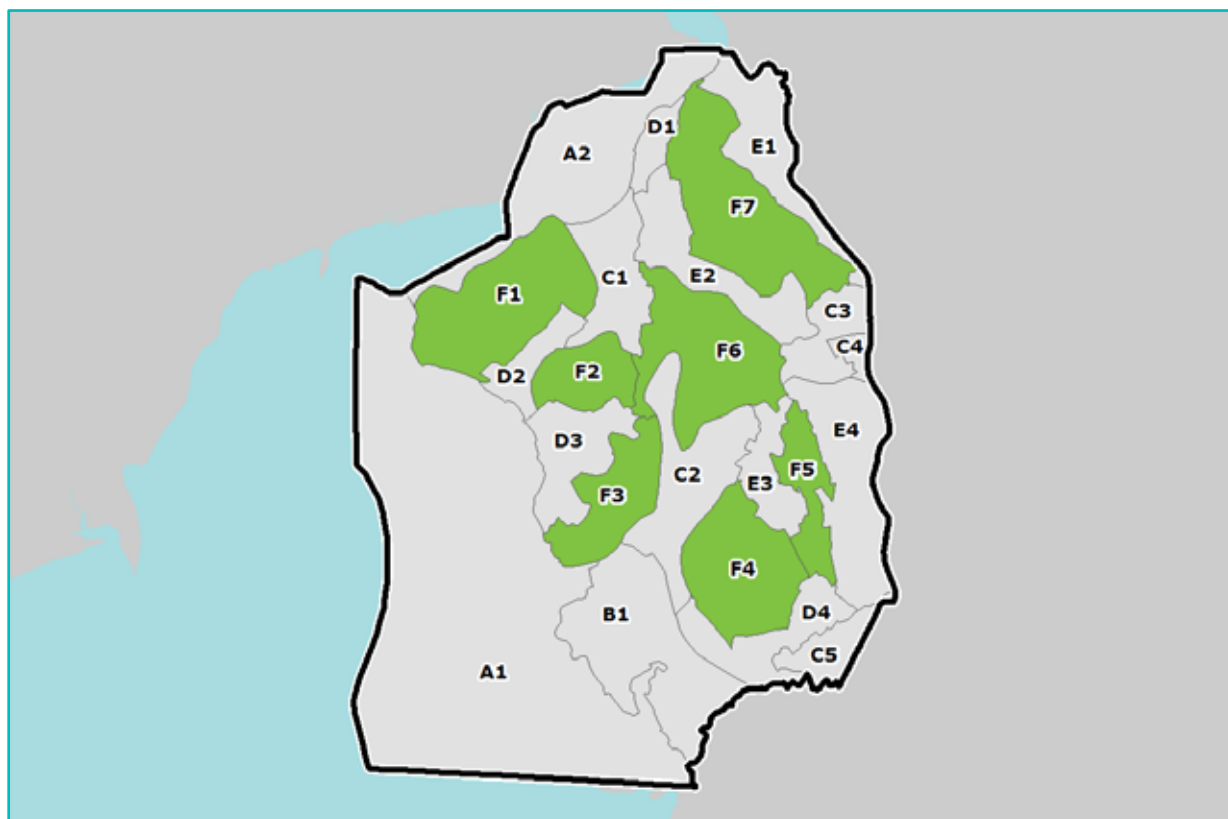


## 8 Wooded Limestone Hills

### Introduction and location

- 8.1 Wooded limestone hills and pavements rise above the lowland landscapes. Inland woodlands are rich and verdant, characterised by the highly distinctive flat bedding planes of the limestone pavements amongst which many of them grow. Natural crags and outcrops have been exposed by historic and present day quarrying for limestone, including Trowbarrow, now a Local Nature Reserve and popular climbing destination, Middlebarrow, which has recently been restored, and Sandside where extraction continues. Arnside is a Victorian seaside resort on the lower slopes of Arnside Knott, overlooking the distinctive Arnside Viaduct across the Kent Estuary, mirrored by Grange-over-Sands on the west side.
- 8.2 The wooded limestone hills landscape character type includes:
- Landscape Character Type F: Wooded Limestone Hills and Pavements

### Landscape Character Type F: Wooded Limestone Hills and Pavements



Limestone Pavement at Gait Barrows



Arnside Knott from Arnside Tower Farm

### Location and Character Type Description

- 8.3 The wooded limestone hills and pavements of Arnside & Silverdale AONB are an important and distinctive feature of the area, with hills such as Arnside Knott and Warton Crag being widely visible in the landscape. Lower areas, such as Gait Barrows include classic limestone pavement landscapes, punctuated by stunted yew woodland. There are seven landscape character areas within the wooded hills landscape character type in the AONB: Arnside Knott/Arnside Park (LCA F1); Middlebarrow/Eaves Wood (LCA F2); Heald Brow/Burton Well (LCA F3); Warton Crag/Grisedale Wood (LCA F4); Hyning and Cringlebarrow (LCA F5); Gait Barrows/Thrang End (LCA F6), and Fairy Steps/Whin Scar (LCA F7).
- 8.4 The limestone hills and pavement mosaics are a defining feature of the AONB, often protected as National Nature Reserves or by Limestone Pavement Orders. The limestone hills rise above the farmland and moorlands of the AONB, and provide a soft green backdrop to views. The low limestone cliffs at the coastal edge form an important and distinctive edge to the adjacent sands and marshes.
- 8.5 Although frequently wooded, the hills include contrasting areas of wood pasture and open limestone grassland on hill tops, from which there are panoramic views, including to the southern fells of the Lake District, the Furness Peninsula, Whitbarrow Scar, Hutton Roof, Forest of Bowland, Yorkshire Dales and Ingleborough and across Morecambe Bay. The changing light across the estuary and bay is best appreciated from these elevated locations.
- 8.6 Woodland is often historically coppiced, or stunted by its growth on the pavements, and includes hazel and yew. Rural lanes and paths wind through what can be a confusing and timeless landscape. Limestone walls, or traditionally laid hedges form boundaries to the enclosed fields within these areas. Limekilns are often found. The clints and grikes of the pavements are havens for wildlife and the areas are particularly valued for woodland ground flora in the spring. Limestone has been quarried from pavements historically and extraction is continuing today from Sandside quarry, although the pavements are now protected by Limestone Pavement Orders. The stepped profile of quarried faces is apparent in some areas.
- 8.7 The hills are largely sparsely settled but do include the traditional Victorian villas and extensions of Arnside, with a characteristic promenade and seafront, and the more recent development at Slackhead. Elsewhere where the wooded hills abut the coast, wind contorted trees extend along the tops of low coastal cliffs. In places glacial erratics can be seen perched on the limestone pavements.
- 8.8 The areas are part of the Morecambe Bay Limestones National Character Area and are classified as Wooded Limestone Hills and Pavements (LCA 20a Arnside and Silverdale) in the Lancashire Landscape Character Assessment. The northern hills and pavements are included in the Coastal Limestone type (Sub-Type 3b Wooded Hills and Pavements) of the Cumbria Landscape Character Guidance and Toolkit.

## Key characteristics

The key characteristics of the Wooded Limestone Hills and Pavements type within Arnsdale & Silverdale AONB are:

- Limestone hills, frequently wooded or enclosed by woodland, with a long history of hazel, oak and ash coppice, and a mosaic of open and woodland habitats.
- Frequent exposure of limestone in the form of pavements, where yew woodland is characteristic, and where many species thrive in the sheltered grikes between the clints.
- Mossy and shady verdant woodland occasionally opens out to traditional wood pasture or limestone grassland on hill tops: rich associations of flora characterise the unimproved calcareous grasslands.
- High points are often marked by notable locations such as Arnsdale Knott, Warton Crag, and Fairy Steps, enabling panoramic views across Morecambe Bay and over the wider landscape, including the Lake District to the north, Hutton Roof and the Yorkshire Dales to the west and the Forest of Bowland AONB to the south.
- Natural scree slopes and low cliffs and crags are characteristic in places, whilst in others limestone has been quarried leaving large quarry faces and a stepped appearance to some hillsides.
- Exposed areas of woodland in the west are sculpted by onshore winds, forming a distinctive arching wind swept western edge to the woodlands which hug low limestone cliffs along former and present day shorelines.
- The extensive areas of woodland lend a green and undeveloped character to the AONB, which changes strongly with the seasons, being dominated by deciduous species: these woodlands enclose many of the other landscape character types which make up the mosaic of land and seascapes in the area.
- Limestone walls and limekilns are characteristic features across the fringes of the low limestone hills.
- Narrow lanes with a rural character winding through woodland, a few scattered traditional developments, and the distinctive Victorian villas of Arnsdale on the waterfront.

## Evaluation

### *Valued attributes*

#### 8.9 Key values of the Wooded Limestone Hills and Pavements Type:

- Contrast between open hill sides and wooded slopes, providing varied habitats and enhancing biodiversity;
- Limestone pavements, karst features and disused quarries;
- Expansive views across the AONB, of Morecambe Bay and beyond to hills of the Lake District, Yorkshire Dales and the Howgill Fells;
- Views of the incoming tides, sunsets and sunrises over Morecambe Bay;
- Sense of tranquillity; and
- Good access opportunities for formal and informal recreation.

## Sensitive Features or Characteristics

- The contrast between the wide open spaces with panoramic views, and the enclosed limestone woodland.
- Sense of tranquillity and timelessness due to the relative absence of evident modern development in views.
- The influences of the rich biodiversity and bird life upon the character of the landscape.
- The moderating influences of Morecambe Bay upon the climate of the area, and the verdant vegetation apparent in the landscape.
- The winding rural lanes and paths passing through a timeless secret landscape.
- The dappled light through the trees and the seasonality of the woodland and ground flora.
- Sunsets seen from the hills across the west facing Morecambe Bay, and the changing colours of the water as the light reflects upon it.
- The intact character of the Victorian facades along Arnsdale Promenade.

## Forces for Change Affecting Landscape Character

- The direct and indirect effects of climate change, such as storm damage to trees, species adaptation or alteration changing vegetation/land uses, and renewable energy development affecting the landscape character of the AONB, or its setting and outlook.
- Tree diseases, including ash die back, sudden oak death, Dutch elm disease, or tree damage or species change caused, for example, by grey squirrels, deer or other grazing animals;
- Effects upon tree health or species composition of woodlands as a consequence of climate change.
- Changes in the management of traditional woodlands including coppice and an interest in traditional woodland crafts including charcoal burning and furniture potentially driving increased woodland management in the area.
- The differing management objectives of land owners, land managers (including the Forestry Commission and conservation organisations), farmers or tenants and consequential effects upon the landscape.
- Changes in field boundary and hedgerow management, such as neglect of walls, strimming versus traditional laying; or replacement with fencing.
- Quarrying for limestone at Sandside Quarry and extraction of stone from limestone pavements. The latter are currently protected through Limestone Pavement Orders, but historically have been quarried for rockeries, walls, gateposts and building stone.
- Pressures for renewable energy development including on and offshore wind farms and other large scale development in areas adjacent to the AONB, which may affect character and quality of the views from the hills. Of particular sensitivity are the uninterrupted views towards the large, open and undeveloped horizon of Morecambe Bay and of the distinctive and dramatic profiles of the fells to the north and east.
- Pressure for other types of development including that associated with industry, tourism and leisure, and new housing.
- The influences upon hills to the east of Arncliffe and Silverdale of the north-south transport corridor - A6, railway, M6 and Lancaster Canal, and pressure for infrastructure development such as a high speed train route, or major new electricity grid connections, and all associated ancillary development.
- Expansion of residential and commercial development across the areas outside the AONB including around Carnforth and Milnthorpe to provide new housing, industrial estates and retail outlets, primarily affecting areas to the east and south of the AONB.
- Increased demand for holiday lets and second homes leading to further conversion and domestication of rural buildings.
- The effects of development and changes in land use to those of a more urban or suburban character, including of a piecemeal nature, on the character of the setting of the AONB, the views into the AONB from outside and those looking out of the AONB.
- Pressure for the development and expansion of campsites and caravan parks, which may affect the character of the area if inappropriately designed without regard to the surrounding landscape and historical settings.
- Infill of open areas within Arncliffe and an increase in the density of housing, or proposals for development within the wooded hills which may not always fit into the landscape or be in sympathy with its character.
- Changes in grazing regimes leading to growth of trees and scrub where grazing is reduced, and giving these areas a progressively more enclosed character, thus reducing the overall diversity of the landscape mosaic.
- Influences such as the Marine and Coastal Access Act<sup>49</sup> which may require alterations along the coast through the requirement for a long distance coastal access route.
- The influences of the Shoreline Management Plan<sup>50</sup> and any management recommendations which would affect the coastline of the hills.

<sup>49</sup> Marine and Coastal Access Act 2009.

<sup>50</sup> Halcrow, 2010. *North West England and North Wales Shoreline Management Plan SMP2*. Report prepared by Halcrow Group Ltd for the North West and North Wales Coastal Group [pdf]. Available at: <https://www.gov.uk/government/publications/shoreline-management-plans-smpls/shoreline-management-plans-smpls> [Accessed 09 July 2014].

## Current Landscape Condition

The overall condition of the Wooded Limestone Hills and Pavements Landscape Character Type is considered to be **moderate to good**. The extensive areas of woodland lend a green undeveloped character that has been shaped primarily by natural forces. The condition of this woodland is generally good although there are some unmanaged patches which are in a state of decline. There are also remnant coppiced areas which have not been managed for this form of timber production for many years. The condition of other natural features such as scree slopes and limestone pavements is good. There is some evidence of disrepair in the field boundary walls and limestone kilns and former quarrying activities.

## Sensitivity and Capacity for Change

The Wooded Limestone Hills and Pavements Landscape Character Type is considered to have very high visual sensitivity overall, as a result of the panoramic views across Morecambe Bay and over the wider landscape, including the Lake District to the north, Hutton Roof and the Yorkshire Dales to the west and the Forest of Bowland AONB to the south from locations such as Arnside Knott, Warton Crag, and Fairy Steps. The wooded hills also form the characteristic green backdrop to views from the lowland mosslands, pastures and parkland. The scree slopes, limestone pavements and extensive areas of native broadleaved woodlands interspersed with open pasture create a natural feel to the tranquil rural character. Ecological sensitivity is high due to the mosaic of open and woodland habitats, the species richness of the sheltered grikes between the clints and the rich flora of the unimproved calcareous grassland. There is a strong cultural sensitivity resulting from the Victorian villas of Arnside, limestone kilns, coppiced woodland and scattered traditional development.

**For all these reasons, the Wooded Limestone Hills and Pavements Landscape Character Type is considered to have a high level of inherent sensitivity.** As a result, overall capacity to accommodate change without compromising the key characteristics of the Wooded Limestone Hills and Pavements Landscape Character Type is considered to be very limited, apart from change which reinforces positive attributes such as habitat enhancements.

## Guidelines

**Table 8.1 Guidelines – Landscape Character Type F: Wooded Limestone Hills and Pavements**

Guidelines	
Climate Change	
F1	Monitor and provide a positive approach to adaptation to any changes in species or the balance of species which arise as a consequence of climate change. Continue to advise on suitable species for tree planting, ensuring that these reflect the traditional character of the AONB landscape, and that they are suitable given current trends in changing climates.
F2	Manage and influence the response to possible future demands for increased food and energy crops, and other associated effects of climate change such that the character of the wooded limestone hills landscape is not substantially altered.
Natural Features	
F3	Ensure that wind sculpted trees along the coastal fringes which are such a feature of the area are retained. Ensure the retention of the undeveloped coast through maintaining a buffer of 'natural' woodland between the cliff line and any development within the wooded limestone hills and pavements.
F4	Promote appropriate garden and native species planting and use of traditional materials for boundary treatments, such that housing and other developed areas blend sympathetically with the AONB wooded limestone hills and pavements landscape.
F5	Maximise opportunities for re-wetting of low lying mossland at New Barns in accordance with guidelines for LCT C (Lowland Moss).
F6	Where appropriate and subject to careful impact assessment by landscape architects and ecologists, increase visibility of geodiversity by, for example, encouraging practices such as localised exposure of limestone crags and pavements by removal of trees adjacent to road edges, such has been undertaken near Thrang Coppice.
F7	Ensure that the integrity of all limestone pavements and other outcrops is maintained.
F8	Conserve and enhance ancient semi-natural woodlands.



Guidelines	
Development	
F9	Maintain the high proportion of undeveloped views and skylines which form the setting to the wooded limestone hills and pavements. These include views over lowland mosses and farmland within the AONB, over estuary, bay and open water to the southern fells of the Lake District, the Furness Peninsula, and over drumlin farmland to the limestone escarpments to the north and east, outside the AONB. Reduce the extent of influence of development so that it affects localised sections of the skyline rather than large proportions. Overall development should not become a key element in views from the AONB or have a defining influence on the overall experience of the landscape (i.e. developments should remain occasional features within the views and not result in a significant cumulative impact).
F10	Ensure that future development within and in landscapes forming the setting to the pasture and parkland does not significantly affect the overall character and integrity of these landscapes, their key characteristics, cherished views, defining features, and the reasons for designation are not significantly affected. Ensure that consideration is given to siting, design and the implementation of appropriate mitigation measures to avoid or reduce adverse effects.
F11	Support measures which reduce landscape and visual impacts upon the wooded limestone hills and pavements, such as where appropriate, routing power lines underground, sensitive siting of any communication masts, and appropriate siting, design and implementation of domestic scale renewable energy/carbon-neutral projects where they do not detract from the character of the area.
F12	Ensure that proposed transport/utilities related work in the wooded limestone hills and pavements of the AONB and changes to roads including road lines, signage, barriers, lighting or car parks are appropriate for the landscape character. Avoid the use of hard engineered details and suburbanisation of the countryside.
F13	Ensure all development is in accordance with the landscape objectives of the area. Resist infill development of important open or historic spaces within settlements. Minimise development of greenfield sites within settlements and green spaces between buildings and hamlets, such as orchards and gardens, which contribute to the character of the area. Ensure new development is appropriate to the landscape character: promote the traditional vernacular, retain a rural character, and enclose with rural native hedgerow or dry limestone wall boundaries (as appropriate to particular areas). Encourage new uses for old or redundant farm buildings.
F14	Ensure all development is visually contained and of an appropriate scale and design. Prevent major or unsympathetic development and introduction of suburban characteristics into the rural landscape.
F15	Take up and encourage any opportunities for demolition and redevelopment of less sympathetic buildings within the AONB pasture and parkland, promoting the use of more appropriate or discrete styles and materials which would be beneficial to the wider character of the area.
F16	Ensure that development does not result in a net loss of key features and characteristics.
Management Practices	
F17	Work with land owners/land managers/farmers/tenants to promote appropriate nature conservation and management which benefits landscapes, habitats and species, for example at the golf course east of Silverdale. Discourage the conversion of unimproved grazing habitats to improved pasture and amenity grassland. Encourage de-intensification, a reduction in the use of agricultural chemicals, maintenance of hedgerow and the production of hay instead of silage to increase the presence of wild flowers which at certain times of year are a valued feature of the landscape.
F18	Produce integrated management plans, which can help to ensure that objectives associated with management of nature reserves and woodland are synchronised and consistent with the overall vision and objectives for AONB wooded limestone hills landscapes. For example, promote the planting of appropriate species and design of new woodlands to blend in with natural woodland.
F19	Explore measures for visitor management, including traffic and parking, to help resolve any issues which may be at odds with the character of the wooded limestone hills and pavements (i.e. tranquillity and naturalness).
F20	Produce appropriate design guidance for housing and settlement within the AONB wooded limestone hills and pavement including promoting the use of styles and materials to match or complement the local vernacular (e.g. two storey dwellings with limestone walls and slate roofs, with boundaries being native hedges or drystone walls).

Guidelines	
Management Practices	
F21	Manage woodlands to encourage structural diversity and an appropriate mix of species. Retain and appropriately manage distinctive features such as the beech circle on King William's Hill.
F22	Ensure that appropriate and traditional woodland management such as coppicing is undertaken in liaison with owners/managers/farmers/tenants: promote the local economy through appropriate traditional wood crafts/wood fuel projects.
F23	Ensure quarries have high quality restoration schemes that support the expansion of semi-natural habitats.
F24	Promote the continued use of grazing herds for nature conservation, and the management of scrub/bracken invasion in order to maintain a mosaic of wooded and open landscapes, including grazing of limestone grassland and wood pasture to encourage a diverse range of habitats and species.
Access, Recreation and Appreciation	
F25	Where wooded limestone hills and pavements lie adjacent to the coast, respond to the requirements of acts such as the Countryside and Rights of Way Act <sup>51</sup> and the Marine and Coastal Access Act <sup>52</sup> by promoting the positive development of a long distance coastal access route whilst ensuring any changes or development is in line with the landscape management objectives of the AONB.
F26	Maintain open areas at key viewpoints such as Fairy Steps, The Pepperpot, Arnside Knott and Warton Crag to enable public appreciation of open panoramic elevated views of the surrounding area.
Cultural Features	
F27	Protect and conserve the settings of historic features, buildings and monuments and historic designed landscapes through development management.
F28	Promote the agreement of appropriate access to and interpretation of historic sites such that they are better understood as features in the landscape. Ensure any development associated with visitor access (such as car parks) is sympathetic to the character of the AONB.
F29	Repair and restore limestone walls throughout the area, such as through projects, competitions and suitable grant or stewardship schemes. Promote hedge laying and gap filling of hedgerows on a 5-10 year rotation, making the most of opportunities such as hedge laying competitions to promote awareness and skills, and grants or stewardship schemes to help with funding.
F30	Encourage land owners to restore or maintain historic and traditional features such as walls, hedgerows, historic buildings, limekilns, woodlands, ponds and wells through land management schemes or grant schemes. Encourage the maintenance or creation of intact boundaries of laid hedges or stone walls around development to help integrate development visually in the rural landscape, and to use woodland to help screen buildings or structures.

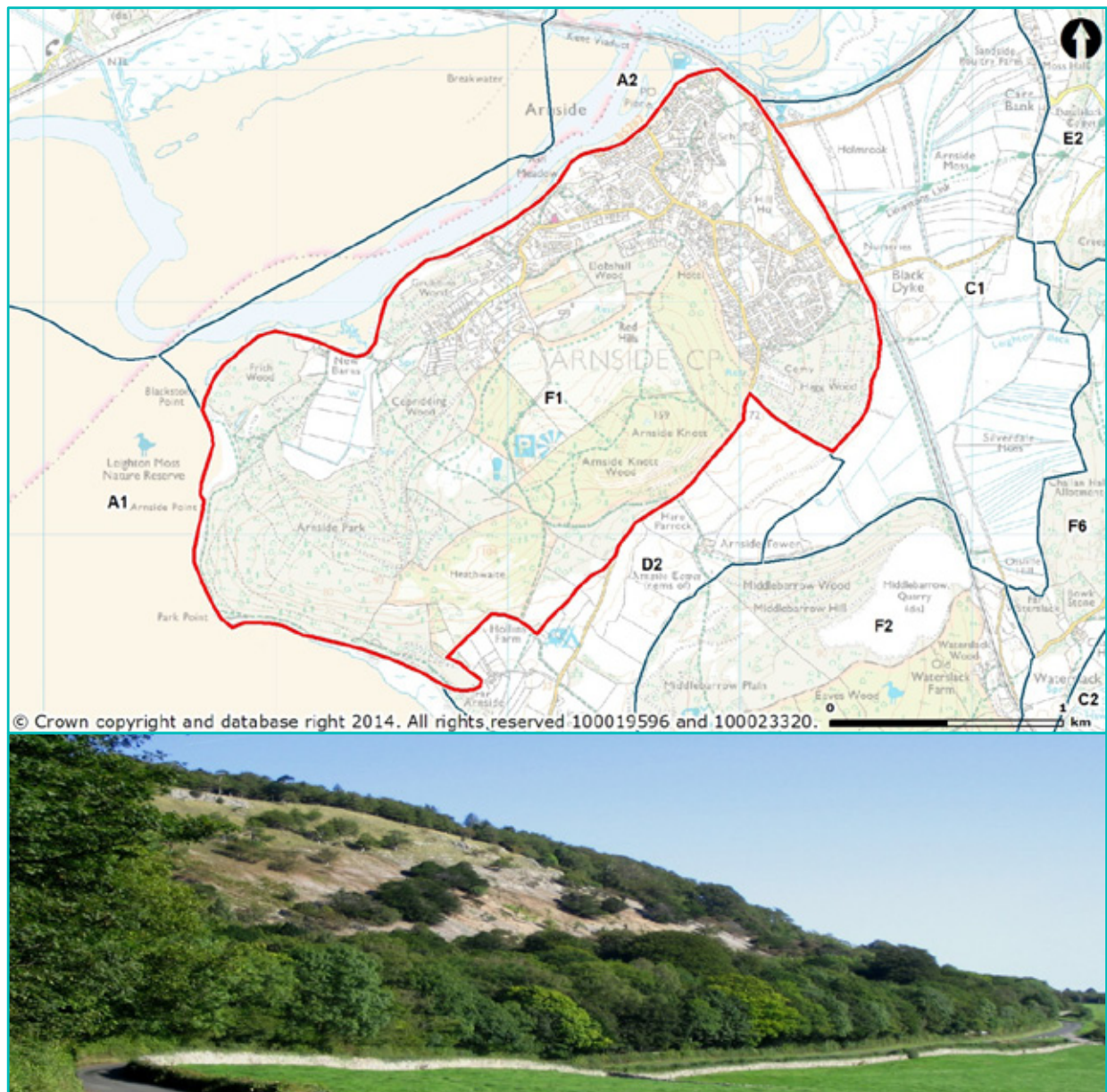
<sup>51</sup> Countryside and Rights of Way Act 2000.

<sup>52</sup> Marine and Coastal Access Act 2009.

## Landscape Character Areas

Landscape Character Area: F1 Arnside Knott/Arnside Park

**Figure 8.1 F1 Arnside Knott/Arnside Park**



### Arnside Knott

#### Location and Character Area Description

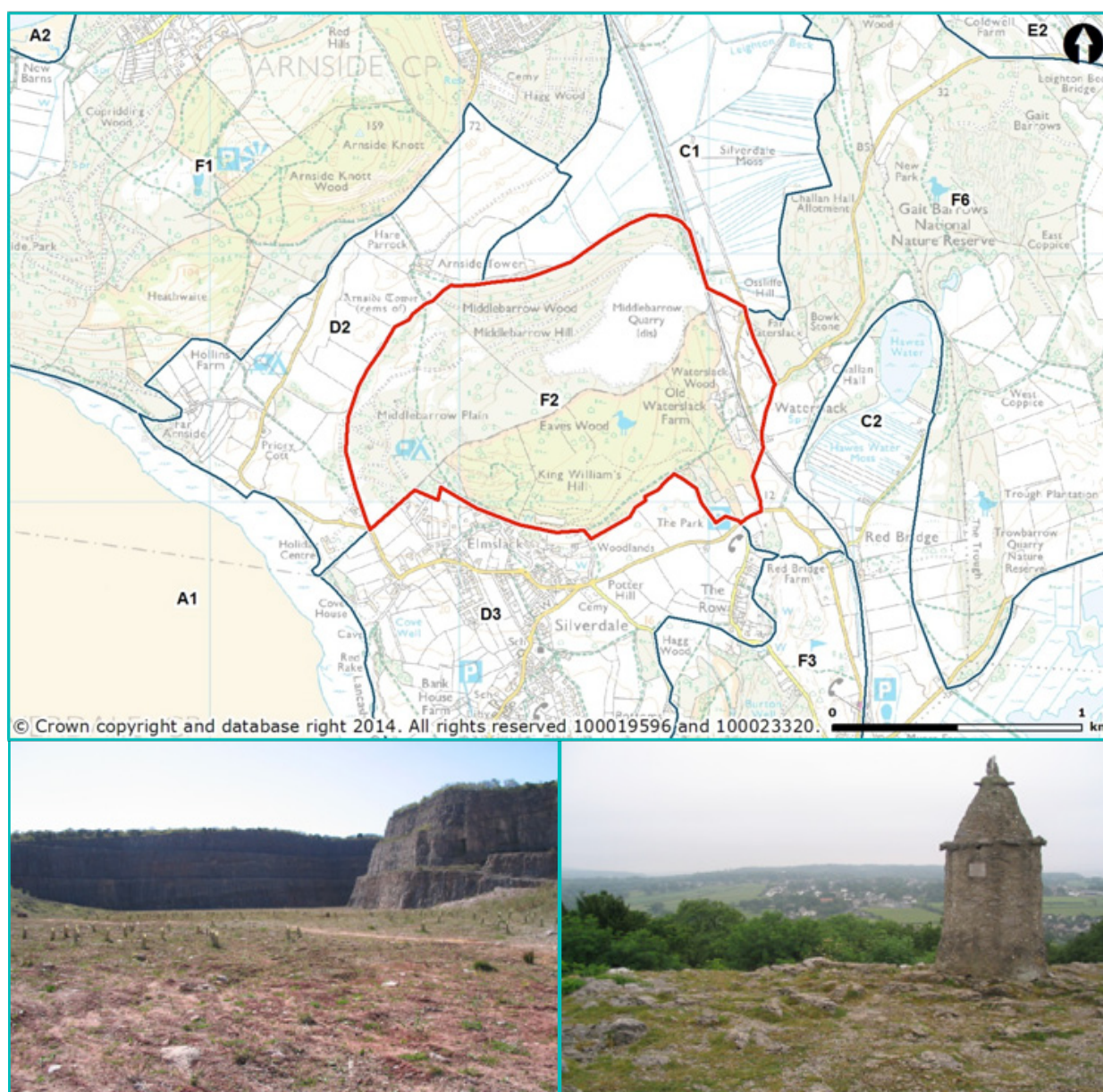
- 8.10 Arnside Knott is one of the most well-known land marks in the AONB, and the hill top viewpoint is easily accessible on foot from Arnside. This limestone hill rises to 159m, affording panoramic views over the whole area, but particularly Whitbarrow Scar and the southern part of the Lake District, seen across the Kent Estuary, and Grange-over-Sands to the west. The intervisibility with coastal areas and expansive views across the intertidal flats and Morecambe Bay to undeveloped skylines are key characteristics of the area as are the views towards Ingleborough and the Yorkshire Dales. The contrasts between the sea, the sands and the hills, and the interplay of the light across the land and the sea make the views appreciated for their scenic beauty.
- 8.11 Arnside Knott includes open limestone grassland, with juniper (e.g. Redhills, Heathwaite - owned by the National Trust) as well as extensive areas of woodland, including yew and hazel formerly managed as coppice. Some areas have been recently coppiced again to promote the regeneration of a diverse ground flora for butterflies. The woodland includes Dobshall Wood, Copridging Wood, Arnside Knott Wood, Arnside Park, Frith Wood, Hagg Wood, Grubbins Wood and the woodland beyond Far Arnside, and extends from the shore to the tops of the hills. A steep scree slope drops down the south flank of Arnside Knott. Stunted, wind sculpted oak woodland, with some pine, hug the coast, above low limestone cliffs.



- 8.12 The area also includes the settlement of Arnside which wraps around the northern and eastern sides of the hill. Arnside comprises a Victorian facade of grand houses which face onto promenade along the estuary, many of which were built as hotels but which are now divided, and include sheltered accommodation and retirement homes. Behind the old core more recent (50's and 60's) suburban style housing extends across grassland and into the woodland above.
- 8.13 By way of contrast, a small area of flat grazing land occupies lower land at New Barns, to the west of Arnside, and to the east of Blackstone Point. This is a lowland moss, drained and used for grazing, and is characterised by the reeds which line the ditches which separate the small fields.

*Landscape Character Area: F2 Middlebarrow/Eaves Wood*

**Figure 8.2 F2 Middlebarrow/Eaves Wood**



**Middlebarrow Quarry**

**The Pepperpot, King William's Hill**

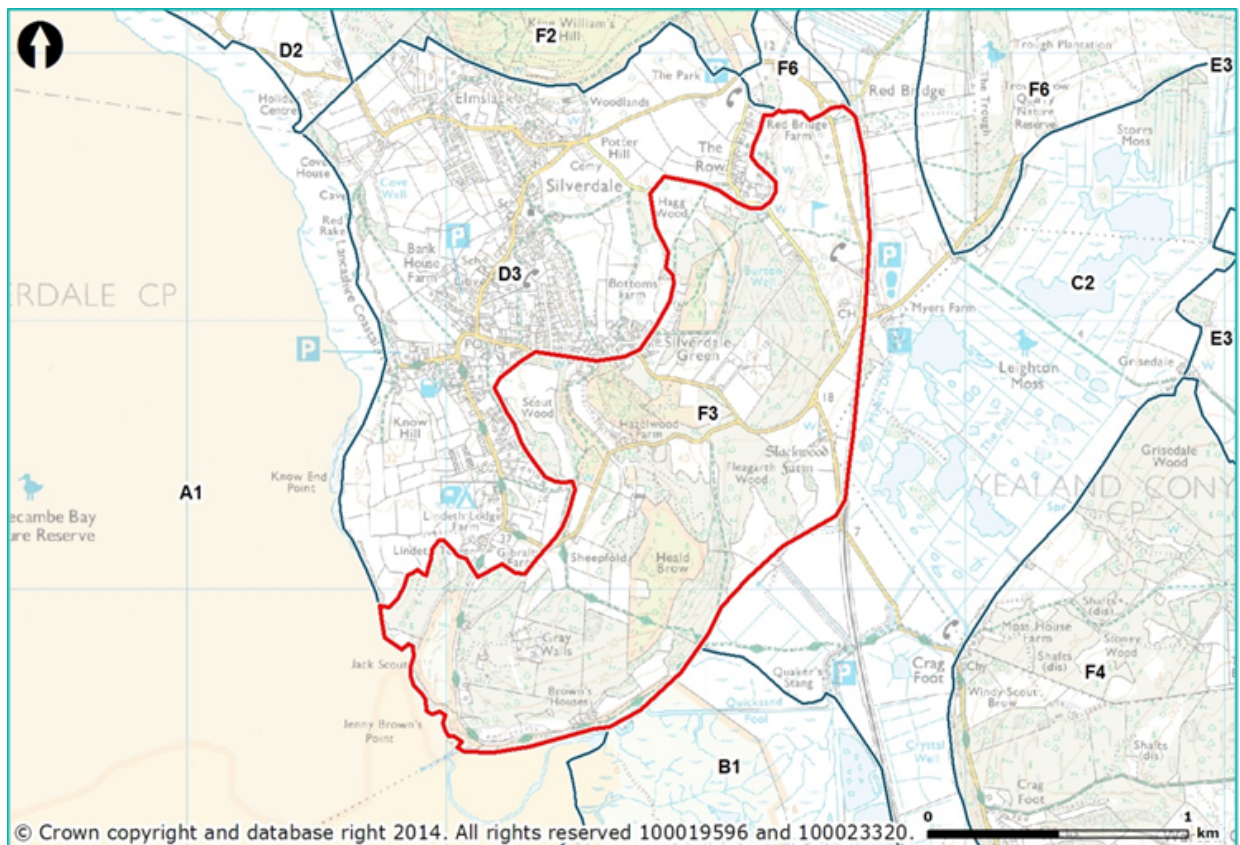
#### **Location and Character Area Description**

- 8.14 This area of low limestone hills is known to the north as Middlebarrow and to the south as Eaves Wood, located on King William's Hill. Eaves Wood is owned by the National Trust. Middlebarrow includes woodland, much of which has been felled, removing coniferous species, and leaving deciduous trees standing. Natural regeneration is occurring. The woodland forms a backdrop and setting to the remains of Arnside Tower, an important landmark on the edge of the area.

- 8.15 Middlebarrow Quarry is large and locally prominent on the skyline in views from the north. It is no longer active, and some planting and restoration has been undertaken. The high faces form a distinctive stepped profile to the hill when seen from the north.
- 8.16 As the heavily wooded slopes of Middlebarrow rises to the south of Arnside Tower, hidden by the coppiced woodland of Eaves Wood, there is a limestone crag known as King William's Hill. Upon the hill is the Pepperpot, a circular rough stone tower built for Queen Victoria's Golden Jubilee, which is a popular viewing point as it provides stunning views over the Silverdale coast.
- 8.17 Eaves Wood, to the south of the hill, is a local viewpoint enabling panoramic views across the limestone pasture and relict parkland of Silverdale, and of Morecambe Bay beyond. Within the woodland, small areas of hazel have been coppiced with a view to regenerating the woodland flora (violets) for the High Brown Fritillary butterfly. Former hazel, oak and ash coppice is extensive throughout the woodlands and the distinctive multistem trees and dappled shade, interspersed with more open areas is characteristic. Buried deep within this woodland is another distinctive landmark, a circle of beech trees, through which runs a path. Wild daffodils are a feature in Waterslack Woods.



**Figure 8.3 F3 Heald Brow/Burton Well**



**Grazing pasture with drystone walls at Heald Brow**



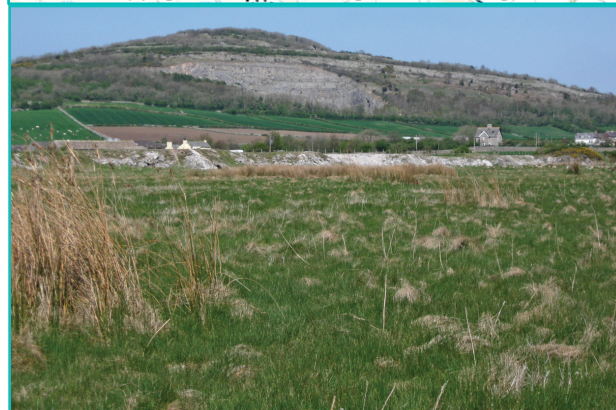
**Ant hill mounds on unimproved grassland, Heald Brow**

#### **Location and Character Area Description**

- 8.18 Heald Brow is an area of limestone heath on the flank of the area of lowland limestone hills, which extends to include the Thomas Mawson designed landscapes at Grey Walls (now Ridgeway Park) and Hazelwood, Brown's Houses and limestone pavements at Hazelwood Farm and Burton Well, as well as steep curving pavements of limestone, punctuated with yew trees below Heald Brow. Parts of the area are owned by the National Trust, including Heald Brow, Jack Scout, and Lambert's Meadow and Burton Well Wood. Lindeth Tower lies on the edge of the area, at the southern tip of Silverdale. A circular stone tower at Brown's Houses is a distinctive feature on the edge of the estuary. Heald Brow provides a green wooded setting rising above Silverdale. A golf course occupies the lower east facing flanks, east of The Row.



**Figure 8.4 F4 Warton Crag/Grisedale Wood**



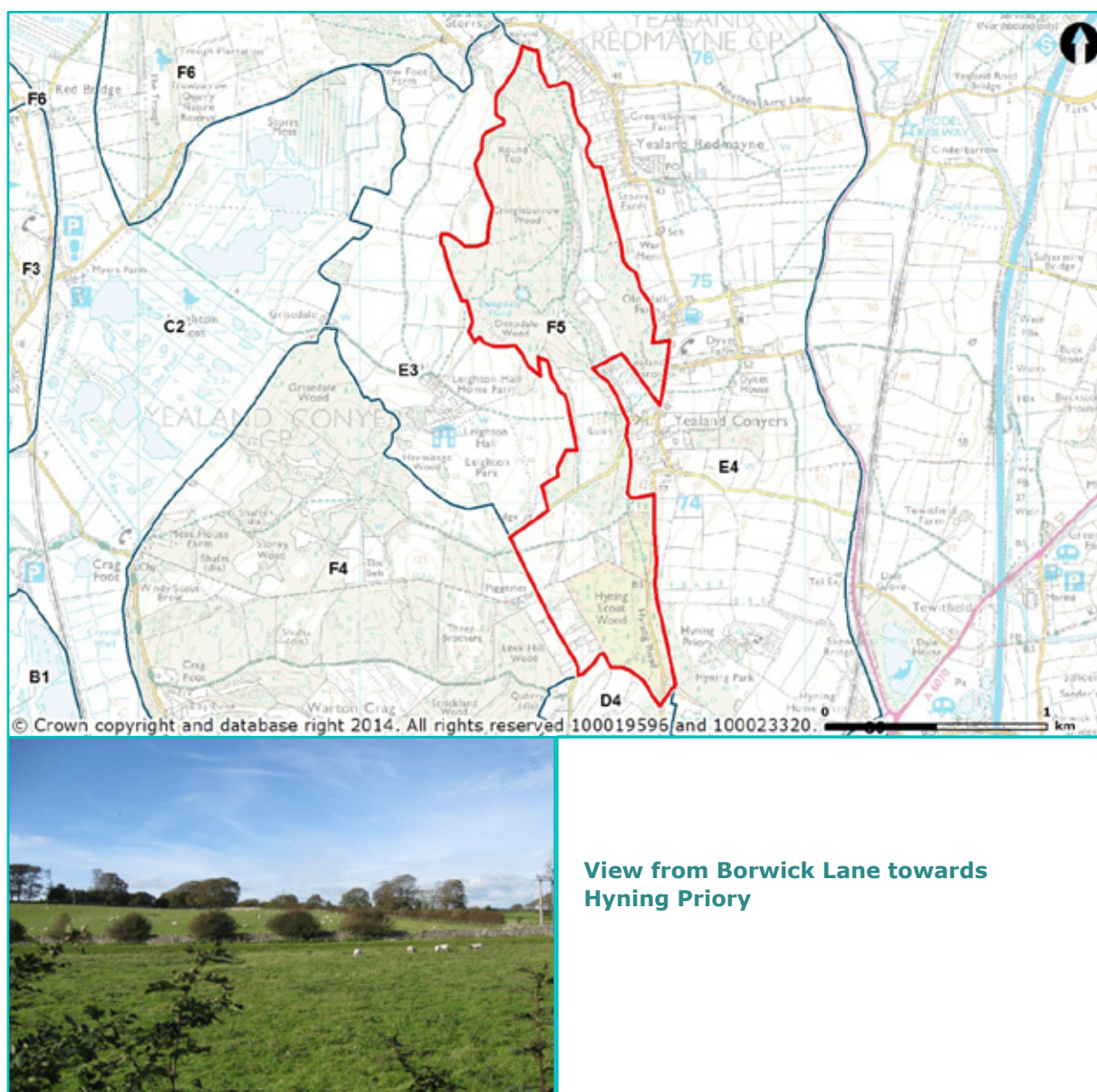
**Warton Crag**

### Location and Character Area Description

- 8.19 Warton Crag rises to 163m with the remains of what is thought to be an historic Iron Age fort on its summit. Panoramic views from the Beacon Breast extend south across Warton to Carnforth, and the associated flat, green Warton Floodplain, and further south to the Forest of Bowland AONB beyond. A long distance view is available to Ingleborough and the Yorkshire Dales to the east. Westwards, Warton Marshes are a feature of views, with Morecambe Bay beyond. A large offshore wind farm is apparent to the west of Warton Crag in the Irish Sea. Onshore wind turbines visible from Warton Crag include those at Caton Moor windfarm and the single turbine at Back Lane Quarry, Over Kellet.
- 8.20 Warton Crag is diverse with areas of deeply shaded woodland where ash, hazel and oak coppice has aged, growing amongst mossy limestone pavement such as in Strickland Wood. Elsewhere there are areas of grazed wood pasture such as the Piggeries and Three Brothers.
- 8.21 The south eastern part of Warton Crag is designated as a Local Nature Reserve, extending over approximately a fifth of the site. Warton Crag LNR is managed by Lancaster City Council. Warton Crag Quarry is also designated as a LNR, and is managed by Lancashire County Council. The former quarry is a rare breeding site for peregrine falcons and is also popular with rock-climbers.
- 8.22 Windswept sculpted woodland along Scout Crag is distinctive, seen both from the north across Warton Marshes and the south from Carnforth. Scout Crag overlooks areas of coastal pasture to the west. The woodland extends to Grisedale Wood and wraps around the south side of Leighton Park.



**Figure 8.5 F5 Hyning and Cringlebarrow**

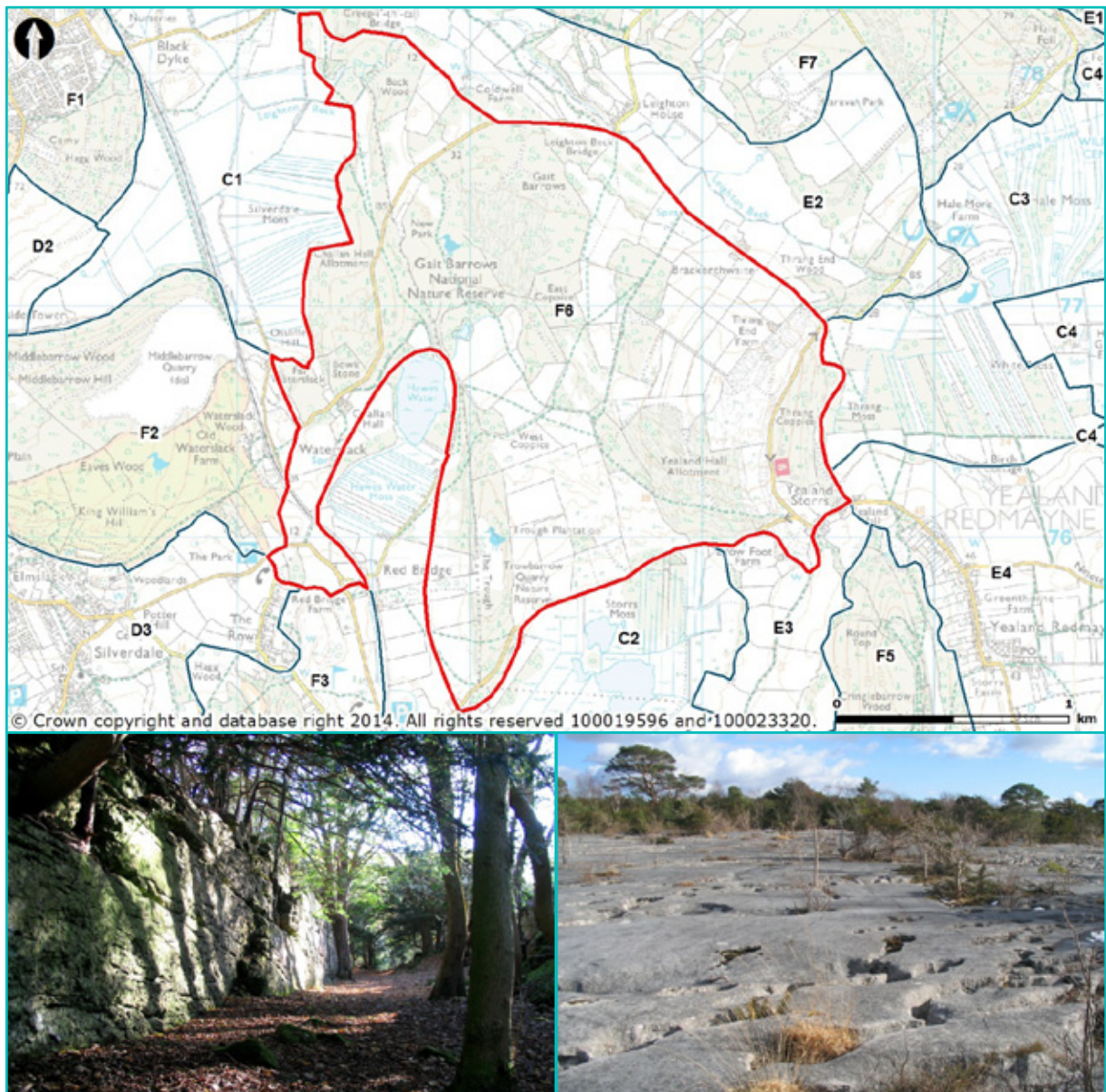


### Location and Character Area Description

- 8.23 This area provides a continuation of the woodland on Warton Crag, and includes Hyning Scout Wood, the restored Deepdale Pond, Cringlebarrow Wood and Yealand Manor. Large limestone boulders forming the remains of an irregular Neolithic stone circle are a feature in the hill top field (Summerhouse Hill) above Yealand Conyers, from where there are panoramic views over Leighton Park. Wood pasture is present around Hyning Scout Wood, where limestone pavement, woodland and pasture intermix to create a mosaic. Cringlebarrow Wood enables views east to the Yorkshire Dales. Medieval strip fields extend from the Yealands up to the edges of the woodlands.



**Figure 8.6 F6 Gait Barrows/ Thrang End**



**The Trough**

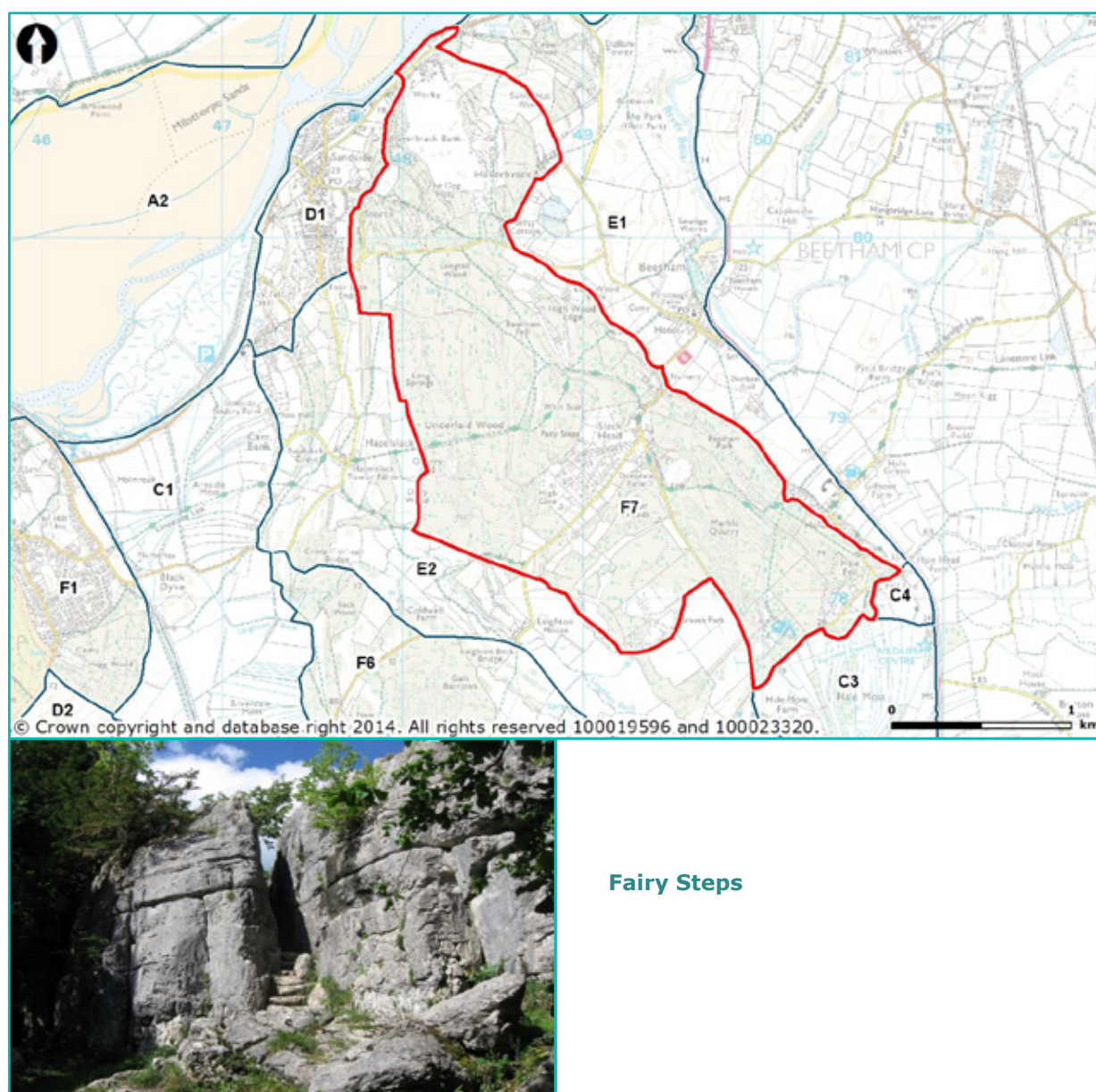
**Limestone Pavement at Gait Barrows**

#### Location and Character Area Description

- 8.24 Gait Barrows is a National Nature Reserve managed by Natural England, and comprises a mosaic of very well formed limestone pavement, with stunted yew and hazel woodland, as well as coppiced hazel, oak and ash woodland, wood pasture, the marl lined oligotrophic lake of Hawes Water and reedbeds at Hawes Water Moss. The lake and reedbeds are described as LCT C (Lowland Moss). Pasture is grazed by cattle as part of the National Nature Reserve management regime with limestone springs being fenced.
- 8.25 The area is peaceful and secluded, with a timeless feel, the only development visible being Challan Hall. The whole area is set within a framework of wooded limestone hills and wood pasture.
- 8.26 The top layer of limestone pavement has been removed in places, leaving less well formed pavement beneath, with few clints and grikes. The edge of limestone pavement has been exposed along the roadside at Yealand Hall Allotment/Thrang Coppice, enabling views of the limestone edge from the road.
- 8.27 The area extends south to include The Trough and woodland at Trowbarrow, which continues south out of this area. The disused Trowbarrow Quarry is popular for rock climbing, and contains an old narrow gauge inclined railway. It is a Local Nature Reserve, where fossils and exposures of Park Limestone, Upper and Lower Urswick Limestone can clearly be seen.
- 8.28 The Trough is a band of woodbine shale which has been eroded away leaving a narrow 'trough' bounded on each side with limestone. This feature is apparent along the same north to south line in various places throughout the AONB.



**Figure 8.7 F7 Fairy Steps/Whin Scar**



### Location and Character Area Description

- 8.29 The area comprises a series of wooded low hills and limestone pavements, steeply sloping in places, and a low ridge extending from Hale Fell (79m). The area includes significant areas of woodland and ancient woodland, at Underlaid Wood, Major Woods and Marble Quarry and large areas of former hazel coppice, as well as oak and ash woodland.
- 8.30 The extensive woodland provides a sense of enclosure and intimacy, with a shaded and diverse understory particularly rich in mosses. This contrasts with occasional openings, such as at Whin Scar and Fairy Steps, where panoramic views to Arncliffe Knott and across Morecambe Bay open out.
- 8.31 A number of paths cross the area often in a complex network. Historic and present day quarrying activity are locally apparent at Marble Quarry, where limestone pavement was previously quarried, and the large Sandside Quarry to the north of the area. Sandside quarry is visible from the north. Extraction is planned to continue here until 2020.
- 8.32 Settlement is generally limited, although a housing development dating from the 1960s at Slack Head, which contrasts with the traditional vernacular style found elsewhere in the AONB, is visible rising out of the woods from the south and extends towards Whin Scar.