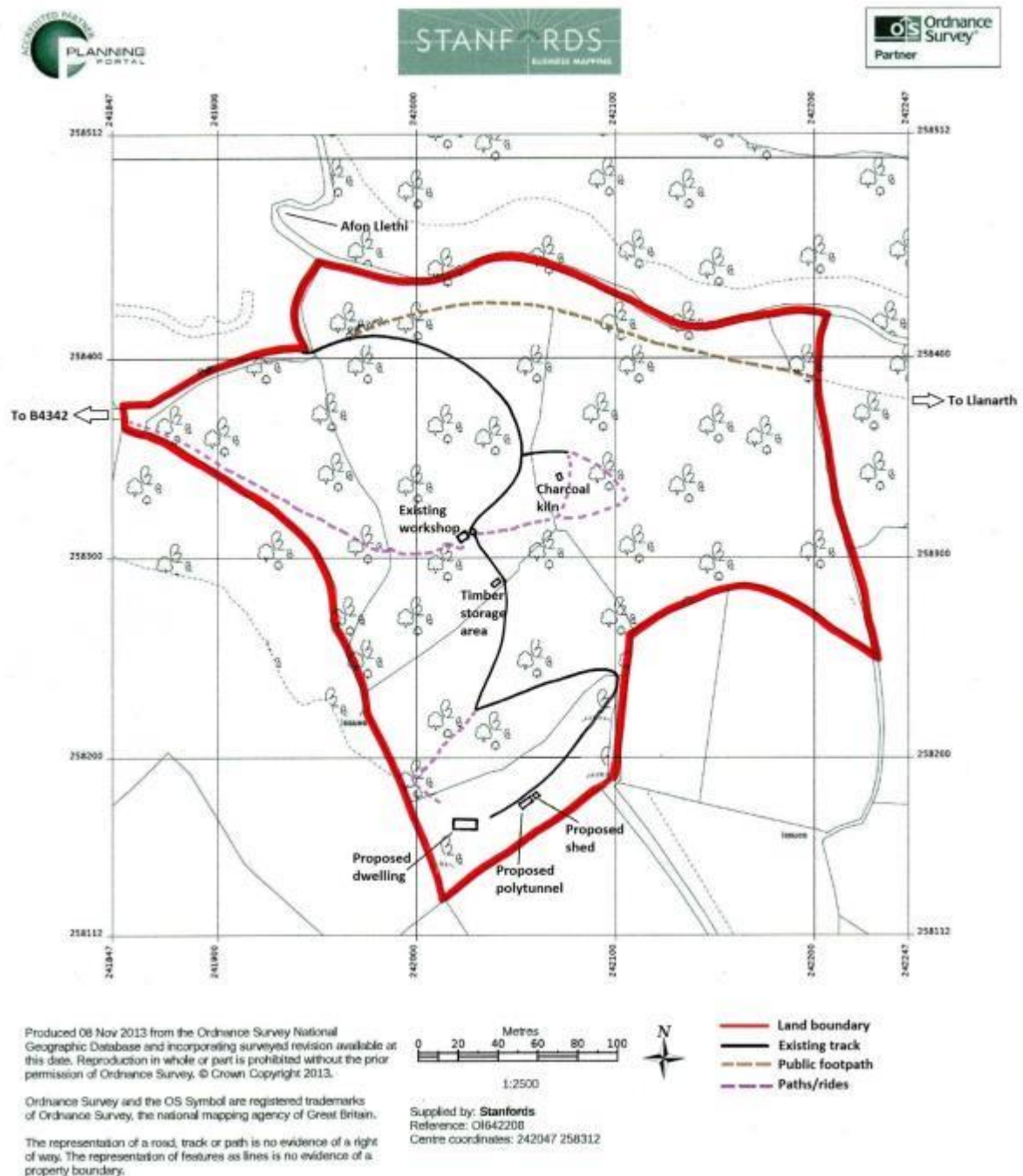


Figure 2. Map showing boundaries and significant features

The land borders Woodlands Holiday Park and the Afon Llethi to the north and farmland at Ffynnon Gloch to the south and west. Further farmland owned by Berllan borders our woodland further along to the south and south east. To the north west there is a small strip of woodland still owned by Ffynnon Gloch farm which adjoins the Woodland Trust site of Coed Perthneidr. To the east is another area of Woodland Trust land Allt Cefn Maes Llan.

Low earth banks and unmanaged hedgerows which now include a number of standard trees border our land and the farm land. Stock fence is also in place along these boundaries. Our eastern boundary is defined by a stream and the west by an old earth bank and access track leading to Ffynnon Gloch farm.

### Context/adjacent land uses

The woodland over the river to the north is largely steep-sided deciduous woodland – mainly young oak coppice but off the steep hill to the east, the wood is made up of compartments of unmanaged plantation woodland (including Douglas fir, Corsican pine, larch, Norway spruce and others). The woodland directly to the east and west of us is very similar in composition to ours – high canopy ancient deciduous woodland on a northern slope.

The farmland to the south and west is grazed by sheep and cut for hay/silage and to the south east is grazing for ponies.

To the northwest we share a boundary with Woodlands Holiday Park which is open for 12 months of the year. It is a complex of over 100 chalets, lodges and mobile homes, a number of which have been granted permission for year round occupancy. The majority of chalets are privately owned.



**Figure 3. View from high above proposed dwelling site looking northwest over Woodlands Holiday Park and towards New Quay headland. Image courtesy of Chris Morse F4photowales**

### Tenure

The site is owned freehold by Laura Mears and Robert Smith.

### Existing on-site services

There is no mains water or electricity to the site. A mains sewer to which we have no access and do not seek any, runs along the northern boundary.

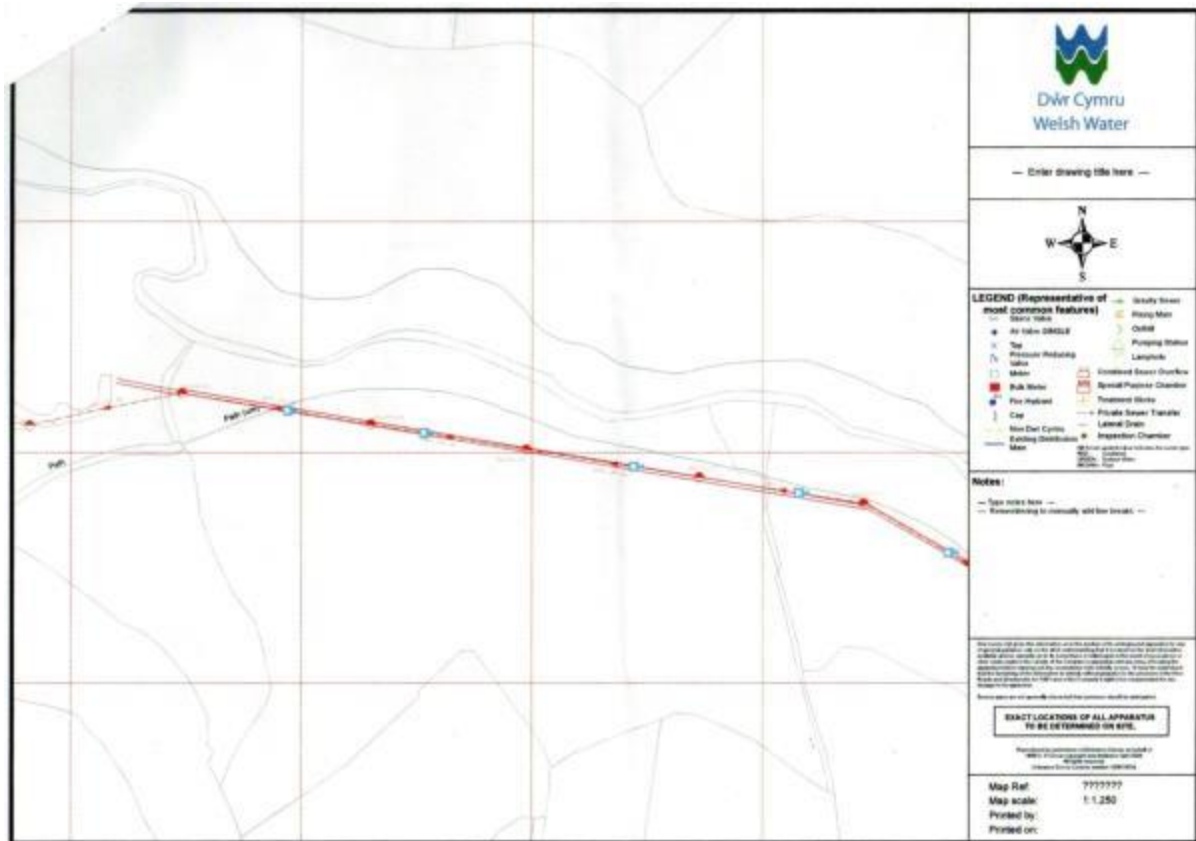


Figure 4. Map showing location of sewer pipe through the woods

### Access

We have vehicular right of access over the footpath (route code 51/41) that runs from the B4342 to Llanarth. This footpath runs alongside Woodlands Holiday Park and parallel to the northern boundary of our land. A private track from the footpath provides vehicle and pedestrian access to the centre of the woods and workshop. The footpath and private track are surfaced in locally quarried stone. This track joins another that zig zags up the hill to the proposed dwelling site. This track is unsurfaced but suitable for pedestrians and our quad bike.

There are no other footpaths or rights of way through our land.





Figure 5. View from the footpath towards Llanarth (left) and our gated entrance leading to the workshop

**Physical: Geology, topography and soils (including agricultural land classification)**

The British Geological Survey<sup>1</sup> classifies the underlying geology of the site as:

*'Till – Diamicton. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters'.*

According to DEFRA<sup>2</sup> the Agricultural Land Classification (ALC) for Ceredigion is 8% grade 3, 51% grade 4, 31% grade 5 and 9% non-agricultural. Although these figures are low, barley has been grown on the productive coastal fields of Ceredigion, known as the 'barley belt'. The disclaimer on the website itself states that the map is not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. Indeed our neighbours at Ffynnon Gloch farm have a productive fruit and vegetable plot at a very similar height and aspect as our planned plot which gives us confidence that our site will be able to provide for our needs. Soil depth on the site ranges from approximately 300mm in the south of the site, to over 1m in other places.

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<sup>1</sup> <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

<sup>2</sup>

<https://uwe.maps.arcgis.com/apps/StorytellingTextLegend/index.html?appid=f33513363f6c4cfd96e683df79f34a02>

The soil type as assessed by LANDIS<sup>3</sup> is '*freely draining slightly acid loamy soil*' (Soilscape 6) Woodland type national vegetation classification W8 (lowland mixed broadleaved woodland with dog's mercury).

The woodland site is on a shallow to moderate slope with a northerly aspect. Generally in well-drained soil of good depth with damper areas closer to the valley bottom, the site is capable of supporting (and is currently doing so) a viable stand of native broadleaves. The height above mean sea level is 70-130m and the woodland enjoys sheltered conditions despite being no more than 1.5 miles from the sea<sup>4</sup>. The proposed development site is situated on 1.25 acres of open, gently sloping scrubland at the top of the slope. Maps and satellite imagery suggest that as recently as 1999, this particular area was pasture land. It slopes gently from southeast to northwest, dropping by approximately 2m over a distance of 30m.

### Biodiversity

According to LANDMAP<sup>5</sup>, our land falls under two distinct landscape habitats – the sloping woodland area to the north and the scrubland area to the south. The following are copied directly from LANDMAP outputs.

#### The woodland area

- Aspect area name: Aberaeron valley mosaic
- Aspect area classification: Dry (Relatively) Terrestrial Habitats/Mosaic/Mosaic (Level 3)
- Aspect area code: CRDGNLH069
- Dominant Phase 1 habitat types: Improved Grassland (32%) is the most dominant, followed by Semi-natural Broadleaved Woodland (22%)
- Main land management activities: Stock grazing
- Key features that define this area's biodiversity character: This aspect area contains an interesting section of coast with cliffs, sandy bays and rocks. ..The aspect area also contains a number of important oak woodlands which feed down to the coast in an important habitat network... An extremely large range of rare plants, important insects and significant terrestrial and marine mammals are recorded from the area...
- Evaluation value and condition: Outstanding, Unassessed
- Principal management recommendation: Where native species occur, adjacent to the coast, reducing agricultural inputs to allow native species to re-colonise would aid biodiversity
- Guideline: Medium Term (Where native species are present reduce inputs to encourage reversion...); Medium Term (Manage recreational pressure carefully); Medium Term (Away from coast, where hedges are gappy replant and lay...)

#### The scrubland area (and proposed dwelling site)

- Aspect area name: Dihewyd Grasslands
- Aspect area classification: Dry (Relatively) Terrestrial Habitats/Grassland & Marsh/Improved Grassland (Level 3)
- Aspect area code: CRDGNLH076

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<sup>3</sup> <http://www.landis.org.uk/soilscales/>

<sup>4</sup> Forestry Commission Wales Brief Management Report compiled for the woodland at Ffynnon Gloch, 12<sup>th</sup> April 2012 (supporting document B5)

<sup>5</sup> <http://landmap-maps.naturalresources.wales/Map2.aspx?GridRef=SN420583;2300&MapCollectionName=Landmap>

- Dominant Phase 1 habitat types: Improved Grasslands (83%) followed by Semi-natural Broadleaved Woodland (3%)
- Main land management activities: Stock grazing
- Are there clear opportunities to improve the biodiversity aspect of this area? Yes. Reducing agricultural inputs would aid biodiversity
- Key features that define this area's biodiversity character: An area of pasture fields with many thick, species rich hedges and small ribbons of broadleaved woodland. There are some wet grassland areas and a small but interesting complex of hay meadows. Some interesting species have been recorded from the area. The better drained fields are managed for hay and occasional arable land.
- Evaluation value and condition: Moderate, Unassessed
- Principal management recommendation: Where native species occur, especially on wetter grassland, reducing agricultural inputs to allow native species to re-colonise would aid biodiversity.
- Guideline: Medium Term (Where native species are present reduce inputs to encourage reversion.); Medium Term (Where post and wire fences exist plant hedgerows.); Medium Term (Where hedges are gappy replant and lay.)

An Extended Phase One Habitat Survey was conducted between April and May 2016 by consultancy staff from the Wildlife Trust of South and West Wales. The report (supporting document B1) identifies the presence of some notable species such as badgers, bats, otters and breeding birds and provides recommendations for their conservation. Although not recorded on the site by either ourselves or during the Phase 1 survey, we have given consideration to the presence of slow worms and other reptiles. As such, we have manipulated the scrubland habitat within the proposed development site to keep the vegetation low to discourage reptiles, while leaving suitable habitat and corridors for them around the peripheries of the site and this will continue post development. The report concludes that *'The best approach to any development, regardless of size, is to understand the likely impacts on wildlife at an early stage so that plans can develop during the design phase with full consideration of local biodiversity. This responsible approach has been followed with regard to the current development.'*

### Cultural heritage

Under the cultural layer on LANDMAP<sup>5</sup> the two habitat areas of our land (the woodland and scrubland) are both identified as:

- Aspect area name: Lowland
- Aspect area classification: Influences/Material expressions/Rural/Agricultural (Level 4)
- Aspect area code: CRDGNCLo29
- Level 4 classes particularly significant to the cultural landscape character of this area: Agricultural, Rural Crafts, Forestry, Fishing/ hunting, Rural Settlement, Light Industry & Technology, Trade, Retail & Commercial, Communications & Transport, Services, Tourism
- Evaluation Criteria (Potential (Culture)): Considerable (There is potential for diversification and for further development of small rural craft businesses on the lines of existing ventures in harp-making and honey production.)

There are no known sites of archaeological or cultural importance on this site however this valley system leading down to the sea at Cei Bach may have played a significant role in supplying the ship building industry there.

Old earth banks with unmanaged hedgerows define some of the boundaries. We have begun to lay these hedgerows to improve habitat diversity and connectivity.



### Existing buildings

There is only one existing building on site, our workshop measuring 4x5m. A full planning application (application number A130898) was submitted prior to construction and permission was granted in January 2014. Rob began construction later in 2014 using traditional timber framing techniques. Timber for the main structure (oak and ash) came from the site. Larch cladding was sourced and milled by Rob from a woodland in Abermeurig that Rob has helped to manage for the last six years. The roof is corrugated green tin with two sheets of corrugated plastic to allow light to enter.



Figure 6. Our woodland workshop

### Landscape

Mixed broadleaved woodland is the main landscape feature of the site covering approximately 14.75 acres. Our site is part of a larger heavily wooded lowland valley system, owned both privately and by the Woodland Trust.



Figure 7. Aerial view to the east along the Llethi valley and towards Llanarth. Image courtesy of Chris Morse F4photoswales

The planned development area is currently scrubland. Historical maps show that the top of the site until recent history was open agricultural land that has since become overrun with brambles, bracken and blackthorn. There are young (10 years old) ash trees at the eastern end. South of the site is agricultural pasture and grassland. There was an unmanaged hedgerow to the south and



south west and along the footpath bordering Woodlands Holiday Park. Although this is not ours, in an effort to improve biodiversity and visual impact along the path, Rob began to lay this in 2016. In February 2017, we began to lay the hedgerow to the south between ourselves and Ffynnon Gloch farm.



Figure 8. The previously unmanaged hedgerow on the south western boundary with Ffynnon Gloch farm



Figure 9. February 2017 after the hedge has been laid





Figure 10. Hedgerow regrowth in June 2017



Figure 11. Hedgerow regrowth in October 2017

The north of the site is defined by the Afon Llethi which discharges at Cei Bach/Llanina Point.





**Figure 12. Afon Llethi, our northern boundary**

There are no views into the site from the road. From the footpath you can see the wooded slope of the site but the workshop is not visible. The proposed dwelling site (beyond the workshop) is also not visible from the footpath, nor will the completed dwelling be visible. The dwelling will be screened from the agricultural land by hedgerows.



**Figure 13. View from the footpath looking south and up the wooded slope towards the proposed dwelling site which is approximately 260m away and beyond the wood. Taken 06/10/2017**



Figure 14. The view from the same point on the footpath looking north into Woodlands Holiday Park.  
Taken 06/10/2017

#### Past land use

The northern part of the site is more wooded today than it has been since 1843 (the earliest map we have been able to access). There are signs of divisions in the woods in the form of old earth banks suggesting the land may have been used for agriculture, probably woodland pasture. Historical maps show that the top of the site (the proposed dwelling site) was until recent history (1999) open agricultural land that has since become overrun with brambles, bracken and blackthorn.





Figure 15. 1843 map with Allt Cefn Ffynnon circled



Figure 16. Aerial photograph from 2000 showing proposed development site as open field (circled)

### Present land use

The majority (14.75 acres) of the site is ancient semi-natural woodland which is used to provide firewood, charcoal and materials for craft and furniture making activities. The remaining 1.25 acres is composed of young ash and willow to the east while the west is more scrubland of brambles, bracken and blackthorn that we have begun to clear. The cleared area (approximately 0.4 acres) will be the site of the dwelling, garden (to be planted with vegetables, soft fruit and fruit trees) and polytunnel. A pond will be created in the dampest area to the southeast amongst the willows and a nursery to bring on young trees for future planting in the wood will be situated in between these areas. There will likely be a transition area between dwelling/garden area and the tree nursery/pond area which will be given over to wild flowers, grasses and ferns.



Figure 17. Proposed dwelling site at the southwest boundary October 2017. Photo courtesy of Chris Morse F4photowales

### Statutory designations

There are no known statutory designations on the site or in the immediate vicinity.

### Landscape features (on site and immediate vicinity)

Hedgerows, scrub, woodland, pasture land, river.

### Existing transport

The B4342 is served by the T5 bus service Aberystwyth-Cardigan which runs hourly Monday to Saturday. The nearest bus stop is approximately 300m from our northwestern boundary along the footpath and situated just outside Woodlands Holiday Park.

Currently the site generates on average 7.5 vehicle journeys a week as we visit the woods daily for recreation, to carry out woodland management, activities in the workshop and to check the site. We are also joined by occasional casual workers who assist Rob with woodland management tasks that require more than one pair of hands.



## 2.3 DESIGN/STRATEGY

### Introduction

When we bought the woodland in 2012, it showed little or no sign of having been managed within the last 30 years. The estate agent's details (supporting document B7) stated 'immediate return on money.' This is reflected in the felling licence that we inherited with the land for over 350m<sup>3</sup> (supporting document B2). That is a lot of wood – around 30% of the total at the time – and extracting this in a short space of time to provide that 'immediate return' would have had a huge negative impact to the biodiversity and aesthetics of the site. The footpath and forest floor would have had to cope with tractors and large forestry machinery and the change would have been fast and harsh. While this approach might be appropriate for softwood plantation management, we believe mature, native (broadleaf) woodland needs to be managed with a more delicate hand and if the aim is to profit from the woodland, to do this by selling high grade and value-added timber products. Our aim is to sensitively manage the woodland for good quality timber in the future. We are, and will continue to fell trees for our own gain but it is done with great consideration and with a much reduced impact when compared to what could be legally done. To date we have felled no more than 70m<sup>3</sup> (14 m<sup>3</sup> per year on average) which demonstrates our low impact approach. We are practising low impact, sustainable woodland management, working to the principles of continuous cover forestry. Our Phase 1 habitat survey highlights the benefits of our management strategy: *'The light woodland management practices adopted within the compartment have helped create a more open woodland structure, enabling more sunlight to the ground layer and subsequently supporting additional woodland flora, including Early Purple Orchid (Orchis mascula) and Common Twayblade (Neottia ovata). The worked woodland also supports a number of deadwood piles, which offer additional habitat.'*

Our objectives in managing the woodland are to:

- Positively enhance the flora and fauna by increasing diversity and creating new habitats
- Increase future timber value in the woodland
- Bring positive social and economic benefits – we want to remain in the community and develop stronger links with local businesses, promote sustainable use of resources and aid rural regeneration. We believe we can create economically and environmentally sustainable employment for ourselves

### Overall distribution of land uses

The site as a whole comprises of 16 acres. The majority of land (14.75 acres) is broadleaved woodland with 1.25 acres of former pasture land. We have begun to bring the woodland into management. This will not only enhance the timber value by selecting for future timber trees but also the biodiversity value by creating a patchwork of woodland habitats, with different layers and age structure of trees, moving quickly towards a continuous cover management system.

Our workshop is situated on flat ground within the woodland, towards the northwest which allows good access from other areas of the wood, such that timber can be brought to the workshop and processed in a central area with good vehicle access. Our dwelling and growing areas will be situated in the southwest corner of our land, in the 1.25 acres of former pasture land rather than in the woodland itself. After much consideration this area has been chosen because of its open aspect and only shallow slope which maximises food growing potential. Additionally, there is no danger from large trees. To build a dwelling near the workshop is impractical because being located at the bottom of a northerly slope, the area receives no sunlight in the winter, meaning we could not generate solar energy. It would also involve clearing a large area of mature trees to limit danger to the house from windblown trees. Building on the open area to the south will result in little additional disturbance to the woodland, given that we already have a workshop there.

Of the area of former pasture land, one third will be used for a dwelling house (floor area of 72m<sup>2</sup>), polytunnel (3.05x7.6m), vegetable and soft fruit growing areas and orchard. The remaining two thirds of this area will be managed as a nursery for young trees, wild flower and grass area and a pond will be created in the dampest section to the southeast. The growing areas will be closest to the house with areas requiring less maintenance further away so that disturbance to wildlife is minimised. There is a gradual grading of dwelling site to garden, wild areas and woodland. Situating the house away from the workshop will also provide privacy during times when we are using the workshop for running courses.

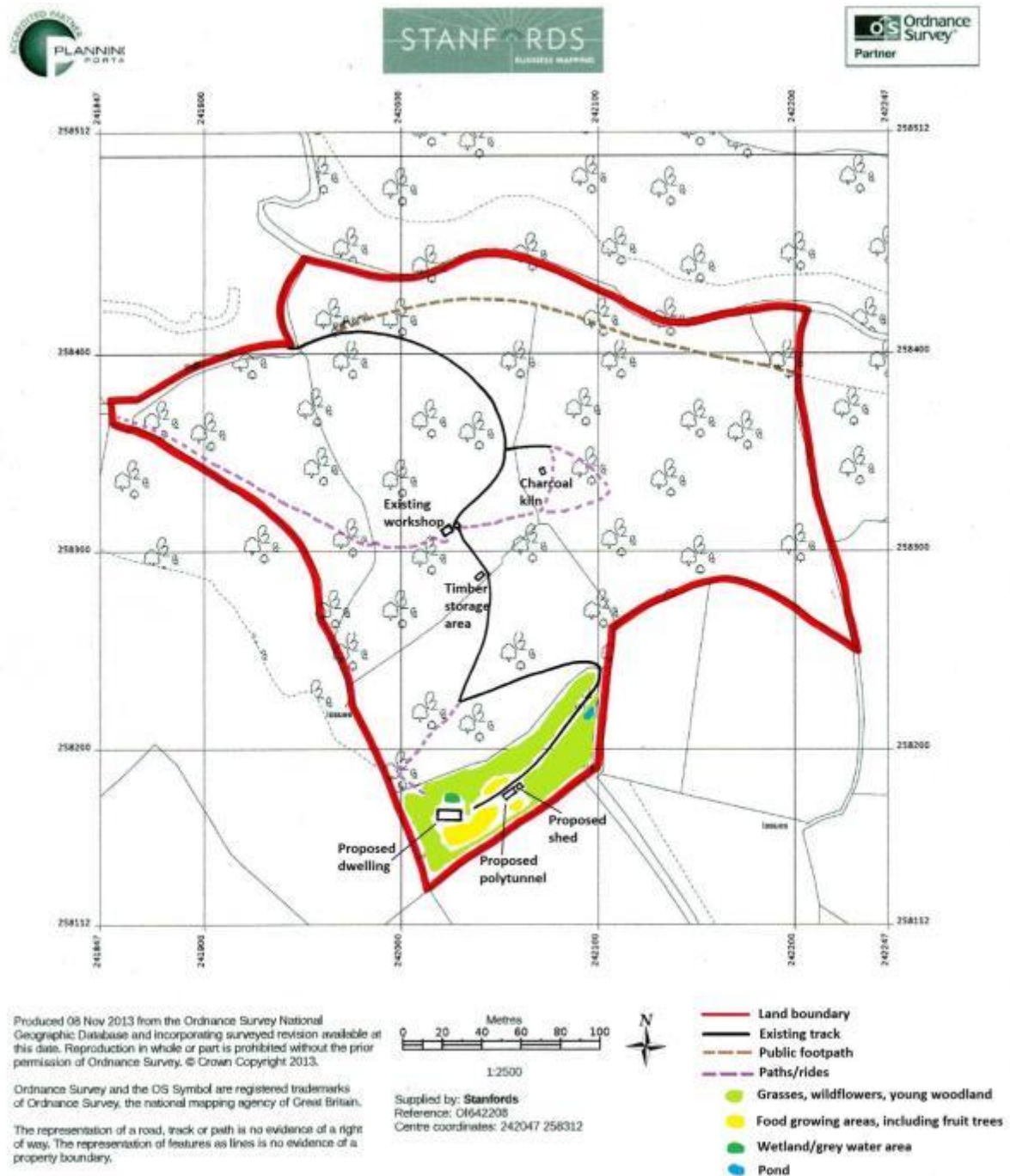


Figure 18. Masterplan for the site

### The number of households accommodated

The site will accommodate one household with two permanent residents – Laura Mears and Rob Smith. We have produced a business plan that demonstrates that we will be able to provide for our basic needs. Activities and hours worked will vary by season. In winter (late October to end of March), we will be mostly concentrating on woodland management activities, such as felling and processing trees for timber, firewood and charcoal production. From April to October more time will be dedicated to converting the material (milling) and the craft and teaching side of the business. Tending the growing areas for food production will continue year round, with likely more time needed for that during spring to autumn.

### Mechanisms for overall management of the site

While we will be jointly responsible for the overall management of the site, it is expected that Rob, due to his experience, knowledge and ability, will make more of the woodland management decisions in terms of which trees to fell and areas to work and he will continue to lead on this practical work. Laura will take the lead on food production, administration of the enterprise and the monitoring and evaluation parts of our One Planet application.

### Outline programme for development

Year 1: Work on dwelling and move onto land

- Clear growing areas and begin to establish vegetable and soft fruit plots
- Continue with woodland management for firewood and charcoal production and for building materials

Year 2: Complete dwelling

- Erect polytunnel and introduce chickens and ducks. Increase food production
- Hedgelaying along field and footpath boundary
- Create pond
- Begin to offer short courses
- Continue with woodland management
- Construct outdoor kitchen area for summer use

Year 3: Introduce bees to site

- Devote more time to furniture and crafts
- Continue with hedgelaying
- Continue with woodland management, concentrating on thinning compartment 1

Year 4: Increased focus on furniture making. Increased number of short courses offered and longer ones developed

- Continue with woodland management, finish thinning compartment 1

Year 5: Keep hedgerows under management and continue with woodland management

## 3. BUSINESS AND IMPROVEMENT PLAN

### 3.1 LAND BASED ACTIVITY

Table 1 shows our minimum needs calculation using the five categories as set out in the OPD Practice Guidance.

Minimum need	£
Additional food	1008
Clothing	225
IT/Communications	623.76
Travel	1000
Council tax	928.50
<b>Total</b>	<b>3785.26</b>

Table 1. Projected minimum income needs for year 5

- Additional food – based on projections for food to be purchased, such as grains, nuts, pulses, sugar etc. that we are unable to produce ourselves
- Clothing – based on current household spend
- IT/communications – based on predicted figures for two mobile phones and mobile broadband
- Travel – based on predicted figures
- Council Tax – based on 2017/2018 Ceredigion figures for Llanarth band A
- The final row shows the amount of land-based income needed to be generated

As presented in our ecological footprint analysis (supporting document C1), spending on fruit and vegetables accounts for 49.6% of our current food spend. However we also plan to eventually produce our own eggs, honey and mushrooms and forage for wild foods on site and locally at the coast. Once our growing areas are fully established by year 5, we expect to be far exceeding the minimum target of 35% grown/raised on site and 30% bought with land-based income or bartered.

### **Vegetables and herbs**

We expect to be self-sufficient in vegetables and herbs. We will use a combination of traditional garden beds and pots. In year 2 we expect to erect a polytunnel to increase the variety of vegetables we can grow to include the more delicate and heat-loving plants and to extend growing season.

### **Fruit**

We already have a number of fruit trees ready for planting and intend to plant more in year 1 so that by year 5 we have a useful crop. Likewise we have a number of soft fruit bushes and rhubarb plants to transfer to the site from our current residence and plan to take cuttings and purchase more varieties to increase this number such that we will have a useful crop by year 2.

### **Eggs and dairy**

We will introduce chickens and ducks to the site in year 2 but until then, we will continue to source local, free range eggs. Milk will be bought locally.

### **Cereals, grains, starches, sugar etc.**

These products will be bought in due to lack of suitable growing conditions.

### **Foraging**

We benefit from the presence of a wide range of wild foods, including nettles, hawthorn, elder, blackberries, wild garlic and many more. With close proximity to the coast, we can also forage for seaweed. The ongoing management of the land is likely to increase the diversity of species and their availability.

### **Storage**

Drying, bottling, pickling and preserving will be key in seeing us through the hungry gap of spring time.

## **3.2 LAND-BASED BUSINESS**

Income to cover our minimum needs will be derived from firewood, charcoal, furniture, high quality air dried timber, greenwood crafts ('primary activities') and courses in the above. Our business plan is intentionally simple to keep it realistic and achievable. Although we have been conservative in our estimations, we are confident in our figures, particularly as firewood and charcoal income are based on actual earnings for this year (2017).

Rob has been working as a woodsman and earning money from crafts since 2011, giving him a proven track record of employment, knowledge and experience in this field. When he began

working in this field, he gained a number of relevant qualifications including a Level 3 NVQ in sustainable woodland management, CS31 and CS32 chainsaw certificates and an NPTC Level 2 Certificate of Competence in forest machine operations (FMO1. 3RD and FMO4. 1). He also has excellent personal links with other local organisations and individuals, e.g. Tir Coed, Pen Yr Allt and Coed Tamsin. We also have established links with local outlets to stock our charcoal and with members of the local community who buy our firewood. Examples of Rob's work are shown below.

The simplicity and feasibility of our business plan comes largely from the fact that we have a raw product in place and available now – timber. As discussed earlier, our approach is gentle and sustainable, we are not looking for an instant return. Instead, we will concentrate on value-added products. To maintain gradual and gentle thinning of trees, we are not relying on generating increased income from either firewood or charcoal. Instead, we will concentrate on the 'making and doing' side of the business, that is to say making bespoke furniture, greenwood crafts, selling quality timber and offering courses. However, in line with the guidance, income derived from courses will be subsidiary to our primary activities' income streams.

There are no set up costs associated with our business because as Rob has been managing the woodland and working elsewhere as a woodsman, he already owns all the necessary equipment. Expenditure is also relatively low, mostly consisting of charcoal packaging, chainsaw fuel, chains and oil. We may need to purchase replacement equipment in the future, but will do this gradually, as and when required.

Over the last five years Rob has made a modest income from furniture and craft making. However, there is scope to increase income beyond what is currently generated by having the ability to spend more time on their production. Living in relatively high cost privately rented accommodation and its associated high council tax, means currently we have to spend more time working elsewhere to earn enough to pay these bills. Living on site will free us of much of this financial burden.

Income	Year 1	Year 2	Year 3	Year 4	Year 5
Firewood	£800	£800	£800	£800	£800
Charcoal	£396	£396	£396	£396	£396
Crafts	£0	£2490	£2750	£3000	£3500
Quality timber	£0	£0	£880	£880	£880
Courses	£0	£180	£540	£1080	£1440
<b>Total</b>	<b>£1196</b>	<b>£3866</b>	<b>£5366</b>	<b>£6156</b>	<b>£7016</b>
Expenditure					
Charcoal packaging	£29.52	£29.52	£29.52	£29.52	£29.52
Chainsaw fuel, maintenance etc.	£200	£200	£200	£200	£200
Insurance	£320	£320	£320	£320	£320
Website hosting	£14.25	£71.85	£71.85	£71.85	£71.85
<b>Total</b>	<b>£563.77</b>	<b>£621.37</b>	<b>£621.37</b>	<b>£621.37</b>	<b>£621.37</b>
<b>Net profit</b>	<b>£632.23</b>	<b>£3244.63</b>	<b>£4744.63</b>	<b>£5534.63</b>	<b>£6394.63</b>

**Table 2. Projected income and expenditure for the first five years of the development**

By year 3 our projected land-based profit is £4744.63 which exceeds our projected minimum needs of £3785.26. Our net profit is forecast to rise in years 4 and 5 keeping us significantly above the income threshold required to meet our minimum needs, which provides resilience should some income streams have poor years.





Figure 19. Stacks of firewood



Figure 20. The charcoal kiln and packaged charcoal. It is our intention to create bilingual packaging for 2018





Figure 21. Rob's most recent memorial bench at Nant yr Arian, made from Allt Cefn Ffynnon oak



Figure 22. Commission for a set of four dining chairs made with oak and ash from Allt Cefn Ffynnon





Figure 23. Child's chair and stool (hawthorn)



Figure 24. Left: Ash and yew fireside chair. Right: Oak child's chair



Figure 25. Left: Oak and ash shelving unit. Right: Larch garden bridge

### Markets

Until now, all customers have found us via word of mouth. We have sufficient regular firewood customers to purchase our annual firewood production. We have developed good links to local businesses who stock our charcoal (Sheffield House, Quay Bay Trading and Golwg y Mor in New Quay, Awesome Pork Butchers in Llanarth and Siop y Pentref in Cross Inn). We also donated bags to New Quay lifeboat station's open day BBQ in May and will continue to do this annually. Once house building is complete, Rob will be able to spend more of his time on craft work and exhibiting at shows and fairs to raise our profile locally. We will also launch a website to promote and sell our products and courses.

Rob is experienced in delivering workshops and courses and in time, short (1/2-1 day) courses and longer (2-3 day) courses will be offered. We expect that short courses in for example, spoon carving, will appeal to local as well as visiting individuals and families. Footfall from tourism is high locally and Laura knows from her experience working in two local tourism businesses that visitors are looking for a range of experiences, particularly those that are not adversely affected by inclement weather (e.g. dolphin watching trips and watersports). With an online presence, we expect the growing interest in traditional crafts and city dwellers looking to escape to the country for a short break, will meet demand for the longer courses such as chair making. Maximum number of participants per course will be four on longer courses and 6 for shorter courses so this will limit traffic impact to the site at any one time and allow for a more relaxed and personal experience.

### 3.3 LAND MANAGEMENT

LANDMAP's principle management recommendation is that in the medium term where native species are present, reducing inputs and allowing native species to recolonise would aid biodiversity. Their guidelines suggest replanting and laying gappy hedges. The cultural heritage layer recognises the significance of rural crafts, forestry and tourism to the cultural character of the area and that there is considerable potential for diversification and development of small rural craft businesses.



Our land management intentions include:

- Introducing traditional management to improve and retain the woodland in good condition (for further details see our Allt Cefn Ffynnon Woodland Management Plan )supporting document B4) and for information on the importance of managing woodlands, Coed Cymru's Introduction to woodland management in Wales (supporting document B8))
- Re-establishing the hedgerows on site by laying them to extend their area
- Creating new habitats by planting an orchard, developing a wetland system and managing bracken and blackthorn to allow wild flowers, ferns and grasses to flourish instead
- Improving soil condition and fertility by mulching leaves removed from the track, reducing the need to bring compost and other soil improvers onto the site

To minimise landscape impact, the dwelling and polytunnel will be screened from their surroundings by hedgerows and trees to filter the view. Our access track is recessed into the landscape. The dwelling is single story with a low pitched roof to be covered in matt steel which will echo the local agricultural sheet roofing but we will use a product which is more durable and suitable for domestic applications.

### Land management proposal

Our land management plan has been informed by a number of sources:

- Our own knowledge of the site – having owned it and spent considerable time on it since April 2012
- Knowledge gained from working in other local woodlands
- Consultations on site with Coed Cymru
- Advice and suggestions from fellow local experienced woodsmen
- Recommendations from our Phase 1 habitat survey

Refer to our woodland management plan (supporting document B4) for further details.

### 3.4 ENERGY

Our first priority is to minimise energy usage. The dwelling will be situated and designed so as to maximise solar gain. It is small and will be well insulated, fitted with low energy LED lighting and energy efficient appliances which we will use minimally.

#### Electricity

We will meet our electricity requirements with a 4kW solar array installed on the south facing roof of the dwelling. The panels will be mounted on adjustable brackets to allow the tilt to be altered through the year to get the maximum efficiency out of our solar installation. Industrial traction deep-cycle batteries will provide sufficient storage for three days of reserve power to meet with variations in weather and seasons. Excess electricity will be used to heat hot water.

Appliance	Voltage	Power (watts)	Hours of use per day	Watt-hours energy	Inverter inefficiency add 10% for 240V appliances
Fridge freezer	240	30	24	720	792
Washing machine	240	847	0.64	542.08	596.288
Stereo	240	110	2	220	242
Power tools	240	1000	1	1000	1100
Blender	240	293	0.1	29.3	32.23
Slow cooker	240	115	1	115	126.5
Laptop	12	60	4.5	270	270



Laptop	12	85.1	1	85.1	85.1
Wifi router	12	18	4.5	81	81
Radio	12	1.9	5	9.5	9.5
Lighting - kitchen	12	11	3	33	33
Lighting - dining	12	11	3	33	33
Lighting - living	12	11	6	66	66
Lighting - bathroom	12	11	1	11	11
Lighting - bedroom	12	11	1	11	11
Lighting - utility	12	11	0.5	5.5	5.5
Mobile charger	12	3.75	0.5	1.875	1.875
Mobile charger	12	5	0.25	1.25	1.25
Water pump	12	100	1	100	100
UV lamp	12	100	0.5	50	50
Phantom loads	12	1	24	24	24
Battery inefficiency add 5%					183.56
<b>TOTAL watt-hours/day</b>					<b>3854.81</b>
<b>TOTAL kWh/day</b>					<b>3.85</b>
<b>TOTAL kWh/year</b>					<b>1405</b>

Table 3. Projected electricity demand

### Space and water heating

As well as benefitting from passive solar gain, the dwelling will be heated with a wood burning range and stove fitted with a back boiler connected to an underfloor heating and hot water storage system. During the summer excess electricity will be used to heat water for washing.

### Cooking

A wood burning range with hot plates and oven will be used for cooking. In year 2 we propose to build an outdoor 'kitchen' with open fire and wood-fired oven for summer use.

### Biomass

As 14.75 acres of the site is woodland, access to sufficient sustainably grown and sourced biomass is not a problem. We estimate that we will use between 3-5 m<sup>3</sup> of biomass per year for heating and cooking. Energy usage figures taken from the Llammas Eco Village annual report show an average yearly fuelwood use of 4m<sup>3</sup> per household for cooking, heating and hot water.

## 3.5 WATER

Our first priority is to minimise water usage. We will use a compost toilet which uses no water at all to achieve a significant reduction in water usage compared with the average household in Wales. To further minimise water usage, we will use spray taps, a water saver shower head and a low consumption washing machine. Water will be distributed to where it is needed in the house via a direct pumped system.

### Rainwater harvest

Based on Met Office data for Aberporth (nearest weather station), the site receives an average annual rainfall of 908mm. The catchment area of the roof is 92.95m<sup>2</sup>. We are able to meet our monthly demands (which we have deliberately overestimated) 99.9% of the time by storing water

in a 10000 litre tank (supporting document B9). As this water will be used for drinking, it will be treated to potable quality using sediment filters followed by an ultraviolet lamp. In the event of particularly extreme rainfall, overflow will be diverted into our grey water reed bed system. Rainwater for crops will be collected from the polytunnel and garden shed and stored in water butts.

### 3.6 WASTE ASSIMILATION

#### Grey water

Grey water will originate from the bathroom (basin and shower), kitchen sink and laundry. We only use eco-friendly and natural cleaning products. The water will be purified by use of a horizontal flow reed bed system. The minimum size allowed by the Environment Agency for a 1-3 bedroom house, serving up to five people is 12m<sup>2</sup>. Our reed bed system will be approximately this size. The reed bed system is situated well away from any watercourses on the site to prevent pollution. Waste water will initially pass through a simple filter (e.g. straw) to a surge tank from where it will be distributed to the land via a perforated pipe. Suitable plants to use in this area include rushes, reeds, sedges, meadowsweet, marsh marigold and comfrey. Willow may also be planted.

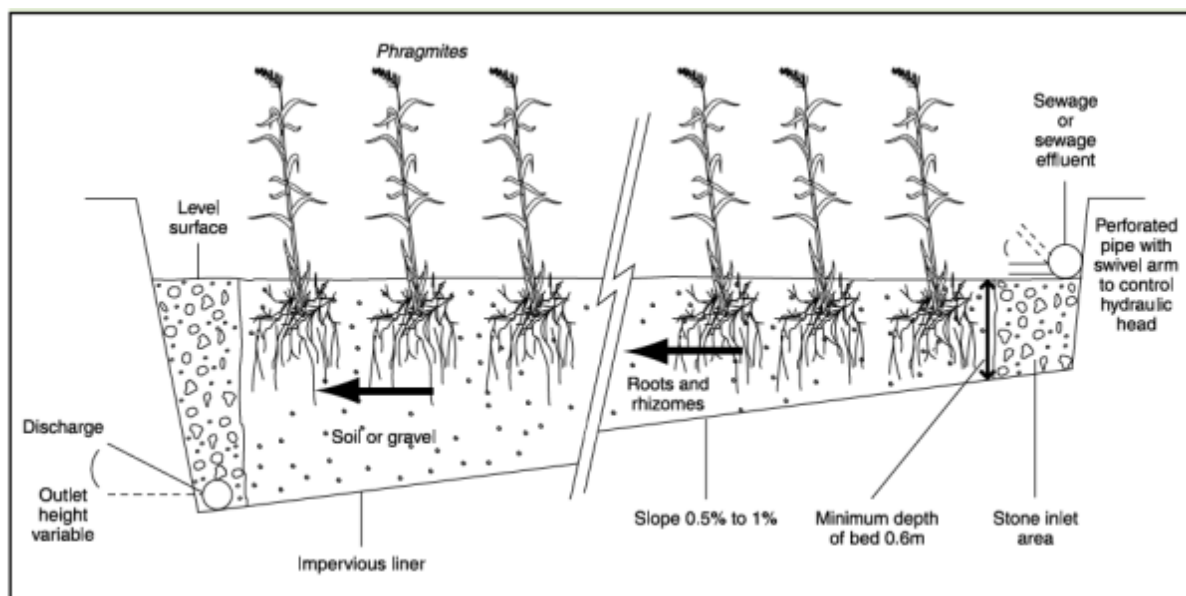


Figure 26. Diagram of a typical horizontal flow reedbed system. Taken from The Building Regulations 2010 Approved Document H

#### Human waste

Urine and faeces will be separated by the compost toilet. Faeces will be allowed to decompose aerobically which avoids the production of methane and unpleasant odours. Urine will either be allowed to soak in and be absorbed by the reed bed system or used as a nitrate-rich plant food. The faeces will be left to decompose for around two years to become 'humanure', a hygienic and fertile compost. However, in line with recommendations, this will only be used on top-fruit and non-food crops to avoid the possibility of any contamination from pathogens.

#### Inorganic waste

Most of this will arise from products brought onto the site, the bulk of which will be packaging (plastic and paper/card) but may also include metals, glass, electronics and chemicals. Growing as much of our own food on site will minimise imported packaging. Where possible waste products will be reused (e.g. glass jars for storage and preserving). Paper and card can be used as tinder or composted. Remaining waste will be recycled or sent to landfill as appropriate.

### Organic waste

Organic waste from the kitchen and growing areas will be composted in either conventional compost heaps or wormeries.

## 4. ZERO CARBON BUILDINGS

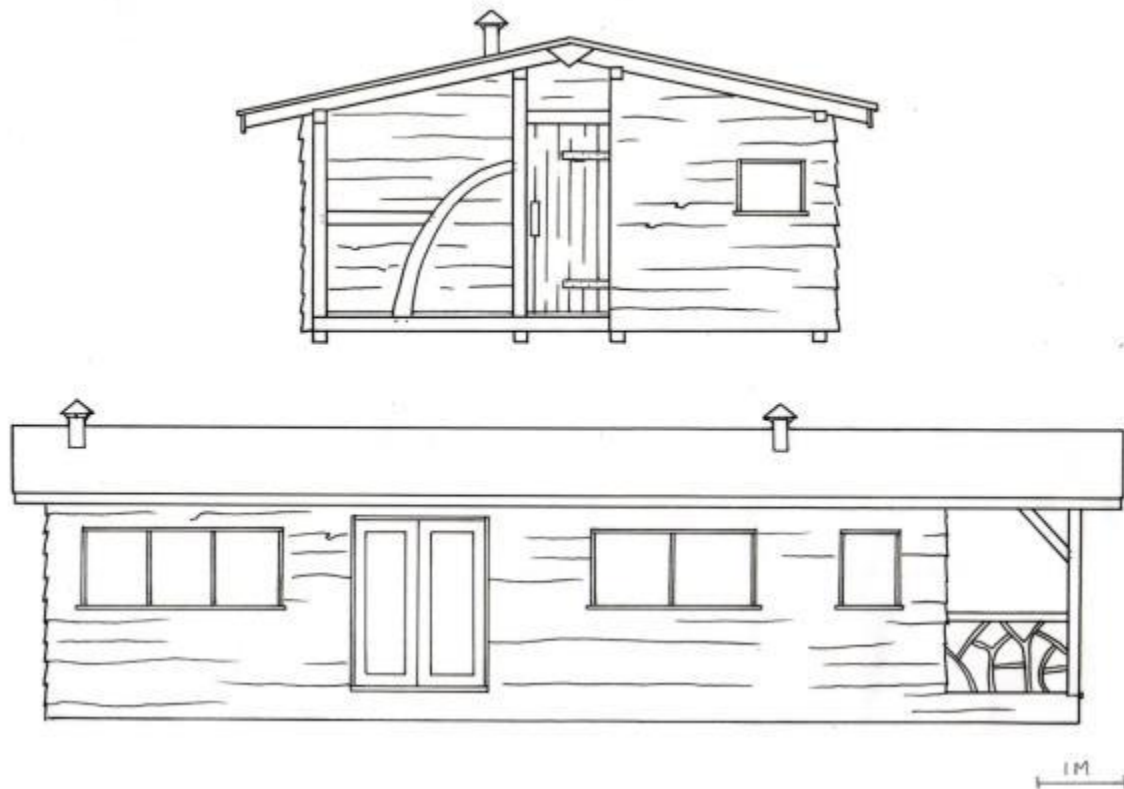
### 4.1 PROPOSED DWELLING

As stated as being possible in the practice guidance, our dwelling has been designed and will be built to comply with the Caravan Sites and Control of Development Act 1960 and subsequent amendments to this act. As such our dwelling or 'caravan' will be classified as a structure rather than a building, negating the need to comply with building regulations. We believe this is justified in terms of its fitness for purpose, minimisation of environmental impacts during its construction and use and being more economically viable and practical for us to build ourselves. Caravans, both single and twin units are extremely common in the local area. New Quay is home to Quay West, the largest caravan park in the county with 540 units. On our own doorstep is Woodlands Holiday Park which boasts a number of single and twin unit mobile homes as well as chalets, totalling over 100 units.

Under the Caravan Act, a caravan is 'composed of not more than two sections separately constructed and designed to be assembled on a site by means of bolts, clamps and other devices.' This is referred to as the 'Construction Test.' A caravan can be built on location but it must be 'separately constructed' meaning in two halves that are built independently of each other.

The policy continues with 'when assembled, physically capable of being moved by road from one place to another (whether being towed, or by being transported on a motor vehicle or trailer), shall not be treated as not being (or have been) a caravan within the means of Part 1 of the Caravan Sites Control of Development Act 1960 by reason only that it cannot lawfully be moved on a highway when assembled'. This is referred to as the 'Mobility Test' and demonstrates the caravan can be moved in one section when assembled and no more than two sections by road. The mobility test refers to the structure not the site. It's not necessarily required to demonstrate the ability/practicality of a truck/trailer to drive down the local lane or enter/exit the site. The Act doesn't specify the length or width a load can legally be to be transported by road.

The size of a caravan can be no more than 20m x 6.8m. Although how a caravan is measured externally is not described in the Act, it is generally accepted the measurements are taken from the four corners of the external walls, thus excluding the roof overhang. Internal heights are measured from the lowest point of the finished internal floor to the highest part of the finished ceiling. The external walls of our dwelling will measure 6m by 12m with a maximum roof overhang of 0.75m. The internal height will be 2.85m.



**Figure 27. East and south elevations of proposed dwelling**

Although simple in its design, the dwelling will not be basic. Although economic to build, it will not be rough or shoddy. Rob takes a great deal of pride in his work and our house will be no exception. The dwelling will be a timberframe design, clad in weatherboard and shingles. The frame will be primarily oak, with some internal supporting timbers of ash and larch. 100% of the ash and the majority of the oak will be sourced from our own woodland. The remaining oak and larch will be sourced from other local woodlands that Rob has access to. Sycamore will be used for internal finishes, along with cleft ash and oak lathes which can be plastered with clay. We will use a Tata steel Colorcoat Urban roofing system which contains more than 25% recycled steel and is 100% recyclable. To minimise heat loss we will use double glazed units, housed in aluminium frames which are low maintenance and resistant to the effects of the elements. Where windows are not of the opening type, the glass will be built directly into the timber frame, negating the need for aluminium window frames. Wood fibre batt will provide insulation in the walls and roof. Warmcell will be used in the floor. The structure will be levelled with the use of wooden stilts on foundations of compacted local stone with padstones on top. Further information about the materials we intend to use can be found in supporting document D4.

The two halves of the dwelling will be built simultaneously but independently and joined by removable fixings e.g. steel plates, bolts and specially designed timber tie beams. This clearly illustrates that the dwelling meets the construction test according to the Caravan Act.

As far as possible we will use local suppliers for any materials that need to be bought in and will purchase goods manufactured in the UK, thereby supporting the local economy and reducing carbon emissions associated with transporting goods and materials.

#### 4.2 VISUAL IMPACT

To enable our dwelling to sit comfortably within the open countryside, we are making good use of renewable natural materials, such as the use of unprocessed timber cladding and shingles. Being a single story building with low pitched roof, visual impact is further reduced. Screening by hedgerows and planting (garden, orchard etc.) will also enhance the natural features of the site.

### 5. COMMUNITY IMPACT ASSESSMENT

As our OPD is located adjacent to existing settlements, we firmly believe our proposal will have important positive impacts on the local communities. We believe there is a good deal of crossover between social and economic impacts and so we will address these together.

#### 5.1 SOCIAL AND ECONOMIC IMPACTS

We both have strong links to the community. Laura works in New Quay and is a volunteer crew member on the New Quay lifeboats and we are both active members of Clwb Rhwyfo Crannog. We participate in other local events such as beach cleans and collecting money at New Quay fireworks. Rob has worked extensively throughout Ceredigion and is becoming well known and respected for his work as a woodsman. He acts as tutor with Tir Coed, a charity based in mid-Wales, whose aim is to improve lives through woodlands. As well as tutoring courses he is also called upon to provide demonstrations in pole lathing and spoon carving at local events and open days. Through Tir Coed he also supervised a 12 month apprenticeship in 2012/13 for a local 18 year old at Allt Cefn Ffynnon and Coed Tyllwyd.

For four years (October 2013-July 2017), Rob worked as a support worker with Benjamin Grey at Pen Yr Allt, Nanternis. Ben works with Ceredigion County Council to provide placements for young people from the pupil referral unit. Through this work Rob has come into contact with young people who show an interest in woodland work and we have been able to offer occasional paid work to some of them in our own woods when heavy work needs doing. In the future, the workshop area could be made available to these young woodsmen to make their own crafts.

A foot path runs parallel to our northern boundary. We have made improvements to this path by scraping and resurfacing with locally quarried stone. We have also begun to lay the hitherto unmanaged hedge that separates this footpath from Woodlands Holiday Park. Not only has this made the path more attractive and helped screen the holiday park, it also is becoming a valuable wildlife habitat, providing a rich source of food for birds and small mammals and acting as a wildlife corridor.

A contributory part of our business plan is to tap into the strong local tourist market and offer, for example, half day spoon carving courses and longer chair making courses. Annual woodland open days with demonstrations in pole lathing, charcoal and hurdle making could also be marketed and we hope this will be of interest to people in the local area.

We shop locally and have built up good relationships with local shop owners who stock our charcoal. They would also be interested in selling any excess fruit and vegetable produce, seedlings etc. which will provide a convenient local outlet. Charcoal and firewood produced from our sustainably managed woodland and our organic fruit and vegetables sold locally to shops and directly to customers will have a direct positive impact on the Ecological Footprints of residents in the local communities.

Whenever we have met and spoken to people on the footpath (which is primarily used by local dog walkers and visitors to Woodlands Holiday Park) or in the woods we have received nothing but positive feedback about the work we are carrying out. Rob's gate at our entrance and his workshop



have received many compliments. There is a real and growing interest in rural crafts and people are keen to see the land being worked in a small-scale and sustainable manner and bringing woodlands back to life through sensitive management. We are playing our part in the preservation of traditional rural crafts.

We have identified a small number of potential negative impacts, which will be mitigated. To minimise traffic, booking on courses will be essential and a discount offered for people arriving using public transport or cycling/walking from local settlements (e.g. holiday makers staying in Llanarth or New Quay). To ensure our produce does not directly compete with other established local producers, we will sell through different outlets and produce different products.

Our immediate neighbours at the surrounding farms (Ffynnon Gloch and Berllan) and at Woodlands Holiday Park have been informed of our plans and have offered no objections.

## 6. TRANSPORT ASSESSMENT AND TRAVEL PLAN

### 6.1 BASELINE

The traffic generated by the site at the time of application is estimated at seven visits per week by us as we visit daily for work, to collect firewood or for leisure. Additional traffic is produced by specific woodland management activities on the site e.g. a volunteer worker to assist Rob with felling, extraction and milling. We also have social visits from friends and family. We estimate these additional journeys to equate to one extra journey every fortnight. In total 391 journeys per year.

We have one vehicle, a 4x4 pickup truck which is vital for Rob's work, enabling him to transport tools, wood and tow trailers. As Laura either works from home or in New Quay, where commuting is necessary, she does this on foot or bicycle and would continue to do so. Our need to travel for food shopping will decrease over time as we become more self-sufficient. When travelling for social events within the area, wherever possible we already car share and would continue to do so.

### 6.2 PUBLIC TRANSPORT

The B4342 is the nearest road and is served by the T5 bus (Aberystwyth to Cardigan via New Quay) which runs hourly Monday-Saturday and on Sundays during the summer. The nearest bus stop is approximately 300m from our northwest boundary. New Quay is also easily reachable on foot or by bicycle (approximately 3km along the road). Llanarth can most safely be reached on foot along the footpath as the B4342 is fairly steep, winding and with no pavement.

### 6.3 TRANSPORT ASSESSMENT AND MITIGATION STRATEGY

A trip is there and back and relates only to motor vehicles, not journeys made on foot or by bicycle. Current journeys per year are estimated at 391. Once living on site, even taken into account additional visitors, deliveries etc. the total number of journeys is estimated as 217.

Purpose	Number of trips per year	Average journey distance	Mitigation strategy
Business (outgoing) Deliveries of firewood and charcoal	14	5 miles	Only sell within a 7 mile radius to minimise distance travelled. Deliveries organised to reduce their frequency e.g. restocking charcoal suppliers in one trip, where possible combining with a food shopping trip.
Business (incoming)	40	N/A	Customers encouraged to collect

Collection of firewood (4 per year) Course participants (assuming 3 cars per course, 1 course per week for 12 weeks/year)			bulk firewood rather than small loads requiring multiple journeys. Course participants encouraged to use public transport or come on foot/by bike. Incentive (discount) offered as encouragement.
Shopping (collection) Food and personal goods not related to the business	12	44 miles	Shopping trips for a small number of items undertaken on foot or by bike to New Quay and Llanarth. A bus can also be taken to Aberystwyth or Cardigan. Where bulk purchases are required, this trip will be made in our own vehicle.
Shopping (delivery) Food and personal goods not related to the business	12	N/A	Purchase of goods in bulk to minimise deliveries and if possible, deliveries coordinated to minimise the number of visits
Social (residents going out)	12	44 miles	Trips to New Quay undertaken on foot or by bike. For rowing training and races, car share with fellow club members
Social (visitors)	52	N/A	Local friends encouraged to walk or use public transport. Friends and family from further afield to car share.
Open days (1 per year)	10	N/A	Advertised primarily locally with visitors encouraged to arrive on foot, bike, by public transport or car share
Travel related to offsite work	65	34.5	As the business becomes more established the requirement to undertake paid work offsite decreases

Table 4. Transport assessment for on site activity

#### 6.4 TRAVEL PLAN

Strategies to minimise the impact of journeys have been outlined in the table above.

Travel requirements by residents will be lower than the national average as living and working on site reduces the need for Rob to travel for work. Laura may continue in one or both of her current jobs to some extent, but as one is home-based and the other in New Quay – which she can access on foot or by bike – this has no impact. Secure bike storage is available at the workshop. Producing more food on site will also require less shopping journeys.

#### 6.5 MONITORING

All trips to and from the site will be recorded by purpose, distance and mode and will be reported in our annual monitoring statistics. Overtime we expect to see a decrease in the number of trips undertaken by vehicle and maximisation of use of low and zero carbon modes of travel. We will also record the suppliers of goods and services to ensure that there is maximum use of local suppliers over those from a greater distance.

## 7. ECOLOGICAL FOOTPRINT ANALYSIS

### 7.1 SUMMARY OF ECOLOGICAL FOOTPRINT ANALYSIS

The summary output of our ecological footprint analysis (EFA) is below. The full analysis can be found in supporting document C1.

	Pre-application (optional)	On first habitation (required)	Year 5 (required)
Global hectares (gha)	3.80	1.76	1.15

**Table 5. Ecological footprint calculations summary**

Our calculations demonstrate that on first habitation we will have achieved an ecological footprint below the required 2.4gha per person, although it is not necessary to achieve this target until year 5. Our current household footprint of 3.80gha is above the Welsh national average of 3.28gha<sup>6</sup> which demonstrates that despite our best efforts to live in a sustainable way, we are constrained by our current domestic arrangements (reliance on on-grid electricity, poorly insulated home, an inability to grow food to meet our minimum needs and travelling for work) which will never permit us to reach a figure below 2.40gha.

There is potential to further reduce our ecological footprint beyond year 5 due to increased site productivity, the possibility to establish additional crops not currently considered (e.g. nut trees) and through the embedding of our enterprises in the local economy. It is our intention to do as much as possible to reduce our ecological footprint, rather than being content to meet the minimum requirements laid out in the practice guidance.

### 7.2 EXPLANATION OF OUR CALCULATIONS

The largest contributors to our pre-application ecological footprint are fruit and vegetables (2.41gha), on-grid electricity (0.77gha) and vehicle diesel (0.61gha). The on-grid electricity component will be immediately eliminated upon habitation as we will have no grid connection and fruit and vegetables will half in the first year as we begin to produce our own food. By year 5, fruit and vegetables contribute just 0.08gha. Diesel consumption is reduced by two thirds to 0.20gha as Rob will no longer be travelling so extensively to work elsewhere in the county and beyond. Instead he will be focussing his efforts in the woods.

There are a number of reasons why our One Planet lifestyle is not only low-impact but low-cost, requiring only a modest income to be generated to meet minimum needs:

- We will build and own our own house, rather than renting one
- Our energy is generated on site, not bought from the grid
- The majority of our food is grown on site. It does not need to be purchased
- Our reliance on vehicles and public transport is greatly reduced as there is no need to commute to work
- We do not spend much money on other consumables, choosing instead to have our lifestyle needs met by our own land and local environment

### 7.3 OTHER FOOTPRINTS

Our OPD may affect the footprints of others in both positive and negative ways. The practice guidance states that: *'these other footprint impacts cannot be quantified in the same way as the domestic footprints of OPD residents, as there is no proven tool for this. What is required is that all other footprint impacts are itemised and assessed as additional impacts of the One Planet Development, as they remain material considerations for planning decisions. Small or uncertain*

<sup>6</sup> <http://gov.wales/docs/desh/publications/150724-ecological-footprint-of-wales-report-en.pdf>



*impacts should not be given much weight – what is important is that any impacts of significant scale, positive or negative, are taken into account in the overall assessment of environmental impacts.'*

Positive: supplying charcoal and furniture from a sustainable, local source. Supply of timber and fuelwood to the local community

Negative: travel associated with people attending courses

We do not consider this negative impact to be of significant scale when assessing the overall environmental impacts.

## 8. PHASING, MONITORING AND EXIT STRATEGY

### 8.1 PHASING OF PROPOSALS

Years 1 and 2 will see us concentrating on establishing our dwelling and growing areas while the business is in 'tick over' and income is generated from firewood and charcoal production. Once we are comfortably established on site, more time and energy will go into increasing enterprise activities, such as furniture and craft making and running courses.

Management of the site is already underway to a limited extent. We have constructed our workshop and some thinning has been undertaken. Clearing of bramble, bracken and blackthorn on the proposed dwelling site has already been undertaken and its management is ongoing to keep it clear. Some parts of overgrown hedgerows have been laid.

#### Year 1:

It is our intention to move onto our land as soon as feasibly possible following approval of our application. The simple design of our dwelling means that once the frame has been erected, part of it can be made good against the elements to provide basic accommodation while we complete the rest of the dwelling. Moving onto the land while we complete the dwelling will allow us more disposable income which can be invested in the project to bring it to completion sooner than would be possible should we remain in our current residence. Also during this time, the waste water system will be created and growing areas established for vegetable and fruit crops (soft fruit and fruit trees).

Woodland management will be ongoing for materials for our dwelling as well as firewood and charcoal production.

Income derived from firewood and charcoal sales.

#### Year 2:

Complete dwelling externally. Continue to manage field boundaries to the south and west and continue with hedge laying along the northern footpath boundary to aid screening from the holiday park and improve biodiversity in that area.

Erect polytunnel to increase quantity and variety of vegetable cultivation and expand growing beds. Introduce chickens and ducks to the site and build outdoor kitchen with woodfired oven.

Ongoing woodland management.

Begin to offer short courses, such as spoon carving, charcoal making and pole lathe turning. Begin to generate income from furniture and crafts.

#### Year 3:

Begin thinning compartment 1 and introduce apiaries to the site. More time devoted to making furniture and crafts. High quality processed timber now dried and ready to be sold as such. Continue to manage field and footpath boundaries.

#### Year 4:

Finish thinning compartment 1. Increased focus on furniture making. Increase number of short courses offered and develop longer ones, e.g. chair making. Ongoing woodland management.

#### Year 5:

All hedges now under management to the benefit of biodiversity and to aid screening from our development and that of the holiday park. Woodland management continues to provide raw materials for business activities. Food production will be meeting the target of at least 35% of our food needs and our land-based enterprise will be generating sufficient income to meet our minimum financial needs. .

### 8.2 MONITORING

Our monitoring report will be submitted to the planning authorities annually as set out in the policy guidelines. This report will consider our progress against our objectives as detailed in this management plan. It will include:

- An EFA progress report
- An EFA assessment in years 3 and 5
- An updated management plan in year 5 and every fifth year thereafter
- Details of the proportion of food derived from the site
- An assessment of our minimum needs
- A breakdown of the income derived from land-based productivity
- Clear evidence that the residential use continues to be directly linked to the management of the land
- Commentary on the 'zero carbon use' of all the buildings on site
- An assessment of our household energy consumption (biomass and electricity)
- A description of the way in which water is managed sustainably for our project
- A description of the way in which waste is managed sustainably for our project
- A review of our community impacts and details of any mitigation measures implemented
- A review of our transport plan (number and type of vehicle trips)
- Details of biodiversity improvement measures, based on the objectives described in this management plan

### 8.3 RESPONDING TO EMERGING PROBLEMS

Annual monitoring and a system of yellow and red cards will help us to identify problems and areas of weakness. If either a yellow or red card is identified then a strategy for dealing with this problem will be given in the monitoring report. A red card is considered a critical failure of the site as a whole. In accordance with the practice guidance, yellow card issues will be remedied by the subsequent monitoring report (para 5.9) and red cards will be addressed in no more than two years (para 5.11).

Yellow cards:

- Failure to meet Ecological Footprint target
- Failure to meet targets for providing for our minimum needs in terms of food, income, energy and waste assimilation
- Increase in traffic beyond the levels described in the Transport Assessment and Travel Plan

Red cards:

- Any increase in Ecological Footprint (unless the required level is still met)

- If the same yellow card is identified in two consecutive monitoring reports then it will become a red card

#### 8.4 EXIT STRATEGY

Our exit strategy will see the dismantling of the dwelling and polytunnel. This could be done quickly and without incurring significant expense. As is described in the construction section, the vast majority of materials used in construction will be natural, of which a large proportion will have been derived from the site (frame, cladding, internal walls, floorboards) so they could be left to biodegrade on site with no negative impact or sold on as reclaimed timber. Any non-degradable materials (plumbing, electrics, windows) will be removed from site and as far as possible these will be re-used, repurposed or recycled rather than being sent to landfill. The workshop will remain because it was built under a separate planning application. Trackways and rides through the woods would be suitable for retention as they are beneficial in providing access for woodland management. The existing business activities and woodland management would continue, but there would be a decline to pre-habitation rates of productivity. The business will not generate sufficient income to support us living offsite in privately rented accommodation. As we would be required to seek employment elsewhere, time available for woodland management diminishes.

We believe the land is already in better condition than when we purchased it. This is due to woodland thinning, clearing bramble and bracken and laying hedgerows. Thinning and clearing has allowed ground flora to flourish and re-laying hedgerows creates new habitat and increases connectivity across the site. If the exit strategy is implemented following habitation, biodiversity on the site will have been further improved through sustained woodland management activities, the creation of a pond, planting of fruit trees and through additional re-establishing of hedgerows. The dwelling site and immediately surrounding areas will have been kept clear of bramble, bracken and blackthorn and either managed for wildflowers/grassland or cultivated plots for fruit and vegetables. However without continued management of these areas, the land would naturally revert to its previous condition of scrubland and given enough time, would ultimately become wooded.

### 9. LIST OF SUPPORTING DOCUMENTS

- A. Site maps and plans
  - A1. Location plan (1:2500 at A4)
  - A2. Site plan (1:500 at A4)
  - A3. Landscape design (1:2500 at A4)
- B. Supporting information for Business and Improvement Plan
  - B1. Phase 1 survey report
  - B2. Original felling licence 2011
  - B3. Felling licence 2016
  - B4. Allt Cefn Ffynnon woodland management plan
  - B5. Ffynnon Gloch Farm woodland management plan
  - B6. Letters of support
  - B7. Estate agent details
  - B8. Coed Cymru 'Introduction to managing woodlands in Wales'
  - B9. Rain water calculations
- C. C1. Ecological Footprint Analysis
- D. Plans, elevations and information about the proposed dwelling
  - D1. Elevations (1:50 at A4)
  - D2. Floor plan (1:50 at A4)
  - D3. Roof plan (1:50 at A4)
  - D4. CfSH materials assessment



- D5. Site level
- E. E1. Design and Access Statement (DAS)