

Mansel Green Woodland Survey

Murton, Swansea

August 2018

**Prepared by Climate and Community CIO Reg no/1172500
for Bishopston Community Council, Recreational Facilities Committee**



Commoner's sheep grazing Mansel Green verge

1.1 Summary and Recommendations

1.1.1 In the following report is a detailed description of the trees and other vegetation currently on Mansel Green. Broadly, there is naturally regenerated woodland on the eastern half and scattered trees with large areas of bracken on the west. In this summary we will look at what might be done to improve the amenity of Mansel Green and how it could be done holistically. Our recommendations generally are that the Japanese knotweed be controlled, that footpaths be improved, that coppice and standard management be applied to the east of the Green and that the bracken area in the west be converted to wood pasture. In addition a willow bed should be established as part of a basket making regeneration project, some wood/road boundary areas be modified to ameliorate driver and stock safety as well as dealing with the shading of dwellings on the Eastside opposite Copley Lodge.

1.1.2 There is a serious problem of Japanese Knotweed invasion which should be addressed as a priority. This report has taken more time to complete due to in-depth investigation of how Knotweed can be dealt with in an appropriate and effective way. We do not recommend the use of chemical agents for Knotweed control as research now shows they are less effective and more toxic than previously assumed. We are recommending the safe control of Knotweed as part of a wider project of improvement.

1.1.3 We recommend that works be done on Mansel Green as part of a community education project. One objective would be to establish a community based organisation that encourages a feeling of ownership and involvement in managing a community resource. Such an organisation could perform Knotweed and Bracken control by cutting, drying and burning over successive years which would be much safer and more effective than other methods. Apart from dealing with the Knotweed there are four other activities to engage in, willow growing and basket making, coppicing an area of underwood, conversion of bracken to wood pasture and footpath improvements. Other future projects which can encourage and be facilitated by the community may also include planting an orchard and a forest garden.

1.1.4 Using the format of a community education project will provide a means of obtaining the improvements desired without incurring additional burden to the community council.

1.2 Introduction

1.2.1 Climate and Community began cooperating with Bishopston Community Council in 2017 by proposing to lay the recreation ground hedge while teaching students and running volunteer days. This began in February 2018 and will continue in October 2018. During this period Bob Smith the instructor and students collected hedge stakes and etherings from the wood opposite the recreation ground known as Mansel Green. Further examination of the wood made clear its potential for further use in the community. In April the charity proposed a project in conjunction with the community council with the object of improving and developing the wood for community benefit with respect to the amenity and educational value of the woodland. In addition to enhancing the landscape the project needs to create and connect with community based networks and organisations to undertake and maintain the improvements. Developing and engaging the people is

just as important as managing the wood. To facilitate this plan it was agreed by the council that Climate and Community engage the help of Jenna Higgins an arboriculturist to carry out the tree survey. Bob Smith and Jules Wagstaff using the survey data have written a draft management plan for the Council's consideration.

2. Detailed Site Description

2.1 Mansel Green and Common Rights

2.1.1 Mansel Green is the area of scrub woodland in consideration on the East side of Murton Green road. It is a common with commoner's rights applying to it. These rights are recorded in the Register of Commons held at Swansea Civic Centre on Oyster-mouth Road which can be publicly inspected on request. Climate and Community have obtained a copy of the register and extracted the entries applicable to Mansel Green if any Councillor would like to see it. The register which covers Mansel Green also includes Clyne and Fairwood Commons and the Bank at Three Crosses, the block is known in the register as CL15. Bishopston Community Council is the owner of Mansel Green although this is not recorded in the ownership section of the register.

2.1.2 On the GOV.UK website there is a good description of commoners and landowners rights on the page managing common rights. Although there are some minor differences now in Wales the law is fundamentally the same as England. The commoners are entitled to use the land and take certain resources from it. At Mansel Green according to the register there are 50 entitled commoners claiming rights of pasture and estover. These rights are mainly attached to holdings of land and farms in the area and the rights claimed extend over most of the common land in the CL15 block. The right of pasture entitles the commoner to turn out stock to graze upon the common land a limited number of livestock such as 30 cattle or 30 horses or 150 sheep or a pro rata combination of them. This the first entry in the register that applies to Mansel Green, entry number 41 for Charles Barrow of Rye Grounds Farm to which the right is attached. For CL15 the general term of the right is at all times. In addition all but 2 of the 50 rights of pasture include the right of estover. Estover is the right to take wood from the common but is limited to firewood for the right holders hearth or for the repair of hedges and structures but only for use on the holding to which the right is attached and not for sale. Estover is from rights of need. It would usually include the taking of material for the making of furniture for the right holders dwelling on the attached holding. To recap the right holder can only take as much as is needed for the property to which their right of common is attached.

2.1.3 The landowner's rights are summarised on the GOV.UK site as follows; if you own a common you can use the land and take resources from it provided this does not interfere with someone's ability to exercise their rights of common, or make it more difficult for them to do so. For example, if a commoner had grazing rights on your land, you could not build houses on the land because it would reduce the amount of grazing land. The landowner can graze stock or take materials for use or sale.

2.1.4 Climate and Community are strong supporters of Commons and Commoners rights. Mansel Green has been cut off from the previously connected Clyne Common by the busy and fast Mayals

road. This has inhibited safe access by grazing stock. Increased grazing will be facilitated by slower speed limits.

2.2 Wet Woodland Coedwig wlyb

2.2.1 Details of tree species within groups and notable individual trees are recorded within the Tree Schedule (See Tree Map).

2.2.2 Approximately half of the area is woodland, the majority of which is wet woodland. Approximately 60-70% of the trees are Grey Sallow with the remainder composed of smaller proportions of Birch (*Betula pubescens*), Ash (*Fraxinus excelsior*), Pedunculate Oak (*Quercus robur*) and Sycamore (*Acer pseudoplatanus*) as canopy species (trees that form the utmost layer in the canopy).



Grey sallow in wet woodland area Mansel Green

2.2.3 The shrub layer contains Holly (*Ilex aquifolium*), Hawthorn (*Crateagus monogyna*) and remnants of Hazel (*Corylus avellana*) stools along the eastern boundary by Copley Lodge, indicating that the area is likely to have been coppiced historically.



Old Hazel stool in Mansel Green

2.2.4 Coppicing is the ancient practice of cutting broadleaved trees to the ground on a cyclical rotation (7-25 years depending on species) where the resultant re-growth is used for different woodland crafts such as chairs, fencing, hurdles, firewood and charcoal.

Mansel Green was not included in the Ancient Woodland Inventory of Wales, so is not officially Ancient Semi-Natural Woodland (ASNW- considered wooded since 1600). However there are species of flowers present along the Eastern part of the woodland that maybe indicative such as bluebell, wild garlic, honeysuckle and various ferns.

There are two areas which are particularly boggy with rushes, ferns, sedges and yellow flag iris. (See MAP 1)

2.2.5 Wet woodland is a UK Biodiversity Action Plan (BAP) Habitat, important for plants and animals that are associated with both woodlands and wetlands. According to South Wales Wildlife Trust the wet woodland habitat are extremely rich in species that support a number of beetles many of which are rare in Wales. (3). so as not to disturb possible important invertebrates in the boggy areas it is proposed that the boggy areas are non-intervention zones.



Boggy sedge area Mansel Green

2.2.6 It is important to try and maintain as diverse a habitat as possible on a site in order to meet the needs of both larval and adult stages of invertebrates; so a range of vegetation types should be ensured and any transitions with other semi-natural habitats preserved. The proposals of climate and community will provide this by coppicing parts of the woodland (see section on Management proposals). Whilst providing training opportunities in managing land sustainably for fuel, material and crafts. Coppicing creates micro-niches that ensure a constant 'edge effect' (diverse age structure and increased floral diversity) that is in accordance with best practice for increasing invertebrate diversity and overall biodiversity.

2.2.7 There is a lack of age structure. The majority of trees are mature willow (approx 50%); there are a few mature ash coppice stools (T5 and T7) and a few semi-mature oak and approximately 10% young Oak, 10% young Ash, 10% Hazel and 10% comprising a mix of Hawthorn and Holly.



Mature Oak on west side of Mansel Green

2.2.8 The majority of regeneration is young Ash seedlings within the woodland. The long term structure of the woodland needs to be considered due to the risk from Chalara and Ash die back. Unfortunately we cannot rely on Ash as a long term coppice or standard tree and must be replaced by other similar species.



Medium Mature Ash Mansel Green

2.3 Children's Dens

2.3.1 Children's activity in the woodland is noticeable by the finding of play dens and rope swings. Such activity is not damaging to wildlife and is to be encouraged by creating areas which are easily accessible and interesting for the children to play in.



Children's Den Mansel Green

2.4 Overhead Power Line (OHPL)

2.4.1 There is an overhead power line (OHPL) situated to the north east of the site running through G28. It carries 11,000 volts (11kV) with associated services going to adjacent properties in Copley Lodge.

2.4.2 Coppicing or tree felling works in this area may need to be restricted due to safe working distances in proximity to working alongside OHPL due to the risk of flash over. Health and Safety Executive (HSE) best practice should be adhered to and risks assessed on the ground before any tree felling is carried out in the area.

2.4.3 The operator can also be contacted for further advice, and it may be possible to briefly turn off the electricity while coppicing takes place.

2.5 Bracken and Glaswelltir Grassland

2.5.1 Approximately half of the site is grassland and bracken. According to local knowledge it used to be grazed but since the grazing has ceased bracken and bramble have grown up significantly. Small groups of sheep graze the verges but do not enter the Bracken areas.



Bracken on East side of Mansel Green

2.5.2 A number of interesting species of flora were noted whilst walking the permissive paths across this area. Many of which are nectar-rich and associated with pollinators and beneficial insects.

Species included are: yarrow (*Achillea millefolia*), perforate St John's Wort (*Hypericum perforatum*), broad leaved willow herb (*Epilobium montanum*), various species of vetch (*Vicia* spp), two species of mint (*Mentha* spp), angelica (*Angelica sylvestris*), sheeps sorrel (*Rumex acetosella*), fox glove (*Digitalis purpurea*) and a bed straw (*Gallium* spp). An orchid was also sighted in the North West of the site. (Grid Ref SS5873389312).



Orchid, Mangel Green

2.5.3 Significant removal of the bracken will be beneficial for improving local biodiversity by helping to restore the more species rich grassland and allowing nectar rich species to grow; which will be beneficial to pollinators and therefore for birds.

Mangel Green is a remnant of Clyne Common which provides a lot of existing bracken habitat so loss of this kind of habitat is unlikely to be significant. But it is reasonable to maintain connectivity in this area. Therefore some small areas of bracken should be retained for example along the woodland edge.

2.5.4 The schedule of interesting flora species are shown where they were observed within tree groups.

2.6 Invasive Species

2.6.1 There are two Japanese Knotweed clumps, shown on map 2. The first clump is on the North West corner approx 10-15 sq m. The second larger clump of approx 50 sq m is on the southern end alongside the drainage ditch running along the southern woodland perimeter.



Northwest corner clump of Knotweed, Mangel Green

2.7 Soil Type



Loamy soil found on the West side of Mangel Green near road verge

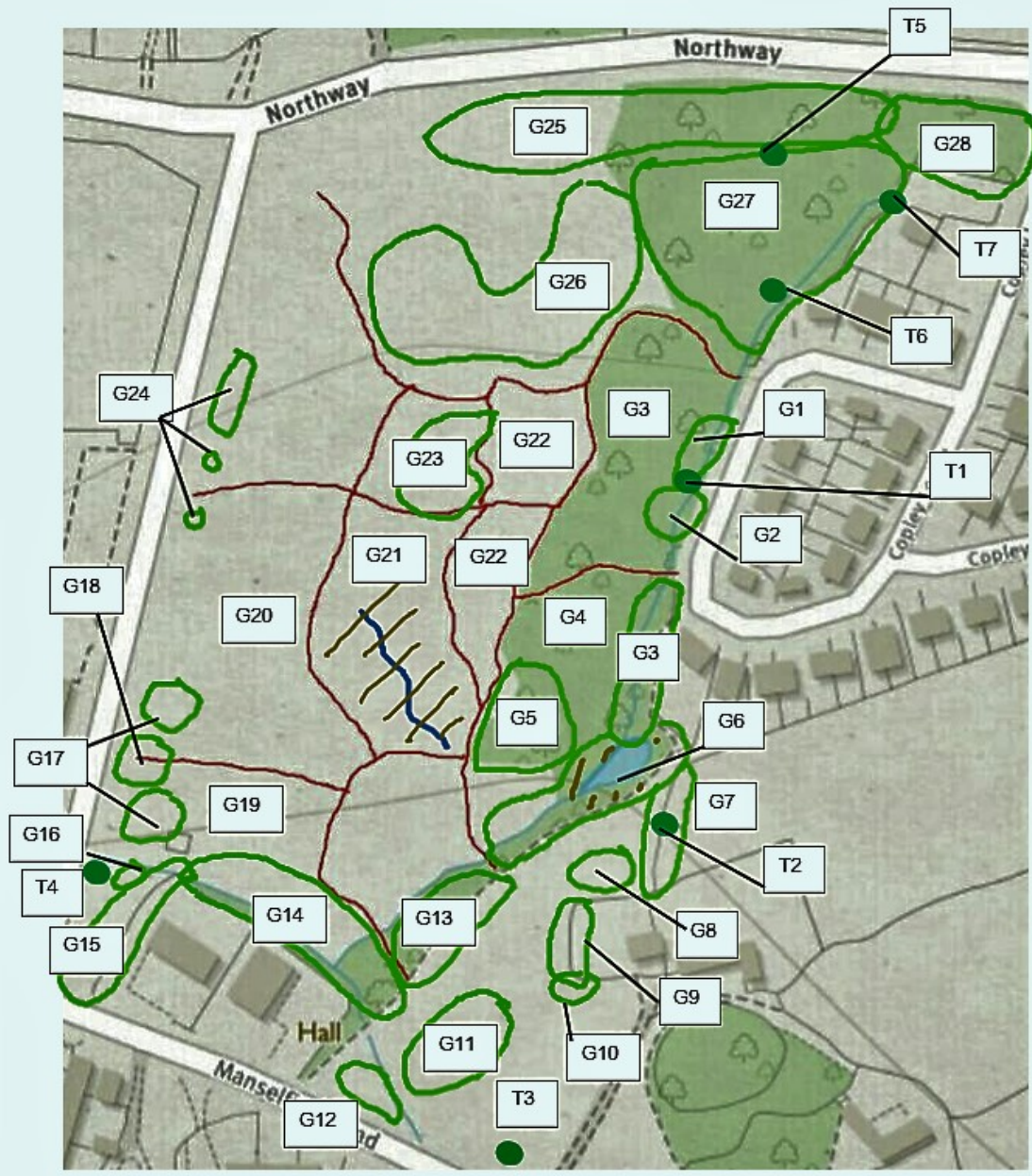
2.7.1 The soil type which predominates is freely draining slightly loamy acid soil. Loamy soils have a mix of sand, silt and clay sized particles; characterised by low fertility. The habitat has neutral to acid pastures, deciduous woodlands, and acid communities such as Bracken and Gorse.

2.7.2 Wetter areas in the central and Eastern parts of Mangel Green display wetter soils characterised by peaty humose, loamy with impeded drainage. Such that they become wetter and more acid displaying bog communities and wet woodland habitats(ref Soilscape map).

3. Site Visit and Method of Data Collection and Interpretation

3.1 Map 1Trees and Groups, Tree Schedule table

Map 1. Trees and Groups



Key

- Individual tree
- Groups
- ▨ Wetland/boggy areas
- Permissive pathways

Ordnance Survey Map from <https://osmaps.ordnancesurvey.co.uk/51.58410,-4.03994,17/pin>

ALL FEATURE POSITIONS ARE APPROXIMATE

Name	Species Composition	Scientific Name	Age	DBH (mm)	Height (m)	Spread	Condition	Description	Management Proposal/Recommendations
G1	Sycamore x2, Ash x2	Acer psuedoplatanus, Fraxinus excelsior	Early Mature		10	4 to 5	Normal	Topped at 7m, 3m re-growth, multi-stemmed at base	
G2	Oak x2	Quercus robur	Early Mature	1 x 350 1 x550	12	10	Normal	Bifurcate at 1m	Retain for structural diversity as future mature specimen.
G3	Hazel, Grey willow, Oak, Holly, Hawthorn Ground Flora: Bluebell, Wild garlic, Enchanters nightshade, Honeysuckle. Non-native invasive species including Crososmia, Lysimachia, Rose of Sharon	Corylus avellana, Salix cinerea, Quercus robur, Ilex aquifolium, Crataegus monogyna	Young to Mature	100-300	2-7	1 to 5	Normal	Possible remnant of ancient semi-natural woodland, indicated by coppiced Hazel stools and woodland flora.	Coppice relevant Hazel, and other species for increased diversity and resilience.
G4	Grey willow, Hazel, Oak, Holly, Hawthorn		Early Mature to Mature	100-300	2-9	0.5 to 9	Normal	Remnants of Hazel coppice.	Coppice and re-plant Hazel and other species for increased diversity and resilience.
G5	Oak, Grey willow		Young to Early Mature	50-250	2-12	0.5 to 7	Normal	Clump of early mature Oak, childrens den and tree house in one of the trees.	Thin out poor specimens to increase long-term timber potential. Retain children's den
G6	Sycamore, Ash, Grey willow, Holly, Hawthorn		Early Mature to Mature	50-450	14	1 to 14	Normal	Trees along a ditch and stream	Plant Alder (Alnus glutinosa)
G7	Sycamore x3, Hawthorn		Early Mature to Mature	100-450	12	12	Normal	Next to footpath, Sycamore are mature and multi-stemmed at base, a	Coppice Sycamore

								few tight forks	
G8	Himalayan Birch x2	Betula ermanii	Mature	300	14	14	Normal	Amenity planting	
G9	Hazel, Hawthorn, Elder	Corylus avellana, Crataegus monogyna, Sambucus nigra	Young	50 to 150	2 to 4	2 to 4	Normal	Shrubs along fence boundary	
G10	Ash x2	Fraxinus excelsior	Mature				Normal	Group of two adjacent to driveway and residential property. Some twig dieback, possible Chalara die back. One specimen bifurcate at approx 1m	Visual tree assessment required, to assess structural safety.
G11	Oak x6, Ash x3, Italian alder x1, Rowan x1	Quercus robur, Fraxinus excelsior, Alnus cordata, Sorbus aucuparia	Early Mature	75 to 250	≤14	≤12	Normal	Amenity planting	
G12	Alder x2, Horse chestnut x1	Alnus glutinosa, Aesculus hippocastanum	Early Mature	250	≤14	≤12	Normal	Amenity Planting	
G13	Sycamore, Ash	Acer psuedoplatanus, Fraxinus excelsior	Early Mature to Mature	200 to 400	≤14	6 to 12	Normal	Ash coppice re-growth, group along ditch/stream	
G14	Sycamore, Ash, Copper beech	Acer psuedoplatanus	Early Mature	200-400	8 to 15	6 to 14	Normal	Multi-stemmed Ash and sycamore,	

		us, Fraxinus excelsior, Fagus sylvatica	to Mature					group along ditch/stream	
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Name	Species Composition	Scientific Name	Age	DBH (mm)	Height (m)	Spread	Condition	Description	Management Proposal and Recommendation
G15	Ash x2, Copper beech x1		Early Mature to Mature	250 to 450	8 to 15	5 to 14	Normal	Screens adjacent property to road	
G16	Apple x2	Malus spp	Young	100 to 200	3	3	Poor	Amenity planting	
G17	Oak x 8		Semi-Mature	150 to 200	8	4 to 8	Normal	Amenity planting	
G18	Ash x8, Sycamore x3, Hawthorn x3		Young to Mature	150 to 400	2 to 12	1 to 8	Normal	Amenity planting. Two significant, mature ash coppice stools within group, ivy beginning to grow up stems. Some twig die back.	Monitor for Ash die back-sweep up leaves and bury where possible.
G19	Sycamore, ash, Grey willow, Oak		Young to Early Mature	50 to 200	2 to 8	0.5 to 8	Normal	Loose group amongst bracken. Mixed age range. Young Ash dying. Some young Oak regeneration.	
G20	Grey willow, Ash, Oak Flora: Tares, Perforate st johns wort, angelica, mint and other nectar rich species observed between G20 to G21		Young to Early Mature	50 to 200	2 to 8	0.5 to 8	Normal	Similar to G18	Possible site for community garden.
G21	Grey willow, Birch,		Young to	50 to 300	2 to 8	0.5 to 8	Normal	Wet woodland	Maintain non-intervention area

	Oak, Hawthorn, Sycamore, Holly Flora: Yellow flag iris, Sedges, Ferns, Rushes, Red champion.		Mature					habitat, boggy, predominantly mature willow. Ditch running through section.	around Flag Iris/boggy area to preserve wet woodland habitat and associated species. Coppice Sycamore for wood fuel. Leave some logs as decay habitat. Possible great crested newt habitat.
G22	Grey willow, Hazel, Hawthorn, Oak		Young to Mature	50 to 350	2 to 8	0.5 to 10	Normal	Predominantly Grey willow, some young Oak regeneration, possible ancient Hazel coppiced stools. Children's den between G22 and G23	Retain children's den
G23	Grey willow, Sycamore, Ash, Oak, Hazel		Young to Early Mature	50 to 350	2 to 10	0.5 to 10	Normal	Open scrub	
G24	Birch x2, Field maple, Oak	Betula pubescens, Acer campestre, Quercus robur	Young to Early Mature	50 to 300	2 to 9	2 to 7	Normal	Amenity planting	
G25	Grey willow, Sycamore, Ash, Oak, Hazel		Young to Mature	50 to 250	2 to 10	2 to 10	Normal	Multi-stemmed trees along road side	Coppice for wood fuel and road clearance.
G26	Grey willow, Ash, Hawthorn, Hazel		Young to Early Mature	50 to 200	2 to 8	1 to 8	Normal	Open Scrub	Possible site for orchard/ wood pasture or community garden.
G27	Grey willow, Ash, Sycamore, Hawthorn		Semi Mature to Mature	50 to 250	2 to 12	2 to 10	Normal	Possible remnant of ancient semi-natural woodland, indicated by coppiced Hazel stools and woodland flora	Manage as part of coppice and standards rotation/replant. Retain more mature specimens for structural diversity.
G28	Grey willow, Ash,		Semi Mature	50 to 150	1 to 8	0.5 to 8	Normal	11Kv Over Head	

	Hawthorn, Holly		to Mature					Power Line (OHPL) running through group with services running to properties in Copley Lodge. Previously coppiced for clearance by electricity provider	
T1	Oak		Semi Mature	1 x 350 1 x 550	12	10	Normal	Bifurcate	Retain for structural diversity as future mature specimen
T2	Sycamore		Mature	3 x400, 1 x200, 1 x250	12	15	Normal	Multi-stemmed at base, central decay hollow (550mm deep), central decayed stem sandwiched between two sound stems either side. Compact crown.	The decay cavity may have bat habitat potential. Assess structural safety.
T3	Horse chestnut		Early Mature	550	8	8	Normal	Amenity planting	
T4	Horse chestnut		Early Mature	450	8	7	Normal	Amenity planting	
T5	Ash		Mature	2 x150, 4 x400, 1 x300	12	12	Normal	Significant tree. Coppiced, multi-stemmed re-growth. Some tight forks	Re- coppice in 4-10 years time as part of coppicing a compartment or coupe. Reassess integrity of tight forks every 1-4 years.
T6	Oak		Early Mature	600	12	10	Normal		Retain for structural diversity as future mature specimen.
T7	Ash		Mature	5 x250 to 400, 3 x300	12	12	Normal	Significant tree. Coppiced, multi-stemmed re-growth. Some tight forks	



Camp set up for data collection

3.2 Limitations

3.2.1 The woodland survey was made by a walk through to identify main tree species and interesting site flora.

3.2.2 This survey is not a tree safety inspection or risk assessment. Where clear hazards have been identified these have been reported in the tree schedule under Management Proposals.

3.2.3 The assessments are made on the basis of the conditions found at the time of the survey on 2nd July 2018. Trees are dynamic structures and site circumstances can also change. Therefore recommendations made in respect of tree health and structural condition in this report is limited to a period of one year only.

3.3 Site Visit and Method of Data Collection.

3.3.1 A site visit was made by Climate and Community on 2nd July 2018. Tree heights and diameter (measured at 1.5m) are rounded to the nearest metre and 500mm respectively.

3.3.2 Permissive paths were plotted approximately by using OS Map app and approximate group areas were estimated by using paths and satellite imagery of the site.

3.3.2 Trees have been allotted an individual tree or group number which is used to identify them throughout this report, on the Tree Schedule and map.

3.3.3 The collected data are present in the Tree Schedule.

3.3.4 The following information is given in the tree schedule:

Tree Reference No: Sequential reference number used on the Tree Survey Schedules and plans. 'T' signifies an individual tree and 'G' a group of trees.

Tree Species: Common name and scientific name.

Height (m) where a clear and unobstructed view of the tree is possible tree height is estimated to the nearest 0.5m following calibration by measuring with a Leica disto laser measurer.

Stem diameter (mm): For singled stem trees a single measurement is taken. If trees are assessed as a group of woodland feature, generally a range from the smallest to the largest within the group or

woodland is measured. NB Many of the most mature trees on site are multi stemmed (grey willow or ash) – there may be several stems ranging between 100-250mm for example.

Branch Spread (m) Taken as the largest width of the canopy

Life Stage: A classification of the age of the tree. In the case of woodlands and groups this is based on the oldest tree.

Y – Young	Recently planted trees less than a quarter of life expectancy.
SM – Semi Mature	Established trees less than a third of predicted life expectancy.
EM – Early Mature expectancy.	Trees between one third and two thirds of predicted life expectancy.
M – Mature	Trees over two thirds of predicted life expectancy.
OM – Over Mature	Trees which have reached a point of senescence which may result in lowering vitality.
V- Veteran	A tree of significant age (with a large girth) which provides cultural, landscape or ecological value.

General Observations: Particularly of structural and physiological condition (e.g. the presence of any decay and physical defect).

4. Statutory Protection and Legislation

4.1 Tree Preservation Orders

4.1.1 A check for Tree Preservation Orders (TPO) was carried out on 20th July 2018 by contacting Swansea Council which confirmed that the site is not within a conservation area and is not subject to a TPO. A search of the DEFRA Magic map (1) found no further statutory wildlife designations on the site, only that part of the site has been identified as 2.18 hectares broadleaved woodland. According to Ordnance Survey it is considered urban green space (2).

4.2 Wildlife and Countryside Act 1981

4.2.1 Under the Wildlife and Countryside Act 1981 as amended and the Countryside and Rights of Way Act 2000 all species of wild birds, their eggs, nests and chicks, are legally protected until the young have fledged. Tree work is best carried out outside the bird nesting season, which typically extends from March until September, although in some cases it may begin earlier than this. If work must be carried out within the bird nesting season, the trees should be inspected to ensure that birds are not nesting in the trees to be worked on. If nesting birds are present, work must not proceed.

4.2.2 Japanese Knotweed is listed in Schedule B of the Wildlife and Countryside Act 1981 and is subject to Section 14 of this Act. It is an offence to plant or cause this species to grow in the wild. This means that actions which cause the spread of Japanese Knotweed e.g. strimming, flailing or dumping contaminated material, may constitute an offence. Allowing Japanese knotweed to spread from your property into neighbouring land may also be an offence; this has recently been tested in the courts.

4.3 Environment (Wales) Act 2016

4.3.1 The Environment Act aims to build greater resilience into our ecosystems. Biodiversity and well-functioning eco-systems provide natural solutions that build resilience, which in turn help society create jobs, support livelihoods and human well being, adapt to the adverse impacts of climate change and contribute to sustainable development. There are a number of priority habitats and species.

4.3.2 The proposals take into account the habitats and species and aims to enhance the environmental benefits and ecosystem services provided by Mansel Green.

4.4 The Well Being of Future Generations (Wales) Act 2015

4.4.1 The Well Being of Future Generations (Wales) Act 2015 is concerned with improving the social, economic, environmental and cultural wellbeing of Wales. The act will make public bodies look to prevent problems by taking a more joined up approach by working with people and communities better.

4.4.2 In accord with National Assembly legislation the Swansea regional Public Service Board (PSB) consulted the people on what issues mattered to them in sustaining wellbeing. One of the four resulting challenges is 'Working with Nature'. This calls for: improving health, improving our knowledge and understanding of the natural environment, maintaining and enhancing biodiversity and reducing our carbon footprint. The management proposals for Mansel Green will help meet these challenges.

4.5 The Climate Change Act 2008

4.5.1 The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are prepared for. The Act also establishes the framework to deliver on these requirements.

4.5.2 The Act supports the UK's commitment to urgent international action to tackle climate change.

4.5.3 Through the Climate Change Act, the UK government has set a target to significantly reduce UK greenhouse gas emissions by 2050 and a path to get there. The Act also established the Committee on Climate Change (CCC) to ensure that emissions targets are evidence-based and independently assessed.

4.5.4 In addition, the Act requires the Government to assess the risks and opportunities from climate change for the UK, and to prepare for them. The CCC's Adaptation Sub-Committee advises on these climate change risks and assesses progress towards tackling them.

4.5.5 The Climate Change Act commits the UK government by law to reducing greenhouse gas emissions by at least 80% of 1990 levels by 2050. This includes reducing emissions from the devolved administrations (Scotland, Wales and Northern Ireland), which currently account for about 20% of the UK's emissions.

4.5.6 80% cuts in emissions represent substantial changes in current land management. We all need to do what we can to bring about meaningful behaviour change in our lives and livelihoods. So that we pass on to our children, an environment that is at least as healthy and vibrant as we had experienced in our youth. The proposals for Mansel Green can demonstrate sustainable land management in the community and offer accessible educational opportunities which will contribute to the change in behaviour needed to reduce emissions in our everyday lives.

4.6 Felling Licenses

4.6.1 It is necessary to obtain a felling licence from Natural Resources Wales (NRW) if more than 5 cubic metres of saleable is to be cut annually (no more than 3 cubic metres per calendar quarter).

4.6.2 The majority of works that Climate and Community are proposing i.e. the coppicing, pollarding and felling of small diameter trees for thinning purposes are exempt from the requirement to obtain a felling licence. The small scale nature of the proposed areas to be coppiced will result in less timber than required for a felling licence application. However this will be assessed where:

- 1) Trees for thinning (>10cm diameter at 1.3m)
- 2) Willows to be coppiced (>15cm diameter measured at 1.3m)

4.7 Disease – Possible Ash Dieback

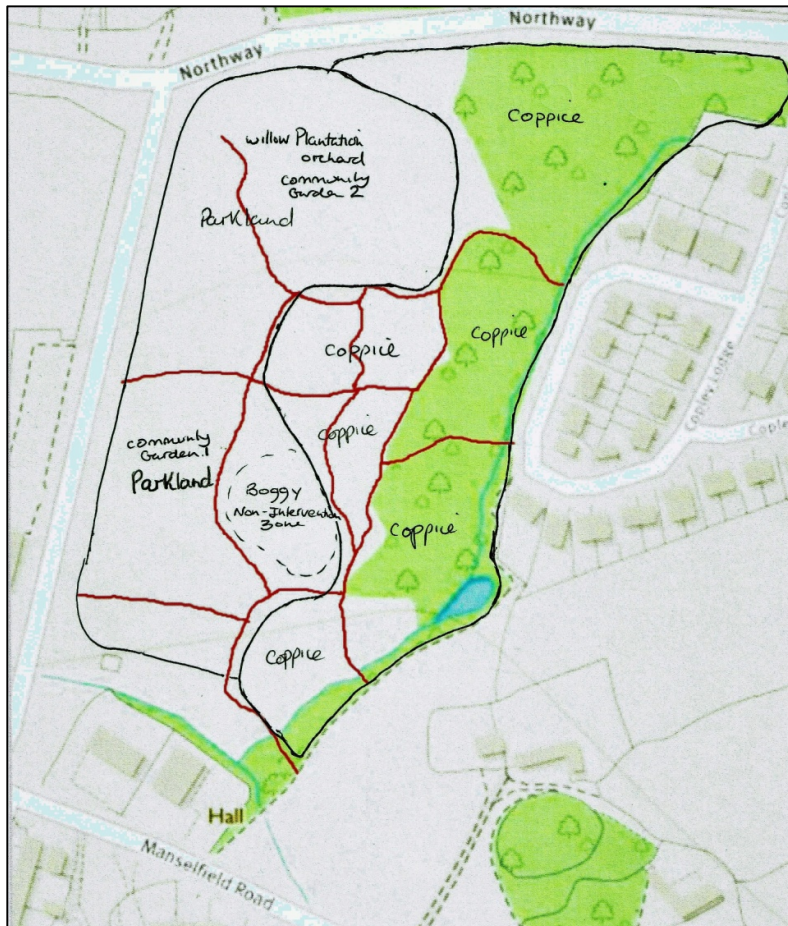
4.7.1 Unfortunately a number of the ash (*Fraxinus excelsior*) trees on site are exhibiting signs of die back that maybe Chalara die-back (*Hymenoscyphus fraxinea*). Chalara has been found throughout Wales and is a notifiable species that should be reported via Tree Alert App.

4.7.2 It is not necessary for a landowner to do anything in respect of felling trees, but mature trees should be regularly assessed for structural integrity when in close proximity to people or property.

4.7.3 The pathogen spreads through infected leaves, so to limit spread, wood or chippings that contain leaves should not be removed from site. Where possible leaves should be swept up and burnt or buried on site. Natural Resources Wales (NRW) bio-security measures should also be adhered to when visiting the site or working with trees.

5. Woodland Management and Community Engagement

5.1 Map 3 Management Proposals



5.2 Tree Management for Climate Resilience

5.2.1 Climate and Community aim to empower the local community and aid in long-term resilience by carrying out training and education into land based skills. Mansel Green is opportunity to demonstrate and teach the younger people how to manage woodland productively. To provide an example of what can be done and how

5.2.2 In accordance with NRW's Forest Resilience Guide 1 improving the structural diversity of Welsh Woodlands (March 2017), good forest structure is characterised by some, or all, of the following features:

- Within-stand age-class diversity i.e. more than one storey of trees.
- Evidence of all stages of tree development and phases of growth (i.e. from establishment to early and late pole stage, opening up thinning, advance open thinning, final crops and seed crops.
- Variation in the size and extent of clear felling coupes.
- A mixture of species suited to the habitat, with different characteristics and levels of shade.
- Variable crop density (a function of individual tree species and the degree of thinning)
- Variation of tree diameters.
- Presence of standing and fallen deadwood.
- Areas of open ground within forest environments.

- Diverse habitats of native and non-native trees, with a diversity of flora and fauna to improve overall ecological value.

5.2.3 Furthermore:

“ increasing the range of tree species we use and planting them at a smaller scale will inevitably improve the landscape value of our woodlands. Traditional monocultures will gradually be broken up into a more varied mosaic of tree species, which will be of particular benefit in woodlands located close to communities and recreational areas.”

5.2.4 Therefore Climate and Community propose to increase resilience and diversity and providing local products. The planting coppice species such as alder, birch, hornbeam, basketry willow, hazel and oak. Products such as pea sticks, stakes, plant supports, gate hurdles, pegs, brooms, hedge stakes, etherings, wood fuel and biochar can be produced.

5.3 Woodland Management and Coppicing

5.3.1 The woodland (Groups G27-28, G22-23, G3-5 and G13) provides the ideal opportunity to demonstrate traditional hazel coppice with standards. Hazel coppice is traditionally cut on a 7 year rotation and provides materials for making hurdles (temporary and decorative fence panels), hedging stakes, crafts, charcoal and 'biochar' - a charcoal-derived soil amendment (see Section 5.4).

5.3.2 Canopy species such as oak and ash will be left as 'standards' - to grow into mature trees for timber and firewood. Sycamore is considered a non-native species and the seeds of which are very viable and can take over an area but it is a good species to keep for resilience.

5.3.3 It is proposed that areas of mature trees remain in 'non-intervention' zones but most of the trees along the eastern boundary within the woodland will be coppiced as part of hazel coppicing, along with holly to provide wood fuel.

5.3.4 Coppicing is recognised as significantly increasing the biodiversity of woodland by increasing light to the ground layer where nectar rich flora are in the seed bank but are unable to flower due to the lack of light under a closed canopy.

5.3.5 The section in consideration is 'over stood' due to the number of larger trees – the Hazel needs replanting to 2m spacing and more light to grow straight and be useful for coppice products (bent Hazel, is more knotty and difficult to work).

5.3.6 'Coppice with standards' is a traditional system combining the production of standard trees grown on a long rotation for timber, combined with coppice species cut on a shorter rotation. It is such a small area that traditional coppice is not possible; area can be divided into seven areas to be coppiced as demonstration plots. Significant existing oak trees and other canopy species will be retained and more will be replanted as necessary.

5.3.7 A Tree Planting and Coppicing programme should be created. This will need a detailed survey of the ground to identify and lay out six coppice cants (area cut in each year). Cutting and filling in Hazel can then proceed. At the same time the rest of the ground should be examined and a planting scheme outlined. From being members of TCV (The Conservation Volunteers) Climate and Community have obtained a variety of 450 trees to begin a planting scheme in January 2019.

Woodland Trust is another source of trees and can be obtained in packs for community planting projects.

5.4 Local Wood Fuel and Biochar

5.4.1 It is proposed that the woodland management is used to provide not only craft wood (chair legs for turnery, tent pegs, hurdles) but also as a local, sustainable source of wood fuel to provide a local source of biochar.

5.4.2 Biochar is a charcoal-based soil amendment that can be made by pyrolysing (heating material in the absence of oxygen) any organic material. Chris Turney, a professor of geography at Exeter University summarises biochar as this: Biochar's porous structure is ideal for trapping nutrients and beneficial micro-organisms that help plants grow. It also improves drainage and can prevent up to 80% of green-house gases such as nitrous-oxide and methane from escaping from the soil (Bruges, 2009).

5.4.3 Climate and Community aim to demonstrate the production and use of biochar by using 'biochar gasification stoves' pioneered by Ed Revill, a local market gardener. The stoves can be used for heating water and cooking food (an important part of community events!) but as opposed to the traditional method of making charcoal in a kiln (which emit noxious wood gas) are very low emission and as such are 'carbon negative' because the carbon is sequestered in the soil as biochar.

5.5 Notable and Specimen Trees

5.5.1 Notable individual trees have been identified in the Tree Schedule (Appendix X). These trees are the most mature in the area and should be retained to create a diverse age structure.

5.6 Non-intervention Zones

5.6.1 It is proposed that some areas of the more mature trees within the boggy area and along the ditch are also retained. This may be subject to change depending on liaison with the local community, ecologists and local knowledge of whether species would benefit from coppicing these areas.

Map 2 Invasive Species



B Bracken K Japanese Knotweed

5.7 Bracken Management

5.7.1 Bracken is a native plant with conservation benefits and is a natural component of many woodlands and open-ground habitats. Stands of bracken can provide a valuable habitat for wildlife especially where the bracken canopy is relatively open. However bracken is a successful coloniser and can spread into grassland, moorland and heath land. When it encroaches into these habitats it needs to be controlled.

5.7.2 Bracken is taking over the majority of the eastern side of the site. It is the result of reduced grazing by stock in recent years. The bracken creates inaccessible patches in places accompanied by dense bramble. It is a large area to try and manage in one go. Established pathways weave through this area.

5.7.3 We propose controlling the bracken/bramble area by cutting it with scythes or strimming, at least twice in the first year May/June and July/August. An inspection to identify any ground nesting birds at the beginning of the season is recommended, if found first cutting should be delayed to mid July. The first cut is when the bracken is 50-75cm high and again 6 weeks later. This twice yearly cut is most likely needed for the first 3 years. Alternatively one cut in late July over 5 years.

5.7.4 During the cutting regime the area will be opened up and made available for follow up management. Firstly the opened up area will be available for tree planting where the shade will eventually exclude the majority of bracken. Secondly litter disturbance by organising the re-entry of stock preferably cattle but also sheep. The trampling damages bracken buds and developing fronds which are close to the surface and just emerged and the litter is broken up and encourages frost

penetration. Where areas are required for planting trees, bracken roots should be dug over and removed. This can take place over a number of years.

5.7.5 In the very short term engage with the local community and organise volunteer events to bracken whip focusing on widening existing paths to increase the diversity of locally native plants for the benefit of the local community, bees, butterflies and other pollinators.

5.7.6 In the medium term engage with the community to create a project to train volunteers in scything techniques. The Austrian Scythe is widely used and accessible to all abilities. The benefits include the demonstration of a fossil free method to control bracken, bramble and Japanese knotweed. It is quiet, enjoyable and a sociable method. Funds could be sought to train and implement bracken control on the site over a 5 year period. Regular photos and community blogs can highlight the progress and efficacy. It can also catalogue the increase in flora on the site.

5.8 Japanese Knotweed Management

5.8.1 It is a tall, vigorous ornamental plant that escaped from cultivation in the late 19th century to become an aggressive invader in the rural and urban environment.

5.8.2 It is a rhizomatous (produces underground stems) perennial plant with distinctive branching, hollow, bamboo-like stems covered in purple speckles often reaching 2-3m high. The plant flowers August to October with small creamy white flowers. The underground rhizomes are thick and woody and when broken reveal a bright orange centre. The rhizome system may extend to and beyond a depth of at least 2m and extend 7m laterally from a parent plant. During March to April the plant sends up new shoots red/purple in colour.

5.8.3 Japanese knotweed rarely produces viable seeds. In UK the plant is spread through rhizome fragments or cut stems. As little as 0.7gram of rhizome material (10mm length) can produce a plant in 10 days. Cut fresh stems have been shown to produce shoots and roots from nodes when buried in soil or immersed in water. Once cut stem has been allowed to dry out thoroughly and has reached the orange/brown 'woody' stage there is no further regeneration. Rhizome material may take much longer to die and may remain dormant for possibly as long as 20 years.

5.8.4 Professor Dan Eastwood of Swansea University conducted a study into eradicating the invasive plant in two sites Taff's Well near Cardiff and Swansea. Despite using various chemical methods, physical methods and a combination of the two found no definite ways to completely kill it using current methods. Gardening firms and contractors who claim to eradicate the plant in 3 years are not fully accurate. Therefore it is not a question of eradication but sustained control and management informed by sound research. Furthermore the project has shown that applying the wrong herbicides at the wrong time of year leads to greater herbicide use and environmental impact.

5.8.5 The wet woodland habitat and drainage ditches on Mansel Green are prime areas for infestation and need consistent control and management.

5.8.6 Climate and Community do not recommend the use of herbicides such as Glyphosphate; research is showing its accumulative effects on wildlife and human health (Brandli and Reinacher

2012). We propose to use physical control best practice (EA 2006) cutting of the stems inside the two clumps of knotweed.

Method	Desired effect	Timing	Frequency
Cutting using strimmer, mower, hand scythe	<ol style="list-style-type: none"> 1. Removal of dead stems 2. Reducing vigour of plant 3. prevent spread 	<ol style="list-style-type: none"> 1. Autumn/Winter 2. March-October 3. Throughout the growing season(March-October) 	<ol style="list-style-type: none"> 1. Annually 2. Four times a year 3. In case of mowing repeat fortnightly

5.8.7 Cut stem material should be left where it can dry out but not on bare soil or grass but an impermeable membrane surface or raised drying frame. Once the stems have dried to a deep brown colour they are dead. Cutting the stems cleanly with a cutter hook or scythe at the base will minimise small pieces being distributed. The dead material then could be safely burned on site. We would consult the Council Environmental Health office before burning. The aim is to repeat this cutting and removal process over multiple years (at least 5 years) or until the underground rhizome goes into dormancy.

5.8.8 Cutting the stems and omitting chemical use allows climate and community to involve conservation volunteers in the operation and prevent the use of persistent herbicides in the local environment.

5.8.9 We also recommend the council keep updated on the research being carried by the Invasive species department Swansea University who are currently researching among other things ‘test efficacy of widely applied and novel physical eradication methods’.

5.9 Footpath Improvements

Map 4 Permissive paths



Red lines are permissive paths

5.9.1 The path system appears to be permissive paths on publically owned common land. Although such paths do not have the legal status of a right of way. Responsibility for common law rights of way are not so positively stated and extend only to 'asserting, protecting, keeping open and free from obstruction or encroachment'.

5.9.2 However a way to enhance Mansel Green and engage with the local community is to improve the footpaths further and consequent usage of the site. We recommend a general path survey prior to prioritising and improving the network of paths. Footpath improvement will also required to improve access to and from the site, for harvesting and future management of the wood e.g. coppicing.

5.9.3 The general condition of paths are reasonable but during the winter the area becomes very wet.

5.9.4 Remedies include

- Clearing and widening over-grown areas, to let the sun and wind dry it out.
- Lay base and surface material in some areas getting greater use over boggy ground
- Divert paths away from boggy areas
- Build small stretches of board walk
- Improve small bridges over ditches and level ground.

5.9.5 So as not to affect the wet woodland boggy areas, it is proposed that a board walk is installed through the boggiest areas of the wood with most ecological interest. The board walk could be made so that the area is improved for wheelchair accessibility and buggies so that parents can use the area easily with young children. Aiming for at least one route through the green which could be navigatable by those pushing pushchairs and wheel chairs.

5.9.6 Ideally materials from the woodland would be used but there is a lack of durable hardwood species on site that will produce large enough timber (e.g. oak), so materials would probably need to be sourced from another locally managed woodland.

5.9.7 The type and construction of footpath specifications would be carried out with consultation and in agreement with the local community and would be a suitable volunteer activity. The work could be done over a number of years as funds and volunteer labour became available.



Pathway through dense Bracken

5.10 Basketry Willow Plantation

5.10.1 Basket making is a very ancient craft. In the past there was a basket maker in every village who grew, processed and wove their own willow. In the 18th century willow was increasingly grown as an agricultural crop. Willow growing flourished in the 19th century and fed into the industrial revolution. Declining in the mid 20th century owing to the use of other materials and foreign competition.

5.10.2 A Basketry willow bed is still a valuable resource for any village community. The cost of material once planted is the labour used in annual harvesting and grading. That is why a willow craft community is needed to manage the coppice and decide how the material will be used.

5.10.3 The containers are biodegradable; in manufacture or disposal no harmful bi products remain in the environment. This is the hallmark of a sustainable fibre, modern materials have their uses but also their cost. We need to re-invent the use of biodegradable containers and re-invigorate the craft industry which sustains it.

5.10.4 It is proposed that a basketry willow plantation be planted in the open west side currently encroached by bracken. An area around 12 by 12 metres will be sufficient to grow a reasonable volume of basketry willow for community use. A plantation will comprise of planting willow setts (30cm length willow sticks) in rows c. 40cm apart, along the rows c.25cm apart under black plastic mulch.

5.10.5 A Willow plantation is a valuable habitat; it is an early pollen source for bees and will attract other wildlife.

5.10.6 Willow basketry is popular craft well suited to wider community involvement, this would be organised as a Willow craft community, a set of community members who volunteer to plant the coppice, maintain and harvest it. Finally using the materials to learn and pass on skills to further members of the community thereby building on the Bishopston's heritage of willow growing and basket making and encouraging the use of biodegradable plastic free containers. This ties in well with gaining a plastic free Bishopston status which is being pursued in the village.

5.10.7 Funding has been applied for a yearlong project and if successful could start in January 2019.

5.11 Wood Pasture and Parklands

5.11.1 Wood pasture became highly favoured by medieval kings as Royal Forest for hunting. In 1086 wood pasture commons appear to be the predominant woodland type (Rackham 2006). Local people had the right to graze their animals on the commons; and sometimes to collect and cut wood. Wood pasture was valued as it provided a place for both grazing and wood production (Read and Frater 1999). It often resulted in widely-spaced pollarded trees with animals grazing the open areas between.

5.11.2 Pollarding is the practice of cutting a tree 2-3m above the ground to produce a crop of new shoots. The shoots grow into strong limbs that can be harvested for fodder, firewood etc. This method is high enough off the ground to ensure new shoots will not be grazed by browsing animals.

Pollarding also extends the life of a tree, creating veteran/ancient trees that support larger numbers of species.

5.11.3 It has been a forgotten woodland management but recently there has been increasing examples of restoration and creation of new wood pasture. The woodland trust have demonstrated converting unimproved grassland into low-maintenance wood pasture. One demonstration of this is Green Castle Woods in Carmarthenshire.

5.11.4 We recommend the West side of the open bracken covered area of Mansel Green be planted as a wood pasture following the techniques used by the Woodland Trust at Green Castle woods. Appropriate species will include Hornbeam, Oak and Birch planted at 10-15 trees per hectare. Planting will be in small groups of 5-7 whips eventually selecting the best and felling the rest.

5.11.5 Low levels of grazing will be needed to control Bracken and maintain grassland floral diversity. This is an opportunity to invite the commoners to help with the project and facilitate grazing. Alternatively the grassland could be mown as a hay meadow.

5.12 Hedge Planting and Maintenance of Boundaries

5.12.1 To make Mansel Green safer for grazing animals the Mayals road / Northway boundary at least could be made a stock barrier hedge. The current woodland edge is close to the road and could be pushed back and thinned down so that a hedge stock barrier could be planted. There are no pathways emerging on the Mayals road / Northway from the wood. There is also an issue of afternoon shading of houses on Copley Lodge. The woodland edge could be thinned and some tree crowns lifted to reduce the shading.



Northway road side woodland verge

5.13 Ysgol Amgylchedd Environment School

5.13.1 We have described woodland management proposals for Mansel Green which involve a significant engagement with the local community and encouraging them to get active by learning and doing. Come see, come learn, come practice. To facilitate this climate and community can use a portable low impact skills school. To be set up for key events and workshops to shelter and service students, volunteers and community members.

5.13.2 It is a series of small demonstration plots that show best practice in land management for tackling climate change. The school is needed to create a community hub which creates the organising and structure to invest in the local people who need to get involved and motivated to change their lives in view of climate change.

5.13.3 The scrub woodland is well located and easily accessible to Bishopston and Murton and publically owned. We propose it is a location for the foundation of a rural skills school (Ysgol Amgylchedd) which can develop and teach appropriate land based skills and ways to socially and economically organise. It can create an exemplary teaching resource, a demonstration plot which is a practical skills hub to empower the local community with the understanding and skills for resilience in tackling climate change such as coppicing/pollarding, hedge laying, bracken and knotweed management, path maintenance, gardening and food growing skills. All this can be based in the wood, a school which manifests as fully portable and low impact.

5.14 Peoples Woodland Group

5.14.1 The Woodland Trust have been gathering data on how accessible woodlands are to centres of population for over 10 years. The standards are as follows: Standard1: No one should live more than 500m away from at least one area of accessible woodland in no less than 2ha in size. Standard 2 There should also be at least one area of accessible woodland of no less than 20ha within 4km of people's homes.

5.14.2 The standards are an aspirational benchmark which can be used as the basis for local green space planning and discussion.

Results 2017

% of population that attain standard 1 UK average 23.6, Swansea local authority 24.6

% of population that attain standard 2 UK average 80.6 Swansea local authority 84

5.14.3 We can see that the access to 2ha woodlands are relatively low and need increasing, highlighting the importance of Mansel Green.

5.14.4 The benefits of outdoor access for both physical health and mental wellbeing are being recognised and evidenced by clinical research. Encouraging people to spend time in natural green spaces could deliver health cost savings to the NHS. Furthermore concerns and anxiety caused by the changing climate such as heat waves, flooding, storms etc (Brenner, G, 2018) can be channelled positively through practical action and learning to do things differently in a group context. The optimism of the action is better than the pessimism of the thought.

5.14.5 The proximity of the woodland i.e. less than 500m away is crucial in creating ease of access by being a short walking distance from your own home. It creates ownership and belonging for your own back yard. It is also the quality of the experience, the educational foundation of the project encourages greater sustained interest, and connection to bigger issues such as climate change and offers a range of experiences and learning for all ages throughout the seasons.

5.14.6 Recruiting and building active social groups should begin by targeting existing community groups of all ages and interests e.g. Youth group run by Methodist church Rev Andrew Walker, five

local WI groups, schools, elderly groups, allotment/ gardeners, uniformed youth groups such as brownies, scouts etc.

5.15 Community and Forest gardening

5.15.1 It is important the community that people in the community have a focal point to visit, and sit in Mansel Green. We propose an area which has a sitting area possibly with a roofed shelter which has extra plantings in raised beds which create a community forest garden. This area should be prioritised in creating pathways to and from it to facilitate wheelchairs and pushchairs so that people of all ages can regularly visit.

5.15.2 As an example Loxwood community garden Initiative, West Sussex includes a community garden and woodland in the centre of the village. Maintained by the village for the village. An associate membership group from the village helps to do the work and contribute to funds

5.15.3 A forest garden is made-up of mainly perennial plants which are agriculturally productive or useful, growing as they would in the wild. The objective of a forest garden is to epitomise the diversity and stability found in wild forest ecosystems, whilst choosing productive trees, shrubs, bushes and herbs that are beneficial to humans. The purpose of this is to create natural pest resilience through biodiversity, to create natural habitat, and to create cultures of plants which can perpetually produce food, without annual tilling, pesticides, fertilisers or other high inputs of chemicals or energy. A forest garden provides an ecologically regenerative and sustainable source of organic and seasonal food and once established requires low maintenance.

5.16 Tree nursery

5.16.1 We would recommend a small nursery on the site as the resources required are modest compared to the benefits. Benefits include the capacity to collect local provenance seed and grow on into trees (the local genetic strain) secondly provide educational opportunities for local volunteers. A small tree nursery would require a fenced area of 10sq metres with a gate, raised beds with improved soil using composted woodchip.

5.17 Orchard

5.17.1 A small community orchard would be a resource well suited to the village location.

5.17.2 A community orchard is a collection of fruit and sometimes nut trees planted in a public space. Community orchards are planted in public parks, schools, and on derelict land. These orchards are shared resources, not managed for profit. What they have in common is that they are cared for by a community of people.

5.17.3 Community orchards are planted for many reasons. They increase the public's access to healthy, organic fruit especially in areas where the population cannot afford healthy, fresh food. Some fruit could be given to food banks. They teach young people where their food comes from. They allow ordinary people to develop organic fruit tree growing skills.

5.17.4 There are two potential sites (see map 3) for planting apple, plum and pear trees as a source of local food and to conserve local native varieties. It is proposed that a diverse range of varieties

(including new varieties) are planted – early ripeners and later ripeners (that store over winter), and to ensure resilience against pests, disease and climate change.

5.17.5 A nut orchard can also be planted to include some varieties of Walnut and Sweet Chestnut (although suitability regarding soil would be clarified first).

5.17.6 The location and varieties to be planted in the orchard can be carried out in consultation with the local community. There are many resources, organisations and grants set up to support local community orchard projects

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