



**Annual Monitoring Report
For
Tir y Gafel Ecovillage**

1st January 2013 – 31st December 2013



Rainbow and Roundhouse, Tir y Gafel, Autumn 2013

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1. Framework for this report

This is the fourth annual monitoring report for the Tir y Gafel eco-village. The format is derived in part from the planning condition 3 (August 2009) and in part from the layout proposed in the settlement's Management Plan.

From the Lammas planning conditions:

- 3) No later than 1st April each year, commencing in the second year after development commences, the occupiers of the site shall submit to the local planning authority a written report giving details of the activities carried out during the previous twelve months, setting out performance against the management objectives included within the Management Plan, and the number of vehicle trips generated by the development. In the event that the report identifies that any objective has not been met, or that the number of vehicle trips exceeds the targets set in the Traffic Management Plan, a supplementary report setting out corrective or mitigating measures shall be submitted to the local planning authority no later than 1st July of that year. Those measures shall be implemented in accordance with the supplementary report.

From the Tir y Gafel Management Plan:

10. Monitoring Arrangements

The society will produce an Annual Monitoring report. A copy of this report will be sent to Pembrokeshire County Council. The report will give a general description of the projects activities over the preceding 12 months. It will then chart the project's progress against a well-defined set of performance indicators. It will conclude with a resolution for future targets and propose changes to management practices.

10.1. Performance Indicators

1. Annual

- Ecological Footprint Assessment (SEI)
- 75% Productivity target
- Traffic volume and density
- Management objectives evaluation
- Welsh language integration

2. Long term (4 year)

These performance indicators will be evaluated every 4 years due to the long term nature of their improvement program

- Soil health
- Biodiversity
- Number of new trees planted (accumulative)
- length of new hedgerow planted (accumulative)
- Number of new ponds installed (accumulative)

3. Variable

- Grey Water systems

2. Summary of Key Findings

Household Need Calculation

- ✧ A range of percentage figures for the household need calculation have been submitted based on a number of differing criteria. These range from 58% to 73% dependent upon the criteria. Whilst much debate can be had as to which is the most appropriate figure to use for the household need calculation there can be no dispute that the general trend is forward relative to previous years' percentages i.e. 9% in 2010, 19.37% in 2011 & 42.48% in 2012. Thus, the site can be considered to be on track for the production of 75% of household needs from land-based activities by the end of 2014 (year 5).

Traffic Monitoring

- ✧ The number of traffic movements in 2013 was 11,297 . This was well within the limit of 17,810 traffic movements set for year 4 in the Tir y Gafel traffic management plan.

Ecological Footprint

- ✧ The Tir y Gafel site is considered to have an ecological footprint of 1.52 **global hectares/capita** (as compared to 2.55 global hectares/capita in 2010 , 2.39 global hectares/capita in 2011 & 1.7 global hectares/capita in 2012). This is well below the Welsh average of 4.41gha/cap and Tir y Gafel is on course to have a much lower ecological footprint by the end of 2014.

- **Entranceway**

The entranceway was inspected as per planning condition no.3 of the approved (decision date 1/8/2013) planning application for the Variation of Condition No:4 of consent APP/N6845/A/09.2096728 (08/962/PA). The surface and drainage arrangements of the entranceway were found to be in a satisfactory condition and no remedial work was deemed necessary.

Key Achievements in 2013

It was a good summer and a good growing year with a marked increase in the productivity of the land.

This has led to a positive increase in surplus and the trading of land based goods and services.

The site continues to generate lots of interest locally and globally and, once again, there have been many visitors this year.

Biodiversity and habitat are increasing as more land is restored and new ecological niches created.

The responsiveness to needs of the site has been enhanced with the benefit of 3 years observation and feedback.

3. Performance against Management Objectives

All building and infrastructure development will have a small ecological impact.

Any structure/building will need the approval of the Society as well as the local planning authority. The Society's planning procedure will be exclusively concerned with the low-impact nature of the development and as such will need a full set of plans/drawings/specifications for approval.

The Society will ensure that all development is in accordance with the aims and policies set out within this management plan. The project as a whole will endeavour to aspire to a one planet ecological footprint, and therefore residents will need to be willing to have their dwellings and lifestyles analysed for research. The results of this will be fed back to inform household practice.

The Society considers that all buildings and structures built to date on site are low-impact. All construction within the project has had a small ecological footprint, with decisions being carefully weighed up to strike a balance between function, embodied energy, lifespan, carbon footprint and regulatory requirements (for example building regulations).

Work has continued on building structures around site. Whilst in previous years building work has been focussed on ancillary buildings such as barns workshops and animal housing, work has now begun on the main dwellings on four plots.

An ecological footprint assessment was undertaken for households at Tir y Gafel in 2013.

The total ecological footprint for the development for 2013 was calculated as 1.52 global hectares per capita (gha/cap) compared with 2.55gha/cap for 2010 , 2.39gha/cap in 2011 and 1.7gha/cap in 2012.

The amount of global resources available per person is currently considered to be 1.88gha/cap. Wales' ecological footprint in 2006 was estimated at 4.41gha/cap. The Welsh Nation could be considered as having a 2.35 planet footprint in 2006.

The Tir y Gafel project could be considered as having a 0.81 planet footprint in 2013 compared to a 0.9 planet footprint in 2012, a 1.27 planet footprint in 2011 and a 1.36 planet footprint in 2010.

In 2010 and 2011 this calculation was undertaken by an outside consultant using figures supplied by residents. Last year and this year the on-line One Planet Development calculator was used. This, plus guidelines for its use, can be found at:

<http://wales.gov.uk/topics/planning/policy/guidanceandleaflets/oneplanet/?lang=en>

The natural wealth and biodiversity of the land will be enhanced.

During site and building works care will be taken not to cause any environmental damage. Any areas of notable environmental value (e.g. broadleaf woodland, hedgerows, and wetland) will be acknowledged and incorporated into the site plan in such a way as to conserve and preserve their natural value. Any existing wildlife corridors will be noted and conserved. Lammas will in effect be creating a network of small fields/forestry plots that will each be managed individually. In time, many individual ecosystems will establish themselves on the site leading to what Lammas expects to be an impressive increase in biodiversity.

The Tir y Gafel site continues in its huge transition from pasture to a mosaic of different ecosystems.

- *919 trees were planted in 2013. This brings the total number of trees planted since 2009 to over 8000.*
- *The millpond continues to be managed for biodiversity and wildlife through a policy of maintaining water levels, regulating algal blooms and cultivating an attitude of appreciation and conservation. A considerable amount of planting of bankside, marginal and aquatic plants species has taken place around the perimeter of the pond and we look forward to an attractive floral spectacle in the future . It contains a healthy population of trout, as well as supporting a range of breeding waterfowl (including Canada Goose which, despite being considered a problem invasive species, are nonetheless accepted by virtue of their numbers being naturally limited by the small area of the millpond itself and by virtue of their benign effect on native flora and fauna). The millpond hosts a large population of breeding toads (toads are now listed as a UK Biodiversity Action Plan priority species). The millpond is also a valuable feeding ground for bats (a European protected species). Otters have also been sited using the millpond (another European protected species).*
- *Four new ponds were dug in 2013 bringing the number of new ponds on site to a total of 18.*
- *Approximately 120 metres of new hedgerow has been planted in 2013. This brings the total new-plant hedgerow on site to 2264m thus far.*
- *Work continued in the woodland as per the Woodland Management Plan; restoring over-stood hazel coppice and opening up rides in order to regenerate and diversify the woodland. Wildlife habitat through leaving brash-wood and replanting with oak and ash has been a primary focus and enhanced. In addition timber yields were harvested for building, firewood and craft.*

The settlement will become integrated into the local community and will be an asset the local economy.

We recognise the importance of open negotiations and consultations with local people in order to foster the spirit of mutual understanding and respect. We hope that the low-impact nature of the development, coupled with the many local benefits, will lead to local people appreciating the advantages of the development.

Local benefits will include:

- A boost for local businesses - Owing to the project's low impact ethos, residents will naturally shop locally and make full use of local businesses, products and trades. Visitors to the settlement will also be encouraged to shop locally.
- Rights of way – The project will create a network of footpaths for public use through the site, opening up the land for walkers.
- Affordable housing – There will be a provision of affordable housing for people with low impact aspirations.
- Local economy - The settlement will add to the local economy by offering a range of skills, crafts and produce. The Society will encourage businesses developed within the settlement to consult locally in order to complement, rather than compete with, existing small businesses in neighbouring towns and villages.
- Public transport provision – The Lammas minibus will be available for local people to use.
- A part-time shop and café facility.

The Tir y Gafel residents are indeed, by virtue of human nature, weaving themselves into the local community. They play an active role in shopping locally and participate in local events.

Lammas enjoyed a year chairing The Environment Network for Pembrokeshire and sat on the local authority policy steering committee for environment (PEF) in charge of implementing the environment actions of the Single Integrated Plan. Specifically, Lammas led the action on 'building resilience in the community to cope with climate change.'

The project will offer opportunity of affordable housing.

The properties will be available in perpetuity. That is to say that when a resident leaves the project, they will sell their lease on the open market. The lease will contain the various conditions and regulations which will ensure the low-impact aims of the project will be maintained. Lammas fully expects that (due in part to these restrictive conditions and also due to the continuing availability of land on which low-impact developments can take place) the prices for such leases will fall well below market rates.

All 9 plots were occupied for the entirety of 2013. No residents have departed. No leases were sold in 2013.

There will be an effective traffic reducing strategy in place.

The project has a well defined traffic management policy in place which takes into consideration all aspects of traffic generation. Essentially the project is an integrated residential and livelihood development which will by its nature allow residents to live a lifestyle less dependant on vehicle use. Most of the household needs will be met directly from the site. These include:

- Land-based employment
- Additional employment
- Social Networks (by the nature of community)
- Recreational provision (eg, playground for children, walking for adults)
- Services (Water, electricity, fuel)
- Livelihood support (skills and knowledge)

The regulatory mechanisms which will ensure that traffic will be minimised include:

- Residents will be required to share vehicles.
- A Society minibus will provide a link with local towns.
- The minibus will also be available for additional trips/ one-off opportunities.
- All deliveries to and from the site will be coordinated.
- Financial incentives will be used to encourage visitors to travel by public transport.
- All traffic will be monitored and reviewed on an annual basis.

During 2013 8 vehicles were operated from Tir y Gafel by residents.

One car share scheme was operated on site. In addition much car sharing takes place on site in terms of school runs, helping out when vehicles are broken down and lifts are offered across the site via a log book in the shop and a weekly e-mail.

Vehicle journeys to and from the project were counted by using an automated traffic counter. The automated traffic counter operated from 1st January to 31st December. Due to several technical hitches data was not collected from all days during this period. Data is available for 165 days in 2013. The data for the whole year has been extrapolated from this. This traffic counter data is included in Appendix 2.

Average vehicle trips per week made to and from the site (noting that a return journey is 2 trips) was 217.

Average vehicle trips per day made to and from the site (noting that a return journey is 2 trips) was 31.

Total number of vehicle trips in 12 months (from 1st January 2013 til 31st December 2013) was considered to be 11,297 (of which 300 were as a result of disability transport). The maximum vehicle count (as detailed in the Traffic Management Plan) is set at 25,278 per annum during the first three years (considered as the Building Phase) and 17,810 per annum thereafter. The current level of traffic generated by the Tir Y Gafel site is therefore under the allocated quota.

The settlement will welcome visitors and provide an educational experience

It is likely that the project will, due to its innovative nature, attract visitors. Most of these will be attracted to the exploration of principles of sustainability. It is important that examples of low-impact development are available for people to experience. Low-impact development offers one potential solution to the challenges of addressing climate change, limiting fossil fuel consumption, affordable housing and the farming crisis.

It is equally important to balance the project's contribution to a wider sustainability transition with the need to ensure that visitors' travel arrangements are also low-impact.

Thus the Society has a policy that welcomes visitors within a clearly defined framework, designed to minimise visitor vehicle use.

The settlement will remain open to visitors at all times, though reserves the right to implement measures designed to control visitor numbers (for example parking fees), and will endeavour to encourage the clustering of visitors on certain days when residents of the project will give guided tours of the project.

A range of information resources will be available for visitors.

Access to the settlement will be from the Llanfyrnach to Glandwr road. At the entrance to the site will be a gateway featuring a sign which will clearly display when the settlement is open and closed.

Adjacent to the car-parking area and Minibus stop will be a "Welcome Point" which will serve to inform visitors to the range of facilities available.

There will be a community hub building on the site. This will provide a meeting place for both community members and visitors. Indeed, it will be the starting point for guided walks and tours.

It will also house a part time café and a part-time shop (the trading post) from which visitors will be able to purchase produce from the locality.

Each Saturday, from 6th April 2012 to 28th September 2013, advertised tours of the site were given by residents to members of the public. There were 26 tours in total and approximately 370 people visited the site in this way.

In addition to the Saturday tours, a number of other facilitated tours were given to the following groups:

Ysgol y Preseli (6th form course in global development)

Bristol Permaculture Group (Shift Bristol) (two visits)

Friends of the Earth

University of Cardiff (Geography students)

Gower College (Welsh Bacc.)

Woodlands for Sale (for a One Planet Development training day).

Lord Dafydd Ellis Thomas, Welsh Government Sustainability Committee visited (April)

A number of events/ conferences and courses were also held at Tir y Gafel:

A low-impact experience week

Family adventure camp - giving people with children opportunity to experience low impact life-style.

An Eco-Village Conference

One Planet Conference (which led to the formation of the One Planet Council)

Community Supported Agriculture conference (The Wales National Conference)

Wood Craft Folk (volunteering and woodland workshop)

A Spinning Workshop

9 willow basket making and hedgerow basket making courses

Cob building course (Plas Helyg)

Timber frame course (Plas Helyg)

Eco-hut course (Plas Helyg)

Habitat sensitive woodland management course (Plas Helyg)

Catalan platter basket course
Felt making course

There was a fair amount of media interest in Tir y Gafel in 2013 with an article in the Guardian Magazine (February), S4C news (March), BBC Wales news (March), BBC3- the revolution will be televised (October), CCTV (Central China Television) (July), BBC1 - The house for under £100k, BBC Escape to the Country (Sept). Joint screenings of 'Living in the future', a DVD focussed on Tir y Gafel, in Aberystwyth, Cardiff, Swansea, Cardigan & Hereford, (April) with a question and answer session with residents chaired by former AM Jane Davidson.

Throughout 2013 Tir y Gafel was visited regularly by Amanda Jackson, a photographer, who has been taking photographs for Tir y Gafel residents. These photographs will form part of an Arts Council funded exhibition to be held at Theatr Mwldan in Cardigan in August 2014.

In addition residents at Tir y Gafel hosted 166 volunteer placements

The project will provide a support infrastructure for land based sustainable livelihoods to develop

Each household will be required to provide at least 75% of its household needs from land based activity. Each household will have access to the equivalent of approximately 8 acres on which to develop a land based livelihood. Residents will have exclusive use over some areas of this land, and will share other areas.

To create a sustainable land based lifestyle is enormously challenging. The farming community will affirm that in today's economic climate there is very little money to be made from the land. This coupled with the challenges of environmentally conscious living (for example, reducing one's travel needs) creates an adverse environment for low-impact smallholders. Only through establishing a sufficiently large group of low impact holdings can the potential of the project as a model for sustainable development be fully realised. Thus we are planning a settlement of 9 smallholdings.

With the momentum of the group helping to sustain the project in the long term, a local economy centred around land based productivity will flourish. A culture of low impact lifestyles will grow and provide support and inspiration both within the project and beyond.

The support services which Lammas will offer its residents include:

- The society will provide a health and safety certified kitchen for residents to process and thus add value to their food produce.
- There will be a part-time shop (trading post) and café from which residents can sell their produce.
- Residents will be able to advertise and sell produce through the Lammas website.
- If residents produce is of a sufficiently high standard, they will be able to use the Lammas logo as a marketing tool.
- Lammas will also offer each household timber from the community woodland so that the production of value-added craft can be explored.

The proportion of household need produced from the land continues to increase steadily from year to year particularly in relation to food production. However, this year there has been much discussion amongst Tir y Gafel residents regarding the way in which household need is calculated. The supplementary planning guidance, Low Impact Development – Making a Positive Contribution for policy 52 of the Pembrokeshire JUDP (now superseded by the Pembrokeshire LDP) under which the Tir y Gafel development was granted permission in 2009 states that the term 'substantially' meets the needs of the residents on site' means that 75% or more of basic household needs will be met by means of activities centred around the use of resources grown, reared or occurring naturally on the site. Discussions have mainly focussed on whether activities such as training, education courses or consultancy directly linked to land

based activities on the site would be covered by the phrase “activities centred around the use of resources grown, reared or occurring naturally on the site”. Equally there has been much discussion as to whether Feed in Tariff payments, which are received when the on-site hydro-electric turbine generates electricity, can be considered in this way. No consensus has been reached amongst Tir y Gafel residents as to the most appropriate method for this calculation. So, six different calculations are presented with each of the six based on differing criteria.

The table on the next page presents the results of these six different methodologies for the calculation of the household need figure. Each method yields a different percentage figure. The raw data for these calculations can be found in Appendix 1.

Some of the Produce for Sale at Tir y Gafel in 2013



Cut Flowers



Dairy products



Salves and Creams



Strawberries for jam making, herbs for herbal teas

Table Giving Functional Need Calculation for Year 4 (2013).

<i>PLOT</i>	<i>Household need</i>	<i>Needs met from site: produce consumed & produce sold (%)</i>	<i>Needs met from site: produce consumed & sold plus, earnings from land-based courses, consultancy & training (%)</i>	<i>Needs met from site: produce consumed & sold plus Feed in Tariff Payments (%)</i>	<i>Needs from site: produce consumed & sold plus earnings from land-based courses, consultancy & training plus Feed in Tariff Payments (%)</i>	<i>Needs from site: produce consumed & sold plus Feed in Tarrif work off-plot concession (%)</i>	<i>Needs from site: produce consumed & sold plus Feed in Tarrif work off-plot concession plus earnings from land-based courses, consultancy & training (%)</i>
<i>a</i>	11128.96	5800 (52%)	7440.52 (67%)	7378.09 (66%)	7440.52 (67%)	5903 (53%)	7440.52 (67%)
<i>b</i>	15230.96	9859 (65%)	11362 (74%)	11437.09 (75%)	12940.09 (85%)	10146.37 (67%)	11649.37 (76%)
<i>c</i>	11518.96	7615 (66%)	7725 (67%)	9193.09 (80%)	9303.09 (81%)	7841.6 (68%)	7951.60 (69%)
<i>d</i>	15132.96	8659.22 (57%)	8937.22 (59%)	10237.09 (68%)	10515.09 (69%)	8813.72 (58%)	9091.72 (60%)
<i>e</i>	11491.68	8471.93 (74%)	9341.93 (81%)	10050.02 (87%)	10920.02 (95%)	8780.93 (76%)	9650.93 (84%)
<i>f</i>	6538.85	2395.89 (37%)	2593.6 (40%)	2689.89 (41%)	2689.89 (41%)	3349.67 (51%)	3547.38 (54%)
<i>g</i>	5989.96	3032.77 (51%)	3268.77 (55%)	3720.62 (62%)	3720.62 (62%)	3092.51 (52%)	3328.51 (56%)
<i>h</i>	11504.96	6532.08 (57%)	7572.08 (66%)	8110.17 (70%)	8901.24 (77%)	6881.25 (60%)	7921.25 (69%)
<i>i</i>	15979.43	8636.10 (54%)	8746.10 (55%)	10214.19 (64%)	10324.19 (65%)	8712.32 (55%)	8822.32 (55%)
Total	104,516.71	61,001.99 (58%)	66,987.22 (64%)	73,030.25 (70%)	76,754.75 (73%)	63,521.63 (61%)	69,403.6 (66%)

An explanation for each calculation method used in the above table is given below:

Column 3 Needs met from site: produce consumed & produce sold

For this methodology a financial value was attributed to all produce grown, reared and consumed by a household. This was added to the financial value of profits from sales from the plot (both direct sales of produce and sales of products made using plot-based materials). These are considered to be the primary activities of any plot. The value of land-based electricity, water and fuel production was also added to this figure.

Column 4 Needs met from site: produce consumed & sold plus, earnings from land-based courses, consultancy & training

This methodology is the same as that described above plus the addition of earnings from training, education courses or consultancy that is directly linked to land based activities. It is important to note that earnings from training etc. are clearly subsidiary to the primary activities of a plot (i.e. produce grown, reared, made and sold plus produce consumed. This does not include the figures for electricity, water and fuel production). Activities such as cob building courses, timber framing courses, willow basket weaving courses, residential low-impact weeks and eco-village tours have been included in this category.

Column 5 Needs met from site: produce consumed & sold plus Feed in Tariff Payments

This methodology is the same as that described for column three plus the addition of earnings from Feed in Tariff (FIT) payments. Feed in Tariffs are payments received by renewable energy producers (e.g. hydro, solar, wind) when they sell renewable credits to the government and energy companies. These are then used by the government and energy companies to meet their obligations under international energy and climate change treaties. At Tir y Gafel we are blessed with some very talented and hard-working people who have managed to get the hydro-electric turbine up and running. The government and energy companies need a product. This product has been created by the hands and ingenuity of the Tir y Gafel hydro workers using the natural resources of the land at Tir y Gafel. In this it is just like any other land based product. Admittedly, it is an unusually intangible product, but a very real one in the carbon trading world of economics and ecological agreements. The Tir y Gafel hydro-electric turbine produced 70276kwh of electricity in 2013. The Feed in Tariff is paid at 20.21p per kwh (<https://www.ofgem.gov.uk/ofgem-publications/58940/fit-tariff-table-1-april-2013-non-pv-only.pdf>). Therefore Feed in Tariff payments for 2013 were £14,202.78. Divided by 9 plots this gives a value of £1578.09 per plot. As with training etc. it is important that the money generated from FIT payments is clearly subsidiary to the primary land-based activities on the plot. This issue of FIT payments as a land-based livelihood has been, probably, the most hotly debated of all the household needs intricacies at Tir y Gafel and the views expressed have been very broad-ranging.

Column 6

Needs from site: produce consumed & sold plus earnings from land-based courses, consultancy & training plus Feed in Tariff Payments

Column 7

Needs from site: produce consumed & sold plus Feed in Tariff work off-plot concession

The concept of the “off-plot concession” has arisen as a result of an awareness that there are many jobs undertaken at Tir y Gafel that are site-based but not plot-based. Anyone taking time out of their plot-based work to undertake site-based work is taking time out of their ability to produce a land-based income from their plot. Site-based work is for the good of the whole community at Tir y Gafel so the idea of the “off-plot concession” is to compensate someone who is taking time out of their own plot to work for the whole community by allowing them to contribute a certain percentage of what they earn from site-based work to their household need calculation. This money would come from Feed in Tariffs but it would not include the entire Feed in Tariff payment so could be seen as a half-way house in terms of dealing with the Feed in Tariff issue.

Site-based workers get paid £10/hour whilst plot work and subsequent land-based income inevitably work out as substantially less. To bring the “off-plot concession” in line with plot-based work the following calculation was undertaken: the total value of produce grown and eaten for every plot plus the value of produce grown and sold for every plot plus the value of produce made and sold for each plot was calculated (see Appendix 1 for figures). This figure comes to £43,694.42. An assumption is made that, at the moment, people are spending three days each week working to grow produce (with the rest of the time on building work etc.) This gives a figure of 156 working days: So £43,694.42 is divided by 156 to give a figure for a day’s work i.e. £280.09. This figure is then divided by 17 (there are 17 working adults at Tir y Gafel) to get a figure per working adult per day: £16.47. An assumption is made of an 8 hour day. £16.47 is divided by 8 to get an hourly rate for plot-based work of £2.06/hour. So the “off-plot concession” is that £2.06 can added to the produce from the land section of the functional needs calculation from money generated by Feed in Tariffs for every hour of site-based work.

Column 8

Needs from site: produce consumed & sold plus Feed in Tariff work off-plot concession plus earnings from land-based courses, consultancy & training.



2013 was a good year for tomatoes



A bountiful potato harvest makes a good subject for a school project

Summary

Value placed on the total household needs for the settlement in 2013: £ 104,516.71

Value placed on the needs met directly from the site in 2013 ranges from: £ 61,001.89-£76,754.75

The settlement met between 58% and 73% of its needs from land based activity during 2013 dependent on the method of calculation.

The Tir y Gafel Management Plan does not give targets for the percentage of household needs met from the land in the first two years. However, it does give forecasts for years 3, 4 and 5. These are:

Year 3 41%

Year 4 68%

Year 5 100%

In year 1 the percentage of needs met from the site was 9%, in year 2 it was 19.37%, in year 3 it was 42.48%. If land-based production continues at this rate for the following three years, Tir y Gafel can be considered to be on target to meet the 75% criteria laid down in policy 52.

The table below presents a summary of Tir y Gafel produce sold in 2013:

Product	Value
<i>Willow</i>	<i>£2479</i>
<i>Speciality salads to restaurants</i>	<i>£4590</i>
<i>Skincare products (creams,soaps etc)</i>	<i>£2199</i>
<i>Vegetables</i>	<i>£2488.45</i>
<i>Dairy produce</i>	<i>£1308</i>
<i>Hay/silage</i>	<i>£664</i>
<i>Plant sales</i>	<i>£1165.33</i>
<i>Seed sold to seed company</i>	<i>£1347</i>
<i>Soft fruit (strawberries, blueberries etc.)</i>	<i>£406.30</i>
<i>Eggs</i>	<i>£353.58</i>
<i>Sheep products</i>	<i>£400</i>
<i>Timber sales</i>	<i>£300</i>
<i>Cut Flowers</i>	<i>£427</i>
<i>Grazing</i>	<i>£360</i>
<i>Garden Furniture</i>	<i>£180</i>
<i>Herbs</i>	<i>£19.56</i>
<i>Comfrey Plant Tonic</i>	<i>£322.67</i>
<i>Jams</i>	<i>£164.90</i>
<i>Fruit Vinegar</i>	<i>£28</i>
<i>Syrup</i>	<i>£25</i>
<i>Fruit Cordial</i>	<i>£64</i>

See Appendix 1 for detailed breakdown of household need and land-based productivity'.

The project will conduct and publish research about the development

Lammas aims to promote low-impact development as a tool for realising Wales' sustainability goals. Lammas will facilitate a research team to conduct and evaluate the project's success. The research will primarily be concerned with:

1. The settlement's ecological footprint.
2. The settlement's impact on the land in terms of habitat, biodiversity and soil quality.
3. The impact of the settlement on the local economy and community.

Research will be published through a number of media to maximize accessibility and stimulate scrutiny lay, policy, planning and academic stakeholders. A monitoring report will be produced on an annual basis. In addition to this Lammas will conduct specific research projects so that the project can be used as a model for learning and the on-going development of best practice.

Lammas actively supports research on the project. Research reports can be found at the Lammas website (<http://www.lammas.org.uk/lowimpact/index.htm#campaign>).

One 2013 dissertation published is located there. This is:

The Energies of Activism: Rethinking Agency in Contemporary Climate Change Activism by Charlotte Lee, PhD, Durham University, 2013

Presentations on the project were also given to the following groups:

Geography Students at Gower College, Swansea

A workshop on living on the land was given at The Big Green Gathering (Chepstow)

A Skype presentation was given to Transition Llandeilo

A talk was given about Lammas for the "Renew Wales" seminar at the Centre for Alternative Technology.

This annual monitoring report will be published online as have the previous annual monitoring reports.

The development will embrace and support the Welsh language.

Lammas recognises the importance of the Welsh language and culture in North Pembrokeshire and sees low impact development as supporting this local language and culture, united by a common connection with the land and local rural knowledge and traditions. Lammas has a Welsh Language policy to ensure its support of the Welsh Language. Whilst several proposed residents already speak or are learning Welsh, most intend to learn once they move onto the site and Lammas aims, over time to become fully bi-lingual.

Signage around the Tir y Gafel site is bilingual.

Of the 17 adult residents, 5 attended Welsh classes in 2013 with four proudly passing their Sylfaen exam in the summer

Tir y Gafel residents featured in the Diwrnod Shwmae Sir Benfro video which can be seen on Youtube: http://www.youtube.com/watch?v=oO_cQE62LCI.

On open days all feedback forms are bilingual and leaflets are offered in English and Welsh

On the Lammas website, those pages considered to be 'key' are available in Welsh.

4. Entranceway Monitoring

Permission was granted on the 1st August 2013 (planning application no. 13/0153/PA for the Variation of Condition No: 4 of consent APP/N6845/A/09/2096728 (08/0962/PA). Permission was granted subject to a number of planning conditions. Planning condition no.3 states that:

"The proposed vehicular access to the county road shall be surfaced in the area from the highway to the cattle grid in such a way as to prevent loose material and surface water discharging on to the highway. The surface and drainage arrangements of the entrance shall be inspected a minimum of two times a year at 6 monthly intervals, to ensure that no loose material or surface water is being discharged onto the highway. Any necessary repairs shall take place within 3 months of the initial inspection. A report detailing the findings of the inspections and any repairs shall be submitted to the Local Planning Authority for approval, concurrently with the management objective report which is to be submitted annually in accordance with condition 2 above. If the findings of the report conclude that the surface is in a poor state of repair, the occupiers of the site shall repair the surface in accordance with a scheme submitted to and agreed in writing by the Local Planning Authority.

Reason: To ensure that no deleterious material is brought onto the highway and to accord with policy GN.1 of the Local Development Plan for Pembrokeshire (adopted 28 February 2013)."

The report detailing the findings of the inspections is as follows:

The entranceway is composed of compacted shale bound by clay finings. This material was quarried on site in 2010 and the entranceway installed in 2010.

An inspection was undertaken by Leander Wolstenholme on behalf of Lammas Low Impact Initiatives Ltd. on the 15th October 2013. For each 6 monthly inspection the following items will be noted and any necessary action undertaken:

- 1. The drainage pipe that cuts across the width of the track to the north west of the cattle grid will be checked and any debris will be removed to ensure that the entrance and exit of the pipe is clear.*

Findings on 15/10/13: No debris was noted and the entrance and exit of the pipe is clear.

- 2. The drainage pipe that is located at the southern corner of the cattle grid will be checked and any debris will be removed to ensure that the entrance and exit of the pipe is clear.*

Findings on: 15/10/13: No debris was noted and the entrance and exit of the pipe is clear.

- 3. The area between the cattle grid and the county road will be checked for the presence of pot holes. Any pot holes found will be repaired using compacted shale and clay finings. This material for repairs was quarried on site 2010 and is currently stored at Tir y Gafel on site of the former quarry. Great care will be taken over this work to ensure a long lasting repair.*

Findings on 15/10/13: No pot holes were noted.

- 4. Vegetation on both sides of the entranceway will be inspected in August. Any vegetation found to be obscuring the sight lines along the county road will be cut back to ensure a clear view from the entranceway in both directions along the county road.*

Finding on 15/10/13: No vegetation was found to be obscuring the sight lines along the county road.

Appendix 1 Household Need and Plot Productivity Calculation 2013

	Plot a		Plot b		Plot c		Plot d		Plot e		Plot f		Plot g		Plot h*		Plot i	
	Household need	from land	Household need	from land	Household need	from land	Household need	from land	Household need	from land	Household need	from land	Household need	from land	Household need	from land	Household need	from land
Domestic Wood Use	300	300	340	170	242	242	432	432	700	600	450	450	210	210	250	150	105	105
Domestic Gas Use	216	0	120	0	96	0	108	0	82	0	54	0	218	0	290	0	162	0
Domestic Electricity Use	1204	952	958	958	726	724	1500	1258	1188.32	1176.44	862.89	862.89	1162	1158	1162	1162	1163.09	1130
Provision of Water	410	350	164	164	496	496	576	496	337	337	483	483	261	261	385	385	420	420
Household Food (annual)	4192	1012	8046	4199	6095	4005	8000	6200	5834.40	3954.20	2600	600	1500	560	4626	1900	8000	2200
Basic Household Clothing	350	0	606	0	73	0	300	0	15	0	0	0	0	0	215	0	908.78	0
Annual Dwelling Maintenance	850	850	0	0	530	480	0	0	370	270	0	0	80	0	0	0	0	0
Other overhead requirements: Telephone/Internet	480	0	720	0	624	0	720	0	216	0	480	0	390	0	690	0	647.05	0
Other overhead requirements: Council Tax	618	0	618	0	618	0	618	0	720	0	0	0	430	0	618	0	618	0
Other overhead requirements: Service Charge, Rent plus car charge etc.	1008.96	0	1008.96	0	1008.96	0	1008.96	0	1008.96	0	1008.96	0	1008.96	0	1008.96	0	1008.96	0
Other overhead requirements: Transport costs (including car repairs, car tax, mot, fuel etc..)	1500	0	2650	0	1010	0	1870	0	970	0	600	0	730	0	2260	0	2946.55	0
Other overhead requirements: Insurance (household etc.)			0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0
Total	11128.96	3464	15230.96	5491	11518.96	5947	15132.96	8386	11491.68	6337.64	6538.85	2395.89	5989.96	2189	11504.96	3597	15979.43	3855
Land Based Enterprises	Details	Value Sold	Details	Value Sold	Details	Value Sold	Details	Value Sold	Details	Value Sold	Details	Value Sold	Details	Value Sold	Details	Value Sold	Details	Value Sold
Produce grown or reared & sold			Flowers Duck Eggs Cow Berries Veg Willow	427 72 1308 232 135 25	Perennial plants and comfrey plant tonics Timber Sheep	968 300 400	Plants, eggs & vegetable sold Hay/silage	77.10 214.12	Veg, eggs, grazing, plants, hay, seed saving & sales	1954.29			Eggs Herbs Hay Veg. Strawbs	56.58 19.56 234.33 39 174.30	Fruit & veg, honey sales Seed saving	1609.45 1207.63	Speciality salads to restaurant Hay	4590 191.10
Produce made & sold	Sculptures and workshops using own willow	2336	Creams	2169					Garden Furniture	180			P'kin jam Berry jam Fruit vin. Ros syrup Cal soap Fruit cord	164 9 28 25 30 64	Willow baskets	118		
Income from training, courses & consultancy	Courses run using sub-soil (cob building) and eco-building courses using roundwood & subsoil (timber framing & ecohut Tours of eco-village	2400 220	Tours of eco-village Courses Land-based consultancy	371 602 530	Tours of eco-village	110		260	Tours, CSA event, horticultural advice	870	Eco-village tours	197.71	workshop s, talks, conferences, tours	236	Willow courses Eco-village Tours	745 295	Willow courses	110
Grand Total	11128.96	8420	15230.96	11362	11518.96	7725	15132.96	8937.22	11491.68	9341.93	6538.85	2593.6	5989.96	3268.77	11504.96	7572.08	15979.43	8746.10
Off-plot work concession		103		287.37		226.60		154.5		309		953.78		59.74		349.17		76.22

Total Household Need: £104,516.71

*The eldest child on this plot has now reached the age of 18 (19 in 2013) and is therefore financially independent. As he has learning difficulties he remains living at home. Therefore his household needs have not been included in the calculation

Appendix 2: Traffic Counter Statistics 2013

Date	Number of Traffic Movements
01/01/2013	20
02/01/2013	11
03/01/2013	18
04/01/2013	18
05/01/2013	9
06/01/2013	13
07/01/2013	11
08/01/2013	33
09/01/2013	13
10/01/2013	20
11/01/2013	20
12/01/2013	32
13/01/2013	10
14/01/2013	3
15/01/2013	14
16/01/2013	15
17/01/2013	9
18/01/2013	2
27/01/2013	28
28/01/2013	33
29/01/2013	41
30/01/2013	44
31/01/2013	68
01/02/2013	33
02/02/2013	34
03/02/2013	11
04/02/2013	18
05/02/2013	18
09/02/2013	13
10/02/2013	35
11/02/2013	30
12/02/2013	26
13/02/2013	9
14/02/2013	24
15/02/2013	50
16/02/2013	41
17/02/2013	21
18/02/2013	33
19/02/2013	30
10/08/2013	75
11/08/2013	84
12/08/2013	45
13/08/2013	52
14/08/2013	55
15/08/2013	49
16/08/2013	34
17/08/2013	49
18/08/2013	42

19/08/2013	58
20/08/2013	60
21/08/2013	70
22/08/2013	33
23/08/2013	62
24/08/2013	62
25/08/2013	87
26/08/2013	35
28/08/2013	29
29/08/2013	45
30/08/2013	71
31/08/2013	48
07/09/2013	26
08/09/2013	20
09/09/2013	6
10/09/2013	44
11/09/2013	11
12/09/2013	10
13/09/2013	22
14/09/2013	15
15/09/2013	48
16/09/2013	10
17/09/2013	41
18/09/2013	28
19/09/2013	33
20/09/2013	43
21/09/2013	12
22/09/2013	15
23/09/2013	3
24/09/2013	30
25/09/2013	36
26/09/2013	34
27/09/2013	15
28/09/2013	46
29/09/2013	50
30/09/2013	19
01/10/2013	22
02/10/2013	35
03/10/2013	42
04/10/2013	41
05/10/2013	17
06/10/2013	5
08/10/2013	6
09/10/2013	10
10/10/2013	4
11/10/2013	3
14/10/2013	7
15/10/2013	24
16/10/2013	28
17/10/2013	15
18/10/2013	17
19/10/2013	36
20/10/2013	18
21/10/2013	32

22/10/2013	40
23/10/2013	15
24/10/2013	16
25/10/2013	10
26/10/2013	11
27/10/2013	2
28/10/2013	28
29/10/2013	3
02/11/2013	12
03/11/2013	20
04/11/2013	34
05/11/2013	42
06/11/2013	78
07/11/2013	15
08/11/2013	35
09/11/2013	18
10/11/2013	14
11/11/2013	2
12/11/2013	6
13/11/2013	2
16/11/2013	39
17/11/2013	26
18/11/2013	8
19/11/2013	19
20/11/2013	71
21/11/2013	44
22/11/2013	54
23/11/2013	37
24/11/2013	35
25/11/2013	17
26/11/2013	23
27/11/2013	38
28/11/2013	43
29/11/2013	50
30/11/2013	58
01/12/2013	31
02/12/2013	27
03/12/2013	43
04/12/2013	44
05/12/2013	44
06/12/2013	62
07/12/2013	43
08/12/2013	41
09/12/2013	36
10/12/2013	57
11/12/2013	60
12/12/2013	58
13/12/2013	4
14/12/2013	34
15/12/2013	54
16/12/2013	14
17/12/2013	39
18/12/2013	42
19/12/2013	9

20/12/2013	39
21/12/2013	120
22/12/2013	39
23/12/2013	18
24/12/2013	0
25/12/2013	3
26/12/2013	41
27/12/2013	15
28/12/2013	11
29/12/2013	14
30/12/2013	26
31/12/2013	34

Appendix 3:

Guidelines for the Calculation of Functional Needs January 2014

Domestic Wood Requirement:

For the provision of land-based wood it's difficult to estimate by the tonne how much wood you have as you need a really massive weighing scales. It's easier to value per m³ (also apparently legal). Prices vary but I have found a website (<http://www.grangefarmlogs.co.uk>) and they use the following prices:

Seasoned Hardwood: £144/m³ (this goes down to £100/m³ for the delivery of larger loads)

Seasoned Larch: £108/m³

Of course for non-land based wood you would use the price you paid for it. It can be difficult to know the quantity you have bought. I would suggest using a price/m³. Only do the calculation for how much you have used that year, not how much you have bought in that year.

Domestic Gas Requirements

If the fuel used for cooking is LPG cylinders use the price from Nick the Gas (Bwlchygroes):

£54 for a 47kg cylinder (tall orange one).

Domestic Electricity Requirement:

Knowing how much electricity you have used or are using can be a little tricky. You can estimate from the wattage rating on the appliance and then estimate how many hours you have used. The more fastidious amongst may even make a note of hours useage in a note book. These people should be revered although I'm not entirely convinced they actually exist. We have a gizmo that you plug in and it tells you how much electricity you are using. Anyone is welcome to borrow it.

I suggest pricing the electricity using Good Energy tariffs as they guarantee to supply 100% directly from renewable sources (so they're a bit like us aren't they?):

Standing Charge 14.43p/day (=£52.67\annum)

Unit Rate (p/kwh) 15.8p

The amount of electricity generated by the hydro-electric turbine in 2013 was 70276kwh. If this figure is divided by 10 (9 households plus the Hwb) this gives a useage of 7028kwh. It seems reasonable for each household to use this figure added to each household's electricity generation from solar panels.

It's important to note that any electricity useage off site for household functional needs e.g. launderettes, should be factored in as non-land based electricity useage.

Launderette machines use about 1.25kwh per washing machine cycle and dryers use about 4.1kwh per drying cycle.

The following information may or may not be of use/interesting: the University of Strathclyde undertook some research into energy useage in Scotland and came up with the following example figures per year:

Working couple 4117kwh
Single person 3084kwh
Couple with two children 5480kwh

Provision of Water

Dŵr Cymru tariffs seem the most appropriate to use as we are in Wales.

The system is a little complicated and includes a charge for sewerage. In the past we've tended to include a cost for sewerage. It's probably fair to include this as we do deal with our own sewage.

The most practical method to calculate water useage for our situation is to use the Assessed Measure Charge. This is used in cases where Dŵr Cymru are unable to install a meter for whatever reason.

The banding is set by the number of appliances which use water in your property such as a washing machine, garden hose, garden sprinkler, dishwasher or power shower.

- **Low banding** - none or one of the above appliances.
- **Average banding** - two or more of the above appliances.

It is up to you to decide which banding is appropriate for you.

Household – Water

No of Occupants	Band A – Average use Based on loading units/ appliances in property		Band B – Low use Based on loading units/ appliances in property	
	Fixed Charge £	Consumption m³/year	Fixed Charge £	Consumption m³/year
1	118.00	64	102.00	52
2	161.00	96	137.00	78
3 and above	210.00	133	175.00	107

Household - Sewerage

No of Occupants	Band A – Average use Based on loading units/ appliances in property		Band B – Low use Based on loading units/ appliances in property	
	Fixed Charge £	Abated Charge £	Fixed Charge £	Abated Charge £
1	178.00	156.00	159.00	141.00
2	228.00	196.00	200.00	174.00
3 and above	286.00	242.00	245.00	210.00

The abated standing charge is payable where no part of the property is connected for surface water drainage.

There are 1000 litres in a cubic metre (m³)

It's important to note that any water useage off site e.g. for launderettes, showers etc. should be factored in as non-land based water useage.

Showers: the flow rate of showers varies from about 5 litres per minute to about 11 litres per minute.

Launderette machine uses about 120 litres per cycle (up to 180 litres per cycle for less efficient machines).

Household Food:

This calculation includes all food and drink items consumed on and off site (and during holidays) including treats such as chocolate, ice cream, crisps & alcohol. The calculation does not include tobacco.

The attached food production template may be helpful for this calculation. The simplest way to use this template is to estimate how much food you were consuming in each category prior to land-based production and then how much you were consuming once you are engaged in land based production. So, for example, you might have been spending £20/week on vegetables. Then you may have been self sufficient in vegetables for 6 months of the year. So the value of your total vegetable consumption for a whole year is £1040 of which £520 is from land-based production. Therefore 50% land-based production is for vegetables. You would do this sort of estimate for each of the categories in the food production template.

Whilst this method of broad estimates does lack a certain degree of accuracy we felt it was the most practical because not everyone has been weighing every item of produce and keeping meticulous records. Also, valuing every item of produce individually could result a situation where a family may eat nothing but wood sorrel (£150/kg) and scarlet elf cups (£100/kg) in order to achieve 75%. This would not be a reasonable approach and would not reflect the way of living we are trying to achieve (also....the health issues!)

It's important to note that costs for things such as seeds, animal feed, manure etc. should be subtracted from the value of food produced for you own household's consumption.

Don't forget to include food that your children eat for their school dinners. This will be non-land based produce if the dinners are bought.

The following figures may or may not be helpful:

Average UK spend on food per week per person in 2011 was £24.50 per person (The Guardian, 22/1/2012 data from Office of National Statistics)

Joseph Rowntree Foundation in their 2012 report say that the average weekly spend on food for a couple with two children is £131.07 and £18.38 on alcohol. The average spend per week for a lone parent with one child is £61.12 on food and £7.25 on alcohol.

It's important to note that all these figures are based on supermarket spending (e.g. Joseph Rowntree base all their figures on Tesco). If you are not habitually going to supermarkets and are shopping locally and organically your spend will be higher (organic food can be 20%-100% more expensive).

Basic Household Clothing:

The Joseph Rowntree Foundation calculate spending on clothing by dividing the price paid for an item by the number of years the item will last e.g. if a coat cost £50 and will last 25 years the annual cost of the coat is $£50 \div 25 = £2/\text{year}$.

It is perfectly acceptable to use this method for the 75% calculation.

If you annually spend more or less the same amount on clothing each year it's going to work out more or less the same as the method described above over time. Therefore, if it suits your spending patterns better, you can simply state the amount you have spent on clothing annually (it's certainly a lot easier on the brain).

This is the only category where the word "basic" is stated in the policy 52 supplementary planning guidance. It is therefore open to some interpretation. I think everyone is able to interpret this quite sensibly. So, for example, fancy dress items such as superhero outfits, fairy costumes etc. need not be included etc.

Set-up costs are excluded from the 75% calculation so any clothing bought for work purposes e.g. steel toe-cap boots, overalls etc. need not be included. Arguably some items of clothing will be for both work and everyday living purposes. Technically you could assign a portion of the cost to work and a portion to livelihood – but that's a bit fiddly isn't it?

Annual Dwelling Maintenance

This is a bit of an odd one at the moment as many of us are still building. However, the cost of materials needs to be included and a value placed on any land-based materials used. It is also acceptable to value one's own time as land-based livelihood. However, it is expected that this will be assessed reasonably and honestly i.e. you can't spend all year, 8 hours a day fixing your house!

It's important to note that you cannot apportion hours to the actual build itself as this is set-up costs and set-up costs are excluded from the calculation.

Other Overhead Requirement: Telephone, Internet

Self explanatory, hopefully.

Other Overhead Requirement: Council Tax

Self explanatory, hopefully. Should you be receiving council tax benefit payments you should still include council tax as a household need. The council tax benefit payments will count as non-land-based income.

Other Overhead Requirement: Service Charge, Rent, Car charge

Self explanatory, hopefully.

Other Overhead Requirement: Transport Costs

This includes all vehicle fuel costs, car repairs, MOT, tax, insurance all train and bus journeys **apart from** journeys undertaken for holidays

Other Overhead Requirement: Insurance (buildings, household etc.)

Self explanatory hopefully.

Other Land Based Products and Services:

In this section it's important to put down profits from your enterprise (set-up costs are not exempt here) – just like for your tax return. There are four main areas of income generation:

Grown or reared produce sold

This should be relatively straightforward to calculate. It's the price you were paid minus any costs you incurred in the production of the item.

Products made and sold

This is slightly more complicated. It's the price you were paid for the item/items minus any costs you incurred in the production of the item including the cost of any non-land based items you had to buy-in in order to make the item.

Income from training and education courses, or consultancy directly linked to land based activities on the site

It's important to note that these activities (in combination with Feed in Tariff payments) should be clearly subsidiary to the primary activity of growing and rearing produce on the land.

If a course has involved the use of your land-based materials e.g. willows, treat it as though you have sold the materials to the course and add it to your figure for grown or reared produce.

Feed in Tariff payments from Hydro produced electricity

Feed in Tariff payments (in combination with income from courses, training or consultancy) should be clearly subsidiary to the primary activity of growing and rearing produce on the land.

Exclusions

The following are excluded from the above calculations:

- Set-up costs – These include anything to do with house building, polytunnels, purchase of tools, equipment, tree planting, compost, furniture, crockery, cutlery etc. It is worth noting that volunteer labour used for the establishment of your plot and your build is a set-up cost. Therefore don't include any food that you have bought or grown in this calculation. In fact don't include anything you have spent on volunteers (e.g. clothing etc.)
- Non-essential items – Holidays (and the travel involved), non-basic clothing

- Mortgage repayments for your plot