



## **Trevenna Permaculture Design**

**Site Address:** Trevenna, St Neot, Cornwall PL14 6NR

**Conducted by:** Klaudia Van Gool

**Client:** Jonathan Rowe

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## 1. Introduction to Permaculture

Permaculture is a word originally coined in Australia by Bill Mollison and David Holmgren in the mid 1970's to describe an "integrated, evolving system of perennial or self-perpetuating plant and animal species useful to man".

A more current definition of permaculture, which reflects the expansion of focus is 'Consciously designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance of food, fibre and energy for provision of local needs.'

Permaculture has an ethical foundation based on:

<b>Earth Care</b>	caring for the Earth, keeping our human impact to a minimum
<b>People Care</b>	meeting people's needs in compassionate and simple ways
<b>Fair Share</b>	taking what we need and sharing what we don't

People, their buildings and the ways in which they organise themselves are central to permaculture. Thus the permaculture vision of permanent or sustainable agriculture has evolved to one of permanent or sustainable culture.

## 2. Permaculture principles

A range of principles underlie the design of land, space and virtual projects. Some of these are briefly described here and are expanded on in the Survey, Analysis and Design.

- **Maximise Diversity:** inclusion of variety in every way: species, varieties, income streams, food
- **Multiple functions:** every element in a design should have more than one function, to maximise efficiency.
- **Multiple elements:** each function should be performed by multiple elements, to increase resilience of a system.
- **Zones:** the placement of design elements for energy input required, the nearer the more attention can be given.
- **Sectors:** natural influences /energy flows through a site such as sun, prevailing wind, frost pockets, ramblers etc.
- **Networks:** linking of elements within a design that are connected, ensuring efficient use of time, reducing the time needed to travel between them
- **Wild soil:** Minimising bare soil by methods such as mulching, minimal ploughing, green manures, perennial planting.
- **Linking outputs** (products and wastes) **with inputs** to reduce transport requirements as it ensures all materials are (re-)used on-site to their maximum benefit
- **Natural patterns:** use of the patterns observed in nature for aesthetics and efficiency in systems

- **Edge:** incorporating and appreciating more edge, the place between two (eco) systems which is more rich, diverse and resilient.
- **Stacking:** use of multiple layers and vertical space, planning over time.

### 3. Trevenna Permaculture Design Process

The process adopted for this Permaculture design is **SADIM:**

Survey

Analysis

Design

Implement

Maintenance

This report systematically covers all the stages from Survey & Analysis to a Permaculture Design and Implementation & Maintenance plan.

### 4. Survey

#### 1- Introduction

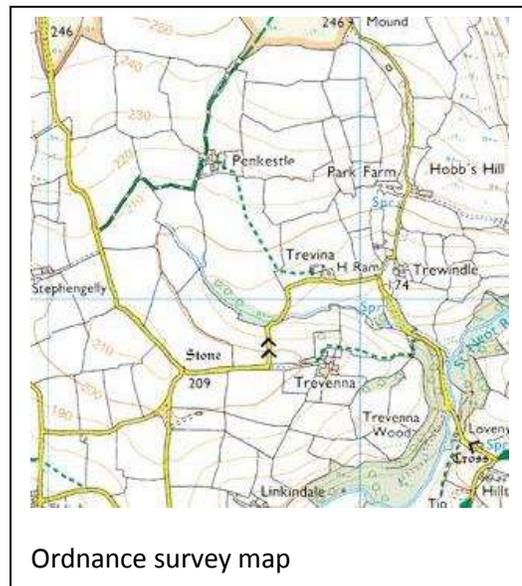
Trevenna Farm is a family farm on Bodmin moor near St Neot and has been in the same family for several generations. In medieval times it was a monastery and some evidence of this remains e.g. the wall in the farmhouse garden. There is much to learn from how it was managed in the past and what the land is capable of supporting. The land isn't really farmed by the family anymore as most of the productive land is rented out to other farmers.

The aerial photo and maps below give an outline of the extent of the farm and the field numbering for easy reference and symbols for arable (grain) and grazing (sheep).



also shows the height contours of the farm. The Field map is attached in A4 as Appendix B.

The farm is 142 acres and has



25 fields ranging from 0.9 to 5.8 acres (see numbering on Field map below). Six fields are rented out for arable use (see grain symbol on map), currently barley. The remainder is either grazed, currently by sheep (sheep symbol on map) or not used. Appendix A gives an overview of all the fields, their size, soil, and description. All land is reasonably flat, making it easy to work with machinery.

### **b. Micro-climates & Aspect**

There are beautiful views in all directions from the different parts of the farm as a result of the various aspects. Arable fields 1-4, 10&11 are south facing, 5&6 southwest facing, 7,8&9 northeast facing, 21&22 north-facing, 12-20 southeast facing. The top fields are very windy. Fields 5&6 are good for drying crops. The eastern half of the farm is sheltered by a ridge and the farm house and gardens by the beech hedge and



copse. The boundary between fields 17 & 18 has a large earthen bank, with 18 at the lower level of it. This creates more shelter. Some of the southernmost fields have more mature hedging, including some standards, which again provide shelter.

The elevation and location of the farm on the edge of Bodmin Moor results in some interesting micro-climate differences. It has been observed at times in the past that snow settled to the north of the farm within view, whilst on the farm itself it rained.

The prevailing wind is from the Southwest and some wind funnels up the valley from south-easterly direction. Cold easterlies in winter. Some of the key micro-climates are indicated on the sector map in the next section.

Field map

### **c. Soil**

The soil is reasonable deep (5"), black and peaty, and acid in the higher, arable fields. Some rounded stones near the earthen bank are evidence of a river running past it in the past. It has been fertilised with chemical fertiliser, sewage from Plymouth and chicken manure. Molehills indicate reasonable soil-life and organic matter (worms). The soil is shallow near the farm i.e. the garden & fields used for grazing, so it saturates quickly. These fields have never been ploughed. Field 21 to the NE of the farmhouse also had moles and reasonably deep, fertile soil.

All the buildings are built on solid, igneous/metaphoric rock. There was a stone quarry to the west of the Farm (field 22) where grey Elvin was quarried a hard igneous rock.

#### **d. Water**

The farm uses two separate water systems: mains and two supplies pumped from the spring to the north east of the farm. There is mains water supply in the top arable field (field 1) and a storage container, used for diluting spray.

A stream provides water to fields 8, 9, 21 & 22.

An unused well is secured for future use under the farmhouse catering kitchen floor. The existing dew pond has been reinstated for ornamental purposes.

In the past a leat ran along the contour from northeast of the farm at Clapper bridge, through the farm and out in the southeast to near the cattle-grid. The leat was originally used for tin streaming medieval times. Fishponds along the leat were still used 80-90 years ago. Where the leat ran past the farm, clean water used to be taken off for washing, before the ducks were let out and made the water dirty. Each farm was responsible for maintaining and cleaning its own bit of the leat.

The elevation across the farm is 240m at the highest point to 180 meters at the lowest, 60 meters difference across the farm.

A slope profile may be done for specific areas of more detailed design.

Sewage treatment is done by a Clargester, a mechanical-biological treatment system. The Clargester is de-sludged once a year (maintenance company: H2OK). The pipe runs through fields 21 and into the stream in the woods to the north.

A small stream runs along the northern boundary of fields 21 & 22.

#### **e. Business**

The barns have been converted to luxury holiday accommodation using natural materials and local labour where possible. The main income is currently from weddings, booked in nearly every weekend of the year, and short breaks. 17 people are employed, mainly on a part-time basis for marketing, cooking, cleaning and maintenance.

#### **f. PASTE**

Analysis of planting, animals, structures, tools / technology and events is attached as Appendix C.

#### **g. Routes**

There is road access to the farm from a lane running from St Neot to Colliford Lake and the A30 to the north. This lane gives good access to the arable fields. The access lane, running east-west is shared with one other property, and carries on into the farm lane. New tracks have been put in place to give access to the barns for (off-) loading and a car park has been built west of the barns.

A public footpath in the northeast gives walking access to the village.

A lane runs between fields 2&3 to access neighbouring farm Penkeastle.

A mainline train station, Bodmin Parkway is 15 minutes away and a mini-van can be used to pick people up for the station.

#### **h. Client Survey**

This identifies particular needs and wants for the site by the users.

Jonathan, who runs the business, has a vision of a sustainable business, providing employment for local people and making use of local food wherever possible. He has a degree in Biology, so managing the farm for the enhancement of biodiversity is an essential aim. He was particularly influenced by Vandana Shiva's talk at the Soil Association conference in 2008, who champions small-scale, diverse farming.

Jonathan hopes to provide an example to customers by subtly modelling a sustainable business.

Trevenna caters for 50 weddings a year at the moment, with anything between 40 and 100 guests as well as short stay customers. He would be very interested in more fresh food grown on the farm for ultimate freshness, which is his key concern.

Some of the ingredients used are:

Herbs:	basil, rosemary, thyme, chives, mint, sorrel, parsley, sage, bay and juniper
Vegetables:	red & white onion, garlic, cabbage red & white, squash, chillies, various mini-veg: parsnip, celery, asparagus, carrots etc
Salads:	micro-leaves, mixed salads, tomatoes
Fruit:	raspberries, strawberries, blueberries, sloes for gin & damsons for vodka, apples, cucumber, figs
Flowers:	elderflower, any other edible flowers
Nuts:	walnut & hazel
Mushrooms:	ceps and girolles (also known as chanterelles), any wild mushrooms
Meat:	beef, chicken, some pork, mainly for hog roast, lamb
Eggs	

Jonathan is open to the idea of using wild foods and would like to know more.

#### **i. Limiting Factors**

The main limiting factor for growing on the farm is that weddings specify their menu many months in advance and it may be difficult to guarantee that the specific ingredients will be available at the right time.

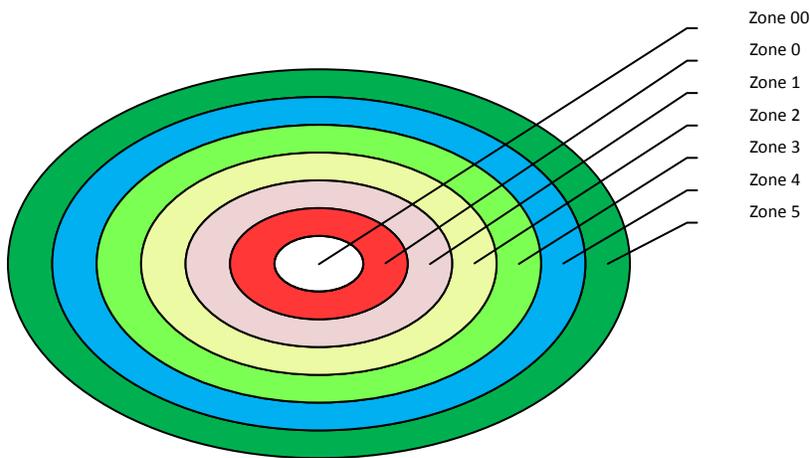
Another limiting factor is budgets: ensuring the labour involved in growing on the farm is viable compared with bought-in vegetables and meat.

Rabbits are limiting factors and deer would be increasingly with more trees being planted.

## 5. Analysis

### 1- Zones

Zones are allocated to identify the placement of design elements for energy input required: the nearer the more attention can be given and the less energy is expended in walking around. This is schematically depicted in the diagram below. The diagram below that shows zones of the farm as an overlay on the map. This map is attached in A4 as Appendix D.



Zone 00: internal, attitude and personal development of people on the site, including visitors, staff and customers

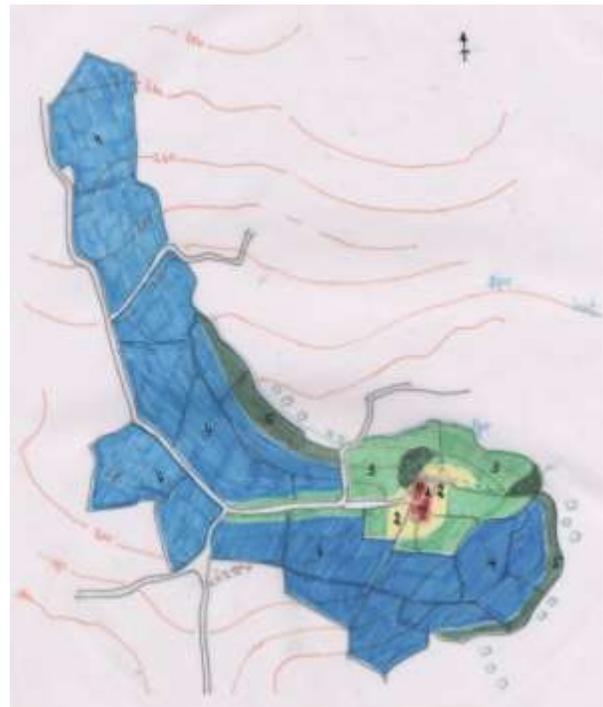
Zone 0: the house and barns and later office space / staff room and amenity building

Zone 1: directly around these buildings: a place where lots of human activity takes place, within easy grasp of inside; ideal for herbs and delicate salads and some dry logs.

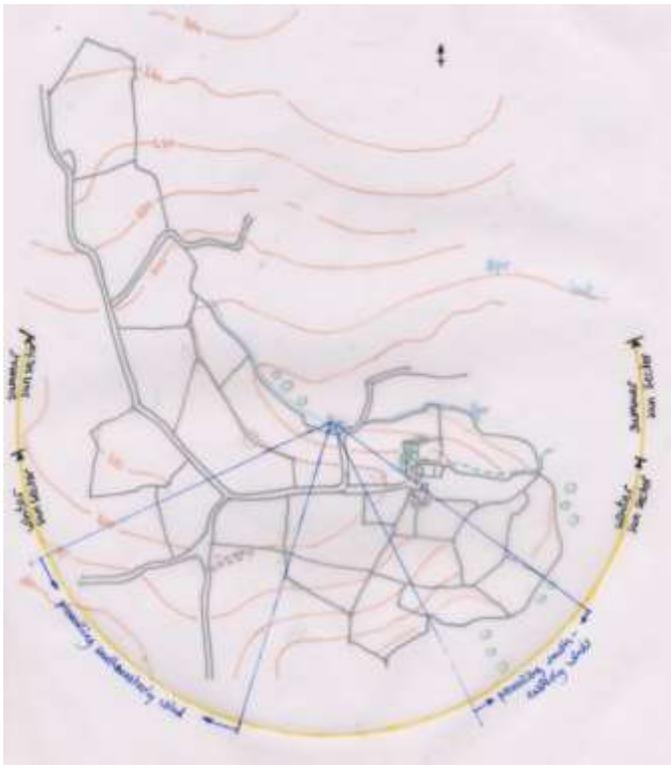
Zone 2: Close-by, easy access for things that require regular but not constant attention, such as the vegetable beds, chickens and pigs

Zone 3: elements that require less frequent input / attention, these include orchards / forest gardens, some grazing animals

Zone 4: grazing and cereal crops, hedge and woodland management



**b. Sectors**



Sectors indicate where the site is subjects to influences / energy flows moving through. This includes prevailing winds (see micro-climate above) and summer and winter sun. It can also include wildlife trails or noise / smells, though not in this case.

The diagram shows the sectors as an overlay on the farm map. This map is attaches in A4 as Appendix E.

Sector map

**c. Elevation**

In Permaculture the most efficient design works with elevation and gravity to prevent work, particularly regarding water, but also movement of materials, wastes or crops. At Trevenna the highest areas are the arable fields. Water supply may be reinstated at some point using the leat system, which follows the contour. Water treatment runs off to the lower parts of the farm through the woodland.

**d. Multiple functions**

An analysis of the multiple functions of various system elements such as the farmhouse, barns, vegetable gardens, productive fields, etc. With the aim of identifying maximum number of uses and thereby increasing the efficiency of these elements (see Appendix F).

**e. Outputs are linked with inputs** to enable material and energy cycling within the site, as opposed to the unsustainable linear flows in current society, from extraction, processing and use to disposal to landfill. For example all vegetable waste is composted and fed back into the land to increase organic matter in the soil and fertility.

Looking at current waste streams will identify other potential inputs e.g. waste cardboard can be used as mulch to prevent weeds growing around fruit trees, or keep vegetable beds weed free. Bottles can be used for edges of growing beds.

## 6. Permaculture Design

### a. Introduction

Trevenna is at the early stages of applying some of the ideas from organic farming and Permaculture. Now that the business is off the ground and running successfully, a full Permaculture design of the business and the farm can gradually be implemented and maintained.

The aim is to become a living and developing example of a permaculture design in practice. Running a business and having visitors on the site is an essential integrated part of the design to ensure the success of a sustainable land-based rural business. The design is therefore centred on the barns and farmhouse and is based upon zones analysis. A longer time scale view is also incorporated taking into account potential changes due to Peal Oil and Climate Change, increasing the focus on local food growing for local need.

### b. Ethics

The three Permaculture ethics underlie the design. Below each one some suggestion as are made as to how they can be applied to Trevenna.

Earth Care      Caring for the Earth, keeping our human impact to a minimum

- 🌍 Responsible sourcing of food ingredients until they are grown on the farm: i.e. local and organic
- 🌍 Responsible sourcing of other resources needed to run the holiday accommodation, such as furniture, cleaning materials, bedding (organic cotton or other fabrics) and energy (heat fuel and power)
- 🌍 Long term generating energy for all heat and power on-site, with renewable technologies
- 🌍 Organic management of the farm
- 🌍 Increasing bio-diversity on the farm
- 🌍 Developing & implementing a green travel plan for visitors and employees

People Care      Meeting people's needs in compassionate and simple ways

- 👤 Ensuring local people are employed, paid fairly and working in good conditions
- 👤 Providing facilities and resources for visitors to address personal development needs
- 👤 Providing on-site accommodation at a later stage for employees

Fair Share      Taking what we need and sharing what we don't

- 🏠 Paying fair, local wages
- 🏠 Buying fair trade supplies
- 🏠 Contributing in-kind or financially to local sustainability projects to increase bio-diversity, tree-cover, education

**c. Permaculture Design**

Trevenna provides quality holiday accommodation and hosts events, mainly weddings. In order to support these activities the design focuses on increasing food production from the farm over time. This includes all herbs, vegetables, meat, edible & ornamental flowers, honey. The design also addresses on-site energy production, and water supply and treatment. The practices can gently be shared with visitors to promote sustainable practices in a subtle way. An overview of this design is attached as Appendix I.

Zone 00 / People Care: A variety of facilities, activities on offer to include:

- counselling
- spa
- massage
- swim
- exercise
- outdoor meeting places
- beauty
- nature walks
- fresh herbs for herb teas
- local employment
- accommodation

Zone 0: barns already converted to high sustainability standards

Increased insulation and education to reduce heating fuel. Maintenance to be carried out using sustainable materials where possible.

New buildings: Amenity building and staff office to be built to highest energy efficiency standards and using sustainable materials.

A suitable place near the buildings for a top of the range composting toilet for educational purposes.



Zone 1: area around barns and farmhouse to include mainly herbs for easy picking & use. Farmhouse garden to have **cob-oven / outdoor cooking area.**

A **willow sculpture / tunnel** for play close to the barns.



The ancient **garden wall** (south facing) can have a fig, apricots and peach trees trained as fans.



Zone 2:

**Raised vegetable beds** for intensive, small scale (mini-) vegetables.

The lower part of farmhouse garden to have large herb and flower garden for edible flowers and cut flowers. Bed edges can be created from willow grown at Trevenna and glass bottles, which are waste from weddings



**Edible flowers** can include Rose, Marigold, Borage, Elder (see pant list) and can be used in salads, drinks, canapés and wedding cakes.



**Poly tunnel** for winter salads and Mediterranean vegetables e.g. tomatoes, aubergines, chillies. The poly tunnel should be positioned in a wind level, sheltered but sunny place, orientated east to west for maximum light.

An area in field 22 near the current boiler house is ideal with **chickens** also in this area, as they will need regular visits for feeding, collecting eggs and putting away at night. Zone 3 orchard is nearby for letting chickens forage .

**Pigs** may also be placed in zone 2, possibly in the car park field (12) to clear the ground for the forest garden, after which they can be moved to become part of a rotation to prepare areas for vegetable growing. The pigs can be chosen from heritage varieties for good meat and easy temperament to encourage guests to visit them and increase their understanding of food. The areas included are the farmhouse gardens, top of field 21&22, areas around the barns and the car park area.



Long term, a **cold store** can be built into a sloping side, close to the farmhouse kitchen. This will eliminate the need for fridges. A damp place is best as the water evaporation cools the atmosphere.

Also in zone 2 is the **labyrinth**, based on ancient patterns. This will be a place for children to play and adults to have an opportunity to reflect. See Appendix G for more info.

**Zone 3:** Medium term: larger scale **vegetable growing**: potatoes, red & white onions, carrots, parsnips, red & white cabbages, grazing for sheep and cattle. Includes the fields closest to the farm: 12, 17, 21 & 22. Land management to include **fogage**: encouraging diverse grassland species & herbage allowed to grow out in autumn to be grazed in winter, thus avoiding haymaking & stabling cattle.



**Orchards** on slope of 22 with **beehive** and chickens foraging below. Orchards /nuts / Agroforestry: e.g. walnuts with grazing in field 17, below the farm & barns.



A **forest garden** in the carpark field with a range of useful crops, with the carpark bank as a sample.

A forest garden mimics a young forest, using many layers of vegetation but wide spacing to allow plenty of light to reach the forest floor. Plants & trees can include the American Elder (long flowering season), Chezuan pepper,



groundcover mints and lemon balm, medlar, Elaeagnus (N-fixing), Hawthorn large fruiting varieties, lime tree for salad leaves and flowers for tea.



**Zone 4: Arable crops**, field scale grains, potatoes and vegetables fields 1-6, **bio-mass** south of the farm in the shallower soil (fields 11, 16 & 18). Needs level ground for mechanical harvesting initially. Field scale chestnut with grazing to supplement carbohydrate crops. **Constructed wetland ecosystems** [WET](#) (wetland ecological treatment) system to treat sewage long term without energy requirements, using slope of field 20 to avoid any possible contamination of the stream.

**Zone 5:** Increasing native **woodland** planting along edge of fields, 15, 19, 20 & 21. Field 8 & 9 naturalise to moorland.

Add **ponds** to farmhouse garden and poly tunnel to increase slug predators for veg growing. Add any other bio-diversity enhancing elements e.g. woodpiles, bird and bat boxes.

**Wild food foraging** for educational purposes and enhance the menu.



General / All areas:

**Outdoor seating** to be placed in all zones, from zone 1 for outdoor cooking area and seating just outside the barns, to benches placed to enjoy views in other areas.



**Wind breaks / shelterbelts** are increased by allowing standard trees in the **hedges**. This will reduce wind impact and result in timber and firewood. This is particularly useful on the southeast side to prevent the wind funnelling up the valley, but gaps are to be left for the view. Additional species can be planted into hedges to add diversity of crops and wildlife. These include Elder, rose, crab apple, hazel, hawthorn.

**Water** on the farm should be managed by using the four Permaculture directives to prevent pollution, prevent shortages and reduce soil erosion:

1. Holding water on the land by:
  - i. Increasing surface storage
  - ii. Reduce run-off
  - iii. Decrease evaporation
2. Tackle problems close to source, by moving long term to low water systems and a WET system for treating effluent
3. Slow down water running overland
4. Water leaving the site should be non-polluting

This can be achieved by:

- adding swales to reduce run-off, increase soil storage / reduce soil erosion & recharge the water table
- planting on contour
- managing soil to avoid compaction and keeping it covered with vegetation, so more water penetrates the soil
- rainwater harvesting of any of the roofs of buildings

## 7. Implementation & Maintenance plan

The implementation and maintenance plan is attached as **Appendix H**, using a timescale of ten years to spread the load. A capital cost estimate is included. Some of the work/projects may be carried out by volunteers / running courses.

A plant list details suggested plants in the following categories:

- ♣ Herbs
- ♣ Trees & shrubs
- ♣ Vegetables
- ♣ Soft fruit
- ♣ Edible flowers
- ♣ Ornamental flowers
- ♣ Wild food

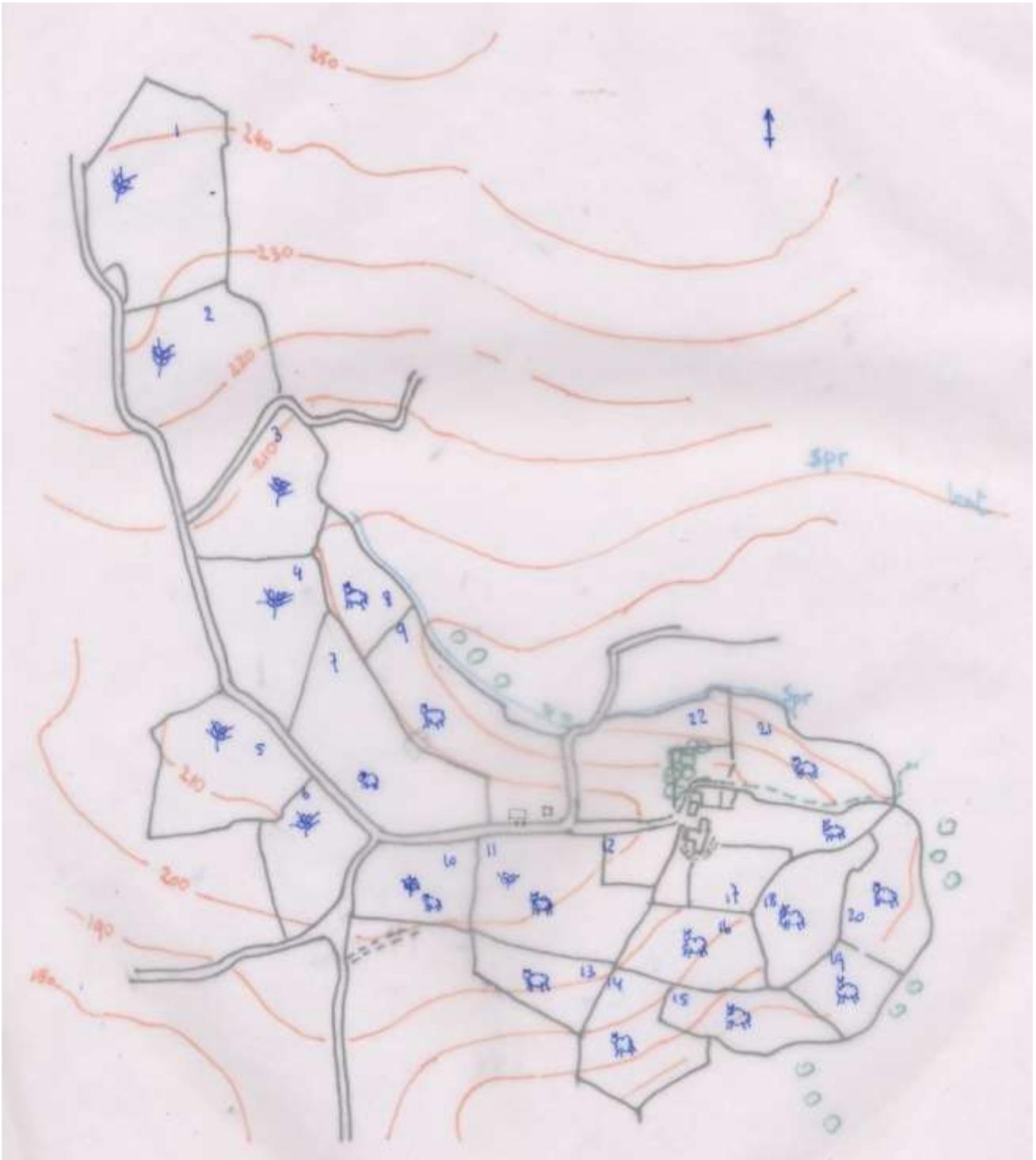
## Appendix A

### Trevenna Fields Analysis

Field	Where	Size Ha	Size acr	Soil	Use	Description	Micro climate	Picture
1	North top			deep	arable	Flat, no wood in hedges apart from some blackthorn. Evidence in soil of buried water pipe from Colliford Lake to St Austell. Mains water tank for topping up spraying tank.	Windy, S-facing,	
2	south of 1			deep	arable	very similar to 1. Mains water to field both 6" and 30" pipe. Some hawthorn in East hedges	Windy, S-facing,	
3	south of access to Penkeastle			deep	arable	1-6 rented out		
4	south of 4	0.511	1.26	deep	arable	permanent pasture		
5	north of 6	3.266	8.07	deep	arable	Deeper soil, S-facing. Arable, rented out, good for harvest crops, windy: good drying.		
6	opposite exit of farm lane	2.107	5.21	deep	arable	Deeper soil, S-facing. Arable, rented out, good for harvest crops, windy: good drying.		
7	corner north of farm lane and east of road	3.785	9.35		grazing	permanent pasture		
8					grazing	permanent pasture		
9		3.161	7.81		grazing	permanent pasture		
10		2	5		arable, grazing, hay, silage	arable. Electricity low voltage running through		

11		3.541	8.75		arable	arable. Electricity low voltage running through		
12		0.786	1.94		grazing	permanent pasture		
13		1.534	3.77		grazing	permanent pasture		
14		2.334	5.77		grazing	permanent pasture		
15		1.11	2.76		grazing	permanent pasture		
16		1.993	4.93	shallow, stoney	grazing	permanent pasture		
17		0.997	2.46	shallow, stoney	grazing	arable, has been ploughed in the past, currently grazing		
18				shallow, stoney	grazing	permanent pasture. Contains large bank NW boundary, lower than barns level, from open mining		
19				shallow, stoney	grazing	permanent pasture		
20				shallow, stoney	grazing	permanent pasture		
21		0.818	2.02		grazing	permanent pasture		
22		2.569	6.35	shallow, stoney	grazing	N-facing bottom half steeper. Sheltered, small copse in middle was quarry. Permanent pasture. Conytains modern agricultural shed and filled in quarry of grey elvin		
23	position of swimming pool	0.348	0.86					
24	extension of farm and barns gardens	0.495	1.22					
25	corner north of farm, east of beech trees	0.535	1.32					

Appendix B  
Field map



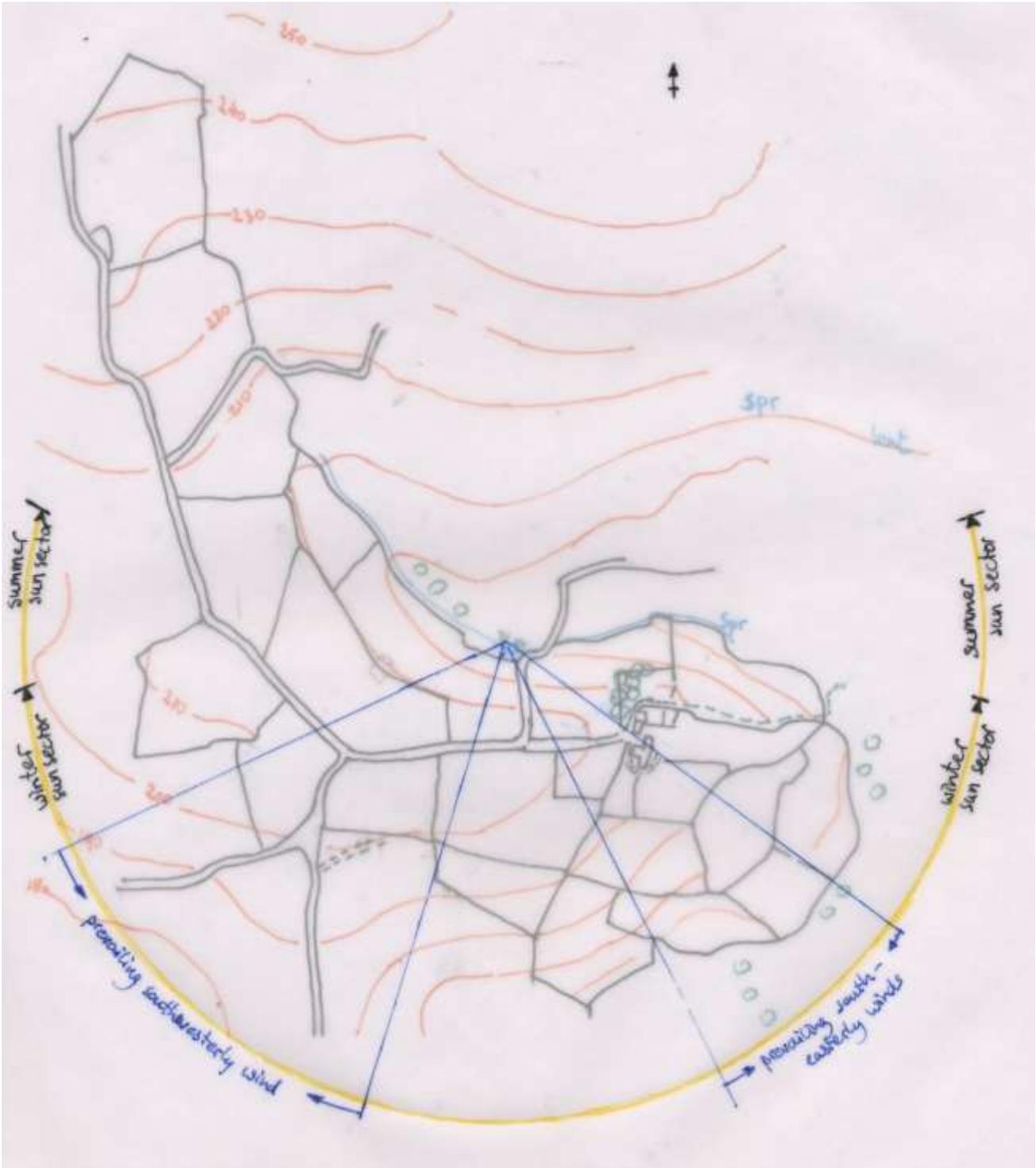
**Appendix C**  
**PASTE**

Plants		Animals	Structures		Tools / Technology	Events
where	what		visible	invisible		
Hedges around the fields are currently mostly cut (winter)	Contain hawthorn, blackthorn & Ash. Increased wild plants with winter cutting	In the past the farm has supported pigs, chickens, beef & sheep, guinyfowl, geese & ducks. Providing meat, eggs, milk, manure	Barns	Finances: project financing, grants, wages, energy costs, food costs.	Waste segregation bins	Weddings
Some standard trees in hedges and fields	Beech, Oak, Ash	Wild meat: rabbit, deer. No rats at moment as no livestock!	Farmhouse	People: customers, staff, family, visitors	Enclosed composting / worm bins for food waste	Activities: exercise, cooking, night walks (bat mike), wild food walks, Permaculture
Fruit & nut orchard & mixed planting to be positioned	Variety of top fruit, soft fruit & nuts covering different uses and extended seasons	Interesting wildlife: bats, in particular rare Greater horseshoe (protected)	Boiler house, office, laundry / staff room	Ownership: family, company	Oil boiler	Short breaks / holiday accomodation
Grass lawns around barns, farmhouse and wedding area	Grass lawn for playing & weddings, plus some groundcover plants and olytunnel borders with useful plants & herbs	Opportunity to have a range of animals for meat: choose variety of pigs for type of meat required & friendliness to visitors	New agricultural barn	Links with local community: employment, B&B, suppliers	Log burners (9)	Courses / Retreats
Barn borders herb gardens	see plantlist	Wild birds: Buzzard, sparrow hawk, swallows, starlings. Survey	New amenity building: kitchen demo, wedding venue, party space, fitness, courses		Bio-mass boiler & heating system	Camping
Farmhouse garden veg plot	Raised beds with easy veg to start.		Tracks, paths, stone hedges		Kitechen & cooking equipment	Wine, beer, cider making
Pond hedge, lawn by barns	Willow structures: fedge around pond, arbour and seat, play dome / tunnel		Willow structures		Water supply & sewage treatment	
Field crop	Bio-mass willow for boiler, small field-scale potatoes, grains etc, fodder crops: mangles		Polytunnel		Transport	

Appendix D  
Zone map



Appendix E  
Sector map

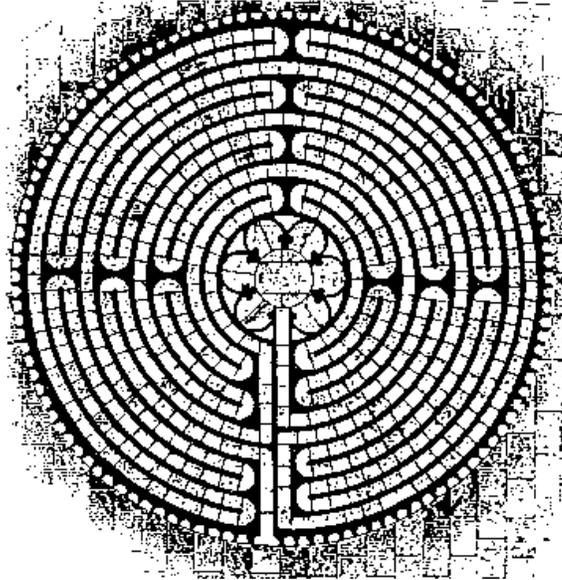


**Appendix F**  
**Multiple functions**

Element	Multiple functions					
Amenity building	wedding venue	kitchen demo	party space	fitness	courses	
Barns	accomodation	seminars				
Bees	pollination	diversity	honey	wax	wildlife interest	education
Chickens	eggs	scraps	scratching	pest control		
Cold store	cold storage	energy saving				
Composting	waste treatment	fertility	cost saving	bio-diversity	education	
Farm house	accomodation	cooking	eatery	social space		
Hedges	wind break	bio-diversity	bio-mass			
Herbs	ingredient	beauty	smell	tea	medicinal	bio-diversity
Maze, labyrinth	multifunctional plants	scents	play			
Orchard	shelter	tree fruit	habitat	chicken forage		
People	labour	re-skilling	local economy			
Pigs	ploughing	interest	meat	fat		
Pizza oven: cob	outdoor activity	education:		use of natural materials		
Poly tunnel	micro climate	winter salads	hot summer crops	water catchment		
Pond	visual interest	bio-diversity	play			
Soft fruit	ingredient	bio-diversity	abundance			
<a href="#">WET Sewage treatment</a>	bio-diversity	cost saving	no energy	education		
Willow arbour	visual interest	play	bio-mass			
Willow bio-mass	bio-mass	fuel	education	Carbon neutrality		
Willow fedge	shelter	protection	visual interest	bio-mass		
Willow play dome	visual interest	play	bio-mass			

## The Permaculture Labyrinth

*Carol McDonough*



“The Labyrinth is a circle with one entrance and one path to the centre which is retraced to leave. It is a visible representation of the way. Those who walk the Labyrinth will find the necessities of following this way into the centre. As we walk on, we should let go of the cares of life to find a new direction in the centre. As we walk out, we should find strength to continue our journey through life.

“The Labyrinth has universal meaning in so far as it transcends culture and religions. It has its roots in pre-Christian times.

“Labyrinths are found in many northern hemisphere cultures, Greek, Celtic, Indian and American Indian. The Labyrinth is a great pattern which maps the inner soul. Walking the Labyrinth opens the seeker to those age-old mysteries associated with the pilgrimage and the great journey. With this in mind the Labyrinth is:

- A mode of spiritual cosmology or map of the soul.
- A form of mandala which unites the opposites of our lives.
- A metaphor for the path of life, or the way.
- A great archetypal form.

- A symbol of the unified mind, uniting the left and right brain (rational and intuitive consciousness).
- A map of human development from birthing to death.

“The form of the Labyrinth is a spiral – reflecting that which is found in nature – and a shape of particular note in the understanding and use of pattern in permaculture.



“There are numerous meanings that can be ascribed to different aspects of the Labyrinth design – too numerous to mention here. Some of the physical features of the Ca-naan Labyrinth are:

- 13.5 meters in diameter, making the path to the centre approximately 275 meters.
- A rose shape at the centre of the Labyrinth with 6 petals.
- The Labyrinth is divided in to four sectors each denoted by use of different bricks, stone and plants.
  - Earth (body) sector, by yellow bricks and yellow flowering plants.
  - Air (mind), by limestone and blue flowering plants.
  - Fire (spirit), by red brick and red flowering plants, and
  - Water (emotions), with stones from the sea and silver foliated plants.

“There is no correct way to walk the Labyrinth. When walking the Labyrinth you are invited to let go and be led, be receptive. Experiences range from dramatic insights to bursts of emotion and very little. The Labyrinth may be walked (or even danced) in many ways:

- Mindful of your present life and the transitions through which you are going.
- Meditatively.
- Pondering a question as you walk in, allowing the question to become part of you in the centre and then ‘know’ the right answer as you walk out.
- With a mantra, in prayer, etc.



A Labyrinth is a maze with one entrance; you walk to the centre to receive and then walk out gaining strength to the next step of your journey.

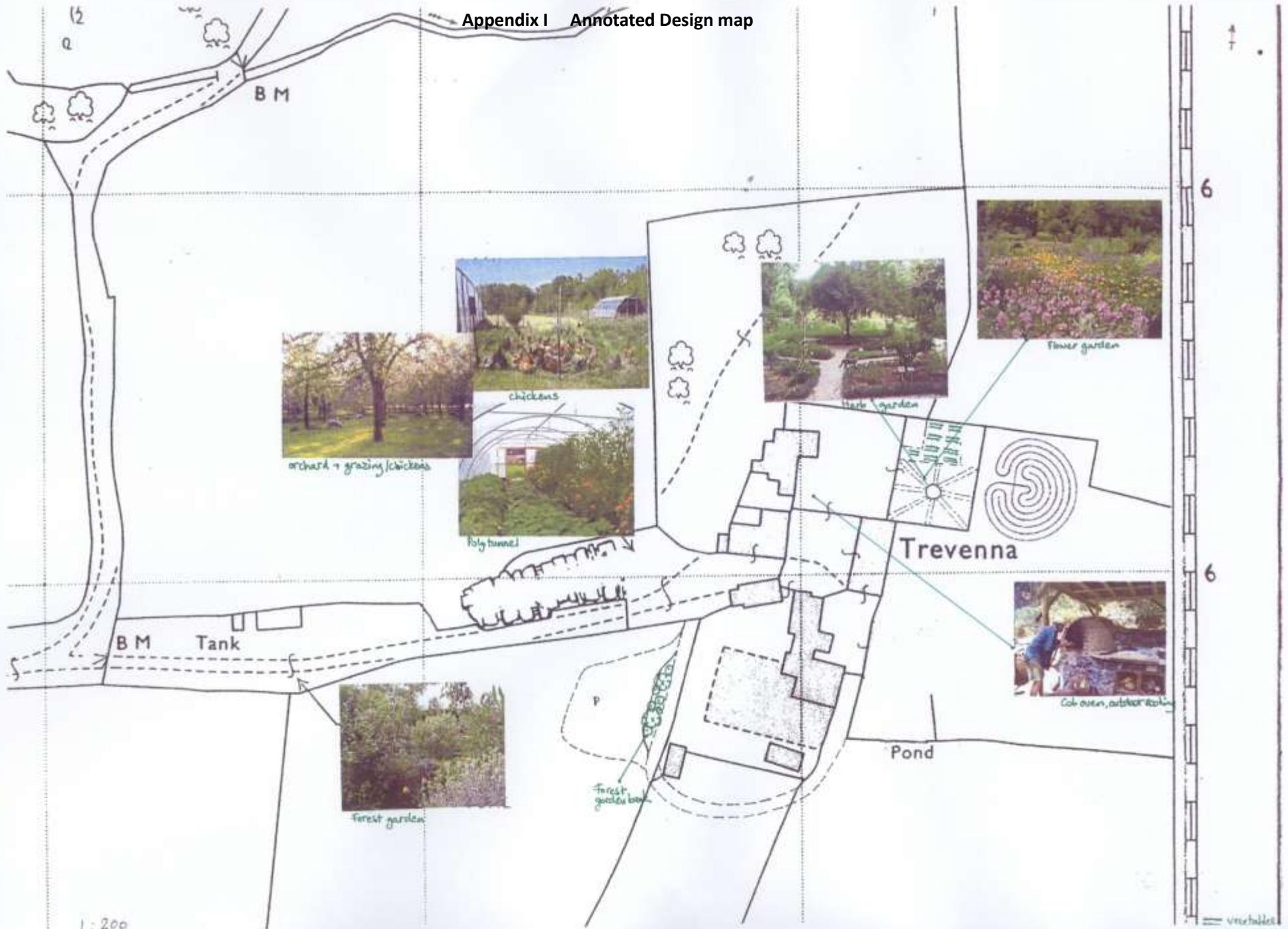
We walk the Labyrinth one step at a time, which is a Natural Step.

**Appendix H**  
**Implementation & Maintenance Plan**

Implementation	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Capital Cost
outdoor seating												£ 500
Get chickens, fence & house												£ 300
on-site food composting												£ 500
Install poly tunnel												£ 800
plant herbs												£ 200
Plant fruit trees												£ 500
Plant soft fruit												£ 200
Plant nut trees												£ 200
plant other functional trees												£ 500
plant willow bio-mass												£ 2,000
build cob oven												£ -
get pigs												£ 300
WET system												£ 5,000
field scale vegetables												
Amenity building												
Office, staff, wash building												
Build cold store												£ 2,000
Restore leat												
Composting toilet												£ 100
<b>Maintenance</b>												
crop willow bio-mass												
replace olytunnels plastic												£ 200
pruning												
field scale vegetables												
veg, salad & herb growing												
fruit harvesting												
animal care												

£13,300

Appendix I Annotated Design map



1:200

vreschalen