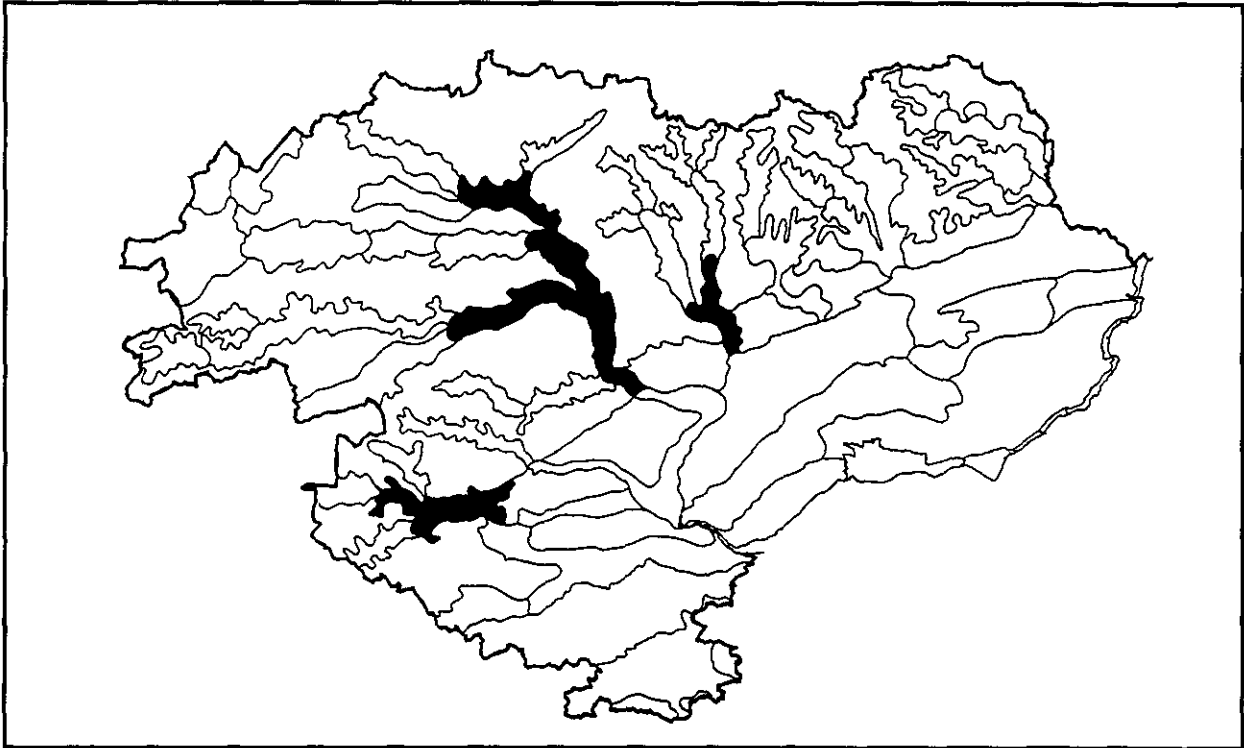


LOWER HIGHLAND GLENS (1C)



KEY CHARACTERISTICS

- *lower sections of the principal Highland glens*
- *comparatively large-scale landscapes*
- *combinations of upland and lowland attributes*
- *broad floodplains, often with meandering rivers, interspersed with narrower, gorge-like sections where harder rocks cross the glens*
- *the most settled parts of the glens*
- *farmland on valley floor and slopes*
- *substantial and varied woodland cover*
- *influence of large estates, castles and Victorian development*

OBJECTIVE DESCRIPTION		Lower Highland Glens
Physical scale		0.5 to 1 kilometre wide floodplain Valley floor 50-200 metres AOD Valley sides rise to 500 metres AOD Gorges and falls where harder rocks cross glen.
Woodland	broad-leaf	Extensive: comprising semi-natural woodland on steeper slopes and managed estate woodland
	coniferous	Extensive: on valley sides and associated with estates
Agriculture	arable	Lower/mid valley sides and drained valley floor
	pasture	Valley floor and upper slopes
	fields	Large and rectilinear on valley floor, medium and rectilinear on gentler valley slopes
	field boundaries	Shelterbelts and post-and-wire fences on floodplain, hedges, trees and walls on valley slopes
Settlement pattern		Well settled with villages and large estates, some planted villages
Building materials		Transitional - granite, schist, slate and some sandstone
Historic features		Castles, lodges and estate features
Natural heritage features		Native woodlands, gorge vegetation
Other landscape features		Waterfalls, glacial deposition features
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Medium to large
Enclosure		Enclosed to semi-enclosed
Variety		Varied
Texture		Textured
Colour		Colourful
Movement		Peaceful
Unity		Unified
'Naturalness'		Managed

LOCATION

- 5.1.35 This landscape type comprises the lower sections of the most significant Highland Glens. These sections of glen are distinguished by their comparatively large scale, and the particular combination of upland and lowland attributes. Most of the glens within the Mounth Highlands change rapidly from upper and mid glen to the lowland and foothills, so this landscape type only occurs in Strathardle. Within the West Highland mountains, however, it occurs in Glen Garry around Blair Atholl, joining with the Strath Tummel and Strath Tay between Aberfeldy and Dunkeld.

PHYSICAL CHARACTERISTICS

- 5.1.36 The Lower Glens share the same geological structure as other parts of the highlands in Tayside. The area is dominated by Dalradian and Moinian grits and schists but there are also significant outcrops of other rocks. A broad band of Atholl limestone runs north-eastwards from the western end of Loch Tummel, across Glen Garry at Blair Atholl towards Beinn A'Ghlo. These softer rocks account for the broadening of the valley in the vicinity of Blair Atholl. The limestone is quarried on the western side of the glen. A little to the south, the glen is crossed by bands of harder quartzite rocks, this time resulting in the narrowing of the valley to form a dramatic gorge with waterfalls at Killiecrankie. While glaciation has had a significant effect on these Lower Glens, the valleys lack many of the classic features found higher up. Rivers tend to be larger, either meandering across broad, often level floodplains or flowing through narrow, incised channels. The valley floor lies typically at between 50 and 200 metres AOD, while the neighbouring hills rise to about 500 metres AOD. Where floodplains occur, they are generally about a kilometre wide.

SETTLEMENT AND LAND USE

- 5.1.37 These are the most settled parts of the Highland Glens. Historically, they provided important communication routes through the Highlands. Traces of General Wade's Military Road can be found in many of the glens (e.g. Glen Garry and Strath Tay at Aberfeldy where he constructed a grand bridge over the river) while the railway and A9 and A93 routes follow the same corridors. Other significant bridging points include the Bridge of Cally, Dunkeld and Tummel Bridge. As with the upper sections of the glens, the strife between highlanders and lowlanders, and the need to control movement through the glens resulted in the construction of many castles and fortified manor houses. Perhaps the best example is Blair Castle at Blair Atholl which is believed to date back as far as 1269. The clan warring reached its height during the 17th century at the Battle of Killiecrankie.
- 5.1.38 However, perhaps the most significant phase of settlement occurred during the 18th and 19th centuries as a result of growing wealth and the accessibility brought by railways. The dramatic nature of the landscape within the Lower Glens, particularly where they narrowed to enclose gorges and waterfalls, was favoured by followers of the picturesque and sublime. Historic estates such as Blair Castle and Craighall were remodelled to emphasise and accentuate the natural landscape. The creation of extensive parkland, including large areas of woodland on many of the steeper valley slopes contributes much to the landscape that we see today. New estate villages such as Blair Atholl were built to a uniform style and layout. Smaller estates with their own distinctive landscape and

architecture (e.g. Findynate and Derulich) were also created in Strathtay. In the 19th century the Tay Valley became known as 'little Switzerland' and attracted many visitors and travellers, resulting, in turn, in the growth of towns such as Pitlochry and Dunkeld. Visits by writers, poets, artists and members of the Royal Family underline the popularity of the area among the Victorians. Twentieth century development has continued this pattern of settlement, accelerated by the upgrading of the A9.

- 5.1.39 In contrast to the upper parts of the glens, these valleys include large areas of relatively fertile farmland. It is most productive on the floodplain alluvium but also extends much further up the valley slopes. The influence of large estates is often visible in the form of lines of hedgerow trees (e.g. along lower Strathardle) giving the valley a well-wooded and structured appearance. Within the Tay Valley, however, farmland is concentrated on the valley floor in large fields, often divided only by post-and-wire fences. Above Aberfeldy the floodplain is structured by bands of woodland running across the valley. Between these, fields are divided by wire fences.
- 5.1.40 Woodland is a vital element of the Lower Highland Glens landscape type. Broad-leaf woodlands, some ancient and semi-natural, clothe many of the steeper hill slopes, surround some of the lodges and estate houses, and trace the course of rivers along the glens. Coniferous woodland such as the larch plantations around Blair Atholl, or the woods on the crags around Dunkeld, further emphasise the landform and contribute to the sense of enclosure within the glens. With the bare summits which rise beyond, these coniferous plantations help create a dramatic upland atmosphere in a relatively lowland area. The combination of this woodland and the pattern of large estates, Victorian settlements and productive farmland gives this landscape type a rich yet dramatic character which contrasts both with the harsher upland areas, and with the more open lowland areas to the south.

FORCES FOR CHANGE

- 5.1.41 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.1.42 **Agriculture.** While agricultural activity in the Lower Highland Glens is concentrated on the valley floor, there are also many areas where pastures and even arable fields extend up the more shallow valley slopes. The network of walls, hedges and hedgerow trees is an essential element of this landscape, underlining its relationship with lowland areas, and adding texture and variety to the landscape of the glens. However, in some areas, this structure is in decline with once dense lines of trees becoming gappy and fragmented, and hedges and fences being replaced by 'invisible' post-and-wire fencing. Field boundaries on the broad floodplains, where they occur, are often marked by fences, though sometimes boundaries across the valley are marked by shelterbelts or lines of trees.

- 5.1.43 **Transport.** A number of Lower Highland Glens have provided important communication routes for centuries and today accommodate roads such as the A93 in Glen Shee, the A827 through the middle part of Strath Tay and, most significantly, the A9 through Glen Garry and the lower part of Strath Tay. For the most part, these roads and their traffic are relatively well-absorbed by the often well-wooded landscape of the Lower Glens. However, the A9, which has been improved as dual carriageway or high quality single carriageway along much of its length, is a much more prominent feature with its rock cuttings, embankments and overbridges. At points such as Killicrankie, the present road is considerably higher up the side of the glen than previous routes, meaning that the road structure is more visible, and the traffic moving along it has a much wider impact.
- 5.1.44 A little more subjective, perhaps, is the effect that a fast road has on a traveller's perception of the landscape. Parts of Strath Tay around Blair Atholl and Dunkeld, for example, were remodelled during the 19th century to create a sublime landscape in which key vistas and the experience of travelling slowly through the landscape would have been particularly important. Today many people pass through at high speed, their attention focused within a narrow road corridor.
- 5.1.45 **Development.** Facilitated by better communication, more suitable land and access to the lowlands, this part of the Highlands has traditionally accommodated the greatest amount of settlement. Old market and bridging settlements such as Comrie, Aberfeldy and Pitlochry expanded during the 19th century as the area was opened up by the railways, and again during the 20th century as motoring brought the area within commuting distance of Perth. Generally, the growth of these towns has respected their original form. Pitlochry and Crieff for example have expanded up the valley slopes. In the case of Pitlochry, the historic linear settlement, represented by the main street, has expanded eastwards into the gentle bowl created by a tributary of the Tay. Twentieth century suburban development had its precedents in the form of grand Victorian hotels which were established with commanding views high on the hillside. This pattern of expansion is preferable to growth onto the Tay floodplain, or along the edges of the valley. Nevertheless, the elevation of much of the development means that it is more visible than it might otherwise have been.
- 5.1.46 At Comrie, which historically comprised two settlements, one each side of the bridge over the River Earn, recent growth has been concentrated on the Dalginross side. More recent development, however, has sometimes comprised low density, speculative estates of similar or identical dwellings which are crudely grafted onto the edge of these towns. The stark designs (often lacking any reference to vernacular designs or material) are usually unmitigated by planting, screening or landscaping, while the infrastructure of internal roads, footways, drives etc. appears over-engineered and overly suburban in this rural area. The growth of smaller settlements has been more limited, retaining the impression of a settled, rural landscape with a scattering of farmsteads and hamlets.
- 5.1.47 **Forestry and woodland.** Woodland is an essential component of this landscape type, comprising a combination of semi-natural woodland, commercial forestry, farm woodland and field boundary trees, policy and estate woodland. The characteristic interplay of woodland, farmland and areas of designed landscape is particularly important.
- 5.1.48 Several areas of Lower Glen are identified by the Tayside Indicative Forestry Strategy as having potential for new planting (Tayside Regional Council, 1997a). While there is

scope for additional woodland in these areas, it is important to maintain the overall balance of unplanted and planted areas and to conserve key views. It is also important to conserve landscape features such as field systems where these contribute to the grain and texture of the landscape. As elsewhere, there is scope to enhance the appearance of existing plantations as they come forward for harvesting and replanting.

- 5.1.49 **Recreation.** The high landscape quality, allied to the area's accessibility and the presence of a number of towns, means that tourism and recreation are important activities in the Lower Highland Glens, making important contributions to the area's economy. Generally, this development pressure has been steered towards existing settlements with, for example, the expansion of tourism facilities at Pitlochry. There are a handful of exceptions to this, the most notable being a major tourism facility at Bruar, north of Blair Atholl. Opinions about this particular scheme are mixed since, although its design attempts to reflect Scottish Baronial influences, the accompanying signage, car parking etc. indicates the presence of a more modern development. Furthermore, located close to the point where the southbound traveller leaves the sparse, dramatic landscape of the upper glen and enters the rich landscape of the lower glen, the new development reduces the positive visual impact of Blair Castle, a few kilometres to the east.
- 5.1.50 **Tall structures.** The Lower Highland Glens are subject to a range of pressures for tall structures such as pylons and masts, reflecting the more settled nature of these areas, and their suitability as routes for electricity transmission cables. Particular concerns relate to the provision of mobile communication infrastructure along routes such as the A9 which can result in the proliferation of telecommunications masts.
- 5.1.51 Within this landscape type there is unlikely to be significant pressure for wind turbine construction. However, the effect of proposals on higher ground which are visible from within the glens (particularly some of the more historic areas of designed landscape) should be considered carefully.

LANDSCAPE GUIDELINES

- 5.1.52 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the characteristically settled landscape of farmland, woodland and designed landscapes.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Encourage the conservation of dry-stone dykes in local stone with an emphasis on roadside walls and others in highly visible areas. • Discourage improvements which result in further loss of field boundaries or field boundary trees. • Encourage farmers and landowners to replant trees along field boundaries, initially along roads, but also between fields. Species to include oak, maple, beech and ash. Use incentives to compensate for lower yields where mature trees are retained.
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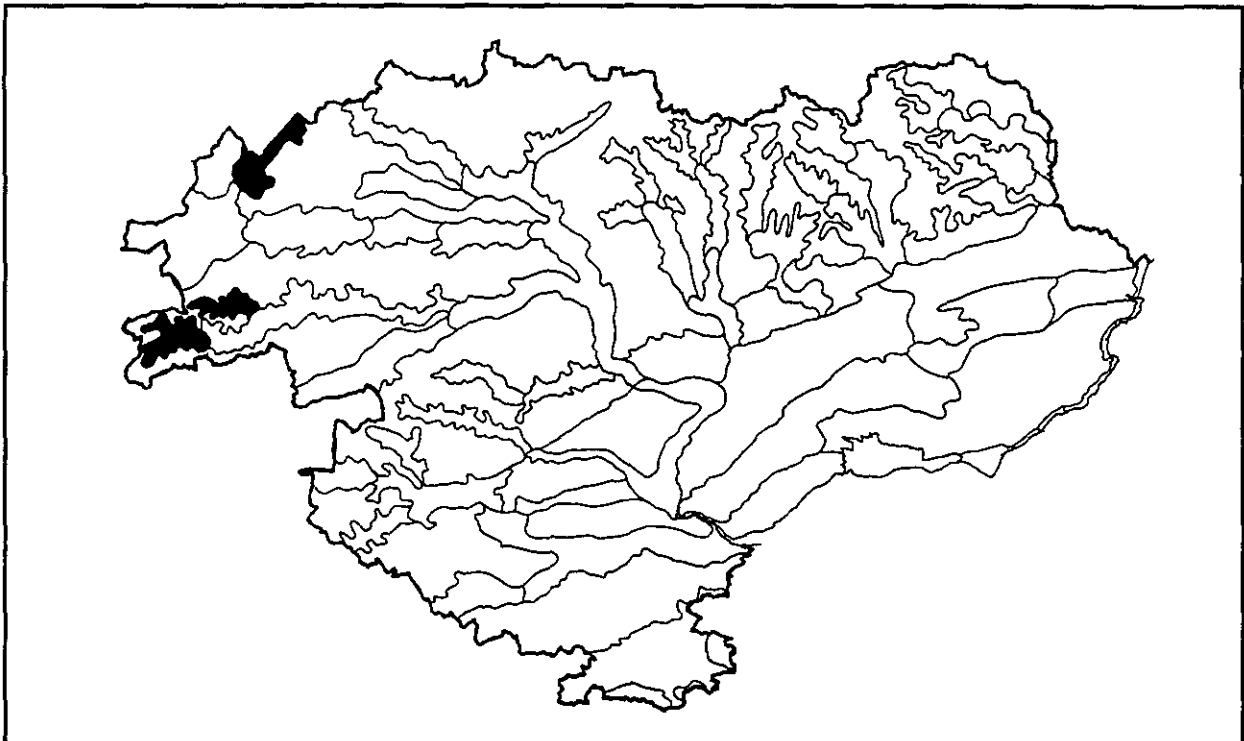
	<ul style="list-style-type: none"> • Explore the opportunities to increase woodland cover by creating new woodland belts, particularly where there is a need to screen development. • Explore development of market for hardwood from field boundary trees. • Discourage over-concentration of oil seed rape and similar crops. • Use the agricultural development notification scheme to influence the design, colour, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to provide screening where appropriate.
Transport	<ul style="list-style-type: none"> • Minimise upgrading or improvement of roads particularly where this involves the creation of cuttings and embankments, or the introduction of additional signage, or features such as concrete kerbing. • Explore opportunities for additional on- and off-site screening to reduce the impact of existing sections of improved road.
Development	<ul style="list-style-type: none"> • Focus new development in existing towns and villages so as to reinforce the historic pattern of settlements and to protect the rural character of other parts of the Lower Highland Glens. • Discourage the simplistic grafting of housing estates onto the edge of settlements. Encourage more imaginative schemes which respond to the existing patterns of layout, structure, massing and scale. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles. • Consider positive ways of addressing the interface between settlements and the surrounding countryside. These could include: <ul style="list-style-type: none"> - screening; - new buildings which address surrounding areas; - key vistas and views; - landmark features; - gateways and approaches.
Forestry and woodland	<ul style="list-style-type: none"> • With respect to the replanting of existing plantations on valley slopes: <ul style="list-style-type: none"> - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen;

<p>(Forestry and woodland contd.)</p>	<ul style="list-style-type: none"> - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes. • Consider opportunities for new woodland planting in terms of: <ul style="list-style-type: none"> - the overall balance of woodland and open space; - the relative importance of different areas of existing woodland (e.g. commercial plantation versus policy woodland) and how this would be influenced by an increase in woodland cover; - the importance of key views and features within the landscape; - opportunities for provide screening within the Lower Glens; - opportunities to link isolated areas of woodland.
<p>Recreation</p>	<ul style="list-style-type: none"> • Concentrate tourist facilities within existing settlements. • Influence the design and provision of associated signage. • Influence the design of new tourism facilities, particularly where it is permitted in previously undeveloped areas. While modern and innovative design may be appropriate, it should respect local building styles, scales, materials and locations. Features such as signage and car parking should be designed to minimise the impact on the local and wider landscape.
<p>Tall structures</p>	<ul style="list-style-type: none"> • Assess proposals for aeriels, pylons or masts in terms of their visual and landscape impact on the local landscape of the hills and surrounding areas. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact. • Ensure that any proposals are subject to thorough landscape impact assessment. • Where new power or telephone lines are proposed or required, encourage operators to adopt underground cable solutions.

HIGHLAND GLENS WITH LOCHS (2)

5.2.1 Lochs are an important feature of many Highland Glens. In undertaking the landscape assessment the influence of such lochs upon landscape character was considered carefully. In some cases (for example Loch Lee at the head of Glen Esk) the lochs are sufficiently small as to have a relatively minor effect on the overall appearance of the landscape. In others, the presence of the loch (most obviously in the cases of the largest lochs such as Loch Rannoch, Loch Tummel and Loch Tay) has a very significant influence on character. The latter cases justified inclusion as a landscape type in their own right. Again, the landscape classification draws a distinction between the upper, mid and lower sections of the glens.

UPPER HIGHLAND GLENS WITH LOCHS (2A)



KEY CHARACTERISTICS

- *geological and physical structure similar to Upper Highland Glens*
- *visual dominance of lochs, enlarged to provide hydroelectric power*
- *the expanse of water, changing its appearance according to the weather, adds to the sense of exposure, remoteness and desolation*

OBJECTIVE DESCRIPTION		Upper Highland Glens with Lochs
Physical scale		1.5 kilometres wide at valley crest Loch surface at 300-450 metres AOD Valley sides rise to 600-900 metres AOD
Woodland	broad-leaf	Virtually absent
	coniferous	Geometric plantations on mid slopes, more natural shapes on upper slopes
Agriculture	arable	Absent
	pasture	Rough grazing on valley slopes
	fields	No enclosure
	field boundaries	Not applicable
Settlement pattern		Predominantly unsettled; hydroelectric infrastructure (dams, turbine houses, pylons etc.)
Building materials		Not applicable
Historic features		Old routeways
Natural heritage features		Upland vegetation
Other landscape features		Rock outcrops, glacial features, hydro schemes
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Medium
Enclosure		Enclosed
Variety		Simple
Texture		Rough to very rough
Colour		Muted to monochrome
Movement		Remote
Unity		Unified/interrupted
'Naturalness'		Wild/slightly tamed

LOCATION

- 5.2.2 A number of the upper glens within the West Highlands contain lochs. Where these lochs are of a sufficient size, they have a significant influence on the landscape character of these upper glens. Examples of the Upper Highland Glens with Lochs landscape type include Loch Errochty, Loch Daimh, Loch Lyon and Loch Ericht.

PHYSICAL CHARACTERISTICS

- 5.2.3 The geological and physical structure of the Upper Highland Glens with Lochs is very similar to that described above in relation to Upper Highland Glens. The geology is dominated by grits and schists of the Dalradian and Moinian groups and the landscape has been highly modified by glacial erosion, creating typically glaciated valley cross sections, hanging valleys and corries. The lochs have been created where the ice sheets overdeepened the glens or where morainic material deposited during their retreat impounded water within the valley. Each of the lochs has been modified by the addition of dams, thereby increasing the available head of water for hydroelectric power generation.
- 5.2.4 The expanse of water, often disturbed by wind and rain, adds to the sense of exposure, remoteness and desolation experienced within these upper glens. Even the engineering structures associated with power generation are dwarfed by the scale and sweep of the enclosing mountains. The landscape is dominated by low moorland vegetation, with woodland limited to sheltered side glens or a handful of geometric coniferous plantations. In fine weather these glens form part of the dramatic upland landscape. In poor light or inclement weather, the atmosphere is less hospitable and can even seem threatening.

FORCES FOR CHANGE

- 5.2.5 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development. Although these areas have seen considerable change over past centuries as any native woodland was cleared and the population removed, the upland glens retain a wild, untouched character. With little in the way of tree cover, views can be extensive within the glen and any development can intrude on this character.
- 5.2.6 **Transport.** For the most part, the Upper Highland Glens with Lochs either have no roads at all or are served by minor roads, often ending in cul de sacs. Although visible in the open landscape, these roads tend to sit relatively easily in the landscape, following natural contours along the floor of the glen. It is important that the diminutive and low-key appearance of these roads is maintained and that minor improvements and signage do not compound to give an overly 'urban' effect.
- 5.2.7 **Development.** A lack of settlement is an important feature of these upper glens. For the most part, development is limited to a scatter of lonely cottages and lodges.

- 5.2.8 **Forestry and woodland.** The Upper Highland Glens with Lochs include areas of coniferous woodland, though these tend to be more limited than in those glens without lochs. In most cases, the plantations have been established to supply commercial timber while in others, the aim has been to provide shelter for game or livestock. The scale and form of the woodland varies accordingly. Commercial plantations tend to be larger in scale while shelter plantations are smaller and often geometric in appearance. Harvesting this woodland will provide an opportunity to review the best locations and designs for replanting. This considered further within the management guidelines.
- 5.2.9 It is probable that, without management to favour deer and grouse, native woodland would regenerate on many of the valley slopes. This would form a transition from sparse birch and pine woods, through dwarf woodland to the open vegetation of the highland summits and plateaux.
- 5.2.10 **Recreation.** Many of the Upper Highland Glens with Lochs are remote and seldom visited except by a comparatively small number of walkers and climbers.
- 5.2.11 **Tall structures.** The Upper Highland Glens with Lochs are comparatively free from tall structures. The exception occurs where power lines serve the hydro installations located adjoining the dams that impound the lochs. This landscape type would be sensitive to proposals for further tall structures, be they pylons, masts or wind turbines, either within the glen itself or visible from within it.

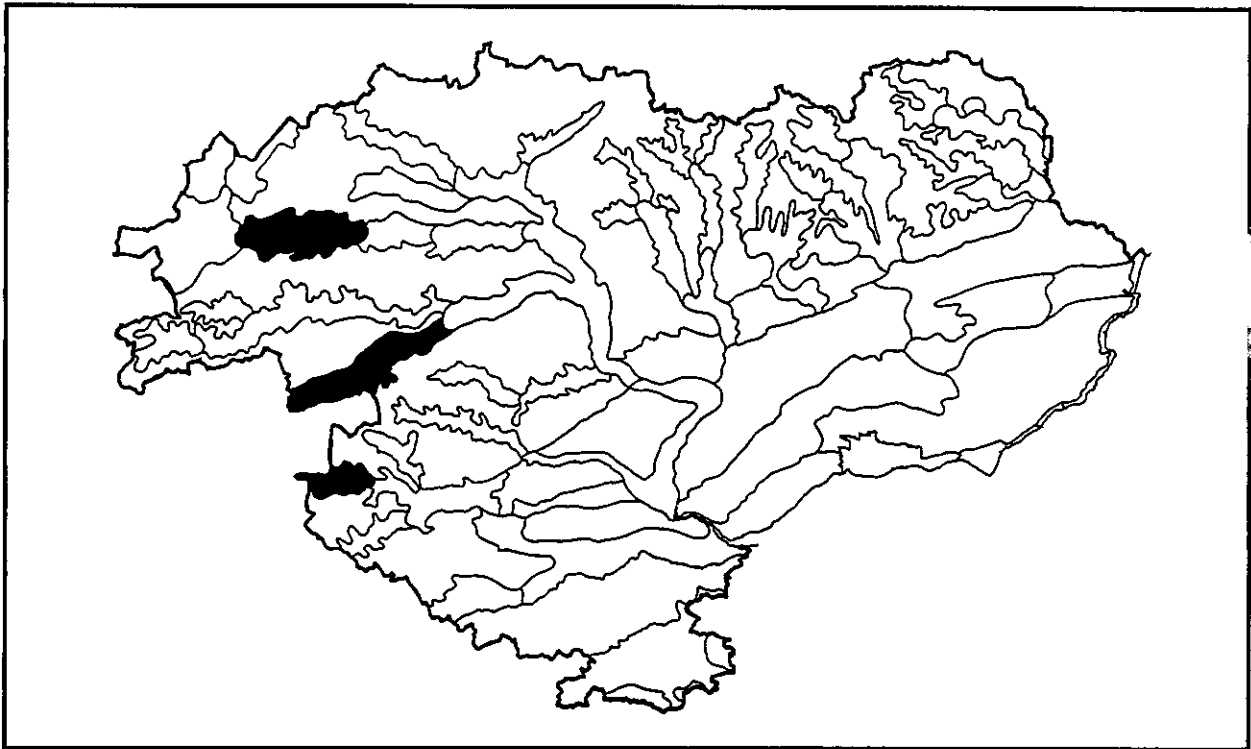
LANDSCAPE GUIDELINES

- 5.2.12 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the characteristic upland landscape of open, predominantly unsettled moorland vegetation. Maintain the contrast with the more settled lowland sections of the glens.

Agriculture	<ul style="list-style-type: none"> • Encourage the conservation of dry-stone dykes in local stone with an emphasis on roadside walls and others in highly visible areas.
Transport	<ul style="list-style-type: none"> • Minimise upgrading or improvement of roads particularly where this involves the creation of cuttings and embankments, or the introduction of additional signage, road paint or features such as concrete kerbing.
Development	<ul style="list-style-type: none"> • Ensure any woodland expansion complies with the principles of good forest design. • Where development is permitted, ensure that buildings are located so as to minimise their impact on the landscape (utilising any natural screening provided by the landform) and that they adopt vernacular styles, building materials and colours.

Forestry and woodland	<ul style="list-style-type: none"> • Discourage the creation of additional areas of coniferous forestry within the upland glens. • Encourage the removal of small, geometric plantations, allowing equal increases in planting in more appropriate locations elsewhere. • With respect to the replanting of existing plantations on valley slopes: <ul style="list-style-type: none"> - encourage the rationalisation of woodland to avoid isolated, small to medium sized areas of plantation woodland which appear very prominent in an otherwise open landscape; - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes. • Explore opportunities to modify management practices to allow the regeneration of native woodlands on some valley slopes, to create the 'natural' transition from valley woodland, through dwarf alpine woodland to the vegetation of the highland summits and plateaux.
Recreation	<ul style="list-style-type: none"> • Maintain low-key level of provision.
Tall structures	<ul style="list-style-type: none"> • Discourage proposals for aerials, masts or wind turbines because of their likely impact on the character of the Upper Highland Glens with Lochs. • Ensure that any proposals are subject to rigorous landscape impact assessment. • Where new power or telephone lines are proposed or required, ensure that operators adopt underground cable solutions.

MID HIGHLAND GLENS WITH LOCHS (2B)



KEY CHARACTERISTICS

- *geological and physical structure similar to Mid Highland Glens*
- *large-scale landscape created by the combination of expansive lochs and large enclosing mountains*
- *concentration of settlement and farming activity on lower slopes and at the ends of the lochs*
- *extensive woodland on lower slopes*
- *extensive corridor views*
- *clear transition from lower pastures through heather midslopes to bare upper summits*

OBJECTIVE DESCRIPTION		Mid Highland Glens with Lochs
Physical scale		1 to 1.5 kilometre wide loch. Loch surface at 120-200 metres AOD Valley sides rise to 300-600 metres AOD Lochs between 50 and 100 metres deep
Woodland	broad-leaf	Native birch and oak woodland on steeper and poorer ground
	coniferous	Substantial areas of plantation
Agriculture	arable	Absent
	pasture	Rough pasture on lower/mid slopes
	fields	Regular fields on smooth valley slopes
	field boundaries	Dry-stone dykes and post-and-wire fences
Settlement pattern		Scatter of farmsteads along shore of loch; greater concentration on sunnier, south-facing slopes
Building materials		Schists and granite with slates
Historic features		Old farmsteads, castles/estates concentrated on lower ground at each end of lochs
Natural heritage features		Native woodlands
Other landscape features		Mills, historic settlement sites
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Medium to large
Enclosure		Enclosed to semi-enclosed
Variety		Varied
Texture		Smooth to textured
Colour		Colourful
Movement		Peaceful
Unity		Unified
'Naturalness'		Restrained

LOCATION

- 5.2.12 Glacial overdeepening along faultlines in the West Highlands created a number of substantial lochs between 50 and 100 metres deep. Several of these occupy the middle sections of glens. Examples include Loch Rannoch, Loch Tay and Loch Earn.

PHYSICAL CHARACTERISTICS

- 5.2.13 The geology and landform of the Mid Highland Glens with Lochs landscape type are very similar to those already described in respect of Mid Highland Glens. The geology is dominated by grits and schists of the Dalradian and Moinian groups. Again, the landscape has been modified by glacial erosion, creating relatively straight, glaciated valley cross sections.

SETTLEMENT AND LAND USE

- 5.2.14 The lack of valley floor means that human activity has been pushed on to the lower slopes of the glen, or concentrated on alluvial deposits at either end of the loch. Small farmsteads tend to be located at fairly regular intervals along the northern and southern shores of the lochs, with access both to the more sheltered, often less steep, lower slopes, and the rough grazing provided at higher altitudes. The pattern is particularly well-developed along Loch Tay where, along the northern side of the loch, farms are found every kilometre or so. The remains of old farmsteads are very obvious here. Many of these would have formed part of a transhumance economy, with sheep and cattle being moved to the mountain pastures and shielings during the summer months. Settlement tends to cluster at points where the larger burns enter the loch. The water in these burns once powered mills - up to a dozen are said to have been built along the Lawers Burn, north of Loch Tay. A line of woodland along the lochside gives way to a band of pastures which extend a short way up the hillside. Each of the lochs also has substantial areas of woodland (broad-leaf, coniferous or mixed) along the lower slopes. One of the most significant of these is the Black Wood of Rannoch which survives as the largest areas of Caledonian pine forest in the area.
- 5.2.15 Each loch is encircled by roads, the more major of the two being along the northern side (reflecting the sunnier aspects of these slopes). The lochs would have formed important links in historic communication routes between the central lowlands and the west coast. This is reflected in a range of defensive structures found along these sections of glen including crannogs (e.g. Eilean nam Breaban on Loch Tay), forts (e.g. Dundurn Fort at the eastern end of Loch Earn) and castles. Numerous other historic sites such as stones, tumuli and crosses point to the historic importance of the lochs. During the Victorian era, loch steamers were popular with piers at Kenmore, Killin and other places.
- 5.2.16 Today, human activity is still focused on the lochs. The growth of tourism and recreation is reflected in the development of hotels, timeshare schemes, and a number of caravan and log-cabin sites. The lochs attract further activities such as sailing, powerboating, water-skiing and jet-skiing. This tends to be particularly the case on Lochs Tay and Earn, where activity is focused at either end of the loch. Loch Rannoch is much less intensively used, partly in response to stricter policies governing recreation development, and partly because of its remoteness. The lochs also form part of a major hydroelectric

power generating scheme, as signalled by the presence of high voltage power lines and power stations such as the one on the northern side of Loch Rannoch. Served by minor roads, the southern sides of the lochs are less developed and in places show signs of decline and abandonment.

- 5.2.17 These are amongst the largest scale landscapes in Tayside. The scale of the enclosing mountains and the expanse of open water creates a vast sense of space that belittles features such as farms or woods. Equally, however, it is an open landscape where intrusive features would be visible over a considerable distance.

FORCES FOR CHANGE

- 5.2.18 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.2.19 **Agriculture.** Most agricultural activity in the Mid Highland Glens with Lochs is concentrated in a narrow band on the valley slopes above the loch. Higher ground is dominated by rough grazing, grading into craggy heather or grass moorland. Pastures dominate. The pattern of farmsteads, pastures and hedgerow trees is an important feature of this landscape. However, the physically constrained location of these farms means there is little room to expand and there are several examples of derelict farm buildings and even apparently abandoned fields. In other cases, farm holdings have diversified into tourism, accommodating log cabin developments or static caravan parks. The decline of agriculture, and the deterioration of farm buildings, appears most pronounced on the lochsides served by minor roads (e.g. the southern side of Loch Tay).
- 5.2.20 **Transport.** Each of the lochs is encircled by roads. The main roads tend to be along the northern side of the glen and the more minor roads along the southern side. This distinction is reflected in the relative prosperity of the two sides of the loch and the degree of settlement and development. Along both sides of the lochs, it is important that the roads continue to be relatively minor features within the large-scale landscape. Improvements such as widening, realignment, lighting or the provision of more extensive signage should be resisted.
- 5.2.21 **Development.** Although with significantly more farmsteads, cottages and houses than the Upper Highland Glens, this landscape type is still comparatively sparsely settled. Older buildings often share a vernacular of stone walls (sometimes whitewashed) and slate roofs. Victorian buildings, concentrated within settlements found at the heads of the lochs and along roads leading out along the lochsides, tend to continue use of local building material, providing interesting interpretations of vernacular styles. Newer buildings adopt more ubiquitous designs and materials which hinder their integration into the landscape. Developers of new buildings should be encouraged to select designs which respond to their location, both in terms of the landscape and the vernacular style. There may be some scope for the sensitive conversion of traditional farm buildings, particularly where these have become redundant or derelict.

- 5.2.22 **Forestry and woodland.** The Mid Highland Glens with Lochs have a mixture of semi-natural woodland, often marking the edge of the loch and extending up the hillside, and areas of coniferous plantation. The latter tend to be larger in scale, occupying higher areas of the valley sides. While the majority of these plantations sit comfortably within the wider landscape, sometimes the dominance of single species can be locally oppressive. Harvesting of this woodland provides an opportunity to review the best locations and designs for replanting. This is considered further within the management guidelines.
- 5.2.23 The Mid Highland Glens with Lochs also have some areas of semi-natural woodland, concentrated particularly on steeper valley slopes and on less productive areas along the lochside. Many of the woods that survive today are in very poor condition, overmature and unable to regenerate due to the level of grazing within or around them. There is an urgent need to facilitate the regeneration of these woodlands, an aim which is being pursued by the Tayside Native Woodlands Initiative.
- 5.2.24 Moving beyond the survival of these woods, there is an opportunity to allow their expansion and growth through the glens and up the valley slopes so as to re-create the more natural patterns of woodland that would have characterised the glens before intensive management for deer and grouse dominated.
- 5.2.25 **Recreation.** The Mid Highland Glens with Lochs are subject to a range of recreation pressures. This is particularly the case in relation to Lochs Tay and Earn. The remoteness and policy context means that pressures are far less on Loch Rannoch.
- 5.2.26 Recreation issues fall into two categories. Firstly there are those concerning the development of facilities. While most hotels, guest houses and bed and breakfast establishments are concentrated within, or on the edge of settlements such as Kenmore or St Fillans, there has been considerable historic development of static and mobile caravan parks within woodland along the lochside. There is a particularly large number of sites, both formal and informal, along the southern shores of Loch Earn. While individual static caravans sit within the woodland, some of the larger sites are more intrusive and are visible over a longer distance. There is an obvious concern that the use of mobile homes does not result into the gradual development of holiday cottages or other more permanent structures.
- 5.2.27 The second type of issue that affects both Loch Earn and Loch Tay is recreation activities such as watersports and walking or climbing. Both lochs have watersports centres (at Lochearnhead and Kenmore, respectively) and a number of smaller facilities along the waterside. The growth of motorcraft use, particularly powerboats and jet-skis, has led to concerns about the impact on the comparatively peaceful landscape of the lochs. Local authorities have pursued a policy which seeks to control the provision of additional motorised watersports facilities and which concentrates activity at the more developed ends of the lochs. As pressures and adverse effects continue to grow, the introduction of bylaws governing the use of the lochs is being considered.
- 5.2.28 Walkers and climbers generally have a much lower level of impact on the landscape. Problems may emerge, however, at popular locations (e.g. Ardvorlich, at the foot of Ben Vorlich) where there may be concentrations of parked cars. The most well-used routes may also suffer erosion resulting in local landscape and ecological impacts.

5.2.29 **Tall structures.** Each of the Mid Highland Glens with Lochs has a line of pylons running along the northern shore, linking components of the Tummel hydro scheme and serving settlements in the area. These pylons tend to run parallel to the road corridor and are often seen against a backdrop of rising hills. Their impact within the large-scale landscape of the lochs is therefore comparatively limited.

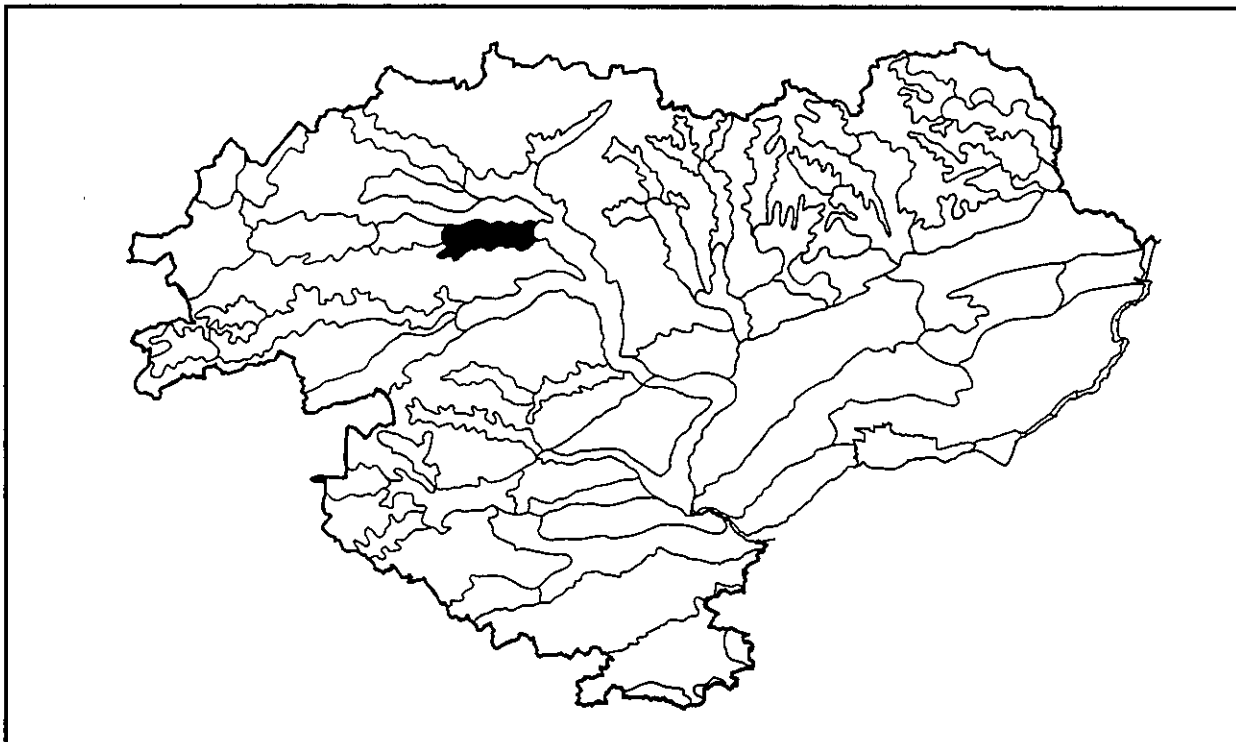
LANDSCAPE GUIDELINES

5.2.30 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the characteristic pattern of farmland, woodland and settlement around the fringes of the lochs, maintaining the tranquil nature of these large-scale landscapes.

Agriculture	<ul style="list-style-type: none"> • Support farming activities along loch fringes. • Encourage management of farm woods, hedges and hedgerow trees. • Encourage maintenance of farm buildings and structures.
Transport	<ul style="list-style-type: none"> • Minimise upgrading or improvement of roads particularly where this involves the creation of cuttings and embankments, or the introduction of additional signage, or features such as concrete kerbing.
Development	<ul style="list-style-type: none"> • Discourage isolated developments in the open landscape. • Where development is permitted, encourage construction to consolidate existing villages. • Do not rely on screening where the screening itself becomes a prominent landscape feature. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles. • Support the appropriate conversion of agricultural buildings where they have become redundant.
Forestry and woodland	<ul style="list-style-type: none"> • With respect to the replanting of existing plantations on valley slopes: <ul style="list-style-type: none"> - encourage the rationalisation of woodland to avoid isolated, small to medium sized areas of plantation woodland which appear very prominent in an otherwise open landscape; - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes;

(Forestry and Woodland contd.)	<ul style="list-style-type: none"> - vary the size of felling coupes, with smaller areas on lower slopes. • Manage grazing levels in and around semi-natural woodland to allow regeneration and expansion. • Explore opportunities to modify management practices to allow the regeneration of semi-natural woodlands on some valley slopes, to create the 'natural' transition from valley woodland, through dwarf alpine woodland to the vegetation of the highland summits and plateaux.
Recreation	<ul style="list-style-type: none"> • Restrict the creation of additional caravan parks and chalets. • Encourage more effective screening of caravan parks, consider use of alternative colours in most prominent areas. • Prevent upgrading of static caravans to more permanent structures. • Continue to restrict noisy watersports at the loch-ends. • Monitor levels of watersports activity and degree and extent of disturbance and bring forward byelaws to effect controls. • Monitor car parking patterns and erosion levels in areas popular among walkers and climbers.
Tall structures	<ul style="list-style-type: none"> • Where new power or telephone lines are proposed or required, encourage operators to adopt underground cable solutions.

LOWER HIGHLAND GLENS WITH LOCHS (2C)



KEY CHARACTERISTICS

- *geological and physical structure similar to Lower Highland Glens*
- *combination of lowland and upland attributes*
- *rich woodland enclosing the loch and providing a transition to upper slopes*
- *significant cultural and historic associations*
- *recreation and other development pressures*

OBJECTIVE DESCRIPTION		Lower Highland Glens with Lochs
Physical scale		0.5 to 1 kilometre wide floodplain Surface of loch at 140 metres AOD Valley sides rise to 500 metres AOD
Woodland	broad-leaf	Extensive: comprising semi-natural woodland on steeper slopes and managed estate woodland
	coniferous	Extensive: on valley sides and associated with estates
Agriculture	arable	Absent
	pasture	Mid slopes
	fields	Medium irregular on valley slopes
	field boundaries	Trees and walls on valley slopes
Settlement pattern		Well settled with villages and large estates.
Building materials		Transitional - granite, schist, slate and some sandstone
Historic features		Castles, lodges and estate features
Natural heritage features		Native woodlands.
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Medium to large
Enclosure		Enclosed to semi-enclosed
Variety		Varied
Texture		Textured
Colour		Colourful
Movement		Peaceful
Unity		Unified
'Naturalness'		Managed

LOCATION

- 5.2.31 The Lower Highland Glens with Lochs landscape type is confined to the area around Loch Tummel. Although sharing many of the characteristics of the Mid Highland Glens with Lochs, the area around Loch Tummel is subtly different. In part this is due to the lower hills (generally 500-600 metres AOD, compared with 600-1000 metres) and slightly shallower slopes. It also reflects the pattern of woodland since there is a higher proportion of broad-leaf woodland, and the cultural associations of Queen's View on Loch Tummel's northern side. The rich character of this area has more in common with the rich wooded valley to the east (Glen Garry and Killiecrankie) than with the more exposed areas to the west.

FORCES FOR CHANGE

- 5.2.32 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.2.33 **Agriculture.** Most agricultural activity in the Lower Highland Glens with Lochs is concentrated in a narrow band on the valley slopes above the loch. Higher ground is dominated by rough grazing, grading into craggy heather or grass moorland. The pattern of farmsteads, pastures and hedgerow trees is an important feature of this landscape, allied to rich policy and semi-natural woodland. As in the case of the Mid Highland Glens with Lochs, the physically constrained location of these farms means there is little room to expand and there are several examples of abandoned fields. In other cases, farm holdings have diversified into tourism, accommodating log cabin developments or caravan parks.
- 5.2.34 **Transport.** Loch Tummel, like the other large lochs is encircled by roads. The main road is along the northern side of the glen and the more minor road along the southern side. This distinction is reflected in the relative prosperity of the two sides of the loch and the degree of settlement and development. Along both sides of the loch, it is important that the roads continue to be relatively minor features within the large-scale landscape. Improvements such as widening, realignment, lighting or the provision of more extensive signage should be resisted.
- 5.2.35 **Development.** This landscape type is more wooded and less settled than the Mid Highland Glens with Lochs. Where they occur, older buildings often share the vernacular of stone walls and slate roofs. Victorian buildings tend to continue use of local building material, providing interesting interpretations of vernacular styles. Newer buildings adopt more ubiquitous designs and materials which hinder their integration into the landscape.
- 5.2.36 **Forestry and woodland.** Woodland is an essential component of this landscape type, comprising a combination of semi-natural woodland, commercial forestry, farm woodland

and field boundary trees, policy and estate woodland. The characteristic interplay of woodland and farmland with rough moorland above is particularly important.

- 5.2.37 Coniferous plantations tend to be medium to large in scale, occupying higher areas of the valley sides. While the majority of these plantations sit comfortably within the wider landscape, sometimes the dominance of single species can be locally oppressive. Harvesting of this woodland provides an opportunity to review the best locations and designs for replanting. A particular aim should be the visual integration of areas of broad-leaf woodland with the existing areas of coniferous plantation. These issues are considered further within the management guidelines.
- 5.2.38 The Lower Highland Glens with Lochs also have some areas of semi-natural woodland, concentrated particularly on steeper valley slopes and on less productive areas along the lochside. Some have generated on areas of former farmland. Some of the woods that survive today are in poor condition. There is a need to facilitate the regeneration of these woodlands, an aim which is being pursued by the Tayside Native Woodlands Initiative.
- 5.2.39 **Recreation.** Loch Tummel has attracted visitors at least since Victorian times, and a number of tourism facilities are found along its northern side. A particular example is the visitor centre and forest walks at Queen's View. Hotels, a lochside caravan site and other forms of visitor accommodation, including groups of log cabins are also found here. Although some of these facilities are locally incongruous, their impact on the wider landscape is generally more limited, partly due to the level of woodland cover. The principal exception to this is the caravan site located on a lochside promontory just to the west of Queen's View. This is a prominent and unscreened feature which detracts from the view out over the loch from Queen's View in particular.
- 5.2.40 **Tall structures.** Loch Tummel has a line of pylons running along the northern shore, linking components of the Tummel hydro scheme. These pylons run along the lower slopes and are seen against a backdrop of rising hills. Their impact within the large-scale landscape of the lochs is therefore comparatively limited. However, the linear nature of the power lines is emphasised by the very straight corridors that are cut through woodlands to accommodate them.
- 5.2.41 Within this landscape type there is unlikely to be significant pressure for wind turbine construction. However, the effect of proposals on higher ground which are visible from within the glen should be assessed and considered carefully.

LANDSCAPE GUIDELINES

- 5.2.42 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the rich landscape of loch, woodland and farmland, and to minimise the intrusion of recreation facilities and activities upon it.

Agriculture	<ul style="list-style-type: none"> • Support farming activities along loch fringes. • Encourage management of farm woods, hedges and hedgerow trees. • Encourage maintenance of farm buildings and structures.
Transport	<ul style="list-style-type: none"> • Minimise upgrading or improvement of roads particularly where this involves the creation of cuttings and embankments, or the introduction of additional signage, or features such as concrete kerbing.
Development	<ul style="list-style-type: none"> • Discourage isolated developments in the open landscape. • Where development is permitted, encourage construction to consolidate existing villages. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles. • Support the appropriate conversion of agricultural buildings where they have become redundant.
Forestry and woodland	<ul style="list-style-type: none"> • With respect to the replanting of existing plantations on valley slopes: <ul style="list-style-type: none"> - encourage the rationalisation of woodland to avoid isolated, small to medium sized areas of plantation woodland which appear very prominent in an otherwise open landscape; - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes. • Manage grazing levels in and around semi-natural woodland to allow regeneration and expansion. • Explore opportunities to modify management practices to allow the regeneration of semi-natural woodlands on some valley slopes, to create the 'natural' transition from valley woodland, through dwarf alpine woodland to the vegetation of the highland summits and plateaux.

<p>Recreation</p>	<ul style="list-style-type: none"> • Maintain policy of concentrating tourist facilities within existing settlements. • Influence the design and provision of associated signage. • Encourage the re-location and/or screening of intrusive recreation provision.
<p>Tall structures</p>	<ul style="list-style-type: none"> • Where new power or telephone lines are proposed or required, encourage operators to adopt underground cable solutions. • Ensure that any proposals for aerials, pylons or masts are subject to thorough landscape impact assessment in terms of their visual and landscape impact, both on the local landscape of the loch and on surrounding areas. • Consider any proposals for wind turbines or other tall structures in surrounding areas in terms of their impact on key views and vistas from Loch Tummel and the valley sides.



UPPER HIGHLAND GLENS

Glen Beag, north of the Spittal of Glen Shee. A landscape dominated by the enclosing Highlands and the moorland vegetation.



MIDDLE HIGHLAND GLENS

Glen Shee. Improved pastures on the valley floor, grading into rough grazing, woodland and moorland on the valley slopes.



LOWER HIGHLAND GLENS

Strathardle near the Bridge of Cally - a rich landscape of dense woodland, hedgerow trees, pastures and arable fields, backed by rising hills.



UPPER HIGHLAND GLENS WITH LOCHS

Most of the lochs in the harsh landscape of the upper glens have been impounded by dams to generate hydroelectricity.



Photo: SNH

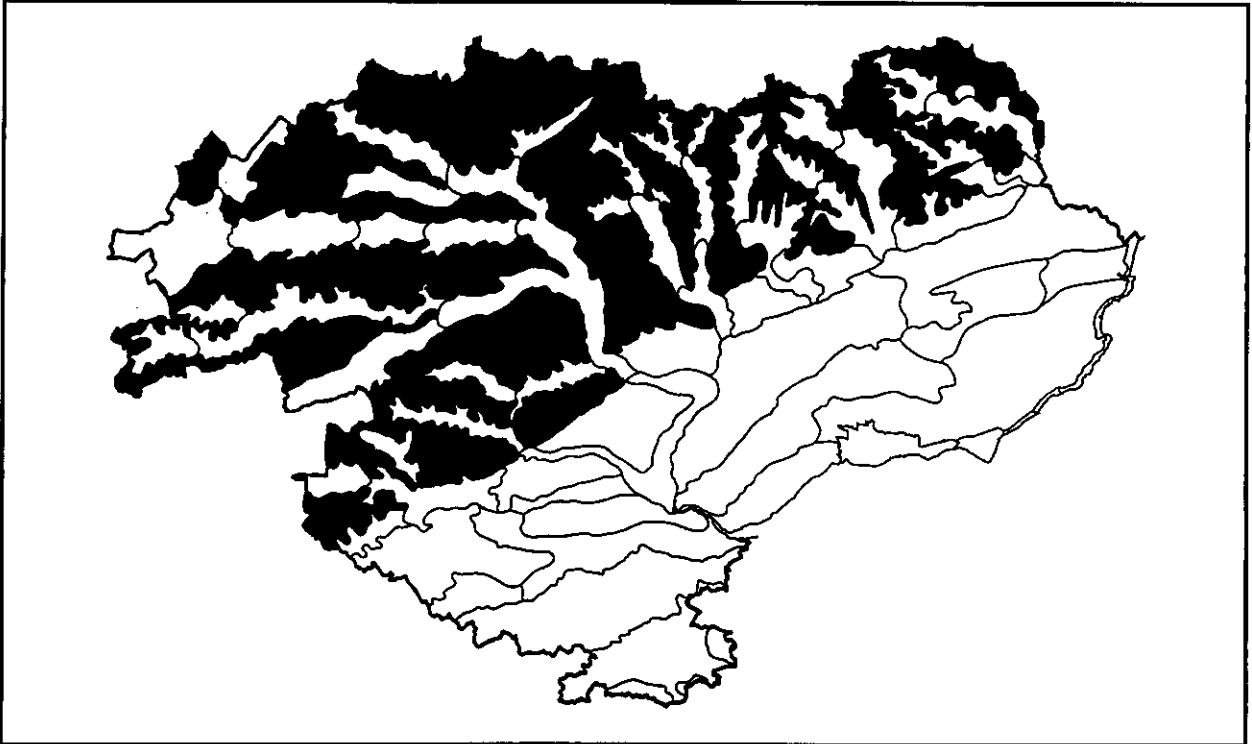
MIDDLE HIGHLAND GLENS WITH LOCHS

Loch Tay. A string of farms along the steep lower slopes, with exposed moorland rising above.

FIGURE 13

LANDSCAPE CHARACTER TYPES

HIGHLAND SUMMITS AND PLATEAUX (3)



KEY CHARACTERISTICS

- *areas of upland separating the principal glens*
- *West Highlands comprise distinct summits and ranges, separated by fault line lochs; the hills are sharply defined and often craggy*
- *Mounth Highlands comprise a more extensive area of upland with spurs extending southwards; the hills are more rounded than those to the west and rock outcrops are fewer*
- *vegetation patterns closely reflect altitude and exposure and include heather, grassland, blanket bog and arctic alpine plant communities; variations reflecting the underlying geology*
- *most of the area managed as open moorland*
- *little or no settlement*
- *some extensive plantations*
- *one of the remotest and wildest landscapes in the UK*

OBJECTIVE DESCRIPTION		Highland Summits and Plateaux
Physical scale		400 to 1000 metres AOD, forming individual groups of mountains or extensive upland tracts
Woodland	broad-leaf	A few areas of semi-natural woodland up to 600 metres AOD. Generally cleared by burning, cutting and grazing
	coniferous	Plantations up to about 450 metres
Agriculture	arable	Absent
	pasture	Rough and unimproved
	fields	Unenclosed
	field boundaries	Not applicable
Settlement pattern		Unsettled
Building materials		Not applicable
Historic features		Ancient routeways, former shielings
Natural heritage features		Rich arctic-alpine flora and fauna
Other landscape features		Rock outcrops, glacial features, expansive views
SUBJECTIVE DESCRIPTION		
Views		Panoramic
Scale		Large
Enclosure		Exposed
Variety		Simple to uniform
Texture		Rough
Colour		Muted
Movement		Distant
Unity		Unified
'Naturalness'		Undisturbed to managed

LOCATION

- 5.3.1 This landscape type comprises the areas of upland separating the principal glens, to the north of the Highland Boundary Fault. As with the glens described above, a broad distinction can be drawn between the West Highlands to the west of Glen Garry/Drumochter, and the Mounth Highlands to the east. While the hills generally reach similar heights, those in the west tend to be craggier and those in the east more rounded. This reflects the higher rates of erosion in the west due to the more rapid accumulation of snow and ice during period of glaciation and the pre-glacial landform. The West Highlands are more heavily dissected than the Mounth. The latter therefore includes more extensive areas of upland plateau. Furthermore, as noted above, east-west fault lines have determined the orientation of western glens while north-south valleys in the Mounth reflect the inclination of the massif.

West Highlands

- 5.3.2 The West Highlands can therefore be described as a series of comparatively discrete hills or ranges, as follows:

- Ben Vorlich and the Forest of Glenartney, south of Loch Earn;
- Ben Chonzie/Sròn Mhór/Meall nam Fuaran and Craigvinean Forest between Strathearn and Loch Tay/Strath Tay;
- Ben Lawers and Beinn Heasgarnich range south of Glen Lyon;
- Carn Gorm/Schiehallion range between Glen Lyon and Loch Rannoch;
- Meall Tairneachan Group between Strath Tay and Loch Tummel;
- Talla Bheith and Craiganour Forest between Lochs Rannoch and Tummel and Glen Garry.

Mounth Highlands

- 5.3.3 The Mounth Highlands form a more continuous area of upland with a series of spurs extending southwards towards Strathmore. The principal areas can be summarised as follows:

- Forest of Atholl north of Glen Garry;
- Forest of Clunie west of Strathardle;
- Forest of Alyth between Glen Shee and Glen Isla;
- Caenlochan Forest/Glen Doll Forest between Glen Shee and Glen Clova;
- Muckle Cairn/Hill of Glansie/Hill of Wirren between Glen Clova and Glen Esk;
- Hills of Saughs/Mount Battock, north and east of Glen Esk.

- 5.3.4 The rest of this section describes the whole of the Highland Summits and Plateaux landscape character type. It draws examples from within both the West Highlands and Mounth Highlands, as appropriate, but also highlights key differences between them, where they occur.

PHYSICAL CHARACTERISTICS

- 5.3.5 The geology of these Highland areas has already been described in relation to the intervening glens. Dalradian and Moinian grits and schists dominate, forming broad bands running south-west to north-east, parallel to the Highland Boundary Fault. These rocks were once the sediments of limestones, sandstones and shales, metamorphosed by heat and pressure to form huge schist mountains which, over millions of years, were reduced to the mountains we see today. The area also has significant intrusions of other rock forming parallel bands. These rocks include granites, limestones, quartzites and intrusive diorite. These differing rock types can have an important influence on local landform. Harder rocks result in outcrops, softer rocks result in eroded basins. They also influence vegetation patterns. Barytes has been quarried in parts of this area and further proposals for mineral extraction may come forward in the future.
- 5.3.6 Vegetation on the schists varies with altitude and exposure. On the moorland slopes below 600 metres, the land cover tends to be dominated by heather, mixed with sedge, rush, bog asphodel, cotton grass, and purple moor grass. On some of the shallower plateau slopes (for example on the Atholl upper moors) blanket bog has developed, with peat lying a metre or more deep. Heather is particularly extensive on drier moorland slopes, such as those in Glen Clova, turning the hillsides purple and pink in late August and September. Grass tends to dominate in the western part of the Highlands. At between 600 and 900 metres there is a pronounced transition from heather and grass moorland to the arctic alpine zone with many screes, rock outcrops and, where topography and soil accumulation allows, a low growth of blaeberry and crowberry, and sometimes a mat of prostrate heather. Otherwise, it is lichens which predominate in this exposed, often inhospitable environment. Periglacial features produced by freeze-thaw processes, are also evident in the higher areas.
- 5.3.7 Vegetation patterns vary with the underlying rock, however. Perhaps the most common of these variations occurs where calcareous schists and limestone rocks occur. Particular plant communities associated with these rocks are found on Ben Lawers, Carn Gorm, Beinn A'Ghlo and Schiehallion among others. A number of these summits are protected as SSSIs, while Ben Lawers, regarded by some as one of the finest examples of arctic alpine flora, is designated as a National Nature Reserve (NNR). Caenlochan is also a NNR.
- 5.3.8 Most of the vegetation of the Highlands is managed for grouse, deer and sheep. Tree and scrub growth is prevented by burning, grazing and tree-cutting. Although there are a few patches of semi-natural woodland on slopes up to about 600 metres, the tree roots and stumps that are sometimes visible in areas of bog point to the former extent of woodland on these moors. In other countries, where similar sub-arctic conditions occur, land uses have allowed the growth of vegetation such as dwarf birch and willow, forming a transition from lower habitats to the ground vegetation of the arctic-alpine zone.

- 5.3.9 The Highland areas support a variety of habitats. Notable species of birds found in the area include ptarmigan, dotterel, dunlin and golden plover on the higher ground and peregrine falcon, red and black grouse, snipe, curlew, hen harrier, siskin, lesser redpoll and capercaillie on the lower moors and in the remaining areas of woodland. Red squirrel, mountain hare and wild cat are not uncommon, while much of the area is inhabited by both red deer and roe deer.

SETTLEMENT AND LAND USE

- 5.3.10 Human activity is specialised in the upland areas. Long managed by the large estates for hunting and shooting (hence the term 'forest' which is used extensively throughout the area), the upland areas also once provided areas of summer grazing when transhumance (the seasonal movement of sheep and cattle between the lowland and upland pastures) was a common practice. The remains of the old shielings, often sited in the most sheltered parts of the upland, can still be found today, for example on the southern and eastern slopes of Ben Lawers above Loch Tay. Historically, there would also have been many tracks and paths through the uplands, providing links with areas to the north or west. Many of these were important droving routes, used when moving stock to and from market. Some of the best examples of these old routes are found at the head of the 'cul-de-sac' glens of the Mounth. Jock's Road, for example climbs out of Glen Doll, crossing a bealach south of the White Mounth before dropping down towards Braemar. Few modern roads follow these old routes, one of the exceptions being the A93 through Glen Shee which crosses the Mounth at Cairnwell. While these historic tracks, together with more recent stalkers' paths and footpaths, are an important recreational resource, the creation of additional tracks and paths could have a local landscape impact and could undermine the special character of these areas.
- 5.3.11 Other signs of human activity are generally limited to the patterns created by heather burning, and the comparatively small number of upland conifer plantations. Large coniferous woodlands on the upland plateaux (for example above Glen Garry) are less intrusive than within the glens or where the scale of the landscape is less expansive. Here they appear as a thin layer which does not upset the scale or drama of the highlands. The hills are largely free from tall structures with the exception of pylons serving hydroelectric schemes, particularly in the West Highlands. Depending upon the angle of view, the season and the light, these pylons can appear as light grey structures against an otherwise sombre landscape of browns and greens.
- 5.3.12 In summary, therefore, despite active management which favours heather moorland over other forms of sub-arctic vegetation, the Highland Summits and Plateaux comprise one of the wildest landscapes in the UK. Dramatic mountains, sweeping moorlands, extensive views throughout southern Scotland and constant exposure to changing, often extreme weather conditions, all shape perceptions of the landscape. Hidden from view are the more sheltered, fertile and settled glens. Remoteness is another important factor. With just a few roads climbing out of the glens onto the high moorland, these are relatively inaccessible areas requiring commitment on the part of those visiting them.

FORCES FOR CHANGE

- 5.3.13 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.3.14 **Transport.** For the most part, the highland summits and plateaux are inaccessible, served only by rough tracks or stalkers' paths. The highland massifs are comparatively dissected so many roads follow lowland routes. There are comparatively few highland passes, and these are generally minor in their impact on the upland landscape.
- 5.3.15 **Forestry and woodland.** The highland summits and plateaux contain relatively little commercial forestry. Notable exceptions include Craigvean Forest between Aberfeldy and Pitlochry and areas around Glen Isla.
- 5.3.16 The wider landscape impact of these woods is comparatively limited. In part this is because of the high ratio of open moorland to plantation. It also reflects the grand scale of the landscape, and the appearance of the woods as little more than dark shapes on an already sombre landform. This perception could change if the scale of woodland increased significantly so as to replace the mottled appearance of the heather moorland with more uniform areas of conifers. It is unlikely that such proposals will come forward since the regional Indicative Forestry Strategy describes much of the area as being 'unsuitable for tree crops'.
- 5.3.17 Much of the Highland Summits and Plateaux are managed for deer and grouse, preventing the natural regeneration of woodland where this could occur. To that extent, the upland landscape that we see today is highly managed and closely allied to the historic pattern of estate management and economy. Appropriate grazing management, supported by appropriate funding mechanisms, could help develop opportunities for natural regeneration of dwarf and other woodland on the lower and mid slopes.
- 5.3.18 **Recreation.** The management of the Highland Summit and Plateau landscape for game has been noted above. With the exception of this, recreation pressures are relatively few on this remote, harsh landscape type. The principal exceptions are the more popular peaks such as Ben Lawers, Schiehallion and Ben Vorlich where substantial numbers of walkers and climbers can cause local problems of erosion. The creation of new paths and tracks in this mountain environment should be avoided. There may be additional pressures for ski development, particularly at the head of Glen Beag where there are proposals to expand the existing facilities southwards. This would extend the zone of visual influence associated with the ski area. Elsewhere, there may be pressure to expand cross-country skiing, with the provision of cross-country routes in areas such as Ben Lawers.

5.3.19 **Tall structures.** The Highland Summits and Plateaux are comparatively free from tall structures such as pylons and masts. There are, however, a number of electricity pylons lines which link hydroelectric plants and which climb out of the highland glens to cross the exposed upland. Examples include the pylons between Tummel Bridge and Glen Garry, and the pylons between Appin of Dull and Glen Quaich. Though the lines of pylons are relatively small when set within the expansive uplands, they are a modern and functional intrusion into the highland landscape. Opportunities to bury these cables should be taken should they arise. Additional pylons should be resisted.

LANDSCAPE GUIDELINES

5.3.20 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the characteristic upland landscape of open, unsettled moorland vegetation and to maintain the contrast with the more settled and wooded glens and lowlands.

Transport	<ul style="list-style-type: none"> • Minimise upgrading or improvement of roads particularly where this involves the creation of cuttings and embankments, or the introduction of additional signage, or features such as concrete kerbing.
Development	<ul style="list-style-type: none"> • Discourage any development on the Highland Summits and Plateaux.
Forestry and woodland	<ul style="list-style-type: none"> • Ensure any new woodland proposals comply with the agreed standards of good forest design. • Encourage the removal of small, geometric plantations, allowing equal increases in planting in more appropriate locations elsewhere. • With respect to the replanting of existing plantations: <ul style="list-style-type: none"> - encourage the rationalisation of woodland to avoid isolated, small to medium sized areas of plantation woodland which appear prominent in an otherwise open landscape; - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes.

(Forestry and woodland contd.)	<ul style="list-style-type: none"> • Explore opportunities to modify management practices to allow the regeneration of native upland treecover in some areas.
Recreation	<ul style="list-style-type: none"> • Maintain low-key level of provision. • Avoid creation of new mountain tracks and paths. • Expansion of ski facilities into this landscape type should only be permitted if it is clear that: <ul style="list-style-type: none"> - the visual and landscape impact is limited; - there is no scope to accommodate expansion to the north; - the economic need for the scheme is demonstrated. • Indirect effects including traffic and the proliferation of related facilities (ski hire shops) should also be taken into account.
Tall structures	<ul style="list-style-type: none"> • Discourage proposals for aerials, masts or wind turbines or additional pylons because of their likely impact on the harsh, undeveloped character of the Highland Summits and Plateaux. • Ensure that any proposals are subject to rigorous landscape impact assessment. • Where new power or telephone lines are proposed or required, ensure that operators adopt underground cable solutions.



Photo: SNH

LOWER HIGHLAND GLENS WITH LOCHS

Loch Tummel - a richly wooded landscape enclosing the enlarged loch; settled and modified by designed landscapes.



Photo: SNH

HIGHLAND SUMMITS AND PLATEAUX

Exposed, craggy uplands along Glen Lyon, punctuated by surviving Scots pines.



Photo: SNH

PLATEAU MOOR

Lochans, blanket bog, granite boulders and grey tree stumps characterise the desolate landscape of Rannoch Moor



HIGHLAND FOOTHILLS

A complex landscape of interlocking, ridge-like hills and intervening valleys - here close to White Caterthun Fort.



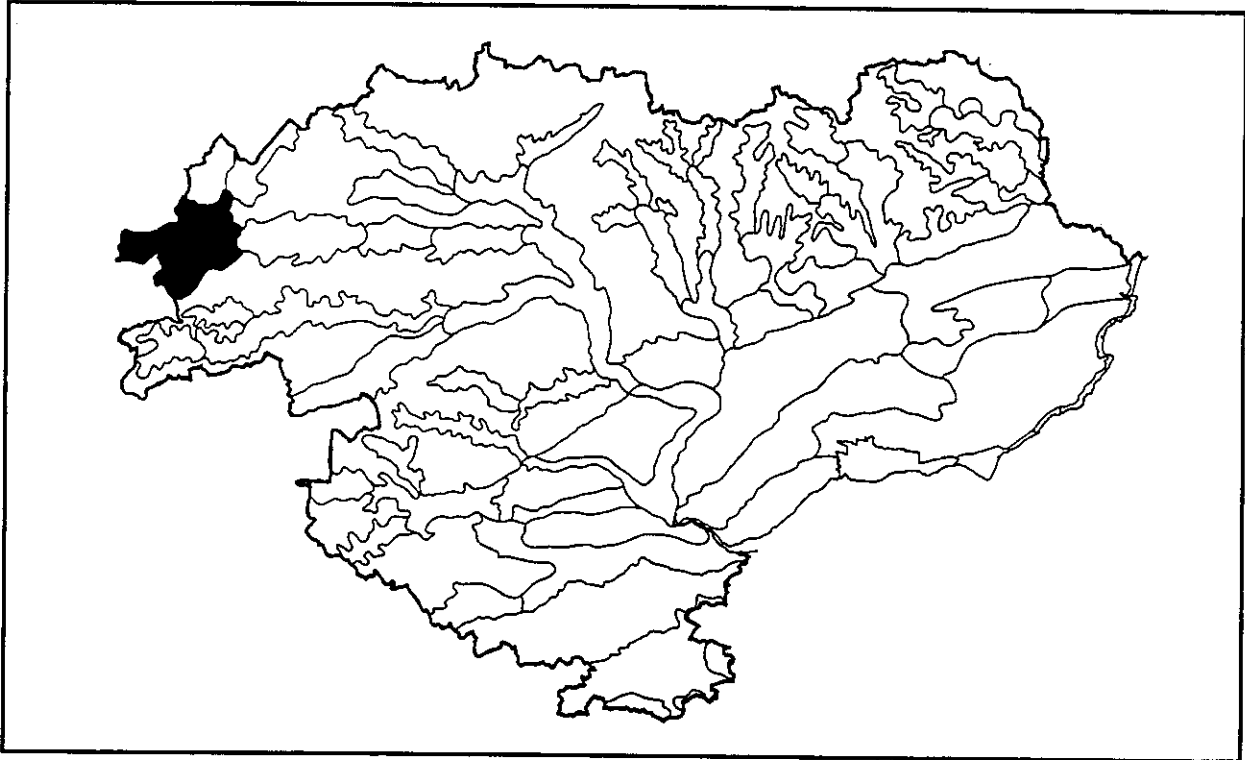
LOWLAND HILLS

The rounded upland character of the hills south of Comrie.

FIGURE 14

LANDSCAPE CHARACTER TYPES

PLATEAU MOOR: RANNOCH MOOR (4)



KEY CHARACTERISTICS

- *highly eroded granite basin overlain with glacial deposits*
- *mosaic of lochans, mires, hillocks and boulders*
- *extensive coniferous woodland to the south*
- *modern development prominent but fails to tame the landscape*
- *wild, exposed and remote*

OBJECTIVE DESCRIPTION		Plateau Moor
Physical scale		300 metres AOD, 25 kilometres in diameter
Woodland	broad-leaf	Scattered trees where shelter/grazing permit
	coniferous	Extensive plantation to the south
Agriculture	arable	Absent
	pasture	Very rough
	fields	Absent
	field boundaries	Not applicable
Settlement pattern		Unsettled with the exception of buildings at Rannoch Station
Building materials		Granite and slate
Historic features		No notable features
Natural heritage features		Rich wetland ecology
Other landscape features		Linear features - railway and pylons; enclosing mountains
SUBJECTIVE DESCRIPTION		
Views		Panoramic
Scale		Large
Enclosure		Exposed
Variety		Simple
Texture		Very rough
Colour		Muted
Movement		Remote
Unity		Unified
'Naturalness'		Undisturbed

LOCATION

- 5.4.1 At the western end of Loch Rannoch, the Dalradian and Moinian schists which are ascendant throughout much of the Highlands give way to an extensive basin of intrusive granite covering an area about 25 kilometres in diameter. At an altitude of about 300 metres, this is Rannoch Moor.

PHYSICAL CHARACTERISTICS

- 5.4.2 The moor's landform belies its geological structure. Granite usually comprises the most resistant rocks, remaining as upland when softer rocks around have been eroded away. However, Rannoch Moor formed the epicentre of the ice sheets that were formed during successive periods of glaciation. The elevated rates of accumulation and ice movement resulted in rapid and sustained scouring and erosion on the moor, and along the principal routes emanating from it (including the glens of Loch Rannoch, Loch Ericht and Glencoe and Glen Etive). This accentuated the erosion resulting from chemical weathering of the granite in the pre-glacial era. When the ice sheets melted, the area was left as undulating plateau of morainic deposits punctuated by hundreds of small lochans and a handful of larger lochs.
- 5.4.3 The vegetation that subsequently developed represents the most extensive area of western blanket mire in Great Britain. Plants include ling, bog myrtle, a variety of grasses and sphagnum mosses. The blanket bog grew under the cool post-glacial conditions that have prevailed since the last Ice Age, sustained by high levels of rainfall. Where shelter is greatest, a scatter of deciduous trees survives, remnants of what would once have been extensive native woodland. The stumps of many trees are preserved in the peat bogs on the moor.

SETTLEMENT AND LAND USE

- 5.4.4 Though wild and remote, signs of human activity are not absent from Rannoch Moor. Protected by snow fences and sheds, the West Highland railway crosses the moor with a halt at Rannoch Station, 10 kilometres west of Loch Rannoch. Loch Eigheach has been dammed and enlarged to generate hydroelectricity, and a line of grey pylons serving the power station marches defiantly across the moorland landscape. Finally, an extensive area of coniferous plantation (about 50 square kilometres) covers the moor to the south of Rannoch Station.
- 5.4.5 Like the Highland Summits and Plateaux, the Plateau Moor landscape type comprises one of the wildest areas and, for many, most forbidding landscapes in Scotland. Treacherous mires, boulder-strewn moorland, a complete lack of shelter, and exposure to winds and rain make this an inhospitable environment. Enclosing summits such as Sgor Gaibhre often disappear into the swirling clouds that often descend onto the moor. It is a constantly changing landscape, transforming itself according to the light, the weather and the season. Though these qualities are valued by many, most people prefer to hurry through, travelling along the West Highland railway line, or the A82 further to the west.

FORCES FOR CHANGE

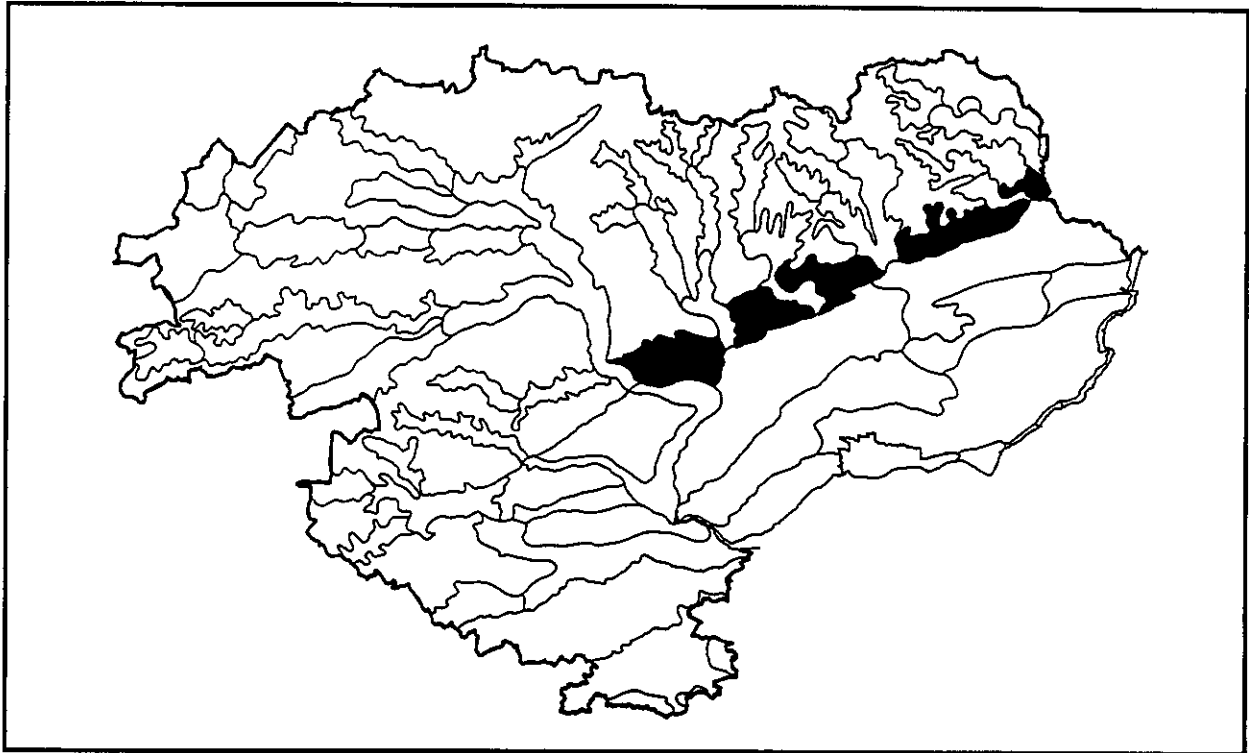
- 5.4.6 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.4.7 **Forestry and woodland.** Though much of Rannoch Moor comprises a mosaic of lochans, bog and boulder strewn moorland, large areas were planted with conifers in the earlier part of the 20th century. These woods have matured and now comprise monocultures of even-aged trees which hide much of the variety of the underlying landscape. Since they were planted, opinions have changed. On the one hand, the wilderness of Rannoch Moor is now more valued as a landscape resource. On the other hand, as has been described in preceding sections, forestry practices have progressed to the extent that comprehensive, large-scale afforestation has been abandoned in favour of a more sensitive approach which takes into account more fully the importance of landscape. The challenge at Rannoch Moor is to decide how replanting, when it occurs, should create a more natural form. Much has to do with the nature of the woodland edge, the ratio of open space to woodland, the size and shape of planting and felling coupes and the degree of integration with native and semi-natural woodland.
- 5.4.8 Rannoch Moor includes a few areas of remnant native woodland. It is likely that grazing and other forms of management are preventing natural regeneration outside of fenced areas. There may be opportunities to change management practices so as to encourage regeneration, particularly where this allows integration with commercial forestry.
- 5.4.9 **Tall structures.** Rannoch Moor is currently comparatively free from tall structures such as pylons and masts. There is, however, a line of pylons which follows the road to Rannoch Station before turning south to follow the railway line. The grey of the pylons makes them stand out against the dark green of the conifer plantations. Though the line of pylons is relatively small when set within the expansive moorland, it is a modern and functional intrusion into the landscape. Opportunities to bury these cables should be taken should they arise. Additional pylons should be resisted.

LANDSCAPE GUIDELINES

- 5.4.10 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the exposed upland character of the moor and to reduce the impact of modern features such as commercial woodland and electricity pylons.

<p>Forestry and woodland</p>	<ul style="list-style-type: none"> • Ensure any proposals for further woodland expansion are rigorously tested by environmental assessment and comply with the principles of good forest design. • With respect to the replanting of existing plantations: <ul style="list-style-type: none"> - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins; - integrate conifers with native species; - employ more varied species mixes; - vary the size of felling coupes. • Explore opportunities to modify management practices to allow the regeneration of native upland tree cover in some areas, particularly where this can provide a transition to commercial woodland.
<p>Tall structures</p>	<ul style="list-style-type: none"> • Discourage proposals for aërials, masts or wind turbines or additional pylons because of their likely impact on the harsh, undeveloped character of the moor. • Where new power or telephone lines are proposed or required, ensure that operators adopt underground cable solutions. • Explore options for burying existing cables, and for alternative colours for pylons to reduce their prominence in the landscape.

HIGHLAND FOOTHILLS (5)



KEY CHARACTERISTICS

- *complex geological structure resulting from their position along the line of the Highland Boundary Fault*
- *glacial deposits*
- *steep whale backed hills and south-west to north-east valleys*
- *winding, gorge-like main river valleys*
- *gateway to the Angus Glens with a rich historic heritage*
- *building materials reflecting geological transition*
- *complex, sometimes disorientating landscape with glimpses of Highland and lowland*

OBJECTIVE DESCRIPTION		Highland Foothills
Physical scale		Climbing from about 100 metres at their southern edge to summits between 300 and 400 metres AOD
Woodland	broad-leaf	Scattered areas of woodland
	coniferous	Small to medium sized coniferous plantations, often geometric in form
Agriculture	arable	On gentler, lower slopes, particularly along northern edge of Strathmore
	pasture	Extensive areas of pasture
	fields	Medium, regular shaped where landform permits
	field boundaries	Hedges, sometimes heathy in character and some dry-stone walls
Settlement pattern		Settlement concentrated on low ground, particularly where rivers have cut corridors through to the lowland
Building materials		Combination of hard rocks from the north and sandstones from the south
Historic features		Very rich in defensive sites, hill-forts, castles and fortified manor houses
Natural heritage features		Mainly confined to intervening valleys and gorges
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Intermittent
Scale		Small to medium
Enclosure		Semi-enclosed
Variety		Varied
Texture		Smooth/rough
Colour		Muted
Movement		Peaceful
Unity		Fragmented
'Naturalness'		Tamed

LOCATION

- 5.5.1 Along the Highland Boundary Fault, at the foot of the Mounth Highlands, a series of foothills mark the transition to the lowland of Strathmore. Dissected by the rivers that flow out of the highland glens, the Highland Foothills landscape type forms a series of units running eastwards from Dunkeld to Edzell.

PHYSICAL CHARACTERISTICS

- 5.5.2 The geology of this area is mixed, comprising areas of schist to the north-west and Old Red Sandstone to the south-east, separated in places by a variety of resistant conglomerates, intrusive and extrusive rocks including slates, lavas and tuffs. Superimposed upon this structure is a mass of glacial moraine, deposited as the ice sheets retreated into the glens. The complexity of the geology is reflected in a landscape of steep, whale-backed hills and intervening valleys, generally orientated on an east-west axis. Many of the Highland Boundary rocks are harder than those to the north and south, and rivers flowing off the highlands have been forced to find the least resistant route. Each turns north-eastwards before turning to the south once again. The hills are most distinct in the east. In the west, the hills between Dunkeld and Blairgowrie are less well-defined, though there are many signs of glacial deposition.

SETTLEMENT AND LAND USE

- 5.5.3 Much of the Highland Foothills landscape type is under intensive agricultural use, comprising a mixture of fertile grasslands and, on the more level, better drained land, arable fields. A small number of coniferous plantations are found on the foothills, while broad-leaf woodland is concentrated on steeper slopes, particularly along the narrow river valleys, or dens, that cut through the hills. Many of these valleys are ecologically important, supporting ancient woodland and the cool damp conditions favouring ferns and mosses. Many of the valleys are designated as SSSIs.
- 5.5.4 Historically, this area represented the gateway to the glens, the boundary between the highland and lowland glens, and the limit of Roman occupation. It is not surprising, therefore, that the Highland Foothills have a rich heritage of archaeological sites, ranging from sculptured stones and crosses, through hill-forts and Roman camps to dramatic medieval castles and fortified manor houses. Particularly significant examples of prehistoric hill-forts are found at Brown Caterthun and White Caterthun. A number of large houses, for example The Burns near Edzell, are located in this landscape type. Modern settlement echoes the past importance of the glens, most towns and villages of any size being sited close to one of the valleys emanating from the foothills. Building materials reflect the geological transition, comprising a mixture of grey schists and granites and the more colourful lowland red sandstones.
- 5.5.5 In contrast to the apparent simplicity of lowland Strathmore and the clear structure of the Mounth Highland and glens, this is a confusing, almost disorientating landscape. The hills and their intervening valleys mean that it is relatively well-contained, with only occasional glimpses to the heath moorland above, or open lowland below. Valleys appear to run in all directions, twisting up into the Highlands, running along the fault line and leading down to Strathmore.

VARIATIONS IN LANDSCAPE CHARACTER

- 5.5.6 The Highland Foothills are most pronounced, but also narrowest in the east. Here the whale-backed hills are sharpest in relief, enclosing a narrow valley running parallel to the Highland Boundary Fault to the north. Further west, the foothills are less pronounced, and their width increases to over 5 kilometres. There is a gradual transition in character and the area of foothills between Rattray and Dunkeld, which includes a series of small kettle hole lochs along the course of the Lunan Burn, is quite different in appearance from those areas near Edzell. The waterbodies are of considerable nature conservation importance, adding further interest to this landscape.

FORCES FOR CHANGE

- 5.5.7 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.5.8 **Agriculture.** The transitional nature of the Highland Foothills is reflected in the pattern of agriculture. Many farms straddle the transition, combining sheep and cattle rearing on the uplands with arable cultivation on the lowlands. This pattern of mixed farming means that farms have the opportunity to vary the extent of arable cultivation or grazing to reflect prevailing market conditions. The support mechanisms for cereal production in particular may have encouraged farmers to extend arable cultivation from the lowlands into parts of the foothills, in places weakening the contrast between the hills and the lowland strath. On the other hand, the Highland Foothills mark the approximate boundary of the Less Favoured Area which covers much of the Highlands, providing support for hill farming. This scheme offers income stability for sheep and cattle farmers on higher ground. However, as with all forms of support, it makes the economy potentially vulnerable to changes in national or European policy.
- 5.5.9 Many farms in the Highland Foothills have constructed modern agricultural buildings such as sheds and barns. These are generally of a smaller scale than those found in the lowland straths. Furthermore, the more complex landform provides a much greater degree of screening.
- 5.5.10 **Transport.** The Highland Foothills are laced with a network of minor roads, often bordered by hedgerows (sometimes comprising gorse) or contained within steep banks. The circuitous nature of many of these roads emphasises the complicated nature of the landform. It is important that the small scale and rural character of these roads is retained. Hedges and hedgerow trees should be conserved and signage and 'improvements' such as widening or kerbing resisted.
- 5.5.11 **Development.** Though relatively close to the string of small towns and villages located at the mouths of the Angus Glens, development within the foothills is very limited, generally comprising little more than a scatter of farmsteads and a few small hamlets. While further residential development could be accommodated without major impacts on

the wider landscape, the effect on the local landscape could be significant. Although there may be some scope for residential conversions where traditional farm buildings have become redundant, generally new development should be focused outwith this landscape type.

- 5.5.12 **Forestry and woodland.** The Highland Foothills have a limited amount of woodland, in some places hidden within the complex of hills, in others crowning the hills overlooking the lowland straths. While much of this woodland is commercial in nature, some has been planted to provide shelter for game, stock or crops. The Tayside Indicative Forestry Strategy categorises much of the Highland Foothills landscape type as being 'preferred' or 'potential' areas for new planting. Taking a regional perspective it is evident that the foothills are relatively free from the constraints associated with the most productive agricultural land and the sensitive highland areas. At a more local level, there is obviously a concern that the scale of any new planting should not be such as to change significantly the landscape character of the foothills. Key factors to be considered include:
- scale of new planting relative to the landform and the proportion of unplanted land;
 - species composition;
 - relationship with existing semi-natural or planted woodland;
 - retention of key views within and outwith the foothills;
 - size of felling coupes;
 - factors such as agricultural viability, nature conservation and historic sensitivities.
- 5.5.13 These issues are addressed by Forestry Authority woodland design guidance (see section 4.19.), and are summarised in the landscape guidelines presented at the end of this section.
- 5.5.14 **Recreation.** Access to the Highland glens, the proliferation of castles and other historic sites, and the particular nature conservation interest of areas such as the Lunan Valley, means that the Highland Foothills are popular for recreation and tourism. A number of caravan parks are found within or immediately adjoining the foothills. While these generally have a limited impact on the wider landscape, it is possible, however, that there may be pressure to expand these sites or create new ones. There may also be pressure for chalet developments or timeshare schemes. Where they are permitted, such developments should be located in less prominent lowland locations, exploiting the natural screening provided by the topography and existing woodland. Additional impacts on the landscape, including traffic levels on narrow roads, signage, an increase in the loss of tranquillity, should also be taken into account.
- 5.5.15 **Tall structures.** The Highland Foothills remain comparatively free of tall structures. The principal exception is the high voltage electricity transmission line which climbs into the foothills near Airlie before running north-eastwards through the hills. Given the comparatively small scale of the foothills and the intervening valleys, this line of pylons is a substantial feature in the landscape, conflicting with the area's otherwise rural character.

The effect is particularly significant where the pylons run across hilltops or along ridgelines, or where they run along narrow glens such as that of the Paphrie Burn.

- 5.5.16 Masts and aerals are largely absent from these hills. Given the growth of telecommunications and the position of the foothills overlooking the lowland straths, however, it is possible that proposals for new masts may come forward. Where possible, these should be resisted, but operators should be encouraged to develop a strategy that reflects the local and strategic landscape effects of masts. Given the density of hill-forts, castles and other significant sites, there must also be concern about the potential effect on the historic component of the landscape, and on people's enjoyment of historic sites in their wider context.
- 5.5.17 Wind turbines represent a further potential development pressure. Though wind speeds are likely to be significantly lower than in more elevated parts of the Highlands or the Sidlaws/Ochils, it is possible that the lower level of perceived constraint, together with the proximity to the existing electricity distribution network, could favour this area. This would be even more likely if the efficiency of wind turbines continues to improve, thereby making areas with lower wind speeds viable. It is acknowledged that development here could avoid the need to locate turbines in even more sensitive upland areas, or in less sensitive, but more populated areas closer to settlements. It would also mean that, from a distance, turbines would be viewed against a backdrop of higher ground. However, the insensitive development of wind turbines in this area would conflict with the small scale, historic and deeply rural character of the landscape. It would also weaken and confuse the area's role of providing a transition from the unsettled uplands to the fertile and settled lowland.

LANDSCAPE GUIDELINES

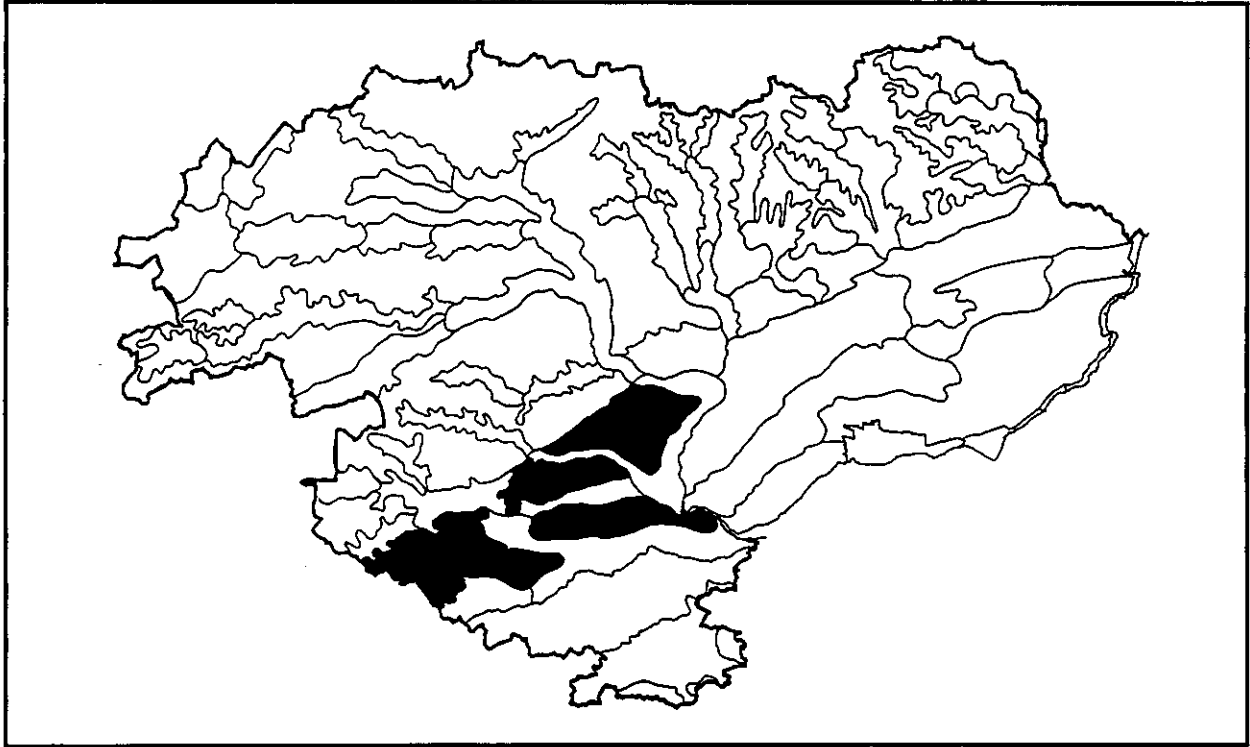
- 5.5.18 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the small-scale, rural and historic character of the Highland Foothills, recognising their importance in providing a transition zone between the highlands and the lowlands.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Maintain the distinction between lowland cereals and highland grazing areas. • Encourage farmers and landowners to maintain and replant trees and farm woodlands. Species to include oak, maple, beech and ash. • Use the agricultural development notification scheme to influence the design, colour, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to provide screening where appropriate.
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<p>Transport</p>	<ul style="list-style-type: none"> • Where road improvement schemes take place, ensure that hedges and hedgerow trees are reinstated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives. • Develop a road use hierarchy as a basis for management.
<p>Development</p>	<ul style="list-style-type: none"> • Discourage significant development in the Highland Foothills. Instead, encourage new development to reinforce the existing settlement pattern in surrounding areas, particularly within the lowland straths. • Where small-scale development is permitted, encourage developers to use local building materials and to adopt local vernacular in respect of density, massing, design, colour and location. Avoid standard designs and layouts. Assess and adopt existing traditional layouts. Consider the preparation of design guides as supplementary planning guidance. • Encourage the appropriate conversion of redundant farm buildings. Guidance should be provided on the way buildings should be converted (including the provision of drives, gardens etc.) to prevent the suburbanisation of the countryside.
<p>Forestry and woodland</p>	<ul style="list-style-type: none"> • New planting should conform to the Forestry Authority's design guidelines. In particular, it should respond to the small-scale nature of the landscape, complex topography, the importance of views within and out of the hills, and historic and ecological values. • Use new woodland planting to enhance the landscape and nature conservation value of the foothills. New woodland could link existing plantations and semi-natural woodlands in the foothills and lower parts of the Highland glens. • The broad principles of new woodland could include: <ul style="list-style-type: none"> - overall planting strategy that emphasises the transitional character of the foothills; - expansion/regeneration of native woodlands from highland glens into foothill glens; - mixture of broad-leaf (oak and ash) and conifer species; - small coupes to reflect the small scale of the landscape; - concentration of new woodland on steeper slopes, around the lower slopes of whale backed hills and through small glens towards highlands and lowlands; - retention of key views out from foothills.

Recreation	<ul style="list-style-type: none"> • Concentrate recreation and tourism developments, including caravan sites, chalet developments and timeshare schemes, in well-screened locations within valleys and glens. Secondary effects resulting from signage, traffic and activity levels should also be taken into account.
Tall structures	<ul style="list-style-type: none"> • Assess proposals for aerials, pylons or masts in terms of their visual and landscape impact on the local landscape of the Highland Foothills, and the broader landscape of the lowland straths and Highlands. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact. • Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape. • Encourage the development of a regional strategy for renewable energy, including wind power, in order that the most appropriate types of development and areas come forward.

LOWLAND HILLS (6)



KEY CHARACTERISTICS

- *low ridges and hills separating lowland straths and adjoining the nearby uplands*
- *composed of soft, red sandstones*
- *transitional character with pastures on lower slopes, giving way to rough grazing and even open moorland*
- *evidence of several phases of historic settlement*
- *extensive woodland, including forestry plantations*
- *influence of modern development*

OBJECTIVE DESCRIPTION		Lowland Hills
Physical scale		Broad ridges and rounded hills rising to between 150 and 600 metres AOD
Woodland	broad-leaf	Small farm woods and woodland along sheltered burns
	coniferous	Extensive areas of plantation
Agriculture	arable	Limited to lower slopes and some sheltered, gentler upper slopes
	pasture	Improved pasture dominant, giving way to rough grazing and moorland on upper slopes
	fields	Medium, rectilinear where landform allows
	field boundaries	Hedges on lower slopes and walls on upper slopes
Settlement pattern		Sparse scatter of farmsteads. Also masts, roads
Building materials		Sandstone and harder schists and granites
Historic features		Prehistoric, Roman, medieval and later influences
Natural heritage features		Moorland areas
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Panoramic/framed
Scale		Medium
Enclosure		Open to semi-enclosed
Variety		Varied to simple
Texture		Textured to rough
Colour		Muted
Movement		Still
Unity		Interrupted
'Naturalness'		Tamed to restrained

LOCATION

- 5.6.1 Between Strathallan and the Strath Tay at Dunkeld lies a series of low ridges and hills, separating the lowland valleys. The principal examples include the Gask Ridge west of Perth, the Keillour Forest south of Glen Almond, the Bankfoot Hills between Glen Almond and Dunkeld, and what we have termed the Knaik Hills lying to the south of Glen Artney.

PHYSICAL CHARACTERISTICS

- 5.6.2 Unlike the Highland Foothills (described above) which have a complex geological structure, the Lowland Hills lie to the south of the Highland Boundary Fault, entirely on the broad band of Old Red Sandstone which runs south-west to north-east across the region. A series of quartz-dolerite dykes run through several of the hills, however, contributing to their greater resistance to erosion. One such dyke runs westwards from Perth along the Gask Ridge to the River Earn near Crieff.
- 5.6.3 These Lowland Hills form the transition between the Highlands to the north and west and the lowlands to the south and east. They vary in height, the highest being the Knaik Hills which rise to over 600 metres AOD, and the lowest being the Gask Ridge which rises to just 150 metres AOD. In contrast to the areas of true upland to the north, these hills are generally smooth and well-rounded. Small valleys cut easily into the sandstone creating a series of convex ridges and valleys to the north of the lower part of Glen Almond.
- 5.6.4 The transitional nature of the hills is reflected in landcover and vegetation. Pastoral and even arable fields on the lower slopes give way to rough grazing and then to open moorland as height is gained. This is particularly evident on the Knaik Hills which, because of their scale and height, have a particularly upland character. Even on the low Gask Ridge, where farmland extends onto the summit line, and the land is quite fertile, the greater exposure contributes to the transitional character. There is a considerable amount of coniferous forestry in this landscape type, though this is concentrated where less fertile glacial till occurs. Large plantations are found on the lower slopes of the Knaik Hills, along the Gask Ridge and in the Keillour Forest. Smaller plantations are found along the valleys which drain the Bankfoot Hills. In places, stands of conifers are extremely geometric. Particular examples are found east of the A822 above Crieff where narrow bands of conifers extend up the hillside from the floor of the glen, pushing over the summit and beyond.

SETTLEMENT AND LAND USE

- 5.6.5 With the exception of their most elevated parts, the landscape of these hills shows evidence of thousands of years of settlement and land use. The hills are rich in prehistoric remains including standing stones (for example on the lower slopes of Dunruchan Hill south of Comrie, and in the vicinity of Fowlis Wester in the Keillour Forest), cairns, stone circles and hut circles. Roman occupation is equally well-represented by forts (e.g. at Braco and west of Buchanty at the head of lower Glen Almond), roads (e.g. along the Gask Ridge) and signal stations. The hills' location close to several 'gateways' to the Highlands is reflected in the number of castles and fortified houses. Examples include Huntingtower, Keillour and Drummond Castles. Many of these became transformed into landscaped estates over subsequent centuries. Today,

agriculture predominates. There are, however, signs of modern development including the busy A9 corridor where it climbs over the Gask Ridge to the west of Perth, the lines of pylons which fan out from the highland glens carrying power to the lowlands, and a number of telecommunication masts (e.g. on Kirton Hill near Perth) exploiting the hills' proximity to settled lowland. Large areas of the Knaik Hills are reserved for military use.

FORCES FOR CHANGE

- 5.6.6 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.6.7 **Agriculture.** The transitional nature of the Lowland Hills (like the Highland Foothills) is reflected in the pattern of agriculture with arable on some of the lower slopes giving way to enclosed pastures and eventually, in the case of the more exposed areas, to rough moorland grazing. As in the case of the Highland Foothills, the nature of this transition may vary according to market conditions and the level of support. In particular, it is likely that cereal production has extended uphill from the lowland straths onto parts of the lowland hills such as the Gask Ridge. This does not, however, seriously weaken the contrast between lowland, lowland hills and the highlands.
- 5.6.8 Many farms in the foothills have constructed modern agricultural buildings such as sheds and barns. These are generally of a smaller scale than those found in the lowland straths.
- 5.6.9 **Transport.** The Lowland Hills have a network of main and minor roads. These are generally small-scale and fit with the grain of the landscape. The exception is the A9 corridor which crosses the eastern part of the Gask Ridge and the Bankfoot Hills to the north of Perth. Existing coniferous woodland, together with cuttings provide a degree of screening. However there are a number of sections (particularly the length climbing onto the Gask Ridge from Strathearn) which have a much wider landscape impact.
- 5.6.10 **Development.** Development within the Lowland Hills is very limited, generally comprising little more than a scatter of farmsteads and a few small hamlets. Small, stone settlements such as Fowls Wester and Findo Gask characterise the lower parts of this landscape type. Along the A9 corridor, particularly to the north of Perth, there has been some more recent residential settlement, in particular expanding villages such as Bankfoot. In others, such as Methven for example, land has been allocated for further housing development. There is scope to accommodate further development in the dissected lower parts of the Bankfoot Hills without major impacts on the wider landscape. The Perth Area Local Plan (Perth and Kinross District Council, 1996) indicates that the possibility of establishing a new village in the vicinity of Moneydie is the subject of early discussions between interested parties. The impact of housing developments in these Lowland Hill areas would have as much to do with their layout, scale, variety, materials and vernacular, as with their location within the landscape. Housing developers should be encouraged to adopt layouts and designs which integrate new dwellings into existing

settlements, rather than simply grafting suburban estates onto the edge of villages and hamlets. There may also be some scope for sensitive residential conversions where traditional farm buildings have become redundant.

5.6.11 **Forestry and woodland.** The elevation, soils and prevailing climate of the Lowland Hills makes them well-suited to commercial forestry. This is reflected in the Tayside Indicative Forestry Strategy which categorises much of this landscape type as being 'preferred' or 'potential' areas for new planting. The area already includes a considerable number of coniferous plantations, particularly along the low ridges between Glen Almond and Strathearn. Taking a regional perspective it is evident that the Lowland Hills, like the Highland Foothills, are relatively free from the constraints associated with the most productive agricultural land and the sensitive Highland areas. At a more local level, there is obviously a concern that any additional planting should not be such as to change significantly the landscape character of the hills. Some areas already have about 50% planting, while others (particularly the Knaik Hills and the western part of the Bankfoot Hills) have an open, upland character that could be affected by new planting. Key factors to be considered include:

- scale of new planting relative to the landform and the proportion of unplanted land;
- species composition;
- relationship with existing semi-natural or planted woodland;
- retention of key views within and outwith the foothills;
- size of felling coupes;
- factors such as agricultural viability, nature conservation and historic sensitivities.

5.6.12 These issues are addressed by Forestry Authority woodland design guidance (see section 4.19), and are summarised in the landscape guidelines presented at the end of this section.

5.6.13 There is also a need to address the character of existing plantations, many of which were established many decades ago. A particular concern relates to the hillside shelterbelts to the east of the A822 between Crieff and Glen Almond. Here narrow, geometric strips of woodland run vertically up the hillside, one even crossing the hilltop and descending the other side. While such plantations may provide valuable shelter for stock or game, their landscape impact is high. Consideration should be given to removing them, in due course, and perhaps creating new woodlands elsewhere in compensation. Elsewhere, harvesting and replanting will provide an opportunity to remodel some of the more geometric plantations to create more naturalistic and sensitive woodland forms.

5.6.14 **Tall structures.** The Lowland Hills are comparatively free of tall structures. The principal exceptions are the high voltage electricity transmission lines which cross the area, and the masts that are sited on high ground overlooking Perth (e.g. near Methven and on Kirton Hill). It is possible that there may be pressure for additional masts as telecommunications traffic grows.

5.6.15 At a small scale, wind power has been important in this area for many decades, being harnessed by wind pumps to raise water. With the development of modern wind turbines to generate power, it is possible that this area may come under pressure for wind farm development. Though wind speeds are likely to be significantly lower than in more elevated parts of the Highlands or the Sidlaws/Ochils, it is possible that the lower level of perceived constraint, together with the proximity to the existing electricity distribution network, could favour this area. This would be even more likely if the efficiency of wind turbines continues to improve, thereby making areas with lower wind speeds viable. It is acknowledged that development here could avoid the need to locate turbines in even more sensitive upland areas, or in less sensitive, but more populated areas closer to settlements. It would also mean that, from a distance, and from some directions, turbines would be viewed against a backdrop of higher ground. However, the insensitive development of wind turbines in this area could conflict with the small-scale, historic and deeply rural character of the landscape. It would also weaken and confuse the area's role of providing a transition from the unsettled uplands to the fertile and settled lowland.

LANDSCAPE GUIDELINES

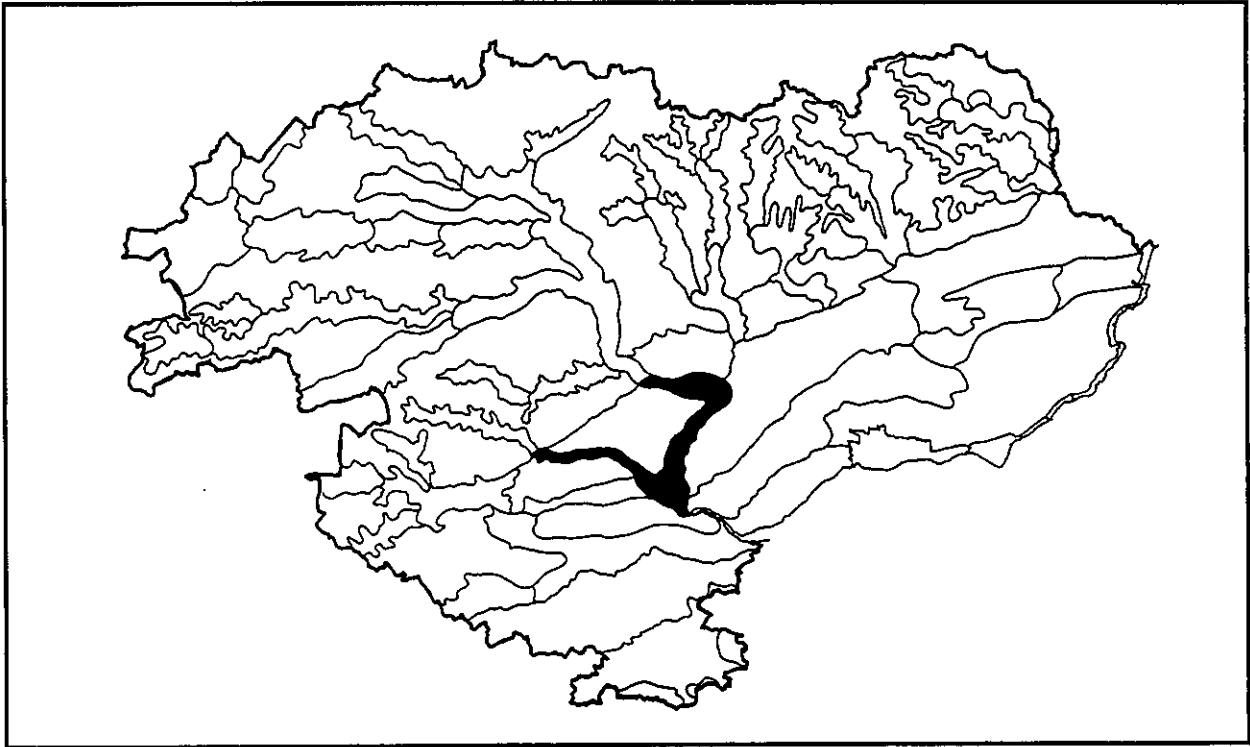
5.6.16 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the small-scale, rural and historic character of the Lowland Hills, recognising their importance in providing a transition zone between the Highlands and the Lowlands.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Maintain the distinction between lowland cereals and highland grazing areas. • Encourage farmers and landowners to maintain and replant trees and farm woodlands. Species to include oak, maple, beech and ash. • Use the agricultural development notification scheme to influence the design, colour, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to provide screening where appropriate.
<p>Transport</p>	<ul style="list-style-type: none"> • Where necessary, explore opportunities to provide additional on- and off-site screening of major roads. • Where more minor road improvement schemes take place, ensure that hedges, hedgerow trees, gates and other features are re-instated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives. • Develop a road use hierarchy as a basis for management.

<p>Development</p>	<ul style="list-style-type: none"> • Focus new development in existing towns and villages so as to reinforce the historic pattern of settlements and to protect the rural character of other parts of the lowland glens. • Discourage the simplistic grafting of housing estates onto the edge of settlements. Encourage more imaginative schemes which respond to the existing patterns of layout, structure, massing and scale. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles. • Consider positive ways of addressing the interface between settlements and the surrounding countryside. These could include: <ul style="list-style-type: none"> - screening; - new buildings which integrate surrounding areas; - key vistas and views; - landmark features; - gateways and approaches. • Where small-scale development is permitted, encourage developers to use local building materials and to adopt local vernacular in respect of density, massing, design, colour and location. Avoid standard or suburban designs and layouts. Assess and adopt existing traditional layouts. Consider the preparation of design guides as supplementary planning guidance. • Encourage the appropriate conversion of redundant farm buildings. Guidance should be provided on the way buildings should be converted (including the provision of drives, gardens etc.) to prevent the suburbanisation of the countryside.
<p>Forestry and woodland</p>	<ul style="list-style-type: none"> • New planting should conform to the Forestry Authority's design guidelines. In particular, it should respond to the small-scale nature of the landscape, complex topography, the importance of views within and out of the hills, and historic and ecological values. • The broad principles of new woodland could include: <ul style="list-style-type: none"> - overall planting strategy that emphasises the transitional character of the Lowland Hills; - focus new planting in lower areas, retaining more open, upland character of areas nearer the Highland Boundary Fault; - consider scope for regeneration of native woodlands on higher ground to provide a transition to more heavily wooded areas;

<p>(Forestry and woodland contd.)</p>	<ul style="list-style-type: none"> - favour a mixture of broad-leaf (oak and ash) and conifer species; - vary the size of planting and felling small coupes to reflect the scale of the local landscape. • With respect to the replanting of existing plantations: <ul style="list-style-type: none"> - encourage the removal of small, geometric plantations, allowing equal increases in planting in more appropriate locations elsewhere; - encourage the rationalisation of woodland to avoid isolated, small to medium-sized areas of plantation woodland which appear very prominent in an otherwise open landscape; - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes.
<p>Tall structures</p>	<ul style="list-style-type: none"> • Assess proposals for aeriels, pylons or masts in terms of their visual and landscape impact on the local landscape of the foothills, and the broader landscape of the lowland straths and Highlands. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact. • Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape. • Encourage the development of a regional strategy for renewable energy, including wind power, in order that the most appropriate types of development and areas come forward.

LOWLAND RIVER CORRIDORS (7)



KEY CHARACTERISTICS

- *well-defined river corridors in broader lowland landscapes*
- *meandering, often incised course through softer sandstones*
- *semi-natural woodland on steeper slopes*
- *rapids, weirs and mills where harder rocks cross the valley*

OBJECTIVE DESCRIPTION		Lowland River Corridors
Physical scale		Narrow corridors up to 3 km wide, containing rivers incised by up to 40 metres; falls and rapids where river crosses bands of harder rocks
Woodland	broad-leaf	Semi-natural woodland on steep incised slopes
	coniferous	A few areas where plantations or policy woodlands extend to the river edge
Agriculture	arable	On higher ground either side of river
	pasture	On higher ground either side of river, on gentler slopes and on a few areas of level floodplain
	fields	Within inner valley, size and shape determined by topography; on higher, level ground, larger and more geometric fields
	field boundaries	Hedges and post-and-wire fences
Settlement pattern		A number of mill settlements sited close to rapids and weirs. Also historic houses and designed landscapes enjoying riverside location
Building materials		Red sandstone
Historic features		Historic houses and designed landscapes, castles and mills
Natural heritage features		Hanging woodlands, rapids
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Small to medium
Enclosure		Semi-enclosed
Variety		Varied
Texture		Textured
Colour		Colourful
Movement		Peaceful
Unity		Unified
'Naturalness'		Undisturbed to tamed

LOCATION

- 5.7.1 Two Lowland River Corridors stand out as having distinctly different characters from the surrounding landscape. The first is the River Tay corridor between the Highland Boundary fault and the Firth of Tay at Perth. The second, which is of a much smaller scale, is the lower section of Glen Almond from the Highland Boundary fault eastwards to Perth.

PHYSICAL CHARACTERISTICS

- 5.7.2 Unlike their upper reaches where both rivers are constrained within glens cut through the hard schists and grits, south of the Highland Boundary Fault they flow onto the softer Old Red Sandstones. Here the rivers have been able to meander more freely, though rising land levels following the end of the last Ice Age have resulted in both rivers developing incised channels. Where the more resistant igneous dykes cross the rivers, rapids and cataracts occur.
- 5.7.3 After crossing the Highland Boundary Fault near Murthly, the Tay swings in a series of broad meanders across a wide, flat floodplain. As it flows south the meanders tighten and the river enters an inner valley up to 40 metres deep. Within this incised channel, there is little or no floodplain and the fertile haughs found upstream are absent. Many of the steep slopes are clothed in deciduous woodland, further increasing the sense of enclosure which cuts the river off from the wider landscape. South of Stormontfield, the Tay valley broadens once more, forming the broad basin with river terraces occupied by Perth and Scone. However, encountering the hard igneous rocks of the Sidlaws, the river has cut a narrow valley, turning eastward to the Carse of Gowrie.

SETTLEMENT AND LAND USE

- 5.7.4 The River Tay has stimulated several phases of settlement. In prehistoric times, it is likely that the fertile haughs of the river attracted hunter-gatherers and the earliest settlers. However, as with other locations close to gateways into the Highlands, the defensive structures of Roman and subsequent eras have left a more lasting mark on the landscape. The strategic importance of Strath Tay, leading both north and west through the uplands is reflected in the presence of a Roman fort at Inchtuthill south of Spittalfield, and a series of smaller castles such as those near Kinclaven and Stanley. Medieval settlement was focused at Perth, a strategic location in the Tay gap, and at the lowest bridging point. The landscape quality of the river corridor contributed to the later development of landscaped estates associated with historic houses such as Murthly, Meikleour and Scone. The series of rapids that are found along the River Tay stimulated the development of watermills, powering Perthshire's textile industry during the industrial revolution. Mills were constructed at several places, most spectacularly at Stanley. Here the river turns through a tight meander, enclosed within a 40 metre deep gorge. A tunnel was built through the neck of the meander, leading water away from a weir to power mills further downstream.
- 5.7.5 The River Almond has some striking similarities with the Tay, reflecting its proximity to the Highlands and its common geological structure. Most notable perhaps is the deep, gorge-like valley that the river has cut through the sandstone and glacial deposits.

Although flowing in a meandering course, the river is entrenched within a valley 40 metres deep until it enters the open floodplain of the Tay above Perth. Many of the slopes are too steep to farm and are clothed in broad-leaf woodland. In the upper part of the glen, the river corridor is relatively unsettled, farms and hamlets clustering along roads on more level ground to the north and south. Fields along the northern side of the valley have a dense network of field boundary trees. The site of a Roman Fort at the western end of this part of the glen and the presence of large houses and institutions such as Glenalmond College, echo the pattern of development seen along the Tay. Furthermore, the River Almond also provided a series of mill sites along its lower reaches, where the river cuts through a series of igneous dykes. Here mills and associated houses are perched alongside the river, concealed from the wider landscape.

FORCES FOR CHANGE

- 5.7.6 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.7.7 **Agriculture.** Agricultural activity within these river corridors is concentrated on higher ground either side of the entrenched river. The network of hedges and hedgerow trees is an essential element of this landscape, extending the texture and variety of the straths up towards the lowland hills. In some areas, however, this structure is in decline with once dense lines of trees becoming gappy and fragmented, and hedges and fences being replaced by 'invisible' post-and-wire fencing. This is noticeable, for example, along the northern side of Glen Almond. Field boundaries on the broad floodplains, where they occur, are often marked by fences, though sometimes boundaries across the valley are marked by shelterbelts or lines of trees.
- 5.7.8 **Transport.** Main roads have tended to avoid the steep-sided and tortuous river corridors, favouring more level routes elsewhere. Where access to the river corridors is possible, it is usually gained by steep narrow roads which serve mills or riverside farms. The steep, twisting nature of these roads is a characteristic of the area and should be conserved where practical.
- 5.7.9 **Development.** The proximity of these areas to Perth, and their attractive, sheltered landscape (the Tay valley is designated as an Area of Great Landscape Value) means that there is some pressure for residential settlement. This is particularly the case to the north of Perth where villages such as Luncarty and Stanley lie close to the A9. Over-development in these areas could undermine the quality of the landscape, and development plans for the area seek to steer additional housing towards existing settlements. Almondbank, Luncarty and Stanley all include areas allocated for future residential development. Furthermore, the Perth Area Local Plan (Perth and Kinross District Council, 1996) raised the possibility of a 'new settlement' (termed Almond Valley Village) between Almondbank and Huntingtower on the north-west edge of Perth. This would result in the Perth Urban Area extending into the Almond Valley.

- 5.7.10 The alignment of the ring road/motorway, and steeply rising ground to the south-west and east broadly defines the physical extent of Perth and contains it within a section of the Tay valley which is relatively concealed within the wider landscape. A somewhat more ambiguous area lies to the north where development has been permitted to the north of the ring road but south of the River Almond. The latter is hidden in woodland, so for people travelling along the A9 there is no obvious physical boundary to the northern part of the town.
- 5.7.11 Concerns about the potential impact of new residential development reflect the patterns of recent growth. Often this has comprised low density, speculative estates of similar or identical dwellings which are crudely grafted onto the edge of these towns. The stark designs (often lacking any reference to vernacular designs or material) are usually unmitigated by planting, screening or landscaping, while the infrastructure of internal roads, footways, drives etc. appear over-engineered and overly suburban. The impact of additional housing in these river corridor areas would have much to do with their layout, scale, variety, materials and vernacular, as well as their location within the landscape. Housing developers should be encouraged to adopt layouts and designs which integrate new dwellings into existing settlements, rather than simply grafting suburban estates onto the edge of villages and hamlets. There is a role for design guides and imaginative design briefs. There may also be further scope for sensitive residential conversions where traditional farm buildings have become redundant, though this will do little to meet the demand for housing in the area as a whole. Again, guidance on the most appropriate means of conversion will be important.
- 5.7.12 **Forestry and woodland.** Woodland is an essential component of this landscape type, comprising a combination of semi-natural woodland, commercial forestry, farm woodland and field boundary trees, policy and estate woodland. The characteristic interplay of woodland, farmland and areas of designed landscape is particularly important.
- 5.7.13 Several areas of river corridor are identified by the Tayside Indicative Forestry Strategy as having potential for new planting. While there may be some scope for additional woodland in these areas, it is important to maintain the overall balance of unplanted and planted areas and to conserve key views into and along the river corridor. It is also important to conserve landscape features such as field systems where these contribute to the grain and texture of the landscape. As elsewhere, there is scope to enhance the appearance of existing plantations as they come forward for harvesting and replanting.
- 5.7.14 **Tall structures.** With the exception of the lines of pylons that cross Glen Almond at two points, this landscape type is relatively free from tall structures. There is unlikely to be significant pressure for wind turbine construction. However, the effect of any proposals on higher ground which are visible from within the river valleys (for example on the Lowland Hills) should be considered carefully. Development of small-scale hydro schemes at former mill sites could reduce pressure for wind turbine development in the wider area.

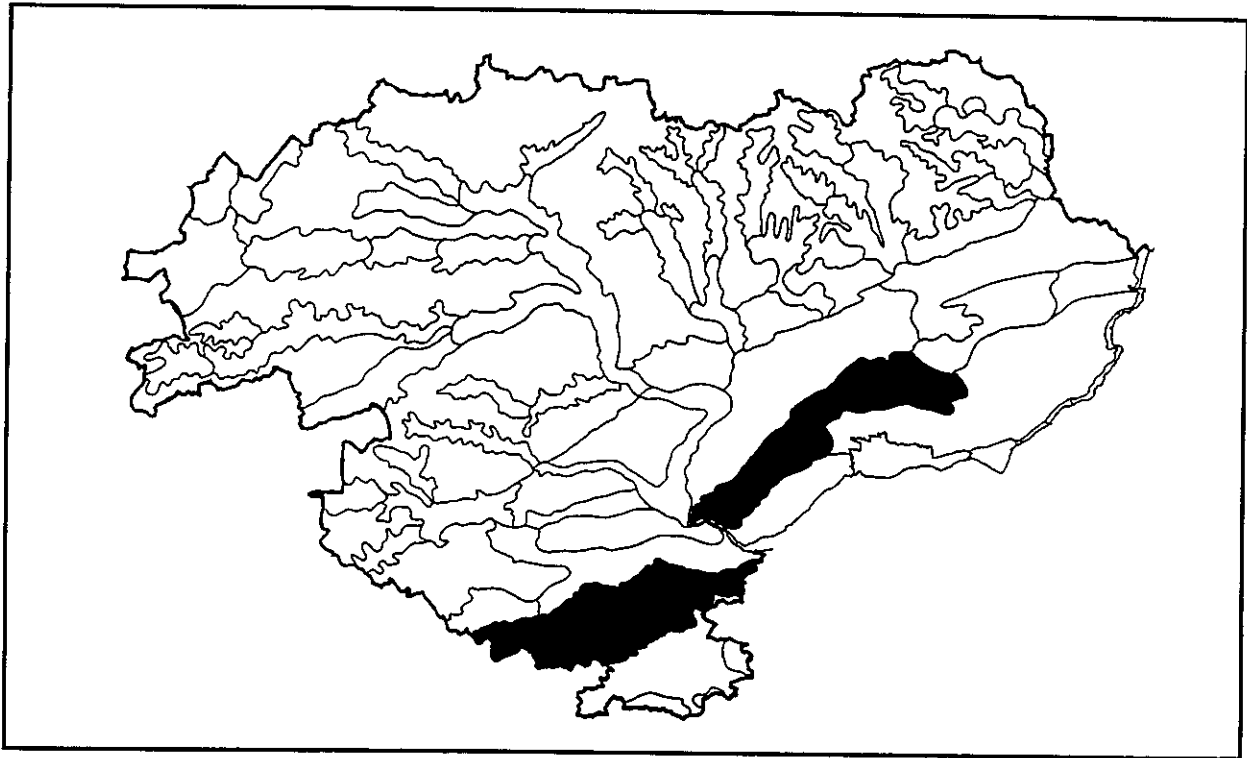
LANDSCAPE GUIDELINES

5.7.15 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the characteristically settled landscape of farmland, woodland and designed landscapes and to ensure that new development is designed to minimise adverse impacts on the landscape.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Discourage improvements which result in further loss of field boundaries or field boundary trees. • Encourage farmers and landowners to replant trees along field boundaries, initially along roads, but also between fields. Species to include oak, maple, beech and ash. Use incentives to compensate for lower yields where mature trees are retained. • Explore development of market for hardwood from field boundary trees. • Use the agricultural development notification scheme to influence the design, colour, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to provide screening where appropriate.
<p>Transport</p>	<ul style="list-style-type: none"> • Minimise upgrading or improvement of roads particularly where this involves the creation of cuttings and embankments, or the introduction of additional signage, or features such as concrete kerbing.
<p>Development</p>	<ul style="list-style-type: none"> • Focus new development in existing towns and villages so as to reinforce the historic pattern of settlements and to protect the rural character of other parts of the lowland glens. • Discourage the simplistic grafting of housing estates onto the edge of settlements. Encourage more imaginative schemes which respond to the existing patterns of layout, structure, massing and scale. <p>Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles.</p> <ul style="list-style-type: none"> • Consider positive ways of addressing the interface between settlements and the surrounding countryside. These could include: <ul style="list-style-type: none"> - screening; - new buildings which address surrounding areas; - key vistas and views; - landmark features;

(Development contd)	<ul style="list-style-type: none"> - gateways and approaches. • Explore the development of Almond Valley Village as a means of addressing the ambiguous pattern of development to the north and north-west of Perth by firming up the distinction between urban and rural and providing clear gateways to the town.
Forestry and woodland	<ul style="list-style-type: none"> • With respect to the replanting of existing plantations on valley slopes: <ul style="list-style-type: none"> - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes. • Consider opportunities for new woodland planting in terms of: <ul style="list-style-type: none"> - the overall balance of woodland and open space; - the relative importance of different areas of existing woodland (e.g. commercial plantation versus policy woodland) and how this would be influenced by an increase in woodland cover; - the importance of key views and features within the landscape; - opportunities for provide screening; - opportunities to link isolated areas of woodland; - agricultural, ecological and historical sensitivities.
Tall structures	<ul style="list-style-type: none"> • Assess proposals for tall structures in terms of their visual and landscape impact on the local landscape of the river corridors. • Explore the scope for small-scale hydro schemes as an alternative to wind power projects. • Where new power or telephone lines are proposed or required, encourage operators to adopt underground cable solutions.

IGNEOUS HILLS (8)



KEY CHARACTERISTICS

- *the Sidlaw and Ochil hills, comprising hard volcanic rocks*
- *short burns and rivers flowing from short steep glens*
- *a few large glens through the hills*
- *often distinctive scarp and dipslopes*
- *generally open landscapes of almost conical summits dominated by grass moorland*
- *some areas of extensive forestry*
- *many modern influences*

OBJECTIVE DESCRIPTION		Igneous Hills
Physical scale		Ochils up to 600 metres AOD, about 10 km wide and 40 km long; Sidlaws up to 300 metres AOD, about 5 km wide and 30 km long
Woodland	broad-leaf	Very limited, confined to woodland on steep slopes (e.g. along the Braes of the Carse), in more sheltered sections of glen (e.g. Glen Eagles) and along lower level field boundaries
	coniferous	A few isolated pines; more common are extensive areas of coniferous plantation (e.g. in the Ochils south of Dunning and the eastern part of the Sidlaws)
Agriculture	arable	A few areas of arable cultivation on gentler slopes, particularly in the southern and western part of the Sidlaws
	pasture	Pastures common on steeper slopes and on rougher and more exposed areas of hilltop.
	fields	Generally large and regular shaped
	field boundaries	Combination of stone dykes and post-and-wire fences; occasionally marked by isolated Scots pine in upper areas and deciduous species in more sheltered parts
Settlement pattern		Largely unsettled; farms and hamlets concentrated in main glens such as Glen Devon
Building materials		Locally won hard rock and some sandstone
Historic features		Old field systems, burial sites, hill-forts and later castle sites
Natural heritage features		No notable features
Other landscape features		Masts and aerals are already prominent features
SUBJECTIVE DESCRIPTION		
Views		Intermittent
Scale		Medium
Enclosure		Semi-enclosed to open
Variety		Simple
Texture		Smooth
Colour		Muted
Movement		Peaceful
Unity		Interrupted
'Naturalness'		disturbed

LOCATION

- 5.8.1 To the south and east of the Old Red Sandstone lies a band of hard volcanic rocks. More resistant than the surrounding beds, these rocks survive as the Ochil Hills which run from the boundary with Fife as far as Perth, and the Sidlaw Hills which run from Perth north-east towards Forfar. The Ochils and Sidlaws represent two parts of the same geological structure. Once a broad arch of volcanic rocks would have extended over the area occupied by the lower part of Strathearn and the Firth of Tay. Weakened by compression, the crest of this arch was eroded away, revealing the softer rocks beneath. The resulting landforms comprise a pair of scarp slopes (in the Ochils facing north, in the Sidlaws, south) and a pair of dipslopes (in the Ochils facing south, in the Sidlaws, north).

The Ochils

- 5.8.2 **Physical characteristics.** The Ochils are the larger of the two hill ranges, rising to over 500 metres and extending up to 12 kilometres in width in places. The hills are drained by a large number of short burns and small rivers, flowing northwards into Strathearn and Strathallan and southwards into the Loch Leven Basin. Most glens are short and steep. The principal exception to this is the pass formed by Glen Eagles to the north and Glen Devon to the south. This corridor was enlarged during the Ice Age when ice sheets in Strathearn pushed into Glen Eagles, lowering the watershed between the two glens by over 200 metres. Ice sheets also had the effect of truncating the Ochils' northern spurs, thereby increasing the drama of the scarp along the southern side of Strathearn and Strathallan.
- 5.8.3 **Settlement and land use.** Though there are areas of improved pasture and even some cultivation within the more sheltered glens, the land is generally of low fertility (classified as Class 5 or 6) and the bulk of the agricultural land takes the form of unimproved rough grazing. The Ochils also have a considerable amount of coniferous forestry. Along the lower slopes in Strathallan, this generally takes the form of geometric plantations and shelterbelts which are prominent in this open, large-scale landscape. Further west, in Strathearn, the woodland is less formal. However, the most extensive woodlands are located in the heart of the eastern Ochils, particularly on Innerdouny Hill where a large expanse of Sitka spruce covers a series of upper catchments. The effect is to transform the sparse, open landscape of the Ochil summits, and to create a sense of enclosure which is absent elsewhere on the hills. New planting is more sensitive, incorporating broad-leaf fringes and better reflecting the natural flow of the landform. Nevertheless, it will result in a significant change in the upland landscape.
- 5.8.4 The natural defences provided by the steep slopes overlooking lowland routes are reflected in a large number of hill-forts. There is a particular concentration of such sites along the northern escarpment of the Ochils and along key routes through the hills. Later castles occupy positions lower down the slopes and in the glens themselves. Several of the glens show signs of past prosperity. In Glen Devon the structure of abandoned field boundaries is visible as a series of low grassy banks. More recent settlement is limited to a scatter of farmsteads, concentrated in the less-steep eastern part of the Ochils. Glen Devon now accommodates a range of tourism and recreation facilities while some of the more prominent hilltops are crowned with telecommunications masts.

The Sidlaws

- 5.8.5 **Physical Characteristics.** The Sidlaws are lower and less extensive than the Ochils. They are most distinct at their southern end where the south-east facing scarp (the Braes of the Carse) rises almost vertically to tower over the Carse of Gowrie, and where the shallower, north-facing dip slope meets the Strath Tay near Scone. Even here the hills are barely 5 kilometres wide. Further north the hills subside, particularly along their south-eastern side, gradually merging into the farmland plateau. From the north, however, the hills continue to present a distinctive profile of smooth rounded hills which contain the views within Strathmore. The lower elevation of the Sidlaws is reflected in more productive agricultural land. While grass and some heather moorland predominate on the upper parts of the hills, it is not uncommon to find arable and improved grassland fields, enclosed by stone dykes, in the more sheltered open basins that occur in the Sidlaws. Such a concentration is found around Milton of Ogilvie, to the south of Glamis. Broad-leaf woodland is limited to steep slopes (such as the southern scarp face) and river valleys.
- 5.8.6 **Settlement and land use.** Though elevated and often exposed, the landscape of the Sidlaws reflects many hundreds of years of settlement. Many Stone Age hill-forts can be found, exploiting the natural defences provided by the steep hills. Bronze Age burial mounds occupy other key locations on prominent ridges overlooking the lowland. There are few Roman or Pictish remains, but several medieval castles and mottes are located to defend routes through the hills. An example is Pitcur Castle, sited at the mouth of Glen Cott, south of Coupar Angus. Several follies are found through the hills. The most notable of these includes the series of towers built along the top of the south-facing cliffs overlooking the Carse of Gowrie and apparently designed to recreate the landscape of the Rhine Valley in Germany. Another example is the tower on Kinpurney Hill. More recent development has taken the form of coniferous plantations which are less extensive than in the Ochils, and the telecommunication masts which have been built at the summit of a number of hills. A number of existing and disused quarries are found in the Sidlaws, reflecting the value of the hard volcanic rocks that occur there.

FORCES FOR CHANGE

- 5.8.7 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.8.8 **Agriculture.** Much of the Ochils and Sidlaws are given over to pastoral uses, and in places the land is so poor it supports little more than rough grazing. This pattern of agricultural land use sits comfortably with the Igneous Hills' upland, exposed character and contrasts effectively with more fertile areas of lowland to the north and south. In a few areas better soils and a degree of shelter allow arable cultivation to take place, often at some altitude. It may be appropriate to consider the use of incentive payments to encourage reversion to grassland in some of these areas. As in other areas, the influence of estate ownership is evident in the maintenance of the farming landscape.

The area falling within the Gleneagles Estate can be determined from less well-maintained areas around.

- 5.8.9 **Transport.** The Ochils and Sidlaws are crossed by a number of minor roads, often bordered by dry-stone dykes. The alignment of many of these roads reflects the gradient of the landform and the presence of glens and passes through the hills. It is important that the small-scale and rural character of these roads is retained. Walls should be conserved and signage and 'improvements' such as widening or kerbing resisted. Similarly, main roads through the hills should be maintained so as to retain their rural character. The eastern part of the Tayside Ochils is cut by the M90 motorway. Despite its scale and nature, the road alignment is relatively sympathetic to the landscape, following a sinuous glen through the hills. However, the movement, noise and pollution associated with moving traffic, together with the presence of over-bridges, cuttings and other structures determine that the motorway has a considerable impact on the local landscape.
- 5.8.10 **Development.** The elevation and exposure of the Ochils and Sidlaws, and the presence of nearby lowland settlements means that the Igneous Hills are very sparsely settled. The principal exception to this is the gentler southern slopes of the Sidlaws near Dundee. Here there has been a limited amount of building in the open countryside, creating a few lines of south facing suburban houses extending from farmsteads or existing hamlets. This has a suburbanising influence on the Sidlaws' landscape.
- 5.8.11 **Minerals.** The hard volcanic rocks of the Ochils and Sidlaws are valued for road construction among other uses. However, there are very few operational quarries and only a handful of small-scale disused quarries. Existing quarries are generally well-concealed and do not have a significant impact on the wider landscape. Collace Quarry in the Sidlaws is comparatively well-hidden in the wider landscape, though it has a more local setting on the hill-fort of Dunsinane. Should the number, or scale of quarries increase in response to demand, mineral working could have quite a significant impact on this generally open landscape.
- 5.8.12 **Forestry and woodland.** Woodland makes an important contribution to the landscape of the Ochils and Sidlaws, clothing many of the steepest slopes and lining some of the more sheltered valleys and glens. However, a number of commercial woodlands, planted in the first half of the 20th century, have had a significant adverse effect on the landscape. Extensive ranks of sitka spruce and Douglas fir cover large areas of the Ochils in particular in an even aged monoculture of conifers. Such plantations have created a uniform, enclosing landscape where before there would have been an open and varied landscape of pastures, burns and small glens. The negative effect of these early plantations has tainted attitudes towards commercial forestry in these areas even though forestry practice has long since moved on. As the existing plantations reach maturity, there will be opportunities to implement a phased programme of felling and replanting which will allow a more varied and 'natural' woodland form to be created, with a much more varied species and age mix, and a higher proportion of open space.
- 5.8.13 The low fertility of the Igneous Hills, and the suitability of their climate to tree growing means that there is still some interest in establishing new woodlands within the Ochils and Sidlaws. The Tayside Indicative Forestry Strategy suggests that areas to the south

and east of Auchterarder fall into the 'preferred' category for new planting, together with smaller areas in the eastern Sidlaws.

- 5.8.14 The current policy is to promote multi-purpose woodlands which can, if appropriately located, consolidate and expand existing semi-natural and planted woodland along the glens, which include a proportion of broad-leaves (particularly on lower ground and in more sheltered locations) and native pine woodland (particularly on higher ground). New woodland should also provide the opportunity to create new habitats, and establish new areas for informal recreation.
- 5.8.15 **Recreation.** The proximity of the Ochils and Sidlaws to a number of centres of population means that there is an opportunity to facilitate countryside and informal recreation, thereby taking the pressure off other more sensitive areas to the north. While some areas of public access already exist, commercial woodlands, reservoirs and even archaeological sites offer potential for recreation and interpretation.
- 5.8.16 Formal recreation provision within the area is comparatively limited. However, within Glen Devon a number of commercial developments have been established, announcing their presence with large signs. This contrasts with other, less developed parts of the Ochils.
- 5.8.17 **Tall structures.** The elevation of the Ochils and Sidlaws and their proximity to centres of population makes them technically well-suited as locations for telecommunications masts and aerials. Several of the hilltops are crowned with one or more masts, introducing strong vertical and industrial structures into the upland landscape. The masts are frequently visible over a considerable distance. It is possible that the growth of the telecommunications industry will be reflected in pressure for additional masts and aerials. Operators should be encouraged to develop a strategy that takes into account the landscape implications of masts and which seeks to share masts where this is appropriate and where this can be achieved without increasing the overall level of landscape impact. Additional masts on undeveloped hilltops or ridges should be avoided.
- 5.8.18 The government's commitment to the stabilisation of carbon dioxide emissions, and the resulting emphasis on developing a market for renewable energy is likely to result in more proposals for wind turbines. At a regional level, suitable sites will be influenced by the presence of adequate wind speeds and proximity to the electricity grid. These operational requirements are likely to favour upland areas fairly close to centres of population. Potential areas therefore include the parts of the Highland Summits and Plateaux within reach of the principal glens, or close to existing hydro schemes, the Highland Foothills, the Ochils and Sidlaws, and other lowland hills. From an environmental perspective, such areas need to be evaluated in terms of the sensitivity of the landscape and its capacity to absorb development. There is a strong argument in favour of steering such schemes away from sensitive upland landscapes and towards areas where human influences are already much more marked. For this reason, it is likely that, wind characteristics permitting, the Sidlaws and Ochils may be the most suitable areas for wind turbine development in Tayside.

LANDSCAPE GUIDELINES

5.8.19 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to restore and enhance the landscape of the Ochils and Sidlaws, addressing the effects of past development and land use and ensuring that future changes do not lead to further deterioration in landscape quality.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Maintain the distinction between lowland cereals and highland grazing areas. • Encourage farmers and landowners to maintain and replant hedgerow trees. Consolidate areas where native pines have been used in the past. • Encourage the conservation of dry-stone dykes in local stone with an emphasis on roadside walls and others in highly visible areas. • Use the agricultural development notification scheme to influence the design, colour, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to provide screening where appropriate.
<p>Transport</p>	<ul style="list-style-type: none"> • Where road improvement schemes take place, ensure that hedges and hedgerow trees, together with other features such as milestones, finger posts and gates are reinstated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives.
<p>Development</p>	<ul style="list-style-type: none"> • Encourage new development to reinforce the existing settlement pattern, focused on market towns and smaller villages outwith this landscape type. Discourage development in the open countryside. • Encourage the appropriate conversion of redundant farm buildings. Guidance should be provided on the way buildings should be converted (including the provision of drives, gardens etc.) to prevent the suburbanisation of the countryside.
<p>Forestry and woodland</p>	<ul style="list-style-type: none"> • Ensure the current Forestry Authority approach to the restructuring of existing plantations is followed. Replanting should conform to Forestry Authority design guidance and should result in a varied age and species structure, woodland forms which more closely reflect the underlying landform and a greater proportion of open space. • New planting should conform to the Forestry Authority's design guidelines. In particular, it should respond to the small to medium scale nature of the landscape, the importance of views within and out of the hills, and historic and ecological values.

(Forestry and woodland contd.)	<ul style="list-style-type: none"> • Use a new planting framework to absorb earlier development in the open countryside and other visually intrusive features. • Ideally link new woodlands to lowland shelterbelts, glen woods and farm woodlands, providing broad-leaf lower margins. • Use new woodland planting to enhance the landscape and nature conservation value of the hills. New woodland could link existing plantations and semi-natural woodlands. • New planting should respect historic features, routes and viewlines between them. • The scale and nature of planting should be varied to reflect local differences in topography. In areas of subdued relief (e.g. on the south-eastern side of the Sidlaws), new planting could be used to highlight more subtle variations.
Recreation	<ul style="list-style-type: none"> • Encourage greater provision of informal recreation within the Ochils and Sidlaws, focus on existing and new woodlands, reservoirs and historic sites. • Encourage providers of formal recreation and tourism facilities to respect the setting of their developments.
Tall structures	<ul style="list-style-type: none"> • Restrict the development of tall structures to those absolutely essential for operational reasons. • Encourage operators to share masts and sites. • Avoid new masts on undeveloped hilltops and ridges. • Where possible, encourage masts and other tall structures to achieve 'backclothing', particularly for associated infrastructure and buildings so that sky-line features are minimised. • Explore the potential to steer wind farm developments away from exposed and steep ridgelines and summits and from locations where their visual influence would extend both north and south. Consider potential areas with shallow bowls and valleys away from ridges. Maximise the amount of backclothing provided by the natural landform. Consider steering development to areas already affected by masts, roads or forestry. • Assess proposals for aeriels, pylons or masts in terms of their visual and landscape impact on the local landscape of the hills and surrounding areas. • New infrastructure (e.g. access roads) should be minimised by locating any new facilities close to existing roads. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact.

(Tall structures contd.)	<ul style="list-style-type: none"><li>• Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape.<li>• Encourage the development of a regional strategy for renewable energy, including wind power, in order that the most appropriate types of development and areas come forward.
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IGNEOUS HILLS

Coniferous woodland and rounded, open moorland in the Ochils.



LOWLAND RIVER CORRIDOR

The River Tay flows through a narrow wooded valley to the south of Dunkeld.



BROAD VALLEY LOWLAND

The distinctive arable landscape of Strathmore. Remaining hedgerow trees make an important contribution to landscape character.



Photo: SNH

DOLERITE HILLS

The steep western slopes of the Lomond Hills.



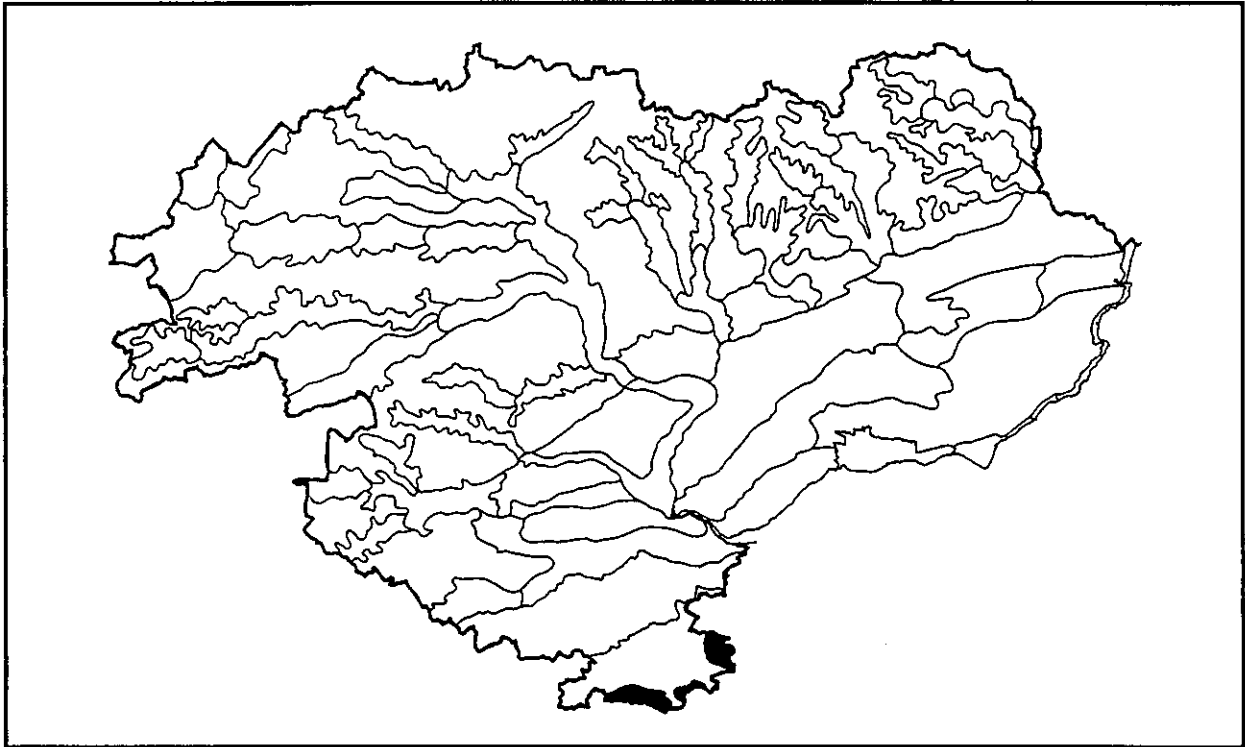
FIRTH LOWLANDS

Rich farmlands along the estuarine reaches of the River Tay between Perth and Dundee.

FIGURE 15

LANDSCAPE CHARACTER TYPES

DOLERITE HILLS (9)



KEY CHARACTERISTICS

- *hard quartzite hills enclosing the Loch Leven Basin*
- *steep slopes*
- *predominance of rough grazing*
- *some areas of coniferous forestry*
- *fine views to the north and south*

OBJECTIVE DESCRIPTION		Dolerite Hills
Physical scale		Hills ranging in height from 300m AOD to 450 m AOD
Woodland	broad-leaf	Limited to a small area on the western slopes of Lomond Hills
	coniferous	Extensive plantations (c33% by area)
Agriculture	arable	Absent
	pasture	Rough grazing
	fields	Largely unenclosed
	field boundaries	Stone walls and post-and-wire fences
Settlement pattern		Unsettled
Building materials		Not applicable
Historic features		Forts and castles
Natural heritage features		No notable features
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Panoramic
Scale		Medium to large
Enclosure		Open to exposed
Variety		Simple
Texture		Rough to very rough
Colour		Muted
Movement		Remote
Unity		Unified
'Naturalness'		Restrained

LOCATION

- 5.9.1 A series of hills rise along the southern boundary of Tayside, enclosing the Loch Leven basin. These are fragments of landscape character areas which extend beyond the region in Fife. The hills divide into three groups, the Lomond Hills to the east, and Benarty Hill and the Cleish Hills to the south.

PHYSICAL CHARACTERISTICS

- 5.9.2 The Dolerite Hills share a common geology comprising a core of intrusive quartz dolerite overlying carboniferous limestone which, in turn overlies Old Red Sandstone. Bishop Hill (the one Lomond Hill in Tayside) has a steep, west facing scarp slope, rising to 460 metres, and a shallower east facing scarp slope. Only the northern and western slopes of Benarty Hill lie in Tayside. These slopes are also steep, climbing to 350 metres. The Cleish Hills are less steep, but more extensive, forming a rolling line of hills of up to 380 metres along the southern edge of the Loch Leven basin. The north facing slopes are heavily gullied. The hills are dominated by brown forest soils, supporting a combination of rough grazing and coniferous plantation. The latter are most extensive along the Cleish Hills and on the eastern slopes of Bishop Hill.

SETTLEMENT AND LAND USE

- 5.9.3 Like many other areas of upland in the region, a number of forts are sited among these hills. Later fortifications, such as Cleish Castle are found on the lower slopes. Other signs of human settlement and land use include several small quarries which were worked in the past to obtain hard rock. Relatively accessible to nearby urban populations, these hills provide fine views north and westwards over Loch Leven and southwards towards the Firth of Forth.

FORCES FOR CHANGE

- 5.9.4 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.9.5 **Agriculture.** The prevailing upland character of these hills means that agricultural activity is dominated by rough grazing with better pastures on the lower slopes. Provided that support mechanisms remain and no significant market changes occur, this activity appears to be relatively stable. Landscape change is therefore unlikely.
- 5.9.6 **Development.** The Loch Leven Basin is characterised by a series of small villages strung along the roads that encircle the loch. Several of these lie at the foot of the Lomond Hills and comprise little more than groups of stonebuilt houses. The principal exception to this is Kinnesswood which experienced substantial suburban expansion during the 1970s and 1980s. Much of the more recent development occurred on the slopes of the Lomond Hills, resulting in a significant landscape impact. While the local

plan envisages further housing development here, it will be concentrated on the less sensitive lower slopes.

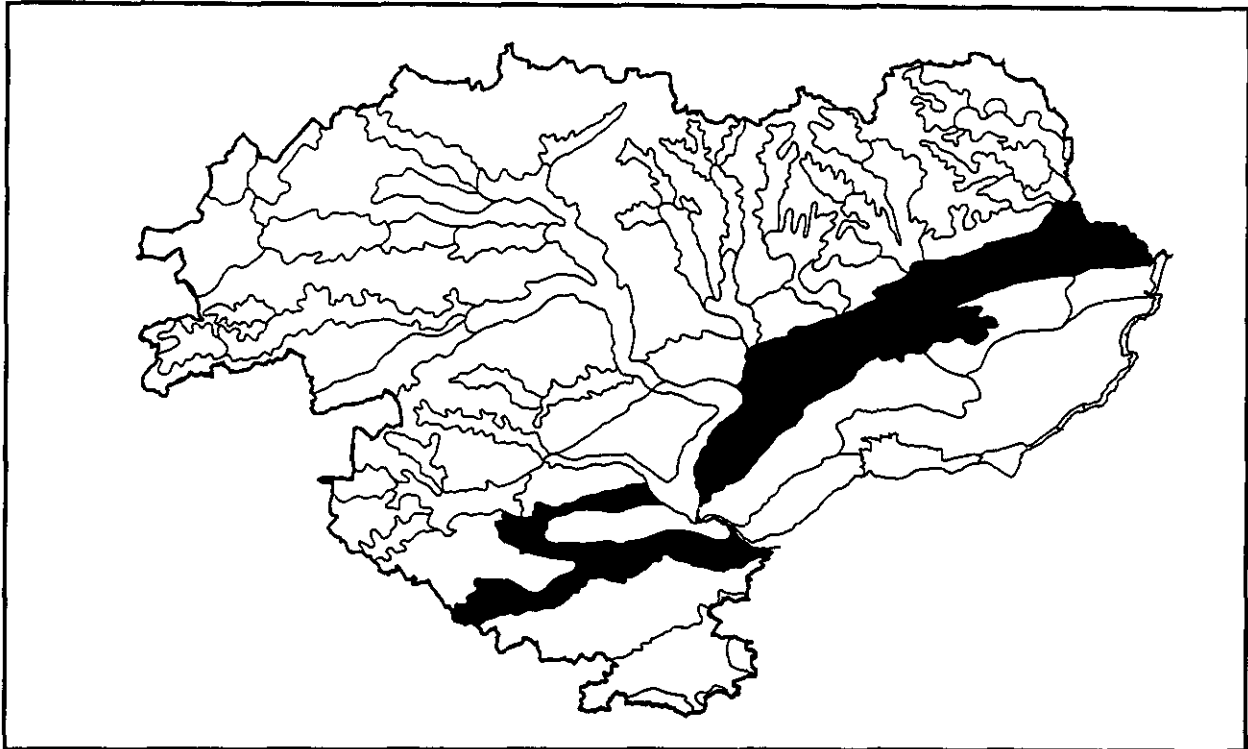
- 5.9.7 **Minerals.** There is some evidence of small-scale quarrying having taken place in the past, for example in the eastern part of the Cleish Hills. There does not appear to be any prospect of mineral working in the future.
- 5.9.8 **Forestry and woodland.** Much of the coniferous plantation woodland present in the Dolerite Hills landscape type was established in the 1960s and 70s under very different circumstances and with more narrow objectives than would be considered appropriate today. Modern forestry practices would prevent the geometric, even aged monocultures that are found particularly within the Cleish Hills. Harvesting of this woodland provides an opportunity to review the best locations and designs for replanting. This is considered further within the management guidelines.
- 5.9.9 **Tall structures.** With the exception of the lower slopes of Benarty Hill, which are currently crossed by a line of electricity pylons, the hills are currently free from tall structures. Masts are found, however, further south in the Cleish Hills, beyond the regional boundary.
- 5.9.10 The summits of Benarty Hill and the Lomond Hills are particularly sensitive to structures such as masts, pylons or wind turbines. Not only do they provide the immediate setting to Loch Leven, but they are visible from a considerable distance to the north (e.g. from the Sidlaws) and south (into Fife and even Lothian). The lower, more fragmented Cleish Hills are less sensitive, though any development here would still need to pay regard to the impact on the wider landscape.

LANDSCAPE GUIDELINES

- 5.9.11 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve and restore the landscape of the bare uplands of the Dolerite Hills, addressing the effects of past development and land use and ensuring that future changes do not lead to further deterioration in landscape quality.

Agriculture	<ul style="list-style-type: none"> • Maintain the distinction between lowland cereals and highland grazing areas.
Development	<ul style="list-style-type: none"> • Prevent further uphill expansion of settlements on the lower slopes of the Lomond Hills.
Forestry and woodland	<ul style="list-style-type: none"> • Ensure the Forestry Authority's approach to the restrictions of single species even-aged blocks is implemented. Implement a phased programme of felling, redesign and replanting of existing plantations to reduce the adverse impact on the environment. Replanting should conform to Forestry Authority design guidance and should result in a varied age and species structure, woodland forms which more closely reflect the underlying landform and a greater proportion of open space: <ul style="list-style-type: none"> - adopt a more naturalistic appearance, responding to the landform and features such as burns, gullies and crags; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line; - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes.
Tall structures	<ul style="list-style-type: none"> • Prevent the development of tall structures on the sensitive Lomond and Benarty Hills. • Assess carefully any proposals for tall structures within the Cleish Hills to determine the visual and landscape impact on the local and wider landscape.

BROAD VALLEY LOWLANDS (10)



KEY CHARACTERISTICS

- *broad straths formed by glacial erosion*
- *undersized, misfit rivers*
- *complex local topography caused by glacial deposition*
- *distinctive red soils and red building stone*
- *influence of large estates, particularly in terms of woodland and policies*
- *dominance of arable and root crops*
- *tree loss weakening landscape character*

OBJECTIVE DESCRIPTION		Broad Valley Lowlands
Physical scale		In the case of Strathmore, up to 10 km wide and 30 km long; Strathallan and Strathearn up to 5 km wide
Woodland	broad-leaf	Extensive broad-leaf woodland limited to inner policy woodland and a few areas of unimproved land
	coniferous	Coniferous plantations on areas of poorer land, especially on valley sides; geometric plantation in Strathallan
Agriculture	arable	Dominant agricultural land uses - cereals, potatoes and oil seed rape
	pasture	Limited
	fields	Medium size, regular, some enlarged; most dating back to parliamentary enclosure
	field boundaries	Characteristically hedges with high density of mature hedgerow trees.; pattern weakened as trees felled. Strathallan fewer hedges and trees
Settlement pattern		Small, often planned, villages, small market/processing towns, and larger market towns
Building materials		Red sandstone
Historic features		Comparatively limited, reflecting intensity of agricultural use
Natural heritage features		Fluvial-glacial landforms. Ecological interest limited to a few unimproved areas
Other landscape features		Large, modern agricultural buildings; dominance of estates and historic houses
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Medium
Enclosure		Open
Variety		Varied to simple
Texture		Textured to smooth
Colour		Colourful
Movement		Active
Unity		Interrupted
'Naturalness'		Tamed

LOCATION

5.10.1 South of the Highland Boundary Fault lie 5 broad lowland valleys or straths. These share a range of common characteristics which set them apart from other valleys and glens. There are, however, significant variations in landscape character within this type, and these are described below. The five areas of Broad Valley Lowlands are:

- Strathmore;
- Strathearn;
- Strathallan;
- the lower South and North Esk river valleys;
- the Pow Water Valley between the Gask Ridge and Keillour Forest.

PHYSICAL CHARACTERISTICS

5.10.2 These areas share a common geological structure, based on the broad band of Old Red Sandstone that runs south-west to north-east through the heart of Tayside. Bounded by harder schists and grits to the north and lavas and tuffs to the south, and already lowered by downfaulting, this soft rock was easily eroded by the ice sheets which extended across the region during period of glaciation. These created much wider and deeper valleys than the scale of existing rivers might suggest. At the end of the last Ice Age, retreating ice sheets deposited a considerable amount of drift within these valleys, much of which was further modified by meltwater flows below or around the ice. This created the complex local topography of outwash terraces, eskers and dry valleys that occur in many places today. Much of the glacial material was locally derived and have given rise to the distinctive red soils that are visible when fields are ploughed. Brighter reds tend to be found further north and east.

SETTLEMENT AND LAND USE

5.10.3 While surviving standing stones and other monuments point to the prehistoric use of these areas, most of the present landscape has been substantially modified since medieval times. Valleys such as Strathmore had comprised extensive areas of rough grazing, scrub woodland and unproductive wetland. The process of draining and improving the land was begun in the 10th century when groups of monks came to the area. One of the principal centres was Coupar Angus where a major Cistercian Abbey was founded in 1164, and many of the moors and mires were brought into agricultural use over subsequent centuries. The process of improvement entered a new phase with the parliamentary enclosure of the 18th and 19th centuries, creating the structure of rectilinear fields that are evident today. A characteristic of this period of enclosure was the planting of many trees (oak, beech, chestnut and ash) along field boundaries. These would have given shelter and provided a source of building timber and firewood. Up to 200 years later, where they survive these mature (or even over-mature) trees make a critical contribution to the rich character of the Broad Valley Lowlands. The large estates, with their baronial mansions and castles, designed landscapes, pleasure grounds, ornamental woodlands, avenues and policies make an equally important contribution.

- 5.10.4 The 19th century also saw the rationalisation of estates, including the creation of new villages to accommodate farm workers, and the arrival of the railways. Market towns such as Kirriemuir, Coupar Angus and Forfar experienced growth during this period, reflected in their inner suburbs of Victorian terraces and villas. Agriculture has continued to develop. More and more land has been brought into production. Flood defences have been constructed along rivers, allowing arable cultivation to spread onto the floodplain. The fertility of the soil, allied to favourable climatic conditions have favoured the cultivation of cereals, oil seed rape, soft fruit and potatoes.

VARIATIONS IN LANDSCAPE CHARACTER

- 5.10.5 It is in Strathmore that the distinctive character of the landscape is most evident. From a distance, the area appears as a very broad, flat-bottomed valley enclosed by the Highland Foothills to the north and the rising sweep of the Sidlaws' north-facing dip slope to the south. Where estate planting survives, for example around Glamis, the strath landscape is rich and textured and particularly colourful during spring and autumn. Where the trees have been lost, it is an open and expansive landscape of rectangular fields punctuated with a scatter of large farmsteads. The landscape of the strath contrasts strongly with neighbouring areas of upland, particularly where the woodland structure has survived.
- 5.10.6 Strathearn, extending from Crieff eastwards to the Bridge of Earn has a similar structure to Strathmore. To the south it is enclosed by the steep slopes of the Ochils, while to the north the Gask Ridge separates it from the valley of the Pow Water. There are a number of significant differences, however. The first is scale. Strathearn is considerably narrower and less extensive. Furthermore, the River Earn is a more evident feature in the landscape, its broad meanders swinging back and forth across the floodplain. The strath also accommodates a railway and the main A9 dual carriageway. Where the woodland structure is thin, the road and its traffic are very visible. Overall, however, the strath retains a rich, well-wooded agricultural landscape, particularly towards the east.
- 5.10.7 Strathallan extends from Greenloaning towards Auchterarder. Although the scale is similar to that of Strathearn, the landscape is very much more open, forming a shallow valley between the lowland hills to the north and the smooth, largely unwooded slopes of the Ochils to the south. Arable cultivation predominates and woodland is generally limited to dense, geometric blocks of conifers. In this large-scale, open landscape, this woodland appears sculptural, almost comparable to fields of crops. Along the floor of the strath, the local topography is complex, resulting from extensive fluvio-glacial deposits. Drumlin fields create a landscape of hummocks and small basins. Areas of glacial sands and gravels have been quarried, leaving a network of small lochs.
- 5.10.8 The Pow Water valley, lies between the Gask Ridge and the lowland hills of the Keillour Forest. It is a shallow, small-scale agricultural valley, with field and woodland patterns similar to those of the larger lowland valleys. Much of the valley floor has been drained to provide pastures and arable land.
- 5.10.9 The valleys of the Rivers South Esk and North Esk form a broad area of lowland to the south of the Highland Boundary Fault and enclosed to the south by the high ground to the east of Forfar. Although sometimes included within the broad definition of Strathmore to the west, this area drains eastwards and is separated from Strathmore by a low

watershed around Kirriemuir. More significantly, perhaps, this area is distinguished by its smaller scale, higher proportion of woodland (both broad-leaf and coniferous) and by the well-defined river corridors of the two Esks. The rivers are identified by lines of riverside trees, and by inner terraces. They are separated by a low ridge. Like other straths, the valleys are in both pastoral and arable use.

FORCES FOR CHANGE

5.10.10 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.

5.10.11 **Agriculture.** Reflecting the dominance of agriculture within this landscape type, it is changing farming practices which have brought the most significant changes to the areas of Broad Valley Lowlands. The principal agents of change have included:

- intensification of arable production;
- concentration on potato growing;
- introduction of 'new' crops and forms of production.

The landscape effects of these changes are described below.

5.10.12 Over recent decades the national policies, allied to the Common Agricultural Policy (CAP), encouraged the expansion of arable production. This was achieved by greater mechanisation, the more extensive use of inputs such herbicides and fertilisers, and a range of capital improvements designed to maximise the area under cultivation. These improvements included some hedgerow removal to create larger fields. Allied to this was a tendency not to replace the once-dense network of hedgerow trees where they resulted in uneven patterns of cereal growth or ripening as a result of shading or water demand. Field boundary trees are also regarded as a liability as they become over-mature and drop branches or suffer wind blow. New techniques also allowed the more intensive use of land throughout the year with the introduction of a wider range of winter crops.

5.10.13 Although the pattern of change has been uneven within the Broad Valley Lowlands, with some estates deliberately conserving the structure of fields, boundaries and boundary trees, and the emphasis of agricultural policies has shifted towards a stabilisation or reduction in cereal production, in some areas the landscape has been denuded of its tree-cover, creating a prairie-like appearance. This weakens the otherwise rich and textured character of many of these lowland areas and dilutes the contrast between the productive, well-treed lowlands and the harsher highlands. It also renders other landscape features such as roads, traffic and buildings much more visible.

5.10.14 Allied to cereal production has been the expansion of potato growing, particularly within Strathmore. Growth and harvesting of this crop sits easily within the farming landscape. There has, however, been a significant increase in the number and scale of agricultural

buildings as a result. After harvesting, potatoes are typically stored until market conditions favour selling some months later. Many farms in the straths now include a number of very large modern sheds which overtower the older farm buildings and which are often visible over a considerable distance. They are frequently painted white.

- 5.10.15 Recent decades have also seen a diversification of arable production with the introduction of new crops, principally oil seed rape. The vivid yellow of this crop during flowering creates a very visible and often extensive feature in the landscape. While opinions are mixed about the nature of this impact, it is comparatively short-lived. Other changes in agricultural practice include the move towards free-range stock keeping, particularly of pigs in areas of lighter soils. The animals are typically brought onto cereal fields after harvesting and are allowed to roam within areas delineated by electric fences. While many welcome the more humane treatment of such animals, the landscape impact of over-grazed fields and the scatter of metal pig arcs could be of concern if this practice expands significantly.
- 5.10.16 **Transport.** Several of the Tayside straths incorporate major roads which enjoy comparatively level routes through the Broad Valley Lowlands. The A9 primary route, which is dual carriageway for much of its length, runs along Strathallan and Strathearn, while the A94 runs through Strathmore. The large scale of the straths means that the impact of these major roads is less than it might otherwise have been. The broad curves and sinuous alignments seem to echo the generous proportions of the landscape. Having said that, the road structures (including embankments, cuttings and overbridges) are clearly impositions upon the lowland agricultural landscape. There appears to have been little attempt to use either roadside or off-site planting to integrate the roads into the broader structure of the landscape.
- 5.10.17 The noise and movement of traffic using these routes have a major influence on the character of the local landscape in areas adjoining the roads. Such roads also result in an increase in pressure for development, particularly around junctions and where pockets of land are trapped between settlements and the road corridor. The future impact of the roads is likely to increase as traffic grows and there is pressure to upgrade junctions to provide grade separated access.
- 5.10.18 More minor roads also raise concerns, including:
- the landscape impact of village bypasses (e.g. the A94 at Glamis) both in terms of the road itself and the view of the settlement from the road;
 - the failure to re-establish hedges and hedgerow trees where widening schemes have been implemented;
 - the increasingly common practice of including concrete kerbing along the edges of minor rural roads, introducing a suburbanising influence into the countryside.
- 5.10.19 **Development.** Most development within the lowland straths is concentrated within existing settlements. These include historic market towns such as Rattray, Forfar and Brechin, which have grown at the crossroads of important routes and which often provide gateways to upland areas, and a series of smaller agricultural villages, many of which were established in the 18th and 19th centuries following enclosure, agricultural improvement and the arrival of the railways. Many of these settlements are closely

associated with the surrounding landscape, both in terms of the materials that are used (typically red sandstones among older buildings) and their market function. Development outside these settlements is comparatively limited, confined to farmsteads and a scatter of agricultural dwellings.

- 5.10.20 As noted elsewhere in this report, older settlements make use of local building materials and reflect local building vernacular. More recent developments on the edge of settlements (for example that to the south of Glamis) tend to owe little to local tradition, often comprising low density estates of houses built in a style that can be found throughout the UK. Future decades are likely to see continued demand for residential development, potentially increasing the impact of new development on the landscape. There may be scope to focus new development within some of the 19th century 'planted' villages, many of which never reached their anticipated size. Alternatively, there may be potential to echo the Victorian movement and create a small number of new villages in key locations.
- 5.10.21 **Minerals.** The lowland straths include substantial deposits of fluvio-glacial material, some of which has been exploited to provide material for building. Sites currently being worked include those to the west of Auchterarder in Strathallan (where a series of lochans have been formed in worked-out areas) and near Kingsmuir, immediately to the east of Forfar. Although such workings inevitably have a local landscape impact, their broader effect is limited. This would change if it proved viable to expand mineral working more broadly.
- 5.10.22 **Forestry and woodland.** The fertile nature of these lowland areas, and the consequent dominance of agriculture, means that woodland is limited in extent. The exceptions include:
- the rich legacy of hedgerow trees, many of which are up to 200 years old;
 - the less fertile Strathallan where geometric plantations of conifers are found;
 - the policy woodlands associated with major estates;
 - the native birch woodland found on the pockets of unimproved land within the straths.
- 5.10.23 The issue of hedgerow trees is closely allied to agricultural change and, as such, has been discussed above. However, it is worth noting that even where such trees survive, they are now reaching maturity or are even over-mature. Phased replanting and felling will be required if the stock of trees is not to dwindle further.
- 5.10.24 As noted above, the large-scale and rectilinear landscape of Strathallan means that it is one of the few parts of Tayside where rigidly geometric conifer plantations do not appear out of place. Policy woodland is an important aspect of a landscape where woodland cover is decreasing. Retention and management should be encouraged. The fragments of native birch woodland should be conserved for their natural heritage value and because of the insight they provide as to the landscape which would have prevailed prior to enclosure.

5.10.25 **Tall structures.** Tall structures such as masts or wind turbines are unlikely to present a significant threat to the landscape within the Broad Valley Lowlands. However, it is possible that further proposals may come forward for developments on higher ground adjoining the valleys. These could have an impact on the character of the straths. It is also possible that proposals for additional power lines may come forward over time, particularly since this would avoid more exposed upland areas and would achieve 'backclothing' of pylons against the hills.

LANDSCAPE GUIDELINES

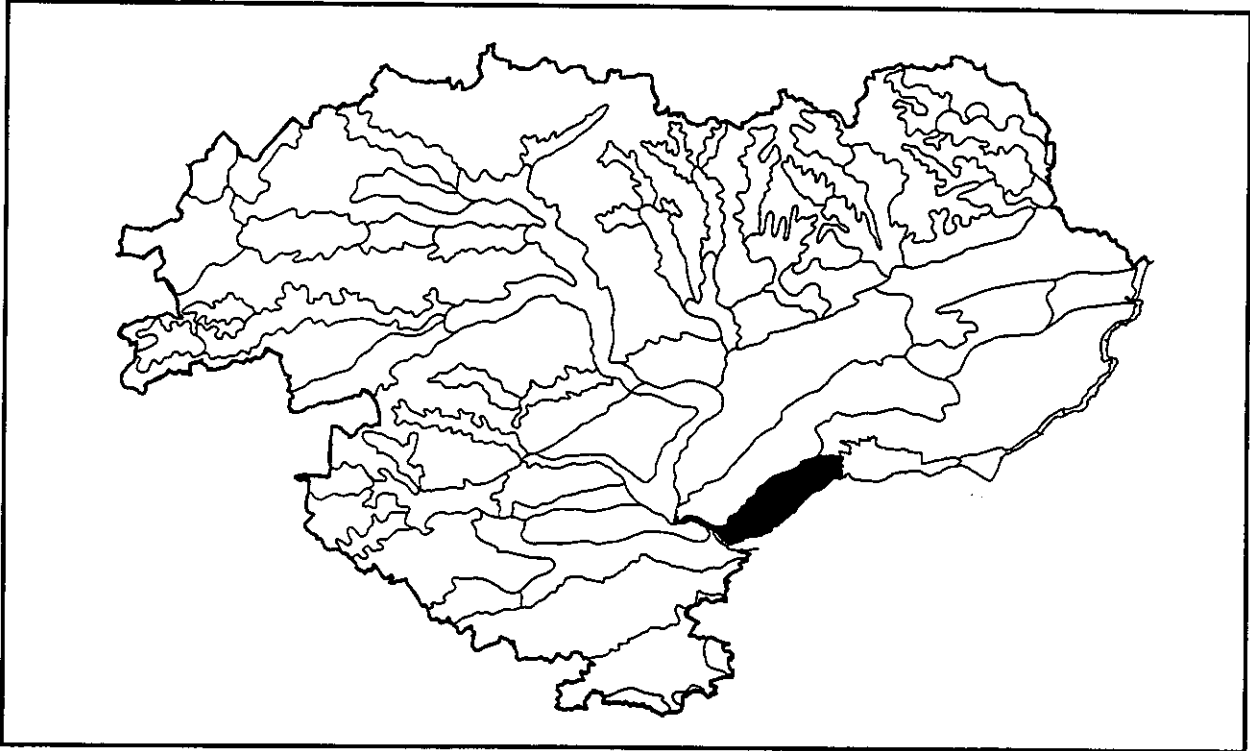
5.10.26 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve and restore the characteristic landscape of hedged fields, hedgerow trees, avenues and policy woodlands. It is important to maintain the contrast between the rich lowland landscapes and the neighbouring areas of harsh upland and enclosed glen.

<p>Agriculture</p>	<ul style="list-style-type: none"> • discourage improvements which result in further loss of field boundaries or field boundary trees; • encourage farmers and landowners to replant trees along field boundaries, initially along roads, but also between fields; species to include oak, sycamore, beech and ash; use incentives to compensate for lower yields where mature trees are retained; • explore the opportunities to increase woodland cover by creating new woodland belts, particularly where there is a need to screen development; • explore development of market for hardwood from field boundary trees; • discourage over-concentration of oil seed rape and similar crops; • monitor growth of open air pig keeping; • use the agricultural development notification scheme to influence the design, materials, screening and location of new farm buildings; explore the use of planning conditions attached to new buildings to re-establish hedgerow trees.
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Transport	<ul style="list-style-type: none"> • Encourage on-site and off-site planting to better integrate major roads into the landscape and to provide screening of traffic. • Ensure that further proposals for improvements such as dualling or the provision of grade separated junctions are assessed in terms of their wider landscape impact. Where major, unmitigatable impacts exist, explore alternative solutions including traffic management and traffic calming. • Where new bypasses are proposed, consider the severing effect of the road on its setting. Consider also the view of settlements from the new road. • Where road improvement schemes take place, ensure that hedges and hedgerow trees, together with other features such as milestones, finger posts and gates are reinstated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives.
Development	<ul style="list-style-type: none"> • Encourage new development to reinforce the existing settlement pattern, focused on market towns and smaller villages. • New residential development should respond to the morphology of existing settlements (e.g. nucleated market settlements, grid-iron 19th century new villages). Explore the need and scope for a small number of new villages, echoing those established in the 19th century. • Encourage developers to use local building materials and to adopt local vernacular in respect of density, massing, design, colour and location. While red sandstones predominate, there are local variations which reflect subtle changes in the character of the local geology. Avoid standard designs and layouts. Consider the preparation of design guides as supplementary planning guidance.
Minerals	<ul style="list-style-type: none"> • Monitor future demand for mineral working. Ensure that any schemes that come forward are restoration-led and are located so as to minimise landscape impacts during operation.
Forestry and woodland	<ul style="list-style-type: none"> • As a matter of urgency, encourage a phased programme of replanting, managing and, where necessary, felling hedgerow trees, so as to maintain and restore the historic legacy of strath trees. • Maintain, where appropriate, the rectilinear woodland areas in Strathallan. Elsewhere, discourage significant and extensive new afforestation. • Retain and manage surviving pockets of native birch woodland. • Examine the potential to create an integrated pattern of new small woodlands and woodland belts in the most open areas.

Tall structures	<ul style="list-style-type: none">• Assess proposals for aerials, masts or wind turbines in terms of their visual and landscape impact on the lowland straths.• Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact.• Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape.• Underground cable solutions should be considered in preference to pylon lines across the arable landscape.
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FIRTH LOWLANDS (11)



KEY CHARACTERISTICS

- *predominantly flat, fertile area*
- *enclosed by the steep Sidlaws escarpment to the north and bounded by the Firth of Tay to the south*
- *estuarine reed-beds and mudflats*
- *large rectangular fields*
- *decaying structure of hedges and hedgerow trees*
- *well-settled with some urban influences*

OBJECTIVE DESCRIPTION		Firth Lowlands
Physical scale		Relatively flat area bordering Firth of Tay, lying at between about 10 and 50 metres AOD
Woodland	broad-leaf	Trees mainly limited to field boundaries, shelterbelts and policy woodlands; historically an orchard area
	coniferous	Limited to a few areas of policy woodland
Agriculture	arable	Extensive areas of arable land
	pasture	Relatively little pasture land
	fields	Large and rectilinear
	field boundaries	Gappy hedges, post-and-wire fences and wet ditches; decaying structure of hedgerow trees
Settlement pattern		Nucleated settlements on higher ground and a scatter of large farmsteads on tracks leading from principal roads
Building materials		Red sandstone and harder igneous rocks from Sidlaws
Historic features		Castles, historic houses and designed landscapes
Natural heritage features		Reed-beds and mudflats
Other landscape features		Communication corridors, disused airfield etc.
SUBJECTIVE DESCRIPTION		
Views		Corridor
Scale		Medium
Enclosure		Open
Variety		Simple to varied
Texture		Smooth
Colour		Colourful
Movement		Active
Unity		Fragmented to interrupted
'Naturalness'		Tamed

LOCATION

- 5.11.1 Along the northern side of the Firth of Tay, between Perth and Dundee lies an area of estuarine lowland known as the Carse of Gowrie. Bounded to the north by the steep escarpment of the Sidlaw Hills, the area forms one of the most fertile parts of Scotland.

PHYSICAL CHARACTERISTICS

- 5.11.2 The Carse of Gowrie is underlain by Upper Old Red Sandstone and a smaller area of Carboniferous limestone which occurs in the vicinity of Errol. The bedrock, however, is buried beneath a thick capping of superficial deposits, laid down by retreating ice sheets, and by the estuarine and marine deposition. Though the area would once have been subject to frequent tidal flooding, the upward movement of the land mass following the melting of ice sheets means that this no longer occurs. The area averages about 10 metres AOD, rising to a maximum of 50 metres AOD at Errol. The edge of the estuary is often marked by a distinct bank before extensive reed-beds and mudflats are reached. In this flat landscape the sky forms an important part of the landscape and the character can change with the pattern of cloud cover the nature of the light.

SETTLEMENT AND LAND USE

- 5.11.3 This is a well-settled area, with a number of villages and a scatter of farmsteads and hamlets. Some of the more historic settlements are sited on low hills or slight rises in the otherwise level landscape. A number of castles (e.g. Castle Huntly and Megginch Castle) point to the need to defend the area in the past. The designed landscapes and policies of Castle Huntly and Errol Park also contribute to the landscape. The subdued topography of the area presents no obstacle to communications and roads and railways generally follow straight or geometric lines. Minor roads feed off the main routes at ninety degrees. The area has a history of apple growing with blossoms from surviving orchards characterising the area during the spring. Other past activities include the manufacture of bricks and pipes from local clay at Errol.
- 5.11.4 The Carse of Gowrie is principally an agricultural area and the landscape is dominated by large, geometric fields. Field boundaries within parcels of land are often absent, the distinction between different fields being marked by drainage ditches or simply by changes in crop. Hedges and hedgerow trees are more common along roads and tracks, though even here many hedges, though trimmed, have become gappy, and lost trees have not been replaced. Historically, the area was an important orchard area but much of this has disappeared though locally important remnants remain. The reed-beds near Errol are one of the largest commercial sources of thatching reeds in the UK.

FORCES FOR CHANGE

- 5.11.5 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.11.6 **Agriculture.** Farming on the Carse of Gowrie has long been dominated by arable cultivation. Over the years, much of the land has been drained and many fields enlarged to allow the use of modern machinery. Those hedges that remain are often sparse and gappy, with only a few remnants of what would once have been an extensive population of hedgerow trees. The remnant orchard areas, particularly around Errol, contribute a splash of blossom in springtime.
- 5.11.7 **Transport.** Comprising the only area of flat land linking Perth and Dundee, the area has developed as a transport corridor accommodating the A90(T) - which has been upgraded to dual carriageway standard - and a railway line. The A90, in particular, has a significant impact on this landscape, partly because of the large-scale and unscreened nature of the road itself, and partly because of the large volume of fast-moving traffic moving along it. The further upgrading of the road to include a number of grade separated junctions (Glendoick, Inchmichael and Inchtute), while improving safety, is likely to result in increased landscape impacts and may lead to the development of roadside service facilities.
- 5.11.8 A further detracting feature is the disused airfield to the east of Errol. Options considered for this site include mixed industrial, business and aviation uses and a new settlement expansion for Errol. Out of necessity, these potential uses are being proposed in response to the presence of a derelict site rather than the character of the surrounding landscape. It appears inevitable that the redevelopment of this site will contribute to the increase in urban influences within this landscape type. Even if development is screened from view it is likely to result in traffic generation, altering the character of country roads in the area.
- 5.11.9 **Development.** The location of this landscape type between Perth and Dundee means that there has been considerable pressure for housing development. While some of this pressure has been accommodated within settlements such as Inchtute, Errol and St Madoes, elsewhere it has resulted in a dispersed pattern of development (e.g. around Grange) and the growth of some ribbon developments (e.g. Walnut Grove). As noted above, the disused airfield near Errol is being considered as a potential new settlement location. While this could allow dereliction on the site to be addressed, it would comprise a significant increase in the level of development in this traditionally rural area.
- 5.11.10 **Forestry and woodland.** Commercial forestry is absent in this productive agricultural area and woodland cover is confined to a declining population of hedgerow trees and shelterbelts and policy woodlands associated with the Errol estate. As noted above, the survival of hedgerow trees and remnant orchards is a particular concern.

5.11.12 **Tall structures.** The area is crossed by two lines of electricity pylons, adding further to the urban influences along the Firth Lowlands.

5.11.13 **Climate change.** Changing sea levels could have an impact on the Firth Lowlands landscape in the medium term. The extent of mudflats and reed-beds could be squeezed as low water levels rise, but productive farmland is protected by tidal defences. In the longer term, there may need to be a choice between expensive flood defences and 'managed retreat'. The latter accepts that the frequency and extent of tidal inundation is likely to increase and modifies land uses accordingly. Within the Firth Lowlands the density of settlement, even on land below 10 metres AOD, and the productivity of the land, are likely to preclude this approach.

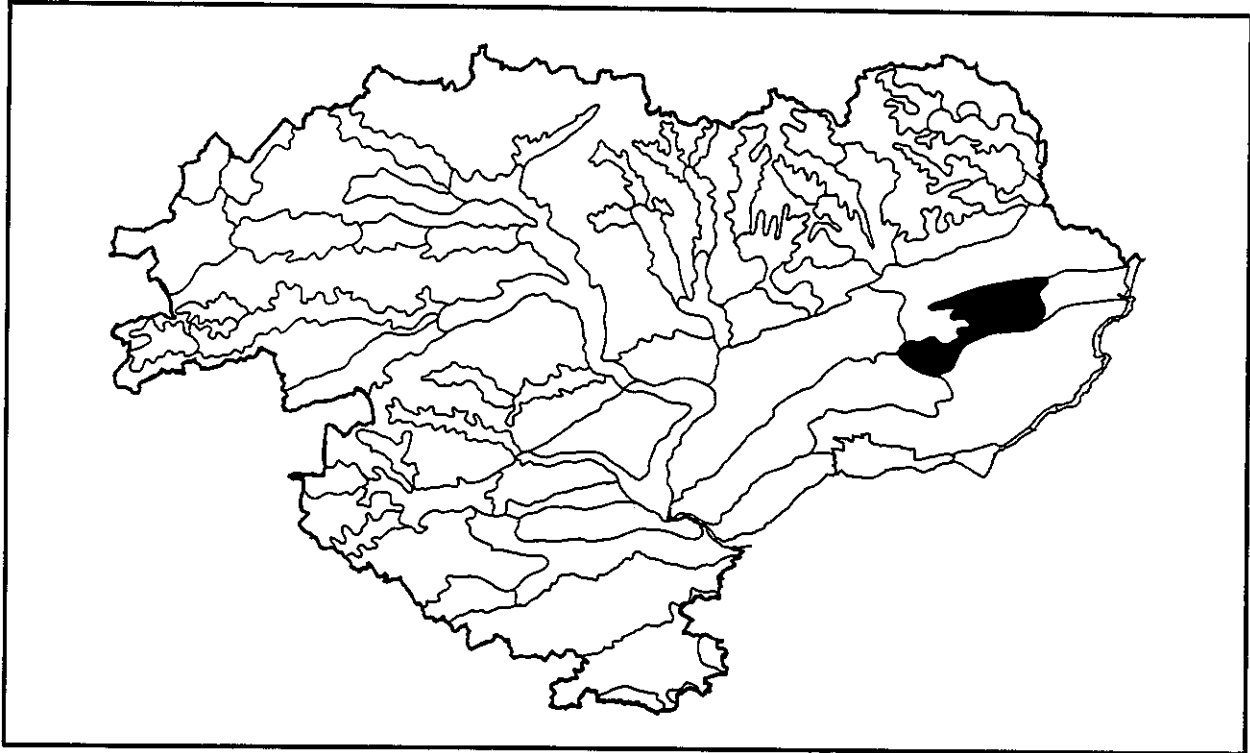
LANDSCAPE GUIDELINES

5.11.14 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve and restore the characteristic landscape of hedged fields, hedgerow trees, avenues and policy woodlands. The rural character of the Firth Lowlands should be restored by addressing inappropriate developments and land uses that have taken place in the past.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Discourage improvements which result in further loss of field boundaries or field boundary trees. • Encourage farmers and landowners to replant trees along field boundaries, initially along roads, but also between fields. Species to include oak, sycamore, beech and ash. Use incentives to compensate for lower yields where mature trees are retained. • Explore the opportunities to increase woodland cover by creating new woodland belts, particularly where there is a need to screen development. • Encourage the maintenance of the remnant orchards in the Carse for their historic importance and local landscape significance. • Use the agricultural development notification scheme to influence the design, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to re-establish hedgerow trees.
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Transport	<ul style="list-style-type: none"> • Encourage on-site and off-site planting to better integrate major roads into the landscape and to provide screening of traffic. • Ensure that further proposals for the provision of grade separated junctions are assessed in terms of their wider landscape impact. Where major, unmitigatable impacts exist, explore alternative solutions including traffic management and traffic calming. • Where road improvement schemes take place, ensure that hedges and hedgerow trees, together with other features such as milestones, finger posts and gates are reinstated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives.
Development	<ul style="list-style-type: none"> • Encourage new development to reinforce the existing settlement pattern, focused on market towns and smaller villages. • New residential development should respond to the morphology of existing settlements. Examine how a new settlement could be accommodated within the existing landscape, road network and settlement hierarchy. • Encourage developers to use local building materials and to adopt local vernacular in respect of density, massing, design, colour and location. Avoid standard designs and layouts. Consider the preparation of design guides as supplementary planning guidance.
Forestry and woodland	<ul style="list-style-type: none"> • Introduce incentives to retain and regenerate the existing orchard remnants. • As a matter of urgency, encourage a phased programme of replanting, managing and, where necessary, felling hedgerow trees, so as to maintain and restore the historic legacy of trees.
Tall structures	<ul style="list-style-type: none"> • Assess proposals for aeriels, masts or wind turbines within and around the Firth Lowlands, in terms of their visual and landscape impact. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact. • Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape.
Climate change	<ul style="list-style-type: none"> • Monitor long-term changes in climate so as to anticipate and plan for any implications for the landscape.

LOW MOORLAND HILLS (12)



KEY CHARACTERISTICS

- *eastern outliers of the Sidlaws*
- *combination of low, rounded hills and craggy, ridged upland*
- *moorland character evident in areas of heather and gorse*
- *some areas of extensive woodland*
- *rich historic heritage*
- *scattered modern settlement*

OBJECTIVE DESCRIPTION		Low Moorland Hills
Physical scale		Series of east-west ridge-like hills with sharply defined northern edge and gentler eastern slopes; hills rise to 200 to 250 metres AOD
Woodland	broad-leaf	Very limited
	coniferous	Extensive plantation at Montreathmont Forest
Agriculture	arable	Some arable on gentler and lower eastern slopes
	pasture	Extensive pastures, much of it rough and heathy in character on the upper slopes
	fields	Medium-sized, rectilinear where topography allows
	field boundaries	Hedges with some stone walls and post-and-wire fences
Settlement pattern		Scatter of isolated farmsteads, no villages
Building materials		Red sandstone
Historic features		Hill-forts, Pictish stones
Natural heritage features		No notable features
Other landscape features		Masts and pylons
SUBJECTIVE DESCRIPTION		
Views		Panoramic
Scale		Medium
Enclosure		Open
Variety		Simple
Texture		Rough to very rough
Colour		Muted
Movement		Remote
Unity		Interrupted
'Naturalness'		Restrained

LOCATION

- 5.12.1 To the east and south of Forfar lie a series of hills, forming low, eastern outliers of the Sidlaws. We refer to these as the Forfar Hills. The hills can be divided into two sub-groups. Firstly there is a series of isolated, rounded hills. These include Dunnichen Hill and Fotheringham Hill. Secondly there is the more continuous area of upland centred on Montreathmont Moor, which culminates in sharp ridges overlooking Forfar.

PHYSICAL CHARACTERISTICS

- 5.12.2 These hills comprise a combination of the more resistant components of the Old Red Sandstone series and areas of volcanic rocks. The resistant sandstone is clearly visible where crags form outcrops on the Hill of Finavon and Turin Hill. Elsewhere, however, the landform is rounded and smooth. Along the southern side of the River South Esk the northern boundary of the resistant lavas is visible as a steep, straight escarpment running west from the coastal cliffs south of Montrose towards Farnell. Rescobie Loch and Balgavies Loch, both of which are of importance for nature conservation, lie in a narrow valley between Turin Hill and Dunnichen Hill. These lochs feed the Lunan Water which flows eastwards to the coast.

SETTLEMENT AND LAND USE

- 5.12.3 Although lying just 100-150 metres above the surrounding lowland farmland, these hilltops have a very different character, in part reflecting their more recent reclamation and improvement. In agricultural terms, the ridges of the Dunnichen Hill, Hill of Finavon and Turin Hill are categorised as Class 6(2) compared with the surrounding farmland which falls into Classes 3 or even 2. The poorer nature of the eastern part of these hills is reflected in their heathy character (including the survival of gorse and bracken along field boundaries), the existence of large areas of coniferous woodland (other lowland is regarded as being too productive to put into woodland) and the presence of wetland areas. Place names such as Muirton, Muirside, Mostonmuir and Rossie Moor all point to the past or current heathland character.
- 5.12.4 Settlement on the Low Moorland Hills is limited to a dispersed pattern of farmsteads on the unforested part of Montreathmont Moor. However, there is extensive landscape evidence of earlier phases of human activity. This includes the dramatic Iron Age hill-forts sited on the craggy summits of the Hill of Finavon and Turin Hill. Nearby, at Aberlemno, are some of the finest examples of Pictish sculptured stones and crosses in southern Scotland. Also near Aberlemno stands Melgund Castle, a 16th century, four storey stronghold. The concentration of these sites, spanning two millennia, points to the significance of these hills, marking the divide between the lowland route of Strathmore and the coastal lowlands to the south. Modern encroachments onto these hills are limited to a handful of telecommunications masts. Extensive sand and gravel working takes place at the western foot of Turin Hill, and there were recent proposals to extract igneous rock from Dunnichen Hill. The hilltops provide fine viewpoints looking northwards across the valley lowland to the Highland Foothills and the Highlands themselves.

FORCES FOR CHANGE

- 5.12.5 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.12.6 **Agriculture.** The poorer nature of the soils of the Low Moorland Hills is reflected in the pattern of agriculture with arable on some of the lower slopes giving way to enclosed pastures and eventually, in the case of the more poorly drained areas, to rough moorland grazing. Historically, it is likely that improvements brought by drainage, reseeded and the application of fertilisers has resulted in a reduction in the extent of rough moorland and an increase in the area of enclosed pasture and arable land. This, allied to the effects of afforestation, means that only fragments of the former landscape survive.
- 5.12.7 On lower slopes, this landscape type shares the structure of hedgerows and hedgerow trees that is found in the Broad Valley Lowlands and elsewhere. As in these areas, the population of trees is declining as replanting is not undertaken.
- 5.12.8 Many farms in the foothills have constructed modern agricultural buildings such as sheds and barns. These are generally of a smaller scale than those found in the lowland straths but can have a visual and landscape impact where the screening effect of woodland is absent.
- 5.12.9 **Transport.** The moorland hills have a network of main and minor roads. Although often very straight, these generally fit with the grain of the landscape. Existing coniferous plantations provide a degree of screening.
- 5.12.10 **Development.** Development within the Low Moorland Hills is very limited. It has been concentrated instead in lowland settlements such as Forfar, Letham and Friockheim.
- 5.12.11 **Minerals.** There have been proposals in the past to establish quarries at Dunnichen Hill. The proposals were withdrawn in response to local opposition, but it is possible that modified plans may come forward in the future. If mineral working is permitted it should be subject to the following terms:
- full environmental assessment to address, in particular, issues to do with landscape impact and the cultural environment;
 - advance on and off-site planting to provide adequate screening around the site;
 - full restoration proposals, re-creating the existing landform, and landscape features such as hedges and woodland.
- 5.12.12 **Forestry and woodland.** The elevation, soils and prevailing climate of the Low Moorland Hills makes them well-suited to commercial forestry. This is reflected in the Tayside Indicative Forestry Strategy which categorises parts of this landscape type as being 'preferred' or 'potential' areas for new planting. The area already includes an extensive area of plantation woodland at Montreathmont Forest and Moor. Taking a regional

perspective it is evident that these hills are relatively free from the constraints associated with the most productive agricultural land and the sensitive highland areas. Furthermore, the plateau-like summit of the hills means that often it is only the edge of the existing plantation woodland that is seen, concealing its true extent. While there is scope for new planting, this needs to take into account:

- the scale of new planting relative to the landform and the proportion of unplanted land;
- species composition;
- relationship with existing semi-natural or planted woodland;
- retention of key views within and outwith the hills;
- opportunities to conserve or recreate areas of low moorland within the woodland;
- size of felling coupes;
- factors such as agricultural viability, nature conservation and historic sensitivities.

5.12.13 These issues, together with concerns regarding the restocking of existing woods, are addressed by Forestry Authority woodland design guidance, and are summarised in the landscape guidelines presented at the end of this section.

5.12.14 **Tall structures.** The Low Moorland Hills have a number of tall structures, principally a series of masts on Fotheringham Hill, Dunnichen Hill, Hill of Finavon and Montreathmont Moor, and the line of electricity pylons running from north of Forfar towards Brechin. There is also pressure for additional masts to serve the cellular telephone industry, particularly along the A90.

5.12.15 With the development of modern wind turbines to generate power, it is possible that this area may come under pressure for wind farm development. Though wind speeds are likely to be significantly lower than in more elevated parts of the Highlands or the Sidlaws/Ochils, it is possible that the lower level of perceived constraint, together with the proximity to the existing electricity distribution network, could favour this area. This would be even more likely if the efficiency of wind turbines continues to improve, thereby making areas with lower wind speeds viable. It would be worth examining the scope for accommodating wind turbines within forested (and serviced) areas such as Montreathmont Forest.

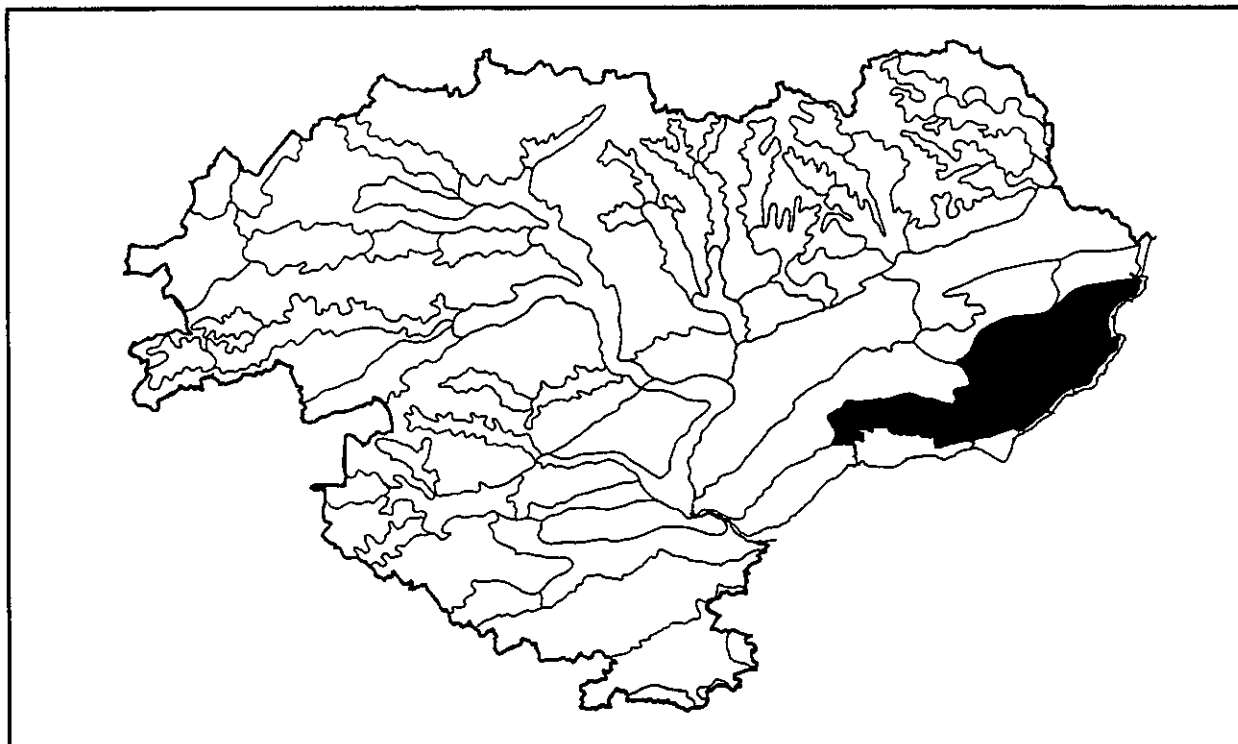
LANDSCAPE GUIDELINES

5.12.16 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the semi-moorland character of these hills, maintaining the contrast with more fertile lower lying areas.

Agriculture	<ul style="list-style-type: none"> • Encourage farmers and landowners to maintain and replant trees and farm woodlands. Species to include oak, maple, beech and ash. • Use the agricultural development notification scheme to influence the design, colour, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to provide screening where appropriate.
Transport	<ul style="list-style-type: none"> • Where more minor road improvement schemes take place, ensure that hedges, hedgerow trees, gates and other features are re-instated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives. • Develop a road use hierarchy as a basis for management.
Development	<ul style="list-style-type: none"> • Focus new development in existing towns and villages so as to reinforce the historic pattern of settlements and to protect the rural character of other parts of the lowland glens. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles. • Encourage the appropriate conversion of redundant farm buildings. Guidance should be provided on the way buildings should be converted (including the provision of drives, gardens etc.) to prevent the suburbanisation of the countryside.
Minerals	<ul style="list-style-type: none"> • Ensure that proposals for mineral working are subject to thorough environmental assessment and that they are accompanied by full restoration proposals. • Ensure adequate on and off-site screening during the operation of any sites that are granted consent.

<p>Forestry and woodland</p>	<ul style="list-style-type: none"> • New planting should conform to the Forestry Authority's design guidelines. In particular, it should respond to the small-scale nature of the landscape, complex topography, the importance of views within and out of the hills, and historic and ecological values. • With respect to the replanting of existing plantations: <ul style="list-style-type: none"> - adopt a more naturalistic appearance, responding to the landform and features such as burns and small valleys; - create graded and irregular margins at the top and bottom of the slope, allowing views of upper slopes from within the glen; - discourage straight lateral edges - do not plant up to the edge of a land holding where this creates a strong and geometric vertical line;. - employ more varied species mixes; - vary the size of felling coupes, with smaller areas on lower slopes; - retain open heathy glades within the woodland.
<p>Tall structures</p>	<ul style="list-style-type: none"> • Assess proposals for aeriels, pylons or masts in terms of their visual and landscape impact on the local landscape, including historic sites, and the broader landscape. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact. • Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape. • Encourage the development of a regional strategy for renewable energy, including wind power, in order that the most appropriate types of development and areas come forward.

DIPSLOPE FARMLAND (13)



KEY CHARACTERISTICS

- *extensive area of land, generally sloping from the north-west to the south-east*
- *dominated by productive agricultural land*
- *low woodland cover, except on large estates and along river corridors*
- *variety of historic sites*
- *dispersed settlement pattern, including some suburban development*
- *limited visual impact of Dundee and Arbroath*

OBJECTIVE DESCRIPTION		Dipslope Farmland
Physical scale		Extensive area of land sloping towards the coast from north-west to south-east; range in height from about 150 metres to 50 metres AOD
Woodland	broad-leaf	Shelterbelts and hedgerow trees
	coniferous	Shelterbelts, policy woodlands and areas of woodland associated with designed landscapes; highly variable cover
Agriculture	arable	Extensive arable production - very fertile land
	pasture	Limited pastureland
	fields	Medium to large, rectilinear
	field boundaries	Many field boundaries absent, others marked by hedges or post-and-wire fences
Settlement pattern		Scatter of hamlets and farmsteads
Building materials		Traditional use of sandstones and harder stone from the Sidlaws
Historic features		Souterrains, castles, mills, historic houses and designed landscapes
Natural heritage features		No notable features
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Intermittent
Scale		Medium
Enclosure		Semi-enclosed to open
Variety		Simple
Texture		Textured to smooth
Colour		Colourful
Movement		Peaceful
Unity		Interrupted
'Naturalness'		Tamed

LOCATION

- 5.13.1 To the south-east of the Sidlaws and the Forfar Hills lies an extensive area of farmland sloping gently towards the Angus coast.

PHYSICAL CHARACTERISTICS

- 5.13.2 The area is dominated by Lower Old Red Sandstone, though there are patches of igneous rocks, forming low outliers of the Sidlaws. The area falls from up to 180 metres in the north-west to about 50 metres along the coastal strip. The dip slope blends almost imperceptibly into the southern slopes of the Sidlaws and Montreathmont Hills.

SETTLEMENT AND LAND USE

- 5.13.3 This is one of the most fertile and productive agricultural areas in Scotland, with much of the land being categorised as Classes 1 or 2. It is not surprising, therefore, that intensive agriculture, based on cereals, is the dominant land use. Fields tend to be large and rectilinear. Woodland cover is low or even absent in some areas, particularly closest to the coast, creating an open, exposed landscape in places. Elsewhere, particularly on some of the larger estates more extensive woodland survives, comprising a mixture of shelterbelts (for example stands of Scots pine or beech) and hedgerow trees. Where these survive, the landscape is enclosed and structured. Often the trees are wind-trimmed and bent slightly away from the coast. Semi-natural woodland is limited to steeper valley sides, for example along the Lunan Water.
- 5.13.4 Despite the intensive pattern of agriculture, the area has a range of archaeological and historic sites. These include Bronze Age burial sites such as that at Dickmountlaw just to the north of Arbroath, a number of souterrains (for example at Grange of Conon near Redford and in Arbroath), Roman sites such as the camp at Kirkbuddo near Whigstreet, and medieval castles including Braikie Castle and Gardyne castle near Friockheim and Colliston Castle to the south. Designed landscapes are also important in this area. A dense scatter of more recent farmsteads is supplemented by a number of isolated houses, reflecting the proximity to Dundee and Arbroath. Both settlements are, however, relatively well-hidden in this otherwise open landscape. Dundee is screened from the north by a ridgeline running parallel to the Firth of Tay, while Arbroath occupies lowland at the mouth of a shallow valley.

FORCES FOR CHANGE

- 5.13.5 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.13.6 **Agriculture.** The fertile and productive nature of this area is reflected in the dominance of agriculture, particularly cereal production and the low level of woodland cover. Many fields have been enlarged and the structure of hedges and hedgerow trees, as

elsewhere, is declining. Many farms in the foothills have constructed modern agricultural buildings such as sheds and barns and, while these are generally of a smaller scale than those found in the lowland straths, the reduction in woodland cover means that they are often visible over a considerable distance.

- 5.13.7 **Transport.** The Dipslope Farmland has a network of main and minor roads. These are generally small-scale and fit with the grain of the landscape. The exception is the A90(T) corridor which runs north from Dundee. The road and its traffic has a considerable landscape and aural impact.
- 5.13.8 **Development.** The Dipslope Farmland landscape type has few settlements of any size, since most tend to be located along the coast. However, as noted above, the proximity to Dundee and Arbroath is reflected in the number of isolated modern dwellings or groups of dwellings that are found throughout the area. Many of these are associated with existing farm buildings or hamlets. However, designs are usually suburban in character, and their sites chosen to maximise the view rather than minimise landscape impact. Planning policies in Angus have allowed a certain amount of development in the open countryside as a means of stabilising and reversing economic and social decline. A similar policy applied in part of Dundee prior to local government reorganisation in 1996. By way of contrast, the urban edges of Dundee and Arbroath, while abrupt, are comparatively well-screened by the landform and have little impact on the wider landscape.
- 5.13.9 **Forestry and woodland.** As noted above, woodland cover within this landscape type is limited, comprising small copses (often located on pockets of less productive land), surviving hedgerow trees, and the shelterbelts and policies of estates and designed landscapes. The area is similar to the lowland straths in that the influence of individual estates on woodland management is evident. Some areas retain structural woodland, creating landscape rooms, and providing screening for development in the countryside while others are almost completely open. The importance of restoring tree cover in the latter areas was recognised by the Dundee Rural Areas Local Plan (City of Dundee District Council, 1994) which encouraged woodland planting particularly in the Tealing Area. The Rural Angus Local Plan (Angus District Council, 1991) contained similar policies. Agricultural factors suggest that large-scale afforestation is unlikely to happen in this area.
- 5.13.10 **Tall structures.** This low-lying area is comparatively free from tall structures with the exception of the electricity transmission lines which serve Dundee and Arbroath. It is possible that there may be pressure for additional masts, particularly in the vicinity of major roads, as telecommunications traffic grows.

LANDSCAPE GUIDELINES

5.13.11 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve and restore the rural character of the Dipslope Farmland landscape type, and to reduce the range of urban influences upon it.

<p>Agriculture</p>	<ul style="list-style-type: none"> • Discourage improvements which result in further loss of field boundaries or field boundary trees. • Encourage farmers and landowners to replant trees along field boundaries, initially along roads, but also between fields. Species to include oak, sycamore, beech and ash. Use incentives to compensate for lower yields where mature trees are retained. • Explore the opportunities to increase woodland cover by creating new woodland belts, particularly where there is a need to screen development. • Explore development of market for hardwood from field boundary trees. • Discourage over-concentration of oil seed rape and similar crops. • Use the agricultural development notification scheme to influence the design, materials, screening and location of new farm buildings. Explore the use of planning conditions attached to new buildings to re-establish hedgerow trees.
<p>Transport</p>	<ul style="list-style-type: none"> • Where necessary, explore opportunities to provide additional on- and off-site screening of major roads. • Where more minor road improvement schemes take place, ensure that hedges, hedgerow trees, gates and other features are re-instated. • Avoid the use of suburban features such as concrete kerbing in a rural setting unless absolutely necessary. Explore more appropriate alternatives. • Develop a road use hierarchy as a basis for management.

<p>Development</p>	<ul style="list-style-type: none"> • Focus new development in existing towns and villages so as to reinforce the historic pattern of settlements and to protect the rural character of other parts of the lowland glens. • Discourage the simplistic grafting of housing estates onto the edge of settlements. Encourage more imaginative schemes which respond to the existing patterns of layout, structure, massing and scale. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles. • Where small-scale development is permitted, encourage developers to use local building materials and to adopt local vernacular in respect of density, massing, design, colour and location. Avoid standard or suburban designs and layouts. Assess and adopt existing traditional layouts. Consider the preparation of design guides as supplementary planning guidance. • Encourage the appropriate conversion of redundant farm buildings. Guidance should be provided on the way buildings should be converted (including the provision of drives, gardens, etc.) to prevent the suburbanisation of the countryside.
<p>Forestry and woodland</p>	<ul style="list-style-type: none"> • New planting should help restore field boundary trees and establish woodland belts (see above). • Encourage new woodland where this would help enhance relatively low quality agricultural landscape.
<p>Tall structures</p>	<ul style="list-style-type: none"> • Assess any proposals for aerials or masts in terms of their visual and landscape impact. • Encourage telecommunications companies to share facilities where it is evident that this would reduce the overall landscape impact. • Encourage telecommunication companies to develop a strategy for mast provision which reflects the sensitivity of the local landscape.



LOW MOORLAND HILLS

Craggy hill tops and ridges near Hill of Finavon above Forfar.



DIPSLOPE FARMLAND

A settled landscape of farmland and small woods.



COAST WITH SAND

The broad sandy beach at Lunan Bay, backed by a complex of sand dunes.



COAST WITH CLIFFS

The former fishing village of Auchmithie perches above the soft red sandstone cliffs.



Photo: SNH

LOWLAND BASIN

An open, simple landscape dominated by the expanse of water and surrounding gently sloping farmland.

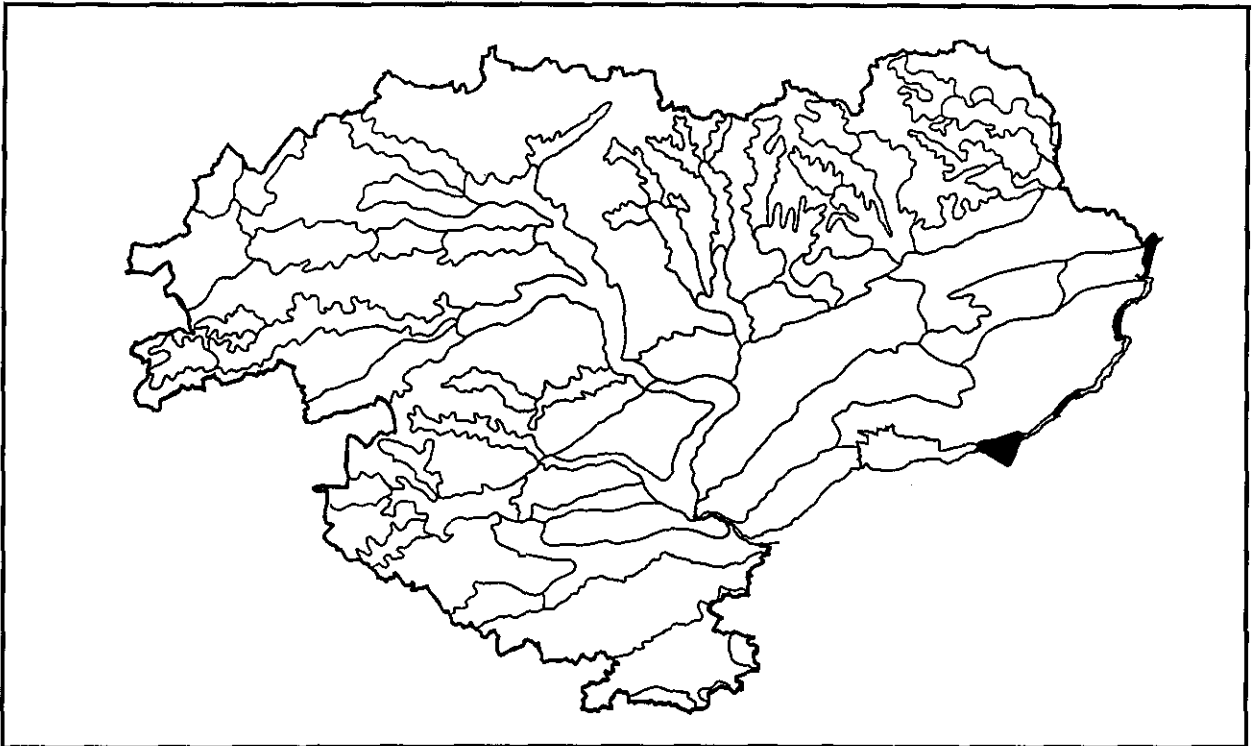
FIGURE 16

LANDSCAPE CHARACTER TYPES

COAST (14)

5.14.1 The combination of distinct physical characteristics and a strong coastal influence on the landscape distinguishes a comparatively narrow band of land along the Angus coast. Here, the sense of exposure, the presence of the sea, the influence of the tides and the expanse of sky create a very different landscape character than that of inland areas. A distinction has been made between the sandy and cliff sections of the coast.

COAST WITH SAND (14A)



KEY CHARACTERISTICS

- *areas of marine alluvium and windblown sand along lower sections of coast*
- *sand dunes inland*
- *ever-changing landscape of shifting sands, erosion and deposition and tidal fluctuation*
- *golf courses*
- *limited settlement*

OBJECTIVE DESCRIPTION		Coast
Physical scale		Low-lying sections of coast ranging from 0 to 5 metres AOD
Woodland	broad-leaf	Confined to hedgerow trees on farmland adjoining the coast
	coniferous	Confined to shelterbelts on farmland adjoining the coast
Agriculture	arable	Along coastal strip
	pasture	On dune slack and along lower sections of river valleys
	fields	Medium and rectilinear where topography allows
	field boundaries	Hedges and walls, supplemented by fences
Settlement pattern		Limited settlement
Building materials		Red sandstone
Historic features		Castles, fishing station
Natural heritage features		Dune systems are of ecological and geological interest
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Distant
Scale		Medium
Enclosure		Exposed
Variety		Simple
Texture		Smooth to rough
Colour		Colourful
Movement		Active
Unity		Unified
'Naturainess'		Undisturbed to tamed

LOCATION

- 5.14.2 Sections of coast with sand occur between Broughty Ferry and Carnoustie, south of Arbroath, at Lunan Bay and at Montrose.

PHYSICAL CHARACTERISTICS

- 5.14.3 The origins of these areas differ, falling into two main groups. Firstly, there are sections of coast where blown sand and marine alluvium have created substantial deposits. Particular examples include Barry Links, where a rounded peninsula of sand dunes extends southwards into the Firth of Tay, and the spit of land occupied by Montrose at the mouth of the River South Esk. Secondly, there are sections of coast where rivers such as the Lunan have lowered the level of the land and broad bays are now filled with sand. In both cases, the sandy beach is often backed by sand dunes, some of which are relatively level and are used for grazing.
- 5.14.4 Several of the links are of ecological and geological importance. Barry Links for example is a designated SSSI, notified because of its range of characteristic plant communities, including some rare species, as well as important mosses, invertebrates and breeding birds. It is regarded as an excellent example of coastal deposition, including the well-developed complex of parabolic dunes. Although there is a golf course on the northern part of the links, much of the area is reserved for military live firing.

SETTLEMENT AND LAND USE

- 5.14.5 Comparatively little has survived from earlier periods in this ever-changing coastal landscape. Exceptions include Broughty Castle, originally built in the 15th century but refortified in the 19th century, and Red Castle which stands, ruined, above Lunan Bay. Also at Lunan Bay are the remains of an earlier commercial fishing station, including the ruin of an icehouse constructed to store the catch. Today, many of the beaches are popular destinations when the weather is good. A number of golf courses are found among the dunes.

FORCES FOR CHANGE

- 5.14.6 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.14.7 **Agriculture.** Low intensity grazing can be quite important in maintaining the stability of vegetated parts of the dune systems. Overgrazing could result in the loss of vegetation and an increase in erosion.
- 5.14.8 **Transport.** Vehicular access to much of this coastal area is limited. Even at Lunan Bay it is limited to a minor farm road which leads to a small and informal car park which has

been created in the lee of the sand dunes. This low level of access is an asset, underlining the low level of development along the coast.

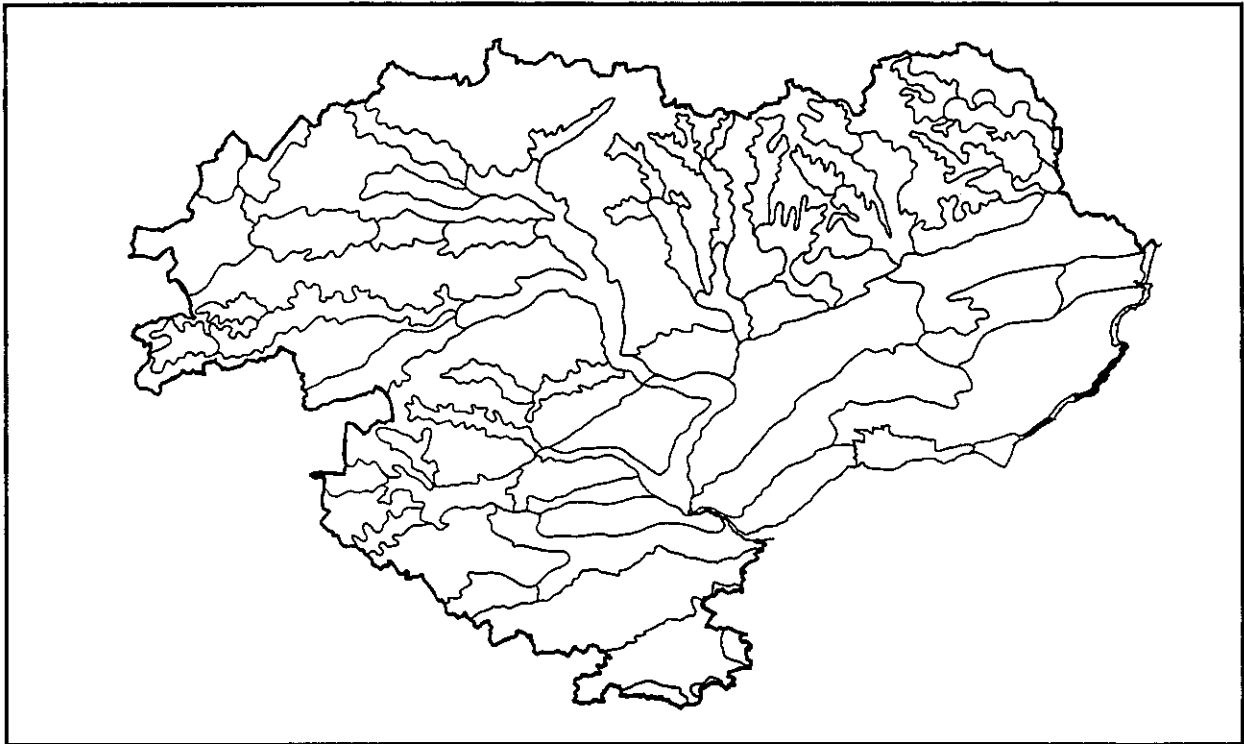
- 5.14.9 **Development.** There is also very little development on the sections of sandy coast. The principal exceptions are found at Barry Links (which is used for military training and also has a golf course) and the Links of Montrose (also used as a golf course). While these land uses hinder more general access to the coast, they are low-key in nature and do assist in the conservation of the natural heritage.
- 5.14.10 **Forestry and woodland.** Commercial woodland is absent from this landscape type. However, semi-natural woodland is found along the river valleys that emerge in places such as Lunan Bay and on some of the more stable areas of sand dune.
- 5.14.11 **Recreation.** While, for most of the year, these beaches and dune systems are deserted, during period of fine weather, particularly at weekends and holiday times, they can attract considerable numbers of people. This can result in erosion around key access points, reducing the overall stability of the dunes. At Lunan Bay, where these pressures are high, boardwalks and other management measures have been implemented to minimise damage.
- 5.14.12 **Tall structures.** Many of these sections of coast are free from signs of modern development and retain an almost timeless character. The erection of masts in areas visible from these areas (for instance in cliff-top locations) or the development of shore-line or off-shore wind power schemes could have an adverse effect on this character. Any proposals should be assessed carefully in these terms.
- 5.14.13 **Climate change.** It is possible that climate change brought about by global warming could result in an increase in storminess and changes in sea levels. Both could have serious implications for the stability and survival of these sections of dune coast. Further monitoring of any changes should be undertaken. If the stability of the coast is threatened, a comprehensive assessment options (including the do-nothing scenario) for managing this change should be undertaken.

LANDSCAPE GUIDELINES

- 5.14.14 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the natural and, at times, remote character of these sections of coast.

Agriculture	<ul style="list-style-type: none"> • Encourage the continuation of appropriate levels of grazing on the vegetated dunes and dune slack areas.
Transport	<ul style="list-style-type: none"> • Maintain the low level and informal character of vehicular access.
Development	<ul style="list-style-type: none"> • Restrict development in these areas. • Should the military training area at Barry Links become redundant, encourage the restoration of the natural dune landscape rather than disposal for development.
Forestry and woodland	<ul style="list-style-type: none"> • Discourage planting except within sheltered river valleys. • Facilitate natural colonisation on established dune areas (where this does not conflict with natural heritage interests).
Recreation	<ul style="list-style-type: none"> • Maintain low level of formal recreational provision. • Monitor erosion and other effects in areas subject to highest pressure, implementing management measures as necessary.
Tall structures	<ul style="list-style-type: none"> • Assess any proposals for tall structures in terms of their visual and landscape impacts.
Climate change	<ul style="list-style-type: none"> • Monitor the effects of climate change on the stability of the sandy coast. • Assess any options for coastal management in a comprehensive way (e.g. through a Shoreline Management Plan) reflecting the dynamic and interdependent nature of the processes of erosion and deposition along the coast.

COAST WITH CLIFFS (14B)



KEY CHARACTERISTICS

- *more resistant sandstones and intrusive rocks*
- *cliffs, arches, inlets, bays and rocky reefs*
- *defensive coast with castles*
- *fishing settlements*
- *windswept and exposed*
- *minimal tree cover*
- *productive farming up to cliff edge*

OBJECTIVE DESCRIPTION		Coast with Cliffs
Physical scale		Red sandstone cliffs rising up to 30 metres
Woodland	broad-leaf	Absent except on field boundaries along the coastal strip
	coniferous	Absent except for shelterbelts along the coastal strip
Agriculture	arable	Along coastal strip
	pasture	Absent
	fields	Medium and rectilinear where topography allows
	field boundaries	Hedges and walls, supplemented by fences
Settlement pattern		Fishing villages
Building materials		Red sandstone, often highly weathered
Historic features		Castles, fishing stations
Natural heritage features		Cliffs of ecological and geological interest
Other landscape features		No notable features
SUBJECTIVE DESCRIPTION		
Views		Distant
Scale		Medium
Enclosure		Exposed
Variety		Simple
Texture		Rough to very rough
Colour		Colourful
Movement		Active
Unity		Unified
'Naturalness'		Undisturbed to restrained

LOCATION

- 5.14.15 Sections of rocky coast with cliffs occur north of Carnoustie, between Arbroath and the southern end of Lunan Bay, and between Lunan Bay and Montrose.

PHYSICAL CHARACTERISTICS

- 5.14.16 The cliffs fall into two groups, reflecting variations in their geology. To the south, Old Red Sandstones are predominant, forming an indented coastline of dark red cliffs up to 30 metres high. Here the relatively soft rock is eroded into a series of small bays and inlets. Arches and caves reflect the erosive power of the sea. Further north, enclosing Lunan Bay and extending northwards to the southern edge of the Montrose Basin is an area of volcanic lavas and tuffs, of the same origin as the Sidlaws and Ochils. This has created a more resistant coastline of promontories, low cliffs and a rocky shore line.
- 5.14.17 The rocky coast is also of ecological and geological interest, much of it being designated as SSSIs. The cliffs support a range of important nesting seabirds and overwintering waders including kittiwake, puffin, razorbill, turnstone and purple sandpiper, along with rare grassland and rock-ledge communities. Perched saltmarsh and species-rich grassland also occur along the northern, igneous coastline. Most of this section of coastline provides good exposures of sandstones and lavas, providing considerable potential for the study of the geological structure and origins of the Midland Valley.

SETTLEMENT AND LAND USE

- 5.14.18 In addition to a number of castles sited about one kilometre inland (e.g. Ethie Castle), several cliff-top forts are found along this section of coast. At least six (including Maiden Castle, Castle Rock and Prail Castle) are known to have existed between Arbroath and Lunan Bay. The indented coastline also provided natural harbours for fishing villages. Auchmithie, perched at the top of the sandstone cliffs comprises a cluster of low cottages in the shelter of a shallow bay. Many of the buildings and walls show signs of weathering with the red sandstone sculpted into curious shapes. Stimulated by the arrival of the railways which provided access to markets as far away as Billingsgate in London, many commercial fishing stations developed along the coast. This is exemplified at Usan where, in the 18th and 19th century, the landowner rebuilt the existing villages around salmon fisheries, with the result that one of them is known as 'Fishtown of Usan'. The remains of ice houses and saltpans can still be seen. While these villages are closely related to the surrounding landscape, other more recent settlements such as Carnoustie are not, simply comprising expanded residential suburbs of Dundee.
- 5.14.19 Despite the exposed, sometimes windswept character of the this coastal landscape, the natural fertility of the soils (much of the area falling into Class 2) means that agriculture dominates inland, with arable fields often running up to the edge of the cliffs. Tree cover is minimal.

FORCES FOR CHANGE

- 5.14.20 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this

section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.

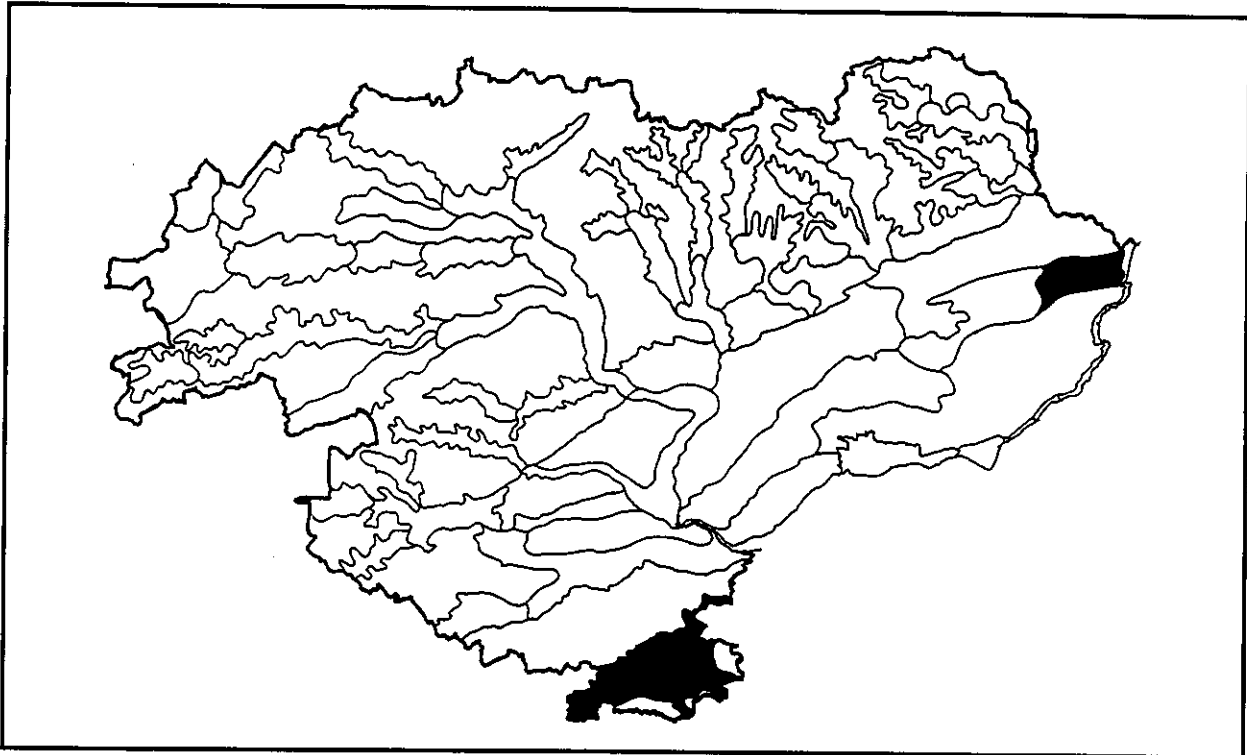
- 5.14.21 **Agriculture.** The fertile nature of the soils in this area means that in many places farmland extends right up to the cliff edge. In some places networks of shelterbelts, together with field boundary trees emphasise the exposed coastal location, the trees' branches and canopies are windbent and trimmed. In other areas woodland cover is absent, having declined over decades or having been cleared to allow field enlargement. In the latter case, modern farm buildings can be particularly prominent.
- 5.14.22 **Transport.** The network of roads, which is often geometric in structure, reflecting the presence of rectangular fields, is complemented by a network of unpaved roads, often contained between high dry-stone dykes, constructed from the local red sandstone. The rough character of these tracks should be retained.
- 5.14.23 **Development.** Settlement along the sections of cliff coast is concentrated in a number of fishing villages and a scatter of farmsteads. As the fishing industry has declined, some of the villages have declined, or have become remote 'suburban' outposts of Arbroath or Montrose. There is little other development along these sections of coast.
- 5.14.24 **Forestry and woodland.** Commercial woodland is absent from this landscape type. Woodland is confined to the shelterbelts and field boundaries described above.
- 5.14.25 **Recreation.** Access to the coast and areas of beach is often difficult and there are comparatively few recreational pressures.
- 5.14.26 **Tall structures.** Many of these sections of coast are free from signs of modern development and retain an almost timeless character. The erection of masts in cliff-top locations or the development of shore-line or off-shore wind power schemes could have an adverse effect on this character. Any proposals should be assessed carefully in these terms.
- 5.14.27 **Climate change.** It is possible that climate change brought about by global warming could result in an increase in storminess and changes in sea levels. Both could have implications for the pattern of erosion and deposition along the cliff coast. The red sandstone is comparatively soft, and increases in erosion could affect natural coastal features and the security of coastal settlements. Monitoring of any changes should be undertaken and if the stability of the coast is threatened, a comprehensive assessment of options (including the do-nothing scenario) for managing this change should be carried out.

LANDSCAPE GUIDELINES

- 5.14.28 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the natural and, at times, remote character of these sections of coast.

Agriculture	<ul style="list-style-type: none"> • Encourage the maintenance of shelterbelts and field boundary trees and their restoration where appropriate. • Encourage the maintenance of the network of dry-stone dykes.
Transport	<ul style="list-style-type: none"> • Maintain the low level and informal character of vehicular access, in particular, conserving the network of unsurfaced roads.
Development	<ul style="list-style-type: none"> • Focus any residential development within existing coastal settlements. • Ensure that development adopts appropriate designs, materials and scale.
Forestry and woodland	<ul style="list-style-type: none"> • Discourage extensive planting.
Recreation	<ul style="list-style-type: none"> • Maintain low level of formal recreational provision.
Tall structures	<ul style="list-style-type: none"> • Assess any proposals for tall structures in terms of their visual and landscape impact.
Climate change	<ul style="list-style-type: none"> • Monitor the effects of climate change on the stability of the cliff coast. • Assess any options for coastal management in a comprehensive way reflecting the dynamic and interdependent nature of the processes of erosion and deposition along the coast.

LOWLAND BASINS (15)



KEY CHARACTERISTICS

- *broad basins formed where sandstones have been eroded away leaving harder enclosing rocks*
- *extensive mudflats*
- *rich natural heritage, particularly migratory and wading birds*
- *historic associations*
- *dominance of water, sky and distant shores*

OBJECTIVE DESCRIPTION		Lowland Basins
Physical scale		Loch Leven Basin lies at about 110 metres AOD, rising to about 150 metres in places; the Montrose Basin lies close to sea level, rising to 10 or 20 metres
Woodland	broad-leaf	Semi-natural and plantation woodland around the fringes of the basins, particularly on steeper land
	coniferous	Little coniferous woodland - limited to a small number of shelterbelts
Agriculture	arable	Extensive arable land within Loch Leven basin
	pasture	Some pastures on lower lying and poor land
	fields	Generally large and regular shaped
	field boundaries	Combination of stone walls extending down from surrounding higher ground, and hedges
Settlement pattern		Settlement along roads encircling Loch Leven, concentrated to the west at Kinross and Milnathort; settlement around the Montrose Basin concentrated in Montrose
Building materials		Mixture of sandstone, harder volcanics and, at Kinross, pantiles
Historic features		Kinross House, Loch Leven Castle, millsites and drainage/water management infrastructure
Natural heritage features		Both basins are very rich in nature conservation interest
Other landscape features		Kinross telecommunications installation
SUBJECTIVE DESCRIPTION		
Views		Framed
Scale		Medium
Enclosure		Enclosed
Variety		Simple
Texture		Smooth
Colour		Muted
Movement		Peaceful
Unity		Unified
'Naturalness'		Restrained to natural

LOCATION

- 5.15.1 Two flooded basins have formed where softer, Upper Old Red Sandstone deposits, enclosed by hard volcanic or carboniferous rocks, have been eroded away. The first of these is occupied by Loch Leven, in the extreme south of Tayside, enclosed by the Lomond and Cleish Hills to the east and south, and by the Ochils to the north. The second of these is the Montrose Basin, a broad tidal estuary cut off from the sea by the spit of land occupied by the town of Montrose, and enclosed by harder volcanic rocks to the north and south.

Loch Leven Basin

- 5.15.2 **Physical characteristics.** Loch Leven was formed at the end of the last Ice Age as retreating icesheets, which had scoured a hollow between the Lomonds, Cleish Hills and the Ochils, deposited a mass of sand and gravel, impounding a shallow loch surrounded by extensive areas of marsh and wetland. In the first half of the 19th century, the level of the loch was lowered by 1.5 metres in order to ensure a steady supply of water to mills along the River Leven and to increase the amount of rentable farmland. Surrounding areas of marsh were drained and improved to provide the basis of the landscape that we see today. Inland, a shallow basin extends towards the Crook of Devon, drained by a network of minor burns. Downstream, the River Leven has been canalised in a straight channel and the surrounding floodplain drained by a network of ditches. Water levels in the loch fluctuate, revealing extensive mudflats during the late summer and early autumn. The overall impression is of a very broad, shallow basin within which, particularly at the eastern end, water and sky, together with the enclosing hills are the dominant landscape elements.
- 5.15.3 Despite the changes brought by the lowering of water levels and the drainage of the marshes, Loch Leven retains a rich ecology. It is particularly important for birds, accommodating thousands of ducks, migratory geese, swans and waders. The loch's fish stocks have been exploited for over 650 years, the brown trout being particularly well-known. Mammals around the loch include otters, roe deer and foxes. The area has a range of natural and planted woodland with Scots pine growing in the drier areas and birch, willow and alder in wetter areas. The loch is designated as an SSSI and an NNR.
- 5.15.4 **Settlement and land use.** Historically Loch Leven has been a focus for human settlement and land use. The earliest signs of settlement included a crannog which was destroyed during the 19th century. Loch Leven has a number of other historic sites including Kinross House, Loch Leven Castle on Castle Island and the Priory on St Serf's Island. Several villages and hamlets grew around the fringes of the loch, their industries of weaving, paper making and fishing reliant on the supply of water. The largest of these settlements, particularly Kinross, Milnathort and Kinnesswood have expanded over the last century, the latter pushing up the slopes of the Lomond Hills.

Montrose Basin

- 5.15.5 **Physical characteristics:** The Montrose Basin is a large, rounded estuarine basin formed near the mouth of the River South Esk. Unlike Loch Leven, the basin is tidal, revealing extensive mudflats at low tide. An area of low-lying, drained farmland extends inland,

while the basin is separated from the sea by the town of Montrose, located on a low peninsula spit of land less than two kilometres wide. There have been attempts to drain the basin to provide farmland in the past, the most notable effort leaving Dronner's Dyke which is revealed at low tide. Like the Loch Leven Basin, this area is shallow and open. The expanse of mudflats, water, distant shores and sky all shape the character of the surrounding landscape.

- 5.15.6 The Montrose Basin also has a rich natural heritage. Its mudflats provide important feeding grounds for birds, supporting internationally important numbers of geese, wigeon and redshank and nationally important numbers of eider, oystercatcher, knot and mute swan. A number of salt-loving plants, including rare grasses, occur on the mudflats. The variety of saline, brackish and freshwater marshes have a great variety of plant communities. The area is also of geological importance.
- 5.15.7 **Settlement and land use.** Outwith the physically constrained town of Montrose, settlement is limited to a scatter of farmsteads, generally located on slightly higher ground along the A934 and A935 to the south and north of the basin. The western end of this landscape unit is occupied by Kinnaird Park with its deer park and extensive estate woodlands. A number of historic mills are sites along the non-tidal section of the River South Esk, above the Bridge of Dun. Some land has been reclaimed at the inland edge of the basin. There is also a series of raised beaches which demonstrate the series of sea level changes that occurred during the later stages of the last Ice Age and in the post-glacial period.

FORCES FOR CHANGE

- 5.15.8 This section contains a description of the principal types of change that have affected this landscape type in the recent past or which are likely to affect it in the future. Changes may be positive or negative in terms of their effect on the landscape. The aim of this section is to gain a clear understanding of the nature and direction of change and its likely impact on the essential character and quality of the landscape. This analysis provides the basis for management guidelines to assist other organisations develop more detailed policies for agriculture, forestry and development.
- 5.15.9 **Agriculture.** Both basins include considerable areas of arable and grazing land around the fringes of the waterbodies. This is generally of a semi-open character, enclosed by hedges. There appear to be few pressures acting upon agriculture in these areas.
- 5.15.10 **Transport.** Both basins are encircled by roads, several of them of A road status. In addition, the M90 passes close to the western side of Loch Leven and, at Montrose, a new inner relief road has been constructed along the north-eastern side of the basin. These roads means that there is often a considerable amount of traffic movement and noise in these otherwise tranquil locations.
- 5.15.11 **Development.** Historically, both the Loch Leven and Montrose Basins have been a focus for settlement. In the case of Loch Leven, a number of suburban settlements have developed around the loch principally at Kinross, Milnathort and Kinnesswood (the latter is discussed in relation to the Dolerite Hills landscape type, above). Some of the more recent development at Kinross is particularly prominent in the landscape as a result of the building materials that have been employed (white walls and orange pantiles - reflecting

the styles more commonly found in Fife to the south) and the lack of screening around the urban edge. Development at Montrose has been concentrated on the constrained spit of land occupied by the town itself. Expansion has occurred northwards, away from the basin.

- 5.15.12 **Forestry and woodland.** Commercial woodland is absent from this landscape type. However, semi-natural woodland is found around the edges of the waterbodies.
- 5.15.13 **Recreation.** The natural heritage importance of the Lowland Basins is reflected in the presence of interpretation facilities. Otherwise, access and recreation is limited.
- 5.15.14 **Tall structures.** The Loch Leven Basin includes a ball-like radio installation west of the Kinross junction on the M90. Although visible from a number of areas it is not an unduly prominent feature. More serious would be the development of tall structures on the hills that enclose the basins. This is discussed elsewhere, but could have a significant impact on the landscape character and quality of the basins.
- 5.15.15 **Climate change.** It is possible that climate change brought by global warming could result in an increase in storminess and changes in sea levels. Both could have serious implications for the future of the Montrose Basin in particular. Rising sea levels could result in the inundation of areas of surrounding farmland, or the erection of tidal defences which would result in a decrease in the extent of exposed mudflats and inevitable implications for birds. Monitoring, and an integrated strategy to manage any changes are therefore essential.

LANDSCAPE GUIDELINES

- 5.15.16 The following guidelines reflect the sensitivities of the landscape and the pressures for change acting upon it. They are intended to provide a broad basis for the development of more detailed management strategies. The overall aim of such strategies should be to conserve the natural and at times remote character of these sections of coast.

Transport	<ul style="list-style-type: none"> • Explore opportunities to provide more on- and off-site screening to reduce the visual and aural impacts of principal roads.
Development	<ul style="list-style-type: none"> • Focus new development in existing towns and villages so as to reinforce the historic pattern of settlements and to protect the area's tranquil character. • Discourage the simplistic grafting of housing estates onto the edge of settlements. Encourage more imaginative schemes which respond to the existing patterns of layout, structure, massing and scale. • Encourage the wider use of vernacular designs, materials and colours, while allowing for modern interpretations of traditional styles.

(Development contd.)	<ul style="list-style-type: none"> • Consider positive ways of addressing the interface between settlements and the surrounding countryside. These could include: <ul style="list-style-type: none"> - screening; - new buildings which address surrounding areas; - key vistas and views; - landmark features; - gateways and approaches.
Forestry and woodland	<ul style="list-style-type: none"> • Encourage appropriate woodland planting where this can contribute to positive land management to reduce eutrophication at Loch Leven. • Encourage management of hedges and semi-natural woodland.
Recreation	<ul style="list-style-type: none"> • Maintain low level of formal recreational provision.
Tall structures	<ul style="list-style-type: none"> • Assess any proposals for tall structures in terms of their visual and landscape impact.
Climate change	<ul style="list-style-type: none"> • Monitor the effects of climate change and assess any options for flood defence in a comprehensive and balanced way.

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Appendices

APPENDIX A

HISTORICAL ASSESSMENT

The Study Brief required the study to incorporate historic aspects of the landscape into the assessment and for a short statement to be prepared describing how this had been achieved. A comprehensive historic landscape assessment would require a substantial input to the study from archaeologists and historians in order to translate the mass of detailed historic information (for instance that contained in Sites and Monuments Records) into broader historic landscape types. Having undertaken similar studies elsewhere in the country, it was recognised that such an analysis lay outwith the scope of the present study. However, it was agreed with the Study Steering Group to draw upon existing information sources to provide as full a picture of historical influences on the modern landscape as possible.

This report has, therefore, sought to integrate consideration of the historic landscape throughout the report. Rather than limiting discussion to a self-contained chapter at the beginning of the report, the report has deliberately described those historical features which are characteristic of the region, or parts of it, and which make an important contribution to the landscape. At the same time, there is an analysis of the pattern of historic sites and landscapes found within each of the landscape character types, including a brief description with examples in the written descriptions in Chapter 5. This complements similar information on geology, natural heritage and modern development. It is believed that this approach has worked well in Tayside where the sharp topographical contrasts have had a profound influence on historic patterns of settlement, land use, farming, communication and even clan warfare.

APPENDIX B

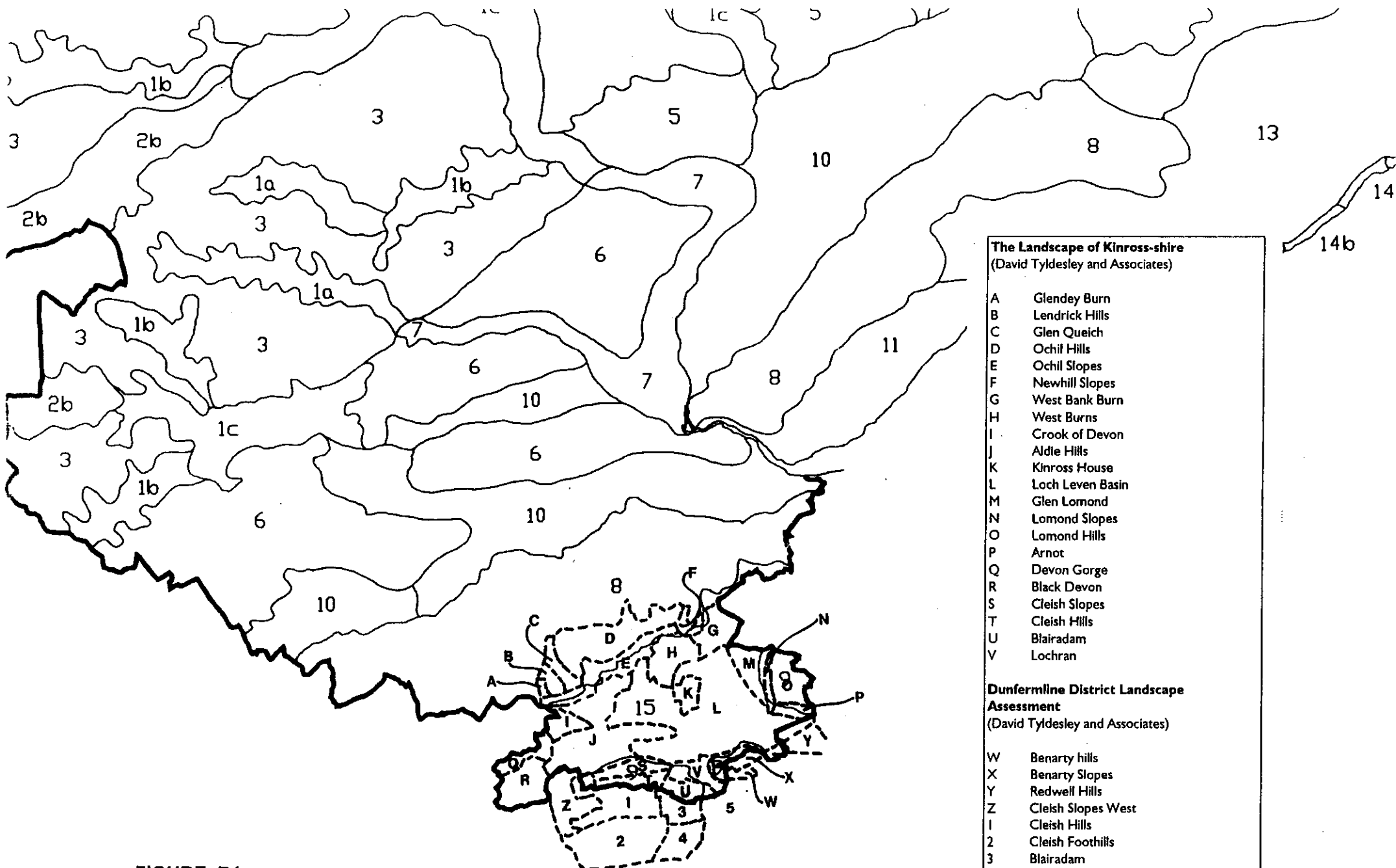
OTHER LANDSCAPE ASSESSMENTS

The Study Brief for the Tayside Landscape Assessment Project required the project team to review a range of other landscape assessments covering parts of the study area, or surrounding areas. It stated that 'the consultants will need to ... ensure consistency in their classification of landscape character areas and types'. Accordingly, the principal landscape assessments were reviewed and the following conclusions drawn.

Figure B1 shows the landscape classifications of **Kinross-shire** and **Dunfermline** prepared by David Tyldesley and Associates (1995) overlaid on the landscape classification produced during the Tayside Landscape Assessment. It is evident that the Kinross-shire and Dunfermline assessments were undertaken at a much finer scale, representing district or local level landscape assessments as opposed to a regional scale assessment. There is broad correspondence between the different levels of assessment.

Figure B2 shows the classification produced by the Turnbull Jeffrey Partnership as part of the **Cairngorms Landscape Assessment** (1996). In contrast to the Kinross-shire and Dunfermline assessments, it is evident that this study adopted a larger scale approach than the Tayside Landscape Assessment, incorporating highland glens and intervening hill ranges in single landscape types for example. There is less correspondence between Cairngorm and Tayside landscape assessments.

Figure B3 shows the landscape classifications of the **Central Region Landscape Assessment** (ASH, 1999) and the **Loch Lomond and the Trossachs Landscape Assessment** (TJP, unpublished report to SNH). It is evident that these studies adopted a scale of assessment similar to that of the Tayside Landscape Assessment. Furthermore, many of the landscape character areas identified during the Tayside study, are continued across the regional boundary into Central Region and the Trossachs area.



The Landscape of Kinross-shire
(David Tyldesley and Associates)

- A Glendey Burn
- B Lendrick Hills
- C Glen Queich
- D Ochil Hills
- E Ochil Slopes
- F Newhill Slopes
- G West Bank Burn
- H West Burns
- I Crook of Devon
- J Aidle Hills
- K Kinross House
- L Loch Leven Basin
- M Glen Lomond
- N Lomond Slopes
- O Lomond Hills
- P Arnot
- Q Devon Gorge
- R Black Devon
- S Cleish Slopes
- T Cleish Hills
- U Blairadam
- V Lochran

Dunfermline District Landscape Assessment
(David Tyldesley and Associates)

- W Benarty hills
- X Benarty Slopes
- Y Redwell Hills
- Z Cleish Slopes West
- 1 Cleish Hills
- 2 Cleish Foothills
- 3 Blairadam
- 4 Loch Fitty
- 5 Lowland Hills and Valleys

FIGURE B1

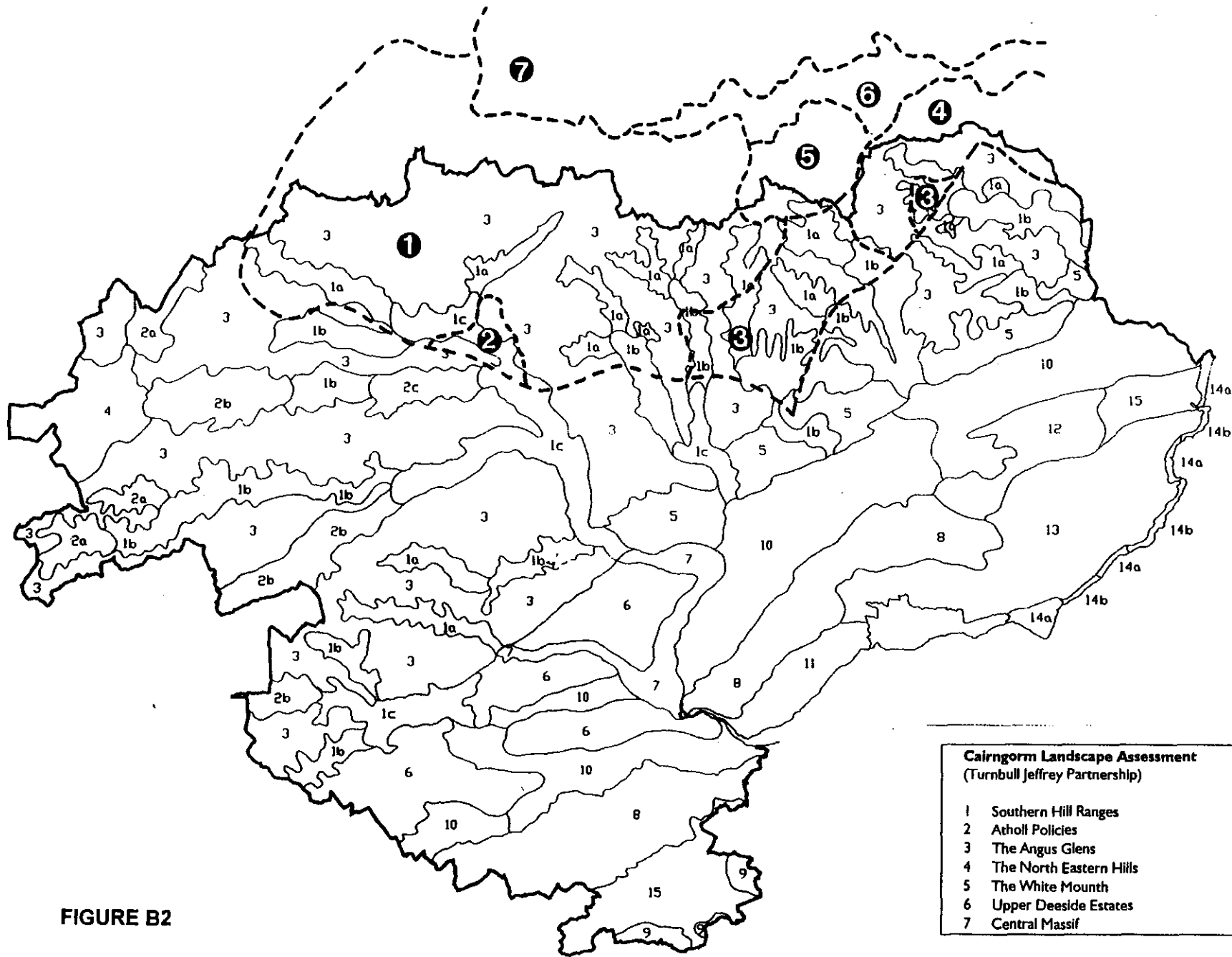
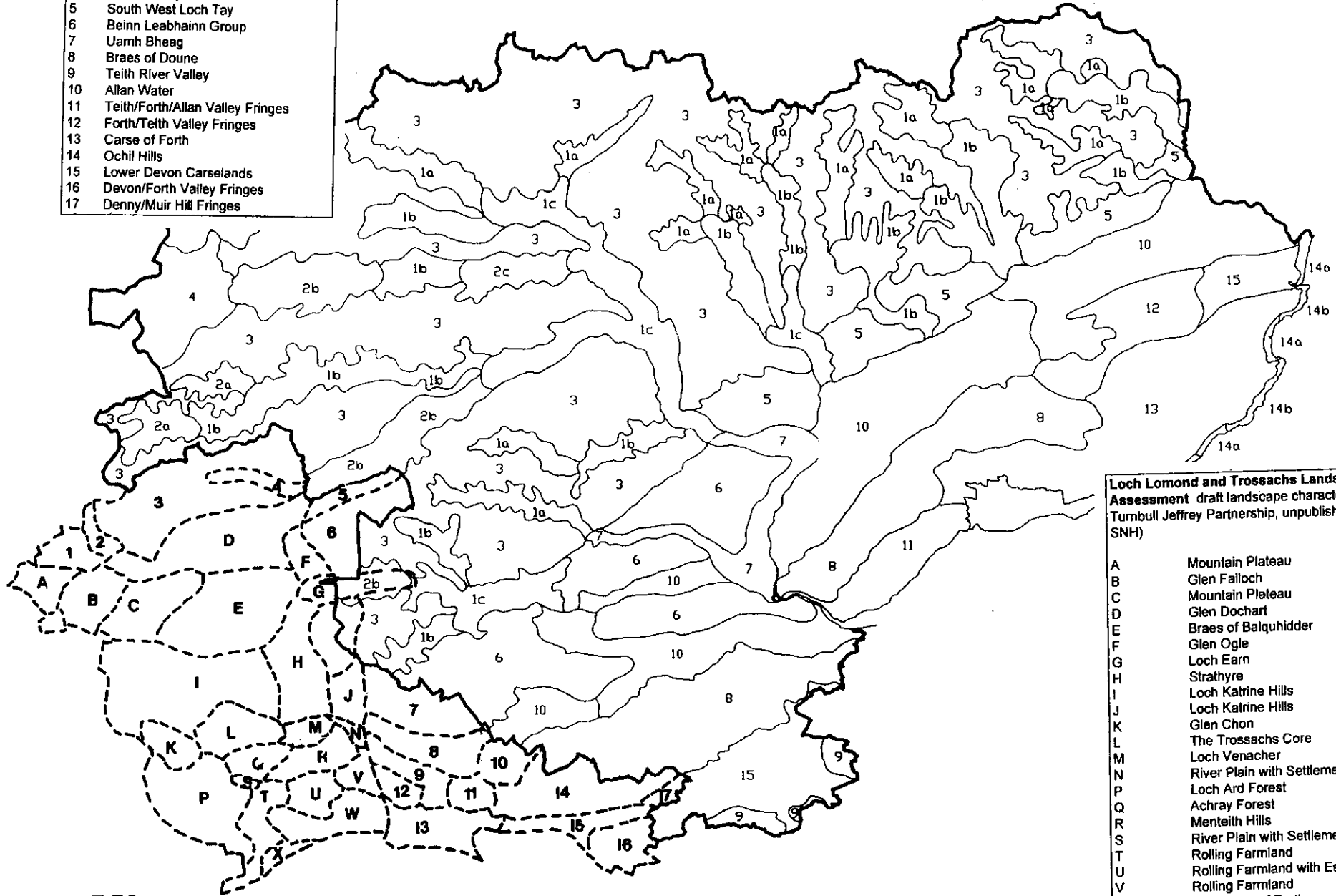


FIGURE B2

**Central Region Landscape Assessment
(ASH) - relevant landscape character areas**

- 1 Ben Lui Group
- 2 Strath Fillan
- 3 Glen Lochay Group
- 4 Glen Lochay
- 5 South West Loch Tay
- 6 Beinn Leabhainn Group
- 7 Uamh Bheag
- 8 Braes of Doune
- 9 Teith River Valley
- 10 Allan Water
- 11 Teith/Forth/Allan Valley Fringes
- 12 Forth/Teith Valley Fringes
- 13 Carse of Forth
- 14 Ochil Hills
- 15 Lower Devon Carselands
- 16 Devon/Forth Valley Fringes
- 17 Denny/Muir Hill Fringes



Loch Lomond and Trossachs Landscape Assessment draft landscape character areas (from Turnbull Jeffrey Partnership, unpublished report to SNH)

- A Mountain Plateau
- B Glen Falloch
- C Mountain Plateau
- D Glen Dochart
- E Braes of Balquhider
- F Glen Ogle
- G Loch Earn
- H Strathyre
- I Loch Katrine Hills
- J Loch Katrine Hills
- K Glen Chon
- L The Trossachs Core
- M Loch Venacher
- N River Plain with Settlement
- P Loch Ard Forest
- Q Achray Forest
- R Menteith Hills
- S River Plain with Settlement
- T Rolling Farmland
- U Rolling Farmland with Estate Policies
- V Rolling Farmland
- W The Carse of Forth

FIGURE B3

APPENDIX C

WIND POWER GUIDANCE

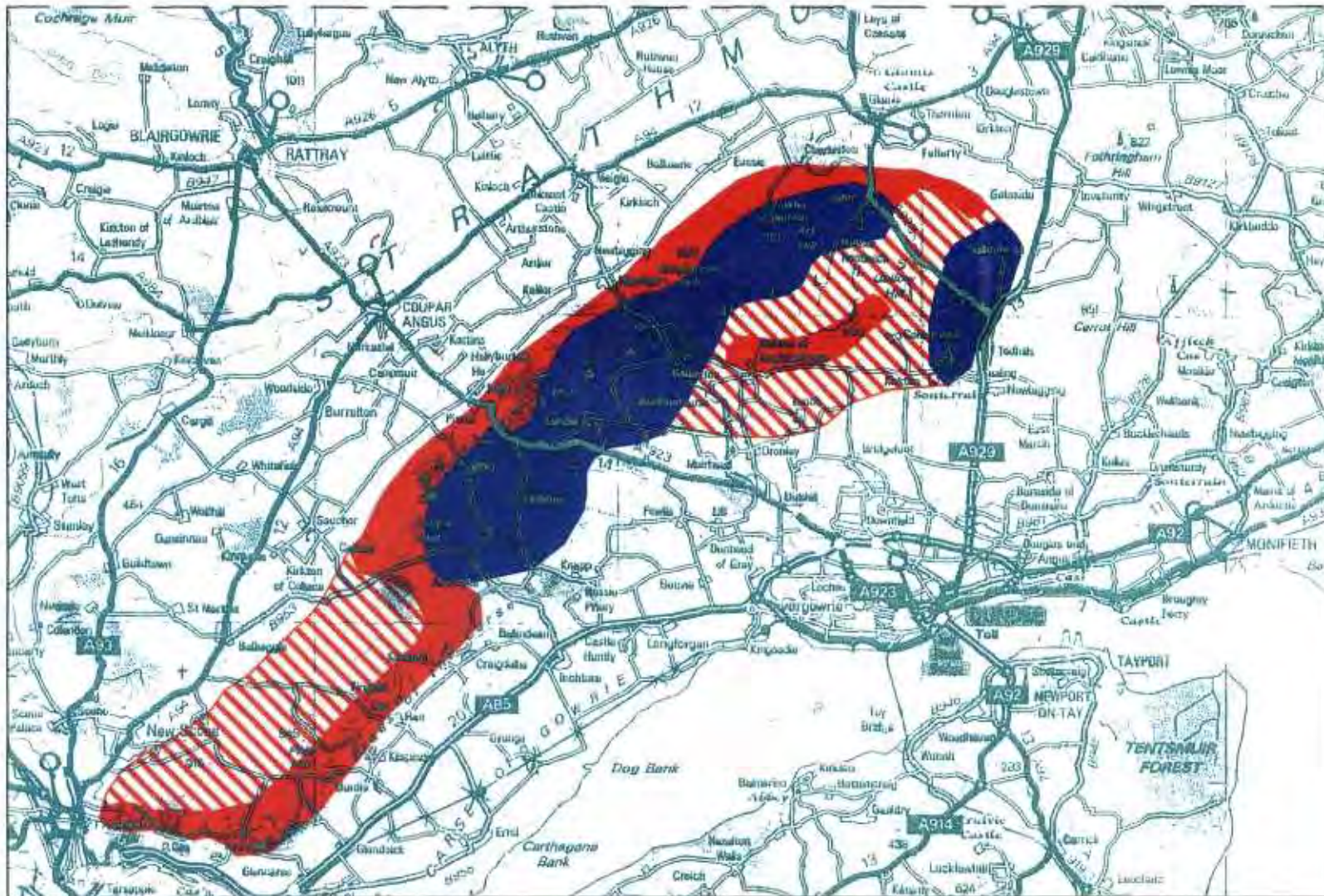
Chapter 4 of this report deals in some detail with the issue of wind power and the possible landscape effects associated with the development of wind farms.

It was recognised that pressure for wind farm development may occur in the Highland Summits and Plateaux areas, in the Highland Foothills and within the Ochils and Sidlaws. The relative merits and constraints associated with each of these landscape types are discussed in some detail in Chapter 4. The approach to planning and assessing such proposals is also outlined.

It was agreed that it would be helpful to provide indicative guidance for one area to illustrate more clearly the broad sensitivities and principals which should be respected in bringing forward proposals for wind farms. The Sidlaws were selected as a suitable area.

Figure C1 provides guidance on the siting of wind turbines within the Sidlaws. It should be emphasised that this guidance is indicative only, and has been prepared on the basis of a regional scale landscape assessment. Much more detailed landscape assessment and landscape impact appraisal would be required to confirm the suitability of these areas in relation to specific planning proposals. Furthermore, it should be emphasised that no areas are entirely free from landscape constraints and that decisions should be made in the light of a regional renewable energy strategy, and in the context of a range of other factors (including technical and operational factors). The indicative wind farm strategy does not necessarily represent the views of Scottish Natural Heritage.

Figure C1 identifies areas of lowest constraint, medium constraint and highest constraint. The most prominent ridgelines and areas visible from both the Firth of Tay and Strathmore fall into the first category. The areas of lowest constraint include the shallow bowls lying to the south of the main Sidlaws ridge and are, in places, associated with existing development such as road corridors.



TAYSIDE REGION

LANDSCAPE CHARACTER ASSESSMENT

FIGURE C1
WIND FARM LOCATION ANALYSIS

-  = Areas of lowest constraint for windfarm development
-  = Areas of medium constraint for windfarm development
-  = Areas of highest constraint for windfarm development



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APPENDIX D

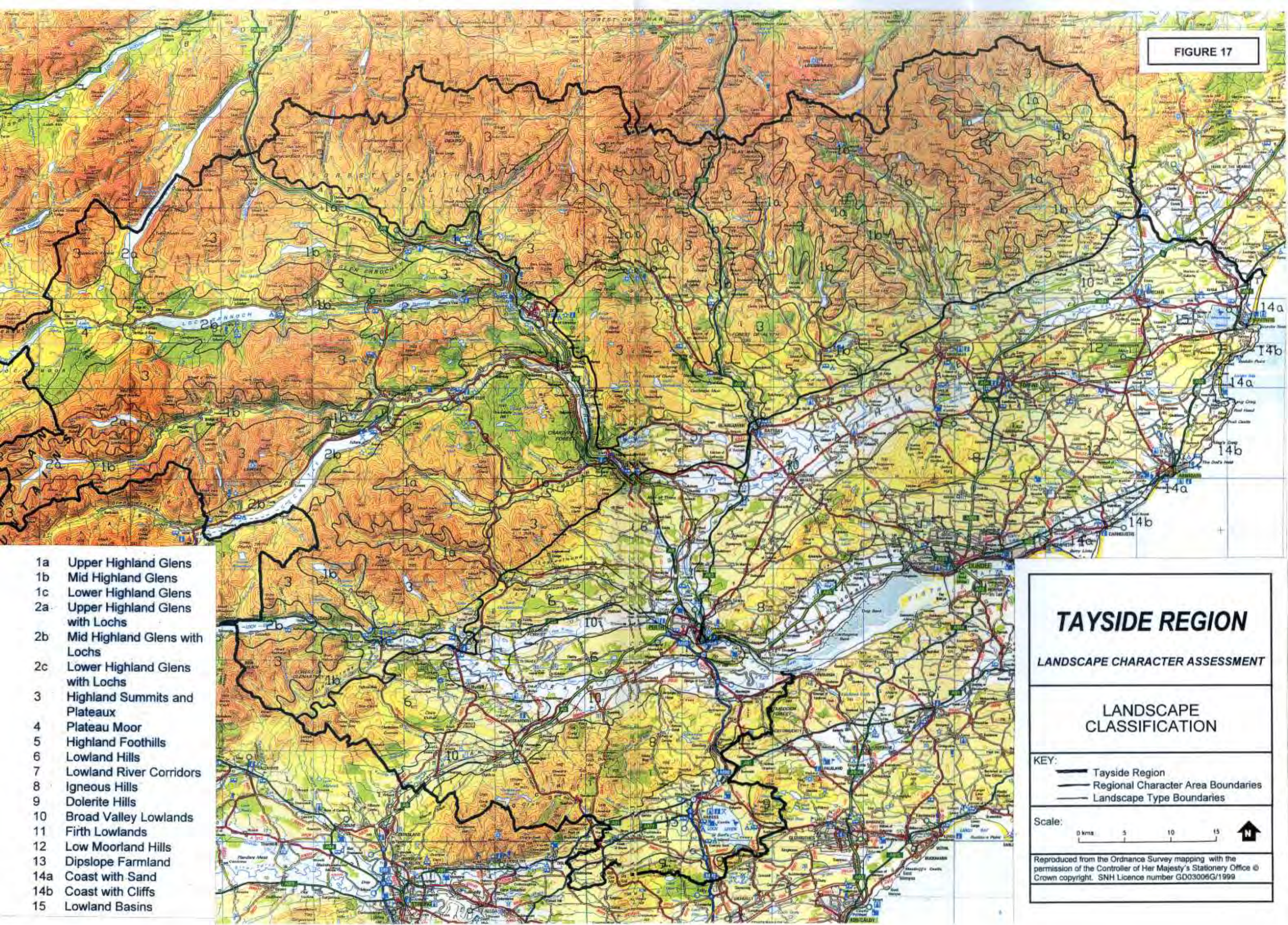
LANDSCAPE PLANNING AND MANAGEMENT SUMMARY MATRIX

Issue	Management Approach	Upper Highland Glens	Middle Highland Glens	Lower Highland Glens	Upper Highland Glens with Lochs	Middle Highland Glens with Lochs	Lower Highland Glens with Lochs	Highland Summits and Plateaux	Plateau Moor	Highland Foothills	Lowland Hills
Agriculture	Conserve field boundaries	★	★	★	★	★	★			★	★
	Replant boundary trees			★		★	★			★	★
	New woodland belts			★						★	★
	Discourage agricultural improvement	★	★		★	★		★	★		
	Discourage over concentration of oil seed rape			★							
	Design of new buildings		★	★		★	★			★	★
	Retain agriculture						★	★			
	Maintain upland/lowland distinction		★			★				★	★
	Conserve traditional buildings		★	★		★	★			★	★
Transport	Minimise upgrading of roads	★	★	★	★	★	★	★	★	★	★
	Mitigate impact of new roads	★	★	★	★	★	★			★	★
	Restore roadside features									★	★
	Mitigate impact of existing roads			★							★
Development	Discourage development	★			★			★	★		
	Steer development to existing centres		★	★		★	★			★	★
	Encourage use of vernacular		★	★		★	★			★	★
	Improve urban edge			★			★				★
Forestry	Discourage new plantations	★			★			★	★		
	Explore potential for new plantations			★			★			★	★
	Improve existing conifers	★	★	★	★	★	★	★	★	★	★
	Favour native woodlands	★	★	★	★	★	★	★	★		

Issue	Management Approach	Lowland			Broad		Low			Lowland	
		River Corridor	Igneous Hills	Dolerite Hills	Valley Lowlands	Firth Lowlands	Moorland Hills	Dipslope Farmland	Coast with Sand	Coast with Cliffs	Basins
Agriculture	Conserve field boundaries	★	★		★	★	★	★		★	★
	Replant boundary trees	★	★		★	★	★	★		★	★
	New woodland belts				★	★		★		★	
	Discourage agricultural improvement										
	Discourage over concentration of oil seed rape				★			★			
	Design of new buildings	★	★		★	★	★	★			
	Retain agriculture										
	Maintain upland/lowland distinction		★	★							
	Conserve traditional buildings	★	★		★	★		★		★	
Transport	Minimise upgrading of roads	★	★	★	★	★	★	★	★	★	★
	Mitigate impact of new roads				★	★					
	Restore roadside features		★		★	★	★	★			
	Mitigate impact of existing roads				★	★		★			
Development	Discourage development								★		
	Steer development to existing centres	★	★	★	★	★	★	★		★	★
	Encourage use of vernacular	★	★	★	★	★	★	★		★	★
	Improve urban edge	★		★	★	★		★			★
Forestry	Discourage new plantations			★					★	★	★
	Explore potential for new plantations	★	★		★		★				
	Improve existing conifers	★	★	★			★				
	Favour native woodlands	★	★	★	★						★

Recreation	Focus activity at existing centres										
	Low-key provision		★						★	★	★
	Restrict additional caravan parks										
	Mitigate existing caravan parks										
	Influence design of facilities										
	Monitor visitor pressures								★		
Tall structures	Discourage			★					★	★	
	Encourage sharing of facilities	★	★		★	★	★	★			★
	Potential for sensitive wind farms		★				★				
Climate change	Monitor and plan					★			★	★	★
Minerals	Restoration issues				★		★				
	Ensure screening				★		★				

FIGURE 17



- 1a Upper Highland Glens
- 1b Mid Highland Glens
- 1c Lower Highland Glens
- 2a Upper Highland Glens with Lochs
- 2b Mid Highland Glens with Lochs
- 2c Lower Highland Glens with Lochs
- 3 Highland Summits and Plateaux
- 4 Plateau Moor
- 5 Highland Foothills
- 6 Lowland Hills
- 7 Lowland River Corridors
- 8 Igneous Hills
- 9 Dolerite Hills
- 10 Broad Valley Lowlands
- 11 Firth Lowlands
- 12 Low Moorland Hills
- 13 Dipslope Farmland
- 14a Coast with Sand
- 14b Coast with Cliffs
- 15 Lowland Basins

TAYSIDE REGION
LANDSCAPE CHARACTER ASSESSMENT

LANDSCAPE CLASSIFICATION

KEY:

- Tayside Region
- Regional Character Area Boundaries
- Landscape Type Boundaries

Scale: 0 5 10 15

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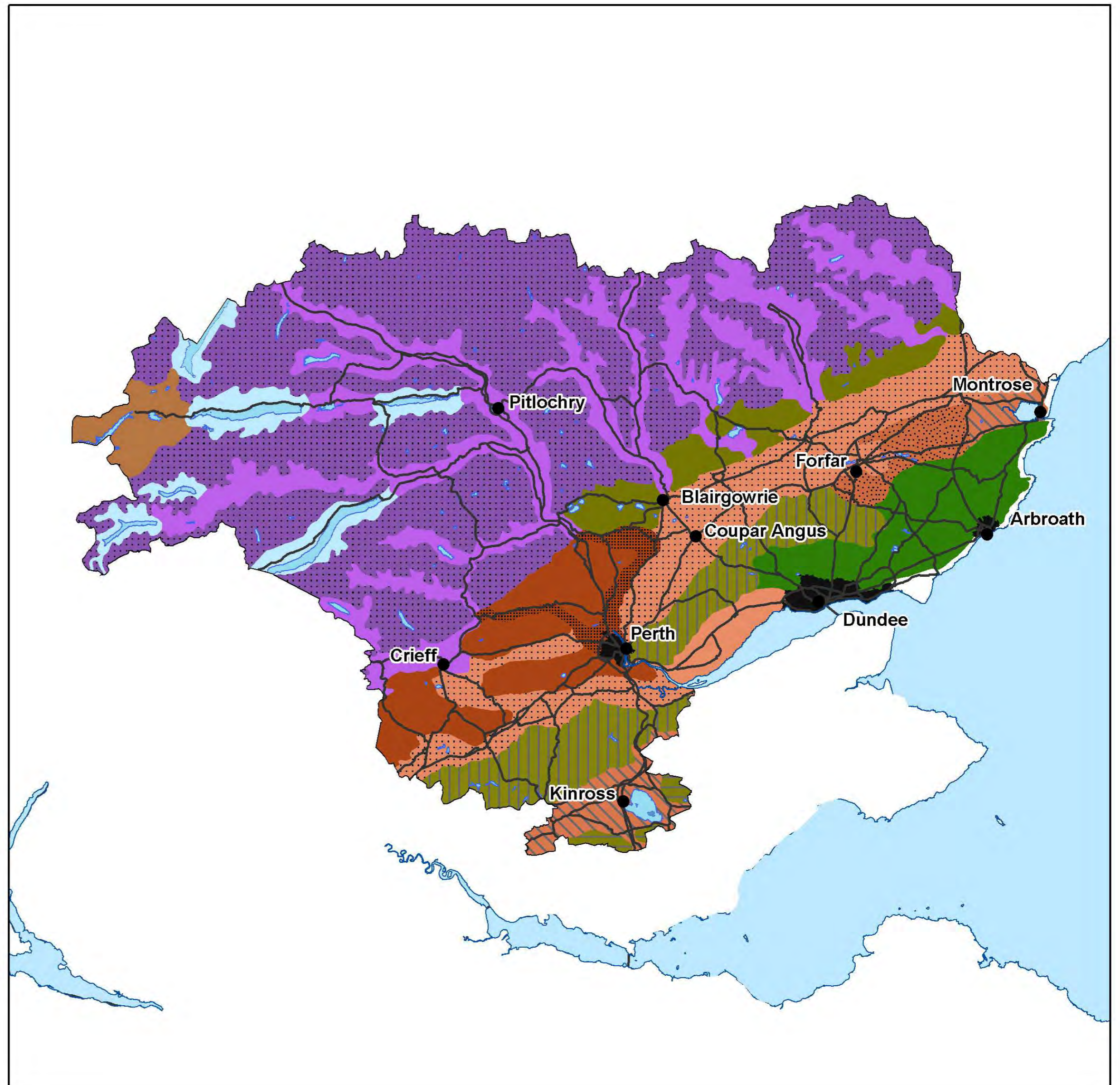
TAY - Landscape Character Assessment

-  Broad Valley Lowland
-  Dipslope Farmland
-  Dolerite Hills
-  Firth Lowlands
-  Highland Foothills
-  Highland Glens
-  Highland Glens with Lochs
-  Highland Summits and Plateaux
-  Igneous Hills
-  Inland Loch
-  Loch Island
-  Low Moorland Hills
-  Lowland Hills
-  Lowland Loch Basin
-  Lowland River Corridors
-  Plateau Moor:Rannoch Moor
-  Urban

1:800,000



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Angus Council

Application Number:	14/00669/FULL
Description of Development:	Erection of 2 wind turbines of 50 metres to hub height and 74 metres to blade tip, temporary anemometer mast and ancillary development
Site Address:	Land 600M West Of Witton Farm Lethnot Edzell
Grid Ref:	355492 : 770004
Applicant Name:	Mr Greg Yarr

Report of Handling**Site Description**

The application site is located approximately 5km to the north west of Edzell, on farmland 600m to the west of Witton Farm. The site is situated within agricultural land adjacent to the C34 classified roadway between Edzell and Bridgend. The site is located at a ground level of approximately 170-180 metres Above Ordnance Datum (AOD) some 220 metres to the north of the roadway.

Proposal

The application proposes the erection of two 800kW wind turbines with hub heights of 50 metres, a rotor diameter of 48 metres and an overall height of 74 metres to blade tip. The turbine is of three blade design. The associated development proposed provides for a temporary anemometer mast, an improved and extended access track and crane hardstandings at the base of the proposed turbines. Improvements to the access track include the provision of a widened bellmouth junction where it meets the C34.

The application has not been subject of variation.

Publicity

The application was subject to normal neighbour notification procedures.

The application was advertised in the Dundee Courier on 29 August 2014 for the following reasons:

- Schedule 3 Development

The nature of the proposal did not require a site notice to be posted.

Planning History

Application 13/00257/FULL for Erection of 2 wind turbines of 50 metres to hub height and 74 metres to blade tip, temporary anemometer mast and ancillary development was "Withdrawn" on 29 August 2013.

Applicant's Case

As part of the application an Environment and Planning Report (August 2014) was submitted which includes information relating to the wind turbine specification, photomontages of the proposed turbine and noise information. This document explains the proposal including the associated development proposed to facilitate the construction and operation of a wind turbine on the site. It provides a policy and guidance context for the consideration of a wind turbine proposal in this landscape character type. The document

concludes that noise for the proposed development is predicted to meet the relevant criteria at all wind speeds at all noise sensitive receptors. The landscape and visual assessment provided concludes that the proposed wind cluster would have a slight adverse landscape and visual impact on the overall study area, which is considered not significant.

The applicant has also submitted a response to the comments received from the Natural & Built Environment - Landscape Team. The response states that the siting and appearance of the proposed wind turbines have been chosen to minimise the impacts on amenity; there will be no unacceptable adverse landscape and visual impacts having regard to landscape character, setting within the immediate and wider landscape, and sensitive viewpoints; and there will be no unacceptable detrimental effect on residential amenity.

Consultations

Community Council - Inveresk Community Council object to the application noting concerns regarding visual impact on the surrounding area, breach of the guidelines contained in the Strategic Landscape Capacity Assessment for Wind Energy in Angus, turbines would be close to the main route taken to Glen Lethnot, would dominate and overwhelm the scale of the surrounding landscape, impact on the Brown and White Caterthuns, compliance with Scottish Government guidance, impact on wildlife, transport issues, little economic benefit and the area is relatively free from wind turbine development.

Angus Council - Roads - Has offered no objections to the proposal subject to conditions.

Scottish Water - There was no response from this consultee at the time of report preparation.

NERL Safeguarding - No objection.

Ministry Of Defence - There was no response from this consultee at the time of report preparation.

Dundee Airport Ltd - No objection.

Scottish Natural Heritage - No objection.

Angus Council Environmental Health - The Environmental Health Service has offered no objections to the proposal subject to conditions. However, it should be noted that Tillydovie Cottage will exceed the derived noise limits at 7m/s and a noise mitigation scheme is to be proposed.

Civil Aviation Authority - There was no response from this consultee at the time of report preparation.

RSPB Scotland - There was no response from this consultee at the time of report preparation.

Spectrum - No objection.

Atkins - No objection.

Joint Radio Co Ltd - No objection.

Aberdeenshire Council Archaeology Service - No objection.

Historic Scotland - Archaeology - No objection.

Wayleave Officer - There was no response from this consultee at the time of report preparation.

British Telecom - No objection.

Tayside Police Legal Services - There was no response from this consultee at the time of report

preparation.

MII Telecom Ltd - There was no response from this consultee at the time of report preparation.

Airwave Solutions Limited - There was no response from this consultee at the time of report preparation.

Arqiva Limited - No objection.

Vodafone Ltd - There was no response from this consultee at the time of report preparation.

Everything Everywhere - There was no response from this consultee at the time of report preparation.

Cable & Wireless Communications - There was no response from this consultee at the time of report preparation.

Representations

A representation has been received from the Inveresk Community Council and it is referenced under consultations above.

Development Plan Policies

Angus Local Plan Review 2009

Policy S1 : Development Boundaries
Policy S3 : Design Quality
Policy S6 : Development Principles (Schedule 1)
Policy ER4 : Wider Natural Heritage and Biodiversity
Policy ER5 : Conservation of Landscape Character
Policy ER11 : Noise Pollution
Policy ER16 : Development Affecting the Setting of a Listed Building
Policy ER18 : Archaeological Sites of National Importance
Policy ER19 : Archaeological Sites of Local Importance
Policy ER30 : Agricultural Land
Policy ER34 : Renewable Energy Developments
Policy ER35 : Wind Energy Developments

TAYplan Strategic Development plan

Policy 3D : Natural and Historic Assets
Policy 6C : Consider Criteria as Minimum

Proposed Angus Local Development Plan

Angus Council is progressing with preparation of a Local Development Plan to provide up to date Development Plan coverage for Angus. When adopted, the Angus Local Development Plan (ALDP) will replace the current adopted Angus Local Plan Review (ALPR). The Draft Proposed Angus Local Development Plan was considered by Angus Council at its meeting on 11 December with a view to it being approved and published as the Proposed ALDP for a statutory period for representations. The Draft Proposed ALDP sets out policies and proposals for the 2016-2026 period consistent with the strategic framework provided by the approved TAYplan SDP(June 2012) and Scottish Planning Policy (SPP) published in June 2014. The Proposed ALDP, as approved by Angus Council, will be subject to a 9 week period for representation commencing in February 2015. Any unresolved representations received during this statutory consultation period are likely to be considered at an Examination by an independent Reporter appointed by Scottish Ministers. The Council must accept the conclusions and

recommendations of the Reporter before proceeding to adopt the plan. Only in exceptional circumstances can the Council choose not to do this. The Proposed ALDP represents Angus Council's settled view in relation to the appropriate use of land within the Council area. As such, it will be a material consideration in the determination of planning applications. The Proposed ALDP is, however, at a stage in the statutory process of preparation where it may be subject to further modification. Limited weight can therefore currently be attached to its contents. This may change following the period of representation when the level and significance of any objection to policies and proposals of the plan will be known.

The full text of the relevant development plan policies can be viewed at Appendix 1 to this report.

Assessment

Sections 25 and 37(2) of the Town and Country Planning (Scotland) Act 1997 require that planning decisions be made in accordance with the development plan unless material considerations indicate otherwise.

In this case the development plan comprises: -

- o TAYplan (Approved 2012);
- o Angus Local Plan Review (Adopted 2009)

In addition to the Development Plan a number of matters will also be particularly relevant to the consideration of the application and these include: -

- o National Planning Framework for Scotland 3 (NPF3);
- o Scottish Planning Policy (SPP);
- o Scottish Government 'Specific Advice Sheet' on Onshore Wind Turbines;
- o Tayside Landscape Character Assessment;
- o Angus Council Implementation Guide for Renewable Energy Proposals (2012);
- o Strategic Landscape Capacity Assessment for Wind Energy in Angus (Ironsides Farrar - 2014);
- o Angus Wind farms Landscape Capacity and Cumulative Impacts Study (Ironsides Farrar, 2008);
- o Siting and Design of Small Scale Wind Turbines of Between 15 and 50 metres in height (SNH, March 2012);
- o Siting and Designing wind farms in the landscape (Version 2, SNH, May 2014)
- o Assessing The Cumulative Impact of Onshore Wind Energy Developments (SNH, March 2012)
- o Planning Advice Note 1/2011: Planning and Noise;

NPF3 states that the Government is committed to a Low Carbon Scotland and through the priorities identified in the spatial strategy set a clear direction to tackling climate change through national planning policy. Renewable energy technologies, including onshore wind, are identified as key aspects to realising this aim whilst recognising that a planned approach to development is required to find the correct balance between safeguarding assets which are irreplaceable while facilitating change in a sustainable way.

The Scottish Planning Policy (SPP, June 2014) represents a statement of government policy on land use planning. In relation to onshore wind, the SPP states that 'Planning authorities should set out in the development plan a spatial framework identifying areas that are likely to be most appropriate for onshore wind farms... The spatial framework is complemented by a more detailed and exacting development management process where the merits of an individual proposal will be carefully considered against the full range of environmental, community and cumulative impacts... proposals for onshore wind should continue to be determined while spatial frameworks are and local policies are being prepared and updated'. Proposals for energy infrastructure developments should always take account of spatial frameworks for wind farms and heat maps where these are relevant. Considerations will vary relative to the scale of the proposal and area characteristics but are likely to include:

- o net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities;

- o the scale of contribution to renewable energy generation targets;
- o effect on greenhouse gas emissions;
- o cumulative impacts - planning authorities should be clear about likely cumulative impacts arising from all of the considerations below, recognising that in some areas the cumulative impact of existing and consented energy development may limit the capacity for further development;
- o impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker;
- o landscape and visual impacts, including effects on wild land;
- o effects on the natural heritage, including birds;
- o impacts on carbon rich soils, using the carbon calculator;
- o public access, including impact on long distance walking and cycling routes and scenic routes identified in the NPF;
- o impacts on the historic environment, including scheduled monuments, listed buildings and their settings;
- o impacts on tourism and recreation;
- o impacts on aviation and defence interests and seismological recording;
- o impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;
- o impacts on road traffic;
- o impacts on adjacent trunk roads;
- o effects on hydrology, the water environment and flood risk;
- o the need for conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration;
- o opportunities for energy storage; and
- o the need for a robust planning obligation to ensure that operators achieve site restoration.

The Scottish Government's Planning Advice Notes relating to renewable energy have been replaced by Specific Advice Sheets (SAS). The 'Onshore Wind Turbines SAS' identifies typical planning considerations in determining planning applications for onshore wind turbines. The considerations identified in the SAS are similar to those identified by policies ER34 and ER35 of the ALPR and the SPP as detailed above.

Angus Council has produced an Implementation Guide for Renewable Energy Proposals. It provides guidance for development proposals ranging from small single turbines to major wind farms. It indicates that wind developments are the primary area of renewable energy proposals in Angus and the planning considerations are strongly influenced by the scale and location of the proposal including landscape and visual impact, potential adverse effects on designated natural and built heritage sites, protected species, residential amenity, soils, water bodies and access.

Scottish Natural Heritage in conjunction with Angus and Aberdeenshire Councils commissioned Ironside Farrar to review current landscape sensitivity and capacity guidance in relation to wind energy development. The Strategic Landscape Capacity Assessment for Wind Energy in Angus (March 2014) provides updated information on landscape capacity for wind energy development and the potential cumulative impact of proposals in the context of operational and consented developments.

Proposals for wind turbine developments and associated infrastructure are primarily assessed against policies ER34 and ER35 of the ALPR although other policies within the plan are also relevant. The policy position provides a presumption in favour of renewable energy developments recognising the contribution wind energy can make in generating renewable energy in Scotland. These policies also require consideration of impacts on ecology including birds; cultural heritage including listed buildings, scheduled monuments, designed landscapes and archaeology; aviation; amenity in the context of shadow flicker, noise and reflected light; landscape and visual impact including cumulative impacts; future site restoration; transmitting or receiving systems; any associated works including transmissions lines, road and traffic access/safety and the environmental impact of this. These policy tests overlap matters contained in other policies and are discussed on a topic by topic basis below.

Environmental and Economic Benefits

Policy 6 of TAYplan indicates that one of its aims for the city region is to deliver a low/zero carbon future and contribute to meeting Scottish Government energy and waste targets. The local plan indicates that Angus Council supports the principle of developing sources of renewable energy in appropriate locations. The SPP sets out a "commitment to increase the amount of electricity generated from renewable sources" and includes a target for the equivalent of 100% of Scotland's electricity demand to be generated from renewable sources by 2020 along with a target of 30% of overall energy demand from renewable sources by 2020. Paragraph 154 of the SPP indicates that planning authorities should help to reduce emissions and energy use in new buildings and from new infrastructure by enabling development at appropriate locations that contributes to electricity and heat from renewable sources.

In this instance the supporting information contained within the 'Environment and Planning Report (August 2014)' indicates the development of a wind turbine would allow the applicant to diversify the existing farm enterprise ensuring the long term stability of the farm for the immediate and extended family, staff and contractors employed throughout the year. The annual generation from the proposed turbines is estimated at approximately 4.0 gigawatt-hours (GWh) based on a capacity factor of 27.9 %. This would mean a reduction of 2,300 tonnes of carbon per annum which would contribute to Scottish Government and Local Authority climate change targets. In terms of economic benefits to the local area the supporting information notes that these are expected to be moderate/minor in Angus, which could benefit from £0.8 million and 7 job years. It is accepted that the proposed turbine could make a contribution towards renewable energy generation and as such the proposal attracts in-principle support from the local plan. I have had regard to that contribution in undertaking my assessment of the proposal.

Landscape Impacts

TAYplan Policy 3 seeks amongst other things to safeguard landscapes and to allow development where it does not adversely impact on or preferably enhances the asset. Local Plan Policy ER5 (Conservation of Landscape Character) requires development proposals to take account of the guidance provided by the Tayside Landscape Character Assessment (TLCA), prepared for Scottish Natural Heritage (SNH) in 1999, and indicates that, where appropriate, sites selected should be capable of absorbing the proposed development to ensure that it fits into the landscape. Policy ER34 of the Local Plan indicates that proposals for renewable energy development will be assessed on the basis of no unacceptable adverse landscape and visual impacts having regard to landscape character, setting within the immediate and wider landscape, and sensitive viewpoints.

The Tayside Landscape Character Assessment (TLCA) identifies that the application site lies within the "Highland Foothills Landscape Character Type" (LCT). This LCT marks the transition of the Mounth Highlands to the lowland of Strathmore. The complex geology of this area is said to lead to a landscape of steep whale-backed hills with intervening valleys, generally oriented on an east west axis. In this LCT, the hills in the east are most distinct and in the west between Dunkeld and Blairgowrie they are less well defined. The TLCA describes forces for change in this LCT. In respect of tall structures, the TLCA indicates that the Highland Foothills LCT is comparatively free from tall structures with the exception of the high voltage overhead electricity line which climbs in the foothills near Airlie before running north east through the hills. The TLCA acknowledges that development here could avoid the need to locate turbines in even more sensitive upland areas, or in less sensitive, but more populated areas closer to settlements. It would also mean that, from a distance, turbines would be viewed against a backdrop of higher ground. However, the insensitive development of wind turbines in this area would conflict with the small scale, historic and deeply rural character of the landscape. It would also weaken and confuse the area's role of providing a transition from the unsettled uplands to the fertile and settled lowland.

The Council's Renewable Energy Implementation Guide indicates that the Highland Foothills provide a dramatic transition between highland and lowland. Whilst the Foothills appear big next to Strathmore, they are relatively low lying hills. In order to avoid the risk of turbines adversely affecting perceived scale, it is considered that there is scope for turbines less than circa 80m tall located on lower ground only, where they do not adversely affect the setting of landscape features and monuments such as Airlie Monument

and the White & Brown Caterthuns.

The Strategic Landscape Capacity Assessment for Wind Energy in Angus (SLCWE) classifies the area within which the turbines are proposed as Tay 5 Highland Foothills (LCT). Within that individual Landscape Character Areas (LCA) are identified. The site is identified as being within the Edzell Hill LCA (Sub-Area). The SLCWE identifies that the Edzell foothills is the smallest of the LCA's identified within the Highland Foothills (LCT) and is only suitable for turbines below 50m due to their limited scale. As indicated in the LVIA submission, the site is close to both the Mid Highland Glens LCT and the Highland Summits and Plateaux LCT. In the vicinity of the site, the Highland Foothills LCT occupies a narrow strip between the other two LCTs around 500m wide. This part of the LCT has much of the same characteristics of the Mid Highland Glens LCT. It is the lower part of Glen Lethnot and is characterised as a glaciated valley enclosed by relatively low hills to both the north and south. Land-use tends to be pasture with rectilinear plantation woodland and more sinuous broadleaved woodland along the course of the West Water and its tributaries. Landscape scale is typically small close to the river becoming medium on the higher ground. Locally, views are corridor in character, being linear along the valley. The modest scale, together with corridor views limits the scope for larger turbines.

In this instance the proposed turbines would be 74 metres to blade tip and located at a ground level of between 170 -180 metres AOD. The SLCWE advises that the height of turbines should relate to the scale of the landscape with particular regard to the vertical scale of the hills. Larger turbines should be located away from the smaller scale hills and valleys to avoid diminishing the apparent scale of the slopes or breaking the skyline. It is considered that the size and position of the proposed turbines within the valley would diminish the apparent scale of the slopes which would result in the turbines becoming dominant gateway features at the lower end of Glen Lethnot. This would be a major effect on the landscape character of Glen Lethnot and its setting.

The White and Brown Caterthuns are important landscape features, both from the east and from Glen Lethnot. The dominant position of the hillforts in the landscape is important to their setting. The position of the turbines at around 100m lower elevation than the hillforts would help reduce the competition for status in the landscape. However, the size of the turbines with moving parts substantially lessens this benefit. There would be localised areas (lower Glen Lethnot) where the turbines would replace the Caterthuns as the dominant landscape features

Therefore, it is considered that the proposed turbines would relate poorly to the scale of the surrounding landscape and that significant adverse effects upon landscape character would occur. The turbines do not accord with the guidance for this area provided in the SLCWE or with the Council's Implementation Guide given their impact on the setting of the Caterthuns. The Council has refused permission for turbines of a similar height in other areas of this landscape character type (The Carrach) on the basis of adverse landscape impacts. The proposal would give rise to impacts that are not consistent with development plan policy.

Visual Impacts

Policy S6 of the Angus Local Plan Review requires that proposals should not give rise to unacceptable visual impacts. Policy ER34 of the Local Plan also indicates that renewable energy development will be assessed on the basis of no unacceptable adverse landscape and visual impacts having regard to landscape character, setting within the immediate and wider landscape, and sensitive viewpoints. In assessing visual impact I consider that it is appropriate to have regard to recent appeal decisions within Angus where this issue has been considered in order to secure a degree of consistency in the decision making process.

Planning appeal decisions have generally accepted that residents should be treated as of high sensitivity in assessing the significance of visual impact. The magnitude of change (and, thus, the significance of the impact they will experience) will vary with the context of the house that they occupy: its distance from the proposed wind farm and orientation in relation to it; the presence of intervening screening from vegetation and other buildings; and the presence of other significant visual features. However it is not only the views

from principal rooms that are of importance as residents also use the space around their house and the impact on occupiers and visitors approaching or leaving the properties must also be considered.

The proposal is supported by a ZTV which suggests that the relatively low ground site within the lower part of a glen substantially reduces visibility of development from the wider landscape. The LVIA describes how this limits views of the proposed turbines. From Strathmore and The Mearns the proposed development, where visible, would be viewed against a backdrop of hills. This would also be the case when viewed from higher ground. This helps lessen the visual effects of the development.

The LVIA assesses 13 viewpoints but there is a weakness in the assessment in that there are no viewpoints from lower ground closer to the proposed development (within 3km). This would have enabled a fuller assessment of the impact of the proposed turbines on the lower part of Glen Lethnot. However, having visited the site and reviewed all of the supporting information it is considered that the proposed turbines would be prominent and in some views the dominant feature in the lower part of Glen Lethnot. The dominance of the turbines in these views would be significant and accentuated by the corridor nature of views in this part of the Glen. Accordingly, whilst it is accepted that the relationship of the proposed turbines within the wider landscape helps reduce their visibility, the proposed turbines would nevertheless be highly prominent in views in the lower part of Glen Lethnot.

In terms of residential properties there are a number of properties located within 2km of the proposed turbines. Properties which are in relatively close proximity to the turbines (10 x turbine height) are Bogton at approximately 250m to the north-west, Oldtown Cottage at approximately 650 metres to the west, Larkhall at approximately 680 metres to the south-west, and to the south-east at Tillydovie the closest property is approximately 480 metres from the closest turbine. A house at Witton Farm which is in the ownership of the applicant is located at approximately 644 metres to the east of the closest turbine.

The closest property to the turbines is located at Bogton. This property is in the ownership of the applicant and the residential use of this property is considered to have been abandoned. This was confirmed by information submitted by the applicant and site visits undertaken in association with the application.

The property Oldtown Cottage is located approximately 650 metres to the west of the nearest turbine and consists of a single storey cottage. The windows and garden areas of the cottage are orientated at right angles to the proposed turbines. The cottage is located at between 240 - 230 AOD and the turbines at between 170-180 AOD to the east of the cottage. Although the cottage is orientated at a right angle to the proposed turbines, the house is located on higher ground and enjoys panoramic views towards the Caterthuns and down the glen towards the coast. The convex landform between the house and the proposed turbines would provide a level of screening, but it is anticipated that a large part of the turbines would be prominent in views down the glen. Given the close proximity together with the relationship with views down the glen, it is considered likely that this house would experience visual effects of major significance.

The property Larkhall is located approximately 680 metres to the south-west of the nearest turbine and consists of a two storey dwelling. The windows and garden areas of the cottage are orientated at right angles to the proposed turbines. The property is located at between 150-160 AOD and the turbines at between 170-180 AOD to the east of the cottage. The main views from the property are obtained towards the south-east, but the proposed turbines would be visible on higher ground from the garden areas of the house above low hedges surrounding bounding the property. Although the property is not orientated directly towards the turbines, the turbine height compared to distance from the property ratio would be such that the visual impacts on this property would be classed as moderate to major in significance.

The properties at Tillydovie lie to the south-east of the proposed turbines at between 130-140 AOD and consist of Tillydovie Cottage, Tillydovie Farmhouse and Tillydovie (new house). Tillydovie Farmhouse is located to the south of the farm complex and the farmhouse and its amenity space is unlikely to gain a direct view of the proposed turbines. Tillydovie Cottage is located approximately 480 metres to the nearest turbine and the main face of the dwelling faces away from the turbines. However, the turbines would be prominent in views from rear windows, rear garden and the parking area associated with the

property. Tillydovie (new house) is located approximately 580 metres to the nearest turbine and is designed to enjoy views in a number of directions including towards the turbines. The turbines would be on higher ground than both of these houses and when combined with their close proximity, would lead to visual impacts on both houses of major significance.

The Caterthuns are a popular visitor attraction in the area. The summits of both provide panoramic views in all directions and as popular viewpoints would be regarded as having a high degree of sensitivity. The turbines would be highly prominent in views from the summits and the visual impact would be significant.

Local plan policy requires proposals to demonstrate that the siting and appearance of the apparatus has been chosen to minimise the impact on amenity, and that there would be no unacceptable adverse visual impacts. For views from within the lower part of Glen Lethnot the proposed turbines would be highly prominent. In addition a number of residents in the vicinity would be exposed to moderate to significant views of the turbines. Visual impact from the popular viewpoints at the Caterthuns would be significant. In this case it is considered that the proposal would give rise to significant visual impacts contrary to development plan policy.

Cumulative Landscape and Visual Impacts

An assessment of cumulative landscape and visual effects is also required by local and national policy. SNH Guidance on 'Assessing The Cumulative Impact of Onshore Wind Energy Developments' (March 2012) indicates that cumulative landscape effects can include effects on the physical aspects of the landscape and effects on landscape character. Cumulative visual effects can be caused by combined visibility and/or sequential effects. Combined visibility may be in combination i.e. where several wind farms are in the observers arc of vision or in succession where the observer has to turn to see various wind farms. Sequential effects occur when the observer has to move to another viewpoint to see different developments.

The Renewable Energy Implementation Guide (2012) provides interpretation of the level of turbine development that a LCT is capable of absorbing in cumulative terms. As an acceptable level of change of landscape character the future Wind Energy Landscape Type for this area has been defined as a 'Landscape with Occasional Windfarms'. This is refined and updated by the Strategic Capacity Study for Wind Energy in Angus (2014) which indicates that the Edzell Foothills LCA of the Highland Foothills is considered to have a low landscape capacity for medium turbines (30 - <50m) and no landscape capacity for medium/large turbines (50 - <80m). The LCA is considered to have a low remaining landscape capacity for medium turbines (30 - <50m) and no remaining landscape capacity for medium/large turbines (50 - <80m).

At present there is little significant wind energy development in the area. The proposed two 74m turbines would be around 2.9km from the northern edge of the Brown Caterthun. This would be slightly closer than the 3.05km distance of the two 45m turbines approved at Balrownie, to the south-east of the Brown Caterthun ramparts. Other approved turbines would be slightly further away. This proposal would increase the occurrence of turbines within views from the ramparts of both Caterthuns. The most significant factor is the increase in the proportion of the ramparts which would have views of turbines. However, the cumulative landscape and visual impacts arising from the proposed scheme in combination with any approved or operational turbines would not be unacceptable.

Amenity (Noise/Shadow Flicker/Reflected Light):

Criterion (a) of Policy ER34 requires the siting and appearance of renewable energy apparatus to be chosen to minimise its impact on amenity, while respecting operational efficiency. Policy ER35(c) indicates wind energy developments must have no unacceptable detrimental effect on residential amenity, existing land uses or road safety by reason of shadow flicker, noise or reflected light. Policy S6 Schedule 1 also refers to amenity impacts whilst Policy ER11 deals specifically with noise pollution.

The Environmental Health and Roads Services have raised no concerns regarding such impacts. On this

basis I do not consider that there are any unacceptable amenity impacts from noise, shadow flicker, light, surrounding land uses or road safety that cannot be satisfactorily addressed by conditions.

As indicated above the proposal would give rise to significant visual impacts for occupants of a number of residential properties.

Cultural Heritage

The development plan provides a number of policies that seek to safeguard cultural heritage. Policy 3 of TAYplan seeks to safeguard archaeology, historic buildings and monuments and to allow development where it does not adversely impact upon or preferably enhances these assets. Relevant policies of the Angus Local Plan Review include ER16, ER18 and ER19. Policy ER34 requires proposals for renewable energy development to have no unacceptable detrimental effect on any sites designated for natural heritage, scientific, historic or archaeological reasons.

In relation to Scheduled Ancient Monuments, Edzell Castle is located approximately 3km to the east of the proposed turbines and the White and Brown Caterthuns which are located approximately 2.9km to the south of the site. Historic Scotland has considered the proposal in so far as it relates to potential impact on these nationally important designations and has offered no objections in respect of impacts on the Monuments or on other interests within its remit. Historic Scotland has not objected to the application on the basis that likely impacts are not considered to be of national significance. However, it has acknowledged that the proposed turbines would adversely impact on the setting of these sites. As discussed in relation to landscape and visual impact matters above the Hillforts are of significant interest in the area and I do not consider that it is appropriate to support development that adversely impacts their setting, even where such impact may not be of national significance.

There are listed buildings in the wider area surrounding the application site. However, having regard to the nature of those buildings and their setting, it is not considered that the proposal would have any significant impact on the listed buildings or their setting.

Aberdeenshire Council's Archaeological Service has not objected to the application and advises that no archaeological mitigation is required in this instance.

The proposal will have an adverse impact on the setting of the Caterthun Hillforts. Whilst Historic Scotland has indicated that such adverse impact is not to such an extent that issues of national significance are involved, development that adversely affects such assets is not supported by development plan policy. The Hillforts are of significant local interest and importance, and development that adversely impacts on their setting is not supported by development plan policy.

Impact on Natural Heritage

The Development Plan contains a number of policies that seek to protect important species and sites designated for their natural heritage interest and to ensure that proposals that may affect them are properly assessed. It also indicates that the Local Biodiversity Action Plans will constitute material considerations in determining development proposals. Policy ER35 specifically requires that proposals should demonstrate that there is no unacceptable interference to birds.

The 'Onshore Wind Turbines SAS' indicates wind turbine developments have the capacity to have both positive and negative effects on the wildlife, habitats, ecosystems and biodiversity of an area. There is also the potential for negative environmental effects, with possible loss of or damage to valuable habitat resulting from construction of turbine bases, access tracks or other works. Such impacts can be significant particularly if they relate to habitats that are difficult to replicate. There is also the potential of collision risk, displacement or disturbance by forcing birds or bats to alter flight paths. Wind farms should not adversely affect the integrity of designated sites protected under EU and UK legislation (Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Sites of Special Scientific Interest

(SSSIs)) or wider conservation interests. Planning guidance produced by Scottish Natural Heritage (SNH) indicates that experience suggests that many bird species and their habitats are unaffected by wind turbine developments and the impact of an appropriately designed and located wind farm on the local bird life should, in many cases, be minimal.

SNH and RSPB have both been consulted and neither has raised any concerns. Equally no other relevant consultees have raised any concern regarding the location of the turbines relative to any known populations of sensitive flora or fauna. Accordingly, on the basis of available environmental information, consultation responses and site visits I do not anticipate that the proposed development would give rise to unacceptable impacts on natural heritage interests.

Remaining Issues / Other Development Plan Considerations

The remaining policy tests cover the impact of transmission lines associated with energy generation developments; impacts on transmitting or receiving systems; impact of transporting equipment via road network and associated environmental impacts; impact on authorised aircraft activity; and arrangements for site restoration.

The supporting statement indicates that power will be transmitted along underground cabling connecting the turbine. I consider that a buried cable at this location would be unlikely to result in significant environmental impacts.

With regards to impacts on TV and other broadcast reception it is recognised that wind turbine development can give rise to interference. However it is generally accepted that digital signals are more robust to such disruption than the previous analogue system. In this case technical consultees have not raised any concern.

In terms of transport to the proposed site, the existing road networks will be used to deliver the sections of the turbine, with no improvements or upgrading of the road network required. The Roads Service has raised no objections to the proposals. In this regard, I am satisfied that road safety and the associated environmental implications of transporting the turbine to the site would not render the proposal unacceptable.

In relation to the impact of the development on aircraft activity the MOD, NATS, CAA and Dundee Airport have been consulted and have not raised any objection to the application and no significant impact on aircraft activity is anticipated. The MOD has requested that details of the construction be submitted to them in order that the turbine can be accurately mapped.

The supporting information indicates that the design lifetime proposed for the turbines would be 25 years. A planning condition could secure removal of the apparatus and restoration of the site after this period had the application been approved.

Scottish Government policy supports the provision of renewable energy development including wind farms. The SPP confirms that planning authorities should support the development of wind farms in locations where the technology can operate efficiently and environmental and cumulative impacts can be satisfactorily addressed. The SPP also indicates that planning authorities should respond to the diverse needs and locational requirements of different sectors and sizes of businesses and take a flexible approach to ensure that changing circumstances can be accommodated and new economic opportunities realised.

In this case I accept that the wind turbine would contribute to meeting government targets and in this regard attracts some support from national policy and from the development plan. However, as discussed above I consider that this proposal would result in significant adverse landscape and visual impacts and would have adverse impacts on the setting of the Caterthun Hillforts. Whilst wind turbines are necessary to meet government energy targets and I accept that this is a location where the technology could operate, I do not consider that the landscape and visual impacts can be satisfactorily addressed in respect of turbines of this scale at this location. Accordingly I do not consider that the proposal receives

unqualified support from the SPP.

I recognise the benefit of producing electricity by renewable means, but I do not consider that there is anything in government policy that suggests this should be at the expense of landscape and visual impact considerations. In the particular circumstances of this case, I do not consider that the environmental or economic benefit of the production of renewable energy outweighs the very direct harm that this proposal would cause to the landscape and visual amenity of the area as well as to the setting of a Scheduled Ancient Monument.

Regard has been given to the environmental information provided in relation to the application and comments received from consultees. Account has also been taken of all relevant representations made. As discussed above, it is concluded that although the proposed wind turbines would comply with some relevant policies and criteria in the development plan, this must be balanced against the significant and adverse impacts identified in respect of the landscape and visual amenity of the area and to the setting of the Caterthun Hillforts. These impacts are considered to be unacceptable, and in this respect the proposal is considered to be contrary to the objectives of development plan policy. It is accepted that the development would contribute towards the meeting Government energy targets, however, Government guidance confirms that schemes should only be supported where technology can operate efficiently and where environmental and cumulative impacts can be satisfactorily addressed. In this case it is accepted that whilst the technology would operate efficiently the environmental impacts identified herein would not be satisfactorily addressed. Accordingly the proposed development is contrary to development plan policy. There are no material considerations that justify approval of the application contrary to the provisions of the development plan.

Human Rights Implications

The decision to refuse this application has potential implications for the applicant in terms of his entitlement to peaceful enjoyment of his possessions (First Protocol, Article 1). For the reasons referred to elsewhere in this report justifying the decision in planning terms, it is considered that any actual or apprehended infringement of such Convention Rights, is justified. Any interference with the applicant's right to peaceful enjoyment of his possessions by refusal of the present application is in compliance with the Council's legal duties to determine this planning application under the Planning Acts and such refusal constitutes a justified and proportionate control of the use of property in accordance with the general interest and is necessary in the public interest with reference to the Development Plan and other material planning considerations as referred to in the report.

Equalities Implications

The issues contained in this report fall within an approved category that has been confirmed as exempt from an equalities perspective.

Decision

The application is Refused

Reason(s) for Decision:

1. That the proposed turbines by virtue of their height and location would result in unacceptable landscape and visual impacts and accordingly the siting and appearance of the turbine has not been chosen to minimise impact on amenity. As such the proposal is contrary to Policy 3 of TAYplan and policies ER5, ER34 and S6 of the Angus Local Plan Review 2009.
2. That the proposed turbines by virtue of their height and proximity to the Caterthun Hillforts would have an adverse and unacceptable impact on the setting of a Scheduled Ancient Monument. As such, the proposal is contrary to Policy 3 of TAYplan and Policies ER18 and ER34 of the Angus Local Plan Review 2009.

Notes:

Case Officer: Damian Brennan
Date: 27 January 2015

Development Plan Policies**Angus Local Plan Review 2009**

Policy S1 : Development Boundaries

(a) Within development boundaries proposals for new development on sites not allocated on Proposals Maps will generally be supported where they are in accordance with the relevant policies of the Local Plan.

(b) Development proposals on sites outwith development boundaries (i.e. in the countryside) will generally be supported where they are of a scale and nature appropriate to the location and where they are in accordance with the relevant policies of the Local Plan.

(c) Development proposals on sites contiguous with a development boundary will only be acceptable where there is a proven public interest and social, economic or environmental considerations confirm there is an overriding need for the development which cannot be met within the development boundary.

Policy S3 : Design Quality

A high quality of design is encouraged in all development proposals. In considering proposals the following factors will be taken into account:-

- * site location and how the development fits with the local landscape character and pattern of development;
- * proposed site layout and the scale, massing, height, proportions and density of the development including consideration of the relationship with the existing character of the surrounding area and neighbouring buildings;
- * use of materials, textures and colours that are sensitive to the surrounding area; and
- * the incorporation of key views into and out of the development.

Innovative and experimental designs will be encouraged in appropriate locations.

Policy S6 : Development Principles (Schedule 1)

Proposals for development should where appropriate have regard to the relevant principles set out in Schedule 1 which includes reference to amenity considerations; roads and parking; landscaping, open space and biodiversity; drainage and flood risk, and supporting information.

Schedule 1 : Development Principles

Amenity

(a) The amenity of proposed and existing properties should not be affected by unreasonable restriction of sunlight, daylight or privacy; by smells or fumes; noise levels and vibration; emissions including smoke, soot, ash, dust, grit, or any other environmental pollution; or disturbance by vehicular or pedestrian traffic.

(b) Proposals should not result in unacceptable visual impact.

(c) Proposals close to working farms should not interfere with farming operations, and will be expected to accept the nature of the existing local environment. New houses should not be sited within 400m of an existing or proposed intensive livestock building. (Policy ER31).

Roads/Parking/Access

- (d) Access arrangements, road layouts and parking should be in accordance with Angus Council's Roads Standards, and use innovative solutions where possible, including 'Home Zones'. Provision for cycle parking/storage for flatted development will also be required.
- (e) Access to housing in rural areas should not go through a farm court.
- (f) Where access is proposed by unmade/private track it will be required to be made-up to standards set out in Angus Council Advice Note 17 : Miscellaneous Planning Policies. If the track exceeds 200m in length, conditions may be imposed regarding widening or the provision of passing places where necessary.
- (g) Development should not result in the loss of public access rights. (Policy SC36)

Landscaping / Open Space / Biodiversity

- (h) Development proposals should have regard to the Landscape Character of the local area as set out in the Tayside Landscape Character Assessment (SNH 1998). (Policy ER5)
- (i) Appropriate landscaping and boundary treatment should be an integral element in the design and layout of proposals and should include the retention and enhancement of existing physical features (e.g. hedgerows, walls, trees etc) and link to the existing green space network of the local area.
- (j) Development should maintain or enhance habitats of importance set out in the Tayside Local Biodiversity Action Plan and should not involve loss of trees or other important landscape features or valuable habitats and species.
- (k) The planting of native hedgerows and tree species is encouraged.
- (l) Open space provision in developments and the maintenance of it should be in accordance with Policy SC33.

Drainage and Flood Risk

- (m) Development sites located within areas served by public sewerage systems should be connected to that system. (Policy ER22)
- (n) Surface water will not be permitted to drain to the public sewer. An appropriate system of disposal will be necessary which meets the requirements of the Scottish Environment Protection Agency (SEPA) and Angus Council and should have regard to good practice advice set out in the Sustainable Urban Drainage Systems Design Manual for Scotland and Northern Ireland 2000.
- (o) Proposals will be required to consider the potential flood risk at the location. (Policy ER28)
- (p) Outwith areas served by public sewerage systems, where a septic tank, bio-disc or similar system is proposed to treat foul effluent and /or drainage is to a controlled water or soakaway, the consent of SEPA and Angus Council will be required. (Policy ER23).
- (q) Proposals should incorporate appropriate waste recycling, segregation and collection facilities (Policy ER38)
- (r) Development should minimise waste by design and during construction.

Supporting Information

- (s) Where appropriate, planning applications should be accompanied by the necessary supporting information. Early discussion with Planning and Transport is advised to determine the level of supporting information which will be required and depending on the proposal this might include any of the following: Air Quality Assessment; Archaeological Assessment; Contaminated Land Assessment; Design Statement; Drainage Impact Assessment; Environmental Statement; Flood Risk Assessment; Landscape Assessment and/or Landscaping Scheme; Noise Impact Assessment; Retail Impact Assessment; Transport Assessment.

Policy ER4 : Wider Natural Heritage and Biodiversity

The Council will not normally grant planning permission for development that would have a significant adverse impact on species or habitats protected under British or European Law, identified as a priority in UK or Local Biodiversity Action Plans or on other valuable habitats or species.

Development proposals that affect such species or habitats will be required to include evidence that an assessment of nature conservation interest has been taken into account. Where development is

permitted, the retention and enhancement of natural heritage and biodiversity will be secured through appropriate planning conditions or the use of Section 75 Agreements as necessary.

Policy ER5 : Conservation of Landscape Character

Development proposals should take account of the guidance provided by the Tayside Landscape Character Assessment and where appropriate will be considered against the following criteria:

- (a) sites selected should be capable of absorbing the proposed development to ensure that it fits into the landscape;
- (b) where required, landscape mitigation measures should be in character with, or enhance, the existing landscape setting;
- (c) new buildings/structures should respect the pattern, scale, siting, form, design, colour and density of existing development;
- (d) priority should be given to locating new development in towns, villages or building groups in preference to isolated development.

Policy ER11 : Noise Pollution

Development which adversely affects health, the natural or built environment or general amenity as a result of an unacceptable increase in noise levels will not be permitted unless there is an overriding need which cannot be accommodated elsewhere.

Proposals for development generating unacceptable noise levels will not generally be permitted adjacent to existing or proposed noise-sensitive land uses. Proposals for new noise-sensitive development which would be subject to unacceptable levels of noise from an existing noise source or from a proposed use will not be permitted.

Policy ER16 : Development Affecting the Setting of a Listed Building

Development proposals will only be permitted where they do not adversely affect the setting of a listed building. New development should avoid building in front of important elevations, felling mature trees and breaching boundary walls.

Policy ER18 : Archaeological Sites of National Importance

Priority will be given to preserving Scheduled Ancient Monuments in situ. Developments affecting Scheduled Ancient Monuments and other nationally significant archaeological sites and historic landscapes and their settings will only be permitted where it can be adequately demonstrated that either:

- (a) the proposed development will not result in damage to the scheduled monument or site of national archaeological interest or the integrity of its setting; or
- (b) there is overriding and proven public interest to be gained from the proposed development that outweighs the national significance attached to the preservation of the monument or archaeological importance of the site. In the case of Scheduled Ancient Monuments, the development must be in the national interest in order to outweigh the national importance attached to their preservation; and
- (c) the need for the development cannot reasonably be met in other less archaeologically damaging locations or by reasonable alternative means; and
- (d) the proposal has been sited and designed to minimise damage to the archaeological remains.

Where development is considered acceptable and preservation of the site in its original location is not possible, the excavation and recording of the site will be required in advance of development, at the developer's expense

Policy ER19 : Archaeological Sites of Local Importance

Where development proposals affect unscheduled sites of known or suspected archaeological interest, Angus Council will require the prospective developer to arrange for an archaeological evaluation to determine the importance of the site, its sensitivity to development and the most appropriate means for preserving or recording any archaeological information. The evaluation will be taken into account when determining whether planning permission should be granted with or without conditions or refused.

Where development is generally acceptable and preservation of archaeological features in situ is not feasible Angus Council will require through appropriate conditions attached to planning consents or through a Section 75 Agreement, that provision is made at the developer's expense for the excavation and recording of threatened features prior to development commencing.

Policy ER30 : Agricultural Land

Proposals for development that would result in the permanent loss of prime quality agricultural land and/or have a detrimental effect on the viability of farming units will only normally be permitted where the land is allocated by this Local Plan or considered essential for implementation of the Local Plan strategy.

Policy ER34 : Renewable Energy Developments

Proposals for all forms of renewable energy developments will be supported in principle and will be assessed against the following criteria:

- (a) the siting and appearance of apparatus have been chosen to minimise the impact on amenity, while respecting operational efficiency;
- (b) there will be no unacceptable adverse landscape and visual impacts having regard to landscape character, setting within the immediate and wider landscape, and sensitive viewpoints;
- (c) the development will have no unacceptable detrimental effect on any sites designated for natural heritage, scientific, historic or archaeological reasons;
- (d) no unacceptable environmental effects of transmission lines, within and beyond the site; and
- (e) access for construction and maintenance traffic can be achieved without compromising road safety or causing unacceptable permanent change to the environment and landscape, and
- (f) that there will be no unacceptable impacts on the quantity or quality of groundwater or surface water resources during construction, operation and decommissioning of the energy plant.

Policy ER35 : Wind Energy Developments

Wind energy developments must meet the requirements of Policy ER34 and also demonstrate:

- (a) the reasons for site selection;
- (b) that no wind turbines will cause unacceptable interference to birds, especially those that have statutory protection and are susceptible to disturbance, displacement or collision;
- (c) there is no unacceptable detrimental effect on residential amenity, existing land uses or road safety by reason of shadow flicker, noise or reflected light;
- (d) that no wind turbines will interfere with authorised aircraft activity;
- (e) that no electromagnetic disturbance is likely to be caused by the proposal to any existing transmitting or receiving system, or (where such disturbances may be caused) that measures will be taken to minimise or remedy any such interference;
- (f) that the proposal must be capable of co-existing with other existing or permitted wind energy developments in terms of cumulative impact particularly on visual amenity and landscape, including impacts from development in neighbouring local authority areas;
- (g) a realistic means of achieving the removal of any apparatus when redundant and the restoration of the site are proposed.

TAYplan Strategic Development plan

Policy 3D : Natural and Historic Assets

Understanding and respecting the regional distinctiveness and scenic value of the TAYplan area through:-

- ensuring development likely to have a significant effect on a designated or proposed Natura 2000 sites (either alone or in combination with other sites or projects), will be subject to an appropriate assessment. Appropriate mitigation requires to be identified where necessary to ensure there will be no adverse effect on the integrity of Natura 2000 sites in accordance with Scottish Planning Policy;

- safeguarding habitats, sensitive green spaces, forestry, watercourses, wetlands, floodplains (in-line with the water framework directive), carbon sinks, species and wildlife corridors, geo-diversity, landscapes, parks, townscapes, archaeology, historic buildings and monuments and allow development where it does not adversely impact upon or preferably enhances these assets; and,
- identifying and safeguarding parts of the undeveloped coastline along the River Tay Estuary and in Angus and North Fife, that are unsuitable for development and set out policies for their management; identifying areas at risk from flooding and sea level rise and develop policies to manage retreat and realignment, as appropriate.

Policy 6C : Consider Criteria as Minimum

Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been justified, at a minimum, on the basis of these considerations:-

- The specific land take requirements associated with the infrastructure technology and associated statutory safety exclusion zones where appropriate;
- Waste/resource management proposals are justified against the Scottish Government's Zero Waste Plan and support the delivery of the waste/resource management hierarchy;
- Proximity of resources (e.g. woodland, wind or waste material); and to users/customers, grid connections and distribution networks for the heat, power or physical materials and waste products, where appropriate;
- Anticipated effects of construction and operation on air quality, emissions, noise, odour, surface and ground water pollution, drainage, waste disposal, radar installations and flight paths, and, of nuisance impacts on of-site properties;
- Sensitivity of landscapes (informed by landscape character assessments and other work), the water environment, biodiversity, geo-diversity, habitats, tourism, recreational access and listed/scheduled buildings and structures;
- Impacts of associated new grid connections and distribution or access infrastructure;
- Cumulative impacts of the scale and massing of multiple developments, including existing infrastructure;
- Impacts upon neighbouring planning authorities (both within and outwith TAYplan); and,
- Consistency with the National Planning Framework and its Action Programme.



Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad



Strategic Landscape Capacity Assessment for Wind Energy in Angus



Final Report

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March 2014
7933

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EXECUTIVE SUMMARY

OBJECTIVES AND METHOD

This study has considered the capacity of the Angus landscape to accommodate onshore wind energy development. The landscape capacity assessment is based on an assessment of landscape sensitivity and value of the different landscape character types and areas in Angus together with the evolving wind energy development scenario in Angus and a surrounding 30km buffer area. This has involved a staged process:

- Firstly assessing the underlying capacity of the Angus landscape to accommodate wind turbine development;
- Secondly, assessing the degree of cumulative change resulting from operating and consented wind turbines in the study area and in Angus;
- Thirdly, assessing the extent to which cumulative consented development has reached the limit of the landscape's capacity to acceptably accommodate wind energy developments.
- Finally, assessing residual capacity and the level of further development that could acceptably be accommodated within areas of Angus.

The study is based on the premise that, given current renewable energy targets, it is accepted there will be a degree of landscape change and effects on visual amenity resulting from wind energy development that will require careful management. In applying the assessment process, the study has addressed a number of concepts and issues that affect the perceived significance and acceptability of cumulative changes caused by multiple wind energy developments in the landscape.

STRUCTURE OF THE REPORT

The main report is divided into 6 chapters describing the assessment process, findings and conclusions. There are a number of appendices containing detailed information relevant to the assessment.

Chapter 1 Introduction describes the background to the project

Chapter 2 Method describes the basis of the assessment of cumulative effects and landscape capacity. It describes the key criteria used in assessing landscape sensitivity and value and in determining the degree of cumulative impacts on the landscape. The method is a staged, transparent process, balanced between objective assessment and informed professional judgement. Chapter 2 navigates the reader through the rest of the assessment process, outlining the purpose of each chapter and the relevant tables and figures

Chapter 3 Landscape Baseline describes the physiography, landscape character and landscape designations of the study area. It focuses on Angus, with a 30km buffer zone that includes significant parts of Perth & Kinross; Aberdeenshire and the Cairngorms National Park.

Chapter 4 Visual Baseline describes the visual sensitivity assessment. This involves a computer generated intervisibility assessment across the study area, focussing on visibility of the Angus landscape to settlements, transport routes and key viewpoints.

Chapter 5 Wind Turbines in the Study Area describes the distribution of consented and proposed wind energy developments, from single turbines to windfarms, across Angus and the wider study area.

Chapter 6 Assessment is a detailed capacity and cumulative impact assessment. It assesses the underlying capacity of the landscape for wind energy development; the extent to which current development has utilised the underlying capacity and the remaining or residual capacity for wind energy development. The assessment process for each of the landscape character types in Angus is detailed in **Table 6.1**. Chapter 6 also gives detailed guidance on the appropriate size and siting of wind turbines and windfarms in the landscape character areas. The analysis of capacity and cumulative development across Angus is shown spatially on maps in **Figures 6.1 to 6.3**.

The study concludes with a summary map, **Figure 6.4**, indicating areas with underlying capacity for wind energy development and overlapping areas in which cumulative impact limits development (i.e. where consented development limits the potential for future development due to occupying the underlying capacity). The summary figure is also shown as **Figure A** following this executive summary.

SUMMARY OF FINDINGS

The Angus Landscape

The landscape of Angus is characterised by a transition from coastal landscapes in the southeast progressing northwest to agricultural lowland and lowland hills, thence to highland landscapes in the northwest that grade into the Cairngorms National Park. The bulk of the population lives in small towns and villages in the lowland and coastal areas, through which the main transport routes pass.

The transition between highland and lowland is particularly dramatically presented in Angus, in the form of the Highland Boundary Fault separating the broad valley of Strathmore from the Grampian Mountains. This is a key factor in affecting the capacity of the Angus landscape to accommodate wind turbines.

Assessment of Underlying Capacity

The assessment has determined that there are no areas of Angus with an underlying capacity for extensive windfarms with large scale turbines. In contrast with much of Scotland there is no capacity for wind turbines in the highest upland areas, due to the high visual sensitivity and landscape value of these areas within Angus. Larger scale lowland farming, forestry and hill areas have the greatest underlying capacity for wind turbine development. Some smaller scale lowland areas, highland foothills and the coast have more limited capacity.

Some areas such as the Sidlaw Hills and parts of the Low Moorland Hills, Strathmore and the Dipslope Farmland have capacity for small groups of larger turbines up to 80m

height. However, most areas have more limited capacity, for occasional groupings of turbines up to 50m height. There are limits on cumulative development in all areas if significantly adverse levels of landscape change are to be avoided

Consented Wind Energy Developments at May 2013

Operational and consented wind turbines in Angus comprise a total of 116 turbines over 15m high. The vast majority are turbines less than 50m tall, grouped singly or in small clusters in lowland and highland foothill areas. One windfarm of eight 81m turbines is located at Ark Hill in the Sidlaw Hills. The main concentrations of wind turbines are in the southwest and northeast of the lowland areas. There are very few turbines in the mountains and glens of northern Angus or in the coastal areas.

In the 30km area surrounding Angus; including Perth & Kinross, Aberdeenshire, Dundee City and Fife, there are over 400 consented turbines and several significantly sized windfarms, including one close to Angus at Drumderg in Perthshire. There are no turbines over 15m in the Cairngorms National Park to the north. There are no consented offshore windfarms.

Past Planning Decisions

A number of applications for windfarms in Angus have been refused or dismissed at appeal. All the applications have been for large turbines, between 84m and 132m in height and two to eleven turbines located in highland, lowland and coastal landscapes. The reasons for refusal vary, but all the decisions include landscape and visual impacts relating to the large size of turbines as a factor.

Wind Energy Proposals at May 2013

Current applications for a total of 51 wind turbines include two windfarms in the eastern Sidlaw Hills and one s36 application for 17 135m turbines at Nathro in the Highland Summits and Plateaux. In the 30km area beyond Angus there are applications for 112 turbines. This includes a windfarm proposal in Perthshire directly adjacent to highland Angus and several wind turbines in Aberdeenshire, northeast of Strathmore. There are three offshore proposals south and east of Angus at scoping stage: Inchcape at closest 15km; Neart na Goaithe at 30km and Firth of Forth & Tay Alpha and Bravo arrays at 27km and 38km.

CAPACITY FOR FURTHER WIND ENERGY DEVELOPMENT

This assessment has demonstrated that the landscape of Angus has the underlying capacity to accommodate wind energy development of an appropriate type and extent. Appropriate development relates to the varied characteristics of the landscape; the visual sensitivities of the population spread across lowland Angus and the higher value or sensitive context of some areas of landscape. The particular characteristics of Angus means there is no scope for the larger scale of windfarm development seen elsewhere in Scotland.

The main underlying capacity for development lies within some of the larger scale more extensive lowland areas which can accommodate larger turbine sizes, but not the

largest sizes and not in large groupings. Other areas have a more limited underlying capacity, which would not be appropriate for larger turbine sizes, and some areas have very limited or no capacity for wind energy development.

At current levels of development there is residual capacity in Angus for further appropriate wind energy development in most areas that have underlying capacity. Future development in each landscape type or area should follow the guidance given in Chapter 6. The aim of the guidance is to ensure that the acceptable capacity for development in terms of turbine sizes, group sizes and spacing between turbines and groups is not exceeded, and that other issues guiding or limiting development are taken into account.

The main opportunities and limitations on capacity are discussed below and the areas concerned illustrated in schematic form in **Figure A** at the end of this summary.

Areas with Highest Underlying Capacity

Figure A identifies in dark green four areas which have the highest underlying capacity in Angus for wind energy development:

- 1) Careston Broad Valley Lowland to the north west of Brechin.
- 2) Muir of Pert Broad Valley Lowland to the east of Brechin.
- 3) Montreathmont Forest and farmland to the south of Brechin.
- 4) The Sidlaw Hills with contiguous areas of Dipslope Farmland to the south and east and Low Moorland Hills south of Forfar.

These areas have the capacity to accommodate larger sizes of turbine and/or greater numbers and concentrations **relative to other areas** of landscape in Angus. This is based on a combination of one or more factors including suitable landscape character, lower visual sensitivity or lower value. Not all of these factors are present in every area identified and the analysis and guidance in Chapter 6 should be followed.

Wind turbines are already located in some of these areas, utilising some of the underlying capacity and therefore reducing residual capacity. The limitations resulting from this are discussed below.

Areas with Limited Underlying Capacity

Most of the remaining lowland and coastal areas of Angus have some underlying capacity for wind energy development but are generally not suited to larger turbines, large groupings or extensive concentrations of wind turbine development. The areas are shown in light green in figure A. Capacity varies from the ability to accommodate only very occasional small/medium wind turbines in some of the Upper Highland Glens to more frequent medium turbines across much of the Highland Foothills, Broad Valley Lowlands and Dipslope Farmland. Some areas of the Dipslope Farmland may be able to accommodate occasional single medium/large turbines subject to detailed assessment of local characteristics.

Currently there are limited numbers of existing, consented and proposed smaller scale developments (mainly single small/medium and medium size turbines). Guidance in Chapter 6 is intended to steer future development in these areas to an acceptable level.

Areas with No Underlying Capacity

Significant areas of Angus have no underlying capacity for wind turbine development. These are left uncoloured in Figure A:

- 1) All of the Highland Summits and Plateaux LCAs, due to their importance to the Angus landscape, connectivity with the Cairngorms National Park, high visual prominence, high relative wildness and recreational value;
- 2) Some upper parts of Highland Glens and Highland Foothills which extend into the Lochanagar and Mount Keen draft Core Area of Wild Land and are contiguous with the Highland Summits and Plateaux.
- 3) Some prominent summits, viewpoints and hillforts in the Sidlaw Hills, Highland Foothills and Low Moorland Hills.

It is recommended that these landscape types and areas remain undeveloped with turbines to protect their character, avoid widespread visibility, protect key viewpoints and features and particularly to protect the key feature of the Highland Boundary Fault and its backdrop of the Grampian Mountains.

When assessing the acceptability of larger turbine proposals in neighbouring landscape character areas, proximity to the sensitive areas described above should be taken into account.

Areas Where Cumulative Impact Limits Further Development

As described above, a number of landscape types and areas in Angus have an underlying capacity to accommodate wind energy development. However, existing and consented development in or nearby some of these areas means that further significant development may exceed the acceptable cumulative capacity of the landscape. The five areas where current cumulative impact limits capacity for further development are shown as hatched areas in Figure A.

- 1) Alyth Foothills / Glen Clova
- 2) Menmuir / Hill of Ogil
- 3) Brechin and Muir of Pert
- 4) Letham to Firth Muir of Boysack
- 5) Central Sidlaws and Tealing

They are defined by several factors including: The developed areas and the extent of their impacts on the surrounding landscape; underlying landscape capacity within the surrounding landscape and the extent of area within which development should be limited to avoid extending cumulative landscape and visual impacts.

The boundaries shown in Figure A are indicative. They are described in more detail for each area in Chapter 6 Table 6.2, together with the main objectives for limiting further development. In the case of specific development proposals there should be an assessment relating to these criteria.

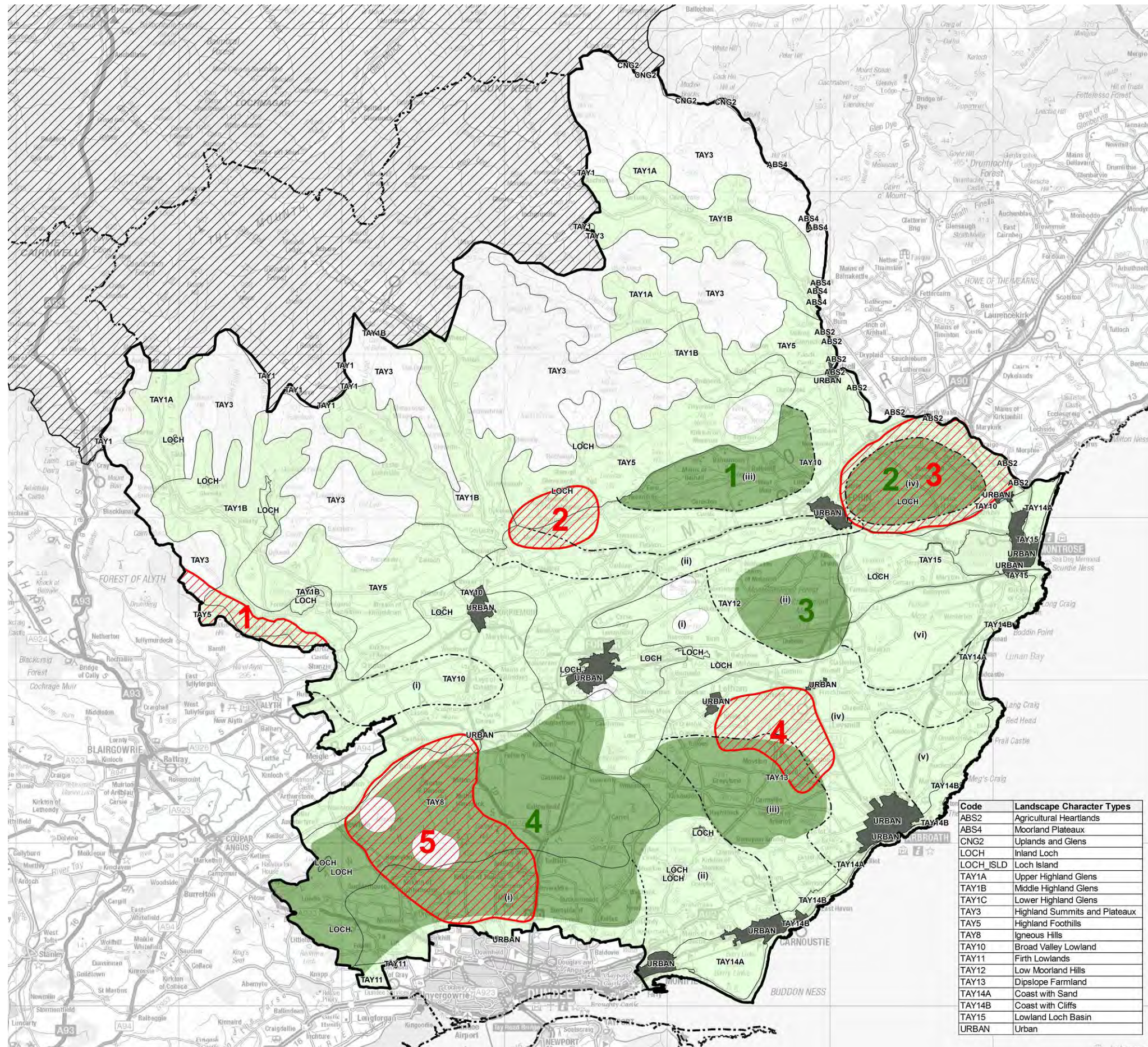


**Angus Council
Wind Energy Consultancy**

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Legend

- Study Area
- Scottish Local Authority Boundaries
- Cairngorms National Park
- Landscape Character Type / Area Boundary (see Table 3.1 for list)
- LCA Sub Areas (Ref. Table 6.1)
- Settlements
- Areas with Highest Underlying Capacity:
 1. Careston Farmland
 2. Muir of Pert
 3. Montreathmont Forest
 4. Sidlaw Hills and Dipslope Farmland
- Areas with Limited Underlying Capacity
- Areas with No Inherent Capacity
- Areas where Cumulative Impact Limits Development:
 1. Alyth Foothills / Glen Clova
 2. Menmuir / Hill of Ogil
 3. Brechin and Muir of Pert
 4. Letham to Firth Muir of Boysack
 5. Central Sidlaws and Tealing



Code	Landscape Character Types
ABS2	Agricultural Heartlands
ABS4	Moorland Plateaux
CNG2	Uplands and Glens
LOCH	Inland Loch
LOCH ISLD	Loch Island
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY8	Igneous Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban

Figure A

Wind Turbine Development Opportunities and Constraints



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1.0 INTRODUCTION

1.1 Background

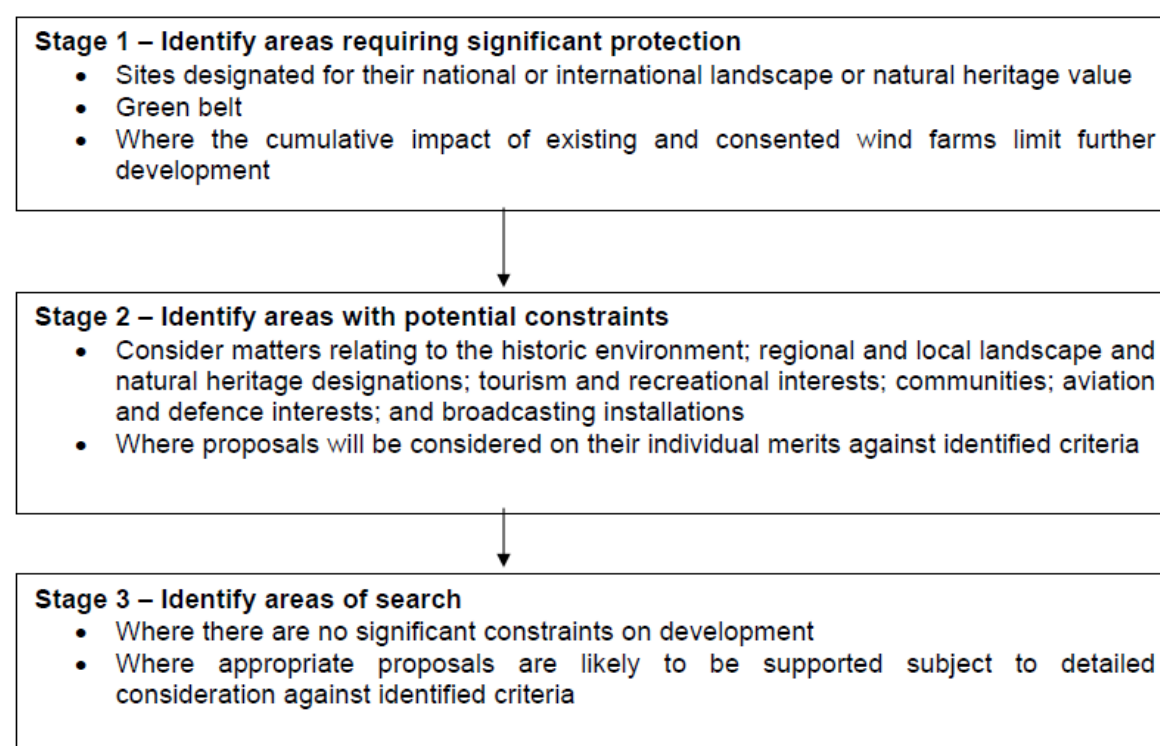
Scottish Planning Policy (*SPP 2010*) states that local authorities should make positive provision for the development of windfarms in locations where the technology can operate efficiently and environmental and cumulative impacts can be satisfactorily addressed. The Scottish Government has strongly stated its support for renewable energy developments and encouraged Planning Authorities to ensure appropriate planning guidance is in place.

Angus Council’s wind energy guidance is being reviewed as part of the Local Development Plan Process and the Scottish Government’s instruction to incorporate a locational framework. It will also reflect the recent increase in proposals for wind energy projects, particularly single or small groupings of turbines as a result of the introduction of the Feed in Tariff. Given this factor and existing levels of development in upland areas, Scottish Government web based guidance (*Onshore Wind Turbines, July 2013*) states:

‘Planning authorities are more frequently having to consider turbines within lower-lying more populated areas, where design elements and cumulative impacts need to be managed’.

Scottish Government policy in SPP and web based guidance clearly indicates that cumulative development within areas may lead to eventual limits on further development and that this should be considered as a significant constraint. Areas where cumulative development has reached a threshold of acceptability are a Stage 1 constraint in a Spatial Framework, requiring significant protection from further development:

Figure 1.1: Extract from Current Scottish Government Guidance on Preparing Spatial Frameworks



Angus’s existing guidance (*Renewable Energy Implementation Guide, 2012*) gives guidance for applicants for wind turbine development. It includes an indication of varying landscape capacity based on the findings of a study carried out by Ironside Farrar in 2008. (*Angus Windfarms Landscape Capacity and Cumulative Impacts Study*). That study determined the capacity for windfarm development across Angus, based on analysis of landscape character, quality and value and an assessment of significance of landscape change resulting from different potential scales of development.

The Ironside Farrar study found that Angus has little capacity for larger scales of wind energy development due the sensitive location of its uplands; spread of its population in lowland and coastal areas, modest scale and settled character of the landscape. Highland and coastal areas were not deemed suitable for windfarm development due to their landscape quality and visual sensitivity. A number of recent planning appeal dismissals for windfarms in or near these areas have underlined this finding.

1.2 Consultancy Appointment

Ironside Farrar, together with Envision 3D, has been appointed by SNH, Angus and Aberdeenshire Councils to undertake a strategic landscape capacity assessment with respect to wind energy development across the two neighbouring local authority areas. The key purpose of this study is to provide detailed guidance on the capacity of the landscape across both areas to accommodate wind turbine development and to inform the review of the Development Plans’ spatial frameworks and supplementary guidance.

The key study objectives are:

- To identify the sensitivity of the landscape to different types and scales of wind energy development;
- To identify viewpoints, routes and features, and the views from these, which are particularly sensitive to wind energy development;
- To advise on the capacity and potential for the landscape to accommodate different types or scales of wind energy development;
- Identify areas where cumulative impact is potentially at, or near, capacity, and provide an indication of when the capacity threshold would be reached for these areas;
- Identify areas, in landscape terms, unsuitable for wind energy developments;
- Provide clear siting and design guidance for landscape character areas that are identified as having some capacity for specific scales of development.

This study specifically assesses landscape sensitivity, value and capacity together with the impact of cumulative wind energy development in order to determine where significant protection from further development may be required. This study addresses these requirements through a staged assessment process detailed in sections 2.0 to 6.0.

1.3 National and Local Policy

National and local planning policies in Scotland are well disposed towards the development of onshore wind energy. However it is accepted that there are limitations imposed by environmental sensitivities and the capacity of areas to accept cumulative development. Therefore the acceptability of multiple windfarms and turbines and the cumulative landscape and visual impacts of development has to be considered in the light of national and development plan policy. **Appendix 1** reviews current national policy and guidance and Angus development plan policy and guidance.

Emerging Policy

Emerging Scottish Planning Policy (*SPP Consultation Draft 2013*) continues to strongly support onshore wind energy. It continues to support the undertaking of Spatial Frameworks and capacity studies. Key changes in emphasis are the recommendation for inclusion of all scales of wind energy development in spatial frameworks and the provision of a more detailed hierarchy and explanation of constraints to and opportunities for wind energy development.

1.4 Landscape Capacity and Cumulative Impacts

SPP and Scottish Government guidance identifies cumulative impacts and landscape capacity as being critical to the identification of broad areas of search. This study has thus been prepared to inform the Council on the issues of landscape capacity and cumulative impact. Accordingly it comprises three main themes:

- A strategic landscape capacity study, investigating the underlying capacity of landscapes within Angus to accommodate wind energy development;
- A cumulative assessment examining the level of cumulative development of operating, consented and proposed wind turbines and wind farms in Angus.
- Guidance on the levels and types of wind turbine development throughout Angus that would be acceptable in landscape terms, taking into account the first two considerations.

It is emphasised that this is a strategic level landscape and visual study, providing a context for consideration of capacity for, and the cumulative effects of, existing and potential future wind turbine developments in Angus. No site specific conclusions should be drawn from it in relation to current, proposed or future wind turbines and windfarms.

As a strategic landscape and visual study this does not address specific localised impacts such as effects on individual residential receptors or other sensitive receptors. All wind energy proposals should be considered on their own unique locational and design characteristics as well as their strategic context. All proposals should be subject to landscape, visual and cumulative impact assessment including (if required) a full environmental assessment.

2.0 CUMULATIVE IMPACT AND CAPACITY METHODOLOGY

2.1 Purpose of Methodology

The purpose of the following assessment is to determine the capacity of the Angus landscape to accommodate wind energy development and to determine the levels of cumulative development that would be acceptable across Angus. The assessment takes into account existing cumulative development within and around Angus and is based on the premise that current renewable energy policies will lead to a future level of landscape change within Angus that requires careful management.

The key objectives of the study are outlined in section 1.2 above. The methodology serves these objectives through a clear assessment of sensitivity and capacity of landscapes across Angus, together with an assessment of the cumulative effects of current consented wind energy development and the potential for accommodating further development in the future.

Nevertheless, it is recognised in published guidance that the assessment of landscape capacity and cumulative impacts is not a straightforward exercise. The background considerations and detailed methodology for this process are detailed in **Appendix 2** of this report. The following is a summary of the methodology, key considerations and guide to the presentation of findings and recommendations.

2.2 Study Stages

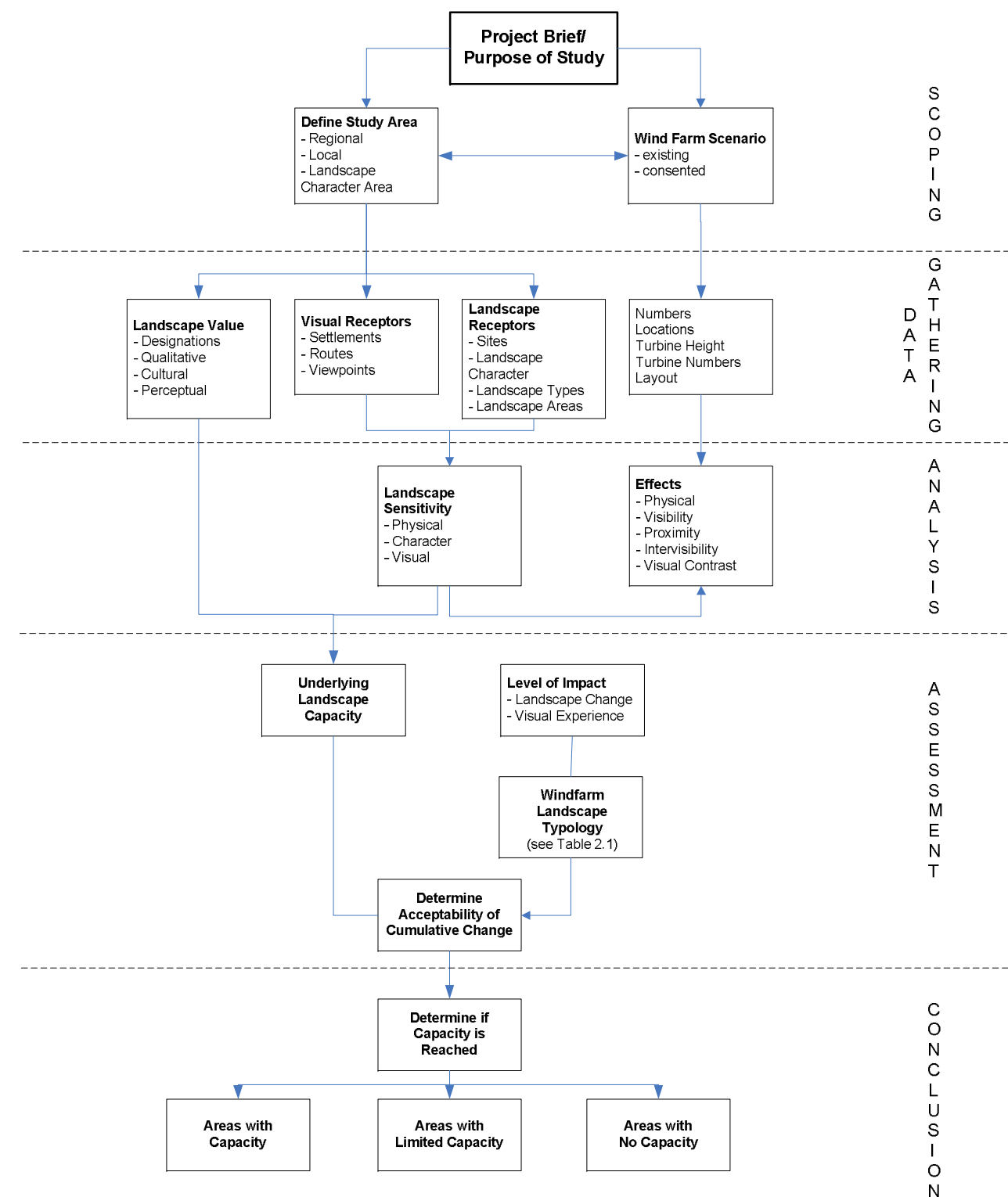
The assessment is a staged process comprising:

- 1) Define study area and characterise landscape and visual baseline and scope of wind energy types to be included in the strategic study.
- 2) Assess landscape sensitivity based on landscape character types (LCTs) and landscape character areas (LCAs) in Angus. This assessment considers landscape character sensitivity, visual sensitivity and landscape value.
- 3) Assess the capacity of the Angus landscape to acceptably accommodate wind energy development of different types and scales based on the assessment of sensitivity and value of the LCAs and LCTs. This is an assessment of the *underlying* landscape without taking the effects of existing wind turbines into account.
- 4) Record the current type and extent of consented wind energy development in Angus and the surrounding local authorities.
- 5) Determine the extent to which cumulative consented development has occupied the underlying capacity of the landscape to accommodate wind energy developments.
- 6) Further to the assessment of landscape capacity and cumulative development, identify areas in which:
 - there is no underlying landscape capacity for wind energy development;

- consented cumulative development limits landscape capacity for further wind energy development.
- there is remaining landscape capacity for wind energy development.

The assessment process is summarised as a flow chart in Figure 2.1 below.

Figure 2.1. Cumulative Impact and Landscape Capacity Methodology Flowchart



The assessment and spatial strategy is followed by guidance on appropriate types and levels of wind energy development for the areas in which there is remaining capacity.

2.3 Scope of Assessment

2.3.1 Area Covered

The study focuses primarily on the local authority area of Angus. However, an area 30km beyond the boundary is considered in terms of the potential extended visual influence of wind energy developments on neighbouring landscape areas.

2.3.2 Wind Energy Development Types

The study considers all sizes of turbines and developments operating, consented or proposed, as well as potential future scenarios where appropriate. This extends the assessment in the *Angus Windfarms Landscape Capacity and Cumulative Impacts Study* (Ironsides Farrar 2008) which concentrated on commercial scale developments and turbines.

Turbines less than 15m to blade tip are not considered to have the same qualities of scale, prominence and widespread visibility that lead to the wider cumulative impacts that characterise larger turbines with a blade tip higher than 15m. Capacity assessment and guidance for turbines less than 15m to blade tip is limited to localised generic siting and design considerations.

2.3.2 Use of Geographical Information Systems

The study has used the GIS application; Arcview 10.2. It is emphasised that this application is used only as a tool to manage, map and illustrate spatial data. The assessment process does not use GIS and is described in the following sections.

2.4 Landscape and Visual Baseline

The landscape baseline assessment includes a description and classification of landscape character and record of designations and features that contribute to landscape value. The landscape character assessment is based on landscape character types (LCTs) and landscape character areas (LCAs) in Angus identified and described in the *Tayside Landscape Character Assessment* (SNH, 1999) – see section 3.2 and Table 3.1 below. Further landscape character types in neighbouring areas, primarily Aberdeenshire, are also identified. These are detailed in the above publication and others in the national series. Some refinements, for the purposes of this study, are made based on site observations. These include modifications to boundaries between LCAs and identification of sub-types or sub-areas based on subtle variations in character within LCAs (see 3.2.3).

Landscape value is determined partly through landscape designations. There are no local designations in Angus and the national designations are outside the study area, although they are adjacent to it. Related designations that can contribute to landscape value and character are recorded. These include natural and cultural heritage designations,

recreational/ visitor facilities and core paths. Other factors affecting perceptions of value include wildness and remoteness which have recently been assessed across Scotland.

The visual baseline assessment involves a computer-based intervisibility assessment based on different turbine heights and receptor types. Whilst a simplistic approach, this helps to identify the areas that are most likely to be sensitive and areas in which wind turbines might be least visible. Professional judgement was further informed by wireline visualisations for different turbine sizes from a range of viewpoints.

2.5 Method for Determining Landscape Sensitivity and Capacity

The method for determining landscape sensitivity and capacity is detailed in **Appendix 2**. This involves consideration of the two main elements discussed in 2.4 above:

- 1) The sensitivity of the landscape fabric and character to turbine development, which includes landscape features, elements and characteristics and its visual sensitivity, including intervisibility and receptor types.
- 2) The value of the landscape as determined by stakeholders. This may include national or local recognition by landscape designation or cultural association, or value to a community of interest such as local residents or an interest group.

Appendix 2 describes a breakdown of the physical and perceptual characteristics that contribute to landscape character, visual sensitivity and value. Each criterion is described and evaluated in terms of its sensitivity to wind energy development. An overall assessment of **high**, **medium** or **low** is derived from a composite of all the criteria. There is no consistent relative weighting of criteria as, in the case of each landscape type or area, different criteria are likely to be critical in the sensitivity assessment.

Following the above assessment, an overall professional judgement on capacity for developments of different types is made on the basis of sensitivity and value. Landscape capacity is rated according to the degree to which wind turbines may be accommodated without significant and/or adverse effects on sensitivity and value. The descriptive criteria below for **high**, **medium** and **low** describe the main thresholds on a continuum between no capacity and high capacity.

Low Capacity: A landscape that is both sensitive to wind turbine development and has a high value, where only a slight level of change can be accommodated without significantly affecting any of the key defining criteria

Medium Capacity: A landscape that has some sensitivity to wind turbine development and has some aspects of value, where a moderate level of change can be accommodated which may significantly affect some of the defining criteria

High Capacity: A landscape that has low sensitivity to wind turbine development and has low value, and can accommodate change that significantly affects most of the key defining criteria

Broadly speaking there is an inverse relationship between landscape sensitivity/value and capacity. However, this is not a simple relationship that can be expressed in a matrix: a balance of judgement is made in each case as landscape value may be a more important factor than sensitivity in some cases; and vice versa in others.

Turbine height and the size and layout of types of turbine development may relate better to some LCTs than others and the geographical extent of LCAs within some otherwise suitable LCTs may limit capacity for development.

2.6 Defining Landscape Change and Cumulative Capacity

An understanding of cumulative impacts and change in the landscape is key to determining acceptable levels of development and whether or not areas have reached cumulative capacity. This is discussed below and in further detail in **Appendix 2**.

2.6.1 Cumulative Change

Appendix 2, section 2.7 discusses in detail the issues involved in determining cumulative change thresholds and the acceptability of these changes. It refers to Scottish Government web based Guidance (2013) and SNH siting and design guidance (2009) for onshore wind energy developments. Key factors that affect the perception of cumulative change include:

- the distance between individual windfarms and/or turbines;
- the distance over which they are visible;
- the overall character of the landscape and its sensitivity to windfarms;
- the siting and design of the windfarms themselves (particularly turbine height and windfarm size); and
- the way in which the landscape is experienced.

In determining an acceptable level of development, it is necessary to clearly define what differing levels of development actually entail. The methodology therefore sets out defined levels of change to the landscape and visual environment that might occur or be experienced depending on the size, number and location of turbines to be built within an area.

The descriptions in Table 2.1 set out a graded landscape typology that defines increasing levels of cumulative landscape and visual impact of turbines by describing their effect on landscape character and the experience of those living in or travelling through the landscape. These descriptions are used without prejudice as a tool to illustrate cumulative landscape change to all parties involved in planning wind energy development.

Further generic illustration of the concept is provided in Part 1 section 5 of the SNH guidance (see guidance paragraphs 5.5 and 5.6 and illustrative sketches, also shown below Table 2.1). The extent of current and potential future wind turbine landscape types in Angus is described in detail in chapter 6 and illustrated in Figures 6.2 and 6.3.

Table 2.1: Description of Levels of Cumulative Wind Turbine Development

Landscape Type	Landscape Character	Visual Experience
Landscape with no Wind Turbines	A landscape type or area in which no, or a minimal number/size of wind turbines is present, or visible from neighbouring areas.	There would be no, or negligible, effects on visual receptors.
Landscape with Occasional Wind Turbines	A landscape type or area in which windfarms or wind turbines are located and/or are close to and visible. Turbines are not of such a size, number, extent or contrast in character that they become one of the defining characteristics of the landscape's character.	Visual receptors would experience occasional close-quarters views of a windfarm or turbines and more frequent background views of windfarms or turbines. Some of the turbines would not be perceived as being located in the landscape character type or area. No overall perception of wind turbines being a defining feature of the landscape.
Landscape with Wind Turbines	A landscape type or area in which a windfarm, windfarms or wind turbines are located and/or visible to such an extent that they become <i>one</i> of the defining characteristics of the landscape character. However, they are clearly separated and not the single most dominant characteristic of the landscape.	Visual receptors would experience frequent views of windfarms or wind turbines as foreground, mid-ground or background features, affecting their perception of the landscape character. However there would be sufficient separation between windfarms and turbines and sufficient areas from which wind turbines are not visible such that they would not be seen as dominating the landscape over all other landscape features.
Wind Turbine Landscape	A landscape type or area in which windfarms or wind turbines are extensive, frequent and nearly always visible. They become the dominant, defining characteristic of the landscape. Nevertheless there is a clearly defined separation between discrete developments.	Visual receptors would experience views of windfarms and wind turbines as foreground, mid-ground and background features, to the extent that they are seen as the most dominant aspect of landscape character. Few areas would be free of views of wind turbines, although groupings would appear separated.
Windfarm	Landscape fully developed as a windfarm with no clear separation between groups of turbines. Few if any areas where turbines not visible.	Visual receptors would always be close to and nearly always in full view of wind turbines, with no clear separation between groups of turbines.

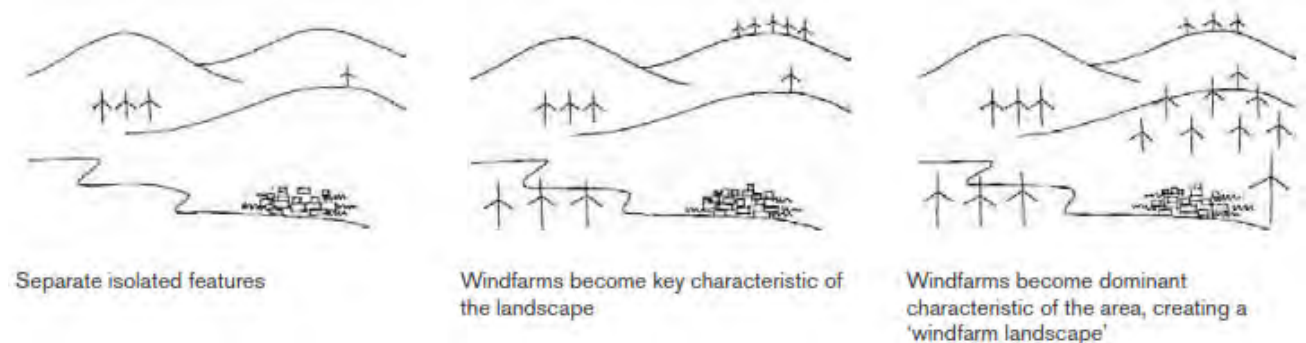


Figure 2.2: Illustrative Sketches of Wind Turbine Development (from SNH)

2.6.2 Determining Acceptable Levels of Change

The SNH siting and design guidance identifies three broad levels of cumulative change in the landscape that may be set by local authorities depending on landscape sensitivity and value and local policy objectives:

- **Landscape Protection:** Maintain existing landscape character.
- **Landscape Accommodation:** Accept a degree of change providing this does not fundamentally alter key landscape characteristics and visual resources.
- **Landscape Change:** Accept large amounts of change that may fundamentally alter key landscape characteristics and visual resources.

The descriptions in Table 2.1 provide a basis on which to understand and determine levels of change. However it is the collective decision of stakeholders including local authorities and their population that ultimately determines the levels of cumulative landscape change, that are acceptable across their area, and thereby the capacity.

2.7 Presentation of Assessment and Findings

The study assessment and findings are presented in the following chapters:

Chapter 3: Landscape Baseline

This chapter defines and describes the study area, including the geographical extent and landscape character of Angus and its surroundings. It also reviews other relevant information including landscape-related constraints, such as wildness, natural heritage and cultural heritage designations.

The assessment of landscape capacity and cumulative landscape change is based on the eleven Angus Landscape Character Types (LCTs) in the Tayside Landscape Character Assessment. These are divided into further Landscape Character Areas (LCAs) based on the published assessment. The figures incorporate slight modifications to the 1999 original resulting from observations by Angus Council, expansion of urban areas since 1999 and from our own on-site observations. Further subdivisions or Sub-Areas based on subtle variations are also identified. These changes are detailed in **Appendix 3**.

The information in chapter 3 informs the assessment of the sensitivity and value of each landscape character type and areas detailed in chapter 6.

Chapter 4: Visual Baseline

This chapter details the analysis carried out to establish the relative visibility and visual sensitivity of different parts of Angus. This involves a computer-based intervisibility assessment, carried by Envision 3D, based on different turbine heights and receptor types. The resulting maps are shown in **Appendix 4**.

The information in chapter 4 informs the assessment of landscape sensitivity as detailed in Chapter 6.

Chapter 5: Wind Turbines in the Study Area

This chapter describes the operating, consented and proposed wind turbine developments in the study area at May 2013. There is a detailed breakdown of numbers and sizes of turbines and windfarms in Angus and the surrounding study area. Locations of turbines are illustrated in Figures 5.1 and 5.2. There is also an analysis of turbine size ranges and distribution in relation to landscape character.

Appendix 5 reviews the factors involved in wind turbine location, size, design and distribution that affect landscape, visual and cumulative impacts.

Details of individual developments are given in **Appendix 6**

Chapter 6: Assessment of Landscape Capacity and Cumulative Change

This chapter analyses and assesses the information in the previous chapters to determine the landscape and visual impacts of, and capacity for, wind energy development across Angus. The assessment is summarised in **Table 6.1a-i** and **Figures 6.1 to 6.3**. The capacity assessment is informed by the detailed assessment of landscape sensitivity and value in **Appendix 7**. A desk and field based assessment was carried out, including the use in the field of 360° wirelines of existing, proposed and potential future wind energy developments. The assessment informs the subsequent spatial strategy and includes guidance on turbine size and distribution. Further details of how to use Table 6.1 together with the figures are given at the start of Chapter 6.

The assessment is carried out for each of the eleven LCTs in Angus. The capacity assessment and current cumulative change for each of the LCTs is then combined to come to an assessment of capacity and cumulative effects for the whole local authority area, and for the three main regional landscape areas of Angus, i.e.:

- 1) Highland;
- 2) Lowland and Hills;
- 3) Coast.

Further spatial and design guidance for locating wind turbines in areas with residual capacity for further development and areas with restricted capacity is given in Chapter 6.

2.8 Detailed Guidance

Chapter 6 also gives guidance on turbine sizes, cluster sizes and separation between groups of turbines for each landscape type and/or area that would limit cumulative development to the proposed acceptable level. This relates to turbines of small/medium and larger. As highlighted in 2.3.2, guidance on small turbines below 15m to blade tip applies at a local level and is generic.

Appendix 5 of this report contains detailed discussion of how turbine size, group size and group separation affects perceptions of wind energy and landscape character. Further

guidance is given in SNH's *Siting and Designing Windfarms* publication. Chapter 6 also briefly outlines the main considerations in developing the specific guidance.

2.9 Potential Opportunities and Constraints

The main spatial findings of the detailed assessment are summarised on a map in **Figure 6.4**. This shows the distribution of the following areas:

- Areas with significant underlying landscape capacity
- Areas with limited underlying landscape capacity
- Areas with no underlying landscape capacity
- Areas where capacity is limited by cumulative development (which would overlap with parts of some or all of the above areas)

Finally it is emphasised that this assessment is focused on landscape and visual issues. Areas which have been identified as suitable on this basis may be restricted by other unrelated factors such as protection of wildlife, proximity to dwellings, aviation restrictions or lack of grid connection. These issues are not the subject of this assessment and are covered by the Angus Implementation Guide.

3.0 LANDSCAPE BASELINE

The following section defines and describes the study area, including the geographical extent and landscape character of Angus and its surroundings. It also reviews other relevant information including landscape-related designations, natural and cultural heritage constraints. In the latter case it is the extent to which they may have a bearing on landscape character and value that is the primary consideration in this study.

3.1 Study Area

The study area for this assessment is shown in Figure 3.1. Angus lies on the east coast of Scotland, and is bounded by the Firth of Tay and City of Dundee to the south and the North Sea to the east. It has inland boundaries with Perth & Kinross to the west and Aberdeenshire to the north and east. Fife lies to the south of the Tay. The Cairngorms National Park includes part of the northern highland area of Angus, extending beyond into Perth & Kinross and Aberdeenshire. Angus has a total area of 2,181km² and a population of approximately 116,000.

The study focuses on the local authority area of Angus for the purposes of determining cumulative landscape and visual impact and landscape capacity. Nevertheless, there are a number of existing, consented and proposed windfarms and turbines in neighbouring local authority areas. Consideration has been given to these, due to the extensive visual influence exerted by most wind turbines. The study area therefore includes a 30km buffer around its boundary, including the North Sea.

3.2 Baseline Landscape Character Assessment

3.2.1 Landscape Context

The landscape of Angus comprises a transition from coastal landscapes by the Firth of Tay and North Sea in the southeast, progressing northwest to agricultural lowland and lowland hills, thence to highland landscapes of the Grampian Mountains in the north. Topography is shown in Figure 3.2. The bulk of the population lives in small towns and villages in the lowland area, through which the main transport routes pass. The landscape of Angus and of the more extensive Tayside area is described in detail in the TLCA (*Tayside Landscape Character Assessment, LUC, 1999*).

The *Angus Local Plan Review (Adopted 2009)* has adopted the TLCA as the base data informing its landscape character related policies. It identifies the landscape types in *Figure 3.2: Landscape Character Zones* as part of the justification for *Policy ER5: Conservation of Landscape Character*. In *Policy ER35 Wind Energy Development*, the zones are amalgamated into three main regional geographic areas shown in the *Local Plan Figure 3.4: Wind Energy Development: Geographical Areas*:

- Highland
- Lowland and Hills

- Coast

These areas are shown in Figure 3.3. The highland area of Angus extends northwards into the Grampian Mountains and the Cairngorms National Park.

The broad division of landscape character continues to the north and east in Aberdeenshire where the Highland Boundary Fault divides moorlands to the north from lowland farmlands and the coast to the south. To the west in Perth and Kinross the Lowland/Highland division continues, although the coastal landscape is relatively limited.

3.2.2 Landscape Character

Table 3.1 overleaf and Figure 3.4a define the landscape in more detail. There are a total of eleven landscape character types from the Tayside assessment: 4 Highland; 4 Lowland and Hills and 3 Coast. These are further subdivided into a number of individual character areas depending on whether there is more than one example of the landscape type geographically separated or distinct from the other(s). Figure 3.4b shows landscape character in the wider study area.

The coastal area, although important to the character of Angus, covers little of its surface area, being a predominantly narrow strip, with the exception of Montrose Basin. In contrast the lowland and highland areas cover most of Angus. The dividing line between the two is the Highland Boundary Fault between Lintrathen in the west and Edzell to the east. To the north of the Highland Boundary Fault lie the extensive rolling uplands and mountains/plateau of the Mounth Highlands dissected by the Angus Glens. This area of Angus lies partially within the Cairngorms National Park, which extends northwards beyond Angus.

To the south of the Boundary Fault lie the Tayside Lowlands. In Angus the division between highland and lowland landscape types is approximately 50:50 in area. Most of the characteristics of the landscape including topography, vegetation cover, land use and settlement patterns are subservient to this major division. There is a very striking contrast between the hills north of the boundary fault and the broad open valley of Strathmore to the south of it.

The following section briefly describes the context and character of the landscape in each of these areas. More detailed description and analysis is given in the TLCA.

Highland

Within the Highland area there are four landscape character types divided into a total of 18 landscape character areas. This reflects the dissected plateau nature of the Mounth with deep glens penetrating the mountains.

The Highland Boundary fault along the southern edge is reflected in the transitional *Highland Foothills* Character type, comprising four areas of smaller scale complex topography and mixed arable and hill farming separated by the mouths of the Angus Glens. This character type extends west into Perth & Kinross.

The Angus Glen character areas comprise *Glen Isla, Glens Prosen & Clova, West Water Valley* and *Glen Esk*. They run from southeast to northwest, dividing the *Highland Summits*

and Plateaux into a series of broad, rolling ridges. The *Mid Highland Glens* are shallower and more settled with some agriculture on the flat valley floor, whereas the *Upper Highland Glens* are narrower, deeper and less settled or cultivated.

Table 3.1. Landscape Character Areas in Angus (SNH Tayside Landscape Character Assessment, 1999*)

Geographic Areas	Landscape Character Types	Landscape Character Areas
Highland	1a. Upper Highland Glens	Glen Isla Glen Prosen Glen Clova West Water Valley Glen Mark
	1b. Mid Highland Glens	Glen Isla Glen Prosen Glen Clova West Water Valley Glen Esk
	3. Highland Summits & Plateaux	Forest of Alyth Caenlochan Forest/ Glendoll Forest Muckle Cairn/ Hill of Glansie/ Hill of Wirren Hills of Saughs/ Mount Battock
	5. Highland Foothills	Alyth Foothills Kirriemuir Foothills Menmuir Foothills Edzell Foothills
Lowland and Hills	8. Igneous Hills	Sidlaws
	10. Broad Valley Lowland	Strathmore Lower South & North Esk Valleys
	12. Low Moorland Hills	Forfar Hills
	13. Dipslope Farmland	SE Angus Lowland
Coast	14a.Coast with Sand	Montrose Lunan bay Elliott Barry Links
	14b.Coast with Cliffs	Usan Auchmithie Carnoustie
	15. Lowland Loch Basins	Montrose Basin

*The terminology used in the table headers differs from that used in the 1999 TLCA so as to be consistent with relevant publications and current terminology: the Geographic Areas are based on Angus Council Local Plan Review; the Landscape Types are called Landscape Character Types (LCTs) and individual landscape units are called Landscape Character Areas (LCAs).

The *Highland Summits and Plateaux* forms the most extensive Highland character type, separating the glens and merging into broader and higher mountain areas to the north of Angus. This character type continues west into Perth & Kinross and merges with other highland character types, including *Moorland Plateaux*, to the north and to the east in Aberdeenshire.

The northern parts of both the *Upper Highland Glens* and *Highland Summits and Plateaux* fall into the Cairngorms National Park although this designation does not extend into the lower hills northeast of Glen Esk.

Lowland and Hills

Within the lowland landscape area there are four landscape character types, further subdivided into five landscape character areas. The predominant lowland landscape types within Angus are the *Broad Valley Lowlands*, lying south of the Highland Boundary Fault, represented by Strathmore and the Lower South and North Esk Valleys and the large area of *Dipslope Farmland* between Dundee, Forfar and Montrose. Both of these areas are dominated by arable agriculture and are settled with towns, villages and networks of roads. Fields are medium to large in size with intermittent hedges and trees. There are areas of shelterbelts and small plantation woodlands. Three of the main settlements in Angus (Kirriemuir, Forfar and Brechin) and the main transport artery (the A90) lie in the *Broad Valley Lowlands*. The *Dipslope Farmland* is on higher undulating ground with smaller settlements on the periphery (eg. the villages of Letham and Friockheim) and more open aspects, although merging into the more densely populated coastal area in the south and east where Arbroath, the A92 and main railway are located.

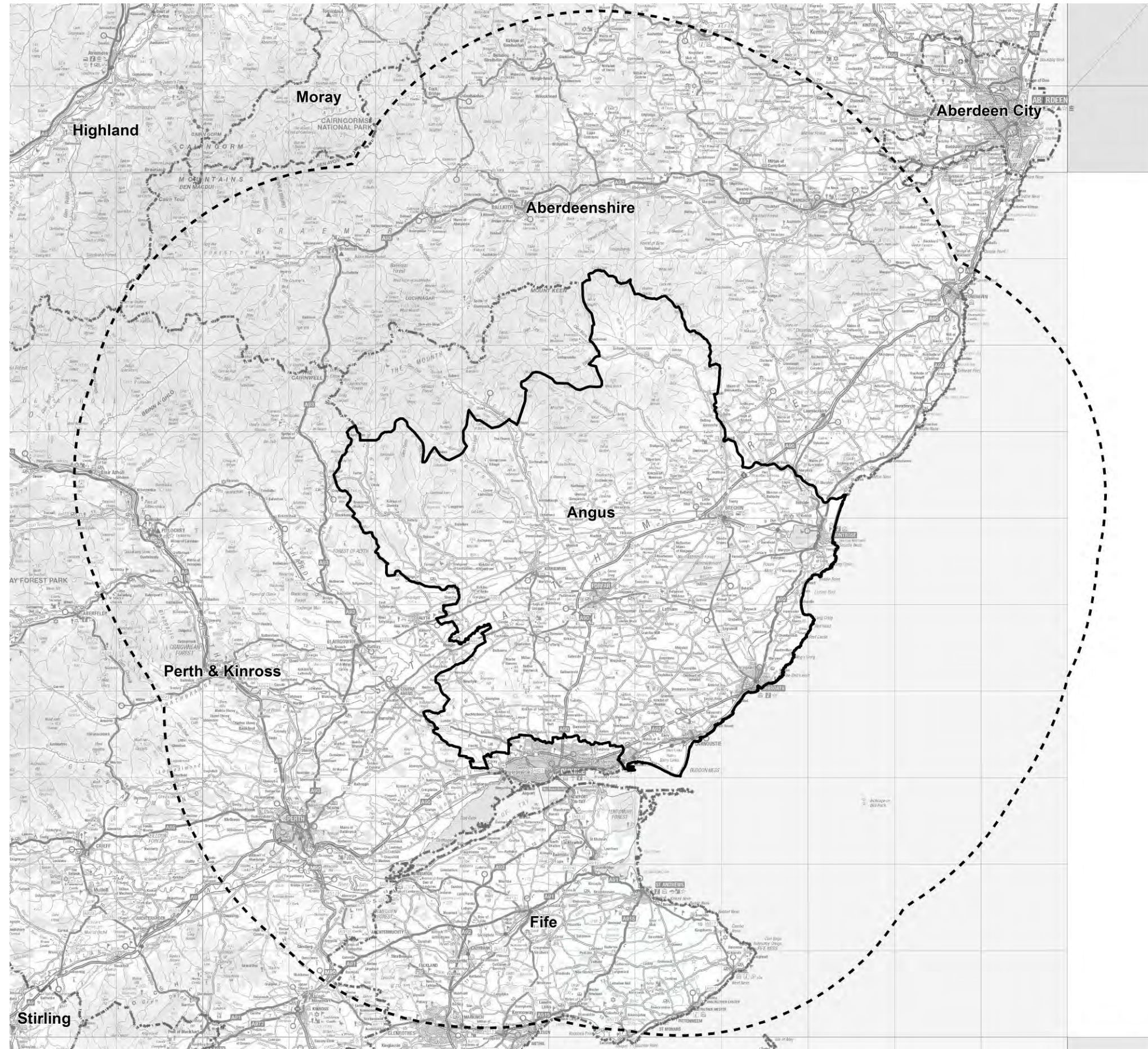
The two main lowland areas are separated by ranges of lowland hills: To the west the *Igneous Hills* of the Sidlaws divide the *Dipslope Farmland* and Dundee from Strathmore, this pattern extending west into Perth & Kinross. To the east the smaller scale *Low Moorland Hills* around Forfar separate the *Dipslope Farmland* from the Lower Esk Valleys.

Northeast into Aberdeenshire the lowland landscape area is represented by the *Agricultural Heartlands* type (from the *South & Central Aberdeenshire Landscape Assessment, SNH 1996*) which merges with the *Broad Valley Lowlands*. Strathmore, in Perth and Kinross and Angus, including the North and South Esk and the Howe of the Mearns in Aberdeenshire forms a broad continuous valley of 65km length between the River Tay in the southwest and Glenbervie in the northeast.

Coast

There are three Coastal Types: *Coast with Sand* is divided into four landscape character areas and *Coast with Cliffs* divided into three. These form a narrow strip along the Firth of Tay and North Sea, with rocky headlands alternating with dunes and sandy beaches. Only the Barry Links area of dunes between Monifieth and Carnoustie has a width of more than a kilometre.

Four of the main towns of Angus: Monifieth, Carnoustie, Arbroath and Montrose punctuate these areas and there are main roads and the railway passing along or near the coast from Dundee to Arbroath, Montrose and eventually Aberdeen. There are small fishing villages and remains of castles on the rocky sections of coast. Otherwise there is little development



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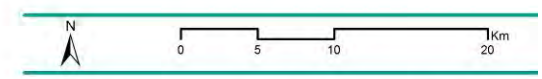
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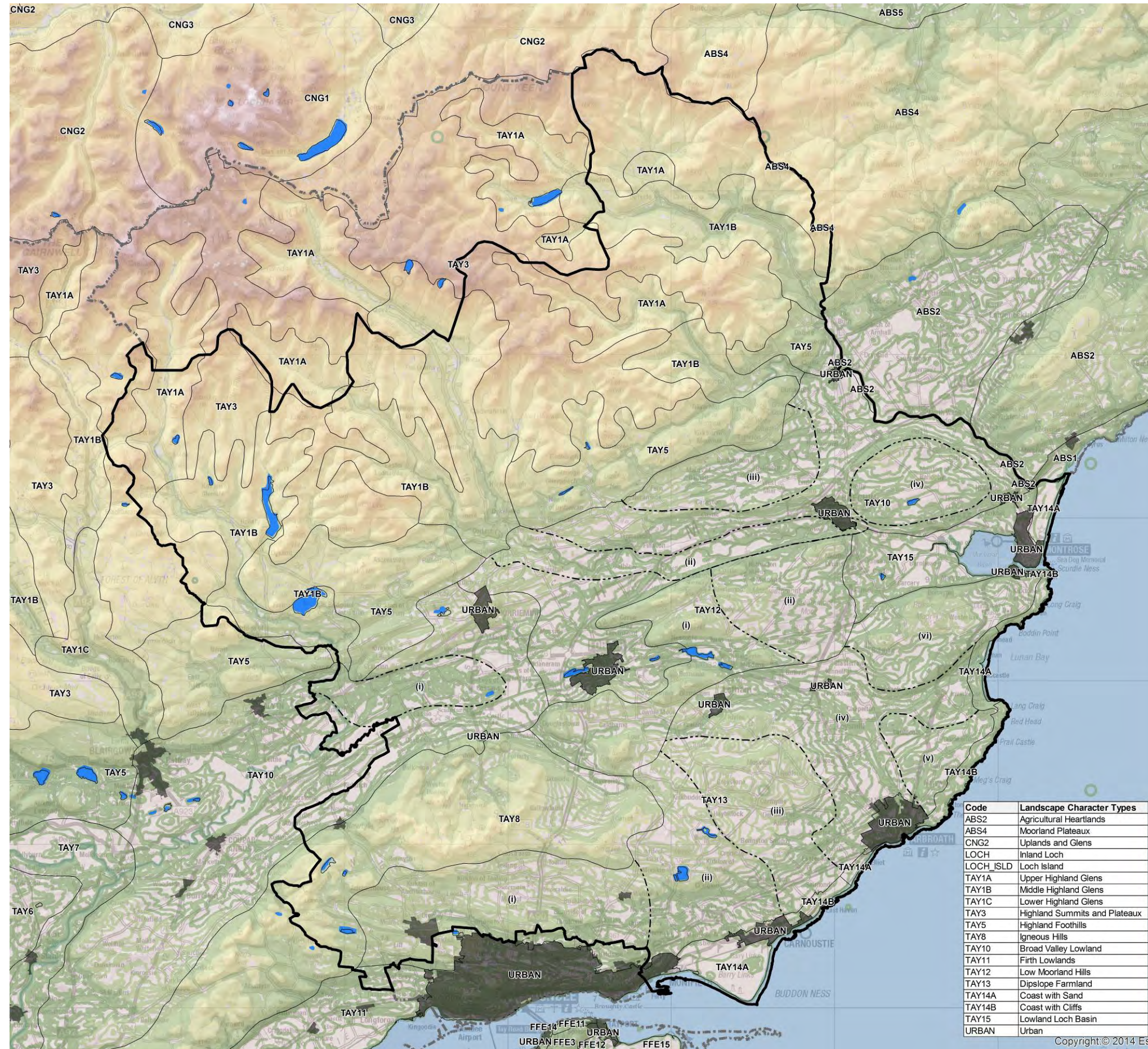
Legend

-  Study Area
-  Study Area 30km Buffer
-  Scottish Local Authority Boundaries

Figure 3.1
Study Area



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Legend

- Study Area
- Scottish Local Authority Boundaries
- Landscape Character Type / Area Boundary (see Table 3.1 for list)
- LCA Sub Areas (Ref. Table 6.1)
- Lochs
- Settlements

Elevation

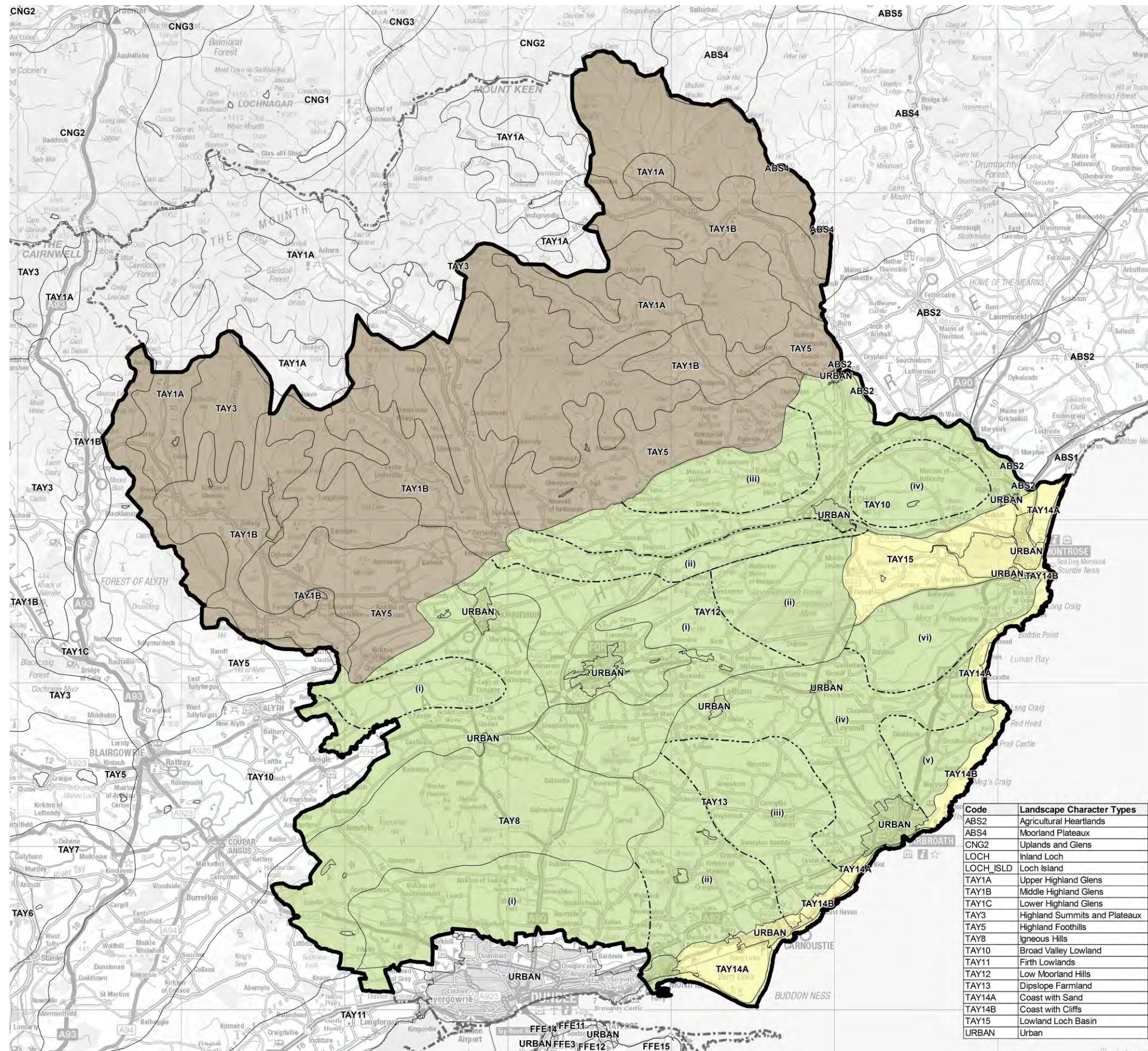
- 1100 - 1200m AOD
- 1000 - 1100m AOD
- 900 - 1000m AOD
- 800 - 900m AOD
- 700 - 800m AOD
- 600 - 700m AOD
- 500 - 600m AOD
- 400 - 500m AOD
- 300 - 400m AOD
- 200 - 300m AOD
- 100 - 200m AOD
- 0 - 100m AOD

Code	Landscape Character Types
ABS2	Agricultural Heartlands
ABS4	Moorland Plateaux
CNG2	Uplands and Glens
LOCH	Inland Loch
LOCH_ISLD	Loch Island
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY8	Igneous Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban

Figure 3.2
Topography



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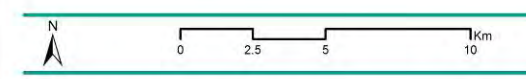
- Legend**
- Study Area
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)

- Geographic Areas**
- Highland
 - Lowland and Hills
 - Coast

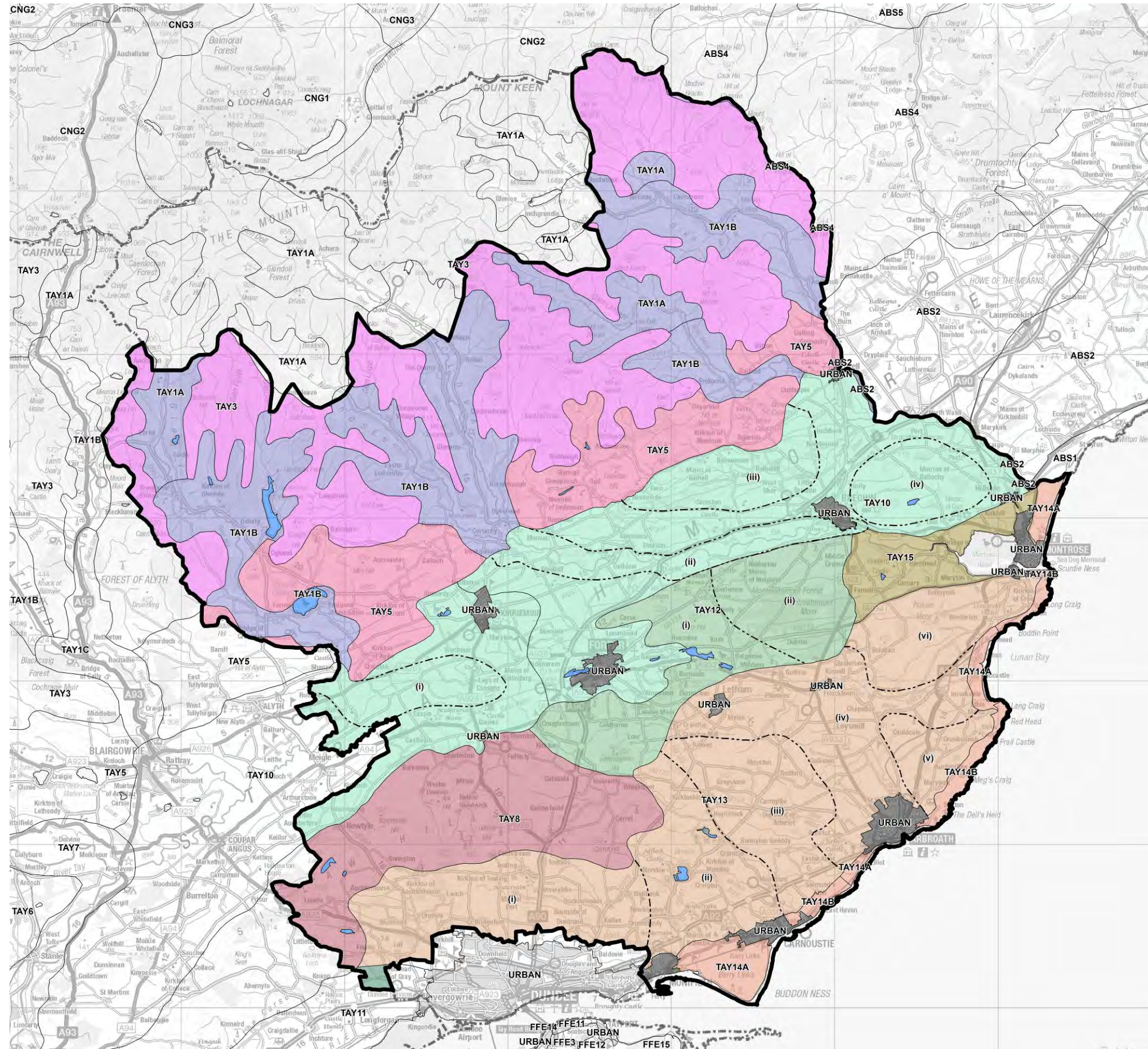
NB. Geographic Areas are based on the Angus Council Local Plan Review and Implementation Guide for Renewable Energy Proposals. Landscape Characters Areas are based on the Tayside Landscape Character Assessment. (LUC 1999)

Figure 3.3

Geographic Areas



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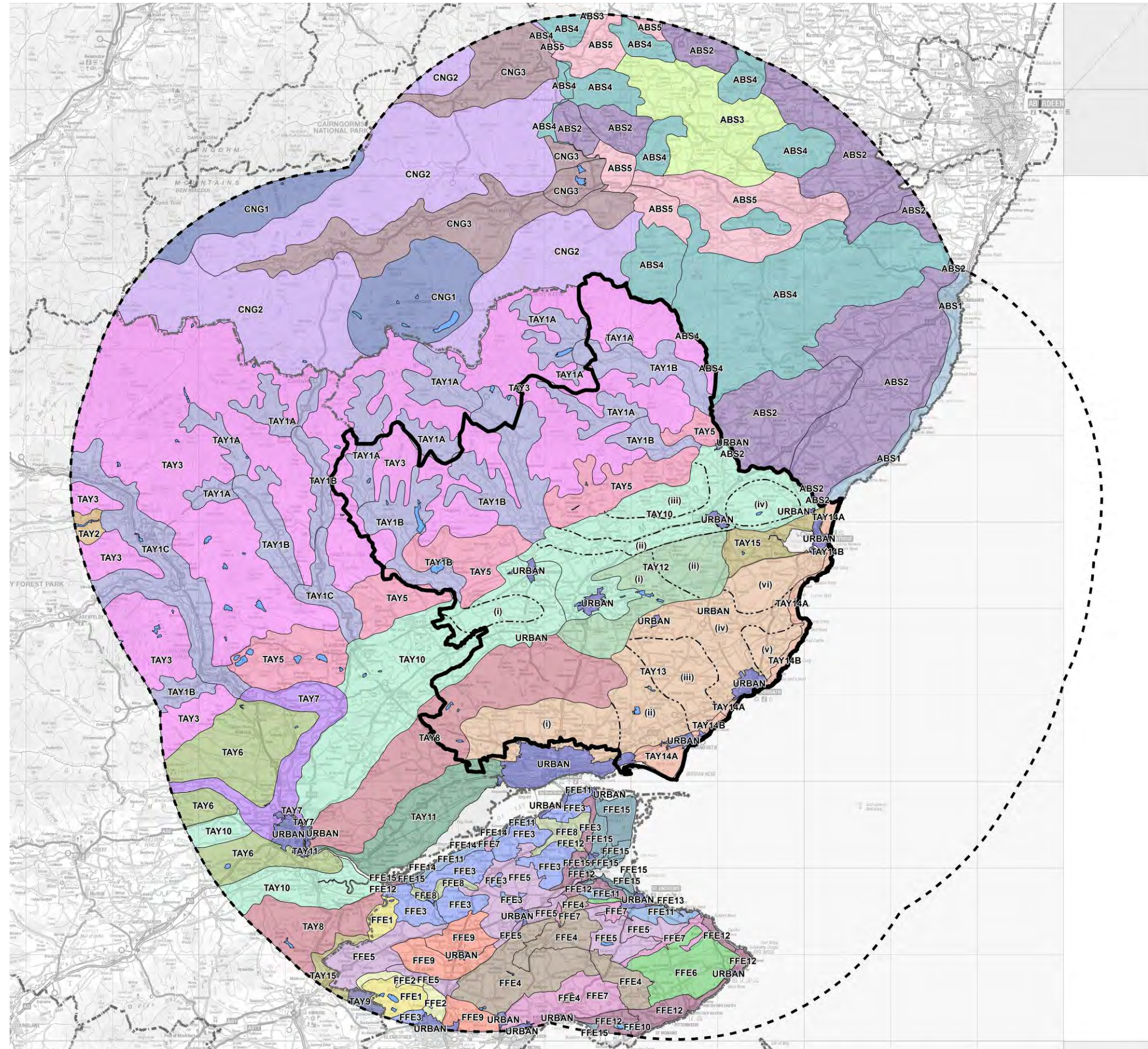
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- Legend**
- Study Area
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)
- Landscape Character Type Key:**
- ABS2, Agricultural Heartlands
 - ABS4, Moorland Plateaux
 - CNG2, Uplands and Glens
 - LOCH, Inland Loch
 - LOCH_ISLD, Loch Island
 - TAY1A, Upper Highland Glens
 - TAY1B, Middle Highland Glens
 - TAY3, Highland Summits and Plateaux
 - TAY5, Highland Foothills
 - TAY8, Igneous Hills
 - TAY10, Broad Valley Lowland
 - TAY11, Firth Lowlands
 - TAY12, Low Moorland Hills
 - TAY13, Dipslope Farmland
 - TAY14A, Coast with Sand
 - TAY14B, Coast with Cliffs
 - TAY15, Lowland Loch Basin
 - URBAN, Urban

Figure 3.4a
Landscape Character Types and Areas in Angus



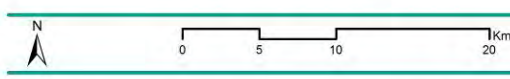
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- Legend**
- Study Area
 - Study Area 30km Buffer
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)
- Landscape Character Type Key:**
- ABC1, Major River Valleys
 - ABC4, Open Farmland
 - ABC5, Wooded Farmland
 - ABS1, Coastal Strip
 - ABS2, Agricultural Heartlands
 - ABS3, Farmed Moorland Edge
 - ABS4, Moorland Plateaux
 - ABS5, Straths and Valleys
 - CNG1, Cairngorm Plateau
 - CNG2, Uplands and Glens
 - CNG3, Cairngorm Straths
 - FFE1, The Uplands
 - FFE2, Upland Slopes
 - FFE3, Upland Foothills
 - FFE4, Pronounced Volcanic Hills and Craigs
 - FFE5, Lowland Hills and Valleys
 - FFE6, Lowland Open Sloping Farmland
 - FFE7, Lowland Dens
 - FFE8, Lowland Glacial Meltwater Valleys
 - FFE9, Lowland River Basin
 - FFE10, Lowland Loch Basin
 - FFE11, Coastal Hills
 - FFE12, Coastal Terraces
 - FFE13, Coastal Cliffs
 - FFE14, Coastal Braes
 - FFE15, Coastal Flats
 - LOCH, Inland Loch
 - LOCH_SLD, Loch Island
 - MRN4, Uplands
 - TAY1A, Upper Highland Glens
 - TAY1B, Middle Highland Glens
 - TAY1C, Lower Highland Glens
 - TAY2, Highland Glens with Lochs
 - TAY3, Highland Summits and Plateaux
 - TAY5, Highland Foothills
 - TAY6, Lowland Hills
 - TAY7, Lowland River Corridors
 - TAY8, Igneous Hills
 - TAY9, Dolerite Hills
 - TAY10, Broad Valley Lowland
 - TAY11, Firth Lowlands
 - TAY12, Low Moorland Hills
 - TAY13, Dipslope Farmland
 - TAY14A, Coast with Sand
 - TAY14B, Coast with Cliffs
 - TAY15, Lowland Loch Basin
 - URBAN, Urban

Figure 3.4b

Landscape Character Types and Areas in Study Area



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with arable land often extending close to cliff edges. There is little in the way of trees, the areas being open and windswept. There are links golf courses located in dunes along the sandy sections of coast and Barry Links has a military firing range.

Between the Forfar Hills and Montrose the landscape lowers in elevation forming the *Lowland Loch Basin* of Montrose Basin, which is part flat agricultural land and parkland and part inland tidal lagoon separated from the North Sea by the spit of land on which lies Montrose.

3.2.3 Further Analysis of Landscape Character

Some of the landscape character areas in Angus cover extensive areas and show clear variations in character relating particularly to scale, topography and vegetation cover. In the following areas we have identified Sub-Areas with consistent characteristics which may have a bearing on sensitivity and capacity. Further information and a figure showing the changes are given in **Appendix 3**.

Broad Valley Lowland (TAY 10)

The *Broad Valley Lowland* LCT is extensive and divided into two LCAs: Strathmore in the west and Lower South and North Esk Valley to the east. Within these areas a number of smaller sub-areas have been identified which vary sufficiently from the main type to be noted as potentially more or less sensitive to wind energy development:

- i. An area of complex fluvioglacial landforms comprising rolling hillocks and ridges with a more irregular field pattern contrasting with the flatter checkerboard pattern of valley floor and field boundaries in Strathmore.
- ii. The corridor of the River South Esk between Glen Clova and Brechin is focused around the meandering river. It is slightly more enclosed by shallow landform and trees than the more open arable land of Strathmore and has features such as former mills and large estate houses and policies.
- iii. A significant area lying between the A90 and the Menmuir Hills is topographically separated by a curved ridge of land from the area draining into the South Esk. This area of undulating arable land drains to the North Esk and not to Montrose Basin
- iv. An area of higher ground lies between the A90 and Montrose Basin to the east of Brechin. This area is elevated with slopes falling on all sides. Although included in the *Broad Valley Lowland* it has many of the more exposed characteristics of the *Dipslope Farmland*.

The sub-areas in this case do not cover all the area of the main LCAs. Remaining areas are considered as more representative of the 'standard' type.

Low Moorland Hills (TAY 12)

Further analysis of the lowland *Low Moorland Hills* landscape type south and east of Forfar indicates that, although clearly higher than the Lower Esk Valleys and Montrose Basin, much of it is of lower elevation than the adjacent *Dipslope Farmland*. On analysis it comprises two distinct sub-areas: the lower, flatter and mainly afforested Montreathmont

Forest & Moor and surrounding farmland to the east of Turin Hill and north of Guthrie and the area of widely separated steep sided hills in rolling farmland to the west, surrounding the east and south sides of Forfar.

Dipslope Farmland (TAY 13)

The *Dipslope Farmland* covers a wide area and accommodates significant variation within this character type, varying from relatively small scale enclosed farmland in shallow valleys to large open arable fields or small areas of heather moorland on the highest ground. The LCA can be divided up into six geographical sub-areas based on elevation and exposure, tree cover and surrounding landscape context:

- i. Tealing Farmland: The sub-area lies in a bowl between the ridge enclosing Dundee in the south and the escarpment of the Sidlaw Hills to the north and west. Close proximity to the urban area means it is more populated with villages and roads and crossed by several electricity transmission lines converging on a major substation. The backdrop of the hills contains and shelters the area from the north and west
- ii. Monikie Farmland: The features distinguishing this sub-area from other parts of the Dipslope Farmland include a greater preponderance of woodland amongst areas of arable farmland. This is partly due to the presence of two country parks set around former reservoirs (Crombie and Monikie) and also the Panmure estate policies. It is well settled in the southern part. This gives the area a more enclosed, settled and smaller scale feeling, increasing the sensitivity to wind energy developments. An electricity transmission line crosses from west to east.
- iii. Redford Farmland: This sub-area is higher and/or more open and exposed than neighbouring sub-areas. The plateau-like landform of the highest northern part is gently rolling or undulating and has large arable fields in which boundaries have been removed or have become minimal, giving an open, simple character. Settlements are small and well separated. Farms and houses also appear well separated and farm buildings are often large. There are some areas of mature trees, most notably the very enclosed Guynd designed landscape. An electricity transmission line crosses the centre. Due to its openness, apparent larger scale and productive farmland character, the northern parts of this sub-area, separated from the coastal facing slopes by a low ridge or break in slope, would be less sensitive to wind energy developments.
- iv. Letham, Lunan Water and Arbroath Valleys: This sub-area surrounds watercourses that drain to the sea at Lunan Bay and Arbroath. It is generally lower and/or less open and exposed than neighbouring sub-areas and has more settlement, including the significant settlements of Arbroath, Letham and Friockheim as well as smaller hamlets, isolated houses and farms. A golf/housing resort is identified in the local plan at Letham Grange near Arbroath. The land is intensively farmed, including areas of polytunnels. There are significant areas of mature trees: within designed landscapes such as Guthrie and Pitmuies, along watercourses and around settlements. Roads follow the valley landforms. An electricity transmission line lies near Arbroath. Due to its more enclosed and settled character, the sub-area would be more sensitive to wind energy developments.

- v. Ethie Farmland: This sub-area is higher and/or more open and exposed than the surrounding valley sub-area, partly due to its coastal exposure. The landform is gently rolling or undulating and has large arable fields in which boundaries have been removed or have become minimal. There are no settlements, only isolated farms and houses. There are areas of mature trees inland but the higher ground close to the coast is open and exposed. A main road and railway crosses lower ground in the centre. Due to its openness and productive farmland character the sub-area would be less sensitive to wind energy developments, although it is limited in extent and due cognisance should be given to the coastal location which is more sensitive to wind energy development.
- vi. Rossie Moor: This sub-area is higher and more open and exposed than the valley sub-area to the south and Montrose Basin to the north. The landform is gently rolling or undulating and has large arable fields in which boundaries have been removed or have become minimal. There are no settlements, only isolated farms and houses. There are areas of mature trees inland but much of the land close to the coast is open and exposed. A main road crosses lower ground to the east. Due to its openness and productive farmland character the sub-area would be less sensitive to wind energy developments, although due cognisance should be given to the coastal location which is more sensitive to wind energy development.

Within all of these sub areas there are relatively minor variations in landform and landcover which lead to areas of localised sensitivity which should be taken into account in specific site assessments.

3.3 Landscape Designations

Landscape designations are an indication of landscape or scenic value recognised at national, regional or local levels. Landscape designations form part of the baseline for both the assessment of landscape capacity, and the preparation of a spatial framework. Landscape designations within the study area are noted below, and are shown in Figure 3.5, in relation to LCAs.

3.3.1 National Landscape Designations

The Cairngorms National Park includes the hills and upper glens in the north of Angus. This area is not included in the core Angus study area, but it is considered within the 30km buffer.

The Cairngorms National Park is a landscape-related national designation. It is located in the north of the area and extends beyond into Aberdeenshire and Perth & Kinross. The National Park area includes the northern parts of the *Highland Summits and Plateaux* and most *Upper Highland Glens* areas.

The only area of national landscape designation within Angus is the Deeside and Lochnagar National Scenic Area (NSA), the southern end of which lies in the northwestern part of Angus, including the highest mountains and Glen Doll at the head of Glen Clova.

Taking into account existing and emerging national policy, it is unlikely that commercial windfarm proposals would be considered acceptable within the NSA or the National Park. Whilst buffer areas are not encouraged by policy, the effects of windfarms near to the NSA or National Park could be a material consideration.

Other national designations are primarily related to sites of natural or cultural heritage value (e.g. SCAs, SPAs, SSSIs and Scheduled Ancient Monuments), which are not the subject of this study. Nevertheless some of these areas such as Montrose Basin and the numerous castles, churches, prehistoric monuments and hillforts in Angus are notable for their contribution to landscape character and are considered, where appropriate, in the assessment of landscape value and capacity. Furthermore, locations of cultural heritage importance often have a landscape setting well beyond their physical extent. These are discussed in 3.4 below.

3.3.2 Local Landscape Designations

There are no local landscape designations such as Special Landscape Areas or Areas of Great Landscape Value within Angus. The protection of landscape character outside the National Park is based on local plan policy which is informed by the TLCA. This is taken into account in the assessment of landscape capacity.

Aberdeenshire also has no local landscape designations. There are Areas of Great Landscape Value in Perth & Kinross, although none are contiguous with Angus.

3.3.3 Other Landscape Designations

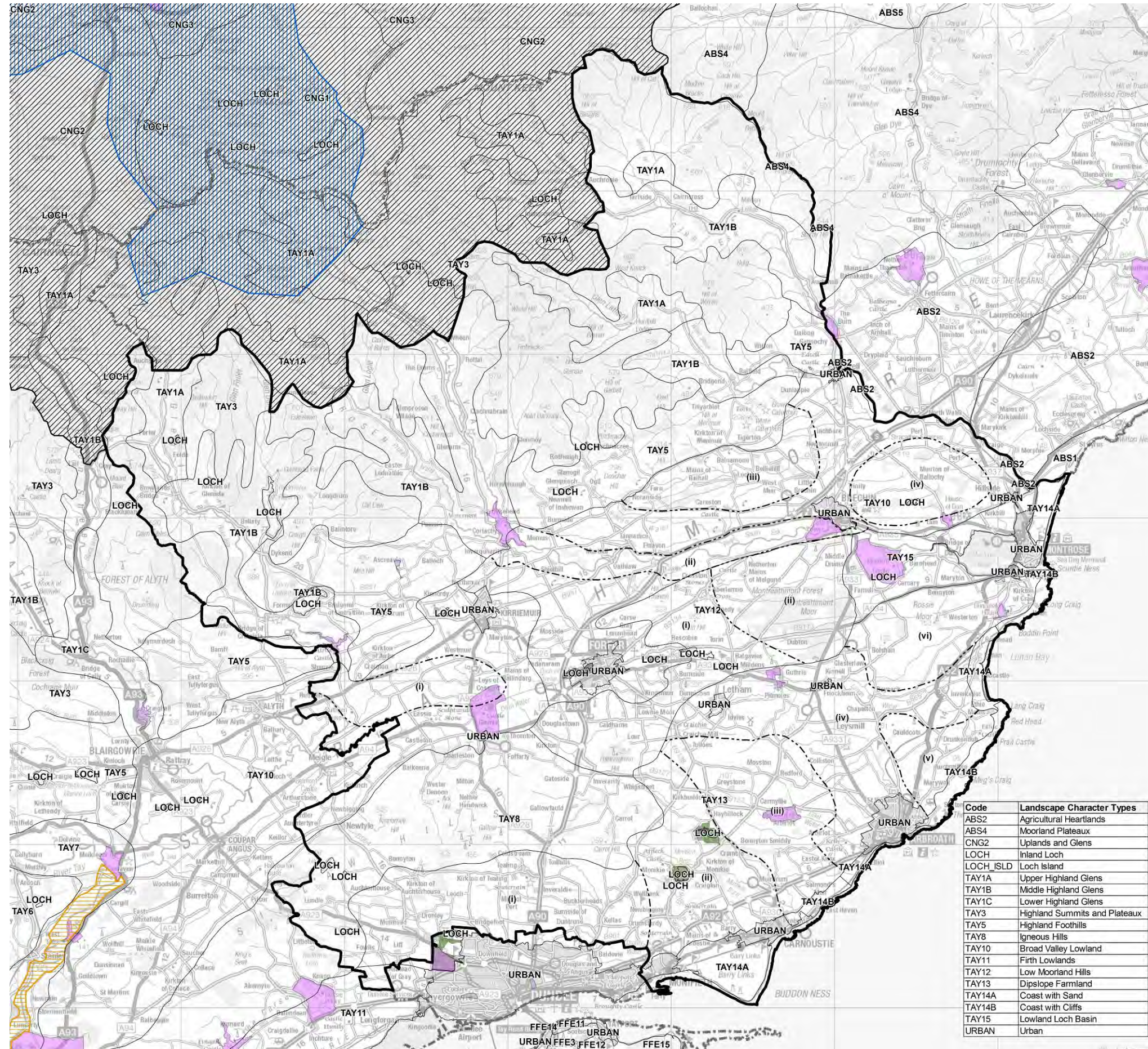
There are thirteen inventory Historic Gardens and Designed Landscapes (HGDLs) wholly or partially within Angus. The majority are located within lowland areas, but also include one in Montrose Basin and four others fully or partly within the edges of the highland area. Several further listed areas lie in the wider study area including Camperdown Park in Dundee City which is immediately adjacent.

Whilst this is not a statutory designation it is a landscape factor that contributes to the assessment of landscape character and value. These are taken into account in the assessment.

There are also three country parks in the area between Dundee, Carnoustie and Forfar at Monkie, Crombie and Forfar Loch and two country parks on the edge of Dundee City.

3.4 Other Designations

There are a number of designations that, whilst not solely landscape related, clearly indicate landscape value and inform the assessment process. These are shown in Figure 3.6 and discussed below. Illustrative examples are referred to in the assessment and guidance



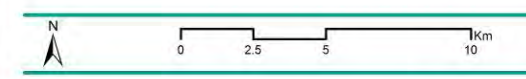
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- Legend**
- Study Area
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)
 - Cairngorms National Park
 - National Scenic Area
 - Areas of Great Landscape Value
 - Gardens and Designed Landscapes
 - Country Parks

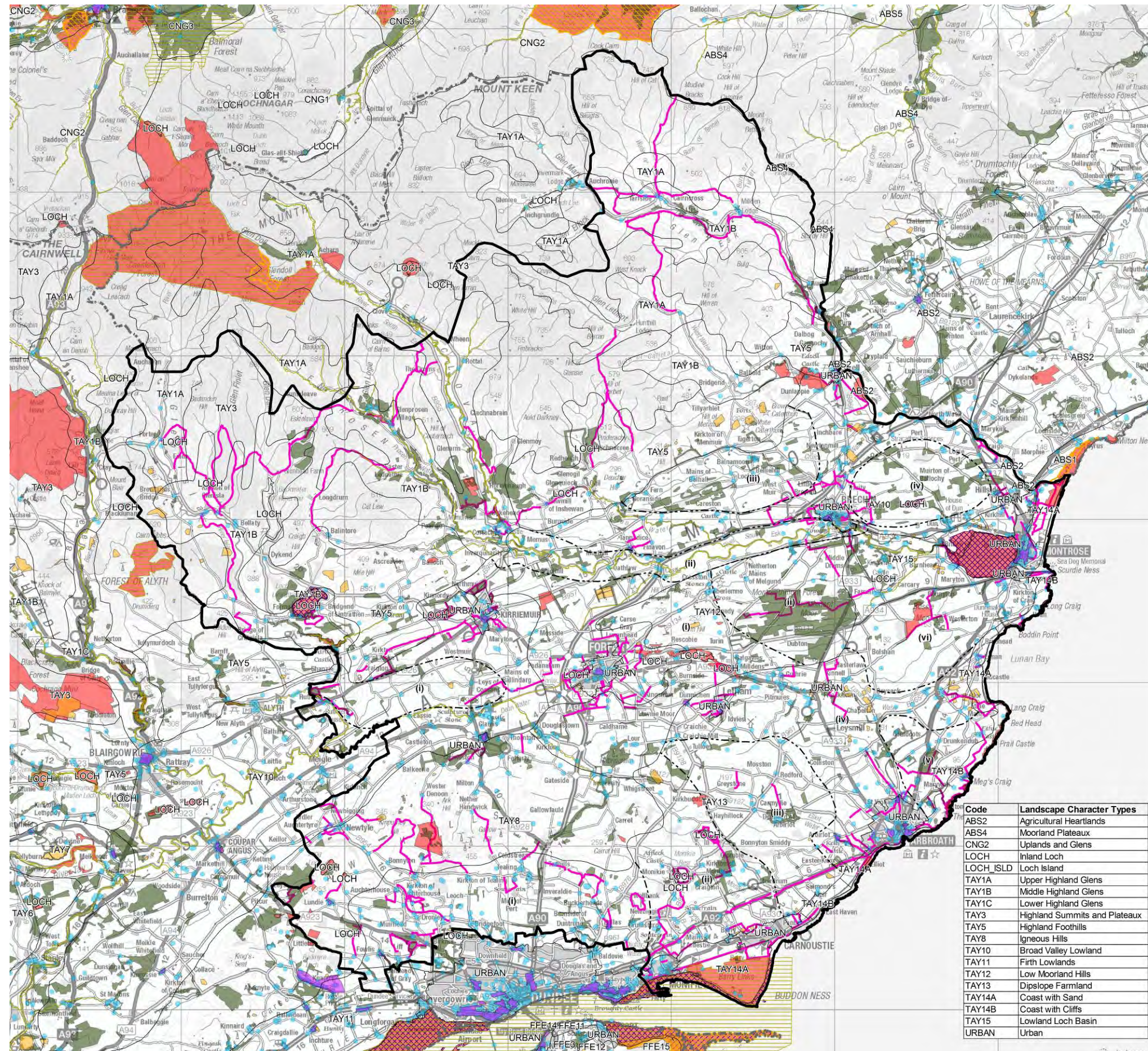
Code	Landscape Character Types
ABS2	Agricultural Heartlands
ABS4	Moorland Plateaux
CNG2	Uplands and Glens
LOCH	Inland Loch
LOCH_ISLD	Loch Island
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY8	Igneous Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban

Figure 3.5

Landscape Designations & Landscape Character Areas



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- Legend**
- Study Area
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)
 - Conservation Areas
 - Scheduled Ancient Monuments
 - Listed Buildings
 - National Nature Reserves
 - Special Areas of Conservation
 - Ramsar Sites
 - Ancient Woodland Inventory
 - Sites of Special Scientific Interest
 - Core Paths

Code	Landscape Character Types
ABS2	Agricultural Heartlands
ABS4	Moorland Plateaux
CNG2	Uplands and Glens
LOCH	Inland Loch
LOCH_ISLD	Loch Island
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY8	Igneous Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban

Figure 3.6
Natural and Cultural Designations



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3.4.1 Historic and Cultural Designations

Scheduled Ancient Monuments (SAMs) are primarily a historic or archaeological designation. However they can be of landscape significance in their own right and contribute to the character and value of a landscape. Furthermore, effects on their setting should be a consideration for neighbouring development proposals.

Conservation Areas are primarily an urban designation. Nevertheless the appearance of a settlement can be a key feature contributing to the surrounding rural landscape and equally the setting of a Conservation Area can be affected by developments in the surrounding countryside. There are a total of nineteen conservation areas within Angus. The largest are within the main towns but there are a number within smaller settlements throughout Angus.

There are extensive numbers of SAMs throughout Angus. Most characteristic are the numerous hillforts concentrated in the Sidlaw and Forfar Hills and the Highland Foothills. There are extensive remains of settlements and field systems in the lowland areas and a number of ruined castles.

Listed Buildings feature throughout the urban and rural areas. The greatest concentrations are located in the older settlements, particularly, but also in the smaller historic settlements and throughout most of the lowland and upland fringe areas. Listed buildings contribute to landscape character and value and their setting is a consideration for neighbouring development proposals.

3.4.2 Nature Conservation Designations

Areas designated for their nature conservation interest and importance include SPAs SACs, Ramsar Sites, SSSIs and National Nature Reserves (NNRs). All are national or international designations and subject to the highest level of constraint in spatial frameworks. Whilst these constraints are primarily related to nature conservation interests (see 2.9 above), the designated area can contribute to the character and value of a landscape through its relatively undisturbed natural features and potential visitor interest.

In the Angus study area the most extensive areas are SSSI/Ramsar/SAC sites located along the coast: including Montrose Basin and Barry Links. A number of inland lochs are also SSSI's and/or Ramsar Sites. Several extensive SSSI's lie outside Angus, within the 30km buffer within the Cairngorms National Park and Aberdeenshire.

Ancient woodland inventory sites are distributed across Angus, most being located in the lowland areas and sheltered glens in the Highlands. The largest area is at Montreathmont Forest 10km to the east of Forfar.

3.5 Wildness Mapping

SNH's wild land policy (2002) recognises the importance both of wild land in Scotland's countryside and to perceptions of wildness to society. The policy also notes the potential for development to erode the extent of wild land and perceptions of wildness in other areas.

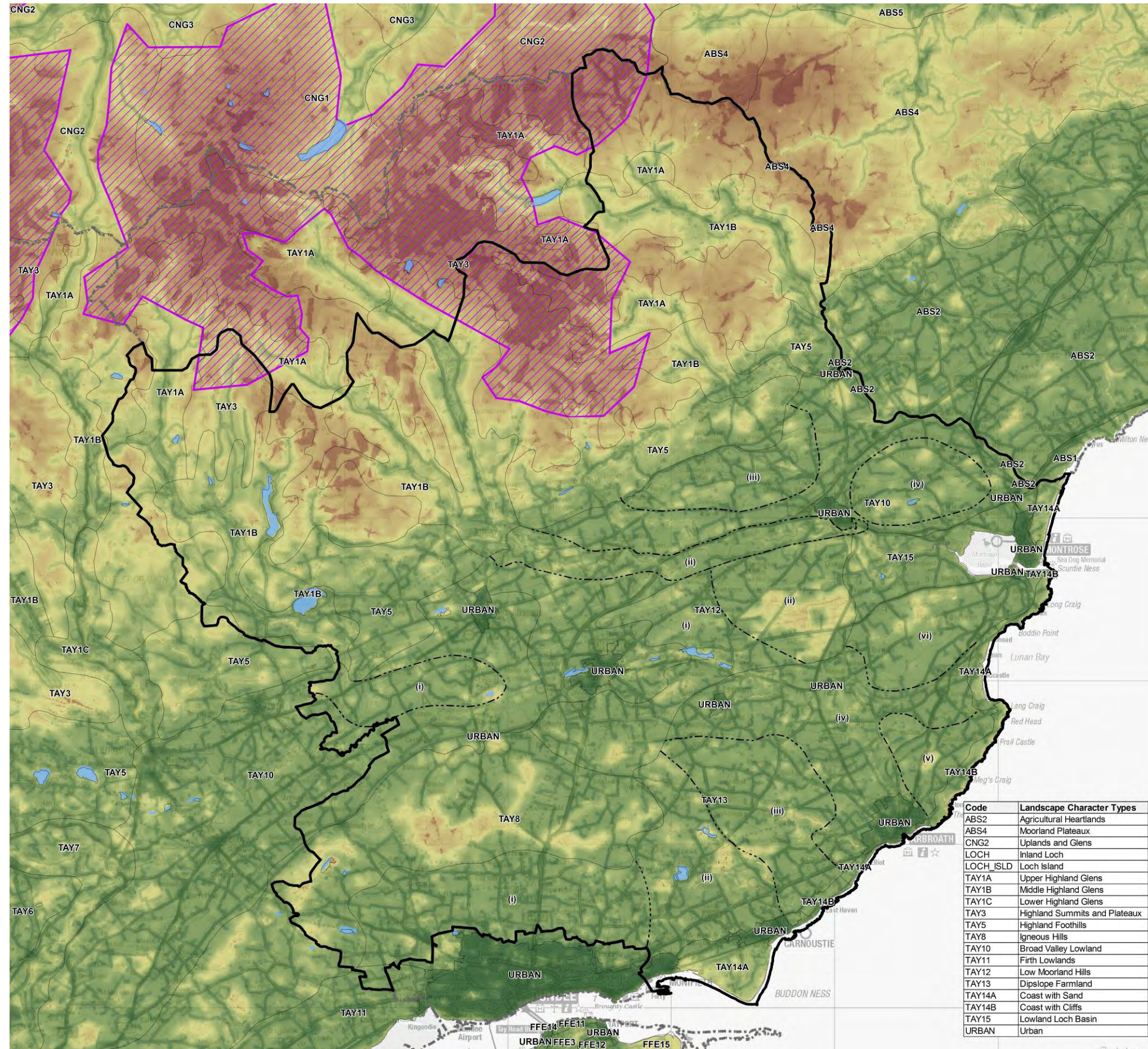
SNH has recently completed a mapping exercise in which the factors that contribute to wildness in a landscape have been combined and mapped to create a detailed picture of wildness on a relative scale (*Mapping Scotland's Wildness, Wildness Map January 2012*). Figure 3.7 of this report shows this in relation to the Angus landscape character areas. There is a sharp division in Angus between the Highlands and the Lowland and Coastal areas, with smaller areas of relative wildness appearing on the Sidlaw hills and Montreathmont Forest in the latter.

40 draft Core Areas of Wild Land have been identified across Scotland, based on the assessment of wildness. Area 16: Lochnagar and Mount Keen is partially located in Angus and fully within the Angus study area (*Core Areas of Wild Land in Scotland, April 2013*). This area is also shown on Figure 3.7: the greatest extent within Angus lies between Glen Clova, Glen Lethnot and Glen Esk, with smaller areas around Mount Keen to the north of Glen Esk and to the northeast of Glen Isla.

This information is used to identify areas with the highest wildness qualities in the study area and informs the assessment of landscape value of landscape character areas.

3.6 Other Relevant Matters

Other areas of interest which contribute to landscape value include walking and cycle routes such as the National Cycle Route, The Catevan Way and Angus Core Paths. Also included are viewpoints, parks and gardens, golf courses and access land. These areas are mapped on Figure 3.8 and taken into account in the assessment of value of landscape types and areas, as detailed in Appendix 7 and referred to in Chapter 6.



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- Legend**
- Study Area
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)
 - Lochs
 - Core Areas of Wild Land Character
- Level of Wildness**
- High
 - Low

Figure 3.7

Scottish Wildness and Core Areas of Wild Land



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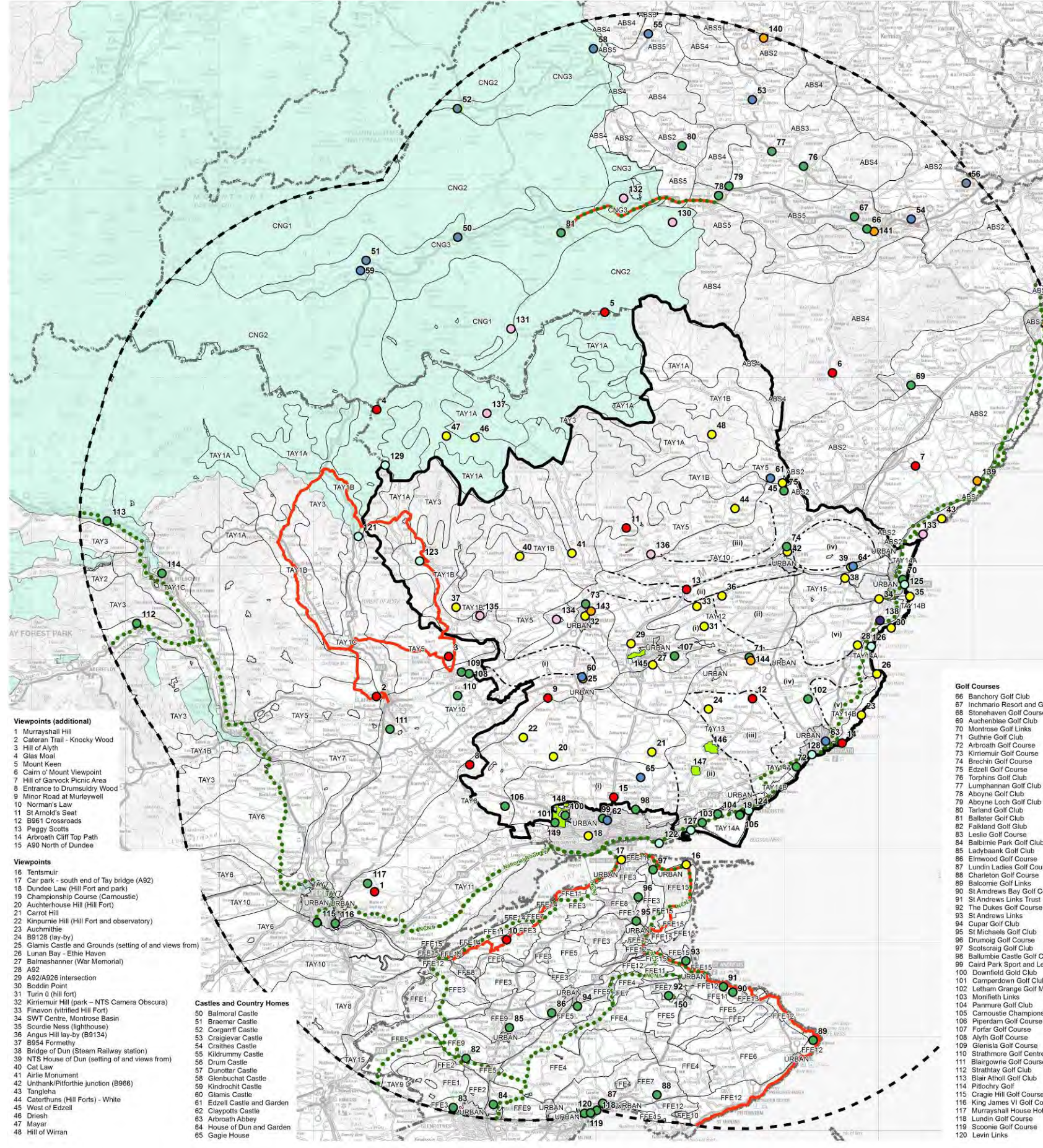


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Legend

- Study Area
 - Study Area 30km Buffer
 - Scottish Local Authority Boundaries
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)
 - Cairngorms National Park
- Locations of Landscape / Recreational Interest**
- Castles and Country Homes
 - Golf Courses
 - Natural Features
 - Nature Centres and Reserves
 - Parks and Gardens
 - Visitor Attraction
 - Viewpoints
 - Additional Viewpoints
 - Cycle Routes
 - Long Distance Footpaths
 - Country Parks

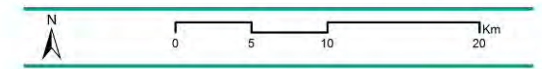
Code	Landscape Character Types
ABC1	Major River Valleys
ABC4	Open Farmland
ABC5	Wooded Farmland
ABS1	Coastal Strip
ABS2	Agricultural Heartlands
ABS3	Farmed Moorland Edge
ABS4	Moorland Plateaux
ABS5	Straths and Valleys
CNG1	Cairngorm Plateau
CNG2	Uplands and Glens
CNG3	Cairngorm Straths
FFE1	The Uplands
FFE2	Upland Slopes
FFE3	Upland Foothills
FFE4	Pronounced Volcanic Hills and Craigs
FFE5	Lowland Hills and Valleys
FFE6	Lowland Open Sloping Farmland
FFE7	Lowland Dens
FFE8	Lowland Glacial Meltwater Valleys
FFE9	Lowland River Basin
FFE10	Lowland Loch Basin
FFE11	Coastal Hills
FFE12	Coastal Terraces
FFE13	Coastal Cliffs
FFE14	Coastal Braes
FFE15	Coastal Flats
LOCH	Inland Loch
LOCH_ISLD	Loch Island
MRN4	Uplands
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY2	Highland Glens with Lochs
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY6	Lowland Hills
TAY7	Lowland River Corridors
TAY8	Igneous Hills
TAY9	Dolerite Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban



- Viewpoints (additional)**
- Murrayshall Hill
 - Cateran Trail - Knocky Wood
 - Hill of Alyth
 - Glen Moal
 - Mount Keen
 - Cairn o' Mount Viewpoint
 - Hill of Garvock Picnic Area
 - Entrance to Drumslurry Wood
 - Minor Road at Murleywell
 - Norman's Law
 - St Arnold's Seat
 - B961 Crossroads
 - Peggy Scotty
 - Arbroath Cliff Top Path
 - A90 North of Dundee
- Viewpoints**
- Tentsmuir
 - Car park - south end of Tay bridge (A92)
 - Dundee Law (Hill Fort and park)
 - Championship Course (Carnoustie)
 - Auchterhouse Hill (Hill Fort)
 - Carrot Hill
 - Kinrurnie Hill (Hill Fort and observatory)
 - Auchmithie
 - B9128 (by-by)
 - Glams Castle and Grounds (setting of and views from)
 - Lunan Bay - Ethie Haven
 - Balmashanner (War Memorial)
 - A92
 - A92/A926 intersection
 - Boddin Point
 - Turin 0 (hill fort)
 - Kinrurnie Hill (park - NTS Camera Obscura)
 - Finavon (vitrified Hill Fort)
 - SWT Centre, Montrose Basin
 - Scurdie Ness (lighthouse)
 - Angus Hill lay-by (B9134)
 - B954 Forrethly
 - Bridge of Dun (Steam Railway station)
 - NTS House of Dun (setting of and views from)
 - Cal Law
 - Airlie Monument
 - Unthank/Pitorthie junction (B966)
 - Tanghaia
 - Edzell Castle and Garden
 - Caterthuns (Hill Forts) - White
 - West of Edzell
 - Diesh
 - Mayar
 - Hill of Wirran
- Castles and Country Homes**
- Balmoral Castle
 - Braemar Castle
 - Corgarriff Castle
 - Craigievar Castle
 - Craithes Castle
 - Kidrummy Castle
 - Drum Castle
 - Duncatraz Castle
 - Glenbuchat Castle
 - Kindrocht Castle
 - Glams Castle
 - Edzell Castle and Garden
 - Claypotts Castle
 - Arbroath Abbey
 - House of Dun and Garden
 - Gagie House

- Golf Courses**
- Banchory Golf Club
 - Inchmarloch Resort and Golf Club
 - Stonehaven Golf Course
 - Auchenblae Golf Club
 - Montrose Golf Links
 - Guthrie Golf Club
 - Arbroath Golf Course
 - Kinrurnie Golf Course
 - Brechin Golf Course
 - Edzell Golf Course
 - Torphins Golf Club
 - Lumphannan Golf Club
 - Aboyne Loch Golf Club
 - Tarland Golf Club
 - Balalder Golf Club
 - Balbrnie Park Golf Club
 - Ladybank Golf Club
 - Elmwood Golf Course
 - Lundin Ladies Golf Course
 - Charleton Golf Course
 - Balcomie Golf Links
 - St Andrews Bay Golf Course
 - St Andrews Links Trust
 - The Dukes Golf Course
 - St Andrews Links
 - Cupar Golf Club
 - St Michaels Golf Club
 - Drumlogie Golf Course
 - Scotsraig Golf Club
 - Balmuir Castle Golf Club
 - Card Park Sport and Leisure Grounds
 - Downfield Golf Club
 - Campdown Golf Club
 - Letlham Grange Golf Management
 - Monifeth Links
 - Pannure Golf Club
 - Carnoustie Championship Course
 - Piperdam Golf Course
 - Farfar Golf Course
 - Alyth Golf Course
 - Glensia Golf Course
 - Strathmore Golf Centre
 - Blargowie Golf Course
 - Strathay Golf Club
 - Blair Atholl Golf Club
 - Pitlochry Golf
 - Craigie Hill Golf Course
 - King James VI Golf Course
 - Murrayshall House Hotel and Golf Club
 - Lundin Golf Course
 - Scoonie Golf Course
 - Levin Links
- Natural Features**
- Mount Blair
 - Borghy Ferry Beach
 - Glen Isla
 - Carnoustie
 - Montrose Seafrost
 - Lunan Bay
 - Monifeth Beach
 - Arbroath Beach
 - Monamenach
- Nature Centres and Reserves**
- Glen Tanar
 - Loch Muick Reserve
 - Muir of Dinnet National Nature Reserve
 - St Cyrus National Nature Reserve
 - Loch of Kinrory National Nature Reserve - RSPB
 - Loch of Lintrathen
 - Mountains Animal Sanctuary
 - Corrie Fee National Nature Reserve
- Parks and Gardens**
- Dunnindal Gardens
- Visitor Attraction**
- Mill of Benholm
 - Grampian Transport Museum
 - Banchory Museum
 - Toitboth Museum
 - Strathmore Golf Centre
 - Kinrurnie Camera Obscura
 - Pitmaes Gardens
- Country Parks**
- Farfur Loch Country Park
 - Crombie Country Park
 - Monkie Country Park
 - Clatto Country Park
 - Lundin Country Park
 - Campdown and Templeton Woods Country Park
 - Craigtown Country Park

Figure 3.8
Locations of Landscape Interest



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4.0 VISUAL BASELINE

The following section details the analysis that was carried out to establish the relative visibility and visual sensitivity of different parts of Angus.

4.1 Visual Receptors

In a study of landscape capacity and cumulative landscape impacts, it is important to consider visibility, and the effects of cumulative impact on visual receptors. This not only feeds into the assessment of landscape sensitivity and capacity (see Section 2.2), but also builds up a picture of how wind turbines might be perceived from visual receptors in and around Angus.

The types of potentially sensitive visual receptors within Angus are broadly categorised into three groups, represented by the following locations:

- Settlements, representing concentrations of residential receptors;
- Routes, representing travelling receptors, and including the dual carriageway Trunk Road, A roads, railway, and long-distance footpaths and cycleways;
- Viewpoints, representing visitors, selected from popular walking destinations, visitor attractions, and viewpoints identified on OS maps, including several viewpoints outside Angus but within the study area. These viewpoints were selected with the agreement of the officers of Angus Council.

The locations of the settlements, routes, and viewpoints are illustrated on Figure 4.1a and b. The assessment includes receptors in the visibility study buffer area of 15km beyond the Angus boundary (see 4.2 below).

Individual residential properties are not included in the visibility mapping although notice is taken of the frequency and distribution of dwellings in the analysis of each landscape character type.

Whilst there are working receptors in Angus, these have not been included, as it is common practice in Landscape and Visual Impact Assessment (LVIA) that people at work are considered to be low sensitivity visual receptors.

4.2 Visibility Analysis

An assessment of visibility was made from the settlements, routes and viewpoints illustrated in Figures 4.1a and b (Angus and wider study area). This was carried out by Envision 3D, using a computer based technique in which the intervisibility between receptors and landforms, or objects of specific heights on the landforms, is determined. The more intervisibility, the greater the visual sensitivity is likely to be. The method is described in more detail in **Appendix 2**.

The extent of the visibility assessment was limited to a 15km radius from the receptors. In our experience, this is the distance within which the great majority of significant impacts from wind farms or large turbines are likely to occur. Whilst it is recognised that impacts occur beyond this distance, up to 35km and beyond, as recognised by EIA best practice, this is not an EIA assessment and the results are considered to adequately distinguish between locations of potentially greater or lesser sensitivity.

Results of the visibility analysis are illustrated in Figures 4.2 a-f to 4.4 a-f (in **Appendix 4**). The colours show the differences in visual sensitivity across Angus. Red colours indicate areas that are most visible from the greatest numbers of receptors, grading through orange, yellow and green to blue areas that are seen by fewest receptors and uncoloured areas that would not be seen at all.

4.2.1 Settlements

Figures 4.2 a-f show that the areas most seen from settlements within 15km are located in the southern, lowland part of Angus; particularly near to where the largest population lies in Dundee.

Most notably visible are the edges of the *Dipslope Farmland* and coastal areas to the north and east overlooking the city and the south facing escarpment of the Sidlaws which is visible above the farmland. However there are pockets with low visibility for smaller objects (up to 50m) directly to the north of the city.

Other areas of *Dipslope Farmland* further east are visible from the settlements of Carnoustie, Arbroath, Brechin and Montrose. Rossie Moor between Brechin, Montrose and Arbroath is particularly visible by comparison with most other areas. The *Low Moorland Hills* to the north and east of Forfar, including Montreathmont Forest, also have a higher visibility, although lower ground between the hills is relatively concealed. Within Strathmore the most visible areas are the higher ground to the east of Brechin which separates the North and South Esk and the wider strath to the southwest of Kirriemuir.

Within the lowlands, the areas less visible from settlements include lower ground on the north of the Sidlaw Hills and the *Dipslope Farmland*, including the lower ground between Letham and Lunan Bay, and land draining to the North Esk to the north of the A90 at Brechin. In the latter area objects up to 50m or 80m are much less visible than in surrounding areas. On the coast Lunan Bay, sheltered by higher ground, is the least visible area.

The areas with least visibility of settlements lie to the north, in the Highland area. Here extensive areas would not be visible from settlements, reflecting the low population within these areas. The *Highland Foothills* are slightly more visible, with the most visible area being to the north of Kirriemuir. The narrow glens to the north of them are particularly sheltered from visibility.

4.2.2 Routes

The pattern of visibility from transport and other routes (Figures 4.3 a-f) shows similarities to the pattern for settlements, but is less skewed towards Dundee. Whilst areas close to Dundee are still the most visible for higher objects in particular, other areas showing

relatively higher visibility include: Strathmore and the Kirriemuir Hills around Kirriemuir which would be visible from several A roads including the A90; the higher Forfar Hills; the higher ground between North and South Esk; the higher areas of *Dipslope Farmland* including Rossie Moor and the *Highland Foothills*.

The less visible areas within the lowlands are similar to those for the settlements. Notably the pockets north of Dundee and the A90 near Brechin continue to show low visibility for objects below 50m or even 80m. Coastal areas show a similar pattern to settlements, with Lunan Bay the least visible.

Again the Highland area is the least visible due to the low density of routes within 15km, although the southern edges of all the hills are relatively more visible than is the case from settlements.

4.2.3 Viewpoints

The viewpoints tell a different story (Figures 4.4 a-f). This is because they relate less to centres of population and more to available views.

On the basis of the viewpoints selected, by far the most visually sensitive area is in Strathmore, around Kirriemuir. Areas north and east of Dundee have a low visibility from viewpoints.

Other areas of greater visibility from viewpoints include the *Low Moorland Hills* east of Forfar including Montreathmont Forest; the area of Strathmore around Brechin; all of the *Highland Foothills* and some of the southern ridges and summits of the *Highland Summits and Plateaux*. The heightened sensitivity of these areas reflects the significant number of hilltop viewpoints.

The areas least visible from viewpoints lie along the coast, in the valleys of the Sidlaw Hills and lower areas of the *Dipslope Farmlands* and in some of the Highland Glens. This is due to the concealing effects of topography.

4.2.4 Analysis of Visibility

The visibility analysis confirms some empirical observations of visual sensitivity across Angus, i.e. that it is the areas of higher topography and close to population areas that have the highest visual sensitivity. However it gives a more refined and nuanced assessment, determining which geographical areas are the most and least visually sensitive.

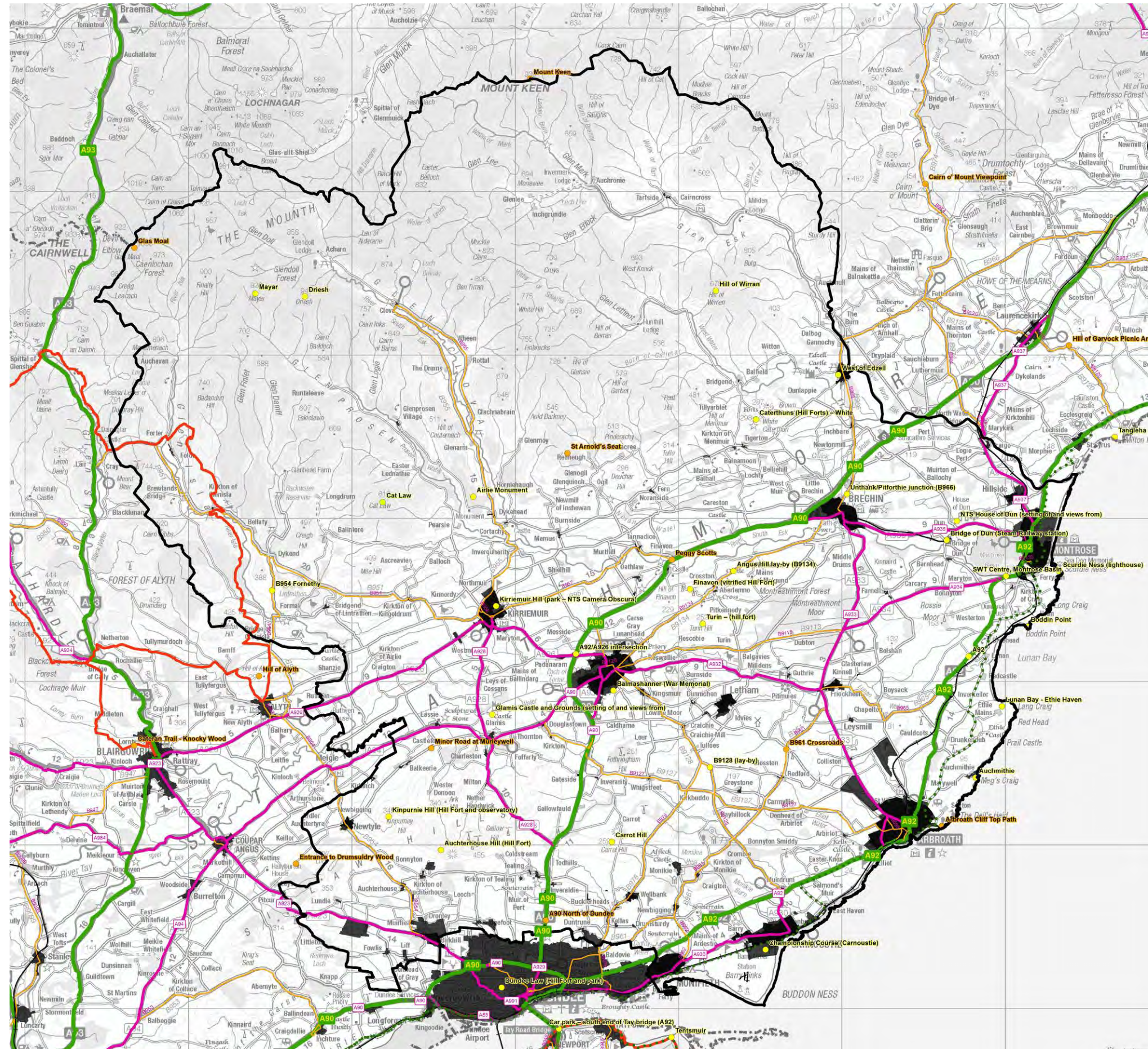
Areas of higher visibility may have a bearing on their capacity for wind turbine development although the relationship may not be simple: high visibility could mean high visual sensitivity but may also indicate exposed large scale locations suitable for turbines. Based on the computer assessment and on observation, the following areas are of higher sensitivity:

- The *Dipslope Farmland* and coastal areas north and east of Dundee due to proximity to a high population and transport routes;
- The main south facing escarpment of the Sidlaw Hills due to high elevation and proximity to a high population and transport routes;
- The Forfar Hills and Montreathmont Forest, the higher parts of which have higher visibility from viewpoints, transport routes and settlements;
- Higher areas of *Dipslope Farmland* which are visible from surrounding settlements and transport routes, particularly Rossie Moor and areas northeast of Dundee;
- Strathmore west of Forfar and particularly around Kirriemuir due to visibility from routes and from viewpoints;
- Strathmore east of Brechin where a higher area separates the North and South Esk and is visible from settlements, transport routes and viewpoints;
- The *Highland Foothills* and southern summits and ridges of the *Highland Summits and Plateaux*, due to visibility from viewpoints and, to a lesser extent, routes.

The least visible areas may have capacity to conceal turbines or site them away from most receptors. However their lack of visibility may indicate landscape character sensitivities such as smaller scale and greater levels of settlement, or alternatively remoteness:

- Lower *Dipslope Farmland* areas such as the Lunan Valley and areas north of Greystones which are sheltered by higher ground;
- Lunan Bay hidden between areas of higher *Dipslope Farmland*;
- Small valleys in the north and west of the Sidlaw Hills and between the Forfar Hills;
- Much of the *Highland Summits and Plateaux* and *Highland Glens* are not highlighted due to distance from population centres and transport routes. However they form a backdrop to much of lowland Angus and are in the foreground of views from the National Park;
- There are a number of small pockets which have lower visibility for smaller structures due to screening by surrounding low ridges. This includes areas of *Dipslope Farmland* north of Dundee and *Broad Valley Lowland* north of the A90 near Brechin.

The findings of the visibility assessment are incorporated in the analysis and assessment. Nevertheless, as discussed above, they require careful interpretation in relation to sensitivity of receptors, landscape character and the importance of some more distant views.



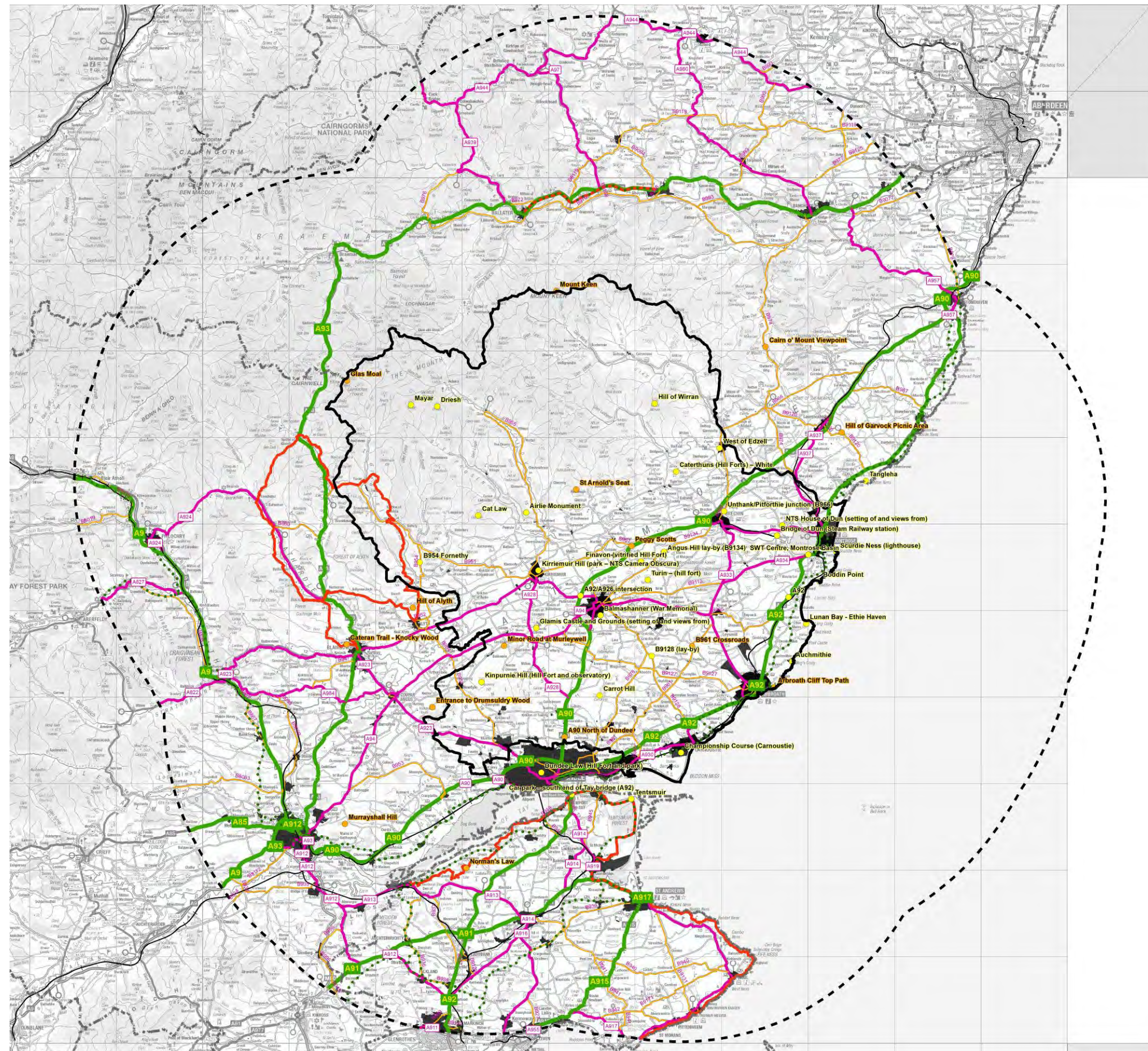
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- Legend**
- Local Authority Boundary
 - Scottish Local Authority Boundaries
 - Settlements
 - Viewpoints
 - Additional Viewpoints
 - Cycle Routes
 - Long Distance Footpaths
 - Railway
- Road Classifications**
- Primary Road
 - A Road
 - B Road

Figure 4.1a
Transport Routes,
Settlements & Viewpoints
in Angus



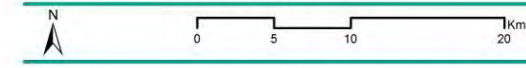
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- Legend**
- Local Authority Boundary
 - Study Area 30km Buffer
 - Scottish Local Authority Boundaries
 - Settlements
 - Viewpoints
 - Additional Viewpoints
 - Cycle Routes
 - Long Distance Footpaths
 - Railway
- Road Classifications**
- Primary Road
 - A Road
 - B Road

Figure 4.1b
Transport Routes,
Settlements & Viewpoints
in Study Area



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5.0 WIND TURBINES IN THE STUDY AREA

This section lists and describes the operating, consented and proposed wind turbine developments in the study area at May 2013. A brief explanation of turbine and windfarm size categories used in this study is given below.

5.1 Size of Wind Turbines and Windfarms

There are a number of overlapping and interacting factors which affect the potential landscape and visual effects of wind energy developments. The four main factors are:

- Size of turbine
- Turbine design (shape/ blades/ tower /colour)
- Numbers of turbines (within groups and/ or single turbines spread across an area)
- Distribution of turbine groupings (spacing between groups and/or single turbines)

The effects of these factors will in turn differ depending on the character of the landscape in which the turbines are located. The factors and their effects are discussed in detail in **Appendix 5** of this report. Tables 5.1 and 5.2 below provide a classification of wind turbine sizes and wind energy development sizes. These provide a basis on which turbine size and distribution is mapped and discussed in the following sections.

Table 5.1. Turbine Size Categories in This Study

Size Category	Blade Tip Height	Typical Use
Small	Turbines less than 15m in height	Typically used for domestic FiT schemes
Small-Medium	Turbines 15m to <30m in height	Typically used for domestic and farm FiT schemes
Medium	Turbines 30m to <50m in height	Typically used for farm and industrial FiT schemes
Medium/Large	Turbines 50m to <80m in height	Single turbine FiT schemes and smaller turbines used in commercial schemes
Large	Turbines 80m to <125m in height	Typical turbines used in commercial windfarms but also on some single turbine schemes
Very Large	Turbines 125m in height and greater.	Used in commercial onshore windfarms, as well as offshore (up to ca. 200m in the latter)

There is no current ‘accepted’ classification of commercial windfarm sizes in Scotland. Existing and proposed wind energy developments vary in turbine numbers and turbine sizes; from single small turbines to over 200 large turbines. Individual turbines vary in size from below 15m to more than 140m, with maximum outputs from a few kW to greater than 3MW.

To place Angus within context, it is worth considering the wider Scottish context. The table below refers to small, medium, large etc. size wind energy developments. For clarity the wind energy development size categories relate wherever possible to published guidance or planning application procedures. The 20MW size SPP currently refers is shown in the Table 5.2 below, although it should be noted that emerging Government policy is recommending the abandonment of this scale threshold.

Table 5.2. Wind Energy Development Size Categories

Size Category	Size Criteria	Planning Criteria/ Illustrative Examples
Small	A development of 3 or fewer turbines.	As defined by SNH guidance on assessment of small scale wind energy development (<i>SNH 2012</i>)
Small/Medium	A windfarm of more than 3 turbines up to 20MW output	Current SPP recommends windfarms above 20MW are to be covered by SPG. <i>E.g. Between 4 turbines over 50m and 10x2MW turbines or 6x3MW turbines</i>
SPP 2010 ‘Cutoff’ 20MW		
Medium	A windfarm between 20MW and 50MW output	Windfarms up to 50MW are dealt with as local planning authority applications. <i>E.g. Between 7x3MW and 16x3MW turbines</i>
Large	Windfarms greater than 50MW output	Windfarms over 50MW are section 36 Applications dealt with by Scottish Ministers. <i>E.g. A minimum size of 20x2.5MW or 17x3MW turbines</i>
Very Large	Windfarms greater than 100MW output	<i>E.g. A minimum size of 50 turbines over 125m tall</i>

5.2 Wind Turbine Distribution in the Study Area

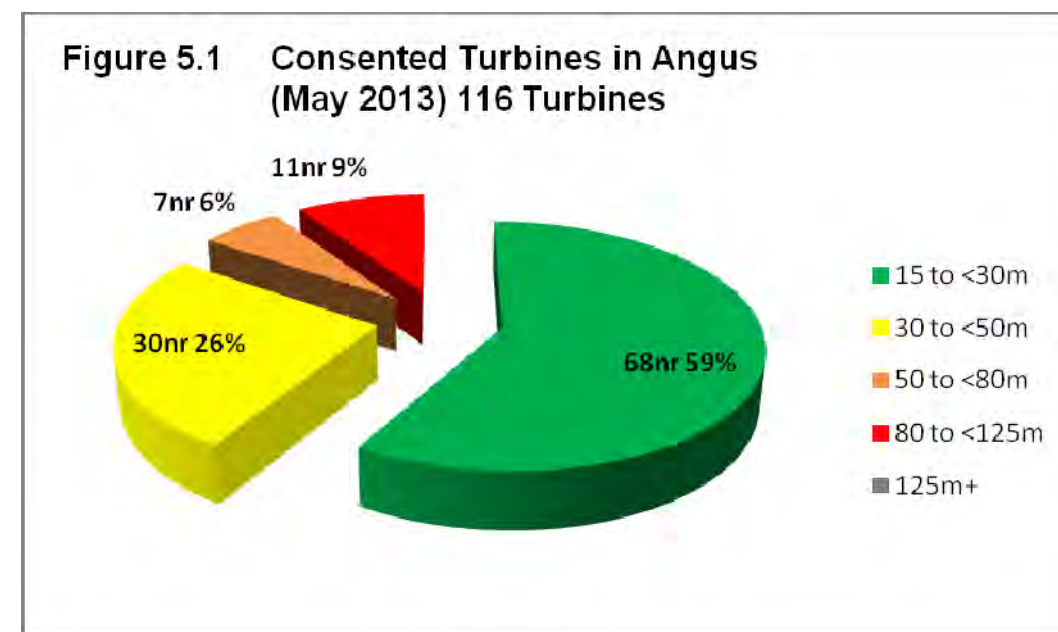
Consented and proposed wind energy developments within the study area are listed, together with details (where available) of location, number and height of turbines etc, in **Appendix 5**. The locations are shown in **Figures 5.1a** (Angus) and **5.1b** (whole study area).

At May 2013 there were within Angus a total of 116 turbines 15m and taller that are consented and 51 that are planned or S36 applications pending a decision. There are many further turbines consented and at planning stage in Perth & Kinross to the west, in Aberdeenshire to the east and in proposed offshore windfarms.

There are also a considerable number of turbines under 15m in height consented or pending approval. These are not included in the study.

5.2.1 Operating and Consented Wind Turbines within Angus

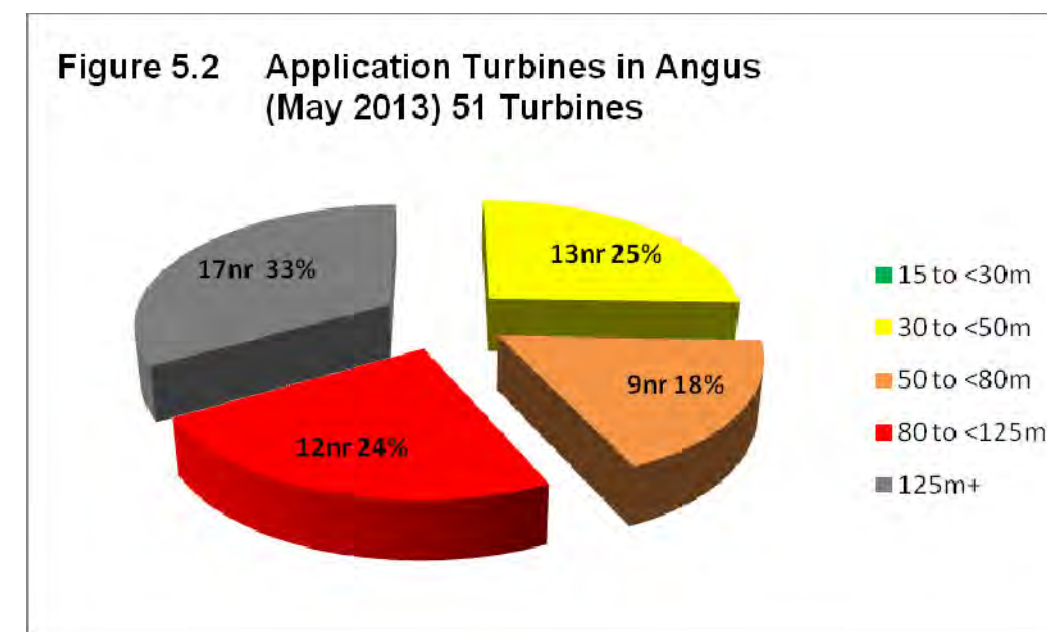
68 (59%) of the consented turbines are small/medium (15-<30m in height); another 30 are medium (30-<50m) and another 7 medium/large (50-<80m). Most of the turbines are single, with the remainder in groups of 3 or fewer. 8 of the 11 turbines over 80m are in Ark Hill windfarm in the Sidlaws. The other three are single turbine developments; with the tallest consented turbine at the former Tealing Airfield north of Dundee at 93.5m height.



The consented wind energy developments in Angus are all therefore at the smaller end of the size range. The only windfarm is Ark Hill with 8 x 81m turbines at 25MW. This is at the lower end of 'medium' in Table 5.2, and reflects the restrictions inherent in the Angus landscape.

5.2.2 Proposed Wind Turbines in Angus

The applications show a different distribution of sizes, with no turbines under 30m and the greatest proportion, 31 (59%), over 80m in height. These are mainly in windfarms.



Nathro, a S36 application with 17x135m turbines is the largest, located on the southern edge of the Highland area. At 61MW it would fall into the 'large' category in Table 5.2.

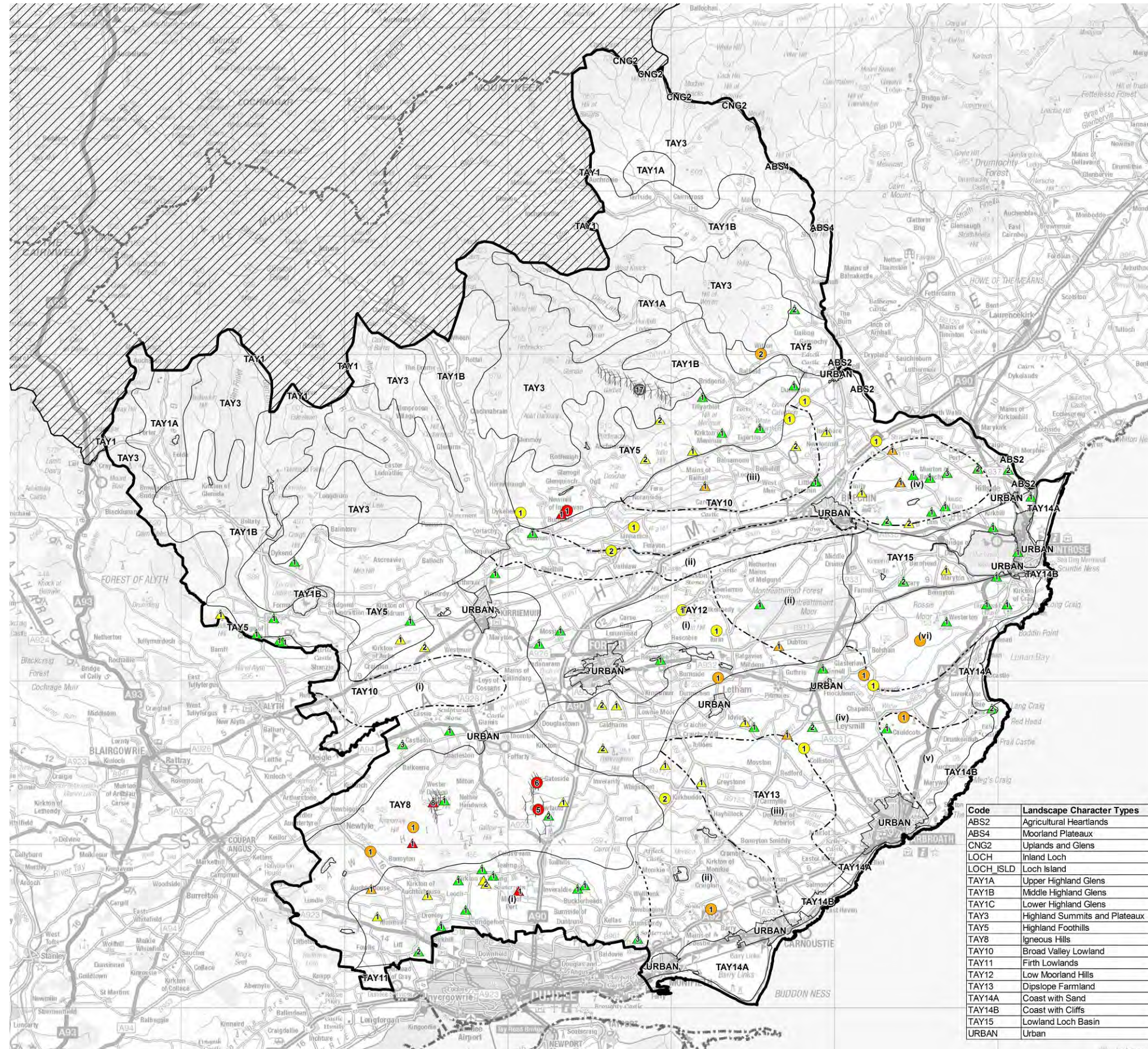
Two other small/medium windfarm proposals lie in the eastern Sidlaws: Frawney and Govals. The remaining proposals are predominantly single turbines.

5.2.3 Proposals That Have Been Refused

A number of windfarm proposals have been refused at planning application stage or dismissed at appeal over the past 5 years:

- Mountboy, Rossie Moor: 3x110m turbines (dismissed 2009)
- Montreathmont, Montreathmont Forest: 11x126.5m turbines (dismissed 2009)
- Dusty Drum, Carmyllie: 3x110 (refused 2009)
- East Skichen, Monikie: 3x91m (refused 2009)
- Hill of Finavon, near Forfar: 3x99.5m (dismissed 2012)
- Carrach on Mile Hill near Ascreavie: 9x84m (dismissed 2013)
- Corse Hill, near Carnoustie: 7x126m (dismissed 2013)
- GSK Turbines, Montrose: 2x132m (dismissed 2013)

The majority of these have been refused/ dismissed on the basis of adverse landscape and visual impacts based on the size (and sometimes number) of the turbines. This record is relevant to the subsequent detailed analysis and guidance in Chapter 6.



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Legend

- Study Area
- Scottish Local Authority Boundaries
- Cairngorms National Park
- Landscape Character Type / Area Boundary (see Table 3.1 for list)
- LCA Sub Areas (Ref. Table 6.1)

Consented Turbines:

(Height Category and No. of Turbines)

- Unknown Height
- 15 to <30m
- 30 to <50m
- 50 to <80m
- 80 to <125m
- 125m+

Application Turbines:

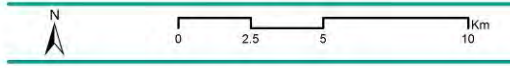
(Height Category and No. of Turbines)

- Unknown Height
- 15 to <30m
- 30 to <50m
- 50 to <80m
- 80 to <125m
- 125m+

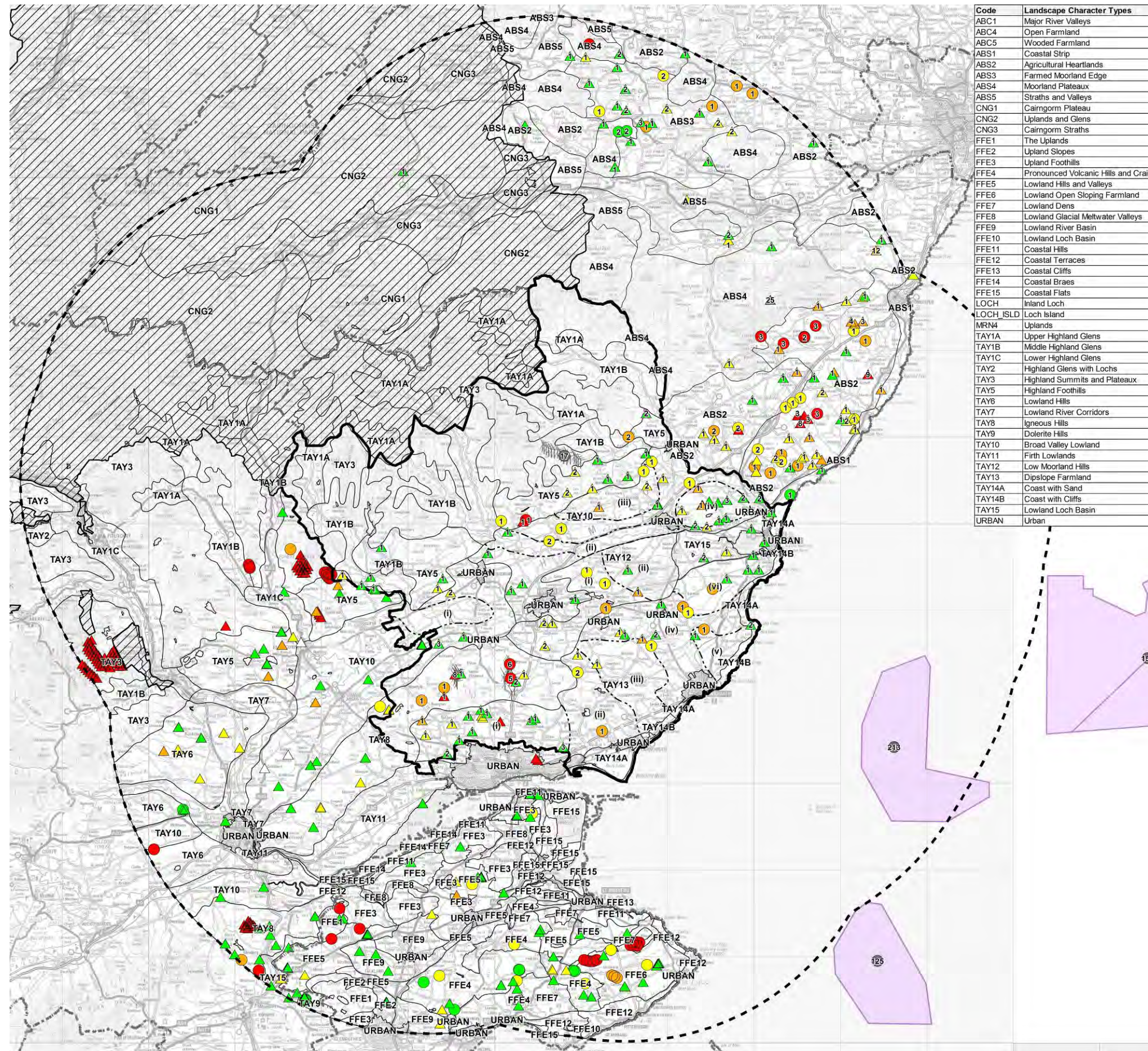
Turbine Locations

Code	Landscape Character Types
ABS2	Agricultural Heartlands
ABS4	Moorland Plateaux
CNG2	Uplands and Glens
LOCH	Inland Loch
LOCH ISLD	Loch Island
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY8	Igneous Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban

Figure 5.3a
Existing, Consented & Proposed Wind Turbines in Angus



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Code	Landscape Character Types
ABC1	Major River Valleys
ABC4	Open Farmland
ABC5	Wooded Farmland
ABS1	Coastal Strip
ABS2	Agricultural Heartlands
ABS3	Farmed Moorland Edge
ABS4	Moorland Plateaux
ABS5	Straths and Valleys
CNG1	Cairngorm Plateau
CNG2	Uplands and Glens
CNG3	Cairngorm Straths
FFE1	The Uplands
FFE2	Upland Slopes
FFE3	Upland Foothills
FFE4	Pronounced Volcanic Hills and Craigs
FFE5	Lowland Hills and Valleys
FFE6	Lowland Open Sloping Farmland
FFE7	Lowland Dens
FFE8	Lowland Glacial Meltwater Valleys
FFE9	Lowland River Basin
FFE10	Lowland Loch Basin
FFE11	Coastal Hills
FFE12	Coastal Terraces
FFE13	Coastal Cliffs
FFE14	Coastal Braes
FFE15	Coastal Flats
LOCH	Inland Loch
LOCH_ISLD	Loch Island
MRN4	Uplands
TAY1A	Upper Highland Glens
TAY1B	Middle Highland Glens
TAY1C	Lower Highland Glens
TAY2	Highland Glens with Lochs
TAY3	Highland Summits and Plateaux
TAY5	Highland Foothills
TAY6	Lowland Hills
TAY7	Lowland River Corridors
TAY8	Igneous Hills
TAY9	Dolerite Hills
TAY10	Broad Valley Lowland
TAY11	Firth Lowlands
TAY12	Low Moorland Hills
TAY13	Dipslope Farmland
TAY14A	Coast with Sand
TAY14B	Coast with Cliffs
TAY15	Lowland Loch Basin
URBAN	Urban



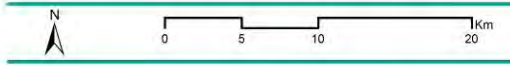
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- Legend**
- Study Area
 - Study Area 30km Buffer
 - Scottish Local Authority Boundaries
 - Cairngorms National Park
 - Landscape Character Type / Area Boundary (see Table 3.1 for list)
 - LCA Sub Areas (Ref. Table 6.1)

- Consented Turbines:**
(Height Category and No. of Turbines)
- Unknown Height
 - 15 to <30m
 - 30 to <50m
 - 50 to <80m
 - 80 to <125m
 - 125m+

- Application Turbines:**
(Height Category and No. of Turbines)
- Unknown Height
 - 15 to <30m
 - 30 to <50m
 - 50 to <80m
 - 80 to <125m
 - 125m+
 - Turbine Locations
 - Extents of Offshore Windfarm

Figure 5.3b
Existing, Consented & Proposed Wind Turbines in 30km Study Area



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5.2.4 Consented Wind Turbines in 30km buffer outside Angus

Within the 30km buffer area outside Angus there are over 400 consented turbines, many of which are situated in windfarms. The majority of these are situated in Perth & Kinross and Aberdeenshire. There are no consented turbines in the Cairngorms National Park area.

The turbines most relevant to the Angus landscape are:

- the windfarms at Drumderg and Welton of Creuchies northwest of Alyth in Perthshire, which lie within the *Highland Summits and Plateaux* and *Highland Foothills* a few kilometres west of the Angus boundary, the former being extensively visible across Angus
- the windfarm at Tullo Farm on Hill of Garvock above Laurencekirk in Aberdeenshire, which lies within 10km east of Angus and is extensively visible in views along Strathmore and from eastern Angus (this windfarm is consented to be extended from 7 to 17 turbines);
- the two 120m turbines at the Michelin Factory in Dundee, within 2km of the southern Angus border
- the windfarm at Midhill in Aberdeenshire, which lies in the *Moorland and Plateaux* north of the Howe of Mearns, some 15km north east of Angus.
- a number of single turbines of medium to large size located in and around the Howe of Mearns, which is the northern end of the extensive lowland valley of Strathmore.

There are a number of wind turbines in Fife but most of these are single turbines that would be hidden behind the hills of northern Fife. Other larger concentrations of turbines within the 30km study area are at the edge of the 30km offset and mainly hidden by intervening landforms; although could be experienced sequentially on a journey through the wider study area.

There were no consented offshore windfarms in May 2013.

5.2.5 Proposed Wind Turbines in 30km buffer outside Angus

Within the 30km buffer area there were applications for a further 112 turbines on land. The most significant of these are as follows:

- 7 large turbines at Tullymurdoch wind farm in Perth & Kinross, straddling the boundary between *Highland Summits and Plateaux* and *Highland Foothills*, on the boundary with Angus
- a significant number of single turbine / small windfarm applications in the *Agricultural Heartlands* of Aberdeenshire within 20km of Angus.

There are three very large developments proposed offshore, all at scoping: This includes

- Inchcape, over 200 turbines, 15km offshore from Angus;
- Neart na Gaoithe with 125 x 197m turbines, located at 30km south on the edge of the study area;

- The 150 turbine Firth of Forth & Tay windfarm with Alpha and Bravo arrays at 27km and 38km to the east, lies largely outside the study area.

Further applications are smaller scale and/or further removed from the Angus boundary.

5.3 Landscape Character of Turbine Locations

The trend in Angus is for locating single and smaller groups of turbines in the lowlands. This does not reflect the trend for larger windfarms and clusters prevalent in upland areas of Scotland, nor the proliferation of turbines in the Aberdeenshire farmlands. It does however show a trend towards locating single and smaller groups of turbines in lowland areas and shows the more scattered distribution of smaller turbines typical of FiT projects (although recent submissions for individual turbines include increasingly large turbine sizes).

The consented developments in highland areas have single or low numbers of turbines of a smaller size. There are very few consents in the coastal areas and none in the highest of the highland areas, although there are highland windfarms in close proximity in neighbouring Perth & Kinross.

Within Angus, most of the consented turbines and planning applications for wind turbines are within lowland landscapes. The only windfarm, at Ark Hill, is located in lowland hills. There is one large development proposed in the Highland area. Table 5.3 below lists the turbine sizes relative to their locations. **Appendix 6** gives more details of individual developments

Figure 5.4: Consented Turbine Location and Heights in Relation to Landscape Character (May 2013) (Turbine Height: grey=very large; red=large; orange=medium/large; yellow=medium; green=medium/small)

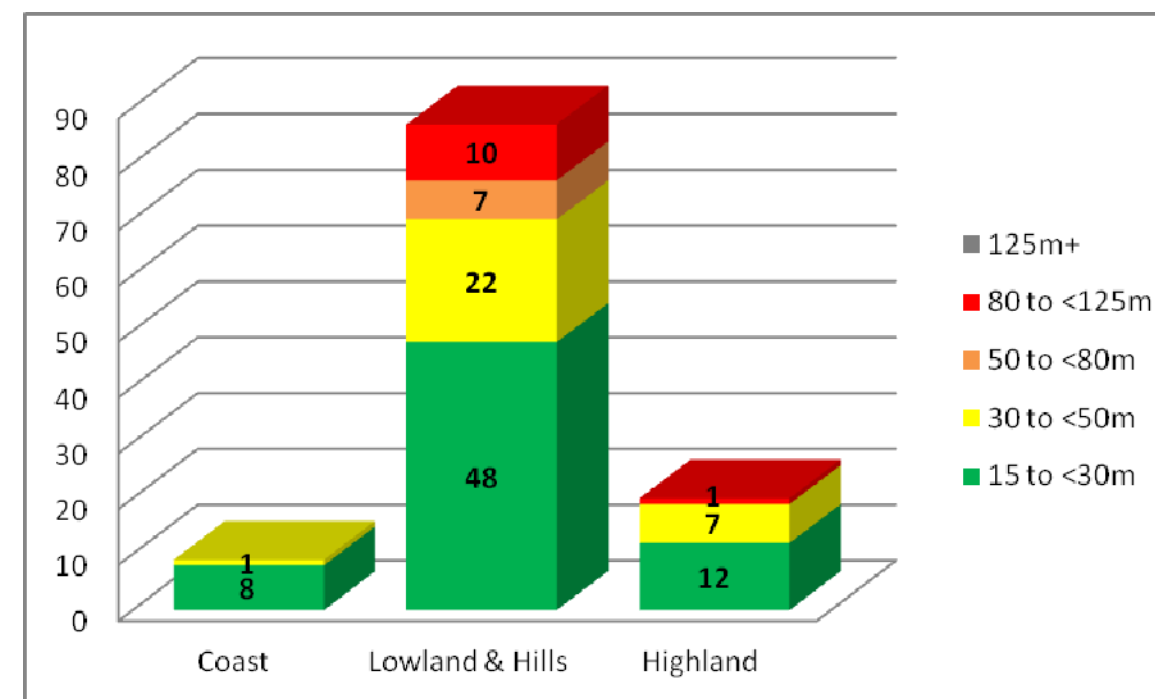
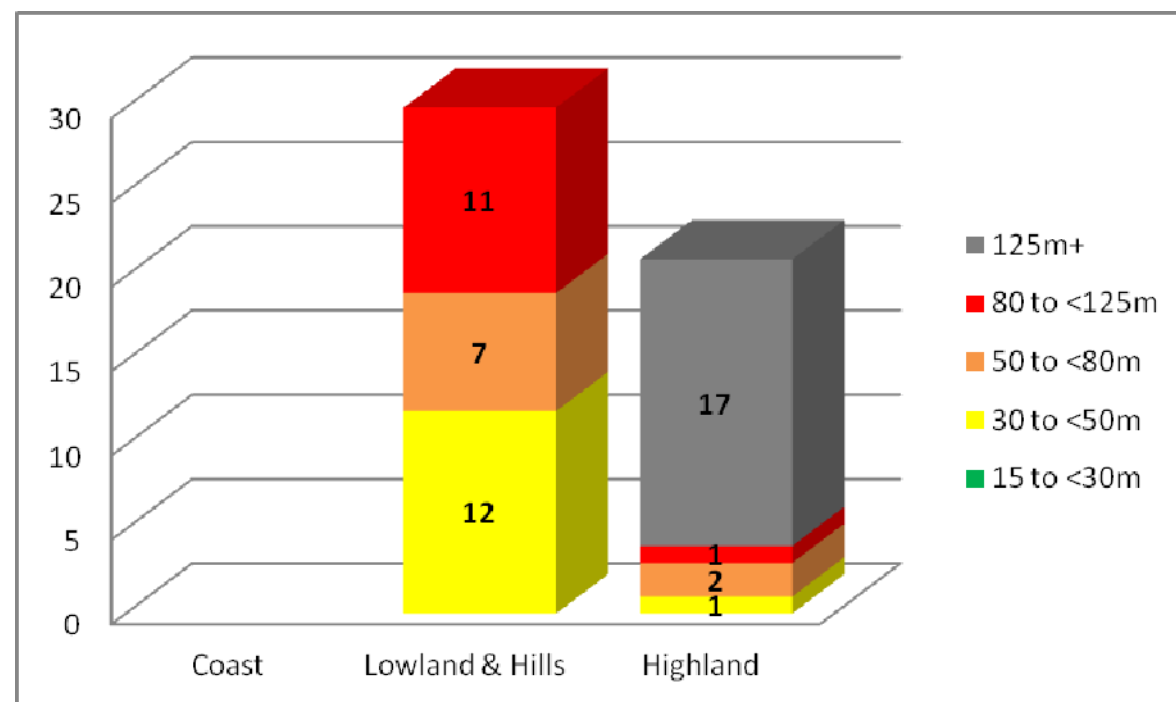


Figure 5.5: Application Turbine Location and Heights in Relation to Landscape Character (May 2013)



in such landscapes. Nevertheless, a location within the lowland area better reflects the relationship between energy production and the consumer, as well as generally being easier to service in terms of both access and connection to the electricity grid.

This tendency towards lowland landscapes can be explained by:

- the wide extent of lowland landscapes within Angus
- the potential sensitivity of the highland landscapes as a backdrop to Angus and proximity to the Cairngorms National Park
- Angus Council’s existing locational guidance (*Renewable Energy Implementation Guide, 2012*) which supports appropriate locations for and scales of development across the local authority area

In landscape terms, upland areas offer a larger-scale landscape, which can accommodate larger turbines and it is rational to locate turbines in open, high and prominent areas to take advantage of higher wind speeds. Conversely, upland areas often represent “unspoiled” landscapes, with few overtly man-made features, and the construction of wind turbines and associated infrastructure (access tracks, electricity lines etc) could be seen as an unwelcome industrial addition. In Angus the largest scale upland types are seen as a prominently visible backdrop to the lowlands. This means that any significant wind energy development would have a very significant effect.

Coastal landscape areas are sensitive, being open, simple in character and visible inland and from the coastal settlements and areas outwith Angus. Over two thirds of Angus’ population lives on the coast or immediate hinterland.

In lowland areas, the scale and pattern of the landscape is generally smaller, meaning that the largest windfarms and turbines can appear incongruous, particularly given the greater array of “reference features” such as trees and houses available with which to compare them. Together with the proximity of settlements and properties there are clear sensitivities

6.0 ASSESSMENT OF LANDSCAPE CAPACITY AND CUMULATIVE CHANGE

6.1 Assessment Purpose and Process

The purpose of the following assessment is to determine the capacity of the Angus landscape to accommodate wind turbine development and to determine what levels of cumulative development would be acceptable across Angus. The assessment involves four stages:

- 1) Firstly assessing the underlying capacity of the Angus landscape to accommodate wind turbine development;
- 2) Secondly, assessing the degree of cumulative change resulting from operating and consented wind turbines in the study area and in Angus;
- 3) Thirdly, assessing the extent to which cumulative consented development has reached the limit of the landscape's capacity to acceptably accommodate wind energy developments.
- 4) Finally, assessing residual capacity and the level of further development that could acceptably be accommodated within areas of Angus.

An assessment methodology is given in **Chapter 2.0** and further detailed in **Appendix 2**. The assessment is summarised in **Table 6.1(a-i)** and **Figures 6.1 to 6.4** following. Table 6.1 is divided into several columns which summarise the assessment and guidance. The assessment works from left to right across the table. A blank table with an explanation of each column/section is shown overleaf.

Maps in Figure 6.1a-f show the capacity for turbines of each size category in each LCT, LCA or LCA sub-type as determined by the assessment in Table 6.1. The assessment gives a broad category of high, medium or low (see method in Chapter 2).

Figures 6.2 and 6.3 are maps showing the extent of existing and proposed wind turbine landscape types in Angus. The types are explained in Table 2.1.

- The extents shown in Figure 6.2 are an illustrative approximation based on size and distribution of consented turbines and the modulating effects of topography and landscape character.
- The extents shown in Figure 6.3 illustrate the proposed acceptable extent of future wind turbine development through its effect on the landscape.

The assessment was informed by desk and field based survey. This included the field use of 360° wirelines of consented, proposed and potential future wind energy developments as seen from the representative viewpoints (see Figures 4.1a and b for location of these). These were used by both consultant and client in joint fieldwork, to arrive at a consensus view on landscape capacity for turbines numbers and sizes.

The areas shown are approximate, based on landscape character and topography, and account for key constraints and opportunities. In all cases the figures should be interpreted through the further detailed descriptions and guidance given in this report.

The assessment is carried out for each of the eleven LCTs in Angus and Table 6.1 is divided into sections reflecting this (Table 6.1(a-i)). Each table section is preceded by a brief summary of the landscape character and a map highlighting the distribution of the relevant LCT/ LCAs. The map also shows the distribution of consented and proposed wind turbines (as at May 2013) for ease of reference. Where there are significant variations in sensitivity, capacity or consented levels of development within the LCTs across Angus the relevant LCAs are given a separate assessment. Where the LCAs are divided into sub-areas with subtly different sensitivity and capacity these are also separately assessed. Each table section where significant capacity has been identified is followed by more detailed illustrated guidance on turbine siting.

This is followed by a summary of capacity and cumulative effects for the whole local authority area, and for the three main regional landscape areas of Angus, i.e.:

- 1) Highland;
- 2) Lowland & Hills; and
- 3) Coast.

Further spatial guidance regarding areas with restricted capacity and areas with capacity for further development are given at the end of this chapter and illustrated in **Figure 6.4**.

6.2 Guidance

Table 6.1 summarises guidance on turbine sizes, group sizes and separation between groups of turbines for each LCT/LCA that would limit development to the remaining landscape capacity. The details relate to turbines of each size category (small/medium, medium, medium/large, large and very large). It is stressed that the group size and spacing details for an area envisage the capacity for accommodating turbines of a *single size category* in the area, *not* for accommodating all categories together. There may be potential for accommodating different turbine sizes in the same area, but this would depend on the characteristics of the area, and accommodating one size of turbine will affect the ability to accommodate further turbines of any other size.

Where appropriate, further detailed and illustrated guidance for LCT, LCAs and sub-areas is given following the analysis in Table 6.1. The relative positioning and group spacing of turbines is discussed in the detailed guidance for each area.

As highlighted in section 2.3 of this report, guidance on small turbines, below 15m blade tip height, applies at a local level and is generic.

Appendix 5 of this report contains detailed discussion of how turbine size, design, group size and group separation affects perceptions of wind energy and landscape character. Further guidance is given in SNH's *Siting and Designing Windfarms* publication. The following briefly outlines the main considerations in developing the specific guidance for this assessment given with Table 6.1. The development of detailed guidance was also informed through the use of 360° wirelines in the field, as described in the preceding section.

6.2.1 Turbine Size

The guidance on turbine sizes generally relates most clearly to the horizontal and vertical scale of the landscape; complexity of landscape pattern and the presence or absence of smaller scale features and elements such as trees and houses. Small/medium and medium size turbines (under 50m blade tip height) are most able to be accommodated in smaller scale landscapes with more complex patterns and smaller scale reference features. Large and very large turbines (80m+ and 125m+ blade tip respectively) are most successfully accommodated in larger scale landscapes with simpler landforms and fewer small scale references. Smaller turbine sizes may also be accommodated in such landscape types although their proximity to larger size turbines would need to be carefully controlled.

The largest scale upland landscapes in Angus are relatively restricted in their capacity due to their visual sensitivity and landscape value. However some of the lowland types are of medium to large scale with a simple landform and pattern and may be able to accommodate larger turbines.

6.2.2 Turbine Group Size

Turbine group sizes relate to scale and complexity of the landscape, particularly to landform and pattern. In general larger scale more simple landscapes with gentle landforms and simpler patterns can accommodate larger groups of turbines, subject to having the physical capacity (i.e. available area).

6.2.3 Separation between Turbine Groups

Turbine size and group size can be generically related to landscape character when applied to a single turbine or windfarm, or across a number of windfarms. However, separation between groups of turbines is the single most important factor in controlling cumulative effects. This is because of the high prominence and extensive visibility of most turbines leading to effects on landscape character well beyond the turbine, as discussed in detail in Appendix 5.

The guidance in Table 6.1 therefore gives approximate separation distances that should be applied between turbine groupings (including single turbines) in order to achieve the desired turbine landscape typology. The main factors controlling the proposed separation distance are:

- 1) Proposed Turbine Landscape Type: each proposed type detailed in Table 2.1 requires a different separation distance to achieve the landscape and visual criteria described.
- 2) Turbine Size: larger turbines require a greater separation than smaller turbines to achieve the same landscape type.
- 3) Group Size: larger groups of turbines require a greater separation distance to achieve the same landscape type.
- 4) Landscape Character Type: this has an effect on all the above factors. In terms of visibility, more open landscapes with modest landforms are likely to require greater separation distances, whereas landscapes with significant topography and woodland

cover give the potential to reduce visibility. Factors such as scale and pattern can have a more subjective effect. The presence of other tall objects (such as electricity pylons) and of development also affects the perception of turbine development.

The distances given in Table 6.1 are a minimum, relating primarily to (1) and (2) above as in this case large groups are not proposed. Landscape character including topography is also important: where landforms are capable of visually separating turbine groups the distance between landforms is a consideration in setting distances.

In the case of small LCAs the separation distances for larger turbines might mean that, in theory, only one grouping would be comfortably accommodated within the area.

Separation distances also apply between a development in one landscape type and another in an adjacent type, or between turbines of different size categories. In such situations an average of the two recommended distances would be most appropriate.

In all cases the distances are an approximate range intended for guidance. Separation distances between specific proposals should therefore be considered in more detail on a case by case basis. In areas where turbine groupings can be accommodated, promote co-ordination between developments in order to accommodate more turbines within the landscape capacity. This includes encouraging turbines of a similar size and clustering as a group in preference to separation.

6.2.4 Other Factors which Influence Guidance

The capacity assessment for some generic LCTs does not cover the variation found between or even within individual LCAs of that type. This is usually because of one or two key landscape factors which partially override the characteristics including:

- All or part of the LCA is much more prominent and visible than the bulk of the area covered by the LCT;
- A particularly small area is covered by the unit compared with the main areas of the LCT;
- Some or all of the LCA lies in an area designated to protect a landscape or setting of a town;
- Close proximity to other more sensitive neighbouring LCAs which would be significantly affected by wind energy proposals otherwise suitable for the LCT;
- Close proximity to other LCTs, settlements or industry which reduces the sensitivity of a unit or part of a unit compared with the bulk of the area covered by the LCT.

A combination of any of these factors might limit the ability of a specific LCA, or part thereof, to accommodate a level of development otherwise acceptable to the LCT. The main areas are identified in Table 6.1 and Figures 6.1 to 6.4 but any specific development should be considered in more detail and assessed against local factors where appropriate.

Finally it is emphasised that this assessment is focused on landscape and visual issues. Areas which have been identified as suitable on this basis may be restricted

by other unrelated factors such as protection of wildlife, proximity to dwellings, aviation restrictions or lack of grid connection. These potential constraints are not the subject of this assessment and are covered by Angus Council's Local Plan Policies and *Implementation Guide for Renewable Energy (2012)* and the emerging Local Development Plan.

Explanation of Table 6.1

LANDSCAPE CHARACTER TYPE: (SNH Classification Code/Number) / NAME OF LANDSCAPE CHARACTER TYPE																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size Key: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT				PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)									
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: <i>Name of Landscape Character Area/ Sub-Area</i>																		
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Brief description of consented wind energy developments (at time of report), including numbers size range, distribution, with key developments named.	Wind Turbine Landscape Type resulting from current consented levels of development (refer to Table 2.1 for description of type and map in Figure 6.2 for distribution of types across study area)	Proposed limits to future Wind Energy development expressed as a Wind Turbine Landscape Type (refer to Table 2.1 for description of type and Figure 6.3 for proposed distribution of types across the study area)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Brief description of current applications (at time of report), highlighting the most significant proposals	Landscape Analysis: Brief description of key qualities and characteristics of the landscape character area/ sub-area and its capacity for different types of wind turbine development. Comments on Consented and Proposed Turbines: Brief comment on current developments and future proposals in relation to landscape capacity. Further detail is given in the guidance section following the table.
Assessment of landscape sensitivity and value of the landscape character area or sub-area (from detailed assessment in Appendix 5)				Assessment of landscape capacity for different turbine sizes derived from the sensitivity and value assessment and mapped in Figures 6.1a-e. This represents the 'underlying' capacity of the landscape and does not take into account the cumulative effects of existing/ consented wind energy development.							Max. Numbers in Group		1-3	1-3				
											Suggested range/ maximum number of turbines in groupings to ensure capacity is not exceeded							
											Min Group Separation Distances (km)		2-4	3-5				
											Suggested separation distance between turbine groupings to ensure capacity is not exceeded							

TAY 1: HIGHLAND GLENS

The Highland Glens lie in the Highland northern part of Angus and are deeply incised into the Highland Summits and Plateaux, providing access into the mountain massif and the Cairngorms National Park, in which the upper parts of the glens lie. The Angus Glens form part of the ever present backdrop to lowland Angus which rises north of the Highland Boundary Fault above Strathmore. They are a well known, signposted destination. The Glens are divided into two LCTs:

1A UPPER HIGHLAND GLENS

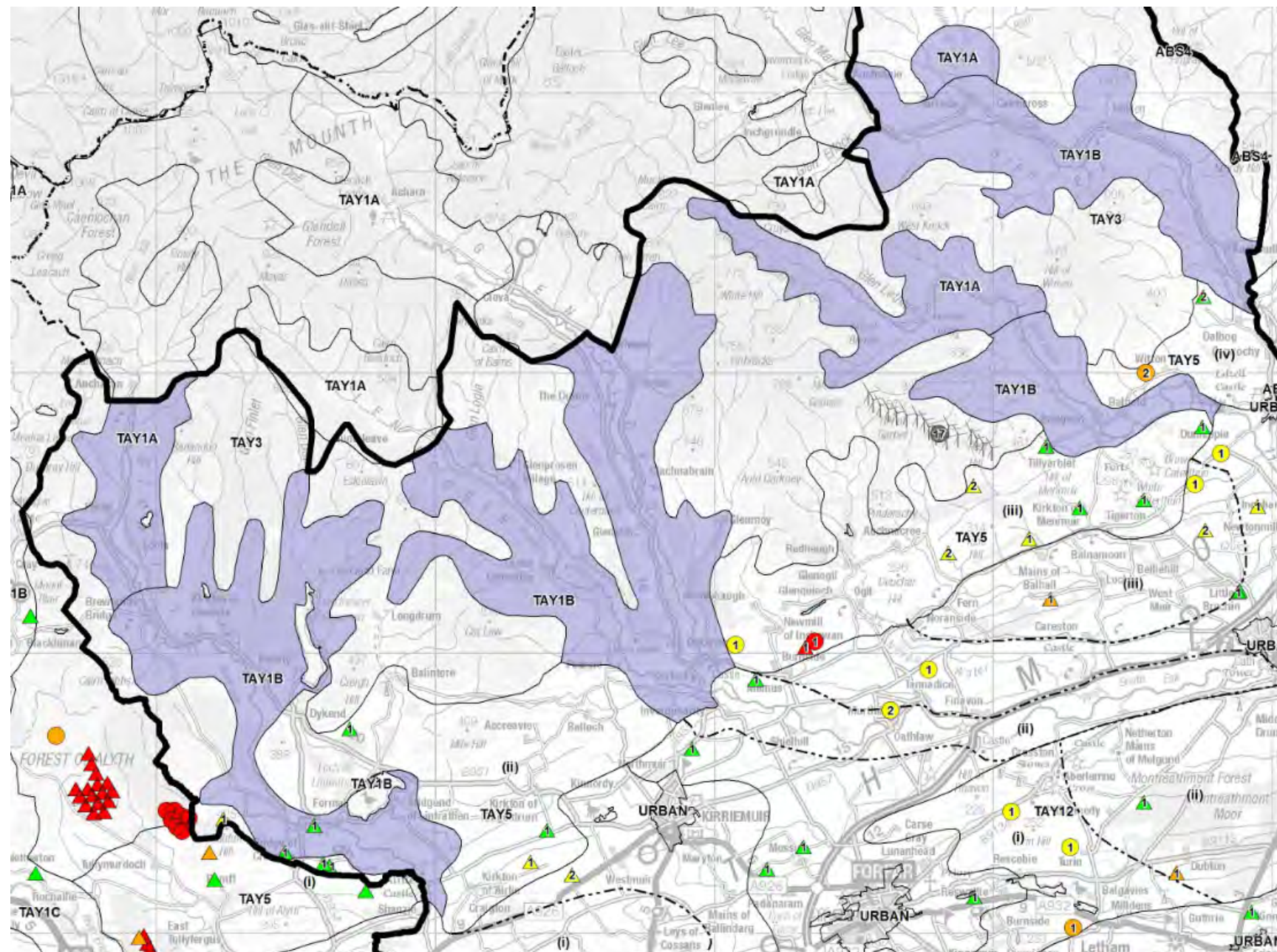
Deeply incised glens with qualities of remoteness and wildness emphasised by a lack of development and only minor roads or tracks. The Upper Highland Glen areas outside the National Park have similar

qualities to those within. However, being further removed from the highest mountains within the National Park they are generally of a lesser depth and wildness with more settled references on valley floors; such as enclosed fields, public roads and occasional houses or farms. (the exception being Glen Lethnot which lies within the Draft Lochnagar and Mount Keen Core Area of Wild Land).

1B MID HIGHLAND GLENS:

The Mid Highland Glens are further removed from the highest mountains and the National Park. They are generally of a lesser depth, with settled valley floors including enclosed fields, public roads, farms, houses and occasional villages.

There are five glens within the local authority area, each divided into the two types, although some of the upper glens are fully located in the National Park and therefore not included in this guidance.



1A Upper Highland Glen: Glen Tarf. Few signs of human settlement



1B Middle Highland Glen: Glen Esk. Areas with fields, roads and scattered settlement

Table 6.1(a): Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development: Highland Glens

LANDSCAPE CHARACTER TYPE TAY 1: HIGHLAND GLENS																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input checked="" type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT				PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)									
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
1a Upper Highland Glens Landscape Character Areas: Glen Isla; Glen Lethnot/ Westwater Valley; Upper Tarf Valley (Glen Esk)																		
Med/High	Med	Med/High	High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No current wind energy development.	Upper Highland Glens with No Wind Turbines	Upper Highland Glens with No Wind Turbines/ Occasional Wind Turbines	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No current applications within UHG type. Proposed 17x135m turbine windfarm at Nathro above Glen Lethnot in neighbouring Highland Summits and Plateaux	Landscape Analysis: Deeply incised glens with qualities of wildness emphasised by a lack of development and only minor roads or tracks. The remote sparsely developed character is such that only single turbines up to 30m tall associated with buildings would be appropriate to this area, with no turbines in Glen Lethnot. Comments on Consented and Proposed Turbines: Current proposals for Nathro would have a significant visual influence on parts of Glen Lethnot
												1						
												2-4						
1b Mid Highland Glens Landscape Character Areas: Glen Isla; Glen Prosen; Glen Clova; West Water Valley; Glen Esk																		
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A few single small/medium turbines in and adjacent to lower areas of Glen Isla, West Water and Glen Esk. One 45m turbine in Highland Foothills at Kilry above Glen Isla.	Mid Highland Glens with No Wind Turbines/ Occasional Wind Turbines	Mid Highland Glens with No Wind Turbines/ Occasional Wind Turbines	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	One windfarm application at Tullymurdoch in Perthshire above Glen Isla (7x120m turbines). One medium turbine above Glen Clova; Proposed 17x135m turbine windfarm at Nathro above Glen Lethnot in neighbouring Highland Summits and Plateaux. Two medium/large turbines at Witton above West Water.	Landscape Analysis: The Mid Highland Glens are further removed from the highest mountains and the National Park. Suitable for wind turbine development of a smaller scale associated with settlements, farms or tourist facilities. Comments on Consented and Proposed Turbines: Proposals above Glen Isla would have a significant effect on a narrow section of the glen. Nathro windfarm would have a significant visual influence on Glen Lethnot/ West Water. Medium/large turbines at Witton are larger than recommended for the scale of landscape in which they lie and for the Highland Glens.
												1-3	1					
												2-4	4-8					

GUIDANCE: TAY 1 HIGHLAND GLENS

1A UPPER HIGHLAND GLENS

Proposed Limits to Future Development: Upper Highland Glens with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium)

Group Sizes: 1 (small/medium)

Separation Distances: 2-4km (small/medium)

1B MID HIGHLAND GLENS

Proposed Limits to Future Development: Mid Highland Glens with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-3 (small/medium); 1 (medium)

Separation Distances: 2-4km (small/medium); 4-8km (medium)

Detailed Guidance for Highland Glens

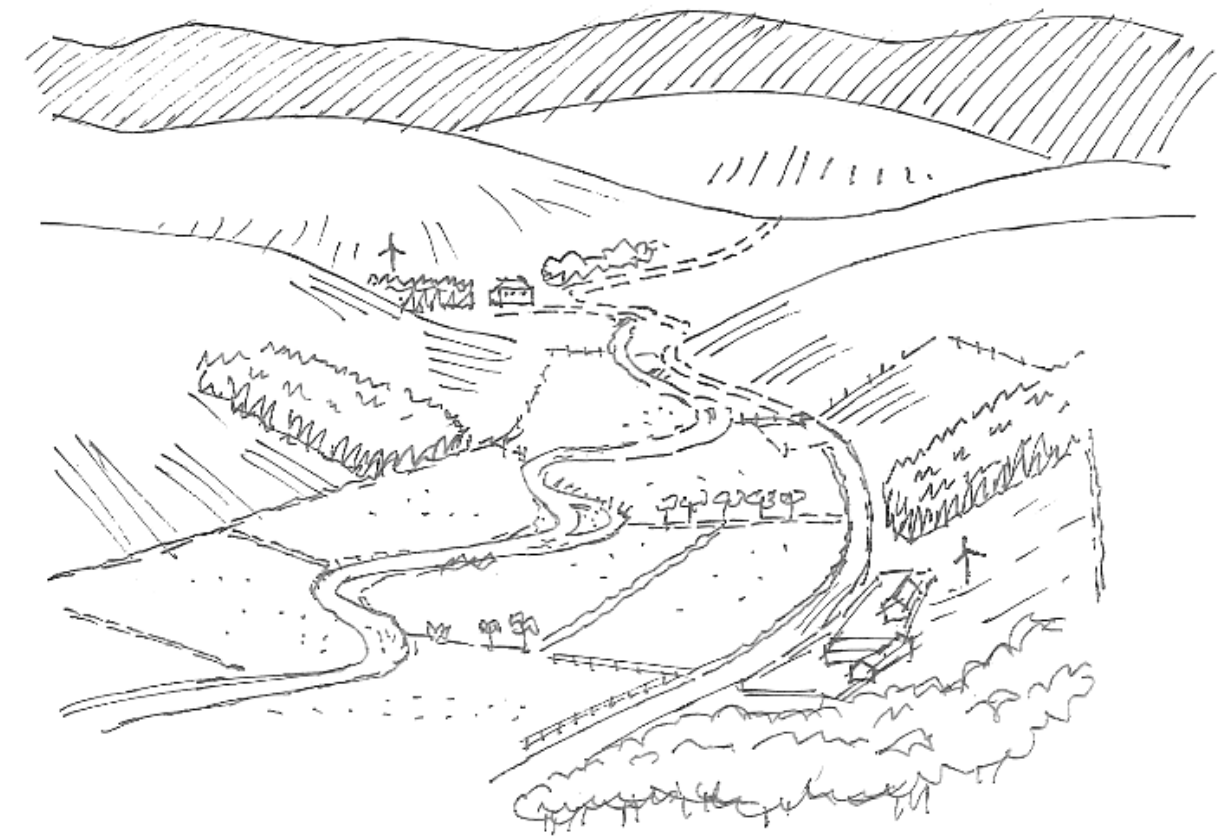
The Highland Glens have little capacity to accommodate wind turbines without adverse effects on their key characteristics of relative remoteness, wildness and low levels of built development.

Limit turbine development to single smaller size turbines located in the floor of the glen or the lower sideslopes, where enclosure or shelterbelt/ forestry planting already indicates human manipulation of the landscape. In the Upper Glens the remote largely undeveloped character is such that only single small/medium turbines up to 30m tall associated with buildings would be appropriate. All of Glen Lethnot above the public road end at Waterhead is located within the Lochanagar and Mount Keen Draft Core Area of Wild Land as it has no metalled road or dwellings. This area is not suitable for wind turbine development.

In the *Middle Highland Glens* it may be possible to accommodate medium size turbines up to 50m in association with larger clusters of development, although care should be taken not to dominate listed buildings, small cottages and houses or smaller scale scenic areas such as rivers, lochs, designed landscapes or prominent landforms.

Separate turbine groups sufficiently to ensure that there is minimal intervisibility between turbines, and/or ensure that turbines are sufficiently small to read as scattered, isolated features. Turbines in areas close to the electricity transmission line which crosses the lower part of most of the *Middle Highland Glens* should be carefully positioned so as to avoid visual clutter.

Currently there are no turbines located in the *Upper Highland Glens*. In the *Middle Highland Glens* there are very few, predominantly small/medium, turbines mainly in adjacent areas that have relatively little influence on the landscape. There is a concentration of small/medium and medium turbines near the bottom of Glen Isla, mainly in the adjacent *Highland Foothills*. Further turbine development in this area should be limited to avoid extending an area of *Landscape with Wind Turbines* fully into the glen.



Mid and Upper Highland Glens can only accommodate smaller turbines in the more settled lower sideslopes or valley floor where they are associated with scattered built development and other signs of human intervention

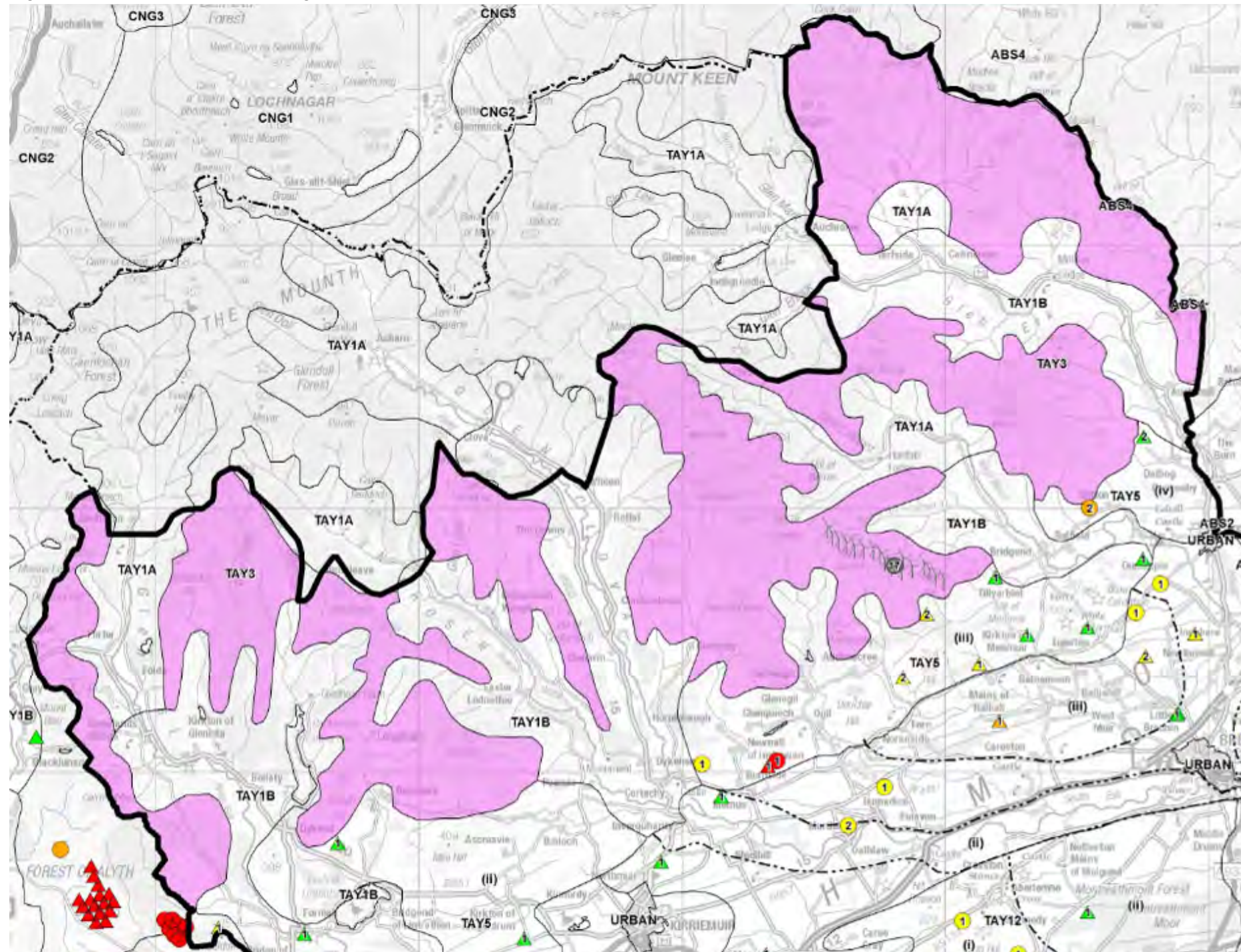
TAY 3: HIGHLAND SUMMITS AND PLATEAUX

This type covers a substantial area in the north and west of Angus. Much of the highest part surrounds the *Upper Highland Glens* lying within the Cairngorms National Park. The remaining areas, lying within the Angus study area form substantial ridges separating the glens from one another.

The hills are large in scale and predominantly of a rolling shape, generally with simple patterns of vegetation cover such as heather, grass or forestry. The broad ridges separating the Glens culminate in higher plateau areas with steep glaciated sides within the National Park. The hills also have a wild,

remote and windswept character. A substantial area within the study area, extending into the National Park is identified as a Draft Core Area of Wild Land (16. Lochnagar/ Mount Keen).

The *Highland Summits and Plateaux* form the foreground for views south from the National Park, the setting for the Angus Glens and an ever present backdrop to the north for much of the rest of Angus, emphasising the separation of lowland and highland landscapes north and south of the Highland Boundary Fault.



Highland Summits and Plateaux above Glen Clova form a backdrop to Kirriemuir Camera Obscura and the wider lowland area.



Site of the proposed Nathro Windfarm viewed from the south

Table 6.1(b): Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development: Highland Summits and Plateaux

LANDSCAPE CHARACTER TYPE TAY 3: HIGHLAND SUMMITS AND PLATEAUX																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Areas: Forest of Alyth; Caenlochan/ Glen Doll Forests; Muckle Cairn/ Hill of Glansie/ Hill of Wirren; Hill of Saughs/ Mount Battock																		
Med	High	Med/High	Med/High	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No turbines currently located within Angus HSAp. In Forest of Alyth within Perthshire, Drumderg (16x107m) lies within 2-3km and Welton of Creuchies, (4x98m) lies 5km west of Angus. A scattering of single/paired small/medium and medium turbines in neighbouring glens and foothills. One 45m turbine at Kilry above Glen Isla.	Highland Summits and Plateaux with No Wind Turbines/ Highland Summits and Plateaux with Wind Turbines (Forest of Alyth)	Highland Summits and Plateaux with No Wind Turbines/ Highland Summits and Plateaux with Wind Turbines (Forest of Alyth)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	One windfarm application at Tullymurdoch above Glen Isla (7x120m turbines); Proposed 17x135m turbines at Nathro windfarm above Glen Lethnot in neighbouring <i>Highland Summits and Plateaux</i> . Two medium/large (74m) turbines at Witton above the West Water.	<p>Landscape Analysis: The <i>Highland Summits and Plateaux</i> form the foreground for views south from the National Park, the setting for the Angus Glens and an ever present backdrop, beyond the Highland Boundary Fault, to much of the rest of Angus.</p> <p>Whilst large in scale and often of the rolling shape considered suitable for windfarm development, the hills also have a wild and remote character. A substantial area within the Study Area, extending into the National Park is identified as a Draft Core Area of Wild Land. The large scale may also be deceptive as the largest size turbines could reduce the perceived scale and grandeur of the hills.</p> <p>Due to these reasons this LCT is not considered to be suitable for wind turbines.</p> <p>Comments on Consented and Proposed Turbines: Consented wind turbines have little effect on this type within Angus. The windfarm at Drumderg affects the southern ridge of the Forest of Alyth area, creating a <i>HSAp with Wind Turbines</i>, slightly reinforced by the consented turbine at Kilry.</p> <p>The proposed turbines at Nathro would create a substantial area of <i>HSAp with Wind Turbines</i> extending well into the draft Core Area of Wild Land. It would dominate the nearby Menmuir Hills and would be a highly visible horizon feature across lowland Angus. Together with the two medium/large turbines at Witton this would affect the West Water valley.</p>

TAY5: HIGHLAND FOOTHILLS

The Highland Foothills LCT lies on the Highland Boundary Fault. It is therefore a transitional landscape between the Broad Valley Lowland of Strathmore and the Highland Summits and Plateaux. It has an intermediate scale, complex landform and often small scale detail due to the complex pattern of steep hills, small settled valleys and pockets of more fertile sheltered ground. Within Angus it comprises four separate areas.

(i) ALYTH FOOTHILLS

Most of this LCA lies within Perth & Kinross. The northeastern slopes overlooking Glen Isla lie within Angus, containing the lower part of the glen and forming the southwestern skyline.

(ii) KIRRIEMUIR FOOTHILLS

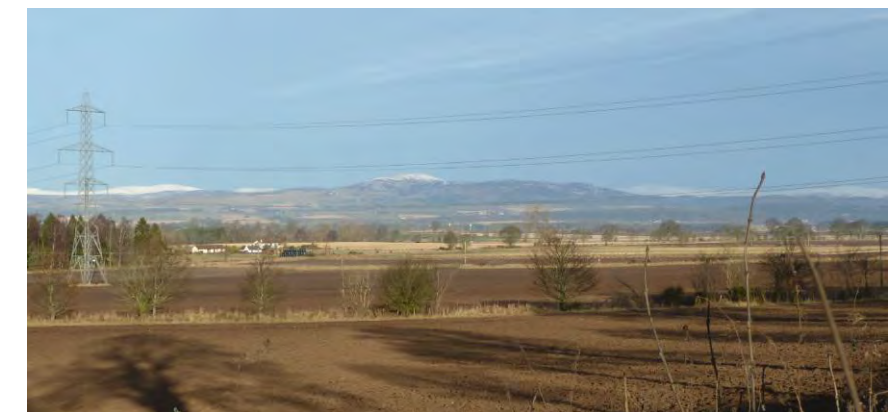
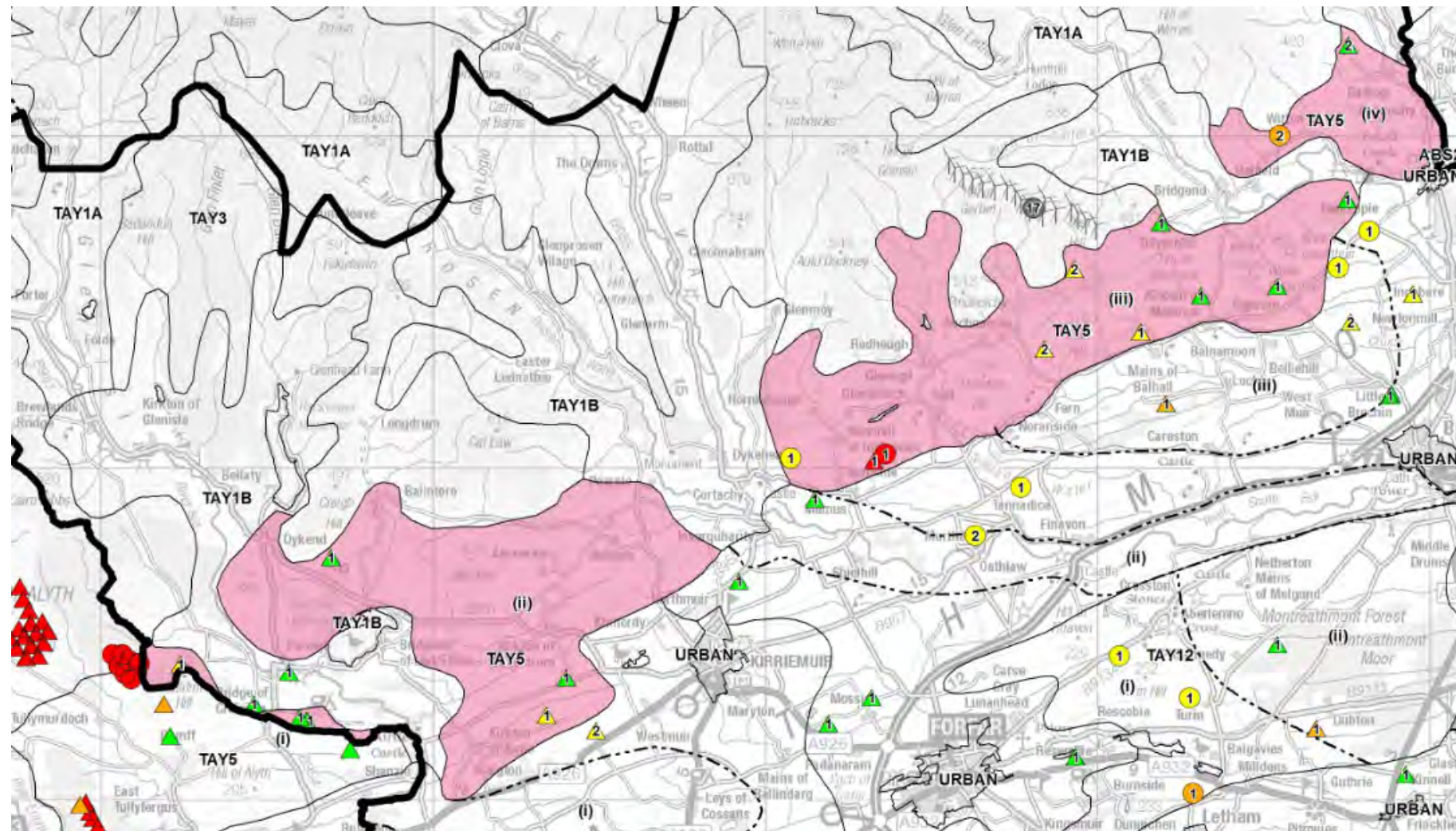
An area of complex topography including hills, small glens, small settlements and a network of roads extending into Strathmore. A key feature is Mile Hill, which as highest landform at 409m is dominant locally and more widely visible across Strathmore and the lower end of Glen Clova. It is separated from the Highland Summits and Plateaux and the prominent summit of Cat Law to the north by the narrow glen of Quharty Burn. The foothills also provide a setting to Balintore Castle, the Designed Landscape at Ascreavie and the Loch of Lintrathen. An electricity transmission line crosses the southern slopes.

(iii) MENMUIR FOOTHILLS

Simpler in topography than the western LCAs, lying between Glen Clova and West Water. Predominantly a long ridge of hills parallel to Strathmore, with parallel small glens on the Highland side. Two small glens (Glen Ogil and Cruick Water) penetrate the Highland Summits and Plateaux to the north. Some small settlements, but mainly isolated houses accessed by small roads. Two small lochs located at western end. There are a number of SAMs, including the hillforts at White and Brown Catherthun in the northeast, which are also key viewpoints overlooking Strathmore and the Highland Boundary Fault. An electricity transmission line passing from southwest to northeast crosses the ridge above Noranside to pass north of the hills.

(iv) EDZELL FOOTHILLS

This is much the smallest of the LCAs, lying between West water and Glen Esk. It predominantly comprises a single hill above Strathmore and the lower slopes of the *Highland Summits and Plateaux* to the north. It lies adjacent to the village of Edzell, but has mainly isolated houses accessed by small roads. Hill of Edzell is the main feature, which forms the backdrop to Edzell village and castle on the southern edge. An electricity transmission line passes north of the hill.



Kirriemuir Foothills: Looking across Strathmore to Mile Hill



Menmuir Foothills: site of the consented and proposed Memus Turbines

Table 6.1(c): Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development: Highland Foothills

LANDSCAPE CHARACTER TYPE TAY 5: HIGHLAND FOOTHILLS																			
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input checked="" type="radio"/> Medium Capacity <input type="radio"/> High Capacity																			
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																			
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)											
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)	
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL			
Landscape Character Area: (i) Alyth Foothills (eastern edge only in Angus)																			
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Drumderg within P&K lies within 3km of this LCA in Angus. Another medium large turbine in P&K within 1km of the boundary near Balduff Hill. A scattering of single small/medium turbines and one medium (45m) turbine at Kilry all on slopes overlooking Glen Isla. 4x99.5m turbines at Wellton of Creuchies are in the LCA but 5km west of the border.	Highland Foothills with Wind Turbines	Highland Foothills with Wind Turbines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Proposed 7x120m windfarm at Tullymurdoch is located in P&K but adjacent to Angus boundary.	Landscape Analysis: Most of LCA lies within Perth & Kinross but the northeastern edge encloses Glen Clova, forming the skyline. Comments on Consented and Proposed Turbines: Wind farms and turbines in Perth& Kinross, together with scattered turbines in Angus create <i>Highland Foothills with Wind Turbines</i> over much of the area including the part in Angus. There is no further capacity for turbines of any size within Angus. Further windfarm proposed at Tullymurdoch would extend <i>Highland Foothills with Wind Turbines</i> type and create an area of <i>Wind Turbine Landscape</i> across the boundary between <i>Highland Summits and Plateaux</i> and <i>Highland Foothills</i> above Glen Isla.	
Landscape Character Area: (ii) Kirriemuir Foothills																			
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently two small/medium and one medium turbine consented.	Highland Foothills with Occasional Wind Turbines/ No Wind Turbines	Highland Foothills with Occasional Wind Turbines	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No further proposals	Landscape Analysis: Only suitable for turbines below 50m due to modest scale and the complexity of the landscape and sensitive receptors. Avoid prominent summits and sensitive areas Comments on Consented and Proposed Turbines: Current consented development remains well within capacity. A proposed development of 9 large turbines at Carrach below Mile Hill was recently dismissed at appeal on grounds of landscape and visual impact.	

LANDSCAPE CHARACTER TYPE TAY 5: HIGHLAND FOOTHILLS																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: (iii) Menmuir Foothills																		
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	11 turbines consented within or close to this area. Largest is 86m at Memus on boundary with Strathmore. Other turbines are 4 small/medium and 5 medium further northeast, located on either side of the main ridge.	Highland Foothills with no Wind Turbines/ Occasional Wind Turbines/ with Wind Turbines	Highland Foothills with no Wind Turbines/ Occasional Wind Turbines/ with Wind Turbines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Proposed 17x135m turbine windfarm at Nathro above Glen Lethnot in neighbouring <i>Highland Summits and Plateaux</i> ; A further large turbine proposed at Memus. One medium turbine at western end above Glen Clova and two in Strathmore at eastern end.	<p>Landscape Analysis: Simpler than western LCAs. Predominantly a long ridge of hills parallel to Strathmore with parallel small glens on the highland side. Only suitable for turbines below 50m. Turbines should not be sited on prominent ridgelines or affect the sensitive settings of the hillforts.</p> <p>Comments on Consented and Proposed Turbines: Current consented development remains mainly within capacity, although the Memus turbine is significantly larger than the recommended maximum 50m. Turbines located near the Caterthuns are small enough not to affect setting/view. Remaining capacity for siting further turbines restricted by current turbines.</p> <p>The proposed turbines at Nathro would dominate the Menmuir LCA. The further large turbine at Memus would reinforce the effects of the consented turbine. Current proposals elsewhere may create peripheral areas of <i>Highland Foothills with Wind Turbines</i> at south and west edges of the LCA.</p>
												Max. Numbers in Group	1-3	1-3				
												Min Group Separation Distances (km)	2-4	3-6				
Landscape Character Area: (iv) Edzell Foothills																		
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently only two small/medium turbines consented in the north.	Highland Foothills with No Wind Turbines/ Occasional Wind Turbines	Highland Foothills with Occasional Wind Turbines	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Two medium/large (74m) turbines at Witton in the west above West Water.	<p>Landscape Analysis: Smallest of the LCAs. Predominantly a single hill above Strathmore with lower slopes of <i>Highland Summits and Plateaux</i> to the north. Only suitable for turbines below 50m. Consideration should be given to the setting of and views from Edzell Castle, grounds and village.</p> <p>Comments on Consented and Proposed Turbines: Current consented development remains well within capacity.</p> <p>The proposed turbines at Witton are significantly taller than the recommended 50m maximum for this LCA and <i>Middle Highland Glens</i> LCA, although would not affect the setting of Edzell castle and village.</p>
												Max. Numbers in Group	1-3	1-3				
												Min Group Separation Distances (km)	2-4	3-6				

GUIDANCE: TAY5 HIGHLAND FOOTHILLS

Detailed Guidance for Highland Foothills LCT

The *Highland Foothills* LCT is not suitable for larger turbines of 50m or greater height due to their modest scale and elevation and complexity of topography, landscape patterns and settled character in many parts. There is capacity for occasional small/medium and medium turbines within the LCAs. Locate turbines in the enclosed farmland or on lower slopes of the hills, avoiding skylines and reducing intervisibility between turbine groups. The height of turbines should relate to the scale of the landscape, with particular regard to the vertical scale of the hills. Locate larger turbines away from the smaller scale hills and valleys to avoid diminishing the apparent scale of the slopes or breaking the skyline. Proximity to residential properties or settlements may also limit opportunities for locating larger turbines and/or turbine groups. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

Position turbines to relate clearly to landscape features such as field boundaries, breaks in slope and larger farm buildings. Separation between turbine groupings should ensure that clear intervisibility is infrequent. This can be achieved through selecting appropriate turbine sizes, separation distances and/or through the intervention of landforms and tree groups. Place smaller turbines in locations where they are not close to, or readily intervisible with, larger turbines. Smaller turbines should be more closely associated with buildings. Care should be taken to avoid visual clutter when locating larger turbines in close proximity to the electricity transmission line that passes through all the LCAs excepting the Alyth Foothills.

Specific Guidance for Individual LCAs

(i) ALYTH FOOTHILLS

Due to windfarm development in Perth & Kinross in combination with consented turbines in the Angus area, no further turbine development is recommended.

(ii) KIRRIEMUIR FOOTHILLS

Proposed Limits to Future Development: Highland Foothills with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-3 (small/medium and medium)

Separation Distances: 2-4km (small/medium); 3-6km (medium)

Only suitable for turbines below 50m, with the medium size turbines sited on lower ground towards Strathmore and small/medium turbines elsewhere. There should be no turbines in the more sensitive settings such as Balintore Castle, Ascreavie and Loch of Lintrathen. Turbines should not be located near the summit of Mile Hill due to its wide prominence. The currently consented three small/ medium and medium turbines are well within the capacity of the landscape.

(iii) MENMUIR FOOTHILLS

Proposed Limits to Future Development: Highland Foothills with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-3 (small/medium and medium)

Separation Distances: 2-4km (small/medium); 3-6km (medium)

The Menmuir Foothills are only suitable for turbines below 50m due to their limited scale. Do not site turbines on or close to the main ridgeline overlooking Strathmore, where they may break the horizon. Protect the views from and sensitive settings of the hillforts by limiting development to sensitively sited smaller turbines, or no turbines, within approximately 2km. Turbines should not be located north of the trees in Glen Ogil, which lies in the Draft Lochnagar and Mount Keen Core Area of Wild Land.

There are several consented small/medium and medium turbines located in this LCA, which will reduce the capacity for accommodating further turbines. The large (86m) turbine at Memus is significantly larger than the recommended limit of 50m. This will dominate its surroundings, restricting the scope for accommodating further turbines in its vicinity, both in the *Highland Foothills* and the adjacent *Broad Valley Lowland*.



Menmuir Foothills showing the transition in elevation between Strathmore and the Highland Summits and Plateaux and White Caterthun hillfort (right) Turbines should avoid the skyline and not affect the setting of the hillfort.

(iv) EDZELL FOOTHILLS

Proposed Limits to Future Development: Highland Foothills with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-3 (small/medium and medium)

Separation Distances: 2-4km (small/medium); 3-6km (medium)

The Edzell Foothills are only suitable for turbines below 50m due to their limited scale. In this LCA consideration should be given to the setting of and views from Edzell Castle and Edzell village by not siting larger turbines on the southern or eastern side of Hill of Edzell.

TAY8: IGNEOUS HILLS

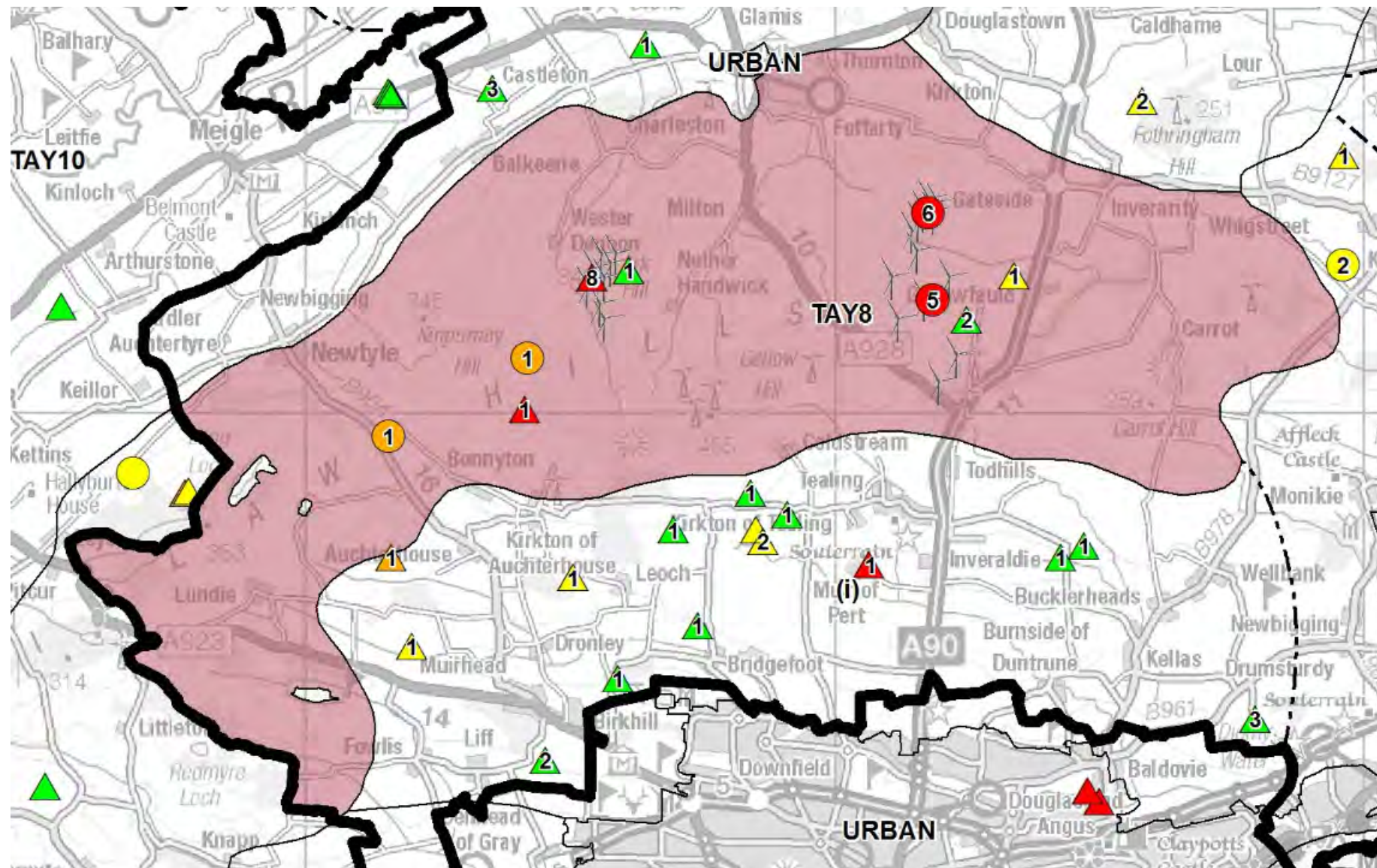
The Sidlaw Hills are a varied landscape of distinctive, predominantly steep open hills and enclosed valley farmland that extends through Perth & Kinross and Angus, where they merge into the *Dipslope Farmland* and Forfar Hills. The hills provide a northern backdrop to Dundee and define the southern edge of Strathmore to the north.

The hills are crossed at lower points by a number of roads, including the A90. The farmland associated with these lower passes divides the hills into at least four main groupings. The largest area uncrossed by roads, with the highest hills, lies between the A928 in the east and B954 in the west. Craigowl Hill rises to 455m AOD and is very prominent when seen from the A90, particularly due to the several transmission towers and infrastructure located on its summit and slopes.

Typically there is a 150-250m height difference between ridges and the surrounding *Dipslope Farmland* and *Broad Valley Lowland*. This is less to the east of the A90 around Carrot Hill (259m) where the hills are lower, more rounded and merge with the *Dipslope Farmland*.

This landscape varies around a medium scale; from enclosed valley farmland to larger open heather/grassland hillsides and ridges. Whilst the highest hills have an open, upland character, the majority of smaller hills have a more lowland character, particularly when compared with the highlands visible to the north across Strathmore. There are a number of hillforts and noted panoramic viewpoints within the Sidlaws, including Kinpurney Hill, Auchterhouse Hill and Carrot Hill. These have extensive views across the surrounding lowlands including Strathmore and the *Dipslope Farmland*.

There are four electricity transmission lines crossing the hills at various points. The only operational windfarm in Angus is located around Ark Hill, in the central part of the hills.



The Western Sidlaw Hills form distinct ridges and valleys



View west to Craigowl Hill from near Carrot Hill: The Eastern Sidlaws are more rounded, merging into Dipslope Farmland

Table 6.1(d): Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development: Igneous Hills

LANDSCAPE CHARACTER TYPE TAY 8: IGNEOUS HILLS																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input checked="" type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: Sidlaw Hills																		
Med	Med/High	Med	Med	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	One windfarm with 8 large (81m) turbines at Ark Hill in central Sidlaws. One similar turbine 3km southwest at Scotston. Six other turbines at small/medium or medium mainly on lower slopes	<i>Igneous Hills with Wind Turbines/ Occasional Wind Turbines/ No Wind Turbines</i>	<i>Igneous Hills with Wind Turbines/ No Wind Turbines</i>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Two windfarm proposals in the east: Frawney (5x100m turbines) and Govals (6x87m turbines) west of the A90.	<p>Landscape Analysis: A varied landscape of distinctive steep hills and valley farmland. The hills provide a backdrop to Dundee to the south and define the southern edge of Strathmore to the north. Very visible from surrounding lowlands.</p> <p>This landscape type is generally of a medium scale and suitable for turbines up to medium/large size. Large or very large turbines would be too tall for this scale of landform. Large groups of turbines would overwhelm other key elements of the character. Proposals should also keep clear of key skyline ridges and summits.</p> <p>Comments on Consented and Proposed Turbines: Current developments occupy capacity in the centre of the hills but not east or west. At 81m the Ark Hill and Scotston turbines are at the upper end of acceptable height.</p> <p>Current proposals at Govals and Frawney would exceed recommended turbine height, group numbers, and separation if both were consented.</p> <p>A proposal for Dodd Hill (5x126.5m) east of A90 was recently refused due to adverse landscape and visual impacts relating to the size of the turbines.</p>
												Max. Numbers in Group	1-3	1-3	1-10			
												Min Group Separation Distances (km)	2-4	3-6	5-10			

GUIDANCE: TAY8 IGNEOUS HILLS

Proposed Limits to Future Development: Igneous Hills with Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium); 50-<80m (medium/large)

Group Sizes: 1-3 (small/medium; medium); 1-10 (medium/large)

Separation Distances: 2-4km (small/medium); 3-6km (medium); 5-10km (medium/large)

Detailed Guidance

The *Igneous Hills* have the capacity to accommodate smaller windfarms of up to 10 medium/large turbines; clusters of smaller turbines and single turbines that are in well separated groupings; as an overall *Landscape with Wind Turbines*. Large or very large turbines would be out of scale with the medium size hill landform and larger groups of turbines would overwhelm the pattern of distinctively shaped and separated hill landforms and small valleys that characterise much of this LCA.

Windfarms should not be located close to key skyline ridges and summits, and particularly the escarpments facing south over Dundee and the Firth of Tay and north over Strathmore. These areas are highly visible to a large resident and travelling population. Make use of surrounding landforms in siting turbines to limit visibility and skylining.

Separate the turbine groupings sufficiently to ensure they do not dominate the *Igneous Hills* character of distinctive, separate hills and ridges. This should be achieved by respecting the pattern of ridges and valleys and avoiding close intervisibility between turbine groupings on nearby hilltops. Do not place larger developments in close proximity to key panoramic viewpoints such as Kinpurney or Auchterhouse Hills.

Small/medium and medium turbines should be clustered in smaller groups (3 or less), situated in valley areas associated with farms and enclosed land so that they are seen as a distinctly separate development type to the larger turbines in windfarms on open hillsides and ridges.



Ark Hill Windfarm

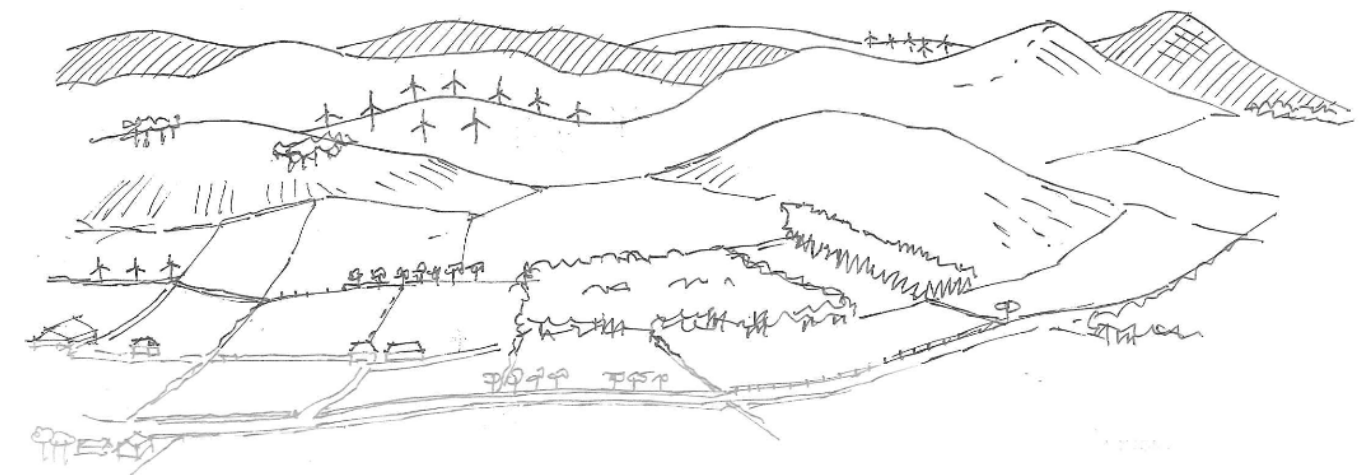
Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

Turbines should be carefully positioned in relation to the numerous electricity transmission lines and transmission masts in these hills in order to avoid cumulative clutter.

The Sidlaw Hills accommodate the only currently consented windfarm in Angus, with 8x81m turbines at Ark Hill and a single 81m turbine 2km to the southwest at Scotston. Although falling into the 'large' category these are just over the proposed 80m height limit for further development.



Scotston Turbine



The Sidlaw Hills can accommodate small to medium size windfarms and single turbines up to ca. 80m tall if well separated and sited on the lower ridges of open hillside. Smaller turbines can be accommodated in the same view if sited in lower enclosed land nearer to houses and roads

TAY 10: BROAD VALLEY LOWLAND

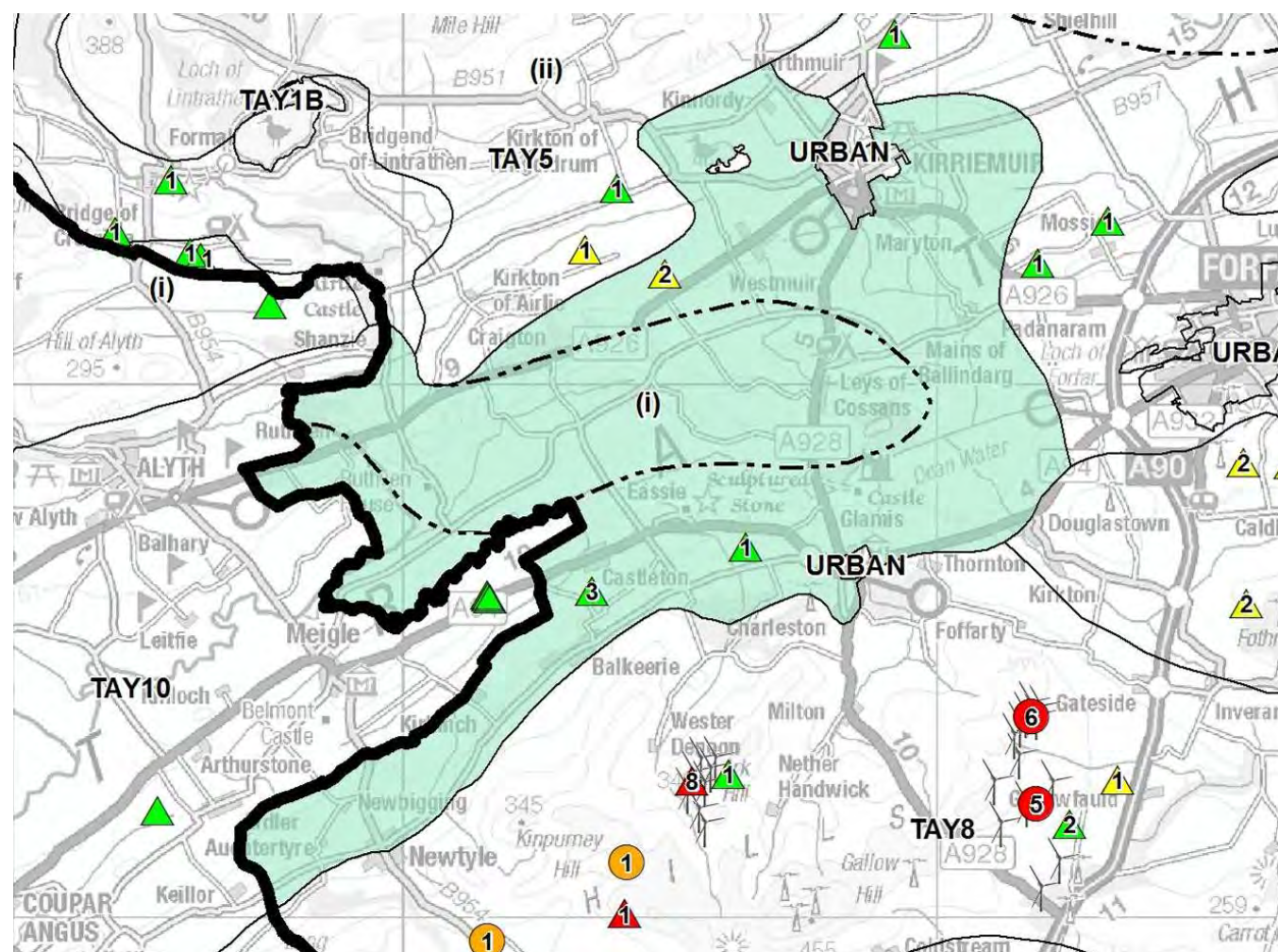
The *Broad Valley Lowland* comprises two LCAs (Strathmore and the Lower South and North Esk Valleys) located in Strathmore; a broad, settled, lowland agricultural valley stretching over 60km from the River Tay in Perthshire in the southwest through Angus to Aberdeenshire in the northeast. Whilst the horizontal topographic scale and backdrop is large, this is a settled fertile landscape with many settlements and human scale features. The LCAs are similar but there are potentially significant variations across them relating to topography. These are identified as smaller numbered sub-areas within the main types.

STRATHMORE

This LCA is broader, more open and framed by higher hills to the south compared with the Lower South & North Esk.

Whilst appearing from a distance to have a flat or gently sloping floor, there are significant variations in topography in one part of the valley:

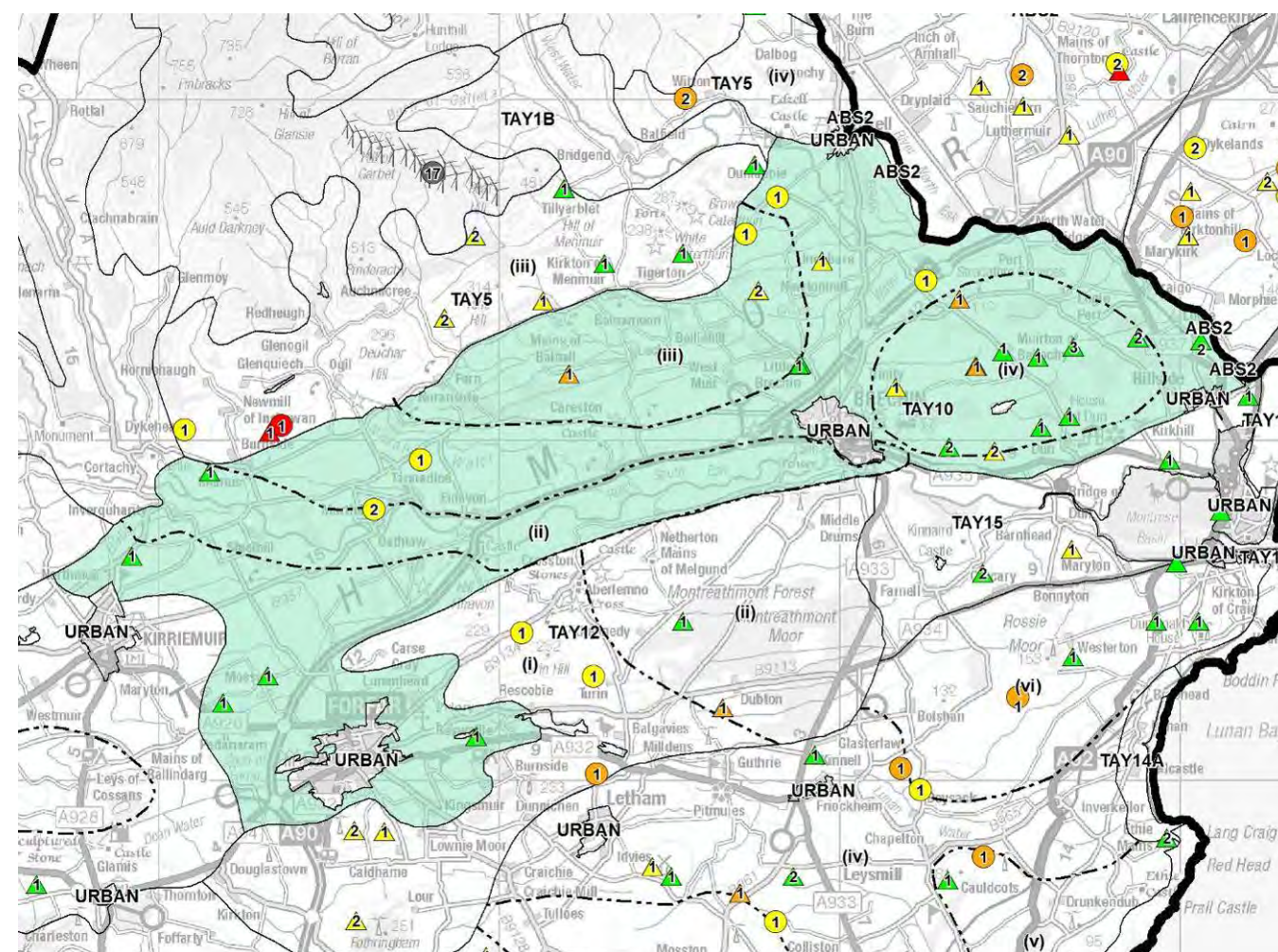
- (i) A sub-area of complex rolling fluvio-glacial landforms are concentrated at south and south east of Kirriemuir. Field sizes in this area are smaller and less regular. Sand and gravel extraction is taking place at Powmyre.



LOWER SOUTH AND NORTH ESK VALLEYS

Compared to the Strathmore LCA west of Forfar this LCA is narrower and less enclosed to the south by topography. It is similarly dominated by arable farmland but has two significant rivers, a greater level of tree cover and more topographic variation than the Strathmore LCA. Whilst the LCA as a whole conforms with the *Broad Valley Lowland* type, there are a number of smaller, distinct topographic sub-areas lying within it that have potentially differing capacities for wind energy development:

- (ii) The corridor of the South Esk between Glen Clova and Brechin is encompasses the meandering course of the river which is a focus to the landscape. It is generally characterised by a degree of topographic enclosure; more shelter and enclosure by mature trees, a number of large houses and designed landscapes. There are a number of bridges and place name references to water mills.
- (iii) A significant area lying between the A90 and the Menmuir Hills is topographically separated by a curved ridge of land from the area draining into the South Esk. This area of undulating arable land drains to the North Esk and not to Montrose Basin. The ridge screens the land to the north from the A90 corridor.
- (iv) An elevated area at Muir of Pert between Brechin, the A90 and Montrose, which separates the North Esk and Montrose Basin. Although included in the Broad Valley Lowland it rises to a plateau of over 100m AOD, has steep escarpments to the north and south, and has many of the more exposed characteristics of the *Dipslope Farmland*.



LANDSCAPE CHARACTER TYPE TAY 10: BROAD VALLEY LOWLAND																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT				PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)									
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
									A90 and Montrose Basin. This pattern continues across the Aberdeenshire border into Howe of Mearns.								ridge of land. The ridge would be visually sensitive to turbine development but the area to the north would be screened from the A90 corridor. (iv) An elevated area around Muir of Pert between Brechin, the A90 and Montrose, which separates the North Esk and Montrose Basin. This has many of the more exposed characteristics of the <i>Dipslope Farmland</i> and is the sub-area most suited for wind turbine development. Comments on Consented and Proposed Turbines: Current consented small/medium, medium and medium/large turbines are concentrated in areas (iii) and (iv), creating a <i>Broad Valley Lowland with Wind Turbines</i> north and east of Brechin. Further medium size turbines proposed would slightly extend and intensify this landscape type towards the highland area. Elsewhere the density of development is closer to <i>Broad Valley Lowland with Occasional Wind Turbines</i> . The nearby consented and proposed turbines at Memus are larger than recommended for this LCT or the <i>Highland Foothills</i> .	

GUIDANCE: TAY10 BROAD VALLEY LOWLAND

STRATHMORE

Proposed Limits to Future Development: Broad Valley Lowland with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium).

Group Sizes: 1-5 (small/medium); 1-3 (medium).

Separation Distances: 2-4km (small/medium) and 4-8km (medium).

Detailed Guidance

The scale of the landscape in the flatter areas of Strathmore would be capable of accommodating turbines up to medium/large size. However the density of settlement and other smaller reference features and extent of the more complex topography in the area of complex fluvioglacial landforms (i) limits the opportunity for accommodating turbines of up to 80m height. Turbines should therefore be limited to less than 50m height (medium or small/medium).



Typical open arable Strathmore landscape



Complex fluvioglacial landforms in sub-area (i) contrast with the flatter landform characteristic of most of Strathmore

Position turbines so that they clearly relate to landscape features such as field boundaries and larger farm buildings. Positioning in relation to the electricity transmission line in the west should also be carefully considered to avoid cumulative visual clutter.

Separate turbine groupings sufficiently to ensure that clear intervisibility between the groupings is infrequent. This can be achieved through selecting appropriate turbine sizes and separation distances and through exploiting belts of tree planting and landforms to screen views. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

In particular it will be possible to use tree belts and landforms to discretely accommodate small/medium turbines in area (i), whereas the siting of medium turbines would be more appropriate to the flatter landforms in the rest of the LCA. Care should be taken in the siting of medium size turbines close to sensitive locations such as the Glamis Designed Landscape, Kirriemuir Camera Obscura and Loch of Kinnordy.

LOWER SOUTH AND NORTH ESK VALLEYS

Proposed Limits to Future Development: Broad Valley Lowland with Occasional Wind Turbines/ Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium); 50-<80m (medium/large).

Group Sizes: 1-5 (small/medium); 1-3 (medium); 1 (medium/large).

Separation Distances: 2-4km (small/medium); 3-6km (medium); 5-10km (medium/large)

Detailed Guidance

This LCA offers varied potential for accommodating wind turbines, due to the variations in topography, but overall should be *Broad Valley Lowland with Occasional Wind Turbines*.

Allow sufficient separation between turbine groupings to ensure that the LCA as a whole is not dominated and that clear intervisibility between turbine groupings is infrequent. This can be achieved through selecting appropriate turbine sizes and separation distances and through exploiting the extensive areas of tree planting and topographic variations to limit views and intervisibility. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

Sub-area (ii) along the course of the South Esk is less suited to wind turbine development. Turbine sizes should predominantly be small/medium with some medium in more open areas. There should be no medium/large turbines. Relate positioning of turbines clearly to landscape features such as field boundaries, river terraces and larger farm buildings. Position turbines carefully to avoid cumulative clutter with the electricity transmission lines that cross the river at Cortachy and west of Brechin. Avoid positioning larger turbines near/within the Designed Landscapes at Cortachy and Brechin Castle and within the setting of listed buildings such as the two castles and the village of Tannadice. Currently only one small/medium turbine is located in this sub-area.

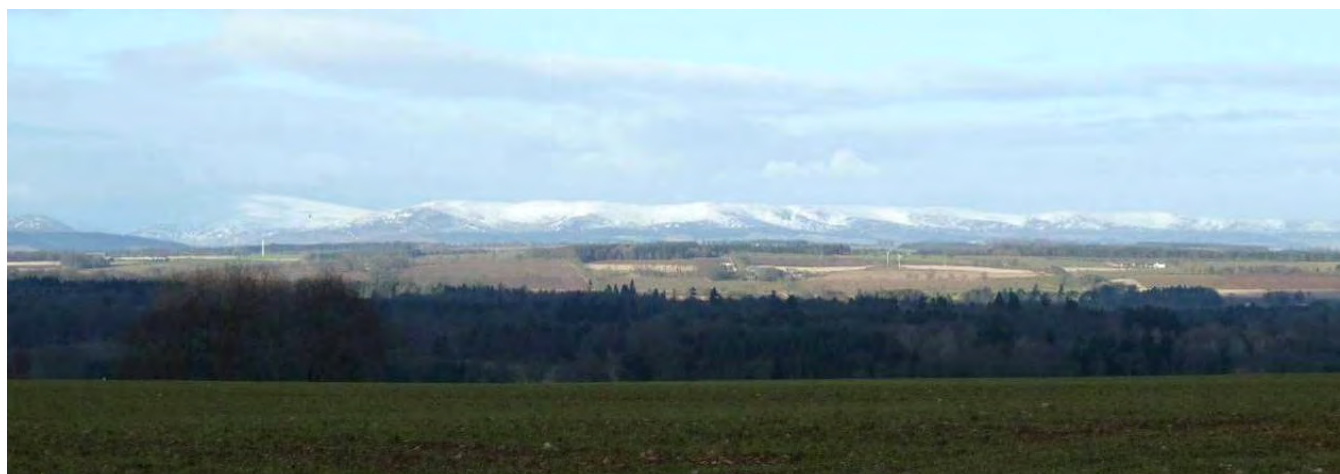
Sub-area (iii) between the A90 and the Menmuir Hills provides both opportunity and limitations for accommodating turbines. There is a sometimes sharp ridge of land forming the southern boundary, which lies above the Noran Water and South Esk between Noranside and the A90 at Brechin. This visually separates the river corridors from an extensive area of farmland which drains north-eastwards to the North Esk. Turbines should not be placed close to the crest of the ridge; small/medium turbines

would be suitable on the south side of the ridge above the A90 and medium turbines in the extensive undulating farmland to the north. There is sufficient separation from the base of the Menmuir Hills to the Caterthun hillforts for turbines in this LCA not to affect the setting of these monuments. There are two medium and one small/medium turbines in or adjacent to this area. One medium/large turbine (77m) is located at Milton of Balhall. This is larger than the recommended maximum limit of 50m, but is placed well back from the sensitive ridge to the south and the modestly scaled Menmuir Hills to the north. Nevertheless it reduces capacity for other wind turbines in the west of the sub area.



Sub-area (iii) between the A90 and the Menmuir Hills seen looking south from the foot of the Menmuir Hills The extensive area is partially enclosed by a ridge to the south

Muir of Pert (sub-area iv) has the highest capacity for wind turbines, being more elevated and open than other parts of the LCA and therefore more compatible in landscape character terms. The area is suitable for turbine sizes up to 80m. Medium/large turbines should be single and located towards the middle of the area rather than the modestly scaled escarpments above Strathmore and Montrose Basin, including the Designed Landscape of House of Dun, where they would be too dominant. Avoid proximity of larger turbines to the two electricity transmission lines skirting this area.



The elevated Muir of Pert sub-area (iv) (middle ground above the trees) is most suited in character for wind turbine development and already accommodates several turbines

There is a significant number of turbines already consented in this area, varying from small/medium to medium/large, and creating an area of *Broad Valley Lowland with Wind Turbines*. Further turbines should be limited in number and located at suitable separation distances from these to avoid creating areas of *Wind Turbine Landscape*.

Remaining areas of the LCA outside the three sub-areas currently have few consented small and medium turbines. These are within the proposed capacity, being of an appropriate size and separation. Nevertheless the large Memus turbine is located within 500m of the LCA and this will restrict the potential for locating turbines within close proximity. Potentially sensitive locations include the residential edges of the three main settlements within or bordering this LCA and the setting of Edzell castle which lies just north of the boundary. Limit turbine sizes and numbers in these locations.

There are potential cross boundary cumulative effects with Aberdeenshire at the north eastern boundary of this LCA. Within the *Agricultural Heartlands* in Aberdeenshire there are 8 medium turbines consented within ca. 5km of the boundary; Tullo windfarm within 10km and applications for several further medium and medium/large turbines within 5km.

Care should be taken to ensure that the *Landscape with Wind Turbines* in Aberdeenshire does not spread across the border and coalesce with concentrations of turbines in Angus. In particular, the North Esk river corridor currently forms a gap between the concentrations of turbines located in the higher areas of Muir of Pert (sub-area iv) and the Hill of Garvock in Aberdeenshire. Development here should be limited to occasional small/medium turbines.



Tullo windfarm viewed across the north eastern part of the Lower South and North Esk Valleys. A further ten turbines are to be added.

TAY12: LOW MOORLAND HILLS

The Low Moorland Hills LCA is situated to the east and south of Forfar and lies between Strathmore and the *Dipslope Farmland*, continuing a gradually diminishing line of hills from the Sidlaws in the west to near sea level farmland at the Montrose Basin in the east. The LCA has been divided into two sub-areas on the basis of differences in landscape character and sensitivity: the Forfar Hills in the south and west and Montreathmont Moor in the north and east.

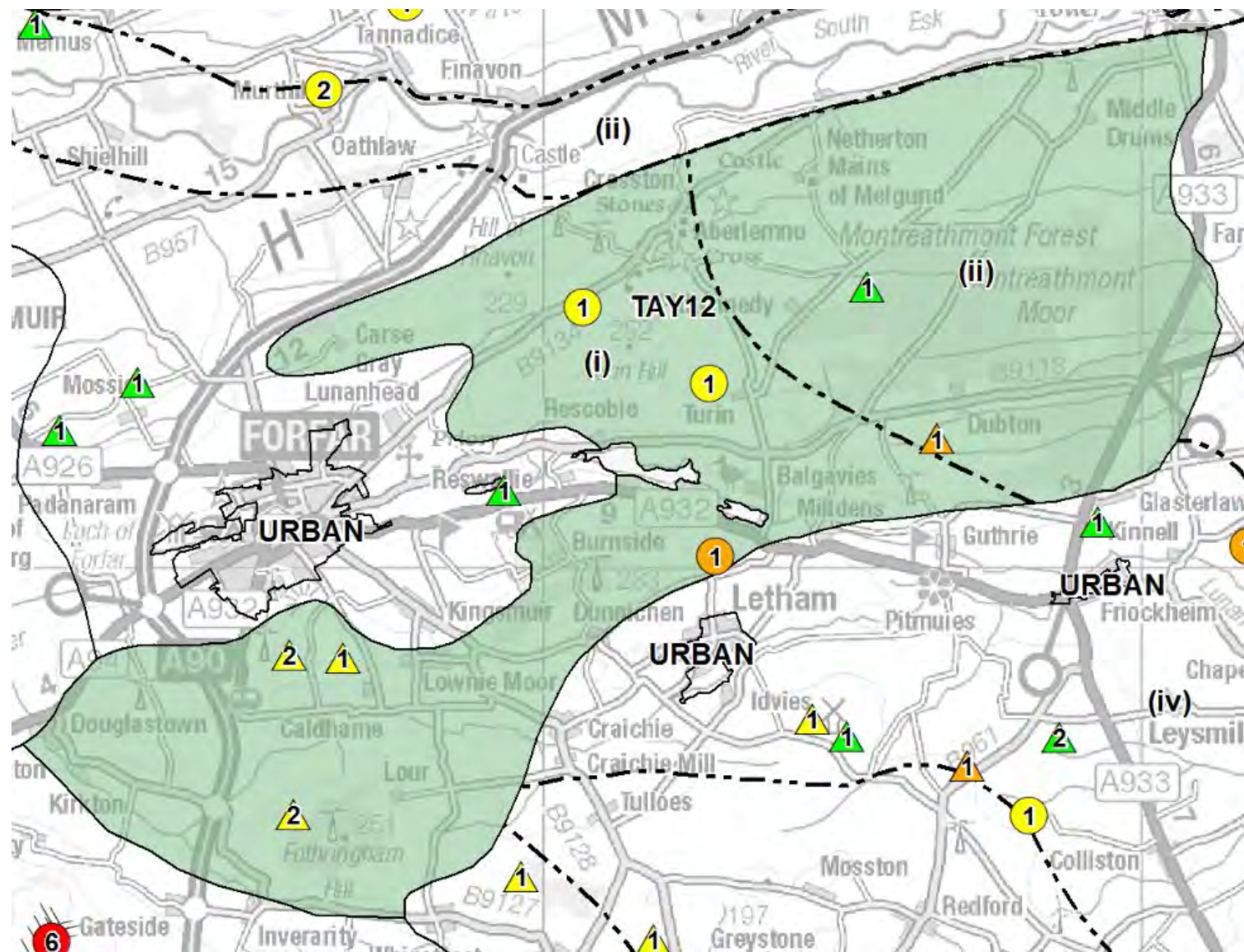
(i) FORFAR HILLS

A varied landscape of small steep hills and ridges set within a wider area of medium scale rolling/undulating farmland. The hills provide a backdrop to Forfar and define the southern edge of the South Esk section of Strathmore. Most of the hills are very visible from the A90. There are a number of hillforts and viewpoints located on the hills and other points of interest such as the standing stones at Aberlemno. There are scattered small settlements throughout the farmland, connected by a network of

small lanes, sometimes twisting over the hills. The distinctive Rescobie Lochs and A932 lie in a valley separating the distinctly bald ridges north east of Forfar from the more tree covered hills to the east and south of the town. An electricity transmission line crosses the northern edge of the LCA at Hill of Finavon. This sub-area has higher visual sensitivity and complex, modest scale landforms compared with the sub-area further to the east.

(ii) MONTREATHMONT MOOR

This LCA, lying east of the Forfar Hills, is distinctly different in character. The landform is predominantly gently undulating and gradually slopes down to the lower Montrose Basin LCA to the east. There are no distinctive hill landforms, although the northern edge forms an escarpment of some 100m descending to the River South Esk. It is a medium to large scale farming and forestry landscape dominated by Montreathmont Forest which is a distinctively large mature lowland forest dominated by coniferous planting. It is well populated by scattered properties and farmhouses in the farmland areas outside the forest, with a network of small roads.



Area (i) the Forfar Hills, with a distinctive series of hill landforms



Area (ii) Montreathmont Moor: a gently undulating landform with farmland surrounding an extensive area of forest

GUIDANCE: TAY12 LOW MOORLAND HILLS

(i) FORFAR HILLS

Proposed Limits to Future Development:

Low Moorland Hills with Occasional Wind Turbines (east of Forfar)

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-5 (small/medium; medium)

Separation Distances: 2-4km (small/medium); 3-6km (medium)

Low Moorland Hills with Wind Turbines (south of Forfar)

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

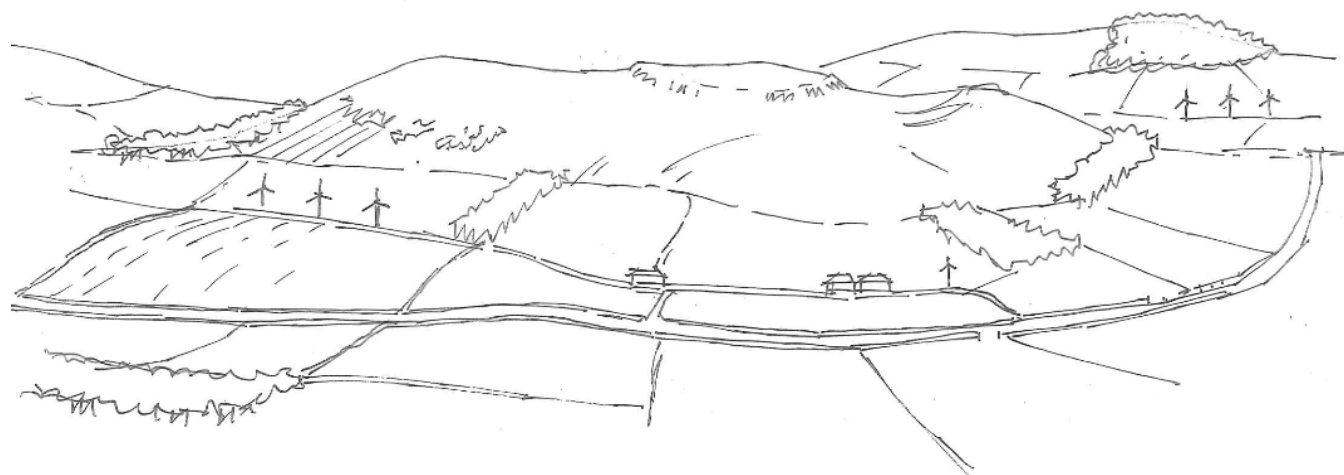
Group Sizes: 1-5 (small/medium); 1-3 (medium)

Separation Distances: 2-4km (small/medium and medium)

Detailed Guidance

Locate turbines in the enclosed farmland or on lower slopes of the hills, avoiding skylines and reducing intervisibility between turbine groups. Relate the height of turbines to the scale of the landscape, with particular regard to the vertical scale of the hills. Larger turbines should be located away from the smaller scale hills and hill slopes to avoid diminishing the apparent scale of the slopes or breaking the skyline. Proximity to residential properties or settlements may also limit opportunities for locating larger turbines and/or turbine groups. Site turbines away from the electricity transmission line on Hill of Finavon to avoid cumulative clutter.

Position turbines so that they relate clearly to landscape features such as field boundaries, breaks in slope and larger farm buildings. Separate turbine groupings sufficiently to ensure that clear intervisibility is infrequent. This can be achieved through selecting appropriate turbine sizes, separation distances and/or the intervention of landforms and tree groups. Place smaller turbines in locations where they are not close to, or readily intervisible with, larger turbines and are more closely associated with built development. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.



Forfar Hills cannot accommodate larger turbines without adverse scale effects. Small/medium or medium turbines will not dominate the landforms. Turbine groups in the enclosed farmland can also be visually separated. Smaller turbines may be accommodated in the same view if closely associated with buildings

There is a higher proportion of enclosed farmland south of Forfar compared with the greater preponderance of open hills to the east. A number of medium size turbines are already consented in this area. Given the current pattern of development further medium size turbines could be located in this area to create a landscape with wind turbines between hills. Separation of turbines/groups by distance or landform should be sufficient to avoid loose clustering of turbines within or between groupings dominating an area. Turbines should be located to avoid breaking the skyline on Balmashanner Hill above Forfar.

(ii) MONTREATHMONT MOOR

Proposed Limits to Future Development: Low Moorland Hills with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium); 50-<80m (medium/large)

Group Sizes: 1-5 (small/medium and medium); 1-3 (medium/large)

Separation Distances: 2-4km (small/medium); 3-6km (medium); 5-10km (medium/large)

Detailed Guidance

Turbines can be located in most parts of this undulating landscape; the farmland area or the forest, with the key determining issues being the need to avoid domination of the landscape character and of views from residential properties. The size of turbines should relate to the scale of the landscape, which is principally determined by the pattern of field boundaries and forestry but also by proximity to features such as buildings and small tree groups. To the north the escarpment above Strathmore forms a taller and steeper landform than elsewhere in the sub-area.

Locate larger turbines (medium/large) in areas further from residential properties, the forest being the most suitable area in terms of low population density and uniform landscape character. Smaller size turbines (small/medium, medium and potentially medium/large) are more suitably sited in farmland areas. Proximity to residential properties or settlements may limit opportunities for locating larger turbines and/or turbine groups.

Position turbines so that they relate clearly to landscape features such as field boundaries, rolling ridges and farm buildings. Within the forest existing clearings would be most suitable and the most mature and diverse areas should be avoided. Separate turbine groupings sufficiently to ensure that the landscape is not dominated and that significant areas with clear intervisibility between developments is infrequent. This may be achieved through selecting appropriate turbine sizes and separation distances and through exploiting areas of trees and forestry to screen views. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

Avoid locating medium/large turbines close to the escarpment slope above Strathmore (typically rising 60m-100m from valley floor) and to the eastern Forfar Hills (ranging from 50m-140m higher than the farmland). The turbines would dominate the modest scale of these landforms.

TAY13: DIPSLOPE FARMLAND

The *Dipslope Farmland* LCA is an extensive area of lowland farmland extending from Dundee in the west to Montrose in the north. It slopes gradually from the Sidlaw and Forfar Hills in the north and west to near sea level in the south and east. At over 40km by a maximum of 15km the often open character is dominated by productive predominantly arable land use with simple geometric field patterns. Nevertheless there are subtle variations according to elevation, tree cover and surrounding landscape context. Generally medium scale, but with areas of medium-large scale, as well as more intimate settled areas. The LCA has been divided into six sub-areas on the basis of differences in landscape character and potential sensitivity to wind energy. There is a linear ridge which delineates the different relationship of *Dipslope Farmland* with the coast to the south and undulating plateau to the north, defining the scale of acceptable turbines. This is further developed in the detailed sub-area guidance.

(i) TEALING FARMLAND

The sub-area north of Dundee is characterised by the backdrop of the Sidlaw Hills and the influence of development including several electricity transmission lines converging on a major substation (proposed for expansion); the A90 and a higher density of settlement, although Dundee itself is substantially screened from areas north of the city by a rounded ridgeline. Nevertheless there are areas of less developed character in the east and north where the farmland merges into the lower slopes of the Sidlaw Hills.



Electricity lines, settlement and lines of trees characterise the Tealing Farmland

(ii) CROMBIE/ MONIKIE FARMLAND

The sub-area northeast of Dundee is less contained to the north than sub-area (i) and is characterised by farmland and extensive woodland and forestry planting. There is settlement over much of the area, two country parks and estate policies of the former Panmure house. This has a slightly smaller more enclosed scale than much of the surrounding *Dipslope Farmland*. It is visually sensitive due to its proximity to roads, settlements and nearby hills, although tree cover limits visibility in many areas. It is crossed by an electricity transmission line.

(iii) REDFORD FARMLAND

This centrally placed sub-area is the largest scale, highest and most open within the *Dipslope Farmland*. This is partly reflected in the scale of farms and field sizes. There are significant areas of large open fields with scattered settlement and roads, although it borders more populated areas. There are more sensitive areas including the Guynd designed landscape, and to the south of the linear ridge referred to above, proximity to the *Coast* LCA and settlements. An electricity transmission line crosses the southern part, descending to Arbroath.



Open panoramic views near Redford

(iv) LETHAM, LUNAN WATER AND ARBROATH VALLEYS

This sub-area, lying between three areas of higher *Dipslope Farmland* and the *Low Moorland Hills*, follows the Lunan Water and other more minor drainage lines flowing to Arbroath. In places there is a distinct valley landform. There is extensive settlement and road network through much of the area. This has a smaller more enclosed scale than the higher areas of *Dipslope Farmland* and is visually sensitive due to the higher resident population. There are designed landscapes and listed buildings at Guthrie and Pitmuies in the north.



More enclosed landscape in the Lunan Valley

(v) ETHIE FARMLAND

This small sub-area of higher farmland is adjacent to the coast and bordered on the inland sides by the Lunan Water and other drainage lines flowing to Arbroath. Settlement and the road network are relatively sparse. There are two large houses with policies that operate as country house hotels. The high exposed boundary with a *Coast with Cliffs* LCA is potentially sensitive.

(vi) ROSSIE MOOR

This sub-area of isolated higher ground at the north eastern end of the LCA is widely visible. It has coastal exposure, merging with the *Usan Coast with Cliffs* and *Lunan Bay Coast with Sand* LCAs to the east, and Montrose Basin to the north. It is also bordered by the Lunan Water to the south where it slopes into a distinctive valley. It forms a backdrop to Montrose Basin and town.

Settlement and the road network is relatively sparse and fields are often large scale.

A relatively extensive area of unimproved moorland popular with walkers lies on the higher ground. There is a designed landscape and listed buildings at Dunninald Castle.

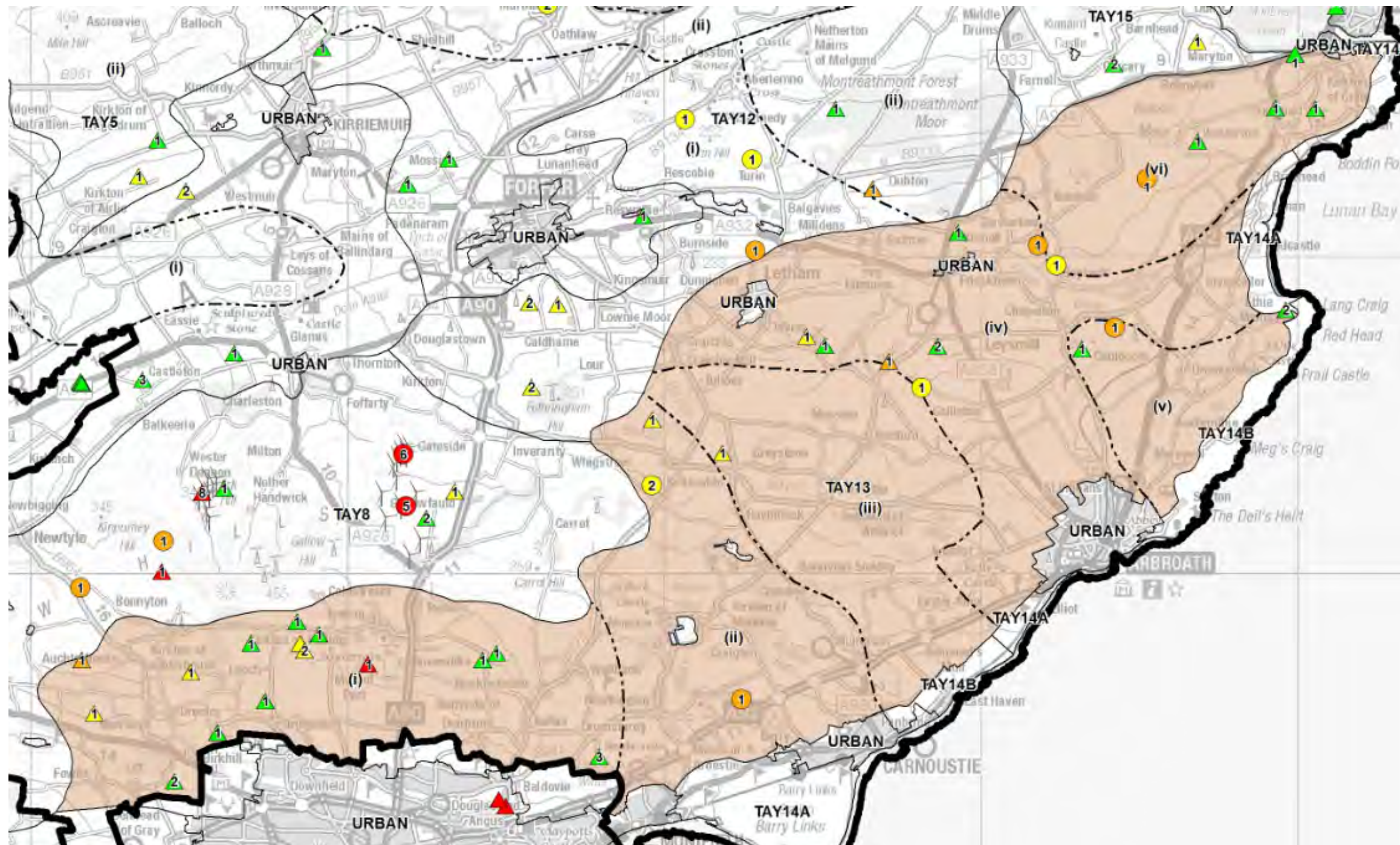


Table 6.1(g) Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development: Dipslope Farmland

LANDSCAPE CHARACTER TYPE TAY 13: DIPSLOPE FARMLAND																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: Southeast Angus Lowland Sub Area: (i) Tealing Farmland																		
Med	Med	Med	Med	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently a concentration of single and paired turbines ranging from small/medium to large between Dundee and the Sidlaw Hills. Predominantly small/medium and medium, but Tealing turbine is over 90m	Dipslope Farmland with Wind Turbines/ Occasional Wind Turbines	Dipslope Farmland with Wind Turbines	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently no further applications within the area. Current application for windfarm with large turbines in the southern edge of the Sidlaws at Frawney lies close to this area.	Landscape analysis: This sub-area north of Dundee is characterised by the backdrop of the Sidlaw Hills and the influence of development. Limited opportunity for larger turbines due to potential scaling against hill backdrop and overbearing effects on residential amenity. Turbine development should follow established pattern of small/medium and medium turbines. Comments on Consented and Proposed Turbines: Current turbines are of varied sizes and lie in closely spaced clusters with potential capacity issues. The large Tealing turbine is significantly larger than other consented turbines. Current applications for medium turbines would continue the established pattern of turbines. Current applications for windfarms in the southern Sidlaws would have strong visual influence on the east of this sub-area.
											Max. Numbers in Group	1-3	1-3					
											Min Group Separation Distances (km)	2-4	2-4					
Landscape Character Area: Southeast Angus Lowland Sub Area: (ii) Monikie/ Crombie Farmland																		
Med	Med/ High	Med/ High	Med/ High	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently one consented medium turbine in the north and one just east of boundary near Kirkbuddo	Dipslope Farmland with Occasional/ No Wind Turbines	Dipslope Farmland with Occasional Wind Turbines/ with Wind Turbines	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently applications for 2 medium turbines S of Kirkbuddo. Application for one medium/large turbine N of A92 near Barry at New Downie.	Landscape analysis: This sub area has a slightly smaller more enclosed scale than the surrounding <i>Dipslope Farmland</i> and is visually sensitive due to its proximity to roads, settlements and nearby hills. Small/medium and medium turbines can be accommodated, but only limited opportunities for medium/large turbines in more open areas to the north. Comments on Consented and Proposed Turbines: Current consents and applications are within capacity An application for 3 large turbines at East Skichen was turned down in 2009 due to visual impacts on the village and Country Park at Monikie.
											Max. Numbers in Group	1-5	1-3	1				
											Min Group Separation Distances (km)	2-4	3-6	5-10				

LANDSCAPE CHARACTER TYPE TAY 13: DIPSLOPE FARMLAND																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input checked="" type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: <i>Southeast Angus Lowland</i> Sub Area: <i>(iii)Redford Farmland</i>																		
Med	Med	Med	Med/ Low	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently 1 medium/large turbine at Cononsyth on sub area boundary in the northeast; one medium east of Kirkbuddo and one near Hayhillock	Dipslope Farmland with Occasional / No Wind Turbines	Dipslope Farmland with Wind Turbines	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Current application for one medium turbine in the NE.	<p>Landscape analysis: This sub-area is the largest scale, highest and most open within the <i>Dipslope Farmland</i> and this is partly reflected in the scale of farms and field sizes. There are areas with minimal settlement and roads although it borders the populated coastal area in the south. This has the highest capacity for wind energy in the <i>Dipslope Farmland</i> and can accommodate medium/large turbines, subject to local constraints. Groupings should remain relatively small and well separated to avoid overwhelming the underlying character. Turbines should not interfere with the ridge that marks the break of slope above the A92.</p> <p>Comments on Consented and Proposed Turbines: Current consented turbines and applications fall well within capacity. A previous application for 3x110m turbines at Dusty Drum in the centre of this area was refused in 2009 due to aviation issues but also due to landscape and visual impacts. 7 very large turbines at Corse Hill between Carnoustie and Arbroath on the boundary with the Coast LCA were dismissed at appeal in 2013.</p>
											Max. Numbers in Group	1-5	1-5	1-5				
											Min Group Separation Distances (km)	2-4	3-6	5-10				

LANDSCAPE CHARACTER TYPE TAY 13: DIPSLOPE FARMLAND																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input checked="" type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: Southeast Angus Lowland Sub Area: (iv)Letham, Lunan and Arbroath																		
Med	Med	Med	Med/High	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently one small/medium consented turbine N of Friockheim and 2 to the south. One small/medium and one medium SE of Letham and 1 med/large on boundary with Redford sub area at Cononsyth.	<i>Dipslope Farmland with Wind Turbines/ Occasional Wind Turbines/ No Wind Turbines</i>	<i>Dipslope Farmland with Occasional Wind Turbines/ with wind Turbines</i>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently scattered applications for 5 turbines (2 medium and 3 medium/ large) all lying on the sub area boundary.	<p>Landscape analysis: This sub-area, lying between three sub-areas of higher <i>Dipslope Farmland</i> and the <i>Low Moorland Hills</i>, follows the Lunan Water and other more minor drainage lines flowing to Arbroath. There is extensive settlement and road network throughout. This has a smaller more enclosed scale than much of the <i>Dipslope Farmland</i> and is visually sensitive. More suited to small/medium and medium turbines associated with settlement or intensive agriculture.</p> <p>Comments on Consented and Proposed Turbines: Current turbines mainly within capacity. Three proposed medium/ large turbines along edge of Lunan valley and close to Letham are taller than recommended.</p>
												Max. Numbers in Group	1-5	1-3				
												Min Group Separation Distances (km)	2-4	3-6				
Landscape Character Area: Southeast Angus Lowland Sub Area: (v)Ethie Farmland																		
Med	Med/High	Med/High	Med	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently one consented small/med turbine at Kinblethmont and two near the coast at Ethie.	<i>Dipslope Farmland with Occasional/ No Wind Turbines</i>	<i>Dipslope Farmland with Occasional Wind Turbines</i>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	One medium/large turbine near Lunan valley.	<p>Landscape analysis: This small sub-area of higher ground is adjacent to the coast, bordered by the Lunan Water and other drainage lines flowing to Arbroath. Settlement and road network is relatively sparse. There is capacity mainly for smaller turbines in small groupings. Max turbine size should be limited to 50m and should be set well back from the visually exposed coastal area.</p> <p>Comments on Consented and Proposed Turbines: Current turbines within capacity but proposed medium/large turbine is taller than recommended.</p>
												Max. Numbers in Group	1-5	1-5				
												Min Group Separation Distances (km)	2-4	3-6				

LANDSCAPE CHARACTER TYPE TAY 13: DIPSLOPE FARMLAND																		
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input checked="" type="radio"/> Medium Capacity <input type="radio"/> High Capacity																		
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																		
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)										
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL		
Landscape Character Area: <i>Southeast Angus Lowland</i> Sub Area: <i>(vi)Rossie Moor</i>																		
Med	Med/High	Med/High	Med	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Currently 4 consented small/medium turbines in the northeast.	<i>Dipslope Farmland with Occasional/ No Wind Turbines</i>	<i>Dipslope Farmland with Occasional Wind Turbines</i>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	One application for a single medium/large turbine at Pamphry. Applications for a medium and medium/large turbine on edge of the sub area at Lunan Valley near Friockheim.	<p>Landscape analysis: This sub-area of higher ground is adjacent to the coast, also bordered by the Lunan Water to the south and Montrose Basin to the north. Settlement and road network is relatively sparse and fields often large scale. There is capacity mainly for smaller turbines in small groupings. Medium/large turbines should be set well back from the coastal area.</p> <p>Comments on Consented and Proposed Turbines: Current consents and applications would not exceed capacity. An application for 3x110m turbines at Mountboy near Rossie School was dismissed on appeal in 2009. Two very large (137m) turbines at GSK Montrose adjacent to this area were dismissed on appeal. Both due partly to landscape and visual impacts.</p>
											Max. Numbers in Group	1-5	1-5	1-3				
											Min Group Separation Distances (km)	2-4	3-6	5-10				

GUIDANCE: TAY13 DIPSLOPE FARMLAND

The *Dipslope Farmland* LCA is capable of accommodating wind energy development due to its scale, often open character and productive land use with simple geometric field patterns. The capacity varies according to subtle variations between the six sub-areas as described below. The sub-areas are identified on the basis of differences in landscape character and sensitivity to wind energy. There is a linear ridge which delineates the different relationship of *Dipslope Farmland* with the coast to the south and undulating plateau to the north, defining the scale of acceptable turbines. This theme is further developed in the relevant detailed sub-area guidance.

(i) TEALING FARMLAND

Proposed Limits to Future Development: Dipslope Farmland with Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium).

Group Sizes: 1-5 (small/medium; medium).

Separation Distances: 2-4km (small/medium and medium)

Detailed Guidance

This sub-area has an establishing pattern of medium turbines at just under 50m, and small/medium turbines under 30m. One large (93m) turbine has been consented at the former Tealing airfield. Whilst medium/large turbines could theoretically be accommodated in this scale of landscape, continuation of the establishing development pattern is more appropriate. The medium turbines should primarily be located in central areas of the farmland, avoiding skyline effects on/ domination of Dundee suburbs and scale effects on the Sidlaw Hills to the north and west (slope heights varying from 100m-250m above adjacent farmland). Small/medium turbines can be accommodated closer to the Sidlaw escarpment. Proximity to residential properties may also limit opportunities for locating larger turbines and/or turbine groups.

Relate turbines clearly to landscape features such as field boundaries, breaks in slope and larger farm buildings. Carefully assess positioning in relation to the several electricity transmission lines and substation to avoid cumulative visual clutter.

Provide sufficient separation between turbine groupings to ensure that proximity and intervisibility is moderated and turbine groupings do not dominate the landscape or visually coalesce to create a *Wind Turbine Landscape*. This can be achieved through selecting appropriate turbine sizes, separation distances and/or the intervention of landforms and tree groups. Existing small/medium turbines are often screened from longer distance visibility by trees. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

(ii) CROMBIE/ MONIKIE FARMLAND

Proposed Limits to Future Development: Dipslope Farmland with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium); 50-<80m (medium/large).

Group Sizes: 1-5 (small/medium; medium); 1-3 (medium/large).

Separation Distances: 2-4km (small/medium); 3-6km (medium); 5-10km (medium/large)

Detailed Guidance

The principal concern in this sub-area is to avoid locating larger turbines close to visually sensitive areas including settlements, country parks and listed buildings. An application for 3 large turbines at East Skichen was turned down in 2009 due to visual impacts on the village and Country Park at Monikie.

Medium/large turbines may be located in the limited more open larger scale areas to the north of Monikie and Crombie.

Position of turbines so as to relate clearly to landscape features such as field boundaries, breaks in slope and larger farm buildings. Positioning in relation to the electricity transmission line should be carefully considered to avoid cumulative clutter.

Allow sufficient separation between turbine groupings to ensure that the landscape is not dominated and that clear intervisibility between turbine groupings is infrequent. This can be achieved through selecting appropriate turbine sizes and separation distances and through exploiting the extensive areas of trees and forestry in this sub-area to screen views. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation. Use tree belts to discretely accommodate small/medium turbines amongst larger turbines in this area.

(iii) REDFORD FARMLAND

Proposed Limits to Future Development: Dipslope Farmland with Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium); 50-<80m (medium/large).

Group Sizes: 1-5 (small/medium; medium and medium/large); 1-3 (large).

Separation Distances: 2-4km (small/medium and medium); 5-10km (medium/large)

Detailed Guidance

This sub-area has the highest underlying capacity for wind energy in the *Dipslope Farmland* and is capable of accommodating medium/large turbines, subject to local constraints. It is noted that a previous application for 3 large (110m) turbines at Dusty Drum in the centre of this area was recommended for refusal in 2009 due to aviation issues but also due to landscape and visual impacts. However a single 67m turbine is now operational at Cononsyth in the north.

The largest size turbines (medium/large) would be most suitable in the largest scale areas located in the centre and north of the sub area. Turbine groupings should remain relatively small and well separated to avoid overwhelming the underlying character. Proximity to residential properties may also limit opportunities for locating larger turbines and/or turbine groups in most other locations. The designed landscape at Guynd and areas towards the *Coast LCA* are more sensitive and medium/large turbines should not be used in close proximity to these. A recent application for 7x125m turbines at Corse Hill on the boundary with the *Coast LCA* was dismissed at appeal in 2013. Medium/large turbines should be located north of the break in slope above the A92, north of a line marked by the course of the Rottenraw Burn from the B9128 in the west and then north of Kellyfield and Cuthlie in the east.

Relate turbines clearly to landscape features such as field boundaries, ridges and larger farm buildings. Where the flatness and featurelessness of the terrain in some locations gives no obvious local clues, group composition from key viewpoints and other environmental factors should guide positioning. Positioning in relation to the electricity transmission line should also be carefully considered to avoid cumulative visual clutter.

Separation between turbine groupings should ensure that intervisibility is moderated and that turbine groupings do not dominate the landscape or visually coalesce to create a *Wind Turbine Landscape*. This may be achieved through selecting appropriate turbine sizes, separation distances and/or the intervention of landforms and tree groups.

Due to the openness of the landscape in the highest part of this sub-area, mixing of turbine sizes will be more difficult to achieve than in areas to the east or west. It is therefore recommended that, where a suitable development pattern becomes established, this is followed. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

(iv) LETHAM, LUNAN WATER AND ARBROATH VALLEYS

Proposed Limits to Future Development: Dipslope Farmland with Occasional Wind Turbines/ with Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-5 (small/medium); 1-3 (medium)

Separation Distances: 2-4km (small/medium); 3-6km (medium)

Detailed Guidance

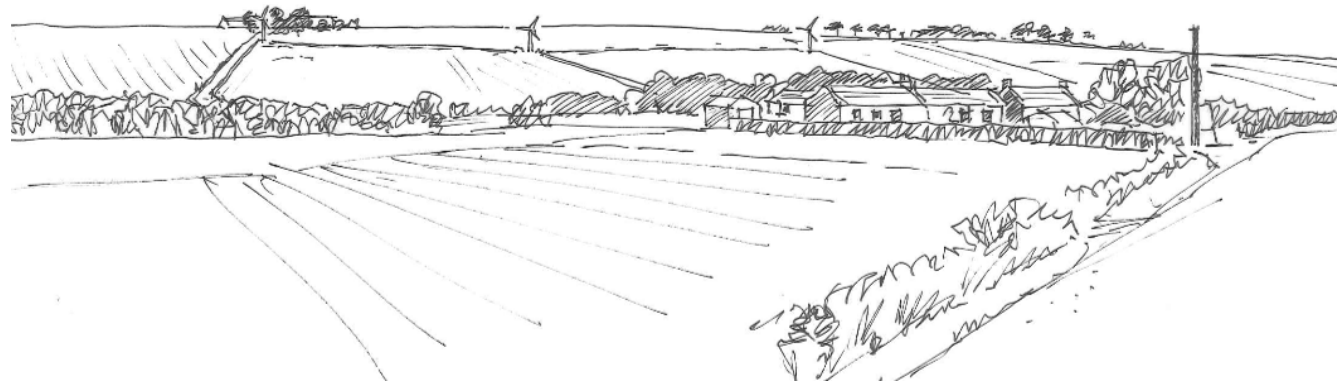
This sub-area has a smaller more enclosed scale than much of the *Dipslope Farmland*, is visually sensitive and is more suited to smaller turbines associated with settlement or intensive agriculture.

The principal concern in this sub area is to avoid dominating smaller scale and/or sensitive landscapes, settlements and modest valley side landforms. This includes the two Designed Landscapes and numerous listed buildings at Guthrie and Pitmuies as well as the smaller settlements of Letham, Friockheim, Arbilot and Inverkeilor. Medium turbines would be most appropriate in flatter, larger scale

areas around Friockheim, whereas small/medium turbines (15-<30m tall) would be more appropriate to the smaller scale landscapes of the Lunan Valley where larger turbines could exceed the height of the valley slopes in locations where these are clearly expressed (50m-100m from valley floor to crest). Views towards and from Lunan Bay along the valley should also be protected.

Positioning turbines to relate clearly to landscape features such as field boundaries, breaks in slope and larger farm buildings, industrial or mineral extraction locations. Avoid excessive skylining.

Separate groups of turbines sufficiently to ensure that the landscape is not dominated and that clear intervisibility between turbines is infrequent. This can be achieved through selecting appropriate turbine sizes and separation distances and through exploiting landforms and areas of trees to screen views. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.



Lunan Water Valley: Small/medium (15-30m high) turbines do not dominate the modest valley slope and blade tips can be aligned with trees and buildings on the horizon

(v) ETHIE FARMLAND

Proposed Limits to Future Development: Dipslope Farmland with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium)

Group Sizes: 1-3 (small/medium; medium)

Separation Distances: 2-4km (small/medium); 3-6km (medium)

Detailed Guidance

This small sub-area has capacity mainly for small/medium and medium turbines in small groupings. The principal concern is to avoid dominating sensitive landscape settings associated with large estate houses (now hotels) at Kinblethmont and Ethie Castle and the coastal strip. Medium size turbines should be sited west of the A82 due to the high exposed position of the boundary with the *Coast with Cliffs* LCAs on this headland.

Position turbines so that they relate clearly to landscape features such as field boundaries, breaks in slope and larger farm buildings. Avoided excessive skylining or domination.

Separation between turbine groupings should be sufficient to ensure that clear intervisibility is infrequent. This can be achieved through selecting appropriate turbine sizes and separation distances and through exploiting landforms and areas of trees and forestry to screen views. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

(vi) ROSSIE MOOR

Proposed Limits to Future Development: Dipslope Farmland with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium); 30-<50m (medium); 50-<80m (medium/large).

Group Sizes: 1-5 (small/medium; medium); 1-3 (medium/large).

Separation Distances: 2-4km (small/medium); 3-6km (medium); 5-10km (medium/large)

Detailed Guidance

Further to the findings of an inquiry which dismissed an application for three large (110m) turbines at Mountboy, the largest recommended size of turbine is 50-<80m (medium/large). These would be most suitable in the largest scale areas located in the centre and south of the sub area.

The principal issues in this sub-area include the avoidance of skylining effects on Montrose Basin and the visual domination of sensitive landscape and visual receptors, including residential properties, Rossie Moor, Rossie School, Dunninald designed landscape and A listed buildings. Medium/large turbines should be located well to the west of the A92 and well north of the Lunan Water to avoid effects on the coastal landscapes, Lunan valley and Lunan Bay.

Position turbines to relate clearly to landscape features such as ridges, field boundaries and larger farm buildings. In some locations the removal of field boundaries gives no obvious local clues for positioning. In this case landform, composition from key views and other environmental factors should take precedence.

Separation turbine groupings sufficiently to ensure that the landscape is not dominated and that clear intervisibility between turbines is infrequent. This can be achieved through selecting appropriate turbine sizes and separation distances and through exploiting landforms and areas of trees and forestry to screen views. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation.

TAY14: COAST

The *Coast* LCAs are mainly narrow, usually 1km or less in width. They comprise areas of predominantly arable coastal farmland which merge into coastal grasslands and scrub, or end abruptly at a beach or cliff. They are defined by their general openness and exposure to coastal views and weather. Inland most of these LCAs merge with the *Dipslope Farmland* LCA. Most of the *Coast* LCAs are visually sensitive due to their proximity to a large resident population and as a recreational destination, as exemplified by a concentration of paths and cycle routes.

14A: COAST WITH SAND

These mainly narrow *Coast* LCAs are low, open and exposed, comprising areas of coastal farmland and links golf courses which merge into coastal grasslands and sandy shorelines. They alternate with stretches of coastline with low cliffs and rocks (see below) and with coastal settlements. There are a number of caravan parks between the settlements and the LCAs. The most southern area, at Barry Links, is considerably wider than the rest of the LCAs, forming a sandy headland of stabilised dunes and slacks at the mouth of the Firth of Tay. Inland, three of the LCAs merge with *Dipslope Farmland*. The most northern area, at Montrose, differs slightly in that it is predominantly a links area with little agriculture, bordering the flat farmlands of the Montrose Basin and the edge of the town. Lunan Bay forms a crescent of sand framed by higher bluffs and is located by a castle and other areas of archaeological interest.

14A: COAST WITH CLIFFS

These narrow *Coast* LCAs are open and exposed. They alternate with stretches of coastline with sandy beaches (see above) and with coastal settlements. These areas are generally more elevated and exposed than the sandy LCAs, as their landforms end on rocky headlands comprising cliffs, escarpments and rocky pavements. The areas are more predominantly agricultural and there are no golf courses or caravan parks. Most of the cliffs and headlands are nevertheless of modest scale (maximum at Red Head is 81m AOD but most such as Scurdie Ness and Boddin Point are much lower). In the case of the Carnoustie LCA, there are rocky pavements bordering the sea, rather than cliffs, and the farmland is of a similar elevation to the neighbouring sandy LCA. All of all these LCAs merge inland with the *Dipslope Farmland* LCA. A notable feature of the *Coast with Cliffs* LCAs is that the cultivated farmland tends to end abruptly with a sharp boundary at the edge of the cliffs or escarpments. There are also occasional small fishing stations associated with coves or inlets and ancient forts on some of the higher cliffs.

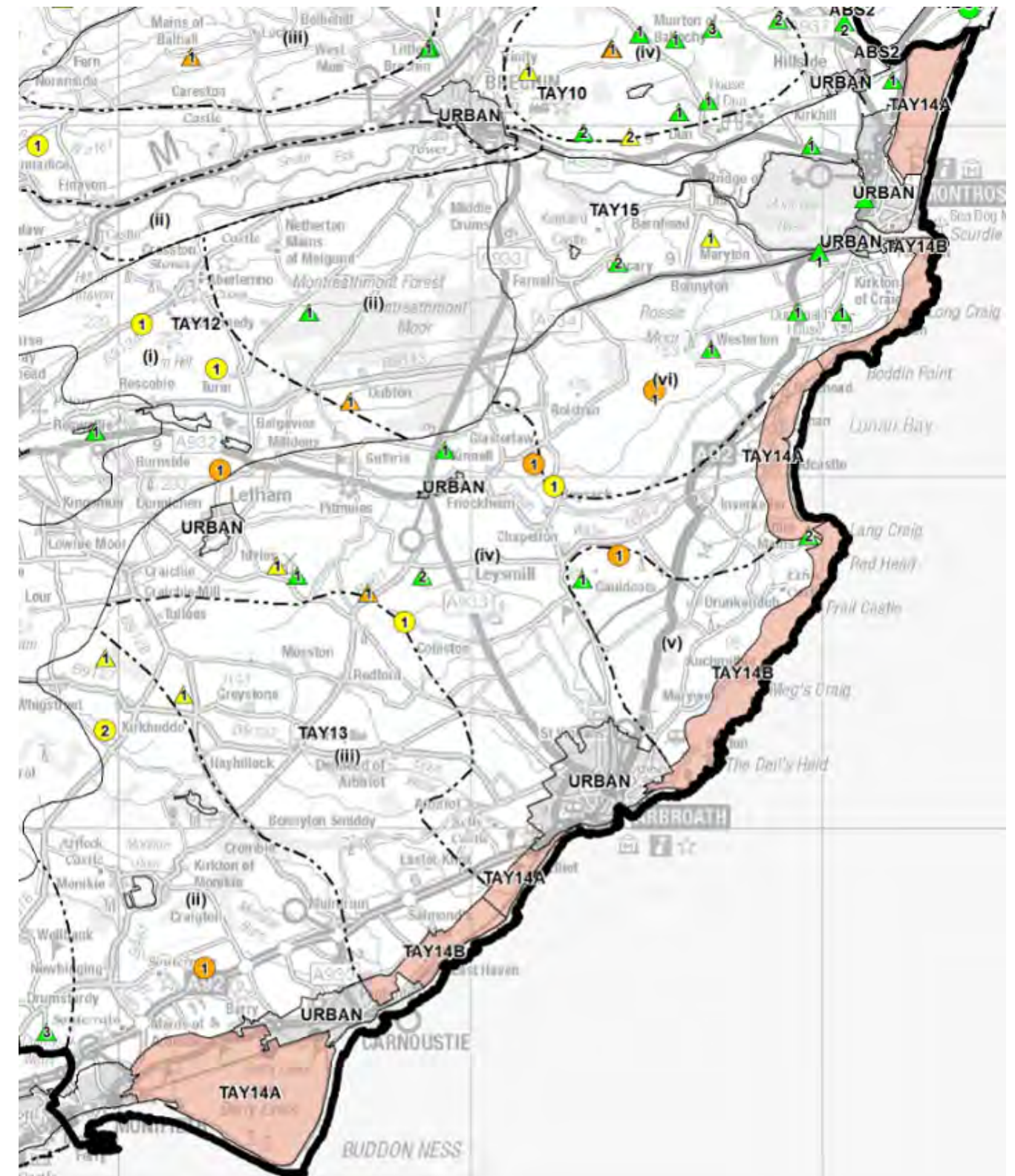


Table 6.1(h) Summary of Landscape Capacity, Cumulative Effects and Guidance for Future Wind Energy Development: Coast

LANDSCAPE CHARACTER TYPE TAY 14: COAST																			
Key: <input type="radio"/> No Capacity <input type="radio"/> Low Capacity <input type="radio"/> Medium Capacity <input type="radio"/> High Capacity																			
Turbine Size: Small/Medium=15-<30m; Medium=30-<50m; Medium/Large=50-<80m; Large=80-<125m; Very Large=125m+																			
BASE LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)					CURRENT CONSENTED DEVELOPMENT			PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)											
Landscape Sensitivity to Wind Energy Development				Landscape Capacity (Related to turbine size)					Existing/ Consented Developments	Current Wind Energy Landscape Type(s)	Future Wind Energy Landscape Type(s)	Remaining Landscape Capacity (Related to turbine size)					Current Applications	Analysis & Guidelines (Refer to Detailed Guidance for Further Information on Siting and Design)	
Landscape Character Sensitivity	Visual Sensitivity	Landscape Sensitivity	Landscape Value	S/M	M	M/L	L	VL				S/M	M	M/L	L	VL			
14a Coast with Sand Landscape Character Areas: Barry Links, Elliott, Lunan Bay, Montrose																			
Med	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 small/medium turbines on Ethie headland above Lunan Bay.	<i>Coast with No Wind Turbines/ Occasional Wind Turbines</i>	<i>Coast with Occasional Wind Turbines</i>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No current applications	Landscape Analysis: Low open exposed areas of coastal farmland, links and sandy beaches. Whilst the open windswept character is suitable for wind energy, larger scale turbines would be highly intrusive, being highly visible against the sea and sky and out of scale with the landform, low buildings and wind pruned trees. Turbines should be no larger than 30m and associated with built development. Comments on Consented and Proposed Turbines: Two small/medium turbines and no current applications. Offshore windfarm at 30km distance will have a slight visual effect on this LCT. Proposed Inchcape windfarm at 15km would have a significant visual effect. Two recent proposals located in or near this type have recently been dismissed on appeal due to landscape and visual impacts: 7 very large turbines at Corse Hill between Carnoustie and Arbroath and two very large turbines at GSK Montrose.	
																	Scoping for offshore windfarm at Inchcape and 125x197m turbines at Neart na Gaoithe 15km and 30km SE from Angus coast		
																	Max. Numbers in Group 1-3		
																		Min Group Separation Distances (km) 2-4	
14b Coast with Cliffs Landscape Character Areas: Carnoustie, Auchmithie, Usan																			
Med/High	Med/High	Med/High	Med/High	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 small/medium turbines by Ethie Mains above Lunan Bay lie within 200m.	<i>Coast with No Wind Turbines/ Occasional Wind Turbines</i>	<i>Coast with Occasional Wind Turbines</i>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No current applications	Landscape analysis: Whilst more elevated than the surrounding <i>Coast with Sand</i> the cliffs are nevertheless of modest scale. Larger scale turbines would be highly intrusive, being highly visible against sea and sky and out of scale with the cliffs, low buildings and wind pruned trees. Turbines should be no larger than 30m, set back from cliffines to avoid scaling effects. Comments on Consented and Proposed Turbines: No current consented turbines and no applications. See above for commentary on proposals within or close to this LCA.	
																			Scoping for offshore windfarm at Inchcape and 125x197m turbines at Neart na Gaoithe 15km and 30km SE from Angus coast
																			Max. Numbers in Group 1-3
																		Min Group Separation Distances (km) 2-4	

GUIDANCE: TAY14 COAST

14A COAST WITH SAND

Proposed Limits to Future Development: Coast with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium)

Group Sizes: 1-3 (small/medium)

Separation Distances: 2-4km (small/medium)

Detailed Guidance

Whilst the open windswept character is suitable for wind energy, larger scale turbines would be highly intrusive, being highly visible against the sea and sky and out of scale with the landform, low buildings and wind pruned trees. Turbines should be no larger than 30m and associated with built development. Where there are two or three closely located applications for single turbines of the same size, exploit opportunities for clustering as a group in preference to separation. Consideration is given in the *Dipslope Farmland* guidance to ensuring larger turbines in the neighbouring LCAs do not dominate the coastal strip.

There are currently two small/medium turbines and no applications. A proposal for 7 very large turbines at Corse Hill between Carnoustie and Arbroath was partially located in this LCA. and has been dismissed on appeal due to adverse landscape and visual impacts resulting from the scale of the proposals.

A proposal for two very large turbines at GSK Montrose was also dismissed on appeal due to visual impacts on the setting of Montrose and on nearby residential properties. This was located within the urban area but would have had significant effects on views south from the Montrose LCA.

14B COAST WITH CLIFFS

Proposed Limits to Future Development: Coast with Occasional Wind Turbines

Turbine Sizes: 15-<30m (small/medium)

Group Sizes: 1-3 (small/medium)

Separation Distances: 2-4km (small/medium)

Detailed Guidance

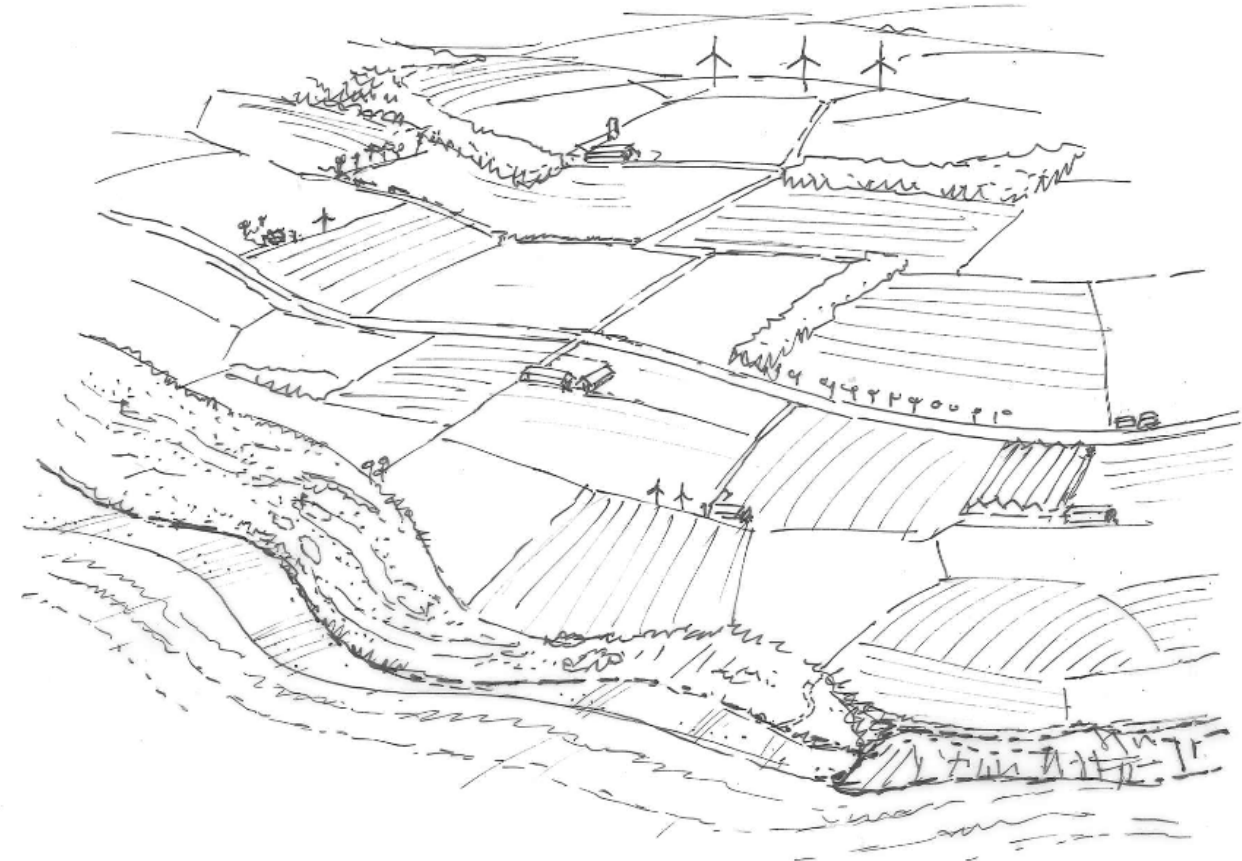
Whilst the open windswept character is suitable for wind energy, larger scale turbines would be highly intrusive, being highly visible against the sea and sky and out of scale with the landform, low buildings and wind pruned trees. Turbines should be no larger than 30m, set back from the modest sized cliffs to avoid scaling effects and associated with built development. Consideration is given in the *Dipslope Farmland* guidance to ensuring larger turbines in these neighbouring LCAs also do not dominate the coastal strip.

The dismissed Corse Hill proposal (see above) was located mainly in the Carnoustie LCA. The GSK proposal at Montrose would have had significant effects on the northern edge of the Usan LCA.

Offshore Wind Energy Developments

The proposed offshore windfarm at Neart na Gaoithe lies some 30km south east of the Angus coastline. Although comprising 125 turbines at 197m height, at this distance it is not likely to have a significant

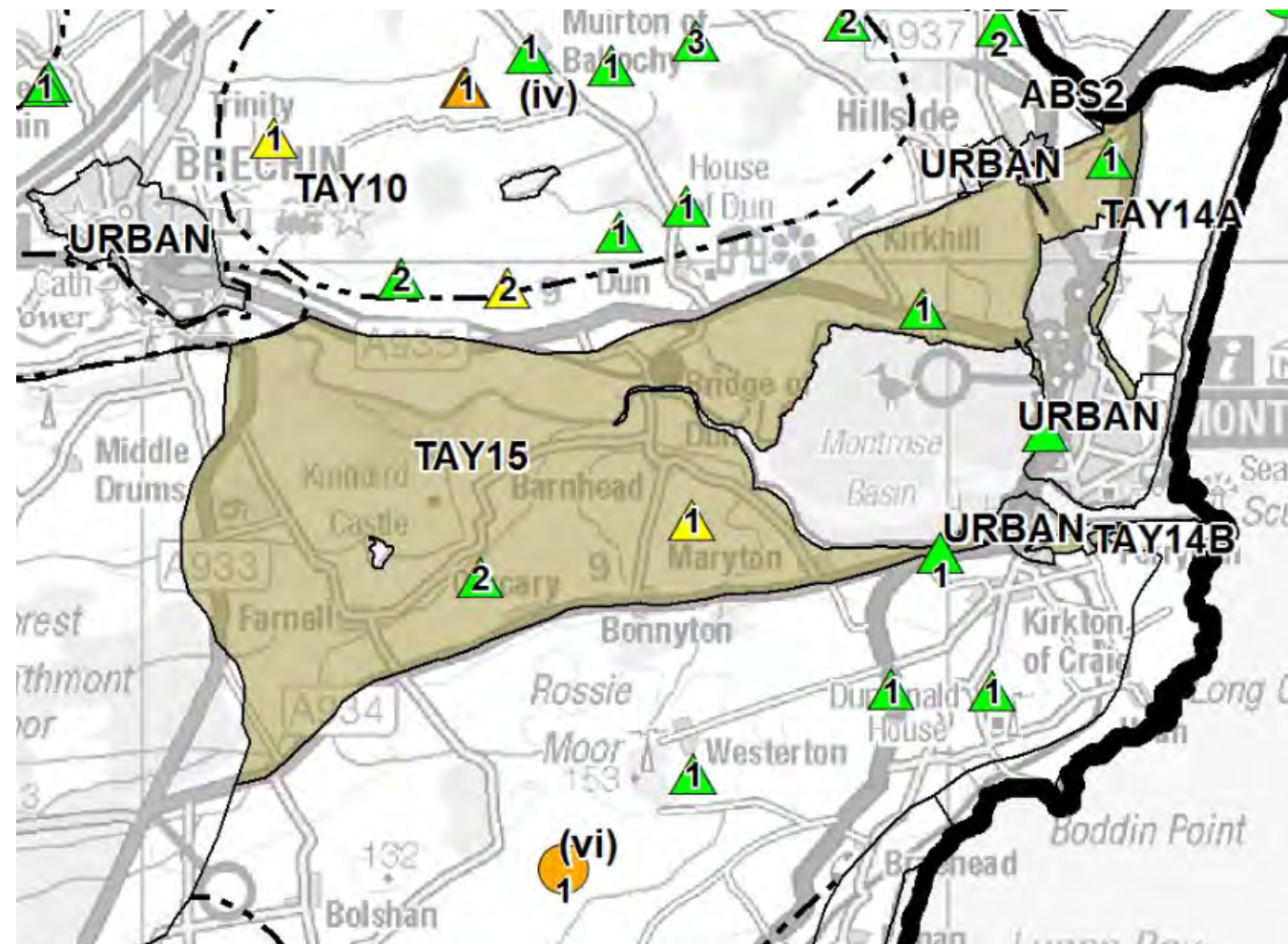
effect on the coastal LCAs. Seaenergy Alpha and Bravo proposals 27-38km to the east would be similar. However the proposed Inchcape windfarm, with over 200 turbines at 15km distance, may have a significant landscape and visual effects on the closest coastal LCAs which are also the most scenic areas of cliffs and sand lying between Arbroath and Montrose.



Coastal landscapes and Dipslope Farmland often merge seamlessly. Large turbines should be set well back into the Dipslope Farmland with turbines under 30m associated with development near the coast.

TAY15: INLAND LOCH BASIN

Montrose Basin is an unusual landscape type: an enclosed tidal basin and area of low lying farmland set between slightly more elevated areas of farmland and forest. It provides a unique setting for the town of Montrose which lies between the basin and the sea: the town has a characteristic profile seen across the basin and silhouetted against the North Sea. There is wide visibility across the basin, although the enclosing landform, despite being of modest elevation, encloses views north and south. The farmland is less open due to hedgerow tree cover and extensive areas of woodland planting associated with the designed landscape around Kinnaird Castle, which covers much of the western end. Inland of this the land slowly rises to Montreathmont Moor.



Montrose Basin viewed from the Dipslope Farmland to the south. The steeple of the Old and St Andrew's Church in Montrose is silhouetted against the North Sea.



View towards the east slopes of Rossie Moor and the trees of Kinnaird Park from Bridge of Dun.

Guidance is provided below in Table 6.1(i)