

# **Appeal against Refusal of Planning Permission at Steward Community Woodland**

Appeal Ref: APP/J9497/A/08/2072884

Appellant Affinity Woodland Workers Cooperative Ltd.

## **PROOF OF EVIDENCE OF ANDREW GOLDRING**

**Chief Executive Officer of the Permaculture Association (Britain)**

**Company number 50908919 Charity number 1116699**

### **1. My experience and background**

1.1 I have worked within permaculture design since 1992. I trained in 'Environmental Design and Permaculture' at Bradford University and have had extensive training in many aspects of sustainability, community development, systems design, thinking and learning tools and permaculture since then. I have provided detailed support to many permaculture projects across Britain, Europe and El Salvador in my capacity as coordinator of the Permaculture Association since 1999. I teach permaculture design courses and give lectures and presentations to groups, organisations and educational establishments across the UK.

1.2 I have provided responses to UK government planning consultations and Welsh Assembly consultations for the Permaculture Association, but make no claim to be a planning expert.

1.3 I have written letters of support for a number of permaculture planning appeals and have been a witness in four permaculture planning appeals, including the successful Landmatters case in Devon (Appeal Ref: APP/K1128/A/06/2018778), and Karuna in Shropshire.

1.4 I have known about the Steward Wood / Affinity Woodland Workers Cooperative project (hereinafter referred to as 'Steward Wood') from early on in the project's development. This proof of evidence is based on discussions with six members of Steward Wood during a visit to the site on the 23<sup>rd</sup> and 24<sup>th</sup> September 2008.

### **2. Explanation of permaculture**

2.1 Permaculture is a combination of three elements:

1. **An ethical framework** of Earth Care, People Care, Fair Shares (self-imposed limits on population and consumption, in order to live within the earth's carrying capacity.)
2. **Ecological principles** based on the direct observation of how natural systems work. For example "Each important function is supported by many elements".
3. **Design processes and techniques** that act as a framework to create practical strategies and action plans that lead a project towards the ethical goal through the application of the ecological principles and a range of sustainability techniques and technologies.

2.2 A definition that has been accepted by the Charity Commission reads:

*"Permaculture is a term coined from permanent agriculture and permanent culture. It may be defined as the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems. Permaculture design aims to produce such systems by specifying and assembling appropriate conceptual, material and strategic components; these include housing, water systems, transport and the like and also invisible structures such as legal and financial systems, and the development of supportive social networks. Permaculture contributes to the conservation of the environment by the harmonious integration of landscape and people so as to benefit people by providing their material and non-material needs in a sustainable way."*

2.3 Another useful statement is provided by the Welsh Assembly in their consultation document *Planning Policy Changes to Support Sustainable Development in Rural Areas: Meeting Housing Needs*, July 2008, page 14. This statement is relevant both as a definition of permaculture, and also as a statement on Low Impact Developments (LIDs). I believe that the project at SCW falls into both categories.

*"3.1 Low Impact Development has been defined as development that through its low negative impact, either enhances or does not significantly diminish environmental quality. Permaculture is also a term used to describe schemes that develop single holdings or co-operative communities that are self sufficient in food growing, energy generation and waste disposal. Work and living arrangements are integrated with a minimal impact on the environment. The aim is to improve the environmental quality of the site in question. It is an integral part of schemes that dwellings are provided on the site. These can range from temporary canvas dwellings to more substantial*

*timber framed houses. In principle any structures should be capable of being removed from the site to leave it in an equivalent or better condition than before the development. There are a number of LID schemes in the UK with temporary planning permissions.*

3.2 Currently there is no national planning policy that specifically outlines any exceptions for LID projects to be developed in the countryside although all development should be sustainable with minimal environmental impact. LID planning applications that have come forward have tended to be assessed against the essential dwellings planning policy.”

2.3 The only small point I would pick up here is that permaculture projects work towards being self-reliant rather than self-sufficient, i.e. they attempt to make the very best use of the skills of the people involved in the project and the resources of the site itself. The goal of a permaculture system is ecological, social, environmental and personal sustainability. In the beginning stages of a project, much of the effort is based around meeting the participants own needs for subsistence – food, energy, water, shelter. When these needs are met (or at least those that make sense to provide based on the skills and land resources), projects can then focus on creating additional surpluses that can be traded for those things that can not be produced on the site.

2.4 Many people practicing permaculture decide to live modestly and have a lower than usual requirement for cash income. This makes it much easier to achieve a sustainable lifestyle, and for the land to provide a good deal of what is needed for subsistence.

2.5 Permaculture projects develop slowly over time and incorporate ever increasing complexity within the land and infrastructure. This is key to the long term viability of land based systems, enterprises and ‘personal sustainability’ of the participants.

### **3. Permaculture at Steward Wood**

3.1 It is our mission to support people and groups to learn about and use permaculture. It is also our responsibility to ensure that we also uphold and defend the good name and reputation of permaculture and the Permaculture Association. After visiting the site and project, we feel confident that supporting the Steward Wood project is not in

conflict with this responsibility, and that we can confidently support them in this case. The following key points demonstrate to us that permaculture is being used, that the project is a positive embodiment of the ethics and principles, and that it is a highly sustainable development that should be allowed to continue. This is based on my visit to the site on 23<sup>rd</sup> & 24<sup>th</sup> September 2008. Appendix 5 provides an overview of activities at Steward Wood

1. **The site has been designed using permaculture design methods**, and clearly shows how it has been zoned to increase energy efficiency (of human labour). Low impact structures are located around a central community long house, and have good access to the wash house. Main garden placed to make use of flattest area of site with best sunlight. Woodland management plan well thought through and makes good use of existing resources. Compartments clearly laid out and reflect on the ground realities. (See Appendix 1 for other examples of how Steward Wood uses permaculture design methods.)
2. **Site and project clearly using permaculture principles.** A good understanding of permaculture and sustainability principles mean that the project is progressing well towards its goal of low impact living, local self-reliance and wider sustainability. (See Appendix 2 & 3 for examples of how Steward Wood uses permaculture principles.)
3. **Members of the group are trained in permaculture design.** Peter Cow has undertaken the design course and has also been awarded the Diploma in Applied Permaculture Design. His work was presented and accredited by a peer group. Dan Thompson-Mills, Merlin Howse and John Elsworthy have all completed the full permaculture design course. The rest of the adult members are familiar with permaculture through attendance at sessions of the design courses and specialist courses held on site and through ongoing project development discussion and planning.
4. **The eco-footprint demonstrates that they are putting theory into action.** They have shown substantial commitment to the goal of living within the earth's carrying capacity, to the extent that there are few other projects in Britain that can demonstrate similar achievements. The report by 4<sup>th</sup> World Ecological Design suggests their footprint is 39% of national average, and this was based on worse case scenarios, indicating that the actual figure may be lower.

5. **The carbon footprint conducted by Merlin Howse suggests that carbon emissions are 23% of the national average.** This means that they have achieved the 50% reduction suggested by Lord Stern and are just 3% away from achieving the 80% reduction that is now the national target for 2050. The report by 4<sup>th</sup> World Ecological Design suggests this figure may be higher at 34%, but again this was based on worst case scenarios.
  
6. **The group are documenting and evaluating their progress and using this to inform future developments.** Regular planning meetings are held by the community members and lead to an inclusive approach to developing and enhancing the project. Aspects of the project that are no longer functioning as well as desired are noted and plans developed to solve issues and increase productivity are put in place. For example, it is now agreed that the design for the main garden space is no longer appropriate since home gardens are coming into production and a regular supply of WWOOF volunteers means that a simpler main garden design would enable increased productivity with less supervision.
  
7. **The site uses a range of appropriate sustainability techniques and technologies** that are incorporated into the overall design. These include micro-hydro and solar pv, composting toilets, low voltage appliances, low impact building methods, water harvesting, cycling, and composting.
  
8. **The project uses a range of rural crafts and self-reliance methods, such as** basket making, clothes making, hand felling, drying herbs, preserving food, wine and beer making, carving, making rustic planters, fashioning tool handles, making herbal medicines, clothes washing by hand, dyeing, paper making, wild food gathering, seed collecting, making living willow structures.
  
9. **Community living, cooperation and people care.** The project places great emphasis on the well-being of community members and visitors. I experienced a warm and welcome reception, and noticed how well the community was functioning. The community as a whole provides a rich, stimulating and supportive social environment for both adult and child members of the community. They have clearly allocated tasks and responsibilities. All community members I met were positive about the community and some suggested that it has 'reached maturity', with many of the early issues now resolved.

10. **Community development and outreach.** This is achieved at Steward Wood through a combination of:

- a. A well used website with regular updates added.
- b. Educational tours provided to schools and visitors.
- c. Slide shows and talks provided locally.
- d. An active WWOOF programme which supports up to four volunteers each week to visit and learn about organic gardening and low impact living.
- e. Regular activities held on the site by local groups such as the Exeter & Crediton Home Education Group, and Plymouth University students.
- f. Members of the community working part time in local ethical and environmental jobs such as at 'Proper Job' in Chagford.
- g. Members of the community initiating, volunteering at, and supporting local sustainability initiatives such as the transition town project.

11. **Educational work to develop sustainability skills.** In particular holding the permaculture design courses. These are helping to develop the skills of others as well as those of the community.

12. **Sustainable transport.** Steward Wood use bicycles and electric bikes (charged on site) to a great extent and during the visit I observed the bike shed and extensive collection of bikes. There are also vehicles on site, a number of which are shared by members of the community. To my knowledge, vehicles are running on biofuels (recycled cooking oil) from local suppliers. Parking is on the bottom track, which may soon become an upgraded walking and cycling route. This would add to the potential for the project, providing a point for sale of produce and crafts, easier access for visitors and easier transportation of children by bicycle into Moretonhampstead.

#### **4. Conclusion**

4.1 Based on my visit and a review of their documentation I believe that Steward Wood is a good project, with a proven sustainability track record. In terms of low impact, low carbon, low eco-footprint, Steward Wood is an exemplary project. The members of the community and project are committed and have every intention of developing the project further. They have the skills to do this, and have also developed the on-site infrastructure that will enable them to focus on enhancing their land-based livelihoods.

4.2 Early difficulties in the project, especially regarding having only four members on site from 2002 to 2004 (with numbers building slowly from then), meant that some of their financial projections and ambitions proved to be too ambitious, and were not achieved. However, the community has now clearly matured and has a stable group of members that are committed to enhancing the economic aspects of the project.

4.3 If the appeal were not to be granted and the community were removed from the site and housed elsewhere, there is absolutely no doubt whatsoever that the region would have become less sustainable. The carbon footprint will increase and an important opportunity will have been lost to nurture and learn from a valuable project which can and is inspiring everyday people to take responsibility for their environmental impacts and live more sustainably.

4.4 PPS7 states that: "sustainable development is the core principle underpinning land use planning . . . decisions on development proposals should be based on sustainable development principles, ensuring an integrated approach to the consideration of:

- social inclusion, recognizing the needs of everyone;
- effective protection and enhancement of the environment;
- prudent use of natural resources;
- maintaining high and stable levels of economic growth and employment."

4.5 My visit to Steward Wood leads me to the opinion that the project meets all four of these criteria. Steward Wood project is a significant and worthwhile project, with many wider benefits, not least the ongoing research value of this experimental low-impact living initiative. They have every prospect of fulfilling their objectives and the reasonable expectations of planners.

4.6 I would humbly ask the inspector to find in favour of the appellants.

## **Appendix 1: Steward Wood's use of permaculture design methods**

**Written by Peter Cow**

The project has used the principles and techniques of permaculture all through its evolution. Some of the founder members were certified in Permaculture Design at the inception, and so design methods were used from the start and continue to be used; in designing the original loanstock system, choosing the land, designing the site and guiding the ongoing project development. Some examples of design methods being used follow:

### **Energy Efficient Zoning**

Permaculture zoning is a tool that maximises human energy efficiency on the ground – elements that are visited frequently are located as near as possible to the visitor's home, elements that are visited less often are located further away.

This can be seen in the siting of intensive food gardens and chickens around the dwellings, with the less intensive growing happening further away. Firewood is also felled and gathered close to home, while outer zones of the woodland are allocated for wildlife and possible future commercial extraction (assisted either by vehicle or draught animal). The dwellings themselves, while private, are all clustered in a circle around the central communal facilities of kitchen, longhouse, bathhouse and workshop - the facilities are in community zone 1, the dwellings community zone 2.

### **Sector Analysis**

Working alongside zoning, sectors enable designers to use the characteristics of the site to their advantage, for example sectors of wind, aspect, slope, view, frost etc.

The community chose to buy a south west facing woodland to increase the sunlight sector on the land – sunlight is one of the most valuable resources in a temperate landscape. A woodland itself also has many advantages over bare fields in terms of sector analysis – wind and rain are ameliorated, and the structures are less visually intrusive to neighbours and local people. The dwellings themselves are all located a little way up the hill, to avoid frost at the bottom of the valley. Slope is also used to aid firewood harvesting as firewood is generally collected uphill of dwellings and carried/rolled/slid/carted down.

### **Incremental site development**

The project has evolved over the last 9 years from neglected commercial woodland to a thriving community woodland of wildlife, residents, visitors, work, play and housing. This development has been slow and steady, building up each area of the project incrementally. Incremental design allows for rethinking and course correction, and creates a realistic time framework for site development.

The first year involved a lot of learning about the woodland and its surroundings, and the structures built were designed to be temporary – people started off living in tents and there was a basic field kitchen built. A lot of time was spent on basic infrastructure such as water, electricity and shelter. Sitings for structures were temporary until we felt confident enough to site them more definitely. The structures themselves were quickly built, low investment buildings, and we avoided felling any large trees until we had been observing the site for a whole year.

After the first year we felt more informed about where to site structures, so new building work was more substantial (although still only wood and canvas) and relatively more time and money was invested in them. The first woodland management plan was drawn up, and work then began on clearing the conifers, and replanting the site with broadleaved trees. The growing area also became more of a priority in this second stage, itself being incrementally laid out and developed. The third stage has seen the project becoming more able to accommodate visitors and events, whether on courses or as wwoofers.

### **Design macros**

Permaculture has a few acronyms set out to guide the design process, one example being the OBREDIM macro - Observation, Boundaries, Resources, Evaluation, Design, Implementation,

Maintenance. Macros have been used to guide the process in many of the designs at Steward Wood, including the compost loo, the long house, the woodland management plan, the forest garden and the kitchen.

### **Creating Guilds and Relative Location**

Relative location is key to permaculture design, placing elements where they are the most useful and create the least work. A guild is a collection of elements placed together that support each other synergistically, like a tree sheltering a bush, and the bush helping feed the tree with nitrogen, or shops being close to each other in a town centre.

Guilds created on site include the compost toilet-fruit bushes guild, the kitchen-compost heap-kitchen gardens guild, longhouse-kitchen-office-sleeping platform-firepit guild, and the laundry-sauna-shower room guild. There are also social guilds created with the local surroundings in the various social networks members have been involved in, from singing groups to local carnival entries to teaching computing courses in the library.

### **Reviewing and learning**

Reviewing and monitoring is an important part of the design process, enabling designers to learn from previous designs and improve future ones. The SADI macro (Survey, Assess, Design, Implement) can be repeated, as the designer surveys the design once it is up and running, and then may choose to design in different features to improve it. These improvements can then be surveyed and assessed and improved in turn.

The incremental design technique as outlined above meant that the development of the growing area, and communal spaces was staged, and at each stage reviews provided fresh ideas and improvements to the process. The Woodland Management Plan update in 2007 used reviews of previous management achievements to tailor its aspirations into realistic proposals. The previous plan was also reviewed and this was used to help formulate the new version.

### **Mapping**

Designing on paper or computer screen is a very accessible, visual way to evaluate ideas. It is also much less work than designing in situ and making mistakes on the ground.

Map overlays on Adobe Illustrator have been central to the site's woodland management design since the start. The software enables a designer to create multiple overlays illustrating the wildlife areas, tree species, slope, water features etc. This powerful tool stores and makes available a wealth of data that is vital to such a large scale design. On a more simple level, the kitchen interior was designed on squared maths paper with scaled furniture images blued and moved around. The design proposals were then easily moved around and displayed to members of the community.

### **Surveying and Analysis**

Permaculture is information and imagination intensive, not labour intensive, so gathering information and mulling it over is vital to any permaculture design.

Surveying work carried out during the project includes: researching old maps to get a picture of the land's history; sending a questionnaire around the local village to see what people wanted from the project in the early days; spending the first year observing the land rather than ploughing ahead; monitoring the woodland's progress in terms of continuous cover; an intuitive survey of what the land wants as part of the management plan update; surveying the potential for rare wildlife on site.

## **Appendix 2: How the project uses the principles of permaculture\* and sustainability.**

(\* The permaculture principles used here are taken from permaculture co-founder David Holmgren's 2002 book *Permaculture: Principles and pathways beyond sustainability.*)

### **Principle 1: Observe and interact**

*This principle encourages people to observe, plan, go out and do, and then learn from their experiences, and then go and do more with that knowledge, and so on in a positive spiral of action learning.*

- The project as a whole is very much about interaction, it is living and experimenting and learning on many levels, with the land, the people and one's self.
- The first year of the project was designed as a gentle time of observation and learning. The big decisions about more permanent infrastructure sitings were put off until after the community had seen the land in all its seasons throughout the year.
- The 2007 Woodland Management Plan update incorporated several reviews from earlier plans and the previous 7 years of interaction with the wood.

### **Principle 2: Catch and store energy**

*This principle focuses people on collecting and storing energy in all its forms – informational, social, temperature, electrical, physical etc.*

- The houses at Steward Wood are all designed to collect and store as much heat from the winter sun as possible, by clearing southward vistas and designing in large south facing windows. The 'energy' from the sun is then stored in the structures by insulation and the use of thermal masses.
- Steward Wood was chosen for the project partly because it is southwest facing sloping land – this aspect means it relatively receives a lot of energy from the sun.
- The predominant land use at the woods is forestry, which by its nature collects sunlight and stores it as carbon energy (and food).
- Wwoofers visit the woods for long and short stays – their energy and enthusiasm is caught on site by the work they do in the gardens, building sites and kitchen. They in turn catch informational and cultural energy in the form of new ideas and experiences.

### **Principle 3: Obtain a yield**

*This principle recognises the importance of meeting one's needs from one's activities.*

- The community meets some of its food needs from the various growing areas on site. It also meets all its heating and cooking needs from on site firewood.
- The project also provides housing and some employment for its members.
- Water for drinking and washing is provided by the woodland's spring and the community's filtration system.

### **Principle 4: Apply self regulation and accept feedback**

*This principle encourages people to regulate their resource consumption and acknowledge and accept feedback and outside constraints.*

- The project has always sought to minimise the use of fossil fuels, as these contribute to climate change and are a dwindling resource that must be husbanded and eventually phased out. After 5 years of abstinence the on site fossil fuel policy was relaxed to allow the use of chainsaws.
- Another self regulation in place at the end of 2008 is a policy of only buying communal food from Europe and Turkey in order to reduce food miles – another contributor to climate change.

### **Principle 5: Use and value renewable resources and services**

*Renewable resources and services are fundamentally sustainable.*

- The project uses the ultimate renewable resource – sunlight – for heating, food growing and tree growing.

- The project uses the renewable resource of woodfuel for all its cooking and heating needs.
- Building materials are often culled from the land for the many shelters and homes.
- The electricity used on site is all generated from on-site renewables – solar panels and tiny hydro electric schemes.
- The water supply on site is all harvested, collected, cleaned and treated on site using renewable and biological resources.

### **Principle 6: Produce no waste**

*It is important for systems to treat/reuse/compost any waste on site, rather than outsourcing it as pollution to degrade the environment somewhere else.*

- The community's food waste is either fed to chickens and dogs or composted to create fertility for the gardens.
- Human poo is turned into vibrant humanure in the compost toilets, then fed to fruit trees and bushes.
- A lot of the materials purchased by members are already second hand – from charity shops, recycling centres, online resource sites and Proper Job in Chagford.

### **Principle 7: Design from patterns to details**

*This principle encourages people to see the big picture or meta design, and then focus in on the small details, so all actions and designs are framed by larger perspectives and patterns.*

- The entire project was formulated as a response to the bigger pictures of resource depletion, environmental pollution and climate change. The project creates and allows detailed personal and communal responses to these big pictures.
- On a site design level, the infrastructure layout and woodland management plan both use the tool of zoning, which creates a master template for individual actions and sitings that is energy efficient and appropriate – for example intensive food growing is near the settlement.

### **Principle 8: Integrate rather than segregate**

*Permaculture is about the interrelations between things, how to help them work synergistically together to produce results. Clustering elements together cleverly can increase yields and reduce work and pollution.*

- The project is itself an integration of working, living, teaching, learning, creating and having fun, all in one place. All these human needs and more are integrated into and met to some extent by the project.
- Community living is itself also integration in the face of an increasingly segregated society.
- The community has always sought to be a part of the wider local community of Moretonhampstead as well. Members have participated in a wide range of activities in the locality, from local theatre to computer courses to toddler group.

### **Principle 9: Use small and slow solutions**

*Small and slow solutions, while not as exciting and productive immediately, allow for steady stable growth and mean any mistakes made early on are not so damaging.*

- A lot of the woodland activities are carried out using hand tools, which are more sustainable but are sometimes slower than fossil fuelled equivalents.
- The communal infrastructure and personal dwellings have been incrementally built up since day one - the many refashionings allowing new ideas, techniques and materials to be incorporated.
- Planting trees to produce future fuel, fibre and food is a slow and steady solution to meet future needs.

### **Principle 10: Use and value diversity**

*Diversity is strength and stability, especially in changing times.*

- Continuous Cover Forestry practices are used to manage the woodland, promoting a mixed age, mixed height woodland that is more resistant to windblow and provides a continuing,

diverse supply of trees of all sizes for building and commercial uses. It also provides more habitat possibilities for wildlife in its patchwork.

- There are multiple sources and storages of water, electricity and firewood to ensure a stable and reliable supply of these essentials to the community.
- Community members sometimes eat wild plants and meats, making for a more diverse diet.

### **Principle 11: Use edges and value the marginal**

*The edge between two systems is often the most productive area, where a rich environment can foster more possibilities than exist in the systems on their own – for example suburbs, tea breaks and coastlines. The marginal can be a place of experimentation and vitality, where new ideas, unusual elements and rare species are to be found.*

- The management plan puts in place measures to create and protect habitats for rare wildlife such as dormice and certain species of bats.
- Continuous Cover Forestry creates woodlands that could be considered as all edge – different species, different ages, different heights and cleared spots all add to a mosaic of systems edging onto each other that are diverse and vibrant.
- The project as a whole is on the edge of society, experimenting with old and new technologies and ways of living to explore solutions to our environmental problems.
- Perennial leaves and fruits are planted along the side of paths in the settlement area.

### **Principle 12 : Creatively use and respond to change**

*Life's contexts are continually changing, and any system must take this into account if it is to thrive.*

- The project itself is a response to the changes modern society is making to its ecological and social environment, it is an attempt to find new/old paths to sustainability and happiness.
- The woodland management plan includes measures to cope with climate change - ie. tree planting mixes that will deal with climate instability and warming.
- The community has also been involved in local Transition Town initiatives – groups of people working together to prepare towns and villages for the massive shifts that peak oil and climate change will bring.

### Appendix 3: Use of permaculture principles (as based on work by Bill Mollison)

| Permaculture principle                   | Activities at SCW that demonstrate the principle   | Why we need to live on the land to implement this principle  | Actions and planned actions that demonstrate principle   |
|--|--|--|--|
| Work with nature not against it          | <ul style="list-style-type: none"> <li>• Continuous cover woodland management and coppicing</li> <li>• Use of biological resources and closed systems</li> <li>• Seed saving</li> </ul>  | <ul style="list-style-type: none"> <li>• Woodland management and food growing need attending to regularly and often</li> <li>• Humans are an integral part of natural systems</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Increased localised food growing</li> <li>• Continuous cover woodland management</li> </ul>   |
| Observe carefully before designing       | <ul style="list-style-type: none"> <li>• Observation and recording of climate, soil structure, terrain, flora and fauna, micro climates</li> <li>• Observing the land all year round and deciding on most suitable design</li> <li>• Familiarization with local area and available resources</li> </ul>  | <ul style="list-style-type: none"> <li>• Observation is ongoing</li> <li>• Living on the land immerses us in our natural environment, increasing sensitivity and awareness of subtle interactions and effects</li> </ul> | <ul style="list-style-type: none"> <li>• Observation is ongoing and inputs into design process</li> </ul>  |
| Each element performs multiple functions | <ul style="list-style-type: none"> <li>• Continuous cover management provides fuel, building materials, biodiversity for plants and wildlife, craft materials</li> <li>• Composting toilet decomposes human waste into rich compost, roof collects water for hand wash</li> <li>• Houses and structures provide water collection, south facing roofs for solar panels, wildlife habitat and shelter</li> </ul> | <ul style="list-style-type: none"> <li>• All community members bring different roles and skills, and fulfil different tasks</li> </ul>   | <ul style="list-style-type: none"> <li>• Woodland management</li> <li>• Improved workshop to include teaching area, food drying/storage</li> <li>• Chickens provide food and fertilizer</li> </ul>           |
| Each function supported by many elements | <ul style="list-style-type: none"> <li>• Water needs met by stream, spring, rainwater collection</li> <li>• Electricity provided by micro hydro and solar panels</li> <li>• Transport needs met by bike, electric bike, bus, car share</li> </ul>  | <ul style="list-style-type: none"> <li>• Living together gives opportunity for continual discussion of projects outside of official meetings</li> <li>• Woodland management, vegetable growing, running</li> </ul>       | <ul style="list-style-type: none"> <li>• Education of children supported by range of activities, experience and expertise on-site</li> <li>• Running of courses supported by range of activities,</li> </ul> |

|  |   |  |  |
|--|---|--|--|
|  | <ul style="list-style-type: none"> <li>• Diverse and multi stranded business plan</li> </ul>  | <p>courses, cooking, childcare, support, entertainment are all supported by several people</p>   | <p>experience and expertise on-site</p>  |
| <p>Catch, store and cycle energy (conserve finite resources)</p> | <ul style="list-style-type: none"> <li>• Water collected from roofs</li> <li>• Water stored in ponds and containers for watering</li> <li>• solar panels and micro hydro collect energy</li> <li>• Growing food, storing, drying and preserving produce</li> <li>• Wood used for heating and cooking fuel</li> <li>• Composting</li> <li>• Buying in bulk and buying local where ever possible</li> <li>• Reusing and recycling packaging</li> <li>• Minimising fossil fuel usage</li> <li>• mending and recycling clothes</li> <li>• Using local recycling centres, reclamation yards and second hand outlets</li> </ul> | <ul style="list-style-type: none"> <li>• Collected water becomes a shared resource for watering vegetables</li> <li>• Larger and richer compost from multiple inputs</li> <li>• Growing food in the place it will be eaten is more efficient</li> <li>• Good supply of electricity from the stream and sun</li> <li>• Reducing dependency on fossil fuels means increased intensity of manual labour and slower progress thus living at a pace of work increases efficiency</li> </ul>   | <ul style="list-style-type: none"> <li>• Trade craft products locally</li> <li>• Trade value added timber products locally</li> </ul>  |
| <p>Designing for energy efficiency</p>                           | <ul style="list-style-type: none"> <li>• Awareness of zones intergrated in design eg. Gardens are close to dwellings, communal structures and settlement area</li> <li>• Dwellings and structures built using wood from the immediate area (eg. Pine, ash and sycamore) and reclaimed/recycled materials</li> <li>• Planting perennials, self seeding annuals and fruiting bushes</li> <li>• Fruit and nut trees around dwellings</li> <li>• Forest garden</li> </ul>   | <ul style="list-style-type: none"> <li>• Living on the land makes the project financially viable by reducing the need for full time work elsewhere to pay for rent and bills. Full time work off the land would leave little time for work at SCW and therefore little would be achieved, especially in winter with little daylight available</li> <li>• Zoning design centres on the home, placing components close to the home that need regular attention</li> <li>• Sharing skills and resources is more efficient and available at</li> </ul> | <ul style="list-style-type: none"> <li>• Use of more rocket stoves for greater fuel efficiency</li> <li>• Better insulation in dwellings</li> <li>• Planting more perennials, self seeding annuals, fruit bushes, fruit and nut trees</li> </ul> |

|                               |   |  |  |
|-------------------------------|---|--|--|
|                               | <ul style="list-style-type: none"> <li>• Use of rocket stoves for cooking</li> <li>• Back boilers on burners for radiators and hot water systems</li> <li>• Dwelling designs consider micro climates, prevailing winds, water availability and solar gain</li> </ul>  | <p>all times</p> <ul style="list-style-type: none"> <li>• Children can be entertained and looked after together enabling more adult labour potential</li> <li>• Living and working in isolation away from the land makes sharing of transport less viable</li> </ul>   |  |
| Start small                   | <ul style="list-style-type: none"> <li>• Growing vegetables on a small scale around dwellings and in growing area and expanding as we discover our needs expand and our knowledge of successful growing</li> <li>• Running short courses</li> <li>• Drying and preserving on a small scale</li> </ul>                                       | <ul style="list-style-type: none"> <li>• Sharing skills and experience in small trials feed into future design</li> </ul>  | <ul style="list-style-type: none"> <li>• Expand growing area, creating more beds and forest garden to provide more of our own food needs</li> <li>• Large scale preservation and storage of food</li> <li>• Run longer courses and more in depth educational sessions</li> </ul> |
| Diversity increases stability | <ul style="list-style-type: none"> <li>• Replanting a variety of native trees</li> <li>• Companion planting</li> <li>• Woodland management to encourage diversity in habitats and plants</li> <li>• SCW members with a diverse range of skills and qualities</li> </ul>   | <ul style="list-style-type: none"> <li>• All being in one location enables multiple tasks to be handled efficiently eg. Food production, woodland management, childcare</li> </ul>   | <ul style="list-style-type: none"> <li>• Continue with management of woodland and growing areas encouraging diversity</li> </ul>   |
| Use biological resources      | <ul style="list-style-type: none"> <li>• Comfrey and nettles used for liquid fertilizers</li> <li>• Nettles and leaf mulch used for potting composting</li> <li>• Straw from urinals and hummus from compost toilet</li> <li>• Composting food waste</li> <li>• Companion planting, encouraging beneficial insects and predators</li> </ul> | <ul style="list-style-type: none"> <li>• Shared resources of composting toilet and urinals made possible by location and living arrangement</li> <li>• Food waste can be composted and dealt with collectively to create beneficial resources without travel or extra energy used</li> <li>• Care of animals and plant watering can be shared and facilitated by living at location</li> </ul> | <ul style="list-style-type: none"> <li>• Plant green manure crops to prepare ground for vegetable growing</li> <li>• Use chickens to scratch and fertilize ground before growing</li> <li>• Keep bees as pollinators and for honey</li> </ul>                                    |

|  |   |  |   |
|--|---|--|---|
| Use appropriate technology   | <ul style="list-style-type: none"> <li>• Hydro and solar powered electricity</li> </ul>   | <ul style="list-style-type: none"> <li>• Living on the land means we can be off-grid and provide all our electricity from renewable sources</li> </ul>       | <ul style="list-style-type: none"> <li>• Back boilers on burners</li> <li>• Rocket stoves to be used more widely for efficient use of cooking fuel</li> </ul> |
| Succession   | <ul style="list-style-type: none"> <li>• Planting of green manures/ mulching in preparation for future growing</li> <li>• Planting native trees (eg. Ash, hazel) for regeneration of woodland, copice for fuel and builing/craft materials</li> </ul> | <ul style="list-style-type: none"> <li>• We are born from and give ourselves back to the earth</li> </ul>  | <ul style="list-style-type: none"> <li>• Restocking native trees and fruit trees</li> </ul>   |
| Evaluate your process, learn from what you could have 'done differently' | <ul style="list-style-type: none"> <li>• Regular meetings and evaluations</li> <li>• Debriefs after courses</li> </ul>  | <ul style="list-style-type: none"> <li>• Living in community and on the land facilitates communication, observation and evaluation</li> </ul>                | <ul style="list-style-type: none"> <li>• Evaluation</li> <li>• Train in areas we identify need more experience</li> </ul>                                     |
| Replicate natural patterns   | <ul style="list-style-type: none"> <li>• Mulching the ground - keeping it covered</li> <li>• Maintain continuous cover of woodland</li> <li>• Composting</li> </ul>   | <ul style="list-style-type: none"> <li>• Observation and understanding of pattern language enhanced by being in it</li> </ul>                                | <ul style="list-style-type: none"> <li>• Grey water filtration system</li> </ul>  |
| Local resources to meet local needs                                      | <ul style="list-style-type: none"> <li>• Researching local area and resourses</li> <li>• Using local experts for advice and services</li> <li>• Forest school/bushcraft skills available to local people</li> </ul>                                   | <ul style="list-style-type: none"> <li>• Local connections are made as we are here all the time and the opportunity to increase that is available</li> </ul> | <ul style="list-style-type: none"> <li>• Providing educational events on sustainable living in response to local needs</li> </ul>                             |

Appendix 5: Map of activities at Steward Wood

