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1. INTRODUCTION AND GENERAL BACKGROUND

This application is for a temporary agricultural workers dwelling in the form of a modestly sized Mobile Home on the Western Holding of **field A** of the Plotgate Venture, in association with a glasshouse enterprise and associated infrastructure. An application for the glasshouse and other associated buildings is being submitted at the same time as this one. It is important to note that this and the glasshouse applications **are being submitted independently of the Plotgate Venture as a whole, and should be viewed as separate applications.** It would be beneficial to the agricultural enterprise on field A if the co-housing element of the Plotgate Venture on Field B was to gain permission, but the enterprise could operate independently of the co-housing development.

The Plotgate Venture is a project with two components, serving the needs of different members of the rural community. The project development seeks to address a number of local needs:

- the lack of affordable housing both for those who need to live in or near Barton St David, and for people within a wider radius in Somerset;
- the lack of opportunities to take on a small scale intensive agricultural enterprise, either full time, or as a part-time activity supplemented by a part-time paid job;
- the lack of affordable workspace, and live-work opportunities in rural areas;
- the lack of opportunities for those who wish to stake out a sustainable low-carbon rural way of life, as envisaged in the government's plans for ecotowns and villages, but still largely unavailable on the market;
- the lack of opportunities for those who are willing to self-build, with sustainability in mind, but who have limited buying power;

The Plotgate Venture aims to meet these needs by providing affordable live work opportunities on a site positioned next to employment land on the edge of Barton St David, which is a village defined as an appropriate location for development in the adopted local plan.

The two parts of the project occupy two separate, but adjacent plots of land, as follows:

Field A: Plotgate Smallholdings. Field numbers ST5432 and ST6577 comprising 16.3 acres (6.6ha) in total. This will provide land and housing for two viable organic smallholdings, and will provide produce such as vegetables, fruit, dairy products and meat for local consumption (including residents of Plotgate Venture co-housing). Field A is divided into the Western Holding, 6.7 acres (**the site applicable to this application**), and the Eastern Holding which is 9.6 acres. The fields are sown in ryegrass and clover on the eastern half, and a grass mix with timothy and clover on the western half.

Field B: Plotgate Co-housing. This provides 8 units of self-build affordable accommodation to people wishing to live a low impact, sustainable rural lifestyle, with opportunities for a small scale workshop or office unit on site. About 5 acres of agricultural land will be available for the use of the occupants (**Field B is not the subject of this application**)

All fields are surrounded by well maintained hedges. There is a sluggish water course with a sluice at the North of Field A. There is mains water on site and an

electricity line straddles both fields. There is no history of flooding on any of the fields.

2. DESCRIPTION OF SITE

Plotgate is the name for this particular area of Barton St David, and an 1841 map reveals the existence of a number thin strips of land which served as allotments for landless villagers (see map at back of this document). Houses built for the poor of the parish were sited about 50 metres to the west of the bend in the road at Plotgate. The land acquired by the Plotgate Venture was previously a County Farm, supplying affordable farming opportunities to landless farmers. The neighbourhood therefore has a long tradition of providing affordable opportunities for the less wealthy, and the Plotgate Venture aims to continue that tradition.

Barton St David has a pub and until a few years ago had a post office. The nearest shop and school are in Keinton Mandeville, 1.25 miles away. Somerton and Street are 4 miles away. Castle Cary, where there is a train station for lines leading to Taunton, Bristol, London and Weymouth, is about 6 miles.

3. THE PROPOSAL, INCLUDING SITING AND DESIGN

In terms of the background to this proposal the use of this land follows in the footsteps of the County Farm, and of the “plots” on the 1840 tithe map which originally gave their name to the neighbourhood, by providing agricultural land for the benefit of people who cannot afford the market price. It is worth noting that whereas the original plots were less than an acre, the County Farm grew to a considerable size (reflecting the pressures of the CAP industrial agricultural era), but now the modern proposal provides medium sized plots suitable for the kind of local food provision developed by people like Professor Tim Lang, popularized by celebrity chefs, and promoted by local authorities and the NFU.

The land will provide two smallholding enterprises with living accommodation and sufficient land for competent local food producers to produce a living commensurate with the national minimum wage. Currently a smallholding of about ten acres with a house sells for about £400,000, even with an Agricultural Occupancy Condition. The cheapest available at Acorus’ (formerly ADAS) website at the time of writing is a bungalow with 3 acres, for £372,000. To acquire a mortgage for this property would require an income of around £90,000, about 8 times as much as the current minimum wage. This is clearly unaffordable for small-scale farmers or new entrants into farming.

The farmhouse which was attached to the County Farm is still owned by the County Council, but as far as we know they have no intention of renting it out.

Field A, Western Holding will be leased on a long term basis by the Community Land Trust to myself as a commercial smallholding enterprise (see section 11). At the time of writing no tenant has been selected to develop the other available plot but it is hoped, that in the future, that a potential neighbouring smallholding will co-operate with this enterprise. Both smallholding households will produce food for direct local sale, including to the residents of Plotgate.

The proposal relates to a temporary agricultural workers dwelling. It is requested that this is for a period of at least five years. The period of 5 years is required due to the amount of time necessary for the construction of the glasshouse and associated infrastructure, and for the subsequent establishment of the business. I will not reside

on the site until it becomes necessary to do so. This will be from the commencement of the erection of the glasshouse frame. It is anticipated that this will not be before the summer of 2012. The planned schedule of activity is as follows:

2010 Planting the first phase of the willow coppice. Clearing of drainage ditches and other land management. Completed;

2011 Planting of trees. Construction of packing shed and track. Levelling of Glasshouse site and access improvement. Glasshouse foundation wall;

2012 Second phase of willow coppice. Erection of Glasshouse and Wind Generator. Construction of the Water Reservoir and Cold Store;

Early 2013 Installation of power, water, heating and irrigation systems. Third phase of willow coppice;

Summer 2013 First crops.

The work will be carried out on a part time basis with some paid help. The land is now in a fertility building phase and is in organic conversion in preparation for the scheduled start of cropping in 2013. The first phase of the willow coppice has been completed.

The Business

The agricultural business is centred on a 1560 m² glasshouse, to be established on part of Plot A.

Organic salads and season extended vegetables will be produced for local markets. All power and heat for the glasshouse and associated buildings will be provided from on-site renewable energy sources.

Low environmental impact or recycled materials will be used wherever possible in the construction of the glasshouse and associated infrastructure. The glasshouse, itself, has been reclaimed from another site where it was due to be demolished.

It is anticipated that the business will initially provide some part-time employment for local people in addition to the full time livelihood for the proprietor. In future years as the business becomes established and crop production intensifies a number of full time positions may arise.

What produced

A range of organically certified salads and season extended vegetables will be grown. Initially, for reasons of work load and the establishment of markets, production is likely to be limited to a small range of crops and focused on the local wholesale market.

The anticipated cropping plan is as follows:

Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
1/5* cucumbers	1/5 cucumbers	1/5 cucumbers	1/5 cucumbers	1/5 cues
1/5 tomatoes	1/5 tomatoes	1/5 tomatoes	1/5 tomatoes	1/5 tomatoes
1/5 other**	3/5 other	2/5 other	2/5 other	2/5 other
2/5 fertility building	N/A	1/5 salad	1/5 salad	1/5 salad

* Proportion of glasshouse given over to crop.

** 'Other' crops will be things such as sugar snap peas, french beans, early onions and leafy green vegetables.

In future years outdoor crops may be developed such as field vegetables, fruit orchards and/or fuel crops.

Method of Production

It is intended that salads and vegetables are produced in a 1560m² glasshouse.

The glasshouse will be heated in the following way:

1. Wood fired heaters, manually lit, burning wood produced on site.
2. Use of a novel system of low power fans and underground pipes to store heat during the day for use at night.
3. Night time thermal screening automatically deployed at dusk.

These techniques will provide a semi heated environment for little ongoing expense and with no net CO₂ emissions.

In future, woodchip fired boilers may be installed, scheduled for 2016, to provide a higher level of heating so extending the season and yield of cold sensitive crops such as tomatoes.

The crops will be grown in fixed beds using an approach called 'no dig'. This is a gentler way of managing the soil and leads to improved soil structure, higher organic matter levels as well as a more stable and diverse soil flora and fauna. This leads to more efficient nutrient cycling within the soil and a consequent need for less input (manures and compost). The reduced loss of nutrients also benefits the wider environment by reducing nutrient pollution of water courses and ground water. The higher organic matter level also represents an increase in soil carbon ^{ref 1} so reducing atmospheric CO₂ and therefore helping to counter climate change.

Glasshouse ventilation will be by electrically powered vent windows.

Irrigation will mainly be by surface drip lines under automatic control. Rain water harvesting from the glasshouse roof will provide the majority of the irrigation water. This will be stored in a 500 cubic metre reservoir, enough for 4 months without rain in the summer. The mains water supply will be retained as back-up and to provide potable water for vegetable washing, drinking etc.

Electricity for water pumping, operation of actuators, sensors, lighting, workshop tools and office equipment will all be provided by photovoltaic panels and a small wind generator. Electricity will be stored in batteries.

Cold storage for produce will be provided by reuse of a refrigerated body from a scrapped lorry. This will be cooled using a novel low energy technique with powered conventional refrigeration as back-up.

Initially soil fertility will be built up by importing compost and minerals, subject to the results of soil analyses, such as composted green waste from the Dimmer Landfill Site. Volumes of imported fertility building materials will decrease as the required level of soil fertility is achieved.

The need for imported manures will be minimised by using crop rotation including the growing of nitrogen fixing crops, such as peas, and green manures which may be grown as an under storey to other crops. Some of the land outside the glasshouse may be used to produce compost material for use inside the glasshouse.

Time Scale

It is estimated that construction of the glasshouse and associated buildings and infrastructure will take two years from the time of commencement. Work will be carried out on a part-time basis with some paid help. During this time the land will enter a fertility building and general preparation phase which will result in fertile weed free soil in readiness for the growing of commercial crops. The land has been put into organic conversion so full organic status will be achieved in readiness for the first year of production.

If construction and soil preparation begins at the start of 2011 then it is anticipated that the first crops will be planted in early 2013 with the first produce by early summer.

Financial Forecast

Capital Investment

The cost of buildings, infrastructure, labour and other costs prior to and during the two year construction phase are listed below.

Glasshouse dismantling, transport and storage *	£ 5000
Glasshouse erection	£ 7000
Glasshouse heat storage system	£ 1200
Glasshouse wood burners	£ 400
Thermal screening	£ 8000
Irrigation equipment	£ 1000
Water reservoir, materials and construction	£ 4200
PV solar panels*	£ 1250
Wind turbine and tower	£ 2500
Batteries and other power supply equipment	£ 3850
Delivery vehicle (van)	£ 1500
Compact tractor and implements*	£ 6700
Fertility building, compost	£ 2000
Fertility building, minerals and seeds *	£ 750
Fuel wood coppice plants* and mulch	£ 1140
Fencing (electric deer fence)	£ 400
Packing Shed, materials	£ 3000
Packing Shed, construction	£ 1000
Composting Area	£ 550
Track improvement and hard standing	£ 2000
Equipment general	£ 2000
Land maintenance (drainage, grass & hedge cutting)	£ 800
Organic certification	£ 600

Total **£57,840**

* Monies already spent.

Costsings do not include my own labour.

A large part of the investment capital will be from my own savings with top up from loans at favourable rates of interest.

Gross Output

Crops	2013	2014	2015	2016*	2017
Cucumbers	£ 5,000	£ 7,000	£ 7,000	£ 11,800	£11,800
Tomatoes	£ 3,650	£ 3,650	£ 3,650	£ 9,560	£10,360
Other	£ 4,200	£ 6,600	£ 8,000	£ 7,200	£ 8,400
Salad	£ 0	£ 0	£ 3,200	£ 6,750	£ 8,500
Totals	£ 12,850	£ 17,250	£ 21,650	£ 35,160	£39,060

*Higher production due to the use of higher levels of heat.

The above Gross Output figures assume wholesale prices at the expected levels of production for the crops in question. 'Expected levels of production' are based on my own records, figures published by Imperial Collage London ^{ref 3}, plus an allowance for time to develop markets, build soil fertility and overcome problems associated with scaling up. In future years some direct marketing may be developed with the potential to raise Gross Output further.

Expenditure

Variable Costs

Year	2013	2014	2015	2016	2017
Seed	£500	£500	£500	£ 500	£ 500
Packaging	£470	£680	£750	£1180	£1,240
Seed Compost	£150	£150	£220	£ 290	£ 290
Manures	£300	£300	£150	£ 150	£ 150
Pest & Disease Materials	£ 75	£100	£100	£ 150	£ 150
Horticultural Sundries	£100	£100	£100	£ 100	£ 100
Electricity	£ 0	£ 0	£ 0	£ 0	£ 0
Glasshouse Fuel	£ 0	£ 0	£ 0	£ 0	£ 0
Water	£ 50	£ 50	£ 50	£ 50	£ 50
Delivery costs	£1070	£1070	£1070	£ 1070	£ 1070
Market costs	£ 0	£ 0	£880	£ 880	£ 880
Machinery Fuel etc.	£185	£235	£265	£ 295	£ 295
Total	£2,900	£3,185	£4,085	£4,665	£4,725

Fixed Costs

Year	2013	2014	2015	2016	2017
Vehicle Costs	£ 675	£ 675	£ 675	£ 675	£ 675
Vehicle Depreciation	£ 300	£ 300	£ 300	£ 300	£ 300
Machinery Costs	£ 200	£ 200	£ 200	£ 200	£ 200
Machinery Depreciation	£ 600	£ 600	£ 600	£ 600	£ 600
Glass Depreciation	£ 600	£ 600	£ 600	£ 600	£ 600
Infrastructure Dep.	£ 1,250	£ 1,250	£ 1,250	£ 1,750	£ 1,750
Liability Insurance	£ 500	£ 500	£ 500	£ 500	£ 500
Organic Certification	£ 550	£ 550	£ 550	£ 550	£ 550
Labour	£ 3,000	£ 3,500	£6,500	£10,000	£11,000
Total	£7,675	£ 8,175	£11,175	£15,175	£16,175

Profit/Loss

Year	2013	2014	2015	2016	2017
Variable Costs	£ 2,900	£ 3,185	£ 4,085	£ 4,665	£ 4,725
Fixed Costs	£ 7,675	£8,175	£11,175	£15,175	£16,175
Grower Income	£ 8,000	£10,000	£10,000	£11,500	£13,000
Total Costs	<u>£18,575</u>	<u>£21,360</u>	<u>£25,260</u>	<u>£31,340</u>	<u>£33,900</u>
Gross Income	£12,850	£17,250	£21,650	£35,160	£39,060
Profit/loss	£ -5,725	£ -4,110	£ -3,610	£ 3,820	£ 5,160

Demand

2009 was the bad year for organic products in the UK as sales were hit by the recession, according to the Soil Association ^{ref 2}. This marked a break from the long period of uninterrupted and rapid growth since the mid 1990's. At the start of 2010 rates of decline had reduced greatly with Tesco's and Waitrose reporting growth in their organic sales. Based on this and other indicators the Soil Association predicts a growth of between 2 and 5% in 2010. Both local direct outlets such as Farmers Markets and box schemes as well as local wholesale demand remain healthy.

My experience of growing and selling organic vegetables to the local market over the last ten years has proved to me that there is a good demand for local organic fruit and vegetables, particularly protected, i.e. glasshouse, crops. Prices that are obtainable for these, both retail and wholesale, are currently such as to make the proposed business a viable proposition. Possible local markets include Somerset Farmers Markets Direct, local shops, farm shops and restaurants particularly in and around Glastonbury, Farmers Markets and a local veg box delivery scheme. Regional wholesalers include Better Food at Chew Magna and Sunseed Organics in Cullompton

Much of the organic fruit and vegetables sold in the UK are imported, particularly from the EU. The recent decline of Sterling against the Euro has made imported goods from EU countries more expensive relative to home produced goods benefiting UK producers. The full effect of this change has yet to be seen but, if sustained, could lead to a renaissance for the UK fruit and vegetable producers, both conventional and organic.

The Government is committed to reducing greenhouse gas emissions by 80% by 2050 ^{ref 3}. Organic farming has lower greenhouse gas emissions than conventional farming. This is due to its non use of fossil fuel based fertilisers, its lower emissions of nitrous oxide and its low dependence on pesticides, which are often energy intensive in their manufacture. In addition the Soil Associations report 'Soil Carbon and Organic Farming' concludes that organic production sequesters carbon by increasing soil organic matter when compared to conventional agriculture and if adopted by all UK farms would offset 3.2 million tonnes of carbon each year. For these reasons it is likely that there will be greater government support for organic farming in future due to the growing recognition of these facts. As public awareness of the need to reduce greenhouse gas emissions increases, and the part that 'buying organic' can play in this, it is likely that demand from consumers will increase.

The proposed project will be exceptionally low in its consumption of energy and other inputs when compared to other glasshouse operations whether organic or conventional. What little energy is consumed will all be from on-site renewable sources. As such the business will particularly stand to benefit from the government commitment to reduce emissions. This stands at 6% for the agricultural sector by 2020,^{ref 3.}

The growing scarcity of oil and possible measures to reduce fossil fuel use by taxation are likely to increase the cost of energy in the future. This will increase the cost of imported goods due to the energy used in transport and will reduce the costs of organic producers as compared to conventional producers. This will particularly benefit ventures such as that proposed with its low energy use, non use of fossil fuels and local sales outlets.

Globally, demand for food is increasing due to generally increasing affluence and rising population. At the same time agricultural production is under increasing pressure due to soil degradation, increasingly erratic weather (because of climate change) and the pressure to reduce energy intensive inputs for cost and environmental reasons. All this points to increasing food costs and so will generally improve the financial position of agricultural businesses, including the proposed, due to higher farm gate prices.

Experience

I have been growing and selling organic fruit and vegetables for over 15 years. I currently have a small organic market garden which I have worked for the last ten years. The garden has two 54 feet long by 18 feet wide poly tunnels, an area of outdoor vegetables and fruit trees, mostly apples.

I sell through local outlets such as farmers markets, wholesale to Somerset Local Food Direct as well as to other growers. I have operated a small veg box scheme to the local village for the last two years.

I have a certificate in Organic Horticulture from Lackham Agricultural College in Wiltshire.

My background is in Science and Engineering and I worked for several years as an Electronics Engineer. I have a degree in Electronic Systems Engineering.

I feel that the above furnishes me with the skills and experience necessary to establish and operate a technically complex business of the type described.

Site, Design and Location

The site lies immediately to the northeast of Barton St David and some 2 Km due south of the village of Baltonsborough. The site is presently accessed off Double Gates Drove and is located on the side of a shallow valley to the south of the river Brue. The landscape context is farmland defined by field boundaries made up of broadleaf trees and hedgerows. On the level ground on either side of the river the

fields are marked by hedgerows frequently punctuated by mature standard trees with areas of orchards and small woodlands.

The reasons why the site provided by the Plotgate Venture was chosen for the glasshouse are:

- i) the site is on the outskirts of a village, close to other employment land;
- ii) the glasshouse can be positioned with little or no visual impact to surrounding residents or on the local landscape;
- iii) it has road and track access which requires little improvement.
- iv) it provides a sufficient quantity of good quality ,flat agricultural land;
- v) it is close to local markets in and around Glastonbury;
- vi) it is well sited for local sources of soil fertility such as the Dimmer Landfill site;
- vii) there are no other similar enterprises in the local area;
- viii) the site has a mains water connection;
- ix) the practical and social support of other members of the Plotgate Venture should the proposed co-housing project on Field B go ahead.

Furthermore the position of the glasshouse in the south west corner of Plot A was chosen because:

- i) the mature hedges provide an effective wind break to the south and east of the glasshouse as well as visual screening (the hedges will be allowed to increase in height to about 15 feet);
- ii) the glasshouse will receive good light all through the year;
- iii) it is located on the flatter part of the field so minimizing the earth works needed to level the site;
- iv) it is close to the track access in the SW corner of Plot A.

The Packing Shed is sited to the south of the glasshouse close to the southern most edge of Plot A. Its proximity to the glasshouse is to minimise the distance that consumables and produce, moving between the two, have to travel while far enough away as to not cast shade on the glasshouse in the winter.

The Cold Store, Wood Shed and Composting Area are clustered around the packing shed for ergonomic and visual impact reasons.

An area of hard standing is provided just inside the entrance to the SW corner of Plot A to allow for vehicle turning and parking.

The site of the wind generator to the north of the glasshouse provides a reasonably windy position whilst keeping to a minimum its visual impact and the electrical transmission distance.

The proposed dwelling will be a modest mobile home (See Layout Plan) until such time as a permanent dwelling is justified. The dimensions of the mobile home will be approximately 30 feet (9m) by 10 feet (3m) with a flat roof.

The location of the dwelling to the west of the glasshouse is for the following reasons:

- i) close proximity to the glasshouse and other frequently visited functional units of the holding;
- ii) view of the entrance way into the south west corner of Plot A to monitor arrival of deliveries, visitors etc and for security reasons;
- iii) visually screened;
- iv) protected from westerly winds whilst having good light;
- v) space to develop a small garden area.

The site of the dwelling, glasshouse and associated infrastructure is bounded on all but one side by mature hedges of approximately 3m (10 feet) in height. There is a gap in the eastern hedge of 90m allowing views across to the eastern side of Field A and beyond. All the hedges will be allowed to thicken and increase in height. An area of coppice and standard trees will be planted along the eastern edge of Field A to mitigate views from the general landscape to the east.

The dwelling will not be visible from any view point been screened by the glasshouse and mature hedges.

For a detailed assessment of the visual impact of the proposed development see Visual Impact Assessment in the related Glasshouse planning application.

Need for a Horticultural Workers Dwelling

A dwelling is required on site for the following reasons:

- i) Long and sometimes unsociable hours with work often needing to start early in the morning and sometimes until late in the evening. The proximity of the dwelling to the glasshouse will remove the need for frequent, time wasting commuting with the financial cost, energy consumption and traffic generation that this would entail.
- ii) Work will take place on site seven days a week as some vegetables need regular attention and/or harvesting.
- iii) It will often be necessary to check the correct operation of automatic systems at all hours of the day and night. Most of the systems will be designed and built by me and will often be experimental in nature. This increases the risk of breakdown or malfunction when compared to turn-key systems. Critical systems are irrigation, heating, electrical power and ventilation.
- iv) It will occasionally be necessary to light and tend wood fired heaters on frosty nights or if temperatures are too low for tender crops such as cucumbers.

- v) The dwelling will serve as an office so removing the need to duplicate comfortable heated space and allowing an integrated live/work situation with its attendant efficiency and social benefits.
- vi) The business will be environmentally cutting edge. Labour practices that minimise harm to the environment, use of recycled or low impact materials, and installing green infrastructure often cost more money and/or increase labour overheads when compared to conventional approaches. In order that the business is viable and able to compete with other operations that are not so environmentally constrained it will be necessary to keep costs to a minimum. An on-site dwelling will reduce the living costs of the resident so allowing them to draw a lower income from the business and hence reduce its costs.
- vii) Accommodation currently available in the village of Barton St. David or the surrounding villages, whether rented or bought, is not affordable to someone on agricultural wages. As such an on-site dwelling is required.
- viii) The glasshouse was removed from the site of the old Lopenhead Nurseries, South Petherton. Several residences were built there for workers at the nursery presumably because it was judged that there was a need for employees to be constantly on site.
- ix) Although not normally considered a reason in its self for giving residential planning permission the issue of security is a real concern given the open nature of the site and the presence of much valuable and vulnerable property. It would be difficult, expensive and an eye sore to security fence the site or otherwise protect it from would be thieves and vandals. An on-site presence would help in this regard.

Conclusion

The glasshouse business will have an exceptionally low environmental impact with it's:

- i) widespread use of recycled, reclaimed or second hand building materials;
- ii) use of low embodied energy building materials wherever possible;
- iii) new building wood to be to FSC approved or from other sustainable sources such as Tinkers Bubble in Somerset.

In operation there will be no net CO₂ emissions except those that are embodied in imported horticultural sundries, packaging etc. There will be minimal use of plastics, these often being reused multiple times or substituted with biodegradable materials e.g. natural fibre plant support strings. Packaging will be returnable where practical. The project will contribute to the local economy and provide employment.

As such the project represents the latest in green thinking, addressing key local and national government development goals. It will provide data on alternative production

methods and has a strong educational value.

The financial forecast suggests that the business will be viable due to its low operating costs and good demand for its premium produce.

The need for the full time presence of a horticultural worker has been shown and as such it is hoped that permission for a dwelling on site will be granted (See Appendix A. Agricultural Appraisal).

References

1. Soil Association report Soil Carbon and Organic Farming
2. Soil Association Organic Market Report 2009
3. Government White Paper 'Low Carbon Transition Plan 15th July 2009

4. PLANNING GUIDANCE AND DEVELOPMENT PLAN POLICIES

The planning permission with regards to field A. western plot is being sought as an agricultural workers dwelling, therefore the advice given under Annex A. of PPS 7 is most relevant. This section addresses how this application supports national guidance promoting sustainable development. How it meets the functional needs test, the financial test and other requirements outlined in Annex A is evidenced in the Business Plan (section 3.) and the Agricultural Appraisal (Appendix A).

It is worth noting that the Government will be introducing a "presumption in favour of sustainable development" probably by the end of the year.

RELEVANT PLANNING GUIDANCE AND POLICY REGARDING SUSTAINABILITY

PPS1

Paragraph 4 of PPS1 states:

The Government set out four aims for sustainable development in its 1999 strategy: These are:

- *social progress which recognizes the need of everyone;*
- *effective protection of the environment;*
- *the prudent use of natural resources;*
- *the maintenance of high and stable levels of economic growth.*

These aims should be pursued in an integrated way through a sustainable innovative and productive economy, that delivers high levels of employment and a just society that promotes social inclusion, sustainable communities and personal well-being, in ways that protect and enhance the physical environment and optimize resource and energy use.

This application fulfils all the aims set out above:

- *social progress recognizing the needs of everyone; social inclusion* — Plotgate is specifically designed to provide for people who find themselves excluded from the rural economy by high prices for market housing and for small areas of agricultural land;

- *effective protection of the environment; enhances the physical environment:* Western Holding Field A. will be farmed organically; there will be wildlife areas and tree-planting; the biodiversity of these fields, currently ryegrass and clover leys, will be increased enormously;

- *prudent use of natural resources; optimizes resource and energy use:* the development will attain extremely low carbon emissions and ecological footprint; (see section 5. Ecological and Carbon Footprint);

- *economic growth; productive; high levels of employment:* the project provides agricultural employment; the income generated from this land will be more than could have been obtained when it constituted a small part of a single dairy farm.

In respect of the means to achieve these aims outlined in the last sentence of PPS1(4) we also maintain that Plotgate is:

- *well integrated:* it provides living space, food, and energy for different sections of the population, within the context of a rural community;

- *innovative:* this is an ambitious and experimental project, putting into practice the latest in green thinking and based on my extensive knowledge and experience in these areas;

- *just:* the project provides access to a rural lifestyle and accommodation for people who otherwise might not be able to afford it.

DRAFT REGIONAL SPATIAL STRATEGY

Paragraph 1.6.2 of the *Draft Regional Spatial Strategy for the South West Incorporating the Secretary of State’s Changes (RSS)* states, in an emphatic font:

“The South West’s ecological footprint is unsustainable as it stands. If everyone on the planet consumed such a quantity of natural resources and energy as an average South West resident, three planets would be needed to support life on Earth. Consequently, a shift is needed towards ‘one planet’, lower consumption, with lifestyles which are more resource efficient. This should include a move towards locally produced, replaceable natural resources, more efficient usage of energy, better waste re-use/recycling, and more efficient use of scarce natural resources such as minerals.”

Paragraph 1.6.7 continues:

“The need to stabilise and then reduce the region’s ecological footprint in the light of continued economic growth and lifestyle choices requires active promotion of efficient use of resources by business and individuals, adopting a low carbon approach. Regional action alone is unlikely to be sufficient and will require a step change in the attitude of individuals to the environmental impacts of their consumption choices in terms of the goods and services purchased and the consequences of unlimited, relatively cheap travel.”

The Western Holding proposal is an “*active promotion*” of this approach, and the person it caters for has taken a “*step change in attitude.*”

The RSS Policy SD1 is as follows:

The Ecological Footprint

The region's Ecological Footprint will be stabilised and then reduced by:

- *Ensuring that development respects environmental limits*
- *Requiring the wise use of natural resources and reducing the consumption of key resources such as energy, water and minerals*
- *Building a sustainable, low carbon and low resource consuming economy which can be secured within environmental limits to bring prosperity and well-being to all parts of the region*
- *Requiring sustainable construction and design as the norm in all future development and when opportunities arise, improving the region's existing building stock in line with current best practice*
- *Minimising the need to travel by better alignment of jobs, homes and services, reducing the reliance on the private car by improved public transport and effective planning of future development, and a strong demand management regime applied in the region's main centres in particular*
- *Requiring a shift towards the more sustainable modes of transport*
- *Meeting national and regional targets relating to renewable energy, resource consumption/extraction and waste production/recycling*

The details supplied elsewhere in this planning application shows that the Western Holding proposal contributes towards all these objectives. It is a small scale development, which will bring life and economic activity to a rural village.

For information about the holdings ecological foot print, see section 5.

STRUCTURE PLAN POLICY STR1

The RSS Policy SD 1, if adopted will replace a parallel policy on sustainable development in the Somerset Structure Plan' Review. Policy STR1 lays down some guidelines for sustainable development. Again, details supplied elsewhere in this document and its appendices show that the Plotgate proposal contributes towards all these objectives (except the penultimate one, which is not relevant since there are no previously used buildings available).

SUSTAINABLE DEVELOPMENT

Development in Somerset and the Exmoor National Park should:

- *be of high quality, good design and reflect local distinctiveness;*
- *develop a pattern of land use and transport which minimises the length of journeys and the need to travel and maximises the potential for the use of public transport, cycling and walking;*
- *minimise the use of non renewable resources;*
- *conserve biodiversity and environmental assets, particularly nationally and internationally designated areas;*
- *ensure access to housing, employment and services;*
- *give priority to the continued use of previously developed land and buildings;*
- *enable access for people with disabilities*

Conclusion: the Western Holding proposal will meet outstandingly high levels of sustainability, and a low ecological footprint, as defined in PPS1, the draft RSS and the Somerset Structure Plan.

CARBON EMISSIONS: CLIMATE CHANGE PPS

The introductory section of the Climate Change PPS, an annex to PPS1, can be summarized in its own words as follows:

3. The government believes that climate change is the greatest long-term challenge facing the world today. Addressing climate change is therefore the Government's principal concern for sustainable development . . .

6. There is therefore an urgent need for action on climate change . . .

7. The Planning White Paper has emphasised the fundamental importance of planning in delivering sustainable development in a changing global context . . . Used positively it has a key role in helping to tackle climate change. Used positively, it has a pivotal and significant role in helping to:

- secure enduring progress against the UK's emissions targets . . .*
- deliver the Government's ambition of zero carbon development;*
- shape sustainable communities that are resilient to and appropriate for the climate change now accepted as inevitable;*
- create an attractive environment for innovation and for the private sector to bring forward investment, including in renewable and low carbon technologies and supporting infrastructure; and*
- capture local enthusiasm and give local communities real opportunities to influence and take action on climate change.*

The Plotgate development of the Western Holding is designed to meet all these objectives through the following:

- (i) All electricity generation will be on-site generated renewable. Heating will be achieved through high levels of insulation, passive solar heating and the use of biomass, with no direct use of fossil fuels (See section 5);
- (ii) The travel plan (See section 8);
- (iii) Waste management (See section 6);
- (iv) Low embodied energy of building and infrastructure (See section 4).

Paragraph 18 of the Climate Change PPS states:

In developing their core strategy, planning authorities should provide a framework that promotes and encourages renewable and low carbon energy generation. Policies should be designed to promote and not restrict renewable and low carbon energy and supporting infrastructure.

Paragraph 30 states:

Planning authorities, developers and other partners in the provision of new development should engage constructively and imaginatively to encourage the delivery of sustainable buildings. Accordingly, planning policies should support innovation and investment in sustainable buildings and should not, unless there are exceptional reasons, deter novel or cutting edge developments.

It is submitted that the proposed development of the Western Holding of Field A. is a novel and cutting edge sustainable development, and therefore should not be deterred unless there are “exceptional reasons” for doing so.

The advice in the Climate Change PPS is already reflected in Policy SD2 of the RSS, and if there is any change to the final draft, we can expect it to move further towards the advice given in the PPS. We can therefore expect policies designed to combat global warming and supporting micro-generation to be inserted into the Local Development Framework.

Conclusion: Plotgate, and the proposal for the Western Holding, is an innovative, cutting edge development which meets outstandingly high levels of carbon emission reduction, by comparison with conventional developments, and so conforms to current and emerging policies on carbon emissions.

ENERGY AND UTILITIES

Local Plan Policy EU1

Proposals for renewable energy projects designed to generate or capture energy from naturally sustainable sources will be permitted provided that there will not be any unacceptable impact on landscape character, nature conservation value or amenity.

Policy EU2

When considering proposals for wind turbines or wind farms, including any ancillary associated development, regard will be had to the following:

- 1. The impact on landscape character, nature conservation value or amenity;*
- 2. The development will not generate noise levels detrimental to the amenity of properties in the surrounding area;*
- 3. The development will not lead to any safety risk or nuisance to the public arising from shadow flicker or radio interference.*

RSS policies RE1 to RE5 also support renewable energy and provide targets for the region.

All electricity generation will be small scale micro generation, with minimal noise, no danger or nuisance, and minimal impact on landscape, nature conservation and amenity. Domestic electricity will be drawn from the glasshouse electricity supply (see Visual Impact Assessment, Glasshouse application).

Policy EU3

Planning permission will be granted for development proposals employing non-mains sewerage arrangements provided that the proposed sewerage and disposal arrangements would not lead to a significant environmental, public health or amenity problem in the area.

Policy EU4

Development will be permitted only where:

- 1. Existing or proposed water supplies are sufficient and wholesome, and do not adversely affect the water environment;*
- 2. Adequate drainage, sewerage and sewage treatment facilities are available or where suitable arrangements are made for their provision;*

3. In sewered areas, foul discharge from new development is connected to mains foul sewerage unless it is demonstrated that such a connection is not feasible;

The use of more sustainable drainage systems, designed to control surface water as near to its source as possible, will be promoted. Where the use of such a system is inappropriate, separate surface water sewers with outfall to a watercourse may be permitted.

Section 7 describes how the proposal conforms to this policy. In relation to Policy EU4, there will be no foul discharge since waste will be processed on site through reedbeds and composting.

Conclusion. The proposal is autonomous in respect of energy, water and sanitation, and so places no burden on the community and meets high standards of sustainable management. Further discussion on planning policy is given in the Agricultural Appraisal Appendix A.

5. ECOLOGICAL AND CARBON FOOTPRINT

Ecological Footprinting (EF) is a system of analysis that gauges our impact on the planet's biological systems and measures human consumption of natural resources in comparison to Earth's ecological capacity to regenerate them. Individually, each of us has a "footprint" and collectively, EFs can be used to assess the impact of lifestyles on the Earth's resources by considering different aspects of our daily lives. The calculation of the footprint includes most of the things we do, from the food we eat, the house we live in, the means of transport we use, and other consumption habits we practice every day. It is a very complex calculation that answers a straightforward question: How much of the earth's resources do our lifestyles require.

The **Carbon Footprint**, which measures greenhouse gas emissions, represents about half of humanity's overall Ecological Footprint.

The size of individual and collective EFs is usually expressed in terms of the number of planets required to support current lifestyles. EF analysis assesses the biologically productive land and marine area required to produce the resources we consume, and absorb the corresponding waste, using prevailing technology. Footprint values at the end of a survey are categorised for Carbon, Food, Housing, and Goods & Services, as well as the total footprint number of Earths required to sustain the world's population at that level of consumption.

Another measure of Ecological Footprint is to determine the area of biologically productive land that is required to maintain an individual's lifestyle, normalised into a measure of land called a Global Hectare (gha). Recent studies indicate the global average per capita EF is 2.1 gha, whilst for the USA it is 9.4gha, for UK it is 5.45gha and for China its 2.5gha.

One Planet Development

The DCLG has stated that "in the UK each of us needs to reduce our carbon emissions by 80-90% and our ecological footprint by two-thirds if we are to be sustainable." (Notes and Recommendations from Section 1 of Eco Town Challenge, DCLG, June 2008). This is echoed in the draft SW RSS. The Welsh Assembly has

issued a document called One Planet Wales, which sets out how Wales will tackle the challenge of attaining a one planet footprint.

The new TAN6 (the Welsh equivalent of PPS7) advises local authorities to implement a One Planet Development policy that attains an ecological footprint of 1.88 ha per person. This policy does not apply in England, but it is helpful in providing a model for similar developments in England.

Field A. Western Holding Ecological Footprint

Plotgate aims to attain the status of a One Planet Development, though this may take some time as the low impact systems are completed and start having full effect. The main ways in which it will do so will be through a low impact development which:

- (i) Does not permit fossil fuel powered heating on site;
- (ii) Has a green travel plan, including strict limit on cars and the number of trips;
- (iii) Has a source of on site renewable energy (solar and wind);
- (iv) Provides a significant amount of food on site;
- (v) Has autonomous waste disposal and water provision;
- (vi) Has other mechanisms for reducing energy expenditure (e.g. communal resources, washing line area).

In many areas the Western Holding proposal goes further than the above. All heat and power for the glasshouse, associated buildings and the dwelling will be provided by on-site renewables. The delivery vehicle and tractor will be run on bio-diesel made from recycled vegetable oil (this may be grown on site in future years).

Innovative energy saving techniques will be used through out the holding leading to very low net energy consumption for a development of this type.

Low environmental impact or recycled materials will be used wherever possible in the construction of the glasshouse, associated infrastructure and dwelling. The glasshouse its self was reclaimed from another site.

Water for irrigation domestic and other uses, for which potable water is not required, will be provided by rain water harvesting from the glasshouse and Packing Shed roof. This will be stored in a reservoir.

Organic production using an approach known as 'no dig' will eliminate chemical inputs and minimize nutrient run off. The no dig approach will lead to a rise in the level of soil carbon so helping to mitigate climate change.

A policy of using only recyclable or returnable packaging where ever possible will be employed. Use of other disposables will be minimized the most environmentally sound option been chosen when ever practicable.

The glasshouse project as a whole will contribute to the lowering of the wider populations ecological footprint through its production of food with a very low environmental impact.

My own lifestyle is one of frugality coupled with a high level of environmental awareness. This, with the environment provided by Plotgate, will lead to my own ecological footprint being exceptionally small.

6. ELECTRICITY AND HEAT PROVISION

There will be no fossil fuel powered electricity at Plotgate, and the venture will be completely off grid to ensure low consumption, and very low carbon emissions.

Western Holding Electricity

Electrical power for the holding will be provided by a 1kW PV array mounted on the Packing Shed roof and a small wind generator located near the glasshouse. The electricity will be stored in lead acid accumulators. There will be a small back-up generator for emergency use only. This will be fuelled on bio-diesel.

The dwelling will draw all its electrical power from the above system, the amount required been very small (in the region of 0.2kWhrs per day).

Heating

The glasshouse will employ a novel heat storage system. This will use the ground within the glasshouse as a heat store by passing warm humid air, produced by passive heating during the day, around a network of underground pipes. This will then be recovered during the night if required. Extra heat will be provided by wood burning heaters when necessary. Wood for these will be produced on site by 0.6ha of short rotation willow coppice. Also the glasshouse will be fitted with thermal screens which will be deployed at night.

The packing shed will be fitted with a small wood burning heater.

The dwelling will be heated with a wood burning stove that will also provide heat for cooking.

Refrigeration

A cold store will be required to keep produce fresh. This will consist of a heavily insulated container (made from the body of a scrapped freezer lorry) which will be automatically ventilated during the night when temperatures are relatively low. There will be a means of electrically cooling the cold store on the odd occasions when night time temperatures are high. As a result the power consumption will be a small fraction of that of conventional cold stores.

The dwelling will not have a fridge.

7. WATER AND WASTE

Water Capture

The Glasshouse and Packing Shed roofs will be used to collect rain water for irrigation and for other uses including domestic use that do not requiring potable water.

There is mains water on site and this will be available for drinking water, vegetable washing etc. and as a reserve. However it is anticipated that the great majority of water used will be supplied by the rain water harvesting system.

Plotgate will work with Biologic Design on sanitation and water harvesting to design systems for the development compatible with existing legislation.

Sewage and Water Waste Management

The low impact methods of waste management that have evolved over the last three to four decades consist of compost toilets and reed beds. Both systems have been widely applied and accepted by Environmental Health authorities.

The Holding will have a compost toilet for human waste. The compost will be applied to non-food growing areas of the land after the requisite period of decomposition. A small reed bed system will clean domestic and business grey water.

Rain water runoff from roofs including the glasshouse will be collected for irrigation and other non drinking water uses. All tracks and hard standing will be permeable to allow passage of rain water.

Other Waste

Waste policy on site will conform with the Government's waste hierarchy:

(i) Reduction, (ii) Reuse, (iii) Recycle/ compost (iv) Incinerate for heat and power (v) Landfill. (<http://www.defra.gov.uk/environment/waste/topics/documents/waste-hierarchy.pdf>)

All waste material will be sorted, with a view to reuse on site. Green materials will be fed to animals or composted. Food will be composted. Paper and cardboard will be burnt for fuel, or composted, or otherwise reused or recycled. Wood will be burnt for fuel. Ash will go on the land.

8. TRAVEL PLAN

Policy Context

One of the main objectives of national planning policy is to “*reduce the need to travel, especially by car.*” (PPG7 Para 4) while the draft RSS has as an aim “*reducing the need to travel in the South West.*”(RSS for SW, 5.1.2) A main strategic aim of county and local planning policy is “*to minimize the need to travel by locating new services, employment opportunities and residential development in existing centres*”.. (South Somerset Local Plan, 7.6). The overall aim of The Structure Plan's Policy 39 “*is to reduce the need for journeys and, where these are necessary, to encourage alternatives to the private car and lorry where possible. The management of demand will form an increasingly important approach to the consideration of development proposals.*”

PPG13 also requires local authorities to “*seek to reduce car dependence . . . by improving linkages by public transport between housing, jobs, local services and local amenity , and by planning for mixed use.*” Similarly the Structure Plan states: “*Development that provides for a mix of uses may reduce the need for journeys. In*

planning for rural settlements provision of some development in villages and rural centres, which have a good range of facilities, will assist in reducing demand for travel.”

Plotgate Objectives

Plotgate’s main objectives are:

(i) to provide, for people who seek access to land and a sustainable rural way of life, a congenial living and working environment which significantly reduces the need to travel and to use a car;

(ii) to set an example for low car-use rural development; and to begin the process of building up a constituency of rural residents who are not dependent upon the motor car and who over time will provide the critical mass necessary to make rural public transport viable.

The target is to reduce the number of trips per household by three quarters, from the rural average of 8 trips per day to around 2.5 trips per day. This will be achieved through a travel plan which involves the following measures (a) mixed use; (b) car share scheme; (c) encouraging and supporting bicycle use; (d) encouraging use of public transport (for more detail see Plotgate Venture Co-housing Travel Plan).

Filed A. Western Holding, Travel

Vehicle movements relating to the glasshouse business

It is anticipated that I will need to do four delivery runs per week. Three being of a local nature, delivering to local businesses and for the street market and one been to a regional wholesaler such as Better Food Co just south of Bristol.

Other business requirements to go of site, such as going to the bank, will mostly be met in an opportune way whilst on regular delivery journeys.

Assessment of vehicle type needed

The expected volumes of produce from the glasshouse (See Appendix3?) are as follows;

2013	23.56 m ³
2014	34.24 m ³
2015	37.86 m ³
2016	59.73 m ³
2017	62.64 m ³

For 2017 the average weekly volume of produce is $62.64/54 = 1.16\text{m}^3/\text{week}$. This will vary through the year been higher in summer and lower in the winter. I estimate that the peak volume per week will be around 2.5m^3 . A very small van, such as the Ford Transit Connect SWB, has a load capacity of 2.8m^3 . It is therefore concluded that a vehicle of this type or similar would be adequate for the expected volumes of produce. If it should prove to be too small on occasions, such as for occasional large deliveries, then a trailer will be used. This is preferable to having a larger van as overall it is more fuel efficient.

There will be occasional deliveries of horticultural sundries to the site, such as potting compost and packaging materials. These are expected to occur approximately once per fortnight. There will also be deliveries of fertility building materials, such as farmyard manure. These will occur approximately 8 times per year in the first 2 years declining to half of this in subsequent years as the desired level of soil fertility is achieved.

All delivery vehicles will be limited to a maximum gross weight of 7.5 tonnes.

It is expected that the business will provide some employment other than for myself. This is put at two regular part-time employees who will need to travel to the site.

It is hoped that the Plotgate Venture co-housing proposed for field B will go ahead and if so it is probable that the part-time workers will be drawn from this community. If so then there will be no vehicle movements associated with this as they will travel by foot.

If the co-housing element of the Plotgate Venture does not proceed then the part-time employees will come from Barton St David or beyond. It is assumed that one will arrive by car and the other by bicycle or foot.

It is expect that there will be visitors to the site reflecting its educational value as an example of sustainable development and production. The visitors will come as individuals or in small groups. No coaches will be allowed to visit the site, the road access and parking not been adequate for this. It is estimated that visits will be in the order of one vehicle per week.

Vehicle movements associated with the dwelling

The need for a dwelling on site will generate some traffic. I am personally committed to the minimal use of motorized transport and will use my bicycle (which is electrically assisted) or the bus for local journeys when appropriate. In addition, much of my domestic needs for vehicle use, such as shopping in town, will be combined with my business journeys and as such my use of a vehicle for dedicated domestic journeys will be low when compared to the average for the rural population. I will usually use the train for long journeys using the local bus to get to and from the train station.

I estimate my domestic vehicle use to be approximately 3 journeys per week.

Should the wider Plotgate proposal go ahead the lease agreement will require that myself and any future resident, minimises their vehicle use.

I will also have some personal visitors. This I estimate at two vehicles per week.

Summary

The estimated average vehicle movements per week for each category, once the business is fully established, are as follows;

Business	4.58
Domestic	5
Educational	1
Total	<u>10.58</u>

In addition to the above there will also be some vehicle movements associated with services and utilities.

9. ACCESS AND HIGHWAY ISSUES

There is existing access to the south western corner of Field A from Double Gates Drove, which connects to Mill Lane and surrounding roads. It is anticipated that this will be the main access to Field A. Western Holding even if an alternative route becomes available through Fields B and C. to Mill Lane.(See Plotgate application for Field B, co-housing),), as this is the most practical route and does not depend on the Field B planning application.

Double Gates Drove, between the points (b) and (d) (see Access Plan Western Holding,), is a rough farm track which has been previously improved with stone and rubble. It has ditches and hedges on either side for most of its length with occasional gateways into adjacent fields. Currently the track is passable by most vehicles but is liable to be damaged by the passing of lorries or heavy farm vehicles if this occurs when the ground is wet. It is intended to reinforce the track between the points (b) and (d) by filling the presently existing ruts with hardcore (probably crushed concrete from Podimore Recycling). The centre of the track will not be built up, retaining the grassy centre strip. The exception to this will be at point (c) to allow vehicles to turn and at (e) to enter Field A.

No heavy vehicles associated with the proposed development will use the track if the ground is saturated (and thereby more likely to result in the collapse of the adjacent ditches). All necessary repairs and maintenance to the track will be undertaken by myself unless damage is caused by traffic not related to the proposed development.

Within Field A there will be an area of hard standing of sufficient size to allow vehicles to turn around so avoiding the possibility of vehicles having to reverse along the track.

In order to facilitate the turning of vehicles into Field A. it is intended to widen the track opposite the gate. This will require that a 6m section of ditch is filled in as indicated by the red line on the Access Plan (e). The ditch water will pass through the

infill via an appropriately sized pipe. The permission of the owner of the field to the west of Field A for these works has been sort. In addition the gateway from Double Gates Drove into Field A will need to be widened from its current 12 feet (3.7m) to 16 feet (4.9m), a double gate will be installed.

Some pothole filling will be required between points (a) and (b).

Tracks/ hard standing

An area of hard standing is required just inside the entrance from Double Gates Drove to Field A. This is to allow for vehicle turning and parking, in association with both the holding and the dwelling. A track will then be made from this area to the south side of the packing shed to allow deliveries and loading of produce. The track will then continue to provide access to the Eastern Holding and Field B. All tracks will be made from recycled crushed concrete possibly finished with recycled road surface known as 'road planings'. The amount of material used will be the minimum required for the expected maximum load.

All other tracks and pathways within the site will be reinforced, if necessary, with woodchip.

10. DISABILITY ACCESS STATEMENT

Objective

Plotgate is designed to provide a rural living environment easily accessible to disabled people. The fact that it is flat makes this quite possible.

Tracks and Paths

The development will ensure that the design of service tracks and pathways will be able to accommodate access for all as far as is practically possible.

Dwelling and Buildings

All structures, except the Cold Store, and most of the Western Holding site will be accessible to wheel chairs.

11. HOW THE TENURE STRUCTURE WILL SECURE AFFORDABLE HOUSING IN PERPETUITY.

The aim of the Plotgate community land trust will be not only to develop the affordable homes required but also to make sure they remain available into the future. The Plotgate Venture exists currently as a Multi-stakeholder Co-operative under the Somerset rules and is known as the Plotgate Venture Co-operative and Community Land Trust Limited. An aim of this organisation is to act as a Community Land Trust (CLT) which will own the land for charitable purposes on behalf of the Plotgate residents and other stakeholders. The land will be leased on a long term basis to Plotgate residents for the purpose of managing it.

The CLT will

(i) Lease two parcels of land on Field A as agricultural holdings. Individuals taking these smallholdings may, if successful, seek permission in due course to build homes related to the smallholdings.

(ii) Lease Field B for a co-housing project involving:

(a) eight plots for self build sustainable homes;

(b) a community building and other community infrastructure and services, to be constructed and managed by the CLT;

(c) lease the remaining 5.78 acres of agricultural land on Field B, and any surplus land on Field A, either as individual plots to residents, or to a group of residents collectively.

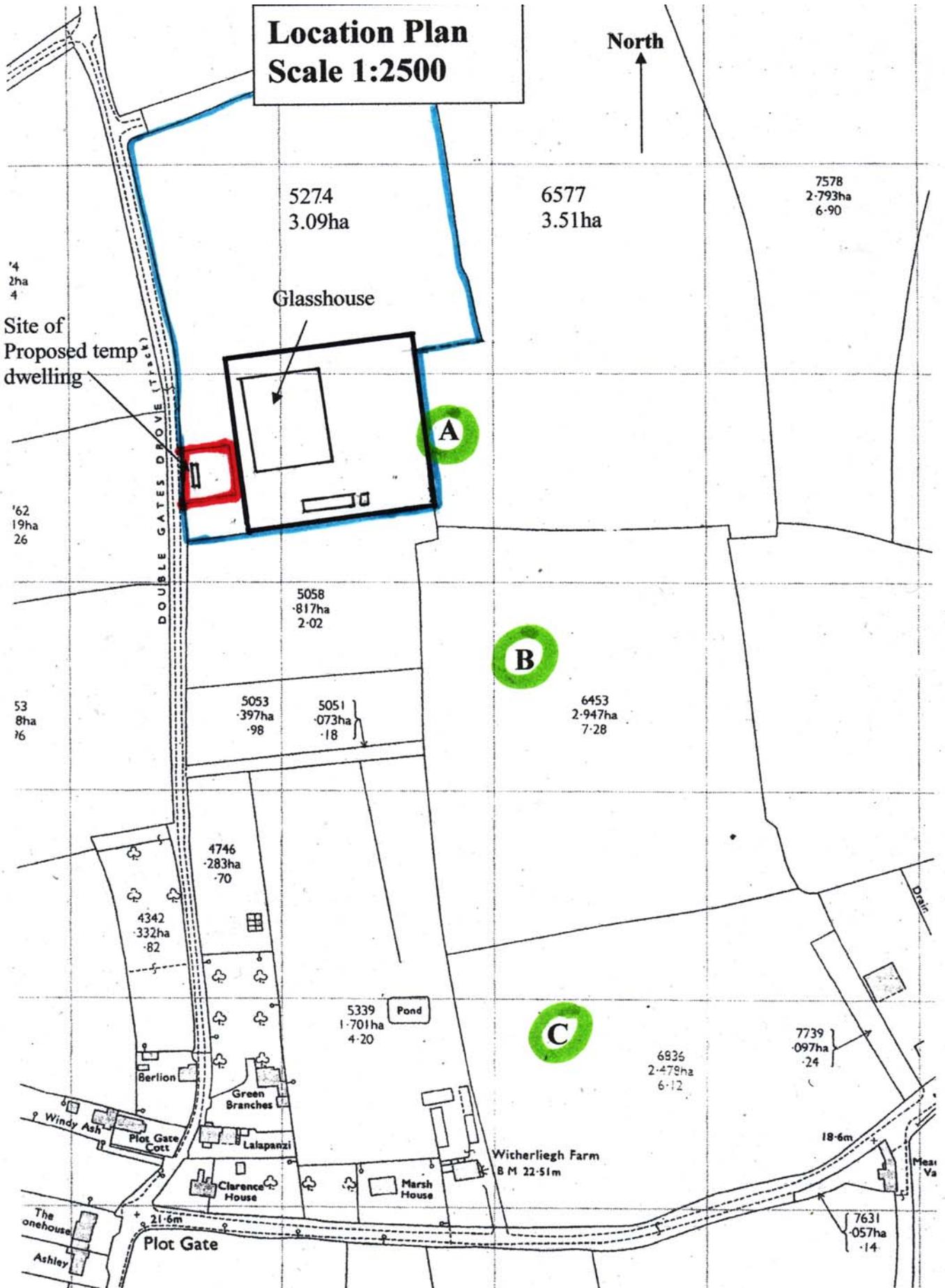
Individual residents of the 8 homes built on the serviced plots will either be tenants of the CLT with assured tenancies or else part-owners. In the latter case they will have part-ownership leases similar to a housing association shared ownership lease, but with their ownership right limited to the percentage of value they have bought. The consent of CLT would be required to buy a further share under a recent statutory instrument which specifies that housing in restricted rural areas is not subject to the Leasehold Enfranchisement Act.

Smallholdings

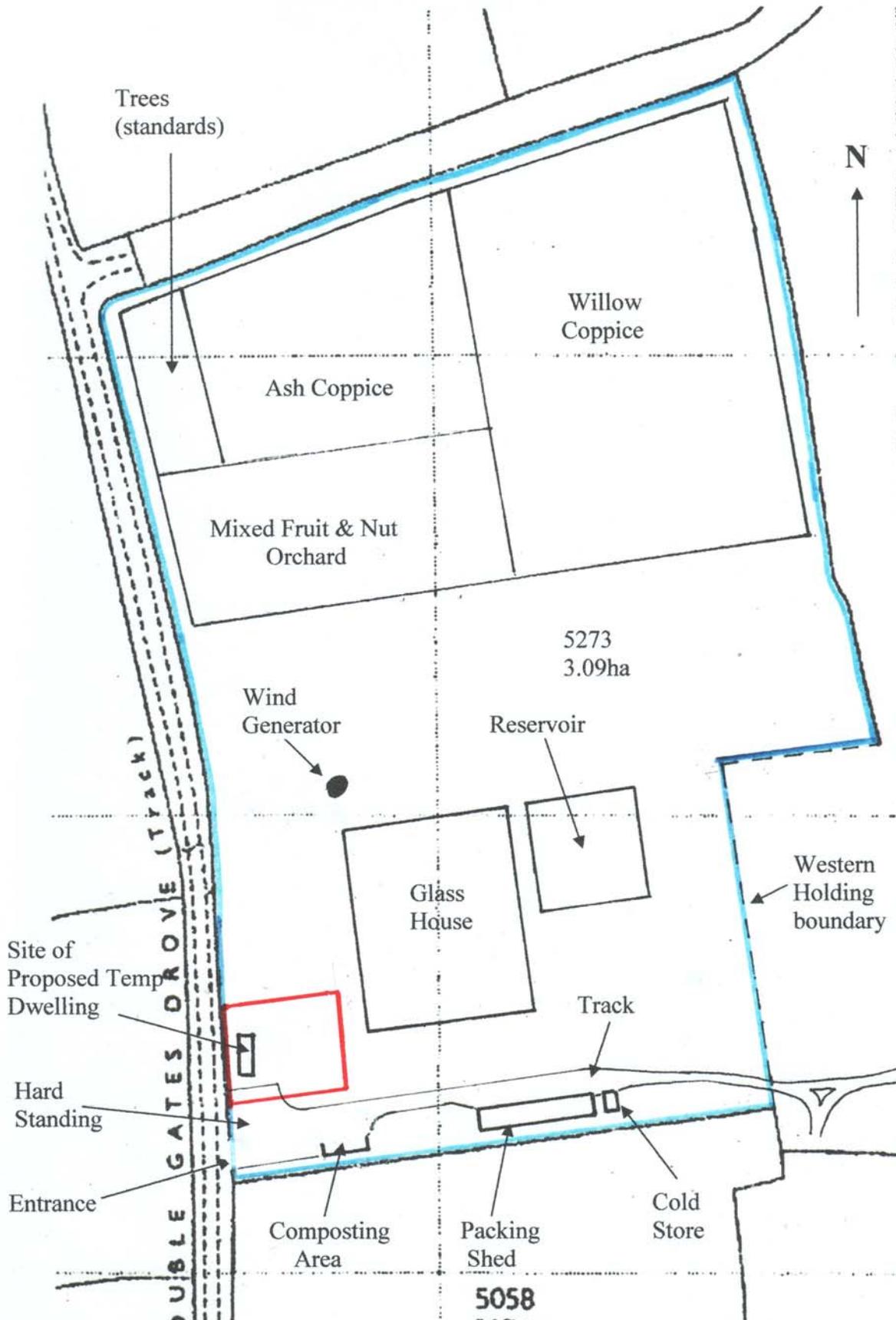
The procedure for smallholdings would be on a part-equity model. The CLT would, through the lease terms, retain part of the land value so that the smallholder would own a share represented by the cost of construction, and their original payment on the lease (index-linked to minimum wage levels or other appropriate price index). Since the value of the dwelling, agricultural buildings and improvements might be quite high, it is possible that if a smallholder relinquished their lease, subsequent occupation of smallholdings might be on a rental basis, in order to provide an affordable opportunity for new entrants (somewhat analogous to a county smallholding, which is what the land was previously used for.)

The constitution of the Plotgate Venture Co-operative and Community Land Trust and further discussion of lease models will be provided in the, as yet to be submitted, Plotgate Venture planning application for Field B co-housing.

It is important to note that the above, details of which may change, will only apply if planning permission is granted for the co-housing element of the project on Field B. Otherwise it is likely that the tenancy of Field A Western Holding will be freehold.



Layout Plan Scale 1:1250



APPENDIX A. WESTERN HOLDING AGRICULTURAL APPRAISAL

Agricultural Appraisal for Western Holding of Field A,
Plotgate, Barton St David

by Rebecca Laughton (MSc Sustainable Agriculture, Wye College, University
of London)

Contents

- 1) Introduction
- 2) Site description
- 3) Aims of Project
- 4) Location
- 5) Agricultural Worker's Dwelling
 - Planning policy
 - Evidence of intention and capability
 - Functional need
 - Financial test
 - Application of Policy HG15 of South Somerset Local Plan
- 6) Conclusion
- 7) References

Appendix A – Chichester District Council Local Plan 1999 – Policies relating to glasshouse development.

Introduction

This agricultural appraisal has been prepared to support the planning application for a 1560m² glasshouse and associated infrastructure on the South West corner of Field A. The applicant, Mr. Peter Wright, intends to establish an organic horticultural enterprise, focussing on protected cropping of salads and other vegetables, to supply local markets. The proposed business differs from similar indoor horticultural enterprises, in that all power and heat for the glasshouse will be provided by a variety of renewable sources (solar and wind generated electricity, and wood fuelled heaters fed by biomass willow produced on-site) to reduce the environmental impact and carbon emissions of the enterprise. Planning permission for an agricultural workers dwelling is also sought, since both the horticultural and energy management demands of the glasshouse will rely on frequent attention throughout a long day, and often at night.

My studies for an MSc in sustainable agriculture, combined with thirteen years of agricultural and horticultural experience have given me a detailed understanding of the way organic and sustainability focussed farming businesses operate. The two years I spent working as a research and development worker at Somerset Food Links gave me an insight into the

marketing needs of small scale food producers and highlighted the significant demand and under supply of locally produced, fresh vegetables at a time when the government is trying to promote healthy eating through the “Five a Day” campaign. I have been working part-time as an agricultural planning consultant and writer for eight years, involving both the preparation of agricultural appraisals and appearing as an expert witness at public enquiries for planning appeals. I have also written a book (published in 2008), entitled “Surviving and Thriving on the Land” about the successful establishment of small scale farms, based on original research into organic farms, market gardens and land-based communities.

Site Description

This business proposal forms part of a wider project, the Plotgate Venture, which is planned to take place on 23 acres of land at Barton St. David, Somerset to provide affordable opportunities for small scale, intensive agriculture in association with low impact eco-dwellings. It will be one of two smallholdings, and will be located in the western half of the 16.5 acre Field A, and will utilise 6.7 acres (CHP No. 36/240/0075; Grid Ref. ST 545 326). I visited the site for the proposed business in May 2009, and was shown by Mr. Wright where he intends to locate the greenhouse and other buildings, as well as the various access points to the site.

Field A is grade 3 agricultural land. The soil is relatively free-draining and calcareous with a high clay content. At present the site is grassland, sown to timothy grass and clover, sloping gently to the north. It is relatively low lying, falling on the 15m contour of the 1:50 000 ordinance survey map, with a watercourse forming the northern boundary. The greenhouse, packing shed and workers dwelling will be located in the south west corner of Field A, near to the entrance from Double Gates Drove, which is relatively flat and the highest part of the field. Although close to the village of Barton St. David, separated by only two small fields, it is visually screened to the south and west by well developed hedges. There is a more open view to the north and east, but very few houses appear to overlook the site. Adjacent to the Plotgate site are a small factory making horseshoes and a scrap yard.

I understand that this site has been chosen after several years of searching for a suitable location, and the reasons for its choice, outlined in the business plan, appear sensible. From a marketing perspective there are particular advantages, since there is a strong demand for organic vegetables in the Glastonbury area, yet few very local producers. The close proximity to the wholesaler Somerset Organic Link (3km away) is of strategic importance for the specialised crops, while direct sales to shops and cafes and via farmers markets will bring in higher prices for a wider range of produce. The existence of an active network of organisations promoting local food, such as Somerset Food Links and Somerset Community Food, is likely to be helpful to the business. In the early years, as strong local markets are developed, surplus produce may be sold wholesale in the cities of Bristol and Bath, both of which have good markets for organic produce.

The Aims of the Proposed Enterprise

The main aim of this business is the zero carbon production of organic salad vegetables to meet local demand. By relying solely on renewable energy (wind and solar powered electricity, and willow biomass heating) Mr Wright may become the first extended cropping glasshouse enterprise in the UK that does not use fossil fuel powered heating. The initiative therefore coincides with many central and local government policies aimed at increasing environmental sustainability, reducing carbon emissions and achieving a thriving local food sector.

Sustainable Development

Sustainable development is stated to be one of the guiding principles for SSDC Local Plan, in the chapter entitled “Local Plan Strategy”, where it is recommended that (Paragraph 2.16-2.18):

“In practical terms, the pursuit of sustainable development means that the effects of development on the environment must be considered not just in the short term, but over a much longer timescale, and not just in the immediate locality, but in the wider, global sense. Although development may change the environment, the overall quality and richness of the environment should be protected. Sustainable development means maintaining and enhancing the quality of human life (social, economic and environmental) while living within the carrying capacity of supporting ecosystems and resource base.”

The national planning policy documents PPS1 (Sustainable development), PPS1 (Supplement on Climate Change), PPS7 (Sustainable Development in Rural Areas) and PPS22 (Renewable Energy) also relate to this application. I have identified the following policies as being particularly pertinent:

- In the first section of “PPS 1: Delivering sustainable development”, entitled “The Government’s Objectives for the Planning System”, it is stated in paragraph 4 that:

The government sets out four aims for sustainable development in its 1999 strategy. These are:

- *social progress which recognises the needs of everyone*
- *effective protection of the environment*
- *the prudent use of natural resources; and,*
- *the maintenance of high and stable levels of growth and employment*

These aims should be pursued in an integrated way through a sustainable, innovative and productive economy that delivers high levels of employment, and a just society that promotes social inclusion, sustainable communities and personal well-being, in ways that protect and enhance the physical environment and optimise resource and energy use.

Very similar aims are re-iterated at the beginning of “PPS7: Sustainable Development in Rural Areas” (Key Principles 1i).

- In paragraph 19 of PPS1, it is stated that:

“...planning decisions should be based onthe potential impacts, positive as well as negative, on the environment of development proposals (whether direct, indirect, cumulative, long term or short term).”

- Paragraph 20 instructs development plan policies to take account of environmental issues such as:

“Mitigation of the effects of and adaption to climate change through the reduction of greenhouse gas emissions and the use of renewable energy...”

- Paragraph 22 of PPS1 states that:

“Development plan policies should seek to minimise the need to consume new resources over the lifetime of the development by making more efficient use or reuse of existing resources, rather than making new demands on the environment; and should seek to promote and encourage, rather than restrict, the use of renewable resources (for example by the development renewable energy). Regional and local authorities should promote.....small scale renewable and low carbon energy schemes in development.....”

- In the supplement to PPS1, Planning and Climate Change (December 2007) further support is given for renewable, decentralised and low carbon forms of energy provision. It is stated in paragraph 11 that;

“In considering planning applications before development plan documents (DPD) can be updated to reflect this PPS, planning authorities should have regard to this PPS as a material consideration which may supersede the policies in the development plan. Any refusal of planning permission on grounds of prematurity because a DPD is being prepared or is under review, but has not yet been adopted should be consistent with government policy”

- Furthermore, in paragraph 40 it recommends that:

“An applicant for planning permission to develop a proposal that will contribute to the Key Planning Objectives set out in this PPS should expect expeditious and sympathetic handling of the planning application”.

- One of the aforementioned Key Planning Objectives, listed in paragraph 9 is that local planning authorities should manage the

delivery of special strategies that;

“in providing for the homes, jobs, services and infrastructure needed by communities and in renewing and shaping the places where they live and work, secure the highest viable resource and energy efficiency and reduction in emissions.”

- Although it is not solely a renewable energy scheme, PPS22, which focuses on renewable energy relates to the Plotgate Glasshouse Proposal in two specific ways. Firstly, in three separate paragraphs (1vi, 12 and 18) it recommends that local planning authorities support and encourage small scale renewable energy schemes. Secondly, it states that:

“For biomass projects, the need to transport crops to the energy production plant does have the potential to lead to increases in traffic. LPAs should make sure that the effects of such increases are minimised by ensuring that generation plants are located in a close proximity as possible to the sources of fuel that have been identified.”

The proposed horticultural business at Plotgate has sustainability at its heart, and as such complies with many of the policies listed above. More specifically, it will meet with all four of the government’s aims for sustainable development set out in paragraph 4 of PPS1. By continuing in the County Farm tradition of offering affordable farming opportunities to landless farmers, the smallholdings at Plotgate fit with the policy of encouraging *“social progress which recognises the needs of everyone”*.

At present, there is a dramatic mismatch between the economics of farming and the current property market, which makes opportunities to meet the demand for local produce very hard to find unless very large amounts of start-up capital are available. Whilst premiums can be gained for high quality local and organic produce, it is still very difficult to generate a large enough income to service mortgage repayments or rent on a rural property, due to the fact that on average consumers tend to spend only 10% of their income on food (National Statistics, 2007). People who have made money in previous city careers have pushed up the price of rural property, whilst those who have the skills and experience to run successful agricultural businesses, derived from a lifetime of working on the land, struggle to gain access to affordable housing, small-holdings and farms due to the low returns on labour generated from land-based work. Although county farms have traditionally offered a starting point for young farmers needing to gain access to land, very few counties have a smaller scale equivalent for horticulturalists.

Mr. Wright’s plans address the issues of energy efficiency, reduction of greenhouse gas emissions and the reuse of resources. Firstly, by making use of an existing glasshouse, which would otherwise have been sold for scrap, rather than investing in new materials, Mr. Wright has already saved “embodied” energy. In today’s society, where economic efficiency and

convenience are a priority, the time and money he has invested in dismantling and storing the greenhouse represent a considerable commitment to the sustainable use of natural resources (para 22, PPS1).

Secondly, passive solar heating in conventional glasshouses, is often supplemented with gas heating, resulting in net carbon emissions and a reliance on a non-renewable resource. Mr. Wright's proposal involves a range of innovative measures aimed at maintaining a sufficient temperature inside the greenhouse at night, without relying on gas powered heating. These include the underground storage of heat produced during the day, to warm the glasshouse at night. The electric fans, which will "pump" the warm daytime air through the underground ducts, will be powered by solar panels and a small wind generator. Renewably generated electricity will also be used to deploy the thermal screening at dusk, to insulate the glasshouse against falling night time temperatures.

Any extra heat that is required, for raising the temperature above freezing during early spring, will be provided by a wood fired heater or a woodchip boiler, using short rotation willow coppice grown on site. The carbon emissions released by the wood burners will make no net contribution to atmospheric CO², as the CO² will have been absorbed from the atmosphere during the growth of the coppice wood. The carbon will then be reabsorbed by the ongoing growth of the willow coppice on the rest of the land. Such carbon recycling is different to that highlighted by conventional glasshouses, which use the CO² produced by gas heaters to enrich the internal growing environment. The release of carbon when burning of fossil fuels represents a net increase in atmospheric CO², which is not mitigated by the absorption by commercial crops, due to the short term nature of the carbon capture. While all efforts at reducing and recycling CO² are to be applauded, I believe that this proposal goes several steps further than most schemes in minimising its emissions. As such, it is the kind of "*small scale and low carbon energy scheme*" that local authorities are being instructed to promote in developments in paragraph 22 of PPS1 (para. 19).

As an organic farmer, Mr. Wright will also be complying with other objectives in PPS1 relating to the protection of groundwater from contamination, avoidance of land contamination, the conservation of wildlife and promotion of biodiversity (see para 20, PPS1). These positive attributes, alongside the "*production of a high quality product that the public wants*" (PPS7, Objective vi), using small scale renewable energy, must be weighed up against the visual impact of the greenhouse. In this context, paragraph 19 of PPS1 is relevant when it states that "*...planning decisions should be based on the potential impacts, positive as well as negative, on the environment of development proposals (whether direct, indirect, cumulative, long term or short term).*"

It appears from paragraph 11 that the climate change mitigation measures recommended in the supplement to PPS1 are to be given high priority as a material consideration, and should be applied even where local plans have not yet been updated to address climate change. One of the Key Planning

Objectives listed in paragraph 9 of the climate change supplement is that local authorities should be seeking the *“highest viable resource and energy efficiency and reduction in emissions”*. It goes on to say in paragraph 40 that *“An applicant for planning permission to develop a proposal that will contribute to the Key Planning Objectives set out in this PPS should expect expeditious and sympathetic handling of the planning application”*. It is my view that with such strong policy emphasis in favour of proposals that address climate change and resource efficiency, the positive attributes of Mr. Wright’s proposal should receive significant attention when being weighed against the visual impact of the glasshouse.

Even though this is a small scheme in relation to other renewable energy initiatives, paragraph vi of the Key Principles listed in PPS22 (Renewable Energy) makes it clear that, *“Small scale projects can provide a limited but valuable contribution to overall outputs of renewable energy and to meeting energy needs both locally and nationally. Planning authorities should not therefore reject planning applications simply because level of output is small”*. This glasshouse is a big step up from the polytunnels that Mr. Wright has previously managed very productively, and it will take him time to scale up his skills accordingly. However, it could potentially act as a prototype for energy efficient, decentralised production of tender crops, which are currently imported for much of the year to meet demand. It is now that we need to be developing the skills and the infrastructure to meet the growing demand for local food. As South Somerset District Council states in (Paragraph 2.16-2.18) of the *“Local Plan Strategy”*, *the pursuit of sustainable development means that the effects of development on the environment must be considered not just in the short term, but over a much longer timescale, and not just in the immediate locality, but in the wider, global sense.”*

Living on site in an ecologically designed home would bring additional energy savings, thus further cutting carbon emissions. Vehicle movements to and from the site would be reduced significantly. Short car journeys are generally more polluting per mile than longer ones, since the engine must start from cold.

In July 2008, a motion was passed unanimously, to make Somerset County Council the first Transition Authority in the UK. The Transition Movement, which began in 2007 in Totnes, seeks to address the twin problems of climate change and *“Peak Oil”* (the beginning of the decline in global production of oil) (Hopkins 2008). As a Transition Authority, Somerset County Council *“fully endorses the Transition Town Movement and subscribes to the principles and ethos of the organisation’s goals to reduce dependence on fuel oil and create more sustainable communities”* (extract from the proposal put before Somerset County Council members). Mr. Wright’s proposal is fully in keeping with the aims of the Transition Movement, in that he aims to grow salad vegetables without a reliance on fossil fuels, to meet the needs of local people. The skills and infrastructure he will be developing through this enterprise are a practical manifestation of the *“Transition Process”* that the movement aims to facilitate.

Local Food

The Department for Environment and Rural Affairs have recently published a Policy Paper on Local Food (February 2010). In it, they identify and discuss the socio-economic, environmental and health benefits of local food, before going on to suggest ways in which local food production can be encouraged and promoted.

Fruit and vegetables, especially those that are produced organically, are the most commonly imported food commodities due to chronic domestic under supply, as demonstrated by Pretty et al (2005, p9) in their study of the environmental costs of the UK weekly food basket. Even UK produced food is generally transported long distances by road and accounts for 2.5% of the UK's total carbon emissions (London Development Agency 2006, p44). I was working for Somerset Food Links when the government's healthy eating campaign, "Five a Day" was being introduced. It soon became apparent that insufficient fruit and vegetables were being produced locally to meet people's needs for this fresh produce, hence making it difficult to promote the message of choosing local rather than imported food. Whilst in the eight years since then horticultural produce provision in the local area has increased, there is still a long way to go before the majority of the population could have access to the benefits of freshly harvested, local fruit and vegetables. There is huge demand for local vegetables from private individuals, caterers, independent shops and the organisers of farmers markets, who all recognise the benefits of buying really fresh produce direct from the grower rather than indirectly from a supermarket or wholesaler.

Sustainable and energy efficient food production is at the heart of Mr. Wright's proposal for Field A of Plotgate. However, the location of such initiatives is clearly an important consideration, and their visual impact on the landscape and the amount of traffic they will generate must be balanced with the environmental and economic benefits they will bring to the wider locality.

Location

Two main planning issues are raised by this application: the appropriate location of a commercial glasshouse and the request for an agricultural worker's dwelling. The glasshouse is central to the enterprise proposal and is a key consideration in terms of visual impact, so planning policies relating to the location of glasshouses will be examined and applied before I address the issue of the agricultural worker's dwelling.

There are few planning policies directly relating to commercial glasshouses. The national planning policy for rural areas, PPS7 contains no mention of glasshouses. Its predecessor, "Planning Policy Guidance 7: The Countryside – Environmental quality, economic and social development" does address glasshouse construction, as follows:

Policy C10 – Horticulture is included in the definition of "agriculture" for

planning purposes. Commercial glasshouses normally exceed the area for which permitted development rights are available. The UK faces intense competition from overseas growers, and it is important that the horticultural industry is not held back by over-restrictive approaches to developments which could be sited without detriment to the surrounding area. Glasshouses can have a significant environmental impact and wherever practicable new ones should be sited adjacent or close to existing ones.

Turning to local policy, the current South Somerset Local Plan contains no policies specifically relating to the location of glasshouses. Policy ST5 sets the general context for planning decisions on new developments within South Somerset, and is addressed in the visual impact assessment for the Plotgate Proposal. In addition, the following policies from chapter 3 (Countryside Environment) of the South Somerset Local Plan relate to the proposal in question:

Policy EC1

Where the development of agricultural land is unavoidable, poorer quality land should be used in preference to that of higher quality (defined as grades 1,2 and 3a of the agricultural land classification), except where other sustainability considerations outweigh agricultural land value.

Policy EC3

Outside development areas, development proposals which are otherwise acceptable will be permitted provided that they do not cause unacceptable harm to the distinctive character and quality of the local landscape. In particular, development should:

- 1. Respect and enhance the characteristic pattern and features of the surrounding landscape; and*
- 2. Avoid built forms whose profiles would be out of keeping with and uncharacteristic of the surrounding landscape when viewed from publicly accessible vantage points.*

In the absence of a South Somerset policy for glasshouse location, I have identified glasshouse policies in the local plans of two district councils, Chichester and Epping Forest, both areas where a tradition of commercial horticulture requires a policy on location of new glasshouses and the redevelopment of such sites.

In the Environment section of its local plan (para 83-85), Chichester District Council recognises the value of the horticulture and glasshouse industries and highlights the need to promote this sector of agriculture while protecting the environment and amenities. For this reason, they have established defined areas as “Areas for Horticultural Development”, and created a policy (RE11A, See Appendix A for a copy of this policy) which outlines the criteria to which glasshouse businesses must conform within this area. Chichester DC’s

Policy RE11B covers horticultural development outside the “Areas for Horticultural Development” and states:

RE11B Outside the areas for horticultural development show on the proposals and inset maps, applications for horticultural developments, including glasshouses and pack houses, will be permitted where sited in replacement of or in association with existing glasshouses and will not be permitted in open countryside in areas where glasshouses are at present absent. Such proposals will also be considered against the criteria included in Policy RE11A and will be refused if they fail to meet those criteria;

Applications will be refused if, when considered individually or cumulatively in association with existing horticultural development in the locality, they, or the activity associated with them, would create a damaging change in the character or appearance of the locality.

It is also interesting to note that in paragraph 85 of the Chichester Local Plan it states that,

“The sites of disused glasshouses should not be considered as ripe for redevelopment for some type of urban use”

Policy E13 of the Epping Forest District Council Local Plan addresses the full lifecycle of glasshouses and states that:

Policy E13A – New and replacement glasshouses

Planning permission will be granted for new and replacement horticultural glasshouses within areas identified for this purpose on the Alterations Proposals Map. Glasshouses will not be permitted outside the areas subject to this policy unless the proposed development is either:

- i) A replacement, or a small scale extension to, a glasshouse or nursery outside the areas identified on the Alterations Proposals Map; or*
- ii) Necessary for the modest expansion of a glasshouse or existing horticultural undertaking on a site at the edge of an area identified on the Alterations Proposals Map which is unable to expand because all the available land in that designated area is occupied by viable glasshouse undertakings, and where there is no suitable land (including redundant glasshouse land) in this or the other areas identified on the Alterations Proposals Map;*

And in all cases the proposal will not have an adverse affect on the open character or appearance of the countryside.

Policy E13B - Protection of Glasshouse Areas

The Council will refuse any application that it considers is likely to:

- i) Undermine its policy approach of concentrating glasshouses in clusters to minimise damage to visual amenity and loss of the openness of the greenbelt; and/or*
- ii) Harm the future vitality and/or viability of the Lea Valley Glasshouse industry.*

Policy E13C - Prevention of dereliction of new glasshouse sites

When granting planning permission for new, replacement or extension to glasshouses or other buildings including pack houses, and any ancillary activities or uses, the Council will require that these sites are fully returned to a condition appropriate to their previous use when or if the land is no longer used for glasshouse horticulture. Underused or derelict glasshouses and other buildings including pack houses will not be considered suitable sites for the introduction of non-agricultural uses, at least until a future review of the plan.

Glasshouses, and associated horticultural developments, present a very specific set of planning needs, in that they create a potentially significant visual impact. Yet they cannot be clustered together with other industries because they also require high quality agricultural land. In my analysis of the national and local policies outlined above, several underlying principles emerge:

- 1) Recognition of the economic value of the domestic horticultural industry, and the need to support it by not overly restricting development.
- 2) The need to balance the development needs of the horticultural industry with the protection of landscape character.
- 3) To minimise the visual impact of glasshouses and other horticultural developments, a principle of clustering is applied, to ensure that the visual impact of greenhouse developments is concentrated into designated areas.
- 4) Once an area has been designated for horticultural use, this designation is protected from other development pressures, to ensure that within the district opportunities exist for new horticultural businesses within the planning policy of concentrating glasshouse development.

Careful consideration has gone into finding a location for the Plotgate glasshouse, which minimises its visual impact on the countryside, whilst meeting its need for flat ground, good soil and close proximity to markets. In the remainder of this section, I will apply the policies listed above to this proposal for a horticultural enterprise.

Policy EC3 relates to development proposals outside development areas, and is concerned mainly with conserving landscape amenity. In one sense, the

location of a glasshouse is contrary to this policy. However, several of the national and local policies relating directly to glasshouses, listed in the previous section, are helpful in evaluating this proposal. Firstly, the visual impact of glasshouses and associated horticultural developments is noted in both PPG7 (Policy C10) and the glasshouse policies cited in the local plans published by Chichester and Epping Forest District Councils. In all three policies the principle is to minimise the visual impact by clustering glasshouses together either in areas designated for horticultural development, or with pre-existing glasshouses. If a similar principle were to be applied in South Somerset, it could be argued that Mr. Wright should find land previously developed for horticulture or adjacent to existing glasshouses.

However, both the Chichester and the Epping Forest glasshouse policies enshrine a principle that where land has been previously developed for the use of glasshouses it should be retained for that use, rather than being seen as land that is ripe for alternative redevelopment. The site, 4.5 acres at Lopenhead, from which the glasshouse in question was removed, was allocated for employment use B1,B2 and B8 in proposal ME/LOPEN/1 in the South Somerset Local Plan (Deposit Draft 1998). The fact that it was possible for its use to be changed meant that the price of the site at Lopenhead was elevated to a level beyond what a horticulturalist might be able to pay. Hence, Mr. Wright is considering the purchase of agricultural land at Plotgate, which, whilst being outside the development area, is located on the outskirts of a village and in close proximity to other existing employment sites. I understand that the proposed site for the glasshouse at Plotgate is adjoined by a horseshoe factory and a scrap yard.

Secondly, in relation to policy EC1 of the SSDC Local Plan, I would like to stress that horticultural development has different needs to other forms of commercial development, in that it requires good soil in order for the business to be successful. Indoor organic horticultural production needs particularly good land, in that the same piece of land (within the glasshouse) will be cropped very intensively over a long period of time. While it is possible to alter soil quality by the addition of composted animal manure and plant waste, the underlying soil type (its texture, mineral content, drainage capacity, lack of stones and inherent organic matter content) all have a bearing on the long term potential of the soil.

Although this site is not classified as Grade 1 or 2 agricultural land, the soil in Field A has the potential for organic cultivation, in that it is relatively free draining and its clay content means it will retain nutrients and water better than a sandier soil. The nutrient retention capabilities of clay are more of an advantage for an organic producer than for a conventional producer, in that they are unable to use soluble fertilisers. The fact that the site is currently sown to a ley is also an advantage, in that its organic matter content is likely to be higher than in a previously non-organic arable field. In addition, in order to erect a glasshouse of this size a relatively flat piece of land is needed, which is elevated high enough above sea level to avoid flood risk. In this area of Somerset most flat land, although fertile, is low lying and prone to flooding, and is therefore unsuitable for Mr. Wright's proposal. It is therefore necessary

to balance the finding of a site near to other developments with the need for a suitable soil, flat land and minimal flood risk.

Thirdly, in order to carry out his plan of heating the glasshouse with home-grown biomass energy, it is necessary for Mr. Wright to have access to sufficient land on which to grow short-rotation coppice willow. Although it could be argued that this could be grown or purchased from elsewhere, paragraph 24 of PPS22 recommends that biomass energy generation plants are located as close as possible to their sources of fuel in order to minimise traffic.

Finally, within policy C10 of PPG7 (1997) it is noted that:

“The UK faces intense competition from overseas growers, and it is important that the horticultural industry is not held back by over-restrictive approaches to developments which could be sited without detriment to the surrounding area.”

Since PPG7 was published, the UK horticultural industry has undergone further decline, to the point that when PPG7 was superseded by PPS7 it was not seen as necessary to include a policy on glasshouses. While at present it is possible to rely on imported horticultural produce, it would be unwise to assume that this will continue to be the case. If energy costs were to rise, as they are predicted to do as oil supplies begin to decline, there may once again be a need for a vibrant domestic horticultural industry. Leaving energy costs aside, the carbon emissions produced by the transport of vegetables from overseas contribute to climate change, meaning that there is already a pressing case to encourage domestic horticultural production.

To conclude this section, in assessing the merits of this proposal against planning policy, the various issues of visual impact, soil suitability, affordability and transport must be weighed up against one another. While it may be that a visually more appropriate site could be found for the location of this business, whether it would: (a) be affordable; (b) have suitable soil and topography; (c) be appropriate to live on-site and (c) there would be sufficient space for on-site biomass to be planted for the heating scheme envisaged, is questionable.

Agricultural workers dwelling

A second planning issue raised in this application is the request for a dwelling in association with the horticultural enterprise. Such proposals are addressed in the national policy Planning Policy Statement 7, Annex A, which is reflected in policy HG15 of the South Somerset Local Plan (Adopted April 2006).

Annex A of Planning Policy Statement 7, which states that *“one of the few circumstances in which isolated residential development may be justified is when accommodation is required to enable agricultural, forestry and certain other full-time workers to live at, or in the immediate vicinity of, their place of work”* (Paragraph 1). To ascertain whether a planning applicant's intentions to

engage in farming or forestry are “genuine, are reasonably likely to materialise and are capable of being sustained for a reasonable period of time”, and “whether the needs of the intended enterprise require one or more of the people engaged in it to live nearby” (Paragraph 2, Annex A, PPS7), a series of tests have been set out for the business concerned. In the case of a new business, such as Mr. Wright’s, which is applying for permission for temporary accommodation, the following criteria must be satisfied:

- i) clear evidence of firm intention and ability to develop the enterprise concerned (significant investment in new farm buildings is often a good indication of intentions);
- ii) functional need;
- iii) clear evidence that the proposed enterprise has been planned on a sound financial basis;
- iv) the functional need could not be fulfilled by another existing dwelling on the unit, or any other existing accommodation in the area which is suitable and available for occupation for the workers concerned; and
- v) other normal planning requirements, eg on siting and access, are satisfied (Paragraph 12, Annex A, PPS7)

Further to point ii, paragraph 4 of PPS7, Annex A outlines states,

“A functional test is necessary to establish whether it is essential for the proper functioning of the enterprise for one or more workers to be readily available at most times. Such a requirement might arise, for example, if workers are needed to be on hand day and night:

- i) in animals or agricultural processes require essential care at short notice;
- ii) to deal quickly with emergencies that could otherwise cause serious loss of crops or products, for example by frost damage or the failure of automatic systems”.

At local level, in the South Somerset Local Plan (Adopted April 2006), Policy HG15, states that:

Proposals for agricultural or forestry workers dwellings will only be permitted in the countryside where:

- 1) *The dwelling is essential for the proper functioning of the enterprise so that one or more workers would be readily available at most times. In cases where a functional test alone is not conclusive, it may be appropriate also to apply a financial test;*
- 2) *The need is for accommodation for a full-time worker, or one primarily employed in agriculture;*
- 3) *No other housing accommodation is available for occupation locally by the worker concerned that would fulfil the functional need;*
- 4) *The necessary accommodation cannot be provided by the conversion of an existing building or structure on the holding.*

Dwellings that are unusually large in relation to the agricultural needs of the unit or are unusually expensive to construct in relation to the income of the unit in the longer term will not be permitted.

Where there is inconclusive evidence supporting the need, temporary planning permission may be granted for temporary accommodation on a new farm unit, to allow three years to test the viability of the proposal.

The renewal of a temporary permission for temporary accommodation will not be granted if the case for permanent accommodation has not been made by the end of the temporary period.

A condition will be attached to any planning permission granted to ensure that the dwelling is kept available to meet the justified need. A planning obligation will be sought where a planning condition would not keep the dwelling available to meet the justified need.

As the person appraising the agricultural merits of this application, in applying the agricultural dwelling policies, I will focus primarily on the evidence of intention and capability, functional need and the financial test.

i) Clear evidence of firm intention and ability to develop the enterprise concerned

The business proposed is ambitious and innovative, but Mr. Wright combines over fifteen years of horticultural experience with a range of electronic and observational skills that will be invaluable to a project of this nature.

Mr. Wright has undertaken both a one year course in organic horticulture at Lackham Agricultural College in Wiltshire (1992-3), and a one year course in small scale agriculture at Plumpton Agricultural College in Sussex (1990-91). He also has a degree in Electronic Systems Engineering from Kingston Polytechnic. Prior to 1995, when he moved to Tinkers Bubble, he spent two years gaining commercial horticultural experience at three different organic farms. At Tinkers Bubble he started developing his own, small scale market gardening enterprise on a part-time basis. The slow, but steady, growth of this business has enabled Mr. Wright to refine his skills as a grower, test out the application of his electronics skills to polytunnel management, and gain an understanding of the local market for organic vegetables. For over ten years he has been selling produce at local farmers markets, and in more recent years has been supplying the wholesaler, Somerset Organic Link, with salad crops. During the past three years he has also established a small vegetable box scheme in the nearby village. The reputation for reliability and good quality produce he has developed with organic wholesalers in Somerset will stand him in good stead as he scales up production. The increased scale of the proposed business will inevitably bring challenges and require new skills, but I believe Mr. Wright's experience, focus and methodical approach to practical problems give him the ability to meet such challenges.

I have no doubt about the integrity of Mr. Wright's intention to carry out his proposed business. It has been his ambition to apply his knowledge of electronics and physics to the sustainable production of food for at least fifteen years, and much of his life has been focussed towards developing the

necessary skills. He has already spent a year and a half, and £5000, dismantling and storing the glasshouse, as well as starting to invest in the necessary machinery and materials for the project. In total he has already spent over £16,000 on the following items:

- Tractor and front loader (£4600)
- Tractor driven mower (£600) and hedge cutter (£700)
- Tractor trailer (£1410)
- Photovoltaic solar panels (£1200)
- Inverter to provide 230V ac power (£1200)
- Plywood to build packing shed (£730)
- Willow sets (cuttings) (£540)
- Miscellaneous (£500)
- Deposit for the land (£5000)

ii) *Functional need*

The technical demands of managing a glasshouse of the scale proposed will require long hours and careful observation, especially in the early years during which the automated systems will be being refined. The innovative nature of some of the energy efficient ways of heating, ventilating and irrigating a glasshouse of this size means that an onsite presence will be important to the success of this business, in addition to the routine early morning and late evening tasks of any commercial organic horticulturalist. I concur with the reasons listed in Mr.Wright's business plan for his needing to live right next to the greenhouse, and emphasise the following as particularly strong indicators that there is a functional need for an on-site presence:

- *Automated systems* - Although the automated systems for irrigation, ventilation and the use of the thermal screen at night, will save labour, they will require manual supervision by someone who has the knowledge to fix them in an emergency. The system of fans and underground pipes, to store warm air from the day to be released at night, will require particular attention in the early years, since Mr.Wright is one of a number of pioneers of this technology.
- *Seedling propagation* - To maximise the cropping period, propagation of tomatoes and cucumbers begins in January, when the danger of frost is high. Seeds must be kept at a constant temperature of 18°C to ensure germination, and this will initially be achieved by storing in an insulated box at night with an electric heating device. Following germination, it is not practical to move seed trays into the box each night, and they will be kept warm on trays heated with solar/wood heated warm water pipes in a small section of the greenhouse insulated with horticultural bubble film. On very cold nights heat will be supplemented with a wood burning stove, which will need to be stoked in the middle of the night. An alarm system will be fitted to alert Mr. Wright to a night time drop in temperature, so that he can respond immediately. Due to the high value of the seedlings, which will

represent over £10,000 worth of produce if successfully raised, it is imperative that Mr. Wright is present to ensure a minimum temperature is maintained. Mistakes are costly, since stressed plants can delay crop growth for several weeks or even months if replacement sowing is necessary. Whilst it would be unlikely that all the seedlings would be wiped out by a single frost or die-off caused by overheating, the total value of seedlings present in the glasshouse in March and April, when diurnal temperatures are extremely volatile, would be significant.

- *Frost protection* - Wood fuelled burners will also be used to keep larger areas of the greenhouse at a sufficient temperature, and will require re-stoking during the night. Tomatoes and cucumbers will be planted out in the glasshouse in April, to maximise the length of cropping season. At this stage they will not tolerate temperatures below 8°C and must therefore be protected against lower temperatures, including the occasional late frost. Furthermore, although plants such as lettuce can tolerate frost, it greatly reduces growth rates and increases the risk of fungal diseases. Other areas of the glasshouse must thus be kept at a minimum temperature of 0°C throughout the winter. It would not be economically viable or an environmentally wise use of resources to use heating when there is minimal likelihood of frost. At these times it is necessary to make a decision fairly late at night about whether or not to use the heating. In the case of tomatoes and cucumbers, which are sown in January, replacement of the plants would be a lengthy procedure resulting in financial losses since the start of the cropping season would be delayed by a month or two. Although the fire-risk from a wood fuelled heating system is low, it would be sensible for Mr. Wright to be nearby in case of emergency.
- *Harvesting* – During the summer it is necessary to harvest salad leaves early in the morning, when they are cool and full of moisture, to prevent wilting and increase their shelf life. Even as early as April or as late as September, hot days make it necessary to start harvesting as early as 6am.
- *Summer ventilation* – During the summer months the glasshouse will get extremely hot inside and it is necessary to leave windows open until 8 or 9pm. However, night time closure is important to retain some of the residual heat of the day so as to maintain growth rates. Although this will be done automatically, using electrically powered vent windows, Mr. Wright will need to check that these have worked.
- *Irrigation* – By 2012 it is going to become obligatory for any irrigation of organic crops to be carried out in the early morning or evening, due to the introduction of a new regulation by the Soil Association to ensure that water is used sustainably. Although the drip irrigation lines will be controlled automatically, it will be necessary for Mr. Wright to be present to ensure that they are working correctly, and water is not being wasted due to leaks in the system.

- *Vandalism* – The presence of such a large glasshouse in close proximity to a village means it is vulnerable to vandalism. Mr. Wright has chosen this site rather than a more remote location in the open countryside, to minimise the visual impact of the glasshouse. Whilst it is arguable that a more remote location might be more at risk of crime, in my view being on the outskirts of the village increases the danger of casual vandalism and petty theft. A night time presence on site would deter intruders, and enable Mr. Wright to confront vandals before they cause too much damage.

iii) *Clear evidence that the proposed enterprise has been planned on a sound financial basis?*

I have carefully studied the projected figures in the financial forecast section of Mr. Wright's business plan, and am satisfied that the business has been planned on a sound financial basis.

The projected gross output figures are quite ambitious for a glasshouse of this size. However, Mr. Wright's track record for intensively cropping a small area to obtain high yields gives me confidence that he has the horticultural skill to meet these production targets. Due to the need to scale up the operation considerably from his current production level, it may take longer than he predicts to reach this level of output. The soil will also take several years to adapt to organic management and reach optimal fertility, and it will take time to build up a market for the larger quantities of vegetables that he will be producing. Both the variable and fixed costings for the business seem realistic, and there may be some flexibility in them as labour costs are adjusted to match production requirements. Assuming no unforeseen accidents or sickness I believe it will be possible for the figures projected to be matched within a five to eight year period.

I understand that Triodos bank, which has significant experience of lending to organic horticultural businesses, have already judged this business plan to be sufficiently sound to offer a loan.

iv) *Application of Policy HG15 of South Somerset Local Plan (Adopted April 2006)*

In addition to the functional and financial tests, Policy HG15 requires that the accommodation is for a full-time worker, that no other accommodation is available locally for the worker concerned, and that the necessary accommodation cannot be provided by the conversion of an existing building or structure on the holding.

I am in no doubt that the proposed enterprise will engage Mr. Wright on a full-time basis. Although the holding is located close to the village of Barton St. David, there are no houses sufficiently close to the proposed site of the glasshouse to facilitate the detailed attention it will require. In addition, availability of rented accommodation that is sufficiently close is unlikely, while

it would be hard to obtain a mortgage to buy a house in this area based on a horticultural income. There are no buildings present on the site, so no possibilities of converting an existing building.

Conclusions

In my view this is a bold application for an exciting, forward-looking business, which addresses pressing future issues of local food supply, energy efficiency and the sustainable use of resources. If the government is to achieve its aim of cutting its carbon dioxide emissions by 80% by 2050, small scale initiatives such as Mr. Wright's proposal will have an important contribution to make alongside larger schemes.

I believe that this proposal meets the requirements for a temporary agricultural worker's dwelling. Mr. Wright's intention to pursue the proposal is entirely genuine, and I believe he has the skills to do so, although I think the process of scaling up his business will present significant challenges. There is a firm functional need for him to live on site to carry out his proposal. The business is planned on a sound financial basis, although I expect it may take longer than predicted to achieve the desired level of profit.

The application does represent a request for development outside a development area, and could be viewed as being detrimental to the landscape. However, in the absence of a policy on glasshouse location it is necessary to balance visual impact with other policy criteria, as well as the practical need for a horticultural enterprise to be located on suitable land. Furthermore, I am assured that all possible measures will be taken to minimise the visual impact of the greenhouse and associated developments. I believe that this potential breach of planning policy needs to be weighed up against the many positive benefits that the proposal brings, which are supported by the policies listed above. This is an opportunity for South Somerset District Council to demonstrate its genuine commitment to sustainable development.

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Plotgate Venture Western Holding Proposal

Appendix C: Detailed Breakdown of Financial Figures (confidential)

This document is supplied as an appendix to the Western Holding Proposal. It provides a further breakdown of the financial figures previously provided and shows the basis for the produce volumes referred to in the Travel Plan.

This appendix should be read in conjunction with the main body of the document and in particular with reference to Section 3. The Proposal, Siting & Design and Appendix A. Western Holding Agricultural Appraisal.

Capital Investment

The cost of buildings, infrastructure, labour and other costs prior to and during the two year construction phase are listed below.

Glasshouse dismantling, transport and storage *	£ 5000
Glasshouse erection	£ 7000
Glasshouse heat storage system	£ 1200
Glasshouse wood burners	£ 400
Thermal screening	£ 8000
Irrigation equipment	£ 1000
Water reservoir, materials and construction	£ 4200
PV solar panels*	£ 1250
Wind turbine and tower	£ 2500
Batteries and other power supply equipment	£ 3850
Delivery vehicle (van)	£ 1500
Compact tractor and implements*	£ 6700
Fertility building, compost	£ 2000
Fertility building, minerals and seeds *	£ 750
Fuel wood coppice plants* and mulch	£ 1140
Fencing (electric deer fence)	£ 400
Packing Shed, materials	£ 3000
Packing Shed, construction	£ 1000
Composting Area	£ 550
Track improvement and hard standing	£ 2000
Equipment general	£ 3000
Land maintenance (drainage, grass & hedge cutting)	£ 800
Organic certification	£ 600
Total	£57,840

* Monies already spent.

Costings do not include my own labour.

A large part of the investment capital will be from my own savings with top up from loans at favourable rates of interest

Many of the above figures are lower than one would expect given the amount of materials and/or labour involved. This is for the following reasons:

- i) Sourcing of second hand or recycled materials e.g. the glasshouse itself was removed from another site and would otherwise have been demolished. Recycled stainless steel flue pipe for the glasshouse heaters. Second hand but unused water pump for £50, new price £400.
- ii) Design of some of the structures and systems myself or with advice from friends with appropriate expertise thus avoiding use of expensive professionals e.g. design of the Packing Shed. Design of the unique electrical system (I have a degree in Electronic Systems Engineering).
- iii) Fabrication of infra structure components and installation of complex systems myself so saving on the costs of using skilled tradesmen e.g. making of wind generator tower using standard steel tube and fixings rather than a manufactured tower. Installation of the irrigation system. Installation of the renewable electricity system etc.
- iv) Much of the labour for construction of the infra structure will be provided by myself. The rest being mostly provided by friends, often skilled, at low rates of pay or voluntarily. , e.g. Packing Shed construction. Glasshouse erection. The value of my own labour is not included in the estimates of Capital Investment.

Gross Output

Gross output (farm gate value of crops before deduction of costs) is surmised in the table below.

Crops	2013	2014	2015	2016*	2017
Cucumbers	£ 5,000	£ 7,000	£ 7,000	£ 11,800	£11,800
Tomatoes	£ 3,650	£ 3,650	£ 3,650	£ 9,560	£10,360
Other	£ 4,200	£ 6,600	£ 8,000	£ 7,200	£ 8,400
Salad	£ 0	£ 0	£ 3,200	£ 6,750	£ 8,500
Totals	£ 12,850	£ 17,250	£ 21,650	£ 35,160	£39,060

*Higher production due to the use of higher levels of heat as a result of the installation of a wood chip boiler.

Crop by crop analysis is as follows:

Cucumbers

Yield:

According to John Nix ^{ref 1} conventional cucumbers in a heated glasshouse yield 470 t/ha. Yields of organic produce are typically 60% that of conventional, John Nix ^{ref 2} giving 282t/ha. For the years 2013 to 2015 heat levels will be such as to give some season extension over a cold glasshouse but not as much as would be attained in a fully heated house. It is estimated that this will lead to a further reduction of yield, over a fully heated house, of 50%. For the years 2016 and 2017 higher levels of heat will lead to this reduction being approx 20% over a fully heated house. The above leads to yields of 141 t/ha for 2013 to 2015 and 225 t/ha for 2016 onwards. The area of the glasshouse given over to this crop will be 1/5 of the total area or 300m².

Value:

There are approx 5 cucumbers to the kg. For the year 2014 an average price through the season is expected to be 33p per cucumber or £1.65/kg. I believe that this is reasonable as in past years I have been selling cucumbers in high season, i.e. lowest price, for 43p each wholesale. The lower price is to allow for the possible reduction in price necessary to sell the higher volume expected. This gives a figure of £7000 for 2014 and 2015. The lower figure of £5000 for the first year, 2013, is to allow for lower prices during establishment of the market and possible problems with the crop. The higher yields for 2016 onwards plus a higher average price, due to more of the crop been produced out of high season, results in the higher figures for these years.

Summary Table, Cucumbers:

Year	2013	2014	2015	2016	2017
t/ha	141	141	141	225	225
t/300m ²	4.23	4.23	4.23	6.75	6.75
Av. value/kg	£1.20	£1.65	£1.65	£1.75	£1.75
Total Value	£5,000	£7,000	£7,000	£11,800	£11,800

Tomatoes

According to John Nix ^{ref 1} conventional tomato yields in a unheated house are 127 t/ha per year. Reducing this by 40%, to allow for organic production, gives 76 t/ha. 1/5 of the area of the glasshouse will be given over to this crop a total of 300 m² giving a yield of 2.28 tones. In 2010 sale price to local wholesalers was £1.60/kg. This was at high season i.e. lowest price. Taking this figure gives £1600/t and therefore a total value for this crop of £3650. For the years 2013, 2014 and 2015 the glasshouse will be largely unheated except for frost protection. This will give some season extension over an unheated house and as such this figure is considered to be conservative.

For 2016 a higher level of heat will be used. Figures from Nix give a yield of 423 t/ha for a heated house. Allowing for organic production this gives 253 t/ha. Given that the glasshouse will not be fully heated, this is particularly a problem for propagation as artificial light will not be used, a more

reasonable yield would be 70% of this giving 177 t/ha. This gives a total crop yield of 5.3 tones for 1/5 of the glasshouse. If an average price through the season of 1.80/kg is achieved (organic tomatoes wholesale price in 1st week of June 2010 was £3/kg, Somerset Organic Link) then this will give a total crop value of £9560.

In 2017 it is estimated that as a result of establishment of markets a higher average price will be obtained. This is put at £1.95/kg giving a crop value of £10360.

Summary table, tomatoes:

Year	2013	2014	2015	2016	2017
t/ha	76	76	76	225	225
t/300m ²	2.28	2.28	2.28	6.75	6.75
Av. value/kg	£1.60	£1.60	£1.60	£1.75	£1.75
Total Value	£3,650	£3,650	£3,650	£9,560	£10,360

Salad

Production of green leafy salad that is consistent year round and of high quality is a complex operation. As such, significant levels of salad of production are delayed until 2015. From my own figures, based on several years of growing salad, a conservative figure for yield is 32 t/ha per year. For an area of 300m² this gives 944kg/year. At £9/kg a value of £8500 is obtained.

Summary table, salad:

Year	2013	2014	2015	2016	2017
t/ha	-----	-----	12	25	32
kg/300m ²	-----	-----	360	750	944
Value/kg	-----	-----	£9	£9	£9
Total Value	0	0	£3200	£6750	£8500

The lower yield for the years 2015 and 2016 reflects a lower level of cropping intensity for those years.

Other

These are as yet unspecified crops. They include all potential crops other than cucumbers, tomatoes and salad. Typical crops would be french beans, sugar snap peas, spring onions, lettuce, celery etc. They are often short season and some can be grow over winter. As such they can be used to make fuller use of the glasshouse by following on after summer season crops such as tomatoes or as catch crop.

Other advantages of growing this category of crops are;

They are a valuable additional means of providing a rotation brake from main crops such as tomatoes and cucumbers. This is important as soil is the growing

medium and soil sterilization will not be used.

The possibility of inclusion of nitrogen fixing leguminous crops such as broad beans so aiding soil fertility hence reducing fertility inputs and costs.

Increasing the range of crops for sale which will be important when selling direct to customers.

Greater spread of risk in case of individual crop failures.

The crops grown will be determined by market opportunities, available labour and the desired intensity of production. These crops could be low value low labour, high value high labour or a mixture of the two. It is not possible at this stage to place exact figures on the volumes of production or financial values so an expected yield and average value has been assigned for each year for the proposed areas grown. Variations in average (av.) price per kg for each year reflect the expected proportion of high and lower value crops grown. Typical examples of high and lower value crops are;

Celery- high value, planted August, harvested November, yield 3kg/m² (9 plants/m²), value £9/m².

Onions- planted October, harvested July, yield 2.5kg/ m² at £1/kg, value £2.5/m².

Summary table, 'other'.

Year	2013	2014	2015	2016	2017
Area m2	300	900	800	600	600
Total Yield	600kg	1800kg	1600kg	1200kg	1200kg
Av. value	£7/kg	£3.5/kg	£5/kg	£6/kg	£7/kg
Total Val.	£4200	£6600	£8000	£7200	£8400

In 2014 the drop in value per kg of 'other' is due to the extensive use of lower value low labour crops such as onions. The rise in value per kg between 2015 and 2017 reflects a move towards higher value crops in those years.

Variable Costs

The table below shows estimated variable cost for the business.

Year	2013	2014	2015	2016	2017
Seed	£500	£500	£500	£ 500	£ 500
Packaging	£470	£680	£750	£1180	£1,240
Seed Compost	£150	£150	£220	£ 290	£ 290
Manures	£300	£300	£150	£ 150	£ 150
Pest & Disease Materials	£ 75	£100	£100	£ 150	£ 150
Horticultural Sundries	£100	£100	£100	£ 100	£ 100
Electricity	£ 0	£ 0	£ 0	£ 0	£ 0
Glasshouse Fuel	£ 0	£ 0	£ 0	£ 0	£ 0
Water	£ 50	£ 50	£ 50	£ 50	£ 50
Delivery costs	£1070	£1070	£1070	£ 1070	£ 1070
Market costs	£ 0	£ 0	£880	£ 880	£ 880

Machinery Fuel etc.	£185	£235	£265	£ 295	£ 295
Total	£2,900	£3,185	£4,085	£4,665	£4,725

Seed

Seed costs are based on my annual seed bill for my polythene greenhouses at Tinkers Bubble, scaled up accordingly. This figure remains constant even though production increases because green manure (fertility building crops) will be grown on uncropped areas.

Packaging

Packaging requirements and therefore cost are derived from the projected produce volumes. Total produce volumes for each year and for each crop are as follows

Year	2013	2014	2015	2016	2017
Tomato Yield, tonnes	2.28	2.28	2.28	6.75	6.75
Tomato Volume, m ³	6.38	6.38	6.38	18.9	18.9
Cucumber Yield, tonnes	4.23	4.23	4.23	6.75	6.75
Cucumber Volume, m ³	11.84	11.84	11.84	18.9	18.9
Salad Yield, tonnes	0	0	0.36	0.75	0.94
Salad Volume ,m ³	0	0	5.40	11.25	14.16
'Other' Yield, tonnes	0.60	1.80	1.60	1.20	1.20
'Other' Volume m ³	5.34	16.02	14.24	10.68	10.68
Total Volume	23.56	34.24	37.86	59.73	62.64

The above figures are based on the following:

Volume of a single 6kg box used for tomatoes and cucumbers = 0.017m³.
Therefore volume per tonne = 2.8m³.

Volume of a 2kg box of salad leaves and other low density produce = 0.03m³.
Therefore volume per tonne = 15m³.

Volumes per tonne of crop type 'other' are estimated at 8.9m³/t these been a mixture of low and high density crops.

An intermediate sized box of 490mm x 320mm x 200mm costs 85p inc. VAT and delivery (Source, S.H.W. Container LTD) and has a volume of 0.03m³. The boxes are of a collapsible and therefore reusable type. If one assumes a reuse rate of 30% then the packaging cost figures given are obtained. Note, I am hopeful that a greater return rate than 30% can be achieved.

Seed compost

Based on my usage of compost at Tinkers Bubble; 40 bags of certified organic seed and potting compost at £7.31 per 60 litre bag (Source; Fertile Fibre Ltd), total £290. In the years prior to 2016 usage of compost is less reflecting the lower intensity of cropping in those years.

Manures

Figures for 2013 and 2014 are based on 20 tonnes per year of Dimmer Landfill Site

compost. This is £15/t delivered (source Viridor). Figures reduce thereafter as the desired level of soil fertility is obtained.

Pest & Disease Materials

This is based on my experience at Tinkers Bubble- mostly for red spider mite predator.

Horticultural Sundries

These are items such as hose pipe fittings, wire, plastic sheeting etc. This figure is low when compared to other similar businesses due to minimal use of disposables.

Electricity

This is zero to emphasise the self sufficient and low impact nature of the business. All electricity will be produced from on site renewables. Although this does incur a cost the cost is reflected in the capital investment and subsequent equipment depreciation figures. It is possible the renewable electricity generation will provide a small annual income if the new Feed in Tariff is claimed.

Glasshouse Fuel

As with Electricity the figure of zero was included to emphasise that no heating fuel will be purchased of site. All additional heat for the glasshouse over and above that provided by solar gain will be provided by wood produced by the willow coppice. There is a cost in extra labour to harvest and handle the wood fuel. This is included in the overall labour estimate for the business. A small income may be available to reflect the renewable nature of the heat source under the proposed Renewable Heat Incentive.

Water

Little mains water will be used. Small amounts for washing salads, hand washing, cups of tea etc. It is possible that the mains water will have to be used for glasshouse irrigation in exceptionally dry years. If this were to happen once every 10 years for a period of one month this would average out to approximately 15 cubic metres of water per year.

Delivery Costs

It is anticipated that I will need to do four delivery runs per week. Three been of a local nature, delivering to local businesses and for the street market and one been to a regional wholesaler such as Better Food Co just south of Bristol.

It is expected that these will average 20 miles and 80 miles respectively, giving a total of 140 miles per week. For the type of vehicle required (see Travel Plan) a combined fuel consumption of around 45 mpg can be assumed. This equates to 9.9 miles per litre which gives 14.14 litres/week. If bio-diesel is £1.40/litre then fuel costs per week will be £19.80/week or £1070 per year. Bio-diesel and diesel retail at close to the same price.

Market Charges

It is anticipated that I will do a regular weekly market from 2015, probably in Glastonbury. Market Costs refers to the stall fee, £15 and travel for a 12 mile round trip estimated at £70 year.

Machinery Fuel etc

This relates to all bought in liquid fuel (bio-diesel/ veg oil) for use in on-site machinery including the back-up generator.

Tractor use, high power (1.2litres/hr = £1.5/hr)

Grass cutting 2013 & 2014	8hrs 3x per year = 24hrs/yr	£36/yr
2015	5hrs 3x per year = 15hrs/yr	£23/yr
2016	2hrs 3x per year = 6hrs/yr	£9/yr
2017	2hrs 3x per year = 6hrs/yr	£9/yr

Note: grass cutting reduces as area under other forms of management, such as trees, increases.

Chipping of wood fuel	20hrs per year from 2015	£30/yr
Hedge trimming	10hrs per year	£15/yr

General tractor use, low power (0.4 litres/hr = 50p/hr)

Estimated at 4hrs/week 2013	£110/yr
“ 6 hrs/week 2014/15	£160/yr
“ 8hrs/week 2016/17	£215/yr

Note: The tractor used is a small (17hp) compact tractor hence the low consumption figures. The hedge trimmer uses a cutter bar which is inherently more energy efficient than the usual flail type.

Back-up generator use: This is only to be employed when/if there is a short fall of in electrical power from the renewable energy system. As such it is impossible to place an exact figure on this. It is hoped that its use will be very infrequent but it is necessary to have the generator to ensure the availability of power. A figure of 50hrs usage per year is assumed at 50p/hr running cost. This gives a total of £25/yr

The above figures provide the totals given for ‘Machinery Fuel etc’ in the Variable Costs table.

Fixed costs

Table of Fixed Cost

Year	2013	2014	2015	2016	2017
Vehicle Costs	£ 675	£ 675	£ 675	£ 675	£ 675
Vehicle Depreciation	£ 300	£ 300	£ 300	£ 300	£ 300
Machinery Costs	£ 200	£ 200	£ 200	£ 200	£ 200
Machinery Depreciation	£ 600	£ 600	£ 600	£ 600	£ 600
Glass Depreciation	£ 600	£ 600	£ 600	£ 600	£ 600
Infrastructure Dep.	£ 1,250	£ 1,250	£ 1,250	£ 1,750	£ 1,750
Liability Insurance	£ 500	£ 500	£ 500	£ 500	£ 500
Organic Certification	£ 550	£ 550	£ 550	£ 550	£ 550
Labour	£ 3,000	£ 3,500	£6,500	£10,000	£11,000
Total	£7,675	£ 8,175	£11,175	£15,175	£16,175

Vehicle Costs

£400 per year for insurance, tax £125/yr, and maintenance costs estimated at £150/yr, total £675/yr.

Vehicle Depreciation

Based on an initial second hand purchase price of £1500 depreciated over 5 years.

Machinery Costs

Routine maintenance and repair of on-site machinery, estimated at £200/yr.

Machinery Depreciation

Based on purchase price of on-site machinery depreciated over 15 years.

Purchase price;

Tractor	£4600
Trailer	£1400
Hedge Trimmer	£ 700
Chipper	£2000
Generator	£ 250
Total	£8950

Over 15 years gives £600/yr

Glass Depreciation

Depreciated over 20 years. Cost of dismantling and erection £12,000.

Infrastructure Depreciation

Based on total cost of infrastructure (sheds, power system, irrigation System etc) depreciated over 20 years. The increase in this amount from 2016 onwards is due to the anticipated purchase of a woodchip heating furnace worth £10,000.

Liability Insurance

This is for public and employers liability insurance, estimated at around £500/yr.

Organic Certification

Soil Association fee. This may be reduced by half if the other small holding of the Plotgate Venture is taken, the fee will then be shared.

Labour

Estimates of labour costs are drawn from figures published by John Nix, ref 1. This shows average labour costs for specialist glass, edible crops, for the years 2003/4 of £84,133/ha per year. Allowing for wage rate inflation since then of approximately 30% (based on the change in Agricultural Minimum Wage since 2004) gives a figure of £108,530/ha. The business is very much planned with labour efficiency in mind whilst keeping to the highest ecological standards. Bearing this in mind an additional 40% labour overhead is allowed for. This gives a figure of £151,940/ha. The business is small scale when compared to other glasshouse operations but I believe that the economies of scale enjoyed by larger operations will be compensated for by the close

involvement of myself (the grower), much of the work been done by me, and due to the close supervision and support given to any hired help. For the proposed glasshouse of 0.15ha a figure of £22,790 is obtained. This is the total wage bill for the business including my own of £11,700. In the years prior to 2017 the wage bill for hired help is lower due to the lower levels of production. The income draw by myself for the years prior to 2017 is lower in order to help the business become established, see Profit/Loss table below.

Profit/Loss

Year	2013	2014	2015	2016	2017
Variable Costs	£ 2,900	£ 3,185	£ 4,085	£ 4,665	£ 4,725
Fixed Costs	£ 7,675	£8,175	£11,175	£15,175	£16,175
Grower Income	£ 8,000	£10,000	£10,000	£11,500	£13,000
Total Costs	<u>£18,575</u>	<u>£21,360</u>	<u>£25,260</u>	<u>£31,340</u>	<u>£33,900</u>
Gross Income	£12,850	£17,250	£21,650	£35,160	£39,060
Profit/loss	£ -5,725	£ -4,110	£ -3,610	£ 3,820	£ 5,160

The low level of income for myself, Grower Income, I consider to be an adequate living wage due to my frugal and partly self sufficient life style.

Conclusion

Although many of the above figures are estimates I consider them to be conservative particularly in respect to the crop yields and crop values. As such, I feel that there is a strong possibility of the business exceeding the profit forecast. Therefore I am confident that the business will prove to be healthily viable.

References

1. Farm Management Pocketbook John Nix 2007 pg 51
2. Farm Management Pocketbook John Nix 2011 pg 137