



UPM Tilhill

Southwood Wood

Management Plan

2009-2014

submitted by

Tilhill Forestry Ltd

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to

Viridor Waste Management Ltd

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1. INTRODUCTION

1.1 General

The woodland areas surrounding the New England Quarry were requested to be inspected and a woodland management plan proposed by the sites owner, Viridor Waste Management.

1.2 Resources

The woodland maps were drawn together following site inspections from March to August 2009. Aerial photographs from 2003 helped in this process.

1.3 Surveys

The site around New England quarry has had several biodiversity surveys in line with potential future landfill use. Two of these surveys were carried out by Sue Searle of Acorn Ecology Ltd. An ecological site survey was carried out by SLR Consulting in 2008 and 2009. This included surveys for dormouse, bats and otter populations along the River Yealm. The woodland areas were inspected in August 2009 as part of this report. Specific inspections were made of all hazel stands for evidence of dormice but none were found and the SLR Consulting report concluded that there was probably very little risk of any disturbance due to the lack of evidence of a dormouse population.

1.4 Consultation

The Devon Wildlife Trust were provided with a draft copy of the plan and asked for their comments. Apart from this there has been no formal consultation on the plan preparation.

Any proposed thinning, felling or new planting would go through formal consultation routes.

2. DESCRIPTION OF FOREST

2.1 Location (See Map 1a)

The woodland lies about 1 mile to the south of Lee Mills, approximately 10 miles to the east of Plymouth in the South Hams District of Devon.

The woodland area extends to 25.34 Ha and comprises of four differently named woods on the Ordinance Survey maps of the area: Challonsleigh Plantation, Strashleigh Hams, Southwood and Swainstone Ham. The woodlands occupy both banks of the river Yealm to create a continuous woodland block bordered by ex-industrial land working to the west, currently industrial land use to the north and agriculture to the east and south.

To aid referencing and provide separate working zones, the property has been divided into seven compartments (see map 1b). Compartment 7 is the quarry area and excluded from this plan.

2.2 Woodland Resource Characteristics: Area Statements (excluding agricultural land)

Table 1: Species by Area

Species:	Native MB	MB	Poplar	Mont Cypress	Douglas Fir	Mix Conifers	Open Ground	Total
Area	11.91	11.99	0.85	0.31	0.03	0.15	0.1	25.34
Species %	47.0	47.3	3.4	1.2	0.1	0.6	0.4	

Table 2: Planting Year / Approx Stand Age by Area

Year:	1850	1930	1950	1960	1965	1970	1980	1999	OG	Total
Area	0.8	6.08	8.7	1.95	1.86	2.89	2.33	0.63	0.1	25.34
P Year %	3.2	24.0	34.3	7.7	7.3	11.4	9.2	2.5	0.4	

Access

2.3 External (See Map 1c)

Access appears to have been historically from the southern entrance, but the lack of stacking area, the narrow lane and bridge on the county highway suggests that this is no longer appropriate with today's vehicles. The industrially used land-raise to the north does offer an alternative route to the edge of the woodland albeit by way of sharing the access routes with the reclamation works. It is understood that Viridor retain a right of access through the site to the wood.

Access to cpt 5 is severely limited and needs to be addressed in order to offer the opportunity to manage these areas. Two potential routes exist, one through the quarry area or by crossing the Yealm and going through the plantation to the northern entrance. In both cases there are significant difficulties. Please see section 5.2 which suggests potential major access improvements which will provide huge benefits to future woodland management.

2.4 Internal (See Map 1c and 2)

There is evidence of historically used internal access rides (see woodland plan map 1b). Due to the lack of maintenance and time since the access routes were used, they have become impassable and are in need of opening up once again.

The internal routes lead towards the southern entrance and need to be added to in order to use the preferred northern access route through the reclamation centre to the county highway at Lee Mills. (See map 1c for details).

As part of the owners development of the New England Quarry, a new haul road from the north will offer a major step forward in improving access to all parts of the property and make woodland management more cost effective and thus more likely to be successful on a sustained basis.

2.5 Boundaries

The woodland boundaries on the eastern areas are agricultural stock fences of reasonable quality. Some cattle intrusion is evident within cpt 1c, although this may have come from stock being moved between the agricultural land to the north and cpt 4a to the south. The track between cpt 1c and 1d appears to have been used by stock in recent months. The old gate appears to have recently had some barb wire added to try and make it more stock proof.

The northern boundary around cpt 5 is an old dilapidated stock fence alongside a bank and ditch.

The fields that make up cpt 6 are bounded by comparatively new stock netting and barb wire which enable stock to be grazed without loss into the old quarry workings to the east (cpt 7a)

2m chain link fencing and heavy gates secure the quarry boundary along the county highway to the south.

Site Characteristics

a. Elevation

The woodland is relatively flat and occupies the river valley of the River Yealm at approximately 40m above sea level. Exposure is comparatively low although the site lies immediately to the south of Dartmoor and thus has a high annual fall level; possibly around 1100mm per annum.

b. Soils

The soils are predominantly brown earths derived from alluvial silt over gravels or weathered Devonian slate. There are some rock out crops with cpt 1J and subsequently thinner soils and steeper slopes.

c. Windthrow Hazard Classes

Wind is not considered a hazard to the woodland structure.

2.6 Legal Burdens

It is believed that some old planning permissions for neighbouring land may have required some woodland management. No formal details have been found.

2.7 Sporting Rights

An old feeding bin is located in cpt 1c which suggests that some informal sporting has been carried out in the past. There is no evidence of any intensive or recent sporting use and the rights are not understood to be let.

Special Characteristics: (See Map 2)

2.8 Public Access

There are no public rights of way within the woodland or immediately adjacent. There is a river side path that is used intermittently by locals or employees enjoying the river side woodland. The OS map employed as a backdrop to our mapping shows a path running along the right bank of the River Yealm (the quarry side). There is no evidence of any path or non permissive route on the ground.

2.9 Landscape

As the woodland occupies a relatively flat position, it is not prominent within the landscape. The stand of conifers of cpt 5c are noticeable from the north as they are so alien within the broadleaved valley woodland setting.

2.10 Archaeology

Initial searches have found some archaeological interest to the south of the agricultural fields of cpt 4a. No details were available at this stage.

2.11 Conservation Interest

Please see the hazard and sensitivities (map 2) for details of Ancient Woodland from the original provisional identification process. The compartment records make reference to those areas that are considered more appropriate to being classified as ancient woodland than others and these are shown on map 7.

Most of the woodland and the wetland meadow of cpt 6a are identified as a county wildlife site. In many cases, Ancient Woodland designations lead any woodland to becoming a county wildlife site. Specific species mentioned by the Devon Wildlife Trust include yellow flag iris, birds foot trefoil, lesser spearwort, water mint, meadowsweet and marsh thistle.

2.12 Forestry Authority Grants

There are no current or recent grants or permissions on any of the woodland.

3.1 LONG TERM VISION

The reinstatement of low intensity woodland management will see woodlands that are able to be sustainably managed in the long term. With internal and external access improved, potential damaging species controlled, the woodland resource will be fit to provide a valuable ecological habitat whilst able to produce a regular and managed timber product over a long term cycle. Regeneration from occasional canopy openings will provide a range of ages and structural diversity.

3.2 OWNERS OBJECTIVES OF MANAGEMENT

1. To maintain and enhance the biodiversity of the wood with the objective of creating a sustainable, balanced and dynamic forest ecosystem capable of supporting sustained small scale timber yields.
2. To safeguard the quality of water flowing in natural watercourses within the woodland.
3. To manage the forest in accordance with the UK Forestry Standard and the UK Woodland Assurance Standard.
4. To obtain a sustainable financial return from the growing of trees and timber by the practice of sound silviculture.
5. To maintain and enhance the amenity and conservation value of the woodland and preserve scheduled ancient monuments and items of cultural interest.

4. MANAGEMENT STRATEGY

4.1 Long Term Strategy

To maintain and enhance the biodiversity value of the woodland by ongoing sympathetic management of key areas and adoption of practices and systems which minimise damage caused by forest operations and create opportunities to enhance the environment.

To further diversify the woodland structure and composition to enhance the local and internal landscape.

To this end, silvicultural techniques which maximise the benefit of shelter from surrounding stands and use of natural regeneration will be implemented as the basis for developing a balanced and dynamic forest environment able to provide both timber and environmental benefits on a sustained basis.

4.2 Short & Medium Term Strategy – Summary of Management Proposals

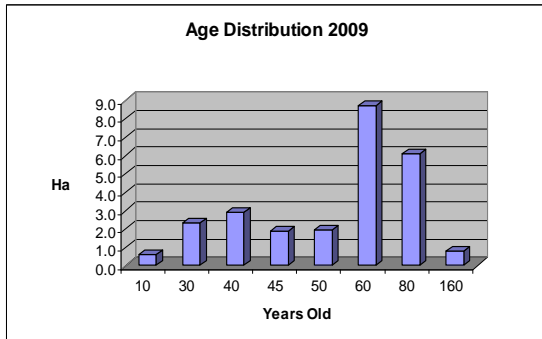
The initial strategy will be to improve the external and internal access in order to allow regular woodland operations.

The Graphs below illustrate the diversification of the woodland through the planned restructuring programme.

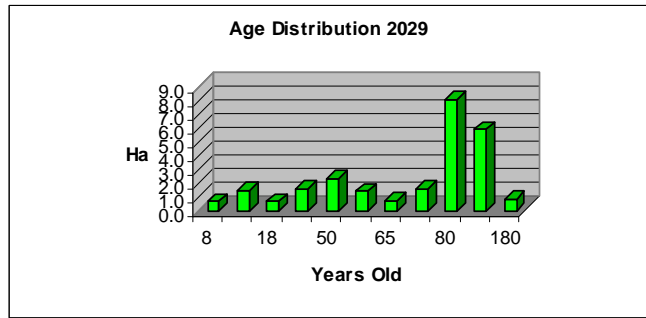
Conservation interests within the woodland will be maintained and further developed through the sympathetic management of those key habitats identified and the progressive inclusion of appropriate broadleaved plantings in conjunction with restocking programmes where regeneration is poor or fails.

Defragmentation of ancient woodland will be addressed through exploring the opportunities to plant a new native woodland within cpt 4a.

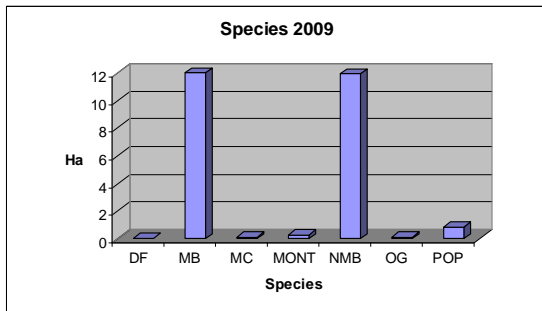
Graph of Age Class Distribution at present



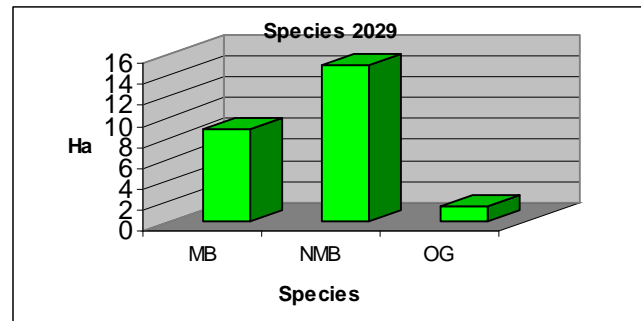
Graph of Age Class Distribution in 20 years



Graph of Species Distribution at present



Graph of Species Distribution in 20 years



5. MANAGEMENT PRESCRIPTIONS (See Maps 3 & 4)

Silvicultural Management

5.1 Silvicultural Systems:

a. Harvesting:

Low impact machinery will be employed as the woodland harvesting will be light and irregular to maintain a mixed structure and diversity. Clearfelling will only occur in cpt 5c where the Monterey Cypress needs to be replaced.

Any areas due for intervention from harvesting will be inspected for any sensitive habitats, protected species and areas requiring protection. This will include protecting all standing and fallen deadwood where ever it does not cause a risk to health and safety or to access routes.

b. Thinning:

Thinning will only be undertaken on ten year cycle and at a light intensity where no more than 50% of the annual incremental growth of each stand will be removed at each intervention. Opportunity will be made at each thinning to remove non native species such as sycamore and beech and to re-coppice stools. Thinning will ensure that standing deadwood is retained and that lop and top will add to the ground floor deadwood.

c. Continuous Cover:

Most of the woodland lends itself to the development of an irregular structure having mixed species with differing light requirements and growth rates. Selective thinning will continue to allow increased light levels into the stands and initiate regeneration.

Small groups will be cut to favour existing natural regeneration where ever a single species many predominate such as the ash in cpt 1c. This will help create wider diversity.

5.2 Access Routes

Regular and easy access to and within the woodland is the key to cost effective woodland maintenance and sensitive harvesting operations over the longer term.

Immediately adjacent to an old quarry, there is no lack of local, cheap and available stone to aid an internal access ride network. Following the historic ride network and linking into the easier external access route to the north, year round access to most active areas of the woodland can be achieved at relatively low cost.

Access to cpt 5 is more problematic due to its isolated location along the northern fringe of the old quarry. The construction of a new access road and permanently

bridging the River Yealm would normally be cost prohibitive however the proposed haul route offers major benefits for woodland management.

The proposed route is shown at Map 8 as well as identifying those trees that would be immediately affected by its construction. The route was surveyed in November 2009 and all trees of greater than 25 cm dbh were recorded and plotted. Of the 224 trees surveyed, some 66 are outside of the immediate construction zone and would be retained or coppiced to help sight lines. The remaining 158 trees (and other lower canopy smaller trees along the route) would be felled to create this new access and improve the percentage of internal permanent open ground. This new route allows permanent management access as well as harvesting access for the timber removal from the proposed felling of the Monterey Pine and partial felling of the poplar. (See map 1c for proposed details).

All ride and roading works will be carried out in accordance with Tilhill's AMS.

5.3 Restocking

The woodlands are already diverse and restocking will be designed to ensure that this diversity is maintained while taking advantage of opportunities to improve the matching of species to site to meet management objectives.

Restocking will be primarily by way of natural regeneration, enriched with species that either fail to regenerate under smaller canopy openings (such as oak) or do not respond to the opportunity on a reasonable timescale after harvesting.

Restocking plans in cpt 5 will take opportunities to diversify the forest edge and provide a native replacement to the current conifer stand.

It is anticipated that for every tree felled that least three will be replanted or encouraged to regenerate in their place apart from those areas identified for open ground.

5.4 New Planting (See Map 6 for details)

The agricultural land to the east of Strashleigh Hams (cpt 4) is understood to be owned by Viridor. The footprint of the land suggests that this was formally woodland cleared for intensive agriculture at some time in the last 100 years. The sward suggests that the land has been regularly improved through fertilisers and reseeded.

The opportunity to reconnect the surviving woodland is clearly available, and would be highly beneficial for extending the biodiversity of the property.

Please see the new planting map for a suggested 6.47 ha new woodland design to incorporate native tree cover, woody shrubs, hazel coppice and open ground to increase wildlife habitats and corridors.

The proposal to carry out new planting has to be carefully planned to be a suitable mixture of native trees, scrubs and open ground through glades and internal rides. The trees would need protection from rabbits, deer and stock; this is best carried out through perimeter deer exclusion fencing. The design would have to be completed after consultations with English Heritage due to the proximity of an area of archaeological interest (see map 2). It is proposed to plant in excess of 8,000 native trees and shrubs in this new woodland.

5.5 Protection & Maintenance

a. Fencing

Clear evidence across the whole woodland site can be found of roe deer populations at reasonably high levels. All young trees are attractive to the damaging effects of rabbits and deer. Their grazing, rubbing and physical smothering of young trees can lead to failing of natural regeneration or planted trees. In small groups, corals or “regen guards” can be discreet and cost effective way of preventing access to young emerging regenerating stands. Where replanting is required to replace felled trees such as cpt 5c, individual tree shelters of 1.2m height can be employed. On the larger scale, and especially of the new planting proposal, deer exclusion fencing offers the best value to remove deer as well as neighbouring stock populations from accidental access and consequential damage.

b. Chemicals

Use of pesticides will be kept to a minimum and only applied where defined benefits can be demonstrated. This is usually limited to the use of herbicides as spot applications to control grasses around newly planted trees. This is essential to allow young trees to grow away from the competition presented for moisture, nutrients and light. All applications will be subject to a decision process to demonstrate the lowest risk to the environment. Any use of herbicides near to the water courses will be subject to approval from the Environment Agency.

5.6 Deer Management Strategy

The presence of a reasonably high roe deer population has been noted. Monitoring of their grazing intensity will be made to ensure that unprotected areas of ground flora and regeneration are not of risk of over-grazing. Should this occur then a deer management plan will be drawn up.

Biodiversity Management

5.7 Summary: (See Maps 2, 5 and 7)

Designation	Area (Ha)	Percentage of Forest Now	Percentage of Forest in 15 years	UKWAS Minimum %
Long Term Retentions	4.63	9.4%	9.8%	1%
Natural Reserves – Plantations	2.38	4.8%	N/A	1% Plantations
Natural Reserves – SNW	4.13	8.4%	13.2%	5% SNW
BL Planting	6.74	13.6%	13.6%	5%
Managed OG	0.1	0.4%	8%	10%
Other Features of Biodiversity				No Minimum
Total Managed for Biodiversity	26.01	52.6%	68.6%	15%

Total land includes all grassland areas

5.8 Provision of Deadwood Habitats

It is recognised that deadwood provides an important habitat and that its provision is important for maintaining biodiversity within the forest. Management will allow for the retention of deadwood where it does not pose a hazard.

Within the main body of the wood, small scale windthrow or wind damage will not be cleared up but will be allowed to develop as deadwood habitat.

Deadwood protection in any areas where thinning or coppicing is planned has been mentioned in section 5.1a and 5.1b.

5.9 Long Term Retentions

Areas of the best concentration of older trees will be maintained as long term retention to ensure a reserve of potential veteran trees for the future. These areas will be clearly demonstrable ancient woodland sites with the appropriate developed ground flora. Broken branches and blown trees will be left in situ. Any intervention will be to develop adjacent trees or stands without disturbing the habitat or potential habitat for bats.

5.10 Natural Reserves

The areas of non-intervention natural reserves are shown on map 5. The area to the furthest east of Strashliegh Hams demonstrates an excellent range of tree species as well as a developed understory due to the more base rich soils. The only intervention required will be to monitor sycamore populations to ensure they are kept in balance. Some very light coppicing of over mature hazel stools will be carried out to ensure rejuvenation allows best dormouse potential.

The central area of natural reserve will only have a ride pass through it to allow access to the east but no felling is anticipated.

5.11 Semi-Natural Woodland

Map5 shows the areas designated as semi-natural. This has been refined by the production of Map 7 to show those areas of more ecological interest and considered more probable as semi natural woodland. The main area of doubt is that part referred to as Challonsleigh Plantation (cpt 2). The name itself and generally single age class suggests that the area is at best a Plantation on an Ancient Woodland Site (PAWS). However the lack of any developed understory, the old field bank that runs down the eastern boundary (with clear gateways present) and the presence of Norway spruce, mature sweet chestnut and Douglas fir all suggest that this area was formally converted to low intensity agricultural use then planted and managed as a commercial woodland at some time in the recent past.

All areas identified as ancient woodland sites will be managed with biodiversity enhancement as the main objective. This will include gradual remove of sycamore, reduction of beech, removal of conifers in early course and rejuvenation of the aging hazel stands. Intervention will be light and employed to encourage species diversity and a multi layered canopy structure.

5.12 Plantations on Ancient Woodland Sites (PAWS)

Map 7 shows the areas of PAWS. These are a minor component of the woodland area. Management prescriptions will look to initiate a conifer removal as well as establish a coppice rotation to begin developing a cyclical open ground rotation to compliment the long term retention process. See harvesting prescriptions on map3.

5.13 Open Ground

Permanent or regularly open ground within a forest is recognised as being of particular environmental value. The woodland has a particular absence of open ground currently due to the lack of any recent management. It is proposed to maintain a rolling area of open ground in the coppicing rotation, create some linear open ground and internal woodland edge through the new main access road works, re-establish the ride network and develop the grassland in cpt 4a as an open ground and woodland edge habitat.

The felling of the mature Douglas fir in 2b, the new access road felling in 2a as well as removal of 50% of the woody growth in 1h will also enhance the amount of open ground along riparian zones that is currently very densely shaded.

5.14 Other Areas Managed for Biodiversity

The wetland meadows in cpt 6 will be regularly grazed to maintain their rich balance of grass and herbaceous species. The grassland areas to the south will, likewise be managed with as low an impact as possible; no artificial fertilisers or blanket

herbicides will be employed to keep the sward as diverse as possible. Control of docks and thistles will be carried out by topping or selective and placed herbicides if necessary.

Other Management Proposals

5.15 Archaeology

All sections of the historic boundary banks will be maintained in place where ever possible. There may need to be some widening in places to accompany the need to develop the internal access. No more than 5% will be removed in this process.

The area of archaeological interest in cpt 4 will be explored with the Devon County Archaeologist should the proposal of restoration planting be taken forward.

5.16 Public Access

Due to the difficult access to the site requiring access across or adjacent to industrial workings, there are no proposals to increase public access to the woodland area.

This action will further benefit the local populations of otters, dormouse and bats that appreciate solitude between the light touch management interventions.

6. PROPOSALS FOR MONITORING MANAGEMENT IMPACTS

Management Objective	Monitoring Type	Monitoring Objective	Method	Frequency	Results Held	Review Period
Timber Production Potential	Increment Samples	Record tree Growth	Record height measurements	3 Years	Contract Files	3 Years
Natural Regeneration	Sample Plots	Assess Success of Regeneration	Tree counts on selected groups	Every Year From 3 Years After opening canopy	Contract Files	5 Years after Felling
Minimum Chemical Use	Site Checks	Ensure Minimum Usage	Regular Site Checks at times of risk	As required	Manager's Note Book	Ongoing
Control Grazing Impacts	Site Checks and boundary inspections	Assess levels of Damage and ease of access	Periodic inspection	As required	Manager's Note Book	Ongoing
Tree Health	Site Checks	Assess levels of Damage	Site Visits and Contractor Instruction	At Least Annually	Manager's Note Book	Annually
Change Forest Structure	Compartment Records	Assess Changes in Structure	Review of Age Class Distribution	At Least Annually	Compartment Records	5 Years
Protect Archaeology	Visual Checks	Protect old boundaries and banks	Pre and post tree felling interventions	When ever thinning or felling is carried out	Manager's Note Book	5 Years

A summary of monitoring results will be produced at the revision of this plan after 5 years.

7. SUMMARY OF MONITORING RESULTS & WORK CARRIED OUT DURING THE PAST FIVE YEARS

Management Objective	Monitoring Type	Results
Timber Production	Production Records	
Natural Regeneration	Sample Plots	
Minimum Chemical Use	Application Records	
Grazing Impacts	Visual Checks	
Tree Health	Visual Checks	
Changing Forest Structure	Compartment Records	
Protect Archaeology	Visual Checks	

8. WORK PROGRAMMES

8.1 Short-term work programme (2009 to 2014)

Compartment or area	Activity	Year				
		1	2	3	4	5
All	Improve Main access routes	x				
All	Start monitoring programme	x				
5c	Fell Cypress		x			
5c	Replant with native broadleaves		x			
5d	Reduce Poplar and create standing deadwood		x			
4a	Plant new native woodland – 6.7 Ha		x			
5c, 4a	Maintain to establishment			x	x	x
1bij, 3b	Remove sycamore regeneration	x	x			
2a	Coppice 30% and remove conifers	x				
2b	Fell DF to open ground	x				
1ac	Thin to create structure and remove conifers		x			
1efg	Light Coppice to regenerate hazel					x
1h	Clear 50% woody growth from wetland	x				
1J	Thin to remove most Beech					x
3a,5e	Thin/small group fell to create structure					x
3b	Group fell sycamore					x
5e	Control spread of balsam	x	x			

8.2 Long-term work programme (2015 to 2030)

Compartment or area	Activity	Plan Period		
		6-10	11-15	16-20
All	Maintain access routes	x		x
All	Monitoring programme	x		x
5d	Fell further 40% of poplar		x	
1bji, 3b	Remove sycamore regeneration	x	x	x
2a	Coppice 30%	x		x
1c ,3ac	Group fell to regenerate		x	
1a,	Thin to create structure	x		x
1ji	Very light thin to reduce beech		x	
5a	Recoppice under power lines	x		x
5e	Group fell alder to coppice		x	
1efg	Light coppice of over-mature stools		x	

**APPENDIX 1 - COMPARTMENT RECORDS AND
PRESCRIPTIONS**

APPENDIX 2 - PHOTOGRAPHIC RECORDS (2009)

APPENDIX 3 – HARVESTING PRODUCTION ESTIMATES

MAP 1: LOCATION AND ACCESS

MAP 2: HAZARDS & SENSITIVITIES

MAP 3: FELLING PLAN (20 YEAR)

MAP 4: RESTOCKING PLAN (20 YEAR)

**MAP 5: AREAS MANAGED PRIMARILY FOR
BIODIVERSITY**

MAP 6: NEW PLANTING DESIGN

MAP 7: SUGGESTED CORRECTED AREAS
OF ANCIENT WOODLAND