Appendix E
Landscape Character Type E: Chalk Valley Systems

The *Chalk Valley Systems* are branching valley systems that drain the dipslope of the chalk downs and contain a river along at least part of their length. They often follow the lines of faults in the chalk and are winterbournes in their upper reaches. This type does not include the extensive dry valley systems that form part of the open downland. Similarly, the distinct wide, glacially enlarged U-shaped valleys of the Arun, Adur, Ouse and Cuckmere are classified as separate landscape types, as is the main Itchin Valley.

There are distinctive changes in land use and landscape features between the flat valley bottoms and valley slopes. This has resulted in the identification of 'floodplains' and 'valley sides' sub-types within this landscape type.

Description

Key Characteristics

- Broad, branching valleys carved from the chalk downs including dry valleys and coombes with smoothly rounded valley sides.
- On the shallower slopes of the valley sides the chalk soils support arable cultivation, with pasture, calcareous grassland, scrub and woodland on steeper slopes.
- Valleys often contain winterbournes (streams that only flow after wet weather) in their upper reaches - wells and springs are also characteristic features.
- In their lower reaches the valley floors contain clear, chalk rivers that flow within a floodplain characterised by permanent pasture, wet woodland, water meadows, and open water, all of which are of great ecological interest.
- Fragmentary systems of water meadows are evident - historically, meadowland alongside the river was integral to the medieval sheep-corn husbandry regime, providing valuable winter and spring grazing for the extensive communal sheep flocks.
- The valleys have provided important routeways from prehistory – today, they often contain a road or winding lane connecting a string of regularly spaced nucleated flint villages. Stone built medieval bridges are located at historic river crossing points.
- Farms, including distinctive flint barns, are located on lower valley sides, sheltered by trees and forming a visual focus. Gentry houses and landscape parks provide evidence of the wealthy population of the past.

- Medieval/early post-medieval enclosures occur throughout the valleys, notably around settlements, indicating survival of an historic agricultural landscape.
- Remnant features relating to water management and use of the river including weirs, mill ponds and mills (relating to the former water mills) as well as fish farms, trout lakes, and watercress beds.
- Away from transport corridors the valleys retain an unspoilt and tranquil pastoral character with dark skies.

Physical Landscape

E.1 The *Chalk Valley Systems* are broad, branching valleys carved from Upper and Middle Chalk by a process of erosion, sometimes along structural folds, to produce distinctive smoothly rounded U-shaped valleys. Where valleys coincide with structural folds in the chalk the result is often an asymmetrical valley with one extremely steep valley side.

E.2 The underlying chalk geology gives rise to shallow well drained, calcareous silty soils, known as grey and brown rendzinas. Deposits of 'Head' (weathered and broken up material that has moved downslope) are found in the bottom of the valleys where they give rise to deeper soils. There are also deposits of valley terrace gravels in the lower reaches of the larger valleys. The shallow, well drained calcareous soils give rise to fertile soils which support good agricultural land (classified by DEFRA as Grade 3). Where topography permits, the soils support arable cultivation. The steeper slopes support a mixture of calcareous grassland, scrub and woodland.

E.3 Each valley contains a chalk river, rising from one or more spring sources and flowing within a narrow floodplain. The floodplain is typically underlain by river alluvial deposits of sands and gravels which have given rise to alluvial gley soils - stoneless loamy and clayey floodplain soils which are periodically waterlogged. These soils have a lower agricultural capability (classified by DEFRA as Grade 4) and the floodplain typically supports small permanent pastures divided by hedgerows, wet woodland, water meadows, and open water. The nutrient-rich alkaline spring waters support distinctive habitats, game fishing and watercress beds are a particular feature. Other distinctive features of the floodplain include mill ponds, fish farms and trout lakes.

Perceptual/Experiential Landscape

E.4 The *Chalk Valley Systems* provide a sheltered environment that contrasts with the exposed character of the surrounding downs. The rising valley sides, small field sizes, presence of hedgerows with hedgerow trees, and woodland all contribute to the enclosed and secluded character. The chalk rivers typically exhibit gentle meanders, open floodplains, and flood meadows which together create the typical pastoral character of the valley landscape. However, the sense of tranquillity is often eroded by the presence of traffic on the main transport routes that occupy the valley floors, plus the presence of settlement, and small scale development along the valleys.

E.5 The valley roads combined with a network of public rights of way mean that the landscape is easily accessible by car and on foot/horseback. Many recreational routes are linear in nature, following the valley form, with links up to the higher surrounding downs. The chalk rivers are also important for game fishing.

E.6 The *Chalk Valley Systems* have been appreciated by many writers. Moncrieff's early 20th century 'Guide to Hampshire' notes that one could '*sit on cowslip banks, hear the birds sing, and possess ourselves in as much quietness as these silent silver streams'*. The Meon Valley is described, in the same guide, as '*a prettily varied country of commons, parks and embowered villages below green slope'*. The village of East Meon is particularly appreciated – Cobbett, writing in the early 19th century, thought that he could *'dwell long on the beauties of this place'* and described the Lavant Valley as *'a long valley, on the South Downs, which winds and twists about amongst hills, some higher and some lower, forming cross-dells, inlets, and ground in such a variety of shapes that it is impossible to describe'*.

Biodiversity

E.7 The *Chalk Valley Systems* support a range of semi-natural wetland habitats, plus arable and agricultural grassland. The river corridors are of inherent ecological value, the clear alkaline rich nutrient-rich spring waters support a rich aquatic flora and fauna, with a range of characteristic marginal and in-stream aquatic plant species, including areas of BAP Priority Habitat lowland fens across the floodplains. The narrow floodplains typically contain small permanent grassland pastures and water meadows (including BAP Priority Habitat coastal and floodplain grazing marsh) divided by hedgerows, wet woodland and open water. Many sites are designated at a local or national level.

E.8 The wider valleys are often dominated by arable agriculture and improved pasture/grassland (including BAP Priority Habitat good quality semi-improved grassland) on the valley sides, with the steeper valley slopes retaining occasional areas of calcareous grassland, scrub and woodland (BAP Priority Habitat deciduous woodland).

E.9 Some of the BAP Priority Habitats across the *Chalk Valley Systems* are identified as providing effective habitat networks in Natural England's National Habitat Networks Mapping Project, particularly along the River Itchen and the lower reaches of the River Meon. Adjacent to some of these habitats are areas identified as being suitable for restoration where they exist in a degraded or fragmented form. The mapping project also indicates that work is underway to either create or restore some of these habitats in small patches across the *Chalk Valley Systems*.

E.10 Network Enhancement Zones have also been identified across the landscape, where land connecting existing patches of these habitats are likely to be suitable for the creation of new habitats. This is particularly the case along the majority of the River Itchen and partially along the Meon and Lavant. This will result in the joining up of existing habitats and subsequently improving the connections between them. A small number of potential 'network joins' have been identified including adjacent to the West Dean Estate Country Park in the Lavant Valley, at the Kingley Vale SSSI in the Ems Valley and between the Punch Bowl LWS and Exton Stud, and Allen's Farm LWS on the western edge of the Meon Valley.

Key Biodiversity Features	Importance
Chalk rivers with associated aquatic habitats.	Chalk rivers produce clear waters and a generally stable flow and temperature regime, supporting a rich diversity of invertebrate life and important game fisheries.
Riverside pasture with lowland fens, floodplain grazing marsh, semi-improved grassland and deciduous wet woodland (all BAP Priority Habitats).	Ecologically valued habitats such as meadows and wet woodland along the immediate river corridor are particularly rich in insect life and breeding birds.
Occasional areas of deciduous woodland and calcareous grassland (both BAP Priority Habitats), particularly on steeper slopes	Chalk grassland supports important populations of vascular plants, birds and invertebrates - woodland adds to the overall diversity of chalk grassland habitats and provides additional ecological interest.

E.11 Occasional finds of Palaeolithic and Mesolithic artefacts along the valleys testify to the passage of hunting bands, although these may occur within deposits that have moved downslope, rather than indicating presence of hunting bands within the valley. In the past, it is likely that the rivers were much wider in extent compared to the present course. By comparison, the alluvial floodplains, although very fertile, were narrow and vulnerable to flooding, rendering them unsuitable for prehistoric and later settlement and arable agriculture, although the meadows may have been used for pasture by communities situated on the higher land to either side of the rivers.

E.12 The more sheltered soils of the valley sides are likely to have been exploited by early farmers. However, evidence for prehistoric and Romano-British occupation is scarce, due to suitable deposits being buried beneath later colluvial deposits.

E.13 By the Anglo-Saxon and medieval periods, the *Chalk Valley Systems* formed an integral part of an agrarian landscape based around sheep-corn husbandry and the exploitation of the extensive woodlands on the downs. At this time a series of small nucleated settlements were established up the valleys, surrounded by rings of open fields, with open downland and woodland beyond. Large amounts of meadowland were listed in the Domesday Survey – these rich pastures on the valley floors provided valuable winter and spring grazing for the extensive communal sheep flocks that were folded on the arable land at night. The rivers were typically used to power watermills.

E.14 Some of the rivers would have been important routeways from prehistory onwards, although probably too small to be navigable beyond their lower reaches. The 16th and 17th centuries saw the development of water meadows, regulated by systems of ditches and channels that provided a continuity of access to winter feed for the sheep flocks, but with a greater degree of control. These were abandoned in the 19th century but still evident in the landscape today (as Relic Water Meadows and Enclosed Meadows[1]).

E.15 The open fields were enclosed during the late medieval/early post-medieval period, resulting in irregular piecemeal enclosure, small blocks of irregular fields, bounded by straight and wavy hedgerows situated around the main settlements, much of which survive in the present landscape. The remainder of the open land was enclosed during the 18th-19th century, during gentrification of the landscape, when it became incorporated into the great landed estates of the region, resulting in extensive areas of regular planned private enclosure containing isolated farmsteads.

E.16 Today, the floodplains are now typically occupied by a series of enclosed fields, reclaimed from the former marshy margins of the river from the medieval period onwards, and bounded by ditches and occasional hedgerows. Fragmentary systems of water meadows are evident, together with a number of archaeological features characteristic of flood

[1] Wyvern Heritage and Landscape. 2017 *Historic Landscape Characterisation Report (Hampshire) – South Downs National Park*

plains, including bridges, weirs and mills. Landscape parks are a further feature of the *Chalk Valley Systems*.

Key Features of the Historic Environment	Importance
Nucleated settlements	Indicative of medieval manorial system based around open fields.
Medieval/early post-medieval enclosures including remnant water meadows	Survival of late medieval /early post-medieval landscape.
18-19th century regular planned private enclosure	Forms part of post-1800 gentrification of the landscape.
Scattered post-medieval farmsteads	Indicates the changing nature of farming practice following decline of traditional manorial system.
Presence of designed landscapes	Provide evidence of gentry houses and landscape parks of the wealthy population of the past, some listed on the Historic England register of Historic Parks and Gardens.
Remnant features relating to water management and agricultural/industrial use of the river	Evidence of the importance of the river and its margins in the local economy throughout history.

Settlement Form and Built Character

E.17 The settlement pattern of the *Chalk Valley Systems* is characterised by a string of nucleated settlements of Anglo-Saxon or medieval origin. Historically settlement was concentrated on the sheltered lower slopes of the river valleys, strung out along the edge of valley floor, close to the riverside pastures that were so valuable for communal sheep flocks, but safely above the winter floodplain. The exposed steeper slopes rising to the downs were unsuitable for settlement. Villages are often clustered around a distinctive church tower or spire and frequently surrounded by irregular enclosures of late medieval date. These are linked by a strong linear communication pattern, including major roads and railways.

E.18 Typically, the valley sides support a scatter of farmsteads of largely 18th -19th century date set within regular enclosures of the same date. The increase in grain production in the 18th and early 19th century led to the construction of additional barns and farmsteads, typically characterised by loose courtyard plans with large threshing barns[2]. This conforms to Historic England's rural settlement designation of East Wessex Sub-Province within the South-eastern Province.

E.19 The valleys are also characterised by wealthy landed estates with historic parklands centred on manor houses, part of the gentrification of the area into great landed estates in the 18th and 19th century, such as at West Dean, Warnford Park, Tichbourne Park and Hinton Ampner.

E.20 Traditional building materials are typically flint, red brick, clay tile and straw thatch. Flint walls, within the villages are a particularly distinctive characteristic of the valleys.

[2] Forum Heritage Services (2005) Historic Farmsteads & Landscape Character in Hampshire, Pilot Project. Report by Bob Edwards for English Heritage.

Evaluation

Ecosystem Services in the Chalk Valley Systems

E.21 Ecosystem services are the benefits people and society get from the natural environment. The *Chalk Valley Systems* provide:

Provisioning	■ Food provision – grazing and fisheries. ■ Water availability – water supply.
Regulating	■ Regulating water quality – the way the area is managed affects water quality. The natural habitats found within the floodplains slow river flows and allow rivers to release silts and pollutants. ■ Regulating water flows – the floodplains of the chalk rivers and their tributaries provide flood protection and flood storage capacity. Winter rainfall is absorbed and stored in well structured, permeable soils, which helps to avoid accelerated water run-off and flooding. ■ Regulating soil quality – the way the area is managed affects soil quality. ■ Regulating soil erosion – Vegetated areas offer the best protection from erosion, including permanent pasture on the valley floors. ■ Climate regulation - carbon sequestration and storage benefits in vegetated soils and woodland along river corridors. ■ Air quality regulation – woodland along river corridors helps to regulate local air quality ■ Pollination – unimproved or semi-improved grasslands are important nectar sources for pollinating insects
Cultural	■ Sense of place – river floodplains have a distinct sense of place and are important transport and communication corridors through the chalk downs. ■ Tranquillity – the valleys provide some pockets of deep tranquillity. ■ Recreation - valuable recreation resource for walking, fishing and water-based recreation
Supporting	■ Biodiversity - chalk streams and rivers are of international importance and are often designated for their high wildlife value.

Sensitivities

E.22 This landscape has many sensitive physical and aesthetic/perceptual features that are vulnerable to change, as set out in the table below:

Key Landscape Sensitivities	
1.	The smooth form of the intact valley sides which reveal dramatic chalk landforms.
2.	Calcareous grassland on the valley sides which contribute to biodiversity.
3.	The courses of the chalk rivers, including their springs, meanders, pools, and riffles, and the clear alkaline spring water, with associated rich biodiversity.
4.	The pastoral character of the valley floors and floodplain habitats including wet woodland, unimproved river valley grassland, bank edge vegetation, and water meadows which have a high biodiversity value.
5.	The nucleated villages of Anglo-Saxon – medieval origin on the valley floors, each clustered around a distinctive church tower or spire.
6.	The setting of, and uninterrupted views to, churches towers/spires which are often seen against the rising downland backdrop of the valley sides.
7.	The extensive blocks of early enclosure, notably around villages, which indicate survival of late medieval landscapes.

Key Landscape Sensitivities	
8.	Historic bridges which provide crossing points over the river.
9.	Fragments of water meadows and watercress beds which are particularly distinctive cultural and historic features.
10.	Mills, weirs and mill ponds which provide evidence for past use of the river.
11.	Designed landscapes which provide evidence of gentry houses and landscape parks of the wealthy population of the past.
12.	The strong sense of remoteness associated with the upper reaches of the valleys which have no visibility with adjacent settlements, particularly in the upper Lavant and Meon Valleys.
13.	The dark skies associated with the South Downs International Dark Skies Reserve which are vulnerable to light sources, particularly the upper reaches of the valleys which have no visibility of main settlements.

Change – Key Issues and Trends

Past Change

E.23 Past change includes:

Past Change	
1.	Cessation of water meadow management, agricultural improvement of river valley grasslands, and reduction in the extent of wetland habitats.
2.	Removal of bank edge vegetation and localised erosion of riverbank edges by livestock.
3.	Abstraction resulting in reduction of river flows.
4.	Diffuse pollution of rivers as a result of intensive farming with subsequent impact on biodiversity.
5.	Scrub encroachment onto chalk grassland and pastures on the valley sides.
6.	Introduction of water control works and associated monitoring apparatus.
7.	Increased traffic and 'improvement'/ upgrading of valley roads so that many of these are now main routeways.
8.	Extension of the nucleated villages so that some are now more linear in form.
9.	Introduction of grazing paddocks on the valley floor as well as abandonment of grazing in some areas resulting in encroachment of scrub.

Future Landscape Change

E.24 The likely future changes are set out in the table below.

Future Change	
1.	Reduction in wet woodland, water meadows, grazing marsh and unimproved river valley grassland as a result of drier, warmer summers reducing damp conditions needed for the survival of these habitats.
2.	Drying of the floodplains in summer could result in replacement of pasture with dry grassland species. On the valley sides, increased drought conditions could result in the potential to grow different crop types, which could change the visual character of the valleys sides.
3.	If Net Zero commitments are implemented, it is likely that there will be key changes to land use, including a reduction in grazing land to free up land for other uses such as bioenergy crop planting (and low-grade biomass crops). While Miscanthus and willow plantations

Future Change	
	could, in theory, blend with the character of the floodplains' reed beds and wet woodlands, it is important that crops such as these do not adversely affect the fundamentally open and pastoral character, or the wetland character of the floodplains.
4.	The river valleys and their flood plains have lost much of their flood storage capacity through land drainage and conversion for agricultural. There is an Increased risk of flooding of properties and agricultural land due to increased seasonal rainfall and severity of storm events.
5.	Increased rainfall could result in soil erosion on the valley sides, and in adjacent downland areas, which could have knock-on effects on water quality in the chalk rivers.
6.	Increased water temperatures as a result of climate change and increased drought conditions is one of the causes of the poor chemical and ecological status of chalk rivers and streams.
7.	The rivers are a major source of water abstractions for domestic and commercial uses. Over abstraction can cause low flows in the summer which can result in pressures on water supply and quality. This threatens the natural resources of the river and their associated wetlands.
8.	Increased temperatures may also result in more prolific vegetation growth within rivers and on banks, including invasive non-native species, as well as increase in pests and diseases resulting in loss of native habitats.
9.	Chalk rivers are particularly sensitive to diffuse pollution from agriculture, affecting water quality and wetland habitats. The correct implementation of existing and future legislation will have a major role in ensuring good water quality.
10.	Agricultural management will be driven by the changes in the world market and the agricultural policy. In the valley bottoms, it is likely that marginal farms may cease grazing with further scrub encroachment or continuing pressure for new farm types (small holdings) and introduction of further horse paddocks into the floodplain. On the less steep valley sides it is likely that agricultural production will continue to intensify with amalgamation of farms and potential demand for new large-scale farm buildings. There may also be positive landscape change arising from regimes to promote enhanced environmental management of chalk grassland habitats, although retention of livestock grazing will be critical to the success of such schemes.
11.	There may be further pressure for introduction of horse paddocks and associated stables, mirrors and lights, which may affect the open rural character of the chalk valleys and dark skies.
12.	The valleys contain many small village settlements and their character could be eroded by incremental small-scale changes.
13.	The valleys contain main access routes to the South Downs and are likely to be under pressure from increasing traffic volumes and increased numbers of visitors seeking recreational opportunities, causing erosion and altering the sense of tranquillity.
14.	The impact of increased development outside of the area could lead to increased abstraction and reduced water levels with a knock-on effect on landscape character and biodiversity.

Broad Management Objective and Landscape Guidelines

E.25 The overall management objective should be to conserve the rural character of the chalk valleys, support opportunities to enhance natural floodplain habitats, and maintain water flows and high water quality in the chalk rivers.

Guidance for Landscape Management

- **A.** Conserve and enhance the diversity of species diversity found within area of semi-improved and unimproved grassland.
- **B.** Protect and continue to manage the existing chalk grassland on steeper slopes – manage scrub to vary the age and species structure and to enhance the distinctive landform of the valley sides.
- **C.** Avoid over-abstraction of the rivers which could result in loss of water quality and wetland habitat. Maintain good water flows in the chalk rivers to maintain the pastoral character of the valley floors and their floodplain habitats.
- **D.** Monitor water quality in the rivers and seek to minimise water pollution from agriculture and support the production of Nutrient, Manure and Crop Protection Management Plans.
- **E.** Develop schemes that improve the flood storage capacity of the flood plains and wetland habitats. Improve the morphology of the rivers to improve their natural resilience to flooding.
- **F.** Create wetland habitats along ditches, streams and rivers to enhance habitat connectivity, flood storage and help reduce run-off and diffuse pollution.
- **G.** Manage areas of wet woodland, unimproved river valley grassland, bank edge vegetation and water meadows which have a high biodiversity value and contribute to the visual significance of the river channels.
- **H.** Monitor the impact of climate change on riverside trees, river valley grassland, water meadows and woodlands. Consider planting woodlands along some watercourses to help climate regulation and prevent riverbank erosion.
- **I.** Manage the woodlands on the steeper valley sides and wet woodlands along the river valley floor to ensure a diverse species and age structure by thinning, coppicing, and replanting as necessary. This will also minimise risk of damage as a result of increased storms and high winds.
- **J.** Conserve the historic field patterns of irregular enclosures around villages, which indicate survival of a late medieval landscape and provide time-depth which contributes to the sense of place.
- **K.** Conserve the distinctive built features of the valleys such as mills, weirs, and historic bridges, which provide evidence for past use and management. In particular retain small scale valley crossing points.
- **L.** Conserve and manage remnant historic water meadow systems which are of historic landscape and archaeological interest as well as ecological value. Encourage traditional management of flooding in spring and seasonal grazing with stock during the summer and autumn to maintain the pastoral character of the floodplain meadows.
- **M.** Conserve historic designed landscapes, and their settings, which provide evidence of gentry houses and landscape parks of the wealthy population of the past.
- **N.** Ensure pressures for biomass crops (such as Miscanthus and willow plantations) and do not adversely affect the fundamentally open and pastoral character of the floodplains.
- **O.** Seek to limit the spread of horse paddocks which could erode the sense of tranquillity and pastoral character of the landscape.
- **P.** Be alert to potential new pests and diseases and plan for their management.
- **Q.** Continue to monitor native species to assess changes in numbers and distribution. Monitor and control the spread of invasive species which are a cause of decline in native habitats, such as Giant hogweed *Heracleum mantegazzianum* in the streams or American skunk cabbage *Lysichiton americanus* in the wet woodland. Refer to the SDNP INNS Strategy. Freshwater ecosystems seem particularly susceptible to invasions from problem species and climate change may exacerbate this (Clarke 2009)[3].

[3] Clarke, S.J. 2009. *Adapting to climate change: implications for freshwater biodiversity and management in the UK*. Freshwater Reviews, *2, 51-64*.

Guidance for Integrating Development into the Landscape

A. Ensure large buildings and quarries do not disrupt the smooth form of the valley and its dramatic chalk landforms.

B. Maintain the nucleated form of medieval villages, strung out along the edge of valley floor, each with a distinctive church tower or spire, and consistent palette of building materials. New development should not disrupt the existing settlement form and pattern.

C. Conserve the setting of the villages, with their medieval pattern of enclosures, sheltered below the rising downland and views to key features such as church towers/spires.

D. Ensure that any built development reflects the local vernacular – seek to resist suburban style garden boundaries, kerbs, and lighting, through provision of appropriate guidance and promote the use of characteristic vernacular features such as the flint walls that characterise the villages.

E. Monitor the effects of incremental change to buildings and land and minimise such change by providing design guidance and encouraging applicants to enter into discussions at an early stage in the preparation of their proposals.

F. Consider using planting that blends with the existing valley woodlands and hedgerows to mitigate the impacts of any built development on the lower valley sides.

G. Conserve the rural character of the road network avoiding road 'improvements' that would change the character of the rural lanes.

H. Conserve the open skylines of the valley crests which are particularly sensitive in views from the valleys. Consider views from the adjacent downs in relation to any change in the chalk river valleys. Refer to guidance in the View Characterisation and Analysis report[4] .

I. Conserve the tranquil, pastoral character of the floodplains and associated dark skies, particularly the most remote upper reaches of the Lavant and Meon Valleys, taking account of the technical guidance note dark skies technical advice note: https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-10-SDNPA-Dark-Skies-Technical-Advice-Note-2018.pdf. Pay particular attention to the introduction of any new lighting into the landscape, particularly the 'Dark Sky Core' of the South Downs International Dark Sky.

Woodland strategy and suitable species

E.26 This type contains 13.70km^2 of woodland, approximately 16% of woodland cover. Woodland, mostly broadleaved, is predominantly associated with the steeper valley sides. The valley floor is an area floodplain grazing pasture, with areas of wetland habitats of high biodiversity interest including wet woodland. Only limited planting of new wet woodland may be appropriate on the valley floor as part of this mosaic of wetland habitats. On the rising valley sides, areas of woodland planting would be appropriate to extend and connect woodlands where these do not conflict with chalk grassland conservation and enhancement.

E.27 Avoid the introduction of non-native species. Appropriate plant species may be informed by the National Biodiversity Network Gateway, relevant Biodiversity Action Plans and biological records from the relevant Biological Records Centre.

E.28 Ensure any purchased plant stock is through reputable nurseries, operating the Plant Health Assurance Scheme (once it has been trialled) to protect against the risk of *Xylella fastidiosa* and other plant health risks.

Character Areas There are four geographically distinct *Chalk Valley Systems in* the South Downs National Park (with a total of 8 sub-types representing the floodplains and valley sides of the type). These are all located in the western part of the South Downs.	
E1:	Lavant Valley a. Floodplains b. Valley Sides

[4] LUC. 2015 *South Downs National Park: View Characterisation and Analysis*

Character Areas There are four geographically distinct *Chalk Valley Systems in* the South Downs National Park (with a total of 8 sub-types representing the floodplains and valley sides of the type). These are all located in the western part of the South Downs.	
E2:	Ems Valley a. Floodplains b. Valley Sides
E3:	Meon Valley a. Floodplains b. Valley Sides
E4:	Itchen Valley a. Floodplains b. Valley Sides

E1: Lavant Valley

Location and Boundaries

This character area comprises the valley of the River Lavant which incises a deep, branching course through the downs north of Chichester. It also includes the Chilgrove Valley, a tributary valley of the Lavant. The *Lavant Chalk Valley System* dissects the *Wooded Estate Downland*, following a sinuous route from its source at Duncton Down to the southern boundary of the National Park on the northern edge of Chichester. The upper edge of the valley is defined by the crest of the slope and has been drawn along the apparent skyline of the valley as seen from the valley bottom.

This character area contains both the *floodplains* and *valley side* sub-types. The *floodplains* subtype (E1a) relates to the flat valley bottom, following the course of the River Lavant (comprising permeant pasture), as well as the bottom of the Chilgrove Valley which is utilised by the B2141. The *valley sides* subtype (E1b) relates to the sloping ground between the valley bottom and the crest of the slope and comprises calcareous grassland, scrub and woodland, and supports arable cultivation and pasture.

Key Characteristics

- Deep, branching U-shaped valley carved from the chalk downs and indented by coombes to produce smoothly rounded valley sides.
- Dry in its upper reaches with the main source of the Lavant at East Dean - numerous wells and springs in its lower reaches.
- Shallow well drained, calcareous silty soils on the valley sides support intensive arable cultivation on shallower slopes and pasture, calcareous grassland, scrub and woodland on steeper slopes.
- The clear, chalk river flows in a narrow floodplain which is characterised by small permanent pastures divided by hedgerows, wet woodland, water meadows, and open water, all of which are of great ecological interest.
- Strong linear communication pattern comprising the A285, Droke Lane, Charlton Road, A286, and B2141 connecting a series of medieval nucleated villages at East Dean, Charlton, Singleton and West Dean, each with a distinctive church tower or spire and the river flowing alongside the village street.
- Extensive blocks of early enclosure survive throughout the valley indicating survival of the late medieval landscape.
- Remnant features relating to water management and agricultural/industrial use of the river, including relic water meadows, weirs and mill ponds. There are also water works and sewage works.
- The presence of designed landscapes, for example West Dean, provide evidence of gentry houses and landscape parks of the wealthy population of the past.
- The upper reaches of the Lavant valley, which lack visibility of main settlements, enjoy the darkest skies and have a strong sense of remoteness.

Specific Characteristics Unique to the Lavant Valley

E.29 The physical characteristics of this landscape character area are typical of its landscape type, exhibiting a smoothly rounded U-shaped valley which is dry in its upper reaches. However, the Lavant Valley follows a distinct east-west direction which relates to lines of weakness in the chalk. The source of the Lavant is at East Dean, where there are a number of springs. The valley also includes a large number of wells which are located on the valley sides, for example at Welldown in the Chilgrove Valley.

E.30 The character area is characterised by wetland habitat, meadow and fringing woodland on the valley sides. Part of the river itself is designated as a LWS, being particularly notable for its rich aquatic plant communities and associated invertebrates. The upper valley sides are particularly well wooded, and support a number of ancient woodlands including East Dean Park Wood SSSI, and a number of non-statutory sites. These woodlands comprise a diverse mixture of tree and scrub species, including beech, whitebeam and ash. The extent of woodland is partly associated with the landscape park at West Dean (listed on the Historic England register). Kingsley Vale SSSI, NNR and SAC, a site notable

for supporting one of the finest yew forests in western Europe as well as species-rich chalk grassland, also falls partly within the character area along its western edge

E.31 The majority of the valley is characterised by regular 18th -19th century enclosures with small blocks of early enclosure around the medieval villages. However, the southern part of the character area (south of West Dean but including most of the Chilgrove valley) is dominated by large scale modern fields with very little woodland.

E.32 The valley has a rural character and sense of remoteness, particularly in the upper reaches of the Lavant Valley around Upwaltham, however the sense of tranquillity is eroded by the presence of traffic on the A285 and A286. The valley is also accessible on foot due to the good network of rural roads and public rights of way. Monarch's Way and South Downs Way National Trail, which cross the valley, provide access to adjacent landscapes.

E.33 Remnant features relating to water management and agricultural/industrial use of the river, include fragments of water meadows, weirs and mill ponds (all typical of the landscape type). However, there are also more modern water works and sewage works located in the lower reaches of this valley.

E.34 The settlement pattern in this character area is typical of the type – nucleated villages (East Dean, Charlton, Singleton, West Dean, Mid Lavant and East Lavant) are strung out along the valley, located on the edge of the floodplain. The settlement pattern has been given an additional distinctive character by virtue of its history as part of a wealthy landed estate (West Dean). Several wealthy Roman villas have been excavated in the Chilgrove valley.

Sensitivities Specific to the Lavant Valley

E.35 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. In addition, specific sensitivities to this character area are:

Key Landscape Sensitivities	
1.	Estate character of the villages.
2.	The 19th century designed landscapes around West Dean.
3.	Panoramic viewpoints over the Lavant Valley from Sutton Down, as noted in the View Characterisation and Analysis report[5].
4.	Sense of remoteness and rural tranquillity around the upper reaches of the Lavant Valley (particularly around Upwaltham) that is already affected by the A285.

Change Specific to the Lavant Valley

E.36 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area are set out in the table below.

Forces for Change	
1.	Future road improvements / works associated with the A285 and A286.
2.	Continued expansion of East Lavant on the outskirts of Chichester.
3.	Intensity of dairy farming leading to increased rates of diffuse pollution of the river.

Landscape Management/Development Considerations Specific to the Lavant Valley

E.37 In addition to the generic landscape management and development considerations for this landscape type, the following development considerations are specific to this character area.

- **a.** Conserve the estate character of the villages and designed landscape around West Dean.
- **b.** Pay particular attention to panoramic views over the Lavant Valley in planning any change.
- **c.** Conserve the remote rural character and associated dark skies around the upper reaches of the Lavant Valley.
- **d.** Ensure that any road upgrades associated with the A285 and A286 are integrated into the rural valley landscape by means of careful siting, materials and design.
- **e.** Monitor water quality in the Lavant and seek to minimise water pollution resulting from intensive dairy farming.

[5] LUC. South Downs National Park: View Characterisation and Analysis (2015) – View 39

E2: Ems Valley

Location and Boundaries

This character area comprises the valley of the River Ems which incises a deep, branching course through the downs north of Emsworth. North of Walderton the valley splits into two branches, both of which are dry valleys for most of their length. The boundaries of the character area are strongly defined by topography and are drawn along the crest of the slope and apparent skyline of the valley sides as seen from the valley floor. The river continues southwards, beyond the National Park boundary, onto the coastal plain.

This character area contains both the *floodplains* and *valley sides* sub-types. The *floodplains* subtype (E2a) relates to the flat valley bottom, encompassing the Aldsworth and Brickkiln Ponds in the south-west and following the short course of the River Ems in the south, before following the dry valley floors that are characterised by small permanent pastures. The *valley sides* subtype (E2b) relates to the sloping ground between the valley bottom and the crest of the slope.

Key Characteristics

- Deep, branching U-shaped valley carved from the chalk downs and indented by coombes to produce smoothly rounded valley sides.
- Dry in its upper reaches with the main source of the Ems at Mitchamer Farm - numerous wells in its lower reaches and some wells in its upper reaches, for example at Wildham Farm.
- The valley is asymmetrical with a steep east facing slope and a shallow west facing slope.
- Shallow well drained, calcareous silty soils support intensive arable cultivation on shallower slopes and pasture, calcareous grassland, scrub and woodland on steeper slopes e.g. Watergate Hanger.
- The clear, chalk river flows in a narrow floodplain which is characterised by small permanent pastures divided by hedgerows, wet woodland, water meadows, and open water, all of which are of great ecological interest.
- Strong linear communication pattern comprising the B2146 in one branch and a more minor road in the other, connect the picturesque medieval nucleated villages of Compton, West Marden, East Marden, Stoughton, and Walderton.
- Villages are surrounded by irregular enclosures of late medieval date with the remainder dominated by large arable fields which reflect 20th century modification of earlier planned 18th and 19th century enclosures.
- Watercress beds in the valley bottom close to Aldsworth and historic parkland at Watergate Park.

Specific Characteristics Unique to the Ems Valley

E.38 The Ems Valley exhibits characteristics typical of its landscape type – it is a smoothly rounded U-shaped valley which is dry in its upper reaches. However, it has particularly steep valleys sides in places which support large areas of hanger woodland. The majority of the woodland is of ancient origin, and of significant ecological interest. Many are designated as LWS, including Lordington Copse, Watergate Hangar, West Marden Copse and Nore Down LWS. Patches of the Kingsley Vale SSSI, a site notable for supporting one of the finest yew forests in western Europe as well as species-rich chalk grassland, also falls partly within the character area along its eastern edge.

E.39 The source of the River Ems is a spring at Mitchamer Farm – there are also a number of other springs further downstream. In places this winterbourne river is no more than a ditch alongside the road e.g. through Walderton. However, further downstream, the River Ems meanders through its open floodplains, creating flood meadows and wetland environments. Wetland habitats and woodland characterise this area, including a section of the River Ems and its associated fringing meadows that are designated as a LWS.

E.40 The remainder of the valley is characterised by enclosed arable fields that are a product of 20th century expansion of arable farming. Surviving isolated 18th -19th century farmsteads indicate the former 18th -19th century planned enclosure landscape that previously dominated the valley.

E.41 The river's branching form dissects the downland and forms a natural entry route up into the chalk - one branch of the valley contains the B2146 and the other contains a more

minor road. These roads link the nucleated villages of Compton, West Marden, East Marden, Stoughton, and Walderton, each surrounded by irregular enclosures of late medieval date.

E.42 This valley provides a sheltered environment that contrasts with the exposed character of the surrounding downs. The rising valley sides, hedgerow lined fields, and blocks of hanger woodland, all contribute to the enclosed and secluded character.

Sensitivities Specific to the Ems Valley

E.43 All of the landscape and visual sensitivities detailed at the type level are relevant to the Ems Valley. Specific features sensitive to change in this area are:

Key Landscape Sensitivities	
1.	The ancient hanger woodlands, including the yew forest at Kingsley Vale.
2.	The historic parkland at Watergate Park and watercress beds at Aldsworth.

Change Specific to the Ems Valley

E.44 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include:

Forces for Change	
1.	Re-organisation of the 18th -19th century planned landscape into large scale arable fields.
2.	Wind damage to the ancient hanger woodlands due to increases in severe gales and drought.
3.	Pressure for settlement expansion along the main transport routes and increases in traffic.

Landscape Management / Development Considerations Specific to the Emms Valley

E.45 In addition to the generic landscape management and development considerations for this landscape type, the following management considerations are specific to this character area:

a. Manage the ancient hanger woodlands to ensure a diverse species and age structure to minimise risk of damage as a result of increased storms and high winds. Promote interest in, and marketing of, local wood products, including wood for fuel and construction.

b. Conserve historic designed landscapes such as at Watergate Park, and their settings, encouraging the management/ restoration of permanent pasture, parkland trees, avenues and clumps of trees.

c. Maintain watercress beds at Aldsworth as a distinctive cultural feature of the Ems Valley.

E.46 The following development considerations are specific to this character area:

a. Ensure that any future traffic regulation and road upgrades associated with the B2146 are integrated into the rural valley landscape by means of careful siting, materials and design.

b. Avoid ‘improvements’ that would alter the rural character of the unmarked lanes.

E3: Meon Valley

Location and Boundaries

This character area comprises the valley of the River Meon, between the source of the Meon (at East Meon) to Wickham on the edge of the National Park. The valley forms a natural entry route up into the chalk downland from the coastal plain, dissecting the downland. The upper edge of the valley is defined by the crest of the slope and has been drawn along the apparent skyline of the valley as seen from the valley bottom.

This character contains both the *floodplains* and *valley side* sub-types. The *floodplains* subtype (E3a) relates to the narrow flat valley bottom, encompassing the River Meon, springs, ponds and tributaries. The *valley sides* subtype (E3b) relates to the sloping ground between the valley bottom and the crest of the slope.

Key Characteristics

- Broad, branching valley carved from the chalk downs and indented by dry valleys and coombes to produce smoothly rounded valley sides.
- On the valley sides, shallow well drained, calcareous silty soils support intensive arable cultivation on shallower slopes and pasture, calcareous grassland, scrub and woodland on steeper slopes.
- Springs, including the main source of the Meon at South Farm, are located on the chalk. This is the highest rising chalk stream in the UK.
- The clear, chalk river flows in a narrow floodplain which is characterised by small permanent pastures divided by hedgerows, wet woodland, water meadows, and open water, all of which are of great ecological interest.
- Strong linear communication pattern comprising the A32, minor roads and disused railway connecting a string of nucleated villages of medieval origin, each with a distinctive church tower of spire and the river flowing alongside the village street.
- Extensive blocks of early enclosure survive throughout the valley indicating survival of late medieval landscape.
- Frequent river crossing points on historic bridges.
- Remnant features relating to water management and agricultural/industrial use of the river, including fragments of water meadows, weirs and mill ponds, fish farms, and trout lakes. The mill at Warnford is evidence of the 19th century papermaking industry.
- Watercress beds are a particular characteristic.
- The presence of designed landscapes, for example Warnford Park, provides evidence of gentry houses and landscape parks of the wealthy population of the past.
- The upper reaches of the Meon valley, which lack visibility of main settlements, enjoy the darkest skies and have a strong sense of remoteness.

Specific Characteristics Unique to the Meon Valley

E.47 The physical characteristics of this landscape character area are typical of its landscape type, exhibiting a smoothly rounded U-shaped valley indented by dry valleys and coombes. The Meon Valley is a distinctive curved valley which follows a fault in the chalk and is therefore asymmetrical in its upper reaches, as seen to the eastern side of Old Winchester Hill and Salt Hill. These north-east facing steep valley sides support a mixture of calcareous grassland, scrub and woodland, for example on the slopes to the east of Winchester Hill – with several non-statutory LWS sites e.g. Drayton Down and Whitewool Hanger. The valley also includes a small area of Peake Wood SSSI, a nationally important example of ash/hazel woodland on calcareous soil which extends onto the adjacent downs.

E.48 The Meon River rises from its main spring at South Farm and is also fed by secondary springs, for example at Whitewool Farm. The river is of inherent ecological value and is designated as a LWS, providing a good example of a small chalk river. The river corridor contains a number of further

LWS sites, representing woodlands and water meadows that are characteristic of the floodplain. Watercress beds are also a particularly distinctive feature of the Meon Valley.

E.49 Although the valley has a rural character, the sense of tranquillity is eroded by the presence of traffic on the A32. The landscape is widely accessible due to the good network of public rights of way. The Wayfarer's Walk, King's Way, and South Downs Way National Trail, which cross the valley, provide access to adjacent landscapes. The disused railway that runs between West Meon to Wickham now forms the 'Meon Valley Trail', a trail for use by walkers, cyclists and riders. It forms part of the 'Winchester Watercress Tour' and is also part of the Sustrans cycle network. Furthermore, an off-road cycle trail through the Meon Valley is promoted by Hampshire County Council. There is an area of open access land on the steep valley side to the north of Tegleaze Down which provides further opportunities for countryside access. The chalk river between Wickham and Meonstoke is a prime trout fishing area with an abundant wild fish population. East Meon was the home of Isaac Walton, a famous angling writer.

E.50 In this landscape character area, the watermills were often fulling mills associated with the cloth trade centred on Winchester. In addition, the mill at Warnford is notable for its association with the papermaking industry. At Warnford an area of parkland is listed on Historic England's register of Historic Parks and Gardens. There are also three other (unlisted) landscape parks in the character area – at Midlington, Corhampton and Westbury Park.

E.51 The settlement pattern in this character area is typical of the type – nucleated villages (East Meon, West Meon, Warnford, Exton, Meonstoke, Corhampton, Droxford, and Soberton) are located on the edge of the floodplain. Many of the villages are centred on a church with a locally prominent church tower or spire, as at the distinctive church spire at East Meon. Building materials are typically flint, red brick, clay tile and straw thatch.

Sensitivities Specific to the Meon Valley

E.52 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. Specific features sensitive to change in this character area are:

Key Landscape Sensitivities
1. The river and the watercress beds which are particularly distinctive cultural features.
2. Sense of remoteness and rural tranquillity around the upper reaches of the Meon Valley (particularly around East Meon).
3. Panoramic viewpoints from the surrounding downs over the Meon Valley, including those representative views identified in the View Characterisation and Analysis report[6], such as Old Winchester Hill, Salt Hill and Butser Hill.

Change Specific to the Meon Valley

E.53 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include:

Forces for Change
1. Upgrading of the A32.
2. Development and infrastructure associated with the trout lakes and fish farms.
3. Nutrient run off from intensive dairy farms.
4. Development pressures, extending some villages from their historic nucleated form to create extensive linear development along roads.

Landscape Management / Development Considerations Specific to the Meon Valley

E.54 In addition to the generic landscape management and development considerations for this landscape type, the following landscape management considerations are specific to this character area:

a. Maintain watercress beds as a distinctive cultural feature of the Meon Valley.

b. Conserve the remote rural character and associated dark skies around the upper reaches of the Meon Valley.

E.55 The following development considerations are specific to this character area:

a. Seek opportunities to reduce the visual and biological impact of existing trout lakes, fish farms and their associated development, through planting of locally native species.

[6] LUC. South Downs National Park: View Characterisation and Analysis (2015) – View 5, 8, 47, 35, 67, 73

b. Monitor water quality in the Meon and seek to minimise nutrient run off/ water pollution resulting from intensive dairy farming.

c. Ensure that any future traffic regulation and road upgrades associated with the A32 are integrated into the rural valley landscape and ensure any signage is sensitively detailed.

d. Maintain the nucleated form of villages and avoid extending linear development along roads. Maintain trees within these built up areas using replanting where necessary.

e. Pay particular attention to the panoramic views from Winchester Hill and Butser Hill in planning any change within the Meon Valley.

E4: Itchen Valley

Location and Boundaries

This character area includes the upper reaches of the valley of the River Itchen between its source just south of the village of Cheriton and the south-western edge of New Alresford. The boundaries are strongly defined by the topography and are drawn along the apparent skyline of the valley sides as seen from the valley floor. The upper portion of the valley is drawn close to the edge of Bramdean; beyond this the valley form continues as an unsettled dry valley within the surrounding *Downland Mosaic* landscape.

This character area contains both the *floodplains* and *valley sides* sub-types. The *floodplains* subtype (E4a) relates to the flat valley bottom, characterised by pasture and paddocks, and encompasses the River Itchen and its tributary between Cheriton and Bramdean. The *valley sides* subtype (E4b) relates to the shallow sloping ground between the valley bottom and the crest of the slope, supporting intensive arable cultivation.

Key Characteristics

- Broad, branching valley carved from the chalk downs and indented by dry valleys and coombes to produce smoothly rounded valley sides.
- Shallow well drained, calcareous silty soils support intensive arable cultivation on shallow slopes of the valley sides. Pasture and paddocks occur on the valley floor.
- Springs, including the main source of the Itchen, south of Cheriton, are located on the chalk.
- The clear, chalk river flows in a relatively narrow floodplain. Pasture and paddocks occur on the valley floor.
- The watercourse and banks of the Itchen are designated as a SSSI incorporating a diversity of habitats including the clear alkaline river, fen/marsh/swamp, neutral grassland and pockets of woodland.
- Extensive blocks of early enclosure survive throughout the valley.
- Crossed by the A272 which interrupts the otherwise tranquil landscape. A sequence of settlements occurs along the lower valley sides.
- One of the most renowned fly fishing rivers in the world with populations of wild brown and rainbow trout and important spawning grounds.
- Presence of landscape parks including at Hinton Ampner (owned by the National Trust).

Specific Characteristics Unique to the Itchen Valley

E.56 The physical characteristics of the Itchen Valley are typical of its landscape type. The character area comprises a relatively narrow valley floor comprising pasture and paddocks and gently sloping valley sides, which support arable cultivation. The character area preserves an old landscape, with extensive blocks of early enclosure surviving throughout the valley. Tree cover provides enclosure and shelter particularly in association with historic parkland.

E.57 The Itchen Valley has high biodiversity interest with a large number of designated sites. Throughout this character area the watercourse and banks of the Itchen are designated as a SSSI incorporating a diversity of habitats including the clear alkaline river, fen/marsh/swamp, purple moor grass and rush pastures (BAP Priority Habitats) neutral grassland and pockets of woodland (e.g. to the east of Titchborne).The river is also a SAC. Non-statutory LWS sites include Corner Copse and parts of Little London Copse and The Lynch. The river also supports a good otter and water vole population.

E.58 The main source of the River Itchen is a spring south of Cheriton with secondary springs occurring along its course. The river itself would have been an important routeway from prehistory onwards, although probably too small to be navigable beyond its lower reaches until artificially canalised in the medieval period. The 16th and 17th centuries saw the development of water meadows, regulated systems of ditches and channels that provided a continuity of access to winter feed for the sheep flocks, but with a greater degree of control. These ceased to be used in the 19th century.

E.59 Fragmentary systems of water meadows are evident, together with a number of archaeological features characteristic of flood plains, including bridges at Cheriton and Tichborne and a mill at Cheriton.

E.60 Although the valley has an overall tranquil quality this is disrupted in place by the audible 'hum' of traffic. The character area is crossed by the A272.

E.61 The Itchen Valley Way allows public access all along the valley and to places of interest. The river is popular for chalk stream fishing and is famous for its wild brown and rainbow trout.

E.62 Numerous landscape parks survive in the valley, the most important being at Hinton Ampner (owned by the National Trust). Also unregistered but of local importance is Titchborne Park. As for the landscape type, evidence for prehistoric and Romano-British occupation is scarce, due to suitable deposits being buried beneath later colluvial deposits.

E.63 The settlement pattern in this character area is typical of the type with the linear settlement at Cheriton and the nucleated settlement at Titchborne which both occur on the valley sides above the floodplain.

Sensitivities Specific to the Itchen Valley

E.64 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. Specific features sensitive to change in this area are:

Key Landscape Sensitivities	
1.	The high biodiversity interest of the River Itchen and its banks and the diversity of habitats.
2.	The landscape parks at Hinton Ampner and Tichborne Park.

Change Specific to the Itchen Valley

E.65 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include

Forces for Change	
1.	The introduction of horse paddocks in place of grazing across the floodplain and associated fencing and stables which has a visual impact.
2.	Development pressures, extending some villages from their original nucleated form e.g. Cheriton.
3.	Upgrading of the A272.

Landscape Management / Development Considerations Specific to the Itchen Valley

E.66 In addition to the generic landscape management and development considerations for this landscape type, the following management considerations are specific to this character area:

a. Maintain the high biodiversity interest of the River Itchen and its banks.

b. Conserve field and parkland boundaries at Hinton Ampner and Tichbourne Park.

E.67 The following development considerations are specific to this character area:

a. Ensure sympathetic integration of horse paddocks

b. Ensure that any future road upgrades associated with the A272 are integrated into the rural valley landscape and ensure any signage is sensitively detailed.

c. Avoid extending linear development along roads. Minimise light spill from settlements.