4.0 Analysis and Concepts for each site factor

4.1 Analysis

4.1.1 Physical site factors

4.1.1.1 Geology, soils and landform

Species choice for broadleaves is more restricted in gleyed and peaty areas. Most of the park's soils are derived from the basalt geology, hence are reasonably fertile Brown earths. Planting of ornamentals may require more detailed micrositing.

Landform was analyzed and a design concept created in the previous plan. Increased availability of GIS resources has improved analysis and interpretation of features in the landscape. UKWAS policy on coupe size reduction and increased requirement for smaller coupes in association with public access routes has resulted in the adoption of fairly small coupe sizes for the remaining productive conifer areas. Previously felled coupes were larger as they addressed skyline and viewpoint issues identified in the last plan.

4.1.1.2 Water

Improvements to Lochan a' Ghurrabain will have been gained by the discontinuation of the fish farm. The dam falls under the liabilities under the Reservoirs Act. Adherence to the Forests and Water guidelines is essential where private water supplies utilize forest burns for water. The existence and location of such supplies needs to be confirmed. There are plenty of opportunities within the longer term to develop robust riparian corridors. These will contribute to habitat network development (an FDP objective), protecting burns feeding private water supplies and fishing interests (Lochan a' Ghurrabain). Issues regarding conifer planting beside Risk Category 1a watercourses under the Water Framework Directive initiative will be addressed over time through implementation of appropriate design. However, these burns (Allt nan Torc and the Tobermory River) are only affected by conifer planting in the neighbouring Aros block. None of the these burns and their tributaries in the Aros block will reach the status of 'good' by 2015 as restructuring will only just be starting.

4.1.1.3 Climate

Windiness is the main climatic factor affecting the forest. Critical decisions on when and whether to thin, and whether stands can be converted to continuous cover are all dependent on accurate assessment of windthrow risk. DAMS are the best available method of assessment to assess risk, using maximum scores to guide thinning and timing of felling decisions. However, windblow has been very limited in the park, despite much overmature woodland. There are also amenity reasons for encouraging thinning in parts of the forest used by the public.

Functional habitat corridors assist in the movement of species, improving their viability in the face of climate change. The existing coastal woodland forms a continuous native woodland habitat corridor. The core area of the park is also mostly native woodland. What conifers exist here do not create barriers to wildlife. Open habitat corridors are however, absent, although temporary corridors exist via recent clearfells. The previous plan prescription for these areas included a significant amount of open space, for amenity and wildlife. However, it is likely that these areas will completely infill with native woodland over time unless there is active management to maintain open space. This is unlikely due to cost.

The northern area contains fragmented hazel banks, which would benefit from being connected up. The crofting area would also lend itself to more extensive native woodland planting and development as a WIAT site for the benefit of the community. However, the land is constrained by the crofting rights upon it.

4.1.2 Biodiversity and environmental designations

Birds

No priority species nest or roost in or around the forest area. Raptors probably hunt over the grazings north of Tobermory.

Native Woodland

The Sound of Mull Cliffs SSSI management plan 2008-2013 lists the management issues as follows:-

- Promoting the extension of native woodland on to adjacent land within Aros Park under the MFS management plan.
- Controlling public access onto the designated area.
- Protection from exotic species from Aros Park to the west.
- Regulation of grazing pressure to maintain the floristic/biological diversity and structural integrity of the woodland.

The SSSI has benefitted under the existing plan, under which two out of three conifer coupes immediately adjacent to the SSSI have been felled, to be replaced by native woodland and open space. The final coupe is scheduled to be felled in 2029. The management plan notes continuing threats from conifer and rhododendron regeneration, although current levels are minimal. It also notes low to moderate

levels of deer browsing and occasional break-ins by sheep. Public access was not anticipated due to the precipitously steep slopes.

New native woodland will be established by natural regeneration over part of the field south of the theatre. This field was grazed until recently, but will now be divided by means of an electric fence, to continue grazing over one part and allow the remainder for new native woodland. The exact line for the fence has still to be agreed. The area already contains some native woodland, a powerline corridor and Ancient Woodland sites.

Other wildlife

Improvements to riparian corridors and reduction of conifer areas over time will improve habitat networks for species such as otters. Plant species such as the heliborines and Bird's Nest Orchid will benefit from low impact management systems and removal of rhododendron.

Deer Control

Deer numbers are low within the park. Increased planting of minor species and broadleaves will require regular monitoring for damage. Shooting is difficult within the park due to public usage. There are no plans for deer fencing at present.

Invasive species

Rhododendron is widespread in the centre of the park and is a threat to PAWS restoration. Strategies are in place to control rhododendron. The park area has been given a very high priority within the removal program. However, terrain in some parts of the park make control severely challenging and expensive. Some flowering species associated with the estate will be retained. Public perception of rhododendron is mixed.

Himalayan knotweed and hypericum have been chemically treated in recent years. Blueberry and Ragwort are monitored, but not controlled as yet.

4.1.3 The existing forest

4.1.3.1 Age class, species and yield class

There are social, climate, landscape and biodiversity grounds for increasing diversity, along with possible benefits for countering possible effects of climate change. Evidence for greater than expected crop stability may help extend rotations and therefore aid restructuring in the remaining coniferous plantations.

Much of the area is suitable for a variety of species. The lower areas are suited to species diversification, but options are more limited on the higher ground and wetter, peaty soils. Species choice may be affected by deer densities, if deer fencing is not implemented or control measures are insufficient. The current position suggests that deer numbers are low enough to allow broadleaved regeneration. Native woodland, particularly birch, appears to have regenerated well on Ancient Woodland sites in the park. Grass growth has restricted broadleaved regeneration in Apper Mor. Planting of broadleaves was undertaken to overcome the problem. This will be continued where necessary.

Dothistroma and *Phythophthora ramorum* may restrict the planting of pines, larch and some other species. However, a broad range of species are suitable and more unusual conifer species will fit into the policy woodland landscape.

4.1.3.2 Access

The road network is relatively complete. A short extension to the Apper Mor road and possibly a forwarder ramp associated with it are required to access the coupe due for felling in 2017. There are no other planned works, although it is recognised that the main access to the park has soft verges and is short on passing places. The proposal to upgrade the track past the theatre as part of a one-way system to alleviate the problems noted above on the main access road will only go ahead if funds permit. Similarly, the plan to improve access to the old inn and tidal crossing point to Calve Island as apart of a loop path is also subject to funding becoming available.

Access for harvesting may have to be developed if available machinery requires tracks to reach the timber. Replacement of the weak bridges may also be required, although using light-weight tractor-trailer systems may suffice. These weight restrictions also affect other development proposals in the park.

4.1.3.3 LISS Potential

The park is suitable for LISS management for all but the existing blocks of coniferous woodland. Those embedded within the core area of native woodland within the park will be managed as Long-term retentions, their stability being questionable in the longer term. The native woodland areas can be managed as Natural Reserves and the areas where a low proportion of conifers will be retained can be managed under Minimum Intervention, to allow for control measures to be taken should conifer regeneration cause a problem.

There is potential for some hardwood thinnings, although harvesting activity within the core area of the park is restricted by amenity and recreation considerations. The access infrastructure here is also not particularly suited to harvesting operations. No access tracks have been built in the core park area and none are planned. There are also some steep areas which would need to be thinned by winch, with an associated

access infrastructure and handling facility requirement. Potential for using mobile saw benches exist for hardwood timber.

4.1.3.4 Current and potential markets

Only if small scale silvicultural operations can be commercially operated and practically implemented, given the amenity and access constraints within the park, will long-term timber production be forthcoming. Markets are mainly located off the island. Transportation by sea will become available once the Fishnish pier is built, increasing access to markets and savings in transport costs. Woodfuel initiatives may provide greater future demand for small roundwood, particularly for low value crops. This may extend to hardwood residues aswell.

4.1.4 Landscape and landuse

4.1.4.1 Landscape character and value

SNH's Landscape Character Assessment puts the area within the 'Basalt Lowlands' landscape type and gives specific landscape guidelines including:-

- Native woodlands, particularly near small settlements and farm buildings, should be managed and extended to maintain their ecological potential and visual impact. They are particularly important in areas where there is scattered recent development and can help to integrate and soften its impact within the wider landscape.
- Traditional buildings and stone walls should be conserved and restored and there area also opportunities to convert some derelict buildings.
- Improvements to local roads and new buildings, particularly on the fringes of Tobermory, should offer an opportunity to improve the structure of the landscape and the approaches to the town with new planting, stone walls and carefully graded earthworks.
- Forestry is appropriate in some remote moorland areas and there is much new planting. However, this should be checked in places where there are distinctive local landscape features, such as rocky ledges, lochs or field patterns, to ensure that the diversity of land uses within the landscape mosaic is maintained.
- The scrubby woodland transition on the lower fringes of the moorland and the damp meadows and bog on loch margins are valuable for nature conservation and should be conserved, wherever possible creating links to edges of broadleaved woodland.

Implementation of the PAWS restoration policy and return of conifer plantations to native woodland will enhance habitat linkages and improve diversity. Links with neighbouring native woodland networks in Aros will be strengthened as PAWS within this FC woodland is restored.

Traditional buildings relating to the estate will be conserved where funds permit. At present, the sawmill is scheduled for restoration and the Friends of Aros Park are consolidating the Kennels cottage. However, some of the estate buildings may be threatened by windblow of surrounding spruce stands. The Gardener's cottage will benefit from conifer removal in 2018. The Long-term retention at the Kennels cottage may need to be more carefully monitored for windblow risk, prior to its planned felling in 2024.

Some rocky features are obscured by rhododendron. These will benefit from the eradication policy now in place.

Contrary to the statement in the assessment, there does not appear to be any new planting in recent times either on FC land, immediately adjacent to FC land or in the north Mull area. Existing open space within the woodlands is appreciated by locals, who are particularly keen to see the point above Mill Cottage kept open. Regenerating alder may threaten this objective. Grazing has been suggested as a means of controlling regeneration.

4.1.4.2 Visibility

Views of the park are seen from Tobermory, the Sound of Mull, the A848, and from viewpoints around and within the park, including recreation facilities and private properties. Issues relating to the appearance of the woodland, particularly relating to coniferous plantations, have largely been addressed in the previous plan. Internal views are perhaps now more important than external views of the woodland. The development of a Visitor Zones Strategy with associated small-scale edge and stand treatments around facilities and entrances will be developed in the near future. Thinning is potentially the most important treatment of standing timber within the core area. Methods will have to be developed to minimise damage to the amenity, protect facilities and reduce risk of subsequent crop instability and windblow.

Remaining timber appearing above the shoreside native woodland will be dealt with by 2029. Native woodland regeneration in existing clearfell sites will gradually improve the A848 roadside edges, but woody growth will need to be controlled to preserve sight-lines to the Sound of Mull from key viewpoints.

The hard conifer edge behind the open ground above Mill Cottage should be felled and replaced with native woodland. This edge is particularly noticeable from Tobermory, although it is a relatively minor part of the view. Access to the site is difficult and extraction limited by the weight restricted bridge at the mouth of the loch. A Group Selection system would reduce the scale of change and limit disruption in the core area of the park. All the spruce in this bank behind the loch are prominent from the car park and should be replaced with native woodland and a few specimen conifers for diversity.

Rhododendron currently restricts visibility from forest trails within the park. The eradication program will improve small-scale and wider views in the park over time.

4.1.4.3 Neighbouring land use

Neighbours include several properties within the woodland. Access to these properties and protection of services are primary considerations. At present, powerline corridors are very narrow, with potential for power interruptions from trees falling onto lines. However, most of the associated trees are hardwoods, which are inherently more stable. Approaches from SHE to deal with threats will be looked at responsibly.

Sections of the A848 carriageway were taken into Council ownership recently to allow road widening, upgrade and formation of open sight lines. These changes are not yet reflected on FC maps.

4.1.5 Social Factors

4.1.5.1 Recreation

No new recreation facilities are planned. Existing facilities will be maintained. Improvements to trails and signage are planned.

Scope exists to link Tobermory with the trail network in Ardmore via the track through the common grazings. This area would benefit from more access provision, providing more open environs and wide-sweeping views over the Sound of Mull.

4.1.5.2 Community

The NFLS purchase of ground for allotments and orchards by the Mull and Iona Community is continuing. Opportunities to work with Friends of Aros Park and Tobermory Endeavour will be encouraged. Tobermory Endeavour are currently involved in a proposal to restore the water-powered sawmill, with a possible museum and café option and sailing school. The water taxi service proposal would benefit employment, tourism and access to the park, but requires repairs to the pier first. Several areas are currently grazed and further opportunities are being considered. The various projects are currently the subject of a proposed feasibility study. Housing plots are also being looked at close to Tobermory, but proposals for affordable housing south of the theatre were considered too distant from the town to be suitable.

4.1.5.3 Heritage

Dun Urgadul requires some vegetation control to be carried out under the agreed management plan with Historic Scotland. Scottish and Southern Energy should be encouraged to remove the hydro pole from the centre of the site. Public access to the monument is difficult due to terrain and cattle grazing.

Estate buildings within the park are potentially threatened by windblown conifers. Proposals to renovate the water-powered sawmill is in hand. The Kennels cottage is being consolidated by the Friends of Aros Park. Old crofts north of Tobermory are now represented by grass-ground foundations. Currently, grazing levels on these areas is not disturbing the archaeology, so protective fencing is unnecessary.

The district's Cultural Heritage Strategy details working methods around archaeological sites, which is sufficient for all sites within the plan. No sites currently have any interpretation associated with them. This could be reviewed if sites are improved and potentially made more attractive to visitors.

The district's heritage records have been consulted, which include data from searches of the RCAHMS inventories, WOSaS online data and NMRS. Old one-inch Ordnance Survey maps have also been checked for sites.

4.1.6 Statutory requirements and key external policies

Most of the park occupies an Ancient Woodland site. Much will be restored in line with current national policy. The remainder within the core area of the park managed with the former estate policy woodland character in mind. LISS management will be adopted for policy woodland and restored areas of native woodland.

Two scheduled monuments are located in the plan area; Dun Urgadul and St.Mary's Chapel. An approved monument plan with Historic Scotland is in place for the dun. The chapel site is managed by the Council as it is an active burial ground.

Powerline corridors are routinely widened to 20m either side of the lines after harvesting. No approaches by SSE have been made to widen the existing corridors in the park. Powerlines follow the A848 corridor, with a spur to Mill Cottage, pier buildings and Calve Island. An underground spur serves Wood Cottage. Another serves Upper Drumfin. A third serves the housing at Linndhu, passing under the FC car park for the Look-out Tower. An underground ring mains supply appears to encircle Tobermory, passing under the footpath from the town to the park and under Craigspuir Lane, which is the access to the common grazings. The site for the allotments is also affected by an overhead powerline, as is the agricultural grazing north of Tobermory. A further underground loop serves Baliscate, running under the access road towards the chapel as far as the new housing development.

The Sound of Mull Cliffs SSSI has an approved management plan with SNH.

4.2 Plan Concepts (See Concept Map)

4.2.1 Physical site factors

4.2.1.1 Geology, soils and landform

The park is suitable for growing most species, although those sensitive to salt spray will be avoided. A variety of specimen trees suitable for a policy woodland will be planted over time. LISS management will mean that there is little scope for changing the forest structure significantly to reflect landform. Restoration of native woodland is likely to further smooth the ridged effect, but removal of rhododendron may reveal some craggy features.

4.2.1.2 Water

Native woodland will predominate over most of the park, benefitting riparian areas, of which the loch is the main feature. Removal of fish farm equipment and cages will deal with any threat of pollution from these decaying over time. The Forests and Water Guidelines will be followed.

4.2.1.3 Climate

Natural regeneration as the preferred method of establishment on Ancient Woodland sites will avoid the need for cultivation. Strengthening of native woodland habitat corridors will benefit species associated with them. Hardwood timber may be made available to the woodfuel market as it expands on the island.

4.2.2 Biodiversity and environmental designations

Full PAWS restoration is an FD policy, but limited to enhancement within the policy woodlands. PAWS areas and existing native woodlands form a basis for creating a native woodland habitat network. Natural regeneration is the preferred method of establishment of such sites. Deer fencing will be employed if natural regeneration is affected by deer browsing.

New native woodland to be established by natural regeneration on part of the field south of the theatre will be monitored for success of regeneration. If planting intervention becomes necessary, then an application for approval and EIA determination will be submitted.

4.2.3 The existing forest

4.2.3.1 Age class, species and yield class

Old growth forest will continue to develop and expand within the park as further areas are converted to native woodland and managed either as Natural Reserves or under Minimum Intervention. Native woodland with a small percentage of mixed conifers compatible with the former policy woodland plantings will be the intention for the core park area. Natural regeneration will be the preferred method of establishment. Restock sites will be the primary focus for deer control measures. Timber yields will reflect the lower productivity of broadleaves. Broadleaves will be planted when regeneration fails. Deforestation is generally not favoured under the Climate Change agenda where crops are currently performing poorly.

4.2.3.2 Access

Access to the Phase 1 coupe will require the building of a short extension to the Apper Mor road. No other access roads, tracks or paths are planned. Issues regarding the weak bridges may need to be dealt with as part of future development proposals. Repairs to the pier are also likely to result from these aswell.

4.2.3.3 LISS Potential

The park will be managed fully under LISS once the existing conifer felling coupes are clearfelled and restocked.

4.2.3.4 Current and potential markets

Construction of the Fishnish pier in 2013 has potential to access many more markets and improve financial return on timber sold. Further woodfuel developments on the island will also create opportunities for low value products. A sustainable yield from the island's FC woodlands is a goal. The current long-term harvesting contract with Iggesund's for 25Km3/annum covers all existing commercial production. Additional volume is now available and will be marketed separately.

4.2.4 Landscape and landuse

4.2.4.1 Landscape character and value

The park is characterised by the former policy woodlands, set within a ridged topography, with a focus on the loch. Progressive implementation of the PAWS policy will strengthen visual links within and outwith the woodland. The conservation of former estate buildings, such as by the Friends of Aros Park's work on the Kennels cottage, and the restoration of the water-powered sawmill will help conserve the estate character of the park. Conifers will account for no more than 10% of the core park woodland area. A similar proportion of non-native hardwoods will also be retained as part of the legacy of the policy woodlands.

4.2.4.2 Visibility

Visual amenity will be improved primarily by the eradication of rhododendron over the next 10 years. Removal of the remaining commercial stands of conifers will deal with skyline issues from the Sound of Mull. Implementation of the Visitor Zone Strategy including specific edge treatments around key viewpoints, entrances and facilities will improve the visitor experience in the park. Key open vistas have been identified and designed as permanent open space.

4.2.4.3 Neighbouring landuse

Neighbours with properties in or around the forest may be affected if their services and access are interrupted by windblow or forest operations. Liaison ahead of such operations will help ensure suitable provisions can be put in place in good time. Approaches from Scottish and Southern Energy regarding widening of powerline corridors will be accommodated.

4.2.5 Social Factors

4.2.5.1 Recreation

Small-scale design improvements beside recreation routes and facilities are partly reflected in the design. Site level enhancement will be required for some places, as part of the Visitor Zone Strategy. Some of these will require site level design and management, in separate recreation work plans.

4.2.5.2 Community

Various groups already involved in the park will continue to be encouraged. The NFL Scheme purchase for allotments is ongoing. Further opportunities may be identified in the forthcoming Management Plan for the park and Feasibility Study.

4.2.5.3 Heritage

An agreed Scheduled Ancient Monument plan for Dun Urgadul is in place. Access provision to the Baliscate Chapel site will encourage community participation in the project. Community groups will also be supported in their efforts to conserve former estate buildings.

4.2.6 Statutory and legal requirements and key external policies

Restoration of all Ancient Woodland sites is an FCS policy. An approved SAMs plan is in place for Dun Urgadul. There are no existing issues or threats to powerline corridors that have been notified at present. The Sound of Mull Cliffs SSSI management plan is in place.

Table Analysis of Opportunities and Constraints

Factor	Opportunities	Constraints	Concept development
Water quality	Forest restructuring can help protect water quality. Adoption of LISS management will reduce harvesting impacts.	Harvesting operations and path works may impact on water quality if controls are not in place.	Creation of riparian habitat corridors and expanding buffers around sensitive water features. Adherence to Forest and Water guidelines.
Ancient Woodland Sites	Forest redesign to convert to native woodland	Problems with rhododendron, hypericum, ragwort, blueberry and Himalayan balsam. Estate policy woodlands historically contain a proportion of conifers of value to the history and amenity of the park. Flowering rhododendron varieties are liked by the public.	District policy is full restoration. 10% maximum for percentage of exotics to be allowed in policy woodlands forming the core area of the park. Rhododendron policy is for complete eradication, although some ornamental flowering varieties associated with the park will be retained. Other invasive exotics will be monitored and controlled as necessary.
Species choice	Forest redesign to increase species diversity for landscape and conservation.	Climatic factors and diseases limit choice.	Increase diversity where conditions permit. Focus on high landscape and amenity areas.
Coupe size	Felling coupe design is already in line with UKWAS guidance.	Natural windfirm edges may not be present in first rotation crops.	Future forest structure is converted to LISS management.
Thinning	Thinning has benefits for amenity and wildlife. Visitor Zone guidance may recommend thinning.	There are practical difficulties to thinning in the park, including recreation, access, cost, rhododendron, steep ground and suitability of machinery.	Develop a thinning strategy for the park.
Key species	Forest redesign can enhance habitats for key species; heliborines and Bird's Nest Orchid.	Cost to commercial forestry.	Employ sensitive forest management to protect key habitats.
Roading/access	New roading/track construction may increase recreation opportunities and provide better access for deer control.	Roading and winch stances may have negative visual impact. Access network is expensive to maintain.	Ensure access proposals are fit for purpose and well designed.
Open land	Existing open land is valuable for deer control and landscape/amenity.	Open space may be costly to maintain as such. Crofting land is not under FC management.	Maintain existing open space.
Built Development	House plots and new businesses can provide cash for projects and community benefits such as employment and tourism opportunities	Construction may have a negative impact on the amenity of the park.	Limited house plots and development in line with the Council's agreed development areas. The Council will accept individual applications without the need for an overarching concept plan.
Archaeology	Preservation of former estate buildings helps conserve the estate character of the park. Community groups are keen to assist.	Buildings can be expensive to maintain, but present a hazard if unsafe to enter.	Encourage local groups to take a continued interest in the preservation of such buildings. Fell conifers if they pose a threat to vulnerable sites/buildings.