Parc y Delyn
Management Plan
2018

John and Emma Powell

Site Address:

Land adjacent to
Fachongle Isaf
Cilgwyn
Pembrokeshire
SA41 3XD

Correspondence address:

jasperscroggins@hotmail.com

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1. Introduction

About us: John and Emma Powell

We have been living in Cilgwyn (in the Clydach Valley) for over 10 years, whilst living in North Pembrokeshire for nearly 15 years. Over the years, we have come to know a great many of the local residents through our work as gardeners and landscapers, our keeping/rearing of livestock and various other social activities. Emma's activities through 'Emma Powell Flowers' has bought us into further contact with local businesses, organizations and individuals.

We have young children living at home with us and older children that have left home. They have attended local Primary (Ysgol Llanychlywdog, in the Gwaun valley) and Secondary (Ysgol Preseli in Crymych) schools.

Emma studied Advanced Permaculture Design with Bill Mollison (the joint-founder of the Permaculture system), achieving her diploma in the 1993 (one of the first two women in the UK to do so). She has gone on to teach Permaculture design and community development courses. She has been an active gardener and landscaper for over 20 years.

John has a background in Earth Sciences, having studied Exploration and Resource Geology at Cardiff University. He has been working as a gardener and landscaper for the last 10 years.

Parc Y Delyn

We have owned the land we call Parc Y Delyn (named after our top field, Harp Field on old Tithe maps, Parc Y Delyn on others) for 8 years. Our initial intention for the land was to grow main crop vegetables for ourselves and our neighbours, plant trees in the wetter, lower field to generate firewood and increase biodiversity, and to extend the grazing options for our livestock (a small herd of Jersey cows, at the time). The plan soon evolved to include fruit orchards, dual purpose windbreak hedging that would also provide fruit, nuts and flowers/foliage, and a more extensive cultivated garden area. In the first years we began by growing potatoes, winter squash, onions, garlic and other root vegetables. Friends and neighbours requested that we provide them with regular boxes of seasonal vegetables but other work and family commitments prevented us from formalizing such arrangements. We have, however, been supplying seasonal soft fruits and vegetables to other market stall-holders and individuals for a number of years.

Since then we have diversified into growing a much larger range of food crops and Emma began growing flowers to cut and arrange. She has been selling cut flowers for the last 6 years at local produce markets, to local shops, hotels, café/restaurants, holiday homes and private customers. She provides flowers wholesale, by the bucket-load, or arranged in a variety of styles for weddings, funerals and various other events.

In 2014/15 we added a poly tunnel to the land to extend the growing season, provide a place to propagate plants and grow more tender food/flower crops. It also allows us to cut and supply flowers when it's raining. We also bought a semi-completed mobile horse stable and tack room arrangement (the tack room we adapted to become a store room for food crops and Emma's ever-increasing quantity of frost-tender dahlia tubers), which is a multi-functioning space; tool storage, floristry, food crop drying and storage, water harvesting, dry work area.

The Future

We feel that we are now at a turning point in the Parc Y Delyn project. We have the main physical infrastructure in place for the garden to function as we need it to and we have an

established maintenance and planting schedule for each season. We have confidence in our ability to provide an abundance of high quality food and flower crops and have a good network of customers for our produce.

We are now in a position in which we can focus more on how we market and sell our produce. We currently produce considerably more than what we are selling, especially in the case of flowers.

It is also quite possible to increase our productivity (for both food crops and flowers) with relatively little extra effort now that we are established and experienced in our methods. There is ample garden space already available to allow for this increase.

One aspect of the project we are becoming increasingly aware of is the time it takes to harvest produce. For example, we have a customer who is a jam-maker who will buy any surplus soft fruit that we have available (which is considerable). The main limitations we face in this arrangement are the time we have available and there being favorable conditions for picking whilst being at Parc Y Delyn. Now that we are becoming more experienced and, therefore, efficient in the way that we manage Parc Y Delyn, we will be able to set more time aside for harvesting.

There are too many practical benefits that we would gain by living at Parc Y Delyn to list. Certain key elements of the project like the cutting of flowers and harvesting of produce in the (increasingly) unpredictable Welsh weather would greatly benefit from our being immediately on site. It is with these considerations in mind, plus the fact that Parc Y Delyn is where we would most like to live and continue to raise our family, that we have put this proposal together.

We are very thankful to have received the expert help and advice of Tao Wimbush in putting together this proposal. He has also provided the technical drawings accompanying this management plan.

Paddy Jenks, of Aderyn Ecology, conducted the Environmental Survey contained within this proposal, for which we are very grateful (not least of all because he provided us with a much deeper understanding of the flora and fauna which surrounded us).

We must also extend our gratitude to our many friends and neighbours who have helped, advised and supported us over the years, in so many ways, to make Parc Y Delyn what it is so far.

2. Summary

This management plan provides a framework for the management of the Parc y Delyn eco-smallholding under the Welsh 'One Planet Development' policy. It adopts the format as suggested in the One Planet Development Practice Guidance (TAN6, Oct 2012), with reference to the Supplementary Planning Guidance to the Local Development Plan for the Pembrokeshire Coast National Park (re Policy 47) provided in Chapter 2.

This management plan describes the holding's topography, ecology and context. It provides a comprehensive breakdown of our current and future consumption patterns, and describes how we will grow/ produce more than 65% of our own food from the land. It details how we will meet our minimum income requirements from land-based enterprises and how we see these developing over time. We explain how we will meet our water, energy and waste needs in accordance with the planning policy guidance, and we explore our potential impact on the local and wider community.

3. Planning Context

Pembrokeshire Coast National Park has its own Low Impact Development – Making a positive contribution policy with Supplementary Planning Guidance (June 2013). The following table lists the policy criteria and references them in regard to this management plan:

Policy 47: criteria *Note: italics indicates a requirement specific to the National Park*	**Where this is described in the Management Plan**
A. The proposal will make a positive environmental, social and/or economic contribution with public benefit. a) Positive environmental contribution *with public benefit*. b) *Positive social and/ or economic contribution with public benefit.*	Our positive environmental contribution is covered in the Baseline chapter (which provides contextual reference), the Strategy Chapter (which describes the design principles), and the Land Management chapter. An Ecology Report provides an independent professional perspective on the environmental impact of the project. The economic contribution that the project offers is detailed in the Business and Improvement plan: Land based activity chapter. The Community Impact Assessment describes the local community benefits of the proposal.
B. All activities and structures on site have low impact in terms of the environment and use of resources. Relating to: a) Waste b) Water and energy c) Buildings d) Traffic generation e) Reversibility of proposals f) *Scale no greater than necessary*	a) See chapter on Waste b) See chapter on Energy and Water c) See chapter on Zero Carbon Buildings d) See Transport Assessment – Travel Plan chapter e) See Exit Strategy f) See Strategy chapter
C. Opportunities to reuse buildings which are available in the proposal area of operation have been investigated and shown to be impracticable.	All the existing buildings on the proposal site have roles connected to land-based activity. The use of these buildings is expected to continue.
D. The development is well integrated into the landscape and does not have adverse visual effects. a) Generally *b) Associated activities* *c) Lighting*	Refer to the Landscape section of the Land Management Chapter.
E. The proposal requires a countryside location and is tied directly to the land on which it is located, and involves agriculture, forestry or horticulture. a) Food needs from the site b) Income from the site c) Energy and waste assimilation	a) Refer to the Food component of the Land Based Activity chapter b) Refer to the Income component of the Land Based Activity chapter c) Refer to the 'Energy and Water' and 'Waste' chapters
F. The proposal will provide sufficient livelihood for and substantially meet the needs of residents on the site.	Refer to the 'Business and Improvement Plan' Chapter

a) Generally *b) Provision of financial information*	
G. The number of adult residents should be directly related to the functional requirements of the enterprise.	Refer to the 'Occupants' component of the 'Business and Improvement Plan' Chapter
H. In the event of the development involving members of more than one family, the proposal will be managed and controlled by a trust, co-operative or other similar mechanism in which the occupiers have an interest.	The development does not involve more than one family

4. Baseline

(Please refer to the appendices for full reports as referred to below. Where the full reports have not been included in the appendices, sources are shown).

Location:
The site is located in the Pembrokeshire Coast National Park south-east of the small town of Newport.
The site ranges from 63 to 81 meters above sea level, approximately mid-way between the coastal plain and Carningli summit. It slopes gently towards the north.

Area and Shape:
The site covers of 2.13 hectares of woodland, pasture and cultivated land close to Tycanol woods, Pembrokeshire, and comprises of a number of irregularly shaped small fields.

Boundaries:
To the east the site adjoins the county road. To the south the site adjoins the Fachongle Isaf smallholding. There are grazing fields to the west and the north.

Context
Currently the fields are used for a mixture of grazing, horticulture and woodland in preparation for the future mixed land use as described herein.

Tenure and Services
We own the site as a freehold and it has no mains services. The land was purchased in May 2010.

Access:
Vehicular and pedestrian access is via an existing entranceway on the eastern boundary.

Audit: Physical

The site is classified as grade 4 under the Agricultural Land Classification system:

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.
Source: http://archive.defra.gov.uk/foodfarm/landmanage/land-use/documents/alc-guidelines-1988.pdf

Cilgwyn
LANDMAP Geological Landscape
PMBRKGL042

This assessment considers the geological landscape as Moderate in value (*No regionally significant sites/ landforms noted during present survey and geology/ geomorphology considered to be typical of feature/ process and is either widespread or not currently known to be exceptional.*) and in good condition.

It describes the area as:
Depression on the W side of Cwm Clydach, surrounded on the N, E and S by solid geology. Very irregular stream dissected floor suggests glacial deposits (Quaternary, Pleistocene). Opens to W into Clydach valley. Some crags present on S side, however, possibly of Ordovician igneous rocks.

Audit: Biodiversity

An ecology survey has been undertaken for the site and is included in Appendix 1.

There is also a LANDMAP Landscape Habitat assessment for this area:

Ty-canol & Pentre Evans Woods
LANDMAP Landscape Habitats
PMBRKLH426
The landscape habitats in the area are considered as 'Outstanding' (Could be rated as high but mosaic of valuable habitats and particularly the value of the Broadleaved woodland which falls into a SAC and supports many key species makes this woodland of greater value than many other wooded areas in Pembrokeshire so rated as outstanding.)

Audit: Cultural Heritage

Parc y Delyn falls within the Preseli and Carns Cultural Landscape assessment:

Preseli Hills and Carns
LANDMAP Cultural Landscape
PMBNPCL331

This assessment considers the area as '*Outstanding*' *(Unique area with a diversity of cultural associations and influences*), justifying this evaluation as '*A unique area with a diversity of cultural associations and influences. A dramatic landscape steeped in history. Today's rural society on Preseli has had to diversify from traditional farming to survive.'*

It summarises:
In the north, the extensive tracts of moorland on Carningli and Mynydd Preseli, give an exposed and mountainous feel to the landscape. This archaeological wealth has lead to the inclusion of part of the Preseli Hills into the Welsh Historic landscapes register. Much of the hills are common land. Nineteenth and twentieth century enclosure of common land is evident

on the southern flank of the mountain block. The boundary between cultivated land and moorland on the northern fringe, however, appears to have changed little since the early nineteenth century. The rectilinear field shapes were formed following enclosure of common land. Broadleaf woodland is almost wholly absent from the hills, but some large coniferous plantations have been planted on the southern side of the main upland block.

It considers the area to be in poor condition. The assessment also recognises the role that the eco-movement has in this cultural landscape:

Are there any people / movements / institutions that are particularly famous or associated with the Aspect Area?

- Yes (Eco movement at Brithdir)

Audit: Existing Buildings

At the time of purchase (2010) there were no buildings on the land. A few lightweight structures have been added in recent years:

- Barn (18m x 5.1m). This structure is actually two sheds on steel runners that have been joined together.
- Polytunnel (6.71m x 14.94m)
- Timber Store (9.8m x 3.2m). A pole barn clad in recycled corrugated metal sheeting

Audit: Past Land Use

Prior to purchase the land was used for grazing sheep and cattle.

The site falls within the Cilgwyn Historic Landscape Assessment:

Cilgwyn
LANDMAP – Historic Landscape
PMBRKHL42258

The area is described as…
HLC 275 Cilgwyn Most significant archaeological element(s): Burial chamber, Iron Age hillfort, Bronze age round barrow. Cilgwyn historic landscape character area lies across the valleys of the upper Afon Gwaun and the Afon Clydach. The valleys here are steep sided, producing an undulating landscape ranging in height from 20m at the lowest points to over 250m. The landscape is divided into small irregular fields. The boundaries of these fields come in a variety of forms, ranging from stone-faced banks, dry-stone walls to stone and earth banks. Stone is the common factor in the boundaries, with, in many instances monolithic foundation stones present. Most boundaries are topped by hedges, but these are generally neglected, very

overgrown with small trees sprouting out of them. Deciduous woodland is a defining characteristic of this area. The more substantial woods at Ty Canol and Pentre Ifan have colonised former fields. Woodland on the steep valley sides is more ancient. Overall, the extensive woodland and trees on the overgrown hedge-banks provides a heavily wooded aspect to Cilgwyn. Agricultural land-use is almost entirely pasture. This is mostly improved on the less wooded valley shoulders, but on the valley sides and bottoms rougher, unimproved and rushy land is more common. Some of the more neglected land is reverting to scrub. The settlement pattern is one of dispersed farms and cottages. Dwellings are generally of 19th century date in the vernacular style. One, one-and-a-half and two storey buildings are present. They are stone-built (cement rendered and bare stone), slate roofed and of three bays. Out buildings where present are also quite small. Usually a single 19th century stone-built range is present, sometimes in combination with a mid 20th-century corrugated-iron structure and/or small late 20th-century steel, asbestos and concrete buildings. There are numerous deserted farms and cottages, most notably along the Clydach valley.

Audit: Present Land Use

The semi-natural broadleaved woodland is set aside for wildlife. The broadleaf plantation is establishing itself as a new-plant woodland. The main field is divided up into grazing, horticulture and orchard.

Audit: Statutory Designations

Other than being in the National Park, the site has no statutory designations that we are aware of.

Audit: Landscape Features

The Ecology Survey identifies five priority habitat features:

- Wet broadleaved woodland
- Pond
- Stream
- Hedgerow
- Hedgerow with trees

These are considered in detail in later chapters

Audit: Existing transport generated

Please see Transport and travel plan

Character of the local Landscape

Following on from the data provided above, the Visual and Sensory LANDMAP assessment is summarised as:-

Mynydd Crogwy
LANDMAP Visual and Sensory
PMBRKVS003

Summary Description:
A large Aspect Area which forms the contextual setting for the Preseli Hills. It is characterised by an upland area of rolling farmland with occasional wooded valleys and areas of grazing, having a moorland ''feel'' on more exposed hill tops. Whilst the topography varies the landscape has a similar characteristic throughout. Open borrowed views of the Preseli Hills to the west and further borrowed views northwards to the coast add to the sense of place within the Aspect Area.

The site also falls within the National Park LCA 27 - Mynydd Preseli

Further baseline information is provided throughout the management plan and in supplementary reports.

5. Strategy

The intention is to create and maintain the necessary infrastructure to enable our household to live a low-impact lifestyle as part of a wider community effort to create a resilient land-based economy that has the potential to become independent of fossil-fuel inputs. This task centres on the creation of a mosaic of diverse and abundant ecosystems. Central to this premise is the ability of human beings to live within a natural landscape in way in which they are of net environmental benefit. Indeed the development aspires to be of environmental, social and economic benefit, though this must be considered within the context of a culture mired in an economic, social and environmental crisis. We believe we have a valid role to play in assisting our society to transition from a culture of fossil fuel dependence and disposable consumerism to a low-impact, low-carbon, resilient community based society.

Towards this end we have designed the holding to maximise on the various potentials of the different ecologies and habitats across the site, taking into account the various aspects, resources and potentials that each part of the site offers.

Having lived next to the land for over a decade we are very familiar with the many and varied patterns of the land, hydrology and climate that evolve through the seasons and over time. We have also observed the benefits and pitfalls arising from different land management approaches adopted by various different neighbours over time. We are familiar with the changing patterns of shade on the land, with the way in which the wind passes over our land, with the frost pockets and the suntraps. It is from this basis that we have designed our holding.

Principles

The cabin, polytunnel and barn have been tucked into the sheltered and sunny lower edge of the field such that they are completely screened from both the prevailing wind and weather whilst minimising any visual impact in the wider landscape.

The fruit, vegetable and flower growing areas have all been chosen for their beneficial aspects and good soil depth and health.

New plant woodland has been located in an area connected to the existing woodland expanse.

Existing habitats and ecologies have been incorporated and integrated into the design and management of the holding.

The Site is divided up into the following areas:

Total area = 2.13Ha

- Coppice 0.68Ha
- Grazing (in 2 blocks) 0.48Ha
- Woodland (inc ponds) 0.35Ha

- Other (including buildings and margins) 0.15Ha
- Forest Garden 0.14Ha
- Vegetables 0.11Ha
- Orchard 0.06Ha
- Flowers 780m2
- Soft Fruit 540m2
- Tracks 180m2

The holding is managed and run by us; Emma and John, with a flexible division of tasks that revolves around our family's needs, resources and abilities. The various elements of the holding will continue to be monitored and appraised so that we can continually improve the behaviour patterns and management techniques that shape the ecology and landscape around us. In so doing we will be seeking an ongoing holistic appraisal of our operations that includes consideration of the productivity of the area/ project in relation to the labour and resource inputs required to maintain it – including the incidental benefits/ challenges arising from the enterprise and its respective role in the context of our lifestyles/ the holding/ the ecology etc. We regularly review the various aspects of our holding from the following perspectives:

- **Labour inputs** required to maintain the enterprise - and how these fit in with our household rhythms, including both the regular tasks and the incidental activities
- **Direct outputs** from the enterprise
- **Well-being of the object/ project**
- **Well-being of the context/environment**
- **Other resource inputs Other resource outputs**

The activity of reflection and assessment described above is in truth one part of an ever-evolving process of design and refinement. We have made considerable progress towards a sustainable infrastructure here at Parc y Delyn and we consider ourselves to be still in the set-up phase. We can see the potential for us to take it much further – though each step needs careful consideration for there are time, energy and resource implications for every decision we make about the land and its management. Every season and every project brings with it experience and learning.

The intention is to create a fully operational, exemplar one-planet-development, with all the necessary infrastructure in place to support land-based lifestyles. We do not see this as a fixed goal – and the fact that we have already met the productivity criteria for OPD is an indication of this – rather we see this path as an exploratory journey of the human relationship to the land base, in which the OPD criteria offer a constructive threshold to enable an independent perspective to define and understand how one-planet living might manifest.

Shared animal husbandry with Fachongle Isaf

Currently there are 6 people living at Fachongle Isaf; We (John and Emma) being 2 of them, who collectively own, and share the responsibility for the care of 2 milking cows (and their calves),8 breeding ewes (and their lambs), and a number of ducks and chickens.
Each of us pays £20 per month into a fund out of which we take any expenses involved in the care of those animals.
This includes vet bills, fuel for the tractor to cut hay, getting the sheep sheared, etc., as well as any extra food for the winter if we have a bad hay crop.
But it doesn't include labour, so the milking, fencing, animal care and hay making are all done voluntarily by the "share holders".
Some of the land supporting this venture is owned by our neighbour Justine Rees and she is also one of the 6 "share holders".
Over an acre of our land also supports this venture. The top part of our field has been fenced securely for sheep and cows and forms part of the grazing and hay cutting management plan for the venture. We also have a second grazing block that runs alongside the road that is used for grazing.

From this collective venture each of the 6 "share holders" receives half a dozen eggs per week, half a litre of milk per day, 650 mls yogurt twice a week and soft cheese during the glut period, as well as one 6^{th} of any meat produced (beef from male calves and lamb), and sheeps wool and sheepskins at cost (i.e. the cost of curing from the tannery).

This system means that all our dairy and eggs, and nearly all of our yearly requirement for meat comes directly from a partnership with the farm next door (Fachongle Isaf).

The amount of time per week invested in the work amounts to half a day per week on average for both John and Emma.

There is currently no reason that we can see that would change this system if our OPD. application is successful, and we are in the process of adding 3 beehives so that in the future honey could be available too.

The role of each of the buildings:

Cabin (and Greenhouse):
A place for our family to live

Outbuilding:
A space for our household utilities and compost toilet

Barn:
A space to support our land-based livelihoods.

Polytunnel:
Additional covered growing space.

Timber Store:
A space to harvest, store and process firewood and other timbers.

Stall:
The stall will provide a covered space from which we can seasonally sell plants and flowers, vegetable/fruits to passing trade.

We would also like to have a sign on or next to the bottom gate (24" wide x 18" high or 60cm x 45cm in metric) Saying:
"Parc Y Delyn Market Garden
Fresh Cut Flowers, Plants and Seasonal Produce
Open / Closed "

6. Business and Improvement Plan: Land based activity

Objectives - Food

We aim towards self-sufficiency

Components - Food

- **Current and Projected Food Spend patterns.**

The following table provides a breakdown of our current food consumption patterns and projects these five years into the future.

Table 1: Annual Household spend current (2017)

	2017	
	Produced on site £	Purchased £
Meat and meat products	1100 (800 Beef, 300 Lamb)	150
Poultry and eggs	146 (eggs)	200
Fish	0	250
Fruit and vegetables	2880	750
Oils and fats	30 (rendered beef fat)	320
Dairy products	157.50 (milk) 262.50 (yogurt) 60 (cheese)	90 (milk) 45 (yogurt)
Grain mill products	30 (popcorn)	180

Bread, biscuits and cakes	0	350
Cocoa and confectionary	50 (fruit leathers)	350
Other (inc preserves)	150 (pickles, sauerkraut) 75 (jams, bottled fruit) Flowers and herbs collected for culinary/tisane use 40	50
Non alcoholic beverages	240 (apple juice) 105 (steam juiced cordial)	250
Alcoholic beverages	30 (cider)	20
Eating Out		400
Totals	5356	3405
Total Food Value	8761	
Costs associated with home produce	775	

We currently meet 61% of our food needs from the site

Breakdown of Costs Involved in Producing food at Parc Y Delyn (per Annum)

Meat, Dairy, Eggs = £480 (contribution to the 'land fund' partnership)
Vegetable seeds = £42
Compost = £98
Straw (mulch) = £15
Plant food = £40
Minerals (lime) = £11
Tools = £40
Plastic plant pots/trays, mulch sheeting, netting, string, canes etc. = £49

Total: £775

Note that we have planted bamboo with the intention of harvesting our own canes in the future (to save on Chinese imports etc.) we're at the point of being able to start doing this.

Breakdown of fruit and vegetables produced on site:

Winter Squash 150 @ £3 each (average) = £450
Roots (carrot, beetroot etc.) = £80
Sweetcorn = £75
Peas and beans = £80
Blueberries 50kg @ £15/kg = £750
Other soft fruit = £400
Apples, pears = £200

Plums, cherry plums, cherries = £120
More obsure soft fruits and tree fruits (aronia, Oregon grape, sea buckthorn, autumn olive/eleagnus = £50
Onions 120kg @ £1/kg = £120
Garlic/Elephant garlic = 200
Brassicas (calabrese, romanesco, kale, Brussels sprouts, broccoli) = £150
Globe artichokes = £35
Rhubarb = £40
Salads = £50
Curcubits (courgettes, melons, cucumbers, cucamelons) = £80

Total £2880

Evolution over the next 5 years

As the orchards mature we expect to produce more apples pears plums and apricots, which can be stored or used for making juice or preserves. The same applies to the production of soft fruits on site.

We currently don't have much of a nut crop but in the future we can expect chestnuts, pine nuts, hazel nuts and heart nuts (walnut family).

Cider apple varieties have recently been planted with a view to making more cider in the future.

We intend to make more preserves and fruit leathers in the future as the fruit yields increase.

Certain crops that need more regular attention and harvesting (for example salads) are not being grown in any great quantity. If we were to live on site we could be more productive in this manner. This applies to so many other aspects of our work and productivity on the site.

With all of the above mentioned, we would expect to purchase less produce from off-site, in line with the increase of on-site productivity.

	2023	
	Produced on site £	Purchased £
Meat and meat products	1100 (800 Beef, 300 Lamb)	150
Poultry and eggs	146 (eggs)	200

Fish	0	250
Fruit and vegetables	3255	375
Oils and fats	30 (rendered beef fat)	320
Dairy products	157.50 (milk) 262.50 (yogurt) 60 (cheese)	90 (milk) 45 (yogurt)
Grain mill products	30 (popcorn)	180
Bread, biscuits and cakes	0	350
Cocoa and confectionary	150 (fruit leathers)	250
Other (inc preserves)	200 (pickles, sauerkraut) 75 (jams, bottled fruit) Flowers and herbs collected for culinary/tisane use 40	50
Non alcoholic beverages	240 (apple juice) 105 (steam juiced cordial)	250
Alcoholic beverages	100 (cider)	0
Eating Out		400
Totals	5911	2910
Total food value	8821	
Costs associated with home produce	805	

In 5 years time we expect to derive 67% of our food directly from the land.

Land Based Activity Criteria – Food

Essential criteria

The essential criteria are that:

a) The minimum food needs of all households are met from produce grown and /or reared on the site or purchased using income derived from other products grown and reared on the site.
   - *Our minimum food needs will be met from the site.*

Land Based Activity Monitoring – Food

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

Target: That the minimum food needs (at least 65%) of all occupants are met from produce grown and reared on the site or purchased using income derived from other products grown and reared on the site.

Indicators: *Annual reporting of food production consumed by household.*

Annual reporting of spend on other food.

***Method:** The annual monitoring report will provide details of the food we produce from the land and the food we purchase.*

Objectives - Income

We have a range of land-based micro-businesses which provide for our minimum income requirements.

Components - Income

As defined by the One Planet Development Policy (Practice Guidance point 3.27), our minimum income needs are:-

Table 2 - Minimum Income Requirements:
Please note that for reasons of simplicity inflation has not been factored into the accounting figures – both in terms of household need as well as business income/ evaluating land-based produce.

Household needs		2018 Current £	Notes	2023 Projected £
Telecoms	Telephone/ internet/ communications	250	40 equipment, 210 contracts. (the main household internet provision is paid for by the cut flower business - 995)	250
Clothing	Clothes/ footwear	790	Clothing (new) 500 2nd hand clothing 100 Footwear (new) 150 2nd hand footwear 40	790
65% Food spend	2017: 8761 x 65% - 5356	339	2023: 8821 x 65% - 5911	0
Food costs	As previously detailed	775		805
Travel spend	Purchase of vehicles 138, Maintenance/ servicing 188, Vehicle Insurance 192, Road tax 240 Vehicle fuel costs (annual) 467, Public transport – Railway 620 (holiday in Europe) Buses and taxis - 120 (holiday in Europe)	1965	Note that the VW Caravanelle costs are covered by the flower business, the Toyota HiAce costs are covered by the gardening business, and the Toyota 4x4 costs are covered by the household. Note also that the holiday in Europe was a one-off. Vehicle costs as before. Railway 120, Buses 45.	1390
Tax	Council tax costs	149	band A (with reduction)	149
	MINIMUM INCOME REQUIREMENT (£/annum)	**4268**		**3384**

Business Plans: –

Emma Powell Flowers

Wild, Welsh & Wonderful

www.emmapowellflowers.co.uk

Types of Floristry undertaken and Productivity of Emma Powell Flowers

Types of Floristry Undertaken

Bouquets:
Small posies
Various sized bouquets
These can range in price from £3.50 to £25 for a market stall and commissions can range from £10 to £65, depending on the size and types of flower used.

Funeral Flowers:
Lay-flat bouquets
Casket covers and wreaths (in floristry oasis)
Garlands for caskets (includes wiring)
General flowers for church/wake

Wedding Flowers:
Bridal bouquets

Crowns/hair-pieces (wired)
Corsages (for wrists and handbags)
Bridesmaids bouquets
Buttonholes (wired)
Decorated floral archways
Pew-end arrangements for church
Various floral arrangements for church and reception (in and out of oasis)
Floral arrangements for wedding cars

Flowers for events:
Various arrangements for all occasions, in and out of oasis

Flowers for hotels, cafes and holiday homes

Flowers sold by the bucket-load for the customers to arrange themselves. Price per bucket ranges from £15 to £25 depending on the types of flowers/foliage supplied.

Productivity

Peak season (end-June, July, August, early-September)

There are sufficient flowers to produce 36 buckets of flowers (enough flowers for 4 bouquets in each bucket) each week, sufficient to stock 3 market stalls. There are also enough flowers for at least one wedding per week during this season.

Spring season: (March, April, May, early-June)

Spring bulb flowers, flowers produced in poly tunnel, foliage and flowering shrubs.
Sufficient flowers/foliage for 4-10 buckets per week.

Autumn Season: (late-September, October)

Crysthanamums grown in poly tunnel, Dahlias (outdoor), various other outdoor flowers until the first frosts.
Sufficient flowers for 4-8 buckets per week.
Dried flowers for arrangements: Sufficient for 1-2 buckets per week

Winter Season: (November-February)

Christmas wreaths using foliage and dried flowers
Dried flower arrangements



Materials used for Floristry

Paper/waxed tissue paper for wrapping bouquets (we avoid plastic wrapping)
Raffia for tying
Floral foam (oasis) and plastic trays for longer lasting arrangements (we try to avoid these as much as is feasible)
Wire, ribbon, pins, string, elastic bands
Branches, bamboo, natural rope for natural arches
Recycled buckets from supermarkets used when cutting and delivering flowers
A wide variety of vases, jars and containers used for decorating venues

Dried flowers are air dried, either in a conservatory or an airy outdoor shed.

Areas under cultivation for Emma Powell Flowers

Perennials grown in raised beds and borders: approx. 120m²

Annuals grown outdoors in beds (cutting patch of approx. 80m²)
(N.B. it should be noted that annuals are far more productive per season than perennials)

Dahlia cutting patch: the tubers are dug up each autumn and stored to protect from frost and slug damage then planted each late-spring in rotation with vegetable crops.
Approx. 50m²

In excess of 200 metres of hedging trees and shrubs has been planted at Parc Y Delyn over the last 8 years, roughly 40% of which provides flowers or foliage for Emma Powell Flowers.

Each year we plant 2 x 10 metre rows of outdoor sweet peas (approx. 120 plants).

There are many outlying shrubs and trees at Parc Y Delyn providing flowers and foliage and also tree and shrub stems for wreath making and other structural arrangements.

In the poly tunnel we have:

A 15m² bed with Chrysanthemums (mostly) and Alstroemerias (Peruvian lilies) as permanent features.

A 20m² bed for early flowering annuals, including sweet peas.

Space for many pots with flowering spring and summer bulbs as well as new cut-flower clematis varieties.

Benches to bring seedlings on for both outdoor and poly tunnel planting.

It should be noted that the poly tunnel not only bring plants into flowering earlier in the season (as well as extending the autumn season) but it also allows us to cut flowers in wet and windy weather when outdoor cutting is not possible.

Past Accounts

	Year 2015/16	2016/17	2017/18
Turnover :	£8964.65	£5249.35	£ 8720.31
Costs:			
Bank Charges:	£186	£186	£325.50
Insurance (Public Liability and Personal)	£190.62	£233.26	£228.60
Diesel :	£722.71	£1269.22	£1158.24
Phone/Internet :	£441.89	£695.95	£995.04
Market Stall Rent :	£690.50	£510	£366
Expenses :	£2854	£1254.79	£2971.13
Wages :	£954	0	0
Website		0	£300
Car Insurance :	£229.95	£253.30	£296
Car Parts/Repairs/MOT	£95.69	£325	£395
Car Tax :	£230	£240	£245
Total costs:	£6595.36	£4967.52	£7280.51
Total Profit :	£2369.29	£281.83	£1739.80

In terms of the growth of the business, we're at the point where we've set up the infrastructure needed to produce a surplus of flowers (especially in the summer/early autumn season). At the moment we have a lot of flowers going to waste mid-season. We're working on extending the growing season by making better use of the polytunnel. The area of the business that we're now aiming to focus on is marketing and sales. We've proven (to ourselves) that we can grow the product in surplus, we just need to get the product out there more effectively, in a manner conducive to our lifestyle. We estimate that we can double our turnover with a relatively small increase in costs.

Year	2018/19	2019/20	2020/21	2021/22	2022/23
Turnover :	10000	11500	13000	14500	16000
Costs:	7390	7570	7720	7870	8020
Profit:	2610	3930	5280	6630	7980

Plant Sales

We are currently expanding our land-based business to include plants – both raised from seed and propagated. Customers who enjoy Emma's cut flowers are being offered the opportunity to buy some of the plants that produce these flowers.

During the course of the growing year, we grow an excess of annual plants (both vegetable and flowering) as there are almost always more seedlings in a tray grown from seed than we require.

Also, the perennial plants in the garden at Parc Y Delyn grow bigger by the year and it is possible (and often quite necessary) to divide and thin out plants to maintain and create more space in the beds.

The produce stall at Parc y Delyn will provide an additional outlet for plants.

Plant Propagation background

Both of us have at least 15 years experience (far more in Emma's case) in plant propagation of various forms and on a relatively large scale (as required by the size of Parc Y Delyn gardens plus other commitments). A great many plants and trees at Parc Y Delyn have been propagated by ourselves, helping to reduce to cost of setting up the project and also providing a surplus of plants and trees that we have sold or given to others. Many of the fruit trees (apple, pear and plum) we have grafted ourselves on site. Many of the nut trees (heart nut/walnut, cobnut/filbert, pine nut etc.) we have grown from seed. Many of the woody and herbaceous shrubs and plants on site have been propagated from seed, cutting, division and the like.

Plants supplied to gardening customers

John works in the role of Head Gardener at Plas Llangoedmor Mansion, near Cardigan. Over the Autumn, Winter and Spring of 2017/18, John oversaw the creation of a kitchen garden within the existing Walled Garden at the mansion. One of John's ongoing responsibilities is to oversee the planting of the kitchen garden, as well the various other beds, borders and areas around the grounds. The grounds in general are in a process of renovation and, as such, a great deal of new planting is taking place. The planting of annual vegetable, fruit and flower plants will be ongoing each year. Many of the plants used at the mansion are propagated at Parc Y Delyn. To a lesser extent, John supplies other gardening customers with plants propagated on our plot.

Illustration of supply lines - plants supplied so far this year: **(April 2018 - July 2018)**

30 sweetcorn plant @ 50p each

30 brassica plants @ 50p each

2 x module trays of sugar snap/mangetout peas @ £4 each

2 x module trays of French climbing beans/runner beans @ £4 each

3 x salad trays @ £3 each

2 x courgette plants @ £1 each

4 x module trays flowering annuals @ £3 each

(The amount of varieties of annual plants and the amount of plants will increase from this number as the project gets more underway.)

Various flowering/fruiting perennials, shrubs and small trees (grown from seed or division/cutting/layer from mother plant): Dahlias, geraniums, Japanese plum yews, lavenders, hellebores, Japanese anenomes, sedums, gooseberry, blackcurrant, climbing/rambling roses. hydrangeas £198

As of July 2018; £265 (running total)

Later this year at Plas Llangoedmor Mansion, there are plans to create a herb garden and flower cutting beds within the kitchen garden as well as creating 3 large herbaceous borders within the grounds, so more planting will be required.

Projected plant sales in 2018/2019

Perennials/ornamentals supplied in 1 litre pots:
75 x pots £ @ £3 each = £225

Annual flowering plants supplied in 9cm pots:
150 x pots @ 50p each = £75

Annual vegetable plants supplied in either 9cm or 11cm pots as required
150 x 9cm pots @ 50p each = £75
25 x 11cm pots @ £1 each = £25

Perennial/biennial vegetable plants and fruits (e.g. globe artichoke, rhubarb etc.) supplied in 1 litre pots:
30 x pots @ £2 each = £60

Fruiting bushes and canes (currants, gooseberries, raspberries etc.) supplied in 1 litre pots:
25 x pots @ £4 each = £100

Projected total (annually) = £560

Costs involved in producing plants (annually)

Figures based on 2018/2019 projected turnover

Compost (50% of compost will be bought in) £53

Compost (50% of compost will be produced in-house) £20

Pots and module trays = £35

Seeds = £25 (to cover seeds bought specifically for this aspect of the business, many seedlings are by-products from other aspects of Parc Y Delyn operations)

Total £133

2019 Projected income through plant sales: £427

We then plan to grow this aspect of the land-based business by 10% year on year.

Produce Sales

We have been supplying produce to other market stall vendors for a number of years.

Sales for 2017/18

80 bulbs Elephant garlic = £80

2 x 5kg trays of garlic = £50

40 winter squash @ £3 each (average) = £120

8 trays of soft fruit (blackcurrants, jostaberries, gooseberries for jam production)
@ average £32 per tray (£8 per kilo) = £256

50 globe artichoke heads = £37.50

Total for year = £543.50

Costs approximate to those for our own home-grown food production (estimated at 10%) - £54.35

Income = £489.15

Sales for 2018/19

10 trays soft fruit @ £8 per kilo = £342

Other produce still to crop….

Considerations

It should be noted that should we have a stall at Parc Y Delyn, it will impact the amount of produce that we can supply to other vendors. We can partially address this by increasing the quantity of annually grown produce (winter squash, for example) and we must also consider that fruit bushes etc. are increasing in size and productivity each year.

Projected Sales of Produce at Parc Y Delyn

The figures below are based on current levels of production and sometimes, in the case of annual plants (e.g. squash, sweetcorn etc.), and plants replanted from saved stock (e.g. garlic and elephant garlic) are based on levels of productivity that we have previously achieved. It is a year 2 – 3 projected scenario:

100 winter squash @ £3 (average price- varies due to size) = £300

200 x 250g punnets blueberries @ £2.50/punnet = £500

200 sweetcorn cobs @ 75p each = £150

100 globe artichoke heads @ 50p each = £50

100 elephant garlic bulbs @ £1 each = £100

200 garlic bulbs @ 25p each = £50

100 heads of broccoli, romanesco or cauliflower @ £1 each = £100

50 paper bags of purple sprouting broccoli @ £1.50/bag = £75

Total turnover: £1325

The costs involved in the production and sale of these crops run parallel in the growing of crops generally). Estimated at 10%.

Projected income £1193

With the addition of a stall it would be far more feasible to supply a stall with more perishable items such as salad bags, root crops (carrot, beetroot, parsnip), other soft fruits (strawberry, raspberry), stone fruit (cherry and plum), grapes (from poly tunnel), thus increasing income by a further 50% in years 4 - 5.

Overview

Please refer to the 5-year cashflow forecasts accompanying this management plan.

The following table gives an overview of how we expect the enterprises to develop over time:

Table 5: Land-based enterprises over time

Income	Current (2017/18)	Year 1 (2018/19)	Year 2	Year 3	Year 4	Year 5
Cut Flowers	1740	2610	3930	5280	6630	7980
Plant Sales Income	-	427	469	516	568	625
Produce Sales Income	489	667	1193	1193	1788	1788
Totals	2229	3704	5592	6989	8986	10393

Land Based Activity Criteria – Income

Essential criteria

The essential criteria are that:

a) The basic domestic needs of all households are met from income derived from produce grown and reared on the site, including processing and adding value, and other income streams derived from the productive and regenerative capacity of the site, such as from training and education courses, or consultancy directly linked to land based activities on the site. These latter activities should be clearly subsidiary to the primary activity of growing and rearing produce.

- *The household minimum income requirement is defined in the table above. The business plans describe how we will meet this income requirement from our land-based enterprises.*

Contributory criteria

The contributory criteria are that:

b) The land based enterprise provides food and other products to local markets, reducing local footprints.
   - *We will supply local markets with food, cut flowers and plants*

c) Facilities for processing produce are made available to other local producers.
   - *There are no plans to build processing facilities as part of the proposal*

d) Training / courses / consultancy are offered as components of the land based enterprise to share best practice of One Planet Development.
   - *Training/ consultancy will continue to be offered.*

Land Based Activity Monitoring – Income

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That the minimum income needs of all occupants are met from income derived from land use activities on the site.
  Indicator: *Annual household income and costs reporting.*

  Method: *The annual monitoring report will quantify our minimum income needs and will demonstrate how we meet these needs from income derived from land use activities on the site.*

- Target: That income derived from other land based enterprises such as training and education courses, or consultancy remain subsidiary to the primary activity of growing and rearing produce.
  Indicator: *Annual reporting on the total value of produce grown and reared on the site compared with income derived from other land based enterprises.*

Method: *The annual monitoring report will detail the respective land-based income streams demonstrating that our 'other' land-based income streams remain subsidiary to the primary activity of growing and rearing produce.*

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That the land based enterprise provides food and other products to local markets, reducing other local footprints.
  Indicator: *Annual reporting of sale volumes and market areas by each on-site enterprise.*

  Method: *The annual monitoring report will include sales volumes and market areas of our land based enterprises demonstrating that we are providing food and other products to local markets.*

- Target: That facilities for processing produce are made available to other local producers
  Indicator: *Annual reporting on use of processing facilities by others.*

  Method: *The annual monitoring report will include any details of processing facilities.*

- Target: That training / courses / consultancy, as components of the land based enterprise, share best practice in sustainable land based activities with the wider community.
  Indicator: *Annual reporting on training and consultancy activities.*

  Method: *Our annual monitoring report will include details of any training/ consultancy activities.*

Objectives - Occupants

Parc y Delyn has been designed as a family smallholding. The inputs required to run the holding are based on what we can manage as a household, and the outputs from the holding have been designed to support our needs.

Components - Occupants

We fully expect to be able to run the holding effectively without additional labour inputs.

During the 5 year set-up period we will be largely engaged in construction and infrastructure. Once established we estimate the labour pattern to be along the lines of:

Table 6: Land-based labour:

	Current – 2017/18		**Projected – 2022/23**	
Description	**Emma – Hours/ year**	**John – Hours/ year**	**Emma – Hours/ year**	**John – Hours/ year**
Self- sufficiency – Vegetables and Fruit	208	416	312	520
Self-sufficiency - Animals	156	20	156	40
Other Land Management – including biomass/ firewood	4	90	40	190
Emma Powell flowers	832	80	1248	170
Propagating Plants	104	80	156	258
Infrastructure maintenance	24	120	52	180
Total	**1328**	**806**	**1964**	**1358**

Land Based Activity Criteria – Occupants

Essential criteria

The essential criteria are that:

a) The number of occupants is directly related to the ability of the site to support their minimum food and income needs and the number of people needed to run the site effectively.
   - *As one family household we fully expect to be able to meet our food and income needs without additional labour inputs.*

Land Based Activity Monitoring – Occupants

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That the number of occupants is directly related to the ability of the site to support their minimum food and income needs and the number of people needed to run the site effectively.
  Indicator: ***Annual reporting on number of occupants by household and their roles on site.***

  Method: *The annual monitoring report will detail the number of people living at Parc y Delyn and their respective roles within the holding.*

7. Land Management

Objectives

We manage our holding in such a way as to support our family as part of a wider and complex ecological pattern. As such the land is managed to meet our multiple needs as human beings (shelter, food, water, fuel, health) whilst simultaneously caring for the varied habitats and resource patterns that bring about diversity and resilience in the landscape.

Between us we have considerable experience of good land management – and have learnt to be efficient and effective in our methods.

We have taken on board recommendations made by our ecologist in which he has identified the broadleaved woodland (wet), hedgerows, orchard and water courses as of particular importance ecologically.

We do not use herbicides or pesticides.

Biodiversity

To improve and conserve the site we will:

Manage the (wet) semi-natural broadleaved woodland for biodiversity

From our Ecology Report:

> *The semi-natural woodland has a range of canopy species including alder and grey willow. Sessile oak, ash and sycamore are largely restricted to former boundaries. The ground fauna is*

diverse with many species typical of wet woodland including marsh marigold, wild angelica, opposite leaved golden saxifrage, and a range of mosses and liverworts.

Two wildlife ponds exist within this woodland area.

In recognition of its ecological importance this area will be managed as a non-intervention area.

Conserve existing hedgerows

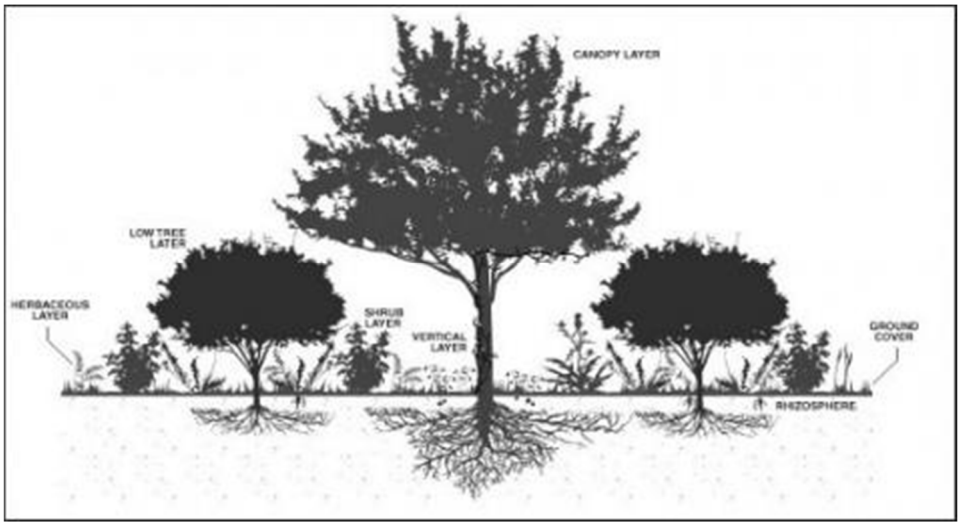
Our hedgerows are an important semi-natural habitat on our site. They will be managed on a 10 year rotation with all laying, pruning and thinning done by hand so as not to damage established mini ecosystems within. If we need to add any plants or trees these will be carefully selected in line with native species of local provenance. Mature healthy trees will be allowed to grow and flourish as standards.

Creation of Orchard

We have planted a small orchard which we maintain primarily for apple production. This area (approximately 600m2) is a habitat in its own right – playing a valuable role for pollinators, and will naturally contain a range of tree varieties of different ages.

Forest garden

A forest garden is modelled on the structure of a young natural woodland, containing trees, shrubs, herbaceous perennials, herbs, annuals, root crops and climbers. The forest garden will be designed to maximise positive interactions and become a self sustaining system with fertility maintained largely by the plants themselves.



The low input, perennial nature of a forest garden allows excellent habitat for a large diversity of fauna and flora and is significant to the biodiversity of the site. We will pay particular attention to planting plants which attract bees and other pollinating insects. We have observed in our established albeit unmanaged forest garden that an increased diversity of plants and habitats leads to an increased diversity and number of insects on the site. We will include specially constructed boxes for solitary bees in the forest garden to provide habitat whilst natural habitats develop in the maturing garden. These boxes will provide habitat to mimic hollow stems, holes in deadwood or holes in the ground. The forest garden will create wildlife corridors across the site, linking to woodland and hedgerow habitats within and beyond the site.

The early stages of the forest garden establishment will be focussed on planting the tree and shrub layers. Alongside fruiting trees and shrubs we will plant shelter belts, timber trees and nurse trees and shrubs, many of these will be nitrogen fixing or particularly good at raising nutrients from the subsoil. These will provide shelter and fertility within the establishing forest garden system. Some of these early nurse trees will be later removed to allow for the expanding canopies of fruiting species.

In addition trees and shrubs will be planted specifically for their wildlife value, for example trees that attract birds or bees such as Rowan and Barberry. These plants can also act as a decoy to birds which could otherwise feast on crops we value. As the tree and shrub layers establish the lower levels of the forest garden such as herbs, root crops and herbaceous perennials will be planted. These layers can be used to grow leafy greens and other edible perennials alongside wild flowers, bee plants and dynamic accumulators. Some trees will be used as a structure for climbing plants to grow up.

The soil of the forest garden will be maintained in peak condition by being covered by plants or organic mulches at all times. Organic mulches will be used to suppress weeds and add organic matter to the soil, whilst retaining moisture in the soil and minimising erosion and nutrient leaching. Dynamic accumulator plants will draw trace minerals and nutrients from deep in the soil, beyond the reach of most plants, and concentrate them in their leaves, making them available to other plants in the system when those leaves die back. At the time of planting, roots of plants will be inoculated with mycorrhizal fungi which work symbiotically with the plants and create extensive underground networks of mycelium, greatly enhancing the plants ability to draw in nutrients. The presence of these mycelium networks will greatly enhance nutrient cycling within the system, as well as improving soil structure and plant health.

Cultural Heritage

No important historic features (above or below ground) have been identified on the site.

Landscape

Landscape Context of Parc y Delyn

The Parc y Delyn holding exists in a mixed landscape of woodland, small fields and smallholdings. Its land-use activities (grazing, horticulture and woodland) are wholly in keeping with the wider landscape use.

Buildings and infrastructure

We have positioned our infrastructure with sensitivity to the landscape views and vistas.

Fortunately, our land is situated such that the majority of it is completely screened from the surrounding area because it lies as part of a natural undulation within a landscape pattern intersected by hedgerows and patches of woodland.

Our track and proposed parking area is discreetly positioned in a low woodland area such that it is not visible within the local landscape.

Our priority for placement of the built structures has been to minimise their visual impact on the surrounding landscape whilst ensuring operational and energy efficiency.

Taking the built elements one at a time:

Cabin (and Greenhouse) and Outbuilding: This cluster has been situated at a low point in the field, just before it drops off into the woods. It is screened by a small patch of established woodland to the north and an existing hedgerow to the east (blocking views from the road).

Barn and Polytunnel: These have been similarly positioned at a low point in the field, just before it drops off into the woods. Similarly these are screened by a blocks of established woodland and hedgerows on three sides (being exposed only to the south).

Timber Store: This has been located in the southern corner of the plot at the intersection between two mature hedgerow lines – it is screened from local views.

There is no external lighting provision on the site, and no plans for this in the future.

It is worth noting that existing structures (barn, polytunnel and timber store) have been present on the land for a number of years without any issues of visual impact being raised with the authority.

Land Management Criteria

Essential criteria

The essential criteria are that:

a) All existing semi-natural and other important habitats on the site are conserved and enhanced through appropriate traditional management.
   - *All semi natural and important habitats on the site (wet woodland, hedgerows) have an active management approach that conserves and enhances them.*

b) All cultural heritage features (e.g archaeology) on the site are conserved and enhanced through appropriate management.
   - *There are no cultural features on site*

c) The landscape of the site is enhanced by the addition and traditional management of characteristic or once characteristic local landscape features that, amongst other things, may be used to screen and filter views to built elements of the proposals and to provide shelter and screening to horticultural areas.
   - *The landscape character will be enhanced by increasing the area of deciduous woodland and by the traditional management of the hedgerows and orchard.*

d) Buildings and other structures and access tracks are located where they can be recessed into the landscape and do not stand out in views from public vantage points.
   - *All built structures have been located in positions that are recessed into the landscape and are not visible in the wider landscape.*

Contributory criteria

The contributory criteria are that:

e) Existing semi-natural habitats are extended or once characteristic habitats are recreated, ideally creating wildlife corridors across the site, linking to other habitats beyond the site.
   - *The deciduous woodland is being extended, an orchard is being introduced and the hedgerows act as wildlife corridors across the site.*

f) Populations of once characteristic farmland birds of the local area are increased through appropriate habitat creation.
   - *From the Ecology Report: The three species of red-listed birds i.e. bullfinch, linnet, and willow warbler, will all benefit from the hedgerow management, coppice clearings and in the case of the linnet, the likely increase in arable weed seeds. Other species typical of scrub and woodland will also benefit from the range of vegetation structure. Swallow may also breed in open fronted buildings.*

g) Soil organic matter is increased.
   - *The land management practices will naturally lead to an increase in soil health and organic matter.*

h) Populations of pollinating insects are increased.
   - *The land management practices will naturally lead to an increase in insect numbers and diversity through habitat creation (including Orchard). There are plans to keep honey bees on site.*

Land Management Monitoring

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That all existing semi-natural habitats are in favourable condition.
  Indicators: *Spread of characteristic species of that habitat against an established baseline. Decline in non-characteristic / commercial agricultural species within each habitat (seek advice of Wildlife Trust).*

  Method: *The annual monitoring report will include a description of the health of the wet woodland, hedgerows and orchard and this will highlight any increase or decline in key species as identified in the Ecology Survey*

- Target: That all identified cultural heritage features are maintained in good condition.
  Indicators: *No cultivation or soil erosion over buried archaeological sites and historic earthworks.*
  Scrub and trees removed over buried archaeological sites and historic earthworks.
  Above ground historic/ cultural features stabilised and scrub / trees removed.

  Method: *The annual monitoring report will highlight any cultural features that may be discovered in the future and it will describe management practices which maintain these in good condition.*

- Target: That there is an increase in the number and /or area or length of traditional characteristic landscape features and all are under appropriate traditional management.

Indicators: *Increase in the number / area / length of x landscape feature. Increase in the number / area / length of y landscape feature.*

Method: *The annual monitoring report will report on the management of the land areas and will quantify the areas of new woodland planted.*

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That (named) semi-natural habitat(s) are extended / created.
  Indicators: *Area of new habitat.*
  Spread of characteristic species of that habitat.

  Method: *The annual monitoring report will report on the creation and establishment of the Orchard and the Coppice areas.*

- Target: That there is an increase in the population of farmland birds on the site.
  Indicator: *Number of breeding farmland birds on the site against an established baseline*

  Method: *No baseline for the number of breeding farmland birds has been set. Should the opportunity arise for such a survey to be commissioned this will be recorded in the annual monitoring report.*

- Target: That there is an increase in the population of honey bees.
  Indicator: *Number of active bee hives on site.*

  Method: *The annual monitoring report will highlight any beehive additions.*

8. Energy and Water

Objectives

We expect to meet our household space and water heating needs, our electricity needs and the majority of our cooking needs from renewable sources on site.

We plan to meet our domestic water needs via a shared spring on the neighbouring farm, and our horticultural/ livestock water needs through rainwater harvesting.

Components

- **Domestic electricity Generation:**

We will have a solar array installed on the roof of cabin which will be connected to a battery reserve of 1320Ahrs.
The array will consist of 16 x 250W panels, totalling 4kW in size. The array has been angled at 35 degrees (facing 27 degrees west of south).
The battery reserve, along with controller, inverter, and the main appliances (the chest freezer and washing machine) will be situated in the outbuilding.

It is estimated that in coastal areas in Pembrokeshire there is between 1.5 hours sunshine per day in December and 6.5 hours sunshine per day in June.

It is estimated that this array will generate approximately 3600 kWhr/ year[1], however there is going to be considerable seasonal variation in this. We estimate that the average winter day will produce approximately 4kWhr, and the average summer day will produce 16kWhr.

We estimate our total annual usage will be approximately 1150 kWhrs/ year, or 3.1kWhrs per day.

This is based on the following elements:

- Washing Machine (rated A+++), estimated load 115.5 kWhrs/year (based on 110 loads/ year)
- Fridge (rated A++), estimated load 117kWhrs/ year
- Chest Freezer (rated A++), estimated load 235kWhrs/ year.
- Lighting, fire alarms, estimated load 220 kWhrs/year
- Laptops/ Mobile Phones, estimated load 265 kWhrs/year

[1] http://info.cat.org.uk/solarcalculator/

- Juicer/ other kitchen appliances, estimated load 65 kWhrs/year
- Other electrical tools 120 kWhrs/year

Any excess electricity will be dumped as heat into our hot water tank. In the summer there will be lots of spare electricity and so we will have an abundance of hot water. In the winter (and particularly for the period around the winter solstice) we will have a limited supply and we may need to adjust our living patterns around this in response. For example, during midwinter we may need to turn off the fridge, wash clothes by hand, and hold back from using other electrical appliances until the sun returns in earnest.

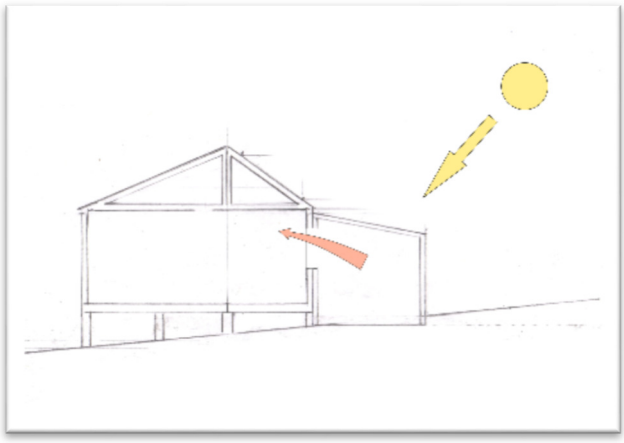
- **Domestic Heating:**

The caravan has been designed to a high thermal performance. The layout and spatial design is compact and space efficient. The building shell will be insulated with 150mm biomass insulation. The southern wall will include cob elements to increase the thermal mass of the building and capture the solar gain from the lean-to conservatory.

The two routes in and out of the cabin will act as air-locks to conserve internal heat.

In addition to passive solar and incidental heat gains there are two heat sources in the house – a multi-purpose range in the kitchen and a woodburner in the living area.

- **Solar Gain Mechanism**:



- **Biomass Production:**

We have 0.68 Hectares of woodland coppice. Some of this is mature and some of it is young.

About 30% of the coppice is Alder, 30% local (goat) Willow, 25% Ash and 15% mixed (various willows, black poplar, guelder rose and a single red maple (for future sap-tapping; we have others in the top field).

We estimate that this will yield an annual harvest of 4.1 to 5.4 cubic meters of biomass per year, based on a yield class of between 6 and 8. This is the equivalent of 2.3 – 3.0 tonnes[2].

We also have 563 meters of hedgerow. The ecologist recommends that 10% of the hedgerows are laid each year. We estimate that 56 meters of hedgerow (on a 10 year cycle) will yield approximately 0.6 cubic meters of biomass per year. This is the equivalent of 0.3 tonnes.

There will also be prunings from the forest garden area.

The harvested biomass will be stored for 12 - 24 months in order to fully season and dry. The cabin has been designed to have excellent insulative properties with an annual heat load of approximately 6500kWhr.

This will be provided through a combination of passive solar gain along with a multipurpose wood-fired range and an additional small woodburner (for the deep midwinter).

We calculate that we will need approximately 1.7 tonnes timber biomass per year to meet our domestic needs.

- **Domestic Cooking and Water Heating: Autumn through to Spring**

Domestic cooking will take place through autumn to spring on an *Esse 905 series wood-fired range*, which would be lit from morning til evening in order to supply space heating and hot water.

The additional heat loads for these activities should be minimal given that the range is designed to maintain an ambient heat sufficient to cook on, and the hot water system will be simply a 117 litre (indirect) insulated tank on a vented system.

- **Domestic Cooking and Water Heating: Summer**

During the warm summer months there will be no requirement for space heating in the house.

Surplus electrical generation from the photovoltaic panels will be dumped into the hot water tank to provide hot water.

Cooking will take place either on an outside fire or with a small LPG gas cooker.

- **Domestic Water Use:**

Water use within our household will be minimised as a matter of course. This is not something that is necessarily easy to quantify and qualify because it all comes down to lifestyle patterns. We are all

[2] Based on an average of 550kg/ cubic meter – given species spread. https://www.simetric.co.uk/si_wood.htm

naturally conservative in our domestic water use – generally using showers instead of baths, washing up by hand, being prudent with the frequency with which we wash ourselves and our clothes, using a compost toilet instead of a flush toilet, etc.

The average person in the UK uses 150 litres of water per day.
We expect to use less than 300 lites a day for our household of 6 people. This figure includes our washing machine use. This will be sourced from the spring next door.

- **Other Water Use:**

Rainwater is currently harvested from the barn roof for use in the gardens and polytunnel.

We have one 2500 litre tank at the end of the open (west) side of the barn, collecting from the front gutter and 2 x 1500 litre (black juice) tanks collecting from the rear (east) gutter.

A 24v DC pump, powered using a stand-alone solar system, lifts the water up to the top garden, just below the timber store. Alongside the hedge we have 3 x 1500 litre juice tanks, the pipework from which runs down through the main garden on the west side and finishes in the polytunnel where it's connected to a controlled T-tape (leaky pipe style) system for 2 of the beds as well as an ordinary stand pipe.

The pump also has a float switch connected to it to save pumping dry and wasting battery. 2 x 60w PV panels charge the batteries. We use 2 x 12v leisure batteries (running at 24v) via a controller. The amount we use the pump hardly touches the battery capacity we have and there is scope to add other features (lighting etc.) to the barn.

We run the pump for an average of 3 hours a week between March and September, an average of 1 hour a week between October and February.

Rainwater will be both channelled directly into the conservatory from the south-facing cabin and conservatory roof, as well as stored from the north-facing conservatory roof for use in the conservatory during dry spells.

Rainwater will be harvested from the timber store and connected with the existing irrigation system for use in the garden and polytunnel.

The rainwater harvest system also supplies livestock drinking water.

Energy and Water Criteria

Energy Essential criteria
The essential criteria are that:

a) The energy needs of the site will be **minimised** through suitable design and use of technology, including that which enables re-use.
   - *The energy needs of the cabin have been minimised though designing a highly insulated spatially efficient structure that maximises on passive solar gain, incorporates well placed thermal mass elements, and uses low energy appliances and light fittings.*

b) All of the energy needs of all activities shall be met from sources of **renewable energy** on site, with the exception of small amounts of non-renewable fuel for particular uses for which they are best suited and justifiable (para 3.60).
   - *We will meet our domestic heating requirements entirely from timber/ biomass grown on site. We will power domestic cooking predominantly from biomass grown on site. We will meet all our domestic electricity needs from the renewable capacity of the holding (photovoltaic array). We do expect to use small amounts of non-renewable fuel for cooking in summer months.*

Water Essential criteria

The essential criteria are that:

a) The water needs of the site will be **minimised** through suitable design and use of technology, including that which enables re-use.
   - *Water use will be minimised through our own lifestyle patterns, supported by an infrastructure designed for responsible water use. This will include a dry compost toilet, enabling us to process human solid waste without using water. Conventionally toilets use about 30% of the total water used in an average household[3].*

b) Rainwater **harvesting** from buildings and structures must be maximised.
   - *The barn roof will continue to harvest rainwater for the polytunnel. The cabin and greenhouse roof will harvest water for the lean-to greenhouse. The timber store roof will harvest water for livestock and gardens.*

c) All of the water needs of all activities should be met from water available on site, unless there is a more environmentally sustainable alternative. Abstraction from water bodies (including groundwater sources) must be at levels that do not cause environmental harm. Harm would result from the lowering of surface and ground water levels.
   - *There will be no abstraction from water bodies other than ongoing use of spring water (from the neighbouring farm) for domestic purposes.*

Energy Contributory criteria

The contributory criteria are that:

c) The embodied energy of renewable energy equipment should not outweigh its benefits from energy generation.
   - *A recent study by researchers from the Netherlands and the USA (Fthenakis, Kim and Alsema, 2008)[4] found that it takes 250kWh of electricity to produce 1m^2 of crystalline silicon PV panel. Under typical UK conditions, 1m^2 of PV panel will produce around*

[3] http://www.waterwise.org.uk/pages/indoors.html

[4] http://pubs.acs.org/doi/pdfplus/10.1021/es071763q

100kWh electricity per year, so it will take around 2.5 years to "pay back" the energy cost of the panel. PV panels have an expected life of at least 25-30 years [5], so under UK conditions a PV panel will, over its lifespan, produce many times more energy than was required to manufacture the panel.[6]

d) Human and animal labour should replace the use of non-renewable energy whenever possible and practical.
   - *The holding will be predominantly run on human labour. We will use our 4x4 for heavy haulage tasks.*

Water Contributory criteria

The contributory criteria are that:

d) Any water pumping should be renewably powered.
   - *All our water networks are gravity fed.*

e) Any ponds / lakes created should maximise habitat creation and should not destroy important existing habitats.
   - *Existing ponds are managed for biodiversity.*

Energy and Water Monitoring

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That all of the **energy needs** shall be met from sources of renewable energy on site.
  Indicators: Annual reporting on use of renewable energies generated on site (as percentage of energy needs).
  Annual reporting on use of all non-renewable fuels, recorded in terms of use (what for) and amount (quantity)
  Annual reporting on quantity of electricity exported to the grid and imported from the grid. (Note: all purchased energy will form part of the EFA making it necessary for energy use to be minimised)

  ***Method:** The annual monitoring report will contain a description of our energy usage and production patterns which details sources, methods and quantities. It will include figures for the amount of renewable electricity we generate and use, as well as data on the amount of biomass we harvest and use, as well as data on our use of non-renewable fuels.*

- Target: That all **water needs** are met from water available on site (unless there is a more sustainable alternative).
  Indicators: Annual reporting on use of water sources (amount used from each source), including that harvested from site and that abstracted from water bodies (surface and ground water). Annual reporting on ground and surface water levels (reported on monthly basis).

[5] http://info.cat.org.uk/questions/pv/life-expectancy-solar-PV-panels

[6] http://info.cat.org.uk/questions/pv/what-energy-and-carbon-payback-time-pv-panels-uk

Method: *The annual monitoring report will contain a description of our spring water usage, and rainwater harvesting patterns which details sources, methods and quantities.*

9. Waste

Objectives

We aim to minimise all waste. As a household we aspire to be diligent about the impacts of our resource use – and hold an active awareness of the the options for reducing/ recycling/ re-using/ these resources. We process all organic waste on the plot, minimise the amount of non-recyclable resources we bring onto the plot/ household, maximise the usage of the resources we bring onto the plot/ household. We review those things that do end up going to landfill so that we can change our consumption patterns for the better in the future.

Components

Domestic Food Waste:

All domestic food waste will be composted.

Grey Water and Human Waste:

A dual-chamber dry composting toilet will be installed in the outbuilding next to the house. Solid human waste will be collected and composted in rotation in two masonry chambers. When the aerobic composting processes have turned the humanure into compost, this will be used in the coppice area to mulch trees. The human liquid waste will be collected in a storage container before being diluted and watered into the compost heaps, gardens and fields.

The waste water from the kitchen and bathroom will be channelled, via a small settlement tank, into a lined grey water reedbed system (of approximately 6 sqm) located behind the cabin, before being returned to ground. The reedbed will be fenced off to ensure that there is no risk of cross-contamination.

Packaging and Paper:

We compost (or burn) any paper or cardboard. We recycle solid plastics and metals. We re-use or recycle glass. We generally minimise our use of packaging (particularly soft plastics).

Green Waste from Growing food and Timber:

All green (or brown) waste from growing food or timber is composted or used as mulch.

Live Stock Manure:

All livestock manures are composted for the gardens

Waste Criteria

Essential criteria

The essential criteria are that:

a) All biodegradable waste produced on site is assimilated on site in environmentally sustainable ways.
   - *All organic waste will be composted on the holding.*

b) The only exception to this is occasional off-site disposal of small nonbiodegradable amounts of waste, which cannot be assimilated on site which arise from things used on site wearing out or breaking irreparably.
   - *As a result of living in today's society we do expect to produce a small amount of nonbiodegradable waste that cannot be recycled - mostly arising from packaging.*

c) All waste handling and assimilation on site must comply with Environment Agency guidelines.
   - *All composting, mulching, reedbeds and humanure systems will comply with Environment Agency guidelines.*

Contributory criteria

The contributory criteria are that:

d) The re-use of organic waste on site should increase overall site fertility and productivity so long as this is not at the expense of important semi-natural habitats dependent on low soil fertility.
   - *We do compost and mulch with a view to increasing soil fertility and for the most part this is concentrated in the horticultural areas. There are no semi-natural habitats dependent on low soil fertility.*

Waste Monitoring

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That all biodegradable waste produced on site will be assimilated on site in environmentally sustainable ways.

  Method: *The annual monitoring report will contain a description of our on-site biodegradable waste assimilation processes.*

- Target: The only exception to this is occasional off-site disposal of small amounts of non-biodegradable waste items which cannot be assimilated on site that arise from things used on site wearing out or breaking irreparably.
  Indicators: Annual reporting on quantity of all waste production by types of waste and sources - domestic and other (specified). Annual reporting on quantity of on-site waste assimilation and offsite waste disposal.

  Method: *The annual monitoring report will also contain a breakdown of the types and quantities of waste we produce.*

- Target: That all waste handling and assimilation on site must comply with Environment Agency guidelines.
  Indicator: Annual statement of compliance with Environment Agency guidelines.

  ***Method:** The annual monitoring report will include an annual statement of compliance with Environment Agency guidelines.*

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That the re-use of organic waste on site should increase overall site fertility and productivity, so long as this is not at the expense of important seminatural habitats dependent on low soil fertility.
  Indicator: Addressed in annual reporting of on-site waste assimilation (see above)

  ***Method:** The annual monitoring report will contain a description of our on-site biodegradable waste assimilation processes.*

10. Zero Carbon Buildings

Objectives

We aim to carefully design our buildings such that there is a balance between environmental impact, performance and longevity. We prioritise the use of local natural materials and recycled materials.

Components

Domestic – Cabin (and greenhouse):

The cabin will be constructed predominantly from locally sourced larch timber (structure and cladding), insulated with pavotex woodfibre insulation board, plastered internally using lime/ clay based plasters, and roofed with corrugated fibreboard sheeting. The construction will be lightweight and entirely breathable. Windows and doors will be timber-framed and recycled as far as possible. There will be some purchased manufactured elements in the construction – breather membrane, dpc, fixings, plumbing, electrics. The cabin will sit on masonry piers made either from reclaimed bricks or blocks (depending on availability).

The greenhouse will be made from a timber frame sat on an earthbag stem wall (using aggregate sourced on site). We will use toughened (single) glazing for longevity reasons.

Domestic - Outbuilding:

The outbuilding will be constructed predominantly from locally sourced larch timber (structure and cladding) roofed with corrugated fibreboard sheeting. The masonry piers and compost-toilet chambers will be made either from reclaimed bricks (in the case of the piers) or reclaimed concrete blocks set into a concrete slab (in order to provide secure chambers for the humanure).

Ancillary - Barn:

The barn is made from two separate framed-sheds built predominantly with larch timber and linked together under a single roof made from corrugated fibreboard sheeting. The two sheds along with interlinking elements were purchased second hand.
The frames of the two sheds are steel – enabling the waney-edge timber cladding to be replaced over time.

Ancillary - Polytunnel:

This is a lightweight structure made from re-usable steel hoops with a long-life plastic covering.

Ancillary - Timber Store:

The main timbers along with the timber cladding are made from locally sourced timber (Pengelli Forest). The metal roof sheets and metal cladding sheets are all recycled/second hand. Recycled wooden garden trellis has also been used (to contain the logs).

Ancillary - Stall:

This open-sided, lightweight structure will be made using locally sourced timber with a roundwood frame and milling offcuts as boards. An epdm membrane will support the turf roof (with the turf sourced from site).

Zero carbon in use

As far as we are aware there is no up-to-date Welsh definition of 'zero carbon in use'.

The development is essentially off-grid, sourcing its energy from biomass grown on site, passive solar gain, and solar panels.

Building Regulations

None of the structures will require building regulations approval.

The cabin falls under the definition of a caravan; being less than 20ft by 60ft (with an internal ceiling of less than 10ft), made from two sections bolted together, and capable of being detached from the masonry piers and greenhouse, to be moved by road.

The outbuilding will not require building regulations approval because it is less than 30m^2 (and does not contain sleeping accommodation).

The ancillary structures are all related to ongoing land management activities and will not need building regulations approval.

Capable of removal with low environmental impact

Two structures have been identified in the Exit Strategy as requiring removal should the project fail: - the Cabin and Outbuilding. The Cabin can be removed by road and the Outbuilding can be dismantled as described in the Exit Strategy.

Existing Buildings

The existing buildings all have key roles in the land-based activities currently underway on the site.

Zero Carbon Buildings Criteria

Essential criteria

The essential criteria are that:

a) Domestic and ancillary buildings will be 'zero carbon' in construction and use as explained in this guidance and using the up to date Welsh definition of zero carbon.
   - *As far as we are aware there is no up-to-date Welsh definition of 'zero carbon in use'. We have provided evidence that the development will be zero carbon.*

b) Proposals will identify which structures require Building Regulations approval and that this approval is obtained either before or during construction.
   - *No structures will require Building Regulations approval.*

c) All structures identified for removal in the Exit Strategy are capable of removal with low environmental impact.
   - *Both the cabin and the outbuilding can be easily removed from the site with no appreciable negative environmental impact as described in the Exit Strategy.*

Contributory criteria

The contributory criteria are that:

d) The construction of buildings should make as much use of recycled materials as possible so long as this does not affect their ability to satisfy the essential criteria.
   - *As far as possible recycled materials will be used throughout the structures. These will include reclaimed block and brick (cabin and outbuilding), reclaimed windows and doors (cabin), and recycled furniture.*

e) Existing buildings are re-used where this would have an overall lower environmental impact than new buildings, or where they are of particular value in landscape or heritage terms, but provided that they are not unsightly or have a negative impact on the surrounding landscape.
   - *There are no appropriate buildings available for re-use on the site. All existing structures have key roles to play in the land-based activities.*

Zero Carbon Buildings Monitoring

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That domestic and ancillary buildings are zero carbon in construction and use.

Indicators: *Achievement of zero carbon assessment for all buildings requiring Building Regulations approval in construction as described in this guidance*
Achievement of zero carbon assessment for all buildings requiring Building Regulations approval in use as described in this guidance

Method: *The construction of all buildings has been carefully considered to be as low-impact as possible. The development will essentially be zero carbon in use because it is essentially off-grid. No structures will require Building Regulations approval.*

- Target: That structures requiring Building Regulations approval obtain this approval.

Indicators: All structures requiring Building Regulations approval are identified in the proposals.
This approval is obtained either before or during construction.

***Method:** No structures will require Building Regulations approval.*

- Target: That all structures identified for removal in the Exit Strategy are capable of removal with low environmental impact.

Indicators: Specification of how each structure identified for removal in the Exit Strategy is capable of removal with low environmental impact.

***Method:** The structures identified in the Exit Strategy (Cabin and Outbuilding) are capable of removal with no appreciable environmental impact.*

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That the construction of structures should make as much use of recycled materials as possible so long as this does not affect their ability to satisfy the essential criteria.

Indicator: Detailed summary of use of recycled materials in construction of structures.

***Method:** Details of the recycled elements to be used in the construction of the cabin are included above.*

- Target: That existing buildings are re-used where this would have an overall lower environmental impact than new buildings, or where they are of particular value in landscape or heritage terms, but provided that they are not unsightly or have a negative impact due to their siting

Indicator: Explanatory statement on the re-use of any existing buildings.

***Method:** An explanatory statement on the re-use of any existing buildings has been provided above.*

11. Social Benefit - Community Impact Assessment.

Objectives

Having lived in Cilgwyn, Newport for over a decade, we already feel part of the local community. We believe that the Parc y Delyn project offers environmental, social and economic benefit to the area.

The principles behind the Parc y Delyn project are in complete support of the Newport Area Environment Group (NAEG)[7]. This group is a voluntary community based initiative, in Newport, Pembrokeshire.

The aims and objectives include:

- Fostering understanding of local, national and global environmental sustainability
- Thereby seeking to achieve sustainable environmental improvements locally with the ultimate purpose of creating a carbon neutral area
- Facilitating groups to set up initiatives in local food growing, renewable energy etc to address the twin challenges of peak fossil fuel and climate change.

Table: **Positive impacts**

Aspect	Details
Embedded into the fabric of the local community.	We have lived in Cilgwyn for over a decade and consider ourselves an intrinsic part of the local community.
Contributing to a low-carbon land-based economy	Local sales of home grown produce – most specifically flowers – will contribute to the local economy and due to the specialised nature of the goods provided, appear unlikely to compete with existing local producers.
Positive Influence on ecological footprint.	In addition to facilitating a one planet footprint for ourselves, there will be the positive effect of inspiring others to lower their own footprints by moving towards a more sustainable lifestyle.
An inspiring smallholdling that raises awareness of environmental issues	We will host at least one open day each year – showcasing our One Planet smallholding as well as promoting our cut flowers - providing an opportunity for educating, informing and training on horticulture and sustainable lifestyles.

[7] http://www.naeg.org.uk/

Table**: Negative impacts:**

Aspect	Details
Creation of a residential caravan in the open countryside	The development represents another household living in a rural location. The mitigating factors are that there is every reason to believe that our lifestyle can be substantially sustained from the landbase.
Visual impact of built structures	Measures have been taken to embed the built structures into the landscape so that they do not have an adverse visual impact.

Community Impact Criteria

Essential criteria

The essential criteria are that:

a) There is a thorough assessment of all impacts of the proposals on neighbouring communities. One Planet Development in the open countryside should not impact negatively on neighbouring communities.
   - *An assessment of all impacts of the project is provided above. It demonstrates that the project does not impact negatively on the local community.*

b) Any negative impacts are mitigated.
   - *The negative impacts are mitigated by the measures described above.*

Contributory criteria

The contributory criteria are that:

c) OPD children attend local schools and residents support local groups, clubs and events.
   - *Our family is regularly involved with Havards riding stables (between Newport and Dinas). Our children attend swimming lessons in Fishguard leisure centre and we are active members of the Cilgwyn Garden Club (and have occasionally hosted them at Parc y Delyn)*

d) There are open days, permissive footpaths and other access, as well as the hosting of local events on-site.
   - *We will offer open days of the project.*

e) Residents shop locally and use other local businesses.
   - *We shop locally and support other local businesses and initiatives. We tend to shop in Newport for most of our needs eg health shop, spar, chemist, post office, newsagents, hardware shop. We will use local suppliers for building materials and food.*

f) Residents sell food and other produce locally.
   - *We sell our cut flowers locally. See business plans for more detail.*

Community Impact Monitoring

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That community impacts are thoroughly assessed and there are measures in place to mitigate any negative impacts.

Indicators: *Annual monitoring of community impacts.*
Implementation of mitigation measures to address any negative impacts.

Method: *Our annual monitoring report will contain updated tables outlining both positive and negative community impacts, along with any mitigating measures for negative impacts.*

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That all positive community impacts are fostered and recorded.

Indicator: *All positive community impacts are fostered and recorded.*

Method: *As outlined above, the annual monitoring report will record positive community impacts. We naturally foster these.*

12. Transport and Travel Assessment Plan.

Objectives

We plan to maximise our travel by foot, horse, bicycle and public transport. We plan to minimise our travel by private vehicle.

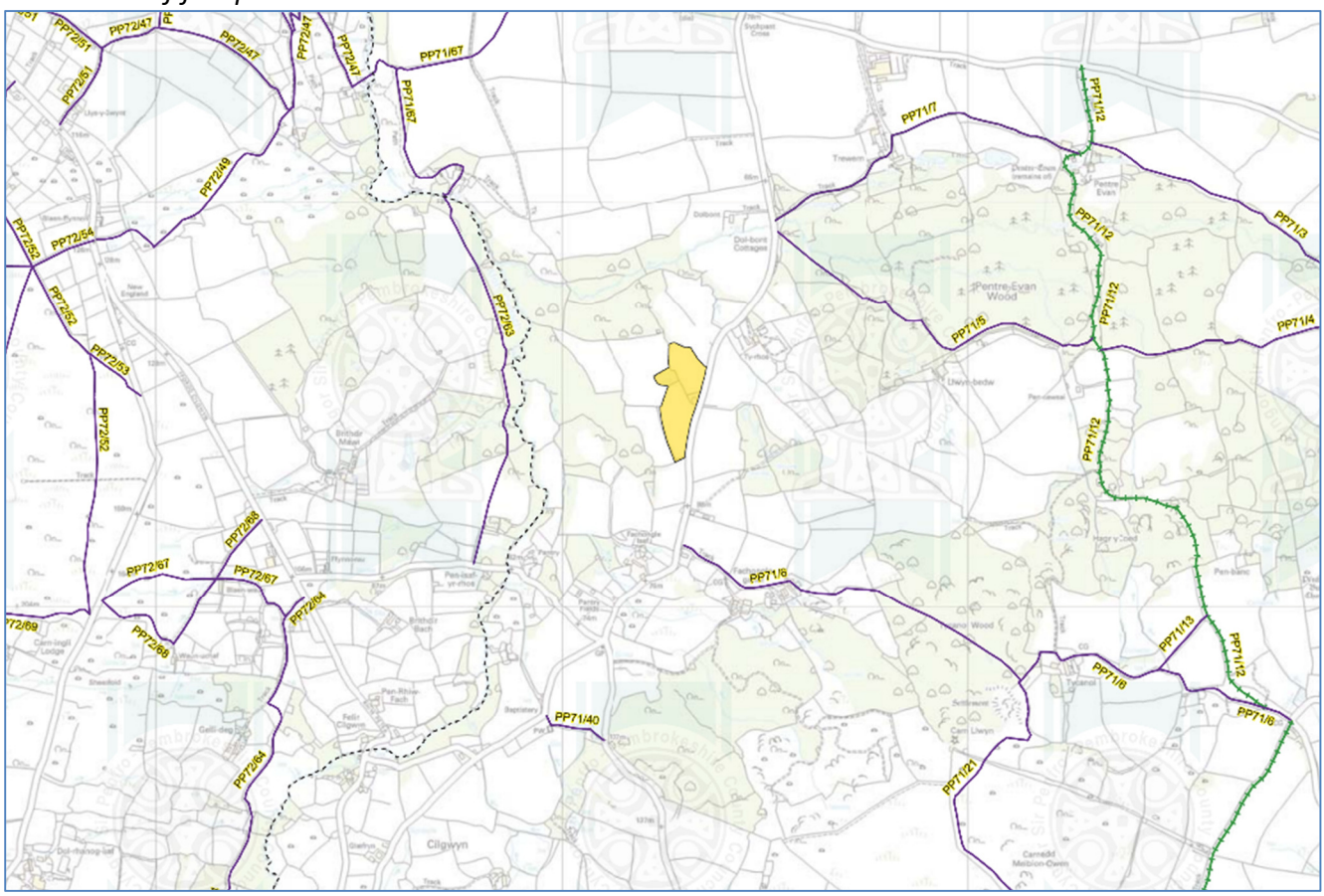
Components

Survey of existing travel options in area:

Footpaths:

There is a comprehensive network of footpaths in the area. It takes approximately 30 mins to walk to the main road (where the bus routes run). It takes approximately 1 hour to walk to Newport.

Illustration of footpath network:



Local buses:

Bus Route 405 – POPPIT ROCKET – Newport to Fishguard or Cardigan: 3 (return) buses a day (summer and winter)

Bus Route T5 Aberystwyth – Cardigan – Newport – Haverfordwest: 17 (return) buses a day

Trains:

Fishguard Harbour is the local train station. There are generally 6 (return) trains a day that link Fishguard to Whitland, Carmarthen and towns to the east.

Private Vehicles:

We currently own 3 vehicles:

A VW Caravelle (W reg-2000) (primarily used by Emma) with 8 seats. This is used for Emma's flower business as it has a large capacity for buckets of flowers, whilst still being able to transport children/family. It has a large rear shelf space (plus fold-down rear seats at the same level) for large floral designs (casket covers, wedding arches etc.). We use it for travelling to social events as it can accommodate 8 persons (great for lift sharing).
It was bought for £5000 approx. 12 years ago. We expect to replace it in 3 years time.

A Toyota HiAce van (52 plate- 2002/3) (Almost exclusively used by John). It has 3 seats in the front. The back carries tools for John's gardening/landscaping work. It's really a mobile tool shed. As John carries out a wide range of gardening and landscaping jobs, it is filled with a large array of tools and materials (some permanent, some transitory). It would be highly impractical to take tools in and out on a regular basis.
It cost £1900 to buy, 18 months ago. Life expectancy: 4 years

A Toyota Hilux (L reg- 1994) (Used occasionally by both Emma and John)
This is a 4x4 that we use for moving firewood, manure and other bulky/heavy items around, either on the land or elsewhere, in conjunction with a trailer. It enables us to drive on the land in wet/slippery conditions. We can harvest seaweed from the beaches when it gets washed in on the Autumn storms.
John occasionally uses it for work purposes (removal of garden waste, timber, moving materials etc.)
It cost me £1100 (bargain) 5 years ago. Life expectancy: It may go on forever, perhaps only another 2-3 years. They're built to last.

Whilst there is a cost involved in maintaining three vehicles – the wide range of haulage and transport tasks and configurations makes this the most low-impact solution for us. Having the options of different vehicles means that we can travel long distances in economical vehicles, and can also undertake heavy transportation across rough terrain.

Once planning permission is granted the intention is that john will scale his gardening work down and increase his work on the plot (focusing on plants). This would result in a considerable decrease in the households travel impact.

Below is an extract from our travel diary. It catalogues every vehicle journey we make.

	VW Caravanelle		Toyota Hilux 4X4		Toyota HiAce van	
	description	mileage	description	mileage	description	mileage
June 4th	Newport. Flower Delivery/ shopping 3 passengers.	4.4			Llangoedmor (Gardening Work GW) and Blaenffos (collect straw) round trip. 1 person. Work at PYD	27.2
5th	PYD 3 passengers	0.6			Newport (GW). 2 Passengers. Work at PYD	4.4
6th	H'west. Flower collection. 1 person	36.8			Newport (GW) 2 passengers. Work at PYD	4.4
7th	Work at PYD. 3 passengers	0.7	Newport Beach via Pantgwyn Quarry (Glanrhyd) (GW and stone collection with trailer).	9		
8th	Newport, Flower Delivery and shopping. Eglwyswrw and Dinas (round trip), flower delivery and childrens riding lesson. 3 passengers	16			Llangoedmor (GW). 2 passengers	21.2
9th	Eglwyswrw. Wedding flower delivery. 1 person. Machynlleth, flower delivery and social event. 3 passengers	75.6			Work at PYD	0.6
10th	Return from Machynlleth. 3 passengers	66			Work at PYD	0.6
11th	Newport, flower delivery. Work at PYD. 3 passengers	4.4			Llangoedmor (GW). 2 passengers	21.2
12th	Work at PYD. 3 passengers	0.6			Cwm Yr Eglwys (GW). 2 passengers	11.2
13 th	PYD, Newport, flower delivery. Dinas, riding lesson (round trip). 3 passengers	10.2			Felindre Farchog and Crosswell (GW) round trip. 2 passengers.	10.4
14 th	Fishguard, flower delivery. H'west, flower collection (round trip). 1 passenger	43.6			Gardening work at neighbours (150yrds away). Work at PYD	0.7

15 th	Newport, flower delivery and shopping. Fishguard, swimming lesson. 3 passengers	18.8			Llangoedmor (GW) and shopping in Cardigan (round trip). 2 passengers	21.2
16 th	Newport,flower delivery. 1 person. Dinas, riding session. 5 passengers	10.2			Work at PYD	0.6
17 th	Work at PYD. Rosebush, social event 3 passengers	13.2			Work at PYD	0.6
18 th	Newport, flower delivery. Work at PYD. 3 passengers	4.4			Llangoedmor (GW) shopping. 2 passengers	21.2
19 th	Cardigan, flower delivery. Work at PYD. 3 passengers	20.6			Eglwyswrw (GW). 2 passengers. Work at PYD on way and back	9.6
20 th	Newport, flower delivery. Dinas, riding lesson (round trip). 3 passengers	10.2			Llangoedmor (GW and Cardigan (shopping). 2 passengers. Work at PYD on way and back.	21.2
21st	Llanycefn, flower delivery. Newport, flower delivery (round trip). Work at PYD. 1 person	10.6			Newport (GW). 2 passengers. Work at PYD on way and back	4.4
22nd	Newport, flower delivery and shopping. Fishguard, swimming lesson. 3 passengers	18.8			Newport (GW). 1 person. Work at PYD on way and back.	4.4
23rd	Glandwr, yoga workshop. 1 person. Brynberian, social event. 4 passengers.	29.6			Various gardening jobs in St.Dogmaels. Shopping in Cardigan (round trip). 2 passengers.	18.2
24th	Work at PYD. Birthday party at Blue Lagoon, Bluestone. 7 passengers.	42			Work at PYD	0.6
25th	Work at PYD	0.6			Llangoedmor (GW) Cardigan (shopping). 2 passengers. Work at Pyd on way back.	21.2
26th	Cardigan and St. Dogmaels, flower delivery. Work at PYD. 3 passengers	18.2			Pontyglasier (GW). 2 passengers. Work at PYD	10.8

27th	Work at PYD. Dinas, riding lesson. 3 passengers.	10.2			Eglwyswrw (GW) 2 passengers. Work at PYD	9.6
28th	Work at PYD. Builth Wells, wedding flower delivery. 3 passengers.	87.9			Eglwyswrw (GW). Work at PYD.	9.6
29th		0			Cwm Yr Eglwys (GW). Work at PYD	11.2
30th	Return from Builth Wells. 3 passengers.	87.9	Moving firewood with trailer from nearby woodland. 2 passengers	1.5		0
July 1st			Newport, flower delivery. 3 passengers. Work at PYD (VW in garage)	4.4		0
2nd			Cardigan and St.Dogmaels, flower delivery. Cwm Yr Eglwys, beach visit. 3 passengers. (VW in garage)	20.2	Llangoedmor (GW). 2 passengers. Work at PYD	21.2
3rd			Dinas, Riding Lesson and shopping. Work at PYD. (VW in garage)	10.2	Cwm Yr Eglwys (GW) 2 passengers	11.2
TOTALS		642.1		45.3		262.7

Total Mileage for month (June – July 2018) = 950 miles

Key:
PYD: Parc y Delyn. Note that sometimes we walk from fachongle to Parc y Delyn – and sometimes we use vehicles – quite often we are carrying/ loading tools/ goods.
GW: Gardening Work. At the moment John works part-time as a gardener. The plan is that following planning permission this work will decrease to 1 – 2 days/ week

Annual Vehicle Costs £ (current)

	VW Caravanelle	**Toyota HiAce Van**	**Toyota Hilux 4x4**
Maintenance/ servicing	395	540	188
Insurance	296	207	192
Road Tax	245	245	240
Fuel	1158	1028	467
Notes	Costs carried by cut flower business	Costs carried by gardening business	Costs carried by household need
mpg	*28mpg*	*24 mpg*	*23mpg*
kmpl	*10kmpl*	*8.4 kmpl*	*8.1 kmpl*
Litres/year	*1052l*	*934l*	*424l*
km/year	*10520km*	*7846km*	*3438km*
miles/yr	*7013miles*	*5230miles*	*2292miles*

Future Projections

As can be seen from our current vehicle travel patterns there is a high degree of variation in our journeys in response to our enterprise opportunities. We adopt a flexible approach to our shopping and social need, coordinating these with our work patterns in order to minimise our vehicle movements. As a result it is quite difficult for us to clearly separate the different purposes for our journeys – a flower delivery often coincides with a social visit and a shopping trip.

There is some seasonal variation in the number and extent of our private vehicle movements. During the winter months the flower business is much quieter.

Once we have moved onto the land there will be a reduction in our vehicle movements for two reasons: Firstly we will no longer need to travel back and forth from our home to our place of work. Whilst this is a relatively short distance it is a very frequent journey we make – mostly transporting goods and tools back and forth. Secondly once we are settled at Parc y Delyn our income needs will drop and John's part time gardening work will be less – with more time spent working on the plot.

We currently travel approximately 9800 miles as a household (6 people). This includes our domestic and work-related journeys.

Once we have settled into Parc y Delyn we expect this to drop to about 8000 miles per year.

Comparison

In terms of comparative statistics;

- In rural English areas[8] the average distance travelled by private car is 8599 miles per person per year[9]. This does not cover journeys for delivering or moving goods or produce[10].
- The average person living in a rural location makes 1644 trip (822 return journeys) by private vehicle per year. This does not cover work related journeys.[11]

Transport Assessment and Travel Plan Criteria

Essential criteria

The essential criteria are that:

[8] These statistics are not available for Wales

[9] https://www.gov.uk/government/statistical-data-sets/nts99-travel-by-region-and-area-type-of-residence Table NTS9904

[10] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337241/nts2013-notes.pdf

[11] https://www.gov.uk/government/statistical-data-sets/nts99-travel-by-region-and-area-type-of-residence Table NTS9903

a) The management plan must be accompanied by a Transport Assessment and Travel Plan (which may be combined).
   - *A (combined) Transport Assessment and Travel Plan is included in the management plan*

b) Overall the development should achieve a significant reduction in transport impacts from all activities on site (residents, enterprises and visitors) in comparison to what would be the 'norm' for such activities.
   - *As a household we currently travel approximately 9800 miles by private vehicle per year[12]; this is not far off what would be the average for one person travelling by private vehicle living in a rural location (8600 miles per year- domestic use only). We expect this figure to drop when we are living on site.*

c) There should be detailed monitoring of all trips to and from the site in terms of purposes, distances, modes, and any transport sharing.
   - *All vehicle trips to and from the site will be monitored and relayed in the annual monitoring report.*

Contributory criteria

The contributory criteria are that:

d) The use of low and zero carbon modes of transport should be maximised.
   - *We regularly walk and cycle locally whenever it is practical to do so*

e) On site vehicle numbers should be controlled and vehicle pools used for One Planet Developments of more than one household.
   - *As a household we have different vehicles for different roles and we expect vehicle numbers to decrease once some of our children leave home.*

f) Connections between the site and local suppliers and customers for goods and services requiring travel, should be maximised opposed to those at a greater distance.
   - *We localise our business dealings as far as we are able and will continue to promote local custom.*

g) Visitor travel should be the subject of proactive management to reduce transport impacts.
   - *Visitors are generally encouraged to travel on foot or by bicycle. The produce and plant stall will be designed to catch passing trade only.*

Transport Assessment and Travel Plan Monitoring

Monitoring: Essential criteria

The targets and indicators for monitoring the essential criteria are:

- Target: That there is a significant reduction in transport impacts from all activities on site in comparison with 'typical' levels for the number of occupants and activities on site.
  Indicators: Annual monitoring of all trips to and from the site by purpose, distance, mode, and any transport sharing. Annual assessment of the transport impact of the site against the Transport Assessment Strategy and Travel Plan.

[12] This includes domestic and business activities

Method: *The annual monitoring report will include a breakdown of all vehicle trips to and from the site by purpose, distance, mode, and any transport sharing. It will review our travel impact in relation to this management plan*

Monitoring: Contributory criteria

The targets and indicators for monitoring the contributory criteria are:

- Target: That there is maximisation of use of low and zero carbon modes of travel.
  Indicator: *Annual monitoring of use of low and zero carbon modes of transport (part of annual monitoring of all trips).*

  Method: *The annual monitoring report will include information about low/ zero carbon modes of travel*

- Target: That there is a reduction in on-site vehicles through the use of vehicle pools.
  Indicator: *Annual monitoring of vehicle numbers and use of vehicle pools.*

  Method: *The annual monitoring report will include details of vehicle numbers and any car-sharing*

- Target: That there is maximum use of local suppliers and customers over those from a greater distance
  Indicator: *Annual monitoring of local suppliers and customers.*

  Method: *The annual monitoring report will include a description of outlets for our food , flowers and plants, demonstrating local custom.*

- Target: That there is pro-active management of visitor travel.
  Indicator: *Annual monitoring of visitor travel.*

  Method: *The annual monitoring report will include an overview of the manner in which visitors travel to Parc y Delyn.*

13. Ecological Footprint Assessment

The Welsh Government EFA calculator was used for these figures. The data page is included as an appendix.

We expect our ecological footprint to be 1.56 gHa/ cap, dropping to 1.47 gHa/ cap after 5 years. The National average is 3.6 gHa/cap.

Our EFA measurement is low because:-

1. We already live a simple low-impact land-based lifestyle – and have become accustomed to living in a low-consumption economic paradigm.
2. Some aspects of our lifestyle (internet provision and transport) are intrinsically tied in with our livelihoods – and their costs/ impacts are essentially carried by the livelihoods. In the attached version of the EFA calculator we accounted for one of the vehicles (Toyota 4x4) and a proportion of our communication costs in line with the financial allocations in earlier chapters. We did compile a second spreadsheet into which we entered the total transport and internet costs (of both lifestyle and livelihood) and the EFA came out a 1.41gHa/cap at year 1 and 1.36gHa/cap at year 5. This second spreadsheet is available on request.
3. We have 2 children. Children have relatively small ecological footprints and as a result larger families tend to have lower EFA's.

Other Footprints

Whilst the EFA analysis that has been undertaken is comprehensive, some elements of the project do not fall within its remit. This is because the tool is primarily an indicator of household lifestyle. Aspects of the project that will have an ecological impact and do not factor into the EFA calculation are:

Negative influences

1. **Transport impacts and internet costs associated with business activities**
   As described in point 2 above the EFA figures above (1.56 gHa/ cap, dropping to 1.47 gHa/ cap after 5 years) do not include internet provision (£995/year) or Transport impacts associated with the land-based livelihoods (12,243 miles per year from 2 vehicles). When these impacts and costs are factored into the calculator our EFA figures are 2.12gHa/cap at year 1 and 2.03gHa/cap at year 5.

2. **Social visitors**
   The ecological impacts of friends and family visiting are small and are also very difficult to quantify. For the most part these will centre on the travel implications of such visits. Needless to say the vast majority of social visits will be from local friends and these often tie in with practical exchanges/ tasks. There are also occasional visits from family members who live further afield.

Positive influences

3. **Food, flowers and plants supplied locally.**
   After 5 years the project expects to produce approximately £16,000 of flowers, £2000 of fruit and veg and £900 of plants for the local economy. Given that the vast majority of food and craft in our society undergoes energy intensive industrial processes and travels thousands of miles, this represents a massive energy and pollution saving.

4. **The indirect effect that the project has on the footprints of the wider community**
   The project aspires to have a beneficial impact on the wider community, promoting both the concepts and the practicality of low-impact living. The potential impact of this in the wider community is impossible to quantify. It is possible to state that given the Welsh Governments aspirations towards a sustainable society (PPW, Chapter 4), this is an important task.

14. Phasing, Monitoring and Exit Strategy

Phasing

Many of the elements that support our livelihood and lifestyle are already in place on the land (for example our barn, polytunnel and woodstore).

Following on from planning permission we will prioritise building our cabin, greenhouse and outbuilding. We expect this will take approximately 2 – 3 years. This is because we will need to continue keeping our land-based businesses running throughout this period.

Once the cabin and outbuilding are built we will relocate our household to the site.

We expect to have the stall and the sign in place within a similar period (2 - 3 years) – this is because it will take John a bit of time to build up the stock sufficient to begin promoting farm-gate sales.

We are wholly confident that we will meet all the productivity and lifestyle targets within 5 years of being granted planning permission

Monitoring

An annual monitoring report will consider the project's progress against the objectives contained in this management plan. It will include:

- An EFA progress report: a short commentary on changes made since the previous year that are likely to impact upon the EF of the households and other footprints.
- An EFA assessment in year 5.
- A revised/ updated Management Plan in year 5 and every fifth year thereafter.

As well as:-

Target	Indicator	Method
LAND BASED ACTIVITY: MONITORING ESSENTIAL CRITERIA		
The minimum food needs (at least 65%) of all occupants are met from produce grown and reared on the site or purchased using income derived from other products grown and reared on the site	(a) Annual reporting of food production consumed by household. (b) Annual reporting of spend on other food.	*The annual monitoring report will provide details of the food we produce from the land and the food we purchase.*
The minimum income needs of all occupants are met from income derived from land use activities on the site.	(a) Annual household income and costs reporting	*The annual monitoring report will quantify our minimum income needs and will demonstrate how we meet*

		these needs from income derived from land use activities on the site.
Income derived from other land-based enterprises, such as training and education courses or consultancy, remain subsidiary to the primary activity of growing and rearing produce.	(a) Annual reporting on the total value of produce grown and reared on the site compared with income derived from other land-based enterprises.	*The annual monitoring report will detail the respective land-based income streams demonstrating that our 'other' land-based income streams remain subsidiary to the primary activity of growing and rearing produce.*
The number of occupants is directly related to the ability of the site to support their minimum food and income needs and the number of people needed to run the site effectively.	(a) Annual reporting on number of occupants by household and their roles on site.	*The annual monitoring report will detail the number of people living at Parc y Delyn and their respective roles within the holding.*
LAND BASED ACTIVITY: MONITORING CONTRIBUTORY CRITERIA		
The land based enterprise provides food and other products to local markets, reducing other local footprints.	(a) Annual reporting of sale volumes and market areas by each on-site enterprise.	*The annual monitoring report will include sales volumes and market areas of our land based enterprises demonstrating that we are providing food and other products to local markets.*
Facilities for processing produce are made available to other local producers.	a) Annual reporting on use of processing facilities by others.	*The annual monitoring report will include any details of processing facilities.*
Training / courses / consultancy, as components of the land based enterprise, share best practice in sustainable land based activities with the wider community.	(a) Annual reporting on training and consultancy activities.	*Our annual monitoring report will include details of any training/ consultancy activities.*
LAND MANAGEMENT: MONITORING ESSENTIAL CRITERIA		
All existing semi-natural habitats are in favourable condition.	(a) Spread of characteristic species of that habitat against an established baseline. (b) Decline in non-characteristic / commercial agricultural species within each habitat (seek advice of Wildlife Trust).	*The annual monitoring report will include a description of the health of the wet woodland, hedgerows and orchard and this will highlight any increase or decline in key species as identified in the Ecology Survey*
All identified cultural heritage features are maintained in good condition.	(a) No cultivation or soil erosion over buried archaeological sites and historic earthworks.	*The annual monitoring report will highlight any cultural features that may be discovered in the future and it will describe management*

	(b) Scrub and trees removed over buried archaeological sites and historic earthworks. (c) Above ground historic/ cultural features stabilised and scrub / trees removed.	*practices which maintain these in good condition.*
There is an increase in the number / area / length of traditional characteristic landscape features and all are under appropriate traditional management.	(a) Increase in the number / area / length of x landscape feature. (b) Increase in the number / area / length of y landscape feature.	*The annual monitoring report will report on the management of the land areas and will quantify the areas of new woodland planted.*
LAND MANAGEMENT: MONITORING CONTRIBUTORY CRITERIA		
(Named) semi-natural habitat(s) is/are extended / created.	(a) Area of new habitat. (b) Spread of characteristic species of that habitat.	*The annual monitoring report will report on the creation and establishment of the Orchard and the Coppice areas.*
There is an increase in the population of farmland birds on the site.	(a) Number of breeding farmland birds on the site against an established baseline.	*No baseline for the number of breeding farmland birds has been set. Should the opportunity arise for such a survey to be commissioned this will be recorded in the annual monitoring report.*
There is an increase in the population of honey bees.	(a) Number of active bee hives on site.	*The annual monitoring report will highlight any beehive additions.*
ENERGY AND WATER: MONITORING ESSENTIAL CRITERIA		
All of the **energy needs** shall be met from sources of renewable energy on site.	a) Annual reporting on use of renewable energy generated on-site (as percentage of energy needs). b) Annual reporting on use of all nonrenewable fuels (included grid connected electricity), recorded in terms of use (what for) and amount (quantity). c) Annual reporting on quantity of electricity exported to the grid and imported from the grid.	*The annual monitoring report will contain a description of our energy usage and production patterns which details sources, methods and quantities. It will include figures for the amount of renewable electricity we generate and use, as well as data on the amount of biomass we harvest and use, as well as data on our use of non-renewable fuels.*
All **water needs** are met from water available on-site (unless there is a more sustainable alternative).	a) Annual reporting on use of water sources (amount used from each source), including abstraction from water bodies (surface and ground water). b) Annual reporting on ground and surface water levels (reported every month).	*The annual monitoring report will contain a description of our spring water usage, and rainwater harvesting patterns which details sources, methods and quantities.*
WASTE: MONITORING ESSENTIAL CRITERIA		

All biodegradable waste produced on site will be assimilated on site in environmentally sustainable ways. Only exception to above is occasional off-site disposal of small amounts of non-biodegradable waste items which cannot be assimilated on site that arise from things used on site wearing out or breaking irreparably.	a) Annual reporting on quantity of all waste production by types of waste and sources - domestic and other (specified). b) Annual reporting on quantity of onsite waste assimilation and off-site waste disposal.	*The annual monitoring report will contain a description of our on-site biodegradable waste assimilation processes.* *The annual monitoring report will also contain a breakdown of the types and quantities of waste we produce.*
All waste handling and assimilation on site must comply with Environment Agency guidelines.	a) Annual statement of compliance with Environment Agency guidelines.	*The annual monitoring report will include an annual statement of compliance with Environment Agency guidelines.*
WASTE: MONITORING CONTRIBUTORY CRITERIA		
The re-use of organic waste on site should increase overall site fertility and productivity, so long as this is not at the expense of important semi-natural habitats dependent on low soil fertility	a) Addressed in annual reporting of onsite waste assimilation (see above).	*The annual monitoring report will contain a description of our on-site biodegradable waste assimilation processes.*
ZERO CARBON BUILDINGS: MONITORING ESSENTIAL CRITERIA		
That domestic and ancillary buildings are zero carbon in construction and use.	a) Achievement of zero carbon assessment for all buildings requiring Building Regulations in construction, as described in this guidance. b) Achievement of zero carbon assessment for all buildings requiring Building Regulations in use, as described in this guidance.	*The construction of all buildings has been carefully considered to be as low-impact as possible. The development will essentially be zero carbon in use because it is essentially off-grid. No structures will require Building Regulations approval.*
All structures requiring building regulations approval obtain this approval.	a) All structures requiring building regulations approval are identified in the proposals b) This approval is obtained either before or during construction.	*No structures will require Building Regulations approval.*
All structures identified for removal in the Exit Strategy are capable of removal with low environmental impact.	a) Specification of how each structure identified for removal in the Exit Strategy is capable of removal with low environmental impact.	*Both the cabin and the outbuilding can be easily removed from the site with no appreciable negative environmental impact as described in the Exit Strategy.*
ZERO CARBON BUILDINGS: MONITORING CONTRIBUTORY CRITERIA		

The construction of structures should make as much use of recycled materials as possible so long as this does not affect their ability to satisfy the essential criteria.	a) Detailed summary of use of recycled materials in construction of structures.	*As far as possible recycled materials will be used throughout the structures. These will include reclaimed block and brick (cabin and outbuilding), reclaimed windows and doors (cabin), and recycled furniture.*
Existing buildings are re-used where this would have an overall lower environmental impact than new buildings, or where they are of particular value in landscape or heritage terms, but provided that they are not unsightly or have a negative impact due to their siting.	a) Explanatory statement on the re-use of any existing buildings.	*An explanatory statement on the re-use of any existing buildings has been provided above.*
COMMUNITY IMPACT ASSESSMENT: MONITORING ESSENTIAL CRITERIA		
Community impacts are thoroughly assessed and there are measures in place to mitigate any negative impacts.	a) Annual monitoring of community impacts. b) Implementation of mitigation measures to address any negative impacts.	*Our annual monitoring report will contain updated tables outlining both positive and negative community impacts, along with any mitigating measures for negative impacts.*
COMMUNITY IMPACT ASSESSMENT: MONITORING CONTRIBUTORY CRITERIA		
All positive community impacts are fostered and recorded.	a) All positive community impacts are fostered and recorded.	*As outlined above, the annual monitoring report will record positive community impacts. We naturally foster these.*
TRANSPORT ASSESSMENT AND TRAVEL PLAN: MONITORING ESSENTIAL CRITERIA		
There is a significant reduction in transport impacts from all activities on site in comparison with 'typical' levels for the number of occupants and activities on site.	a) Annual monitoring of all trips to and from the site by purpose, distance, mode, and any transport sharing. b) Annual assessment of the transport impact of the site against the Transport Assessment Strategy and Travel Plan.	*The annual monitoring report will include a breakdown of all vehicle trips to and from the site by purpose, distance, mode, and any transport sharing. It will review our travel impact in relation to this management plan*
TRANSPORT ASSESSMENT AND TRAVEL PLAN: MONITORING CONTRIBUTORY CRITERIA		
There is maximisation of use of low and zero carbon modes of travel.	a) Annual monitoring of use of low and zero carbon modes of transport (part of annual monitoring of all trips).	*The annual monitoring report will include information about low/ zero carbon modes of travel*
There is a reduction in on-site vehicles through the use of vehicle pools.	a) Annual monitoring of vehicle numbers and use of vehicle pools.	*The annual monitoring report will include details of vehicle numbers and any car-sharing*

There is maximum use of local suppliers and customers over those from a greater distance.	a) Annual monitoring of local suppliers and customers.	*The annual monitoring report will include a description of outlets for our food , flowers and plants, demonstrating local custom.*
There is pro-active management of visitor travel.	a) Annual monitoring of visitor travel.	*The annual monitoring report will include an overview of the manner in which visitors travel to Parc y Delyn.*

Exit Strategy

Should the project fail to achieve one or more of the essential characteristics of OPD (as set out in section 1.9 of the practice guidance – copied below), then the cabin will be removed, with a crane hired to lift the cabin onto a lorry flatbed. The outbuilding will be deconstructed. It is a simple structure made predominantly from untreated timber which would be left on site to compost. Non-biodegradable recyclable materials (roofing sheets, window, chimney vent), will all be offered either for re-sale, or free on *Freecycle*. Fixings and electric cables will be recycled. The masonry elements will be broken up and incorporated into the hardstanding/ track.

The other structures are all related to land-based activity and would therefore remain.

Essential characteristics of One Planet Development in the open Countryside

1.9 TAN 6, reflecting Planning Policy Wales, lays out a set of essential Characteristics that all One Planet Developments in the open countryside must have. These are that One Planet Developments must:

- Have a light touch on the environment – positively enhancing the environment where ever possible through activities on the site.
- Be land based – the development must provide for the minimum needs of residents in terms of food, income, energy and waste assimilation in no more than five years.
- Have a low ecological footprint – the development must have an initial ecological footprint of 2.4 global hectares per person or less with a clear potential to move to 1.88 global hectares per person over time – these are the Ecological Footprint Analysis benchmarks for all One Planet Development (para 2.11).
- Have very low carbon buildings – these are stringent requirements, requiring that buildings are low in carbon in both construction and use.
- Be defined and controlled by a binding management plan which is reviewed and updated every five years.
- Be bound by a clear statement that the development will be the sole residence for the proposed occupants.

15. Section 106 Undertaking

In addition to this management plan we intend to offer a s106 unilateral undertaking to the Council that would secure the following obligations:

- ***Tie to the land***

The occupation of the dwelling shall be limited to resident(s) solely or mainly working or last working on the land in horticulture/ permaculture/ forestry/ woodcraft and associated activities and to any resident dependents.

- ***Sole Residence***

The dwelling will be the sole residence of the resident(s).