Environmental Designations Technical Paper

April 2017

Planning Policy Group
Investment and Regeneration Service
Kirklees Council
PO Box B93
Civic Centre III
Huddersfield
HD1 2JR

Contents Page

1 Introduction

1.1 Within Kirklees, there is a varied natural environment, ranging from remote Pennine uplands of the west to the intensively farmed agricultural land to the south-east. An extensive range of sites are protected for their biodiversity and geodiversity, including European, nationally and locally designated sites.

1.2 This technical paper supports the preparation of the Kirklees Local Plan and provides a summary of the evidence used to designate the most important areas and sites in the district requiring protection for nature conservation and geological significance.

1.3 This paper explains the processes used to identify and designate the following areas and sites shown on the Kirklees Local Plan:-

- Internationally designated sites: Special Protection Area (SPA) and Special Area of Conservation (SAC);
- Nationally designated sites: Site of Special Scientific Interest (SSSI);
- Local Wildlife Sites;
- Local Geological Sites;
- Kirklees Wildlife Habitat Network;
- Kirklees Biodiversity Opportunity Zones;
- Strategic Green Infrastructure Networks

2 National Background

2.1 National Planning Policy Framework

2.1.1 The National Planning Policy Framework (NPPF) at paragraph 17 states that a core principle of the planning system is to conserve and enhance the natural environment. Planning policies and decisions should minimise impacts on biodiversity and geodiversity and aim to maintain and enhance biodiversity when determining planning applications.

2.1.2 NPPF (paragraph 109) states that the planning system should contribute to and enhance the natural and local environment by:

> "*…minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity,* ***including by establishing coherent ecological networks that are more resilient to current and future pressures***…"

2.1.3 Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. ***Distinctions should be made between the hierarchy of international, national and locally designated sites***, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks (NPPF, paragraph 113).

2.1.4 Local planning authorities are also required through NPPF (paragraph 114) to:-

> "*set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure…"*

2.1.5 Paragraph 117 of NPPF states that to minimise impacts on biodiversity and geodiversity, planning policies should:

> "…***identify and map components of the local ecological networks****, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;*" and
>
> "*…promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan…*"

2.2 National Planning Practice Guidance

2.2.1 National Planning Practice Guidance states that relevant evidence in identifying and mapping local ecological networks includes:

- the broad geological, geomorphological and bio-geographical character of the area, creating its main landscapes types;
- key natural systems and processes within the area, including fluvial and coastal;
- the location and extent of internationally, nationally and locally designated sites;
- the distribution of protected and priority habitats and species;
- areas of irreplaceable natural habitat, such as ancient woodland or limestone pavement, the significance of which may be derived from habitat age, uniqueness, species diversity and/or the impossibilities of re-creation;
- habitats where specific land management practices are required for their conservation;
- main landscape features which, due to their linear or continuous nature, are important for the migration, dispersal and genetic exchanges of plants and animals, including any potential for new habitat corridors to link any isolated sites that hold nature conservation value, and therefore improve species dispersal;
- areas with potential for habitat enhancement or restoration, including those necessary to help biodiversity adapt to climate change or which could assist with the habitats shifts and species migrations arising from climate change;
- an audit of green space within built areas and where new development is proposed;
- information on the biodiversity and geodiversity value of previously developed sites and the opportunities for incorporating this in developments; and
- areas of geological value which would benefit from enhancement and management.

2.2.2 NPPG also notes that locally designated sites (which include 'Local Wildlife Sites' and 'Local Geological Sites') make an important contribution to ecological networks and are overseen by the Local Sites systems. These systems vary considerably in terms of size (both the administrative area they cover and the number of sites selected) and cover contrasting landscapes in coastal, rural and urban situations.

2.3 Peak District National Park

2.3.1 The south western corner of Kirklees lies within the Peak District National Park as shown in Appendix 1. Planning for this part of the borough is the responsibility of the Peak District National Park Authority. It is important to ensure that the policies in the Local Plan respect and enhance the valued landscape characteristics across the boundaries, providing a continuity of landscape character and protecting the setting of the Peak District National Park.

2.4 Dark Peak Nature Improvement Area

2.4.1 The Dark Peak NIA Nature Improvement Area (NIA) covers 25,000 hectares of the Peak District National Park, including a landscape of upland habitats. A small part of Kirklees, outside the South Pennine Moors SPA/SAC, is within the Dark Peak NIA as shown in Appendix 1. The aims of the Dark Peak NIA are "to improve, expand and link up existing wildlife-rich areas within the Dark Peak, connecting nature with nature and nature with people".

2.4.2 Within the Dark Peak NIA priority species have declined and degradation of habitats has reduced the wildlife and other public benefits the landscape should deliver. For example, continuing erosion of moorland and peat bogs, poorly managed and declining woodland, and loss of wildflower meadows.

2.4.3 The Dark Peak NIA has five objectives involving blanket bog, heathland, grassland, woodland and access and recreation which all their projects work towards.

2.5 Habitat Regulations Assessment

2.5.1 The council is required by law to carry out a Habitats Regulations Assessment when preparing the new Local Plan. Therefore, the council has commissioned an external environmental consultant to undertake the Habitats Regulations Assessment on behalf of the council. The Kirklees Local Plan was supported by the Habitats Regulations Assessment Report (October 2015, Land Use Consultants). The Local Plan has an accompanying HRA namely the Kirklees Local Plan Habitats Regulations Assessment Report (October 2016, Land Use Consultants*).* This document is published on the council's website.

3. Regional Background

3.1 Leeds City Region Green Infrastructure Strategy (2010)

3.1.1 The Leeds City Region has developed a Green Infrastructure Strategy which sets out a vision for the city region and identifies key investment programmes, strategic projects and green infrastructure growth areas extending across the Leeds City Region local authority areas. The vision is:-

"*Green infrastructure will shape the future economic, social and environmental success of the Leeds City Region by harnessing the potential of existing environmental resources to promote sustainable economic growth and to tackle climate change".*

3.1.2 Four strategic objectives have been selected to directly address the key drivers of green infrastructure and to ensure that the strategy delivers the city region's transformational vision for green infrastructure in the city region:-

- Promote sustainable growth and economic development;
- Adapt to and mitigate climate change;
- Encourage well-being and healthy living;
- Improve biodiversity.

3.1.3 Fresh Aire is one of three strategic projects within the strategy. The Fresh Aire Programme area follows the River Calder through Kirklees. The key aim of the Fresh Aire Programme is to bring about economic growth and regeneration in the Aire and Calder area by maximising the value and strategic impact of planned and future investments in green infrastructure. It will provide a framework to promote joined-up partnership-led projects and help to coordinate these towards the delivery of a new green infrastructure asset.

3.1.4 The LCR GI strategy is currently being refreshed in light of the December 2015 flooding events and will be published along with a Water and Flood Resilience Programme in 2017. This will reflect a further prioritisation of using green infrastructure to help to reduce flood risk.

3.2 The Yorkshire West Local Nature Partnership

3.2.1 The Local Nature Partnership (LNP) concept was introduced in the Natural Choice: The Natural Environment White Paper 2011 to provide local leadership in *"protecting and improving the natural environment and the benefits derived from it".*

3.2.2 National Planning Practice Guidance states that local planning authorities must co-operate with Local Nature Partnerships and have regard to their activities when they are preparing their Local Plans, so long as those activities are relevant to local plan making. This requirement reflects the important role that Local Nature Partnerships need to play in assisting local planning authorities' strategic planning.

3.2.3 The Yorkshire West LNP was established in 2015. The geographical boundary is based on the West Yorkshire sub-regional boundary, including the five local authorities within West Yorkshire plus Barnsley Council, but also seeks to provide coverage of the Leeds City Region geographic area in partnership with other LNPs.

3.2.4 The vision of the Yorkshire West LNP is "*West Yorkshire's a great place to live, love, work and invest: where nature and outdoor spaces are valued at the heart of a thriving economy. People, businesses and industries value their unbroken network of high quality blue and green infrastructure that connects thriving, verdant urban centres with wildlife-rich open countryside. Sustainable growth and development brings the tranquillity and beauty of wild place to more people and more people to wild places."*

3.2.5 The LNP recognises the key role that local plan documents play in protecting and enhancing the natural environment and the benefits to be derived from it. The high level principles of the Yorkshire West LNP that it would expect to underpin local plan documents are:-

- Recognise the value of the natural environment and the wider benefits and services it provides;
- Make plans and decisions informed by the best available environmental information;
- Protect and enhance existing biodiversity and landscape assets, reducing loss and fragmentation and improving connectivity;
- Integrate biodiversity and other environmental opportunities within new development;
- Ensure incorporation of high quality open spaces that are safe and accessible;
- Mitigate for and adapt to the impacts of climate change;
- Work at a landscape scale, jointly where appropriate, to create, protect, enhance and manage networks of multi-functional green infrastructure.

3.2.6 The LNP takes the strategic lead on natural environmental issues across West Yorkshire and the Leeds City Region, in partnership with other LNPs. The 3 key priorities of the LNP that local development plans can contribute to delivering are:-

- Use the Wildlife Habitat and Ecological Networks to inform all relevant planning policies and decisions;
- Ensure that all relevant planning policies and decisions contribute to implementing the delivery of the Yorkshire West LNP/West Yorkshire Combined Authority's Green Street methodology;
- Ensure that all relevant planning policies and decisions contribute to implementing the delivery of the Leeds City Region Green Infrastructure Strategy.

4 Local Background

4.1 Kirklees Biodiversity Strategy

4.1.1 The overall aim of the Kirklees Biodiversity Strategy, in line with national policy, is to halt and reverse the decline of biodiversity. The Strategy sets out why biodiversity is important by highlighting the many economic and social benefits derived as a direct result of biodiverse ecosystems, including the effect of minimising climate change.

4.1.2 The Strategy also presents a number of objectives which are:

- To inform key partners, landowners and the private sector of the importance of land management for biodiversity and its role in addressing and mitigating the effects of climate change;
- To ensure that biodiversity is addressed and taken into account in the delivery of all relevant council services, the council is compliant with, and meets all legal obligations, adopts best practice and supports the positive conservation management of Local Sites;
- To support biodiversity work in the wider district.

4.1.3 These objectives are to be delivered through council services, including development management, through partnership working and by positive encouragement of farmers and landowners, voluntary organisations, community groups and schools. The objectives will be delivered by drawing on national funding streams, justified and supported by national policy drivers.

4.1.4 The key tool in making sure that biodiversity actions are appropriate to the area of the district in which they are implemented is the identification of Biodiversity Opportunity Zones. Within each Biodiversity Opportunity Zone the characteristic habitats and species found there have been identified and described. The intention is to use this information to help identify aims and objectives for site specific actions, such as habitat creation and management, to ensure these maximise the benefit to species found in those areas. More detailed information on the characteristics of each Biodiversity Opportunity Zone is provided later in this document.

4.2 Kirklees Biodiversity Action Plan

4.2.1 Together with the Kirklees Biodiversity Strategy, the Kirklees Biodiversity Action Plan (BAP) provides the framework through which Kirklees Council performs its 'biodiversity duty' under Natural Environment & Rural Communities Act 2006 (NERC Act). The biodiversity duty is for all public bodies, including the Council, to have regard to the conservation of biodiversity in carrying out their functions. The BAP is also intended to help deliver the requirements of national planning policy.

4.2.2 The Kirklees Biodiversity Action Plan (BAP) identifies the habitats and species found within the district which are a priority for conservation. These habitats and species are drawn from the list produced under Section 41 of the NERC Act, which covers England, and are referred to as Habitats/Species of Principal Importance, Priority Habitats/Species or Section 41 Habitats/Species. Species and Habitats included on this list are a material consideration for planning and development.

4.2.3 In addition, a habitat action plan has been produced for each of the identified priority Habitats of Principal Importance, together with a number of guidance documents on practical management techniques. The habitat action plans highlight the issues impacting upon these habitats and identify the actions needed for their conservation, actions which all land managers – from community groups to farmers - can implement if they so wish. A similar set of documents has been produced for individual Species of Principal Importance, although these do not exist for every priority species found in the district. These have been used to inform a set of tables (set out in Appendix 6) relating to each of the Biodiversity Opportunity Zones (see Biodiversity Strategy above), which identify the parts of the district where each of the priority species are likely to occur. This can be used to direct positive habitat management actions, or mitigation and enhancement required as part of development proposals. The tables can help ensure conservation efforts in these zones are directed towards those habitats and species that occur within the area an activity is to be undertaken, or allows selection of sites where conservation action targets a particular species or habitat type.

5 Designated Sites

5.1 Introduction

5.1.1 A hierarchy of sites designated for their biodiversity and geodiversity importance has been identified within the Kirklees Local Plan, ranging from sites of international importance to local importance. These are shown in Table 1 below.

Table 1: Hierarchy of Designated Sites in Kirklees

DESIGNATIONS IN KIRKLEES		SITES
International	Special Protection Area (SPA)	South Pennine Moors SPA/SAC
	Special Area for Conservation (SAC)	
National	Sites of Special Scientific Interest (SSSI)	3 sites
Local	Local Wildlife Sites	88 sites
	Local Geological Sites	19 sites

5.2 International Sites

5.2.1 At the international level, the South Pennine Moors Special Protection Area (SPA) has the highest level of statutory protection being of European importance for several upland breeding bird species classified under the Birds Directive. These moorlands are also designated as a Special Area for Conservation (SAC) which provides protection for blanket bog and upland heath habitats through the European Habitats Directive.

5.3 National Sites

5.3.1 At the national level, Sites of Special Scientific Interest (SSSIs) are sites designated for their national importance and protected by law to conserve their wildlife or geology. There are three designated SSSI's in Kirklees: The South Pennines Moor (with boundaries which mirror the SPA/SAC boundaries); Park Clough at Marsden and Honley Station Cutting. These sites are protected by law under the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2010 (as amended). Development which is likely to have an adverse effect on a SSSI will not be permitted. Exceptions will only be made where the benefits of development outweigh any impact and measures are provided to mitigate harmful impacts.

5.4 Local Sites

5.4.1 In 2006 Defra (the Department of Environment, Food & Rural Affairs) brought out "Local Sites, Guidance on their Identification, Selection and Management" which introduced the terms 'Local Site' and sub-divisions of 'Local Wildlife Site' and 'Local Geological Site' for non-statutory nature conservation sites. These terms provide consistent terminology across England and have been adopted across all districts in West Yorkshire.

5.4.2 "Local Sites are all areas of substantive value including both the most important and most distinctive species, habitats, geological and geomorphological features within a national, regional and local context. Sites within the series may also have an important role in contributing to the public enjoyment of nature conservation" (Defra 2006).

5.4.3 Following the 2006 Defra guidance, the West Yorkshire Local Sites Partnership (WYLSP) was established in 2011, covering the 5 districts of West Yorkshire, to establish the Local Sites system for the identification, safeguarding and conservation based management of Local Sites. The following 10 organisations make up the full WYLSP:-

- 5 councils of Bradford, Calderdale, Kirklees, Leeds and Wakefield;
- West Yorkshire Ecology;
- Natural England;
- West Yorkshire Geology Trust;
- Yorkshire Wildlife Trust;
- Yorkshire Naturalists Union.

5.4.4 The West Yorkshire Local Sites Partnership has agreed a set of written selection criteria against which each Local Wildlife and Geological Site has been assessed to ensure it is of a sufficiently high quality to be designated. The guidelines and criteria for selection are set out in:-

- The West Yorkshire Local Site Selection Criteria (2016); and
- The Guidelines for the Identification and Selection of Local Geological Sites in West Yorkshire (2011).

5.4.5 Two working groups with appropriate expertise were established to undertake the assessments and these are the:-

- Local Wildlife Sites Panel; and
- Local Geological Sites Panel.

5.5 Local Wildlife Sites

Introduction

5.5.1 A set of written selection criteria for the designation of Local Wildlife Sites in West Yorkshire has been drawn up and agreed by the West Yorkshire Local Sites Partnership. The criteria are set out in the West Yorkshire Local Site Selection Criteria Guidance (2016).

Criteria for the Selection of Local Wildlife Sites

5.5.2 The guidelines and criteria used for the selection of Local Wildlife Sites set out in guidance are divided into 2 parts:-

- Habitat characteristics; and
- Species groups.

5.5.3 The habitat guidelines describe the status of the habitat with reference to International and National, Natural Areas and the West Yorkshire context, and set out the criteria and attributes on which the designation of a Local Wildlife Site is based.

5.5.4 For each species group, details of the legal protection/status afforded are provided where applicable. Specific guidelines establish the selection thresholds on which a Local Wildlife Site is designated and set out the rationale for each guideline and how it should be applied.

Methodology

5.5.5 The process of identifying Local Wildlife Sites is comprehensively described in the West Yorkshire Local Site Selection Criteria (2016). An outline of the process used to select and designate sites as Local Wildlife Sites is set out below:-

a) West Yorkshire Ecology Service (WYES), in conjunction with the council, identify candidate sites that are of suitable quality to be surveyed and assessed for designation as a Local Wildlife Site.
b) Sites are surveyed by WYES. The survey results of each site include a written citation, habitat and boundary map, species list and whether the threshold for designation has been met.
c) The Local Wildlife Sites Panel examines the survey data and assesses the sites against the agreed selection criteria. A recommendation together with supporting evidence is presented to the West Yorkshire Local Sites Partnership.
d) Sites are approved and designated by the West Yorkshire Local Sites Partnership. The Partnership advocates that the list of Local Wildlife Sites is included in local development documents.

5.5.6 All sites identified in the Kirklees Unitary Development Plan for their nature conservation value as Sites of Scientific Interest and Sites of Wildlife Significance have been considered for their suitability to be surveyed and assessed for designation as Local Wildlife Sites. New sites have also been proposed by the Kirklees Wildlife and Landscape Partnership (KWLP).

5.5.7 A number of sites have also been proposed for Local Wildlife Site designation through the Local Plan consultation process. These have been assessed by West Yorkshire Ecology who has considered their suitability for Local Wildlife Site designation against the West Yorkshire Local Site Selection Criteria.

5.5.8 The sites assessed for Local Wildlife Site designation against the agreed West Yorkshire Local Site Selection Criteria are shown in Appendix 2 (Kirklees Accepted Local Wildlife Sites) and Appendix 3 (Kirklees Rejected Local Wildlife Sites). The process of assessing sites has resulted in 88 sites being approved by the West Yorkshire Local Sites Partnership for designation as a Local Wildlife Site in Kirklees. These sites are shown as accepted Local Wildlife Sites in the Kirklees Local Plan and are listed in Appendix 2 together with the selection criteria that each site meets. A more detailed description of the West Yorkshire Local Site Selection Criteria that are specifically relevant to the Local Wildlife Sites in Kirklees is shown in Appendix 4 (Summary of the West Yorkshire Local Site Selection Criteria Relevant to Kirklees Local Wildlife Sites).

5.5.9 23 sites that have been considered for Local Wildlife Site designation have not met the selection criteria and have therefore been rejected as Local Wildlife Sites. These are listed in Appendix 3 together with the reason for rejection.

5.6 Local Geological Sites

Introduction

5.6.1 A set of written selection criteria for the designation of Local Geological Sites has also been drawn up and agreed by the West Yorkshire Local Sites Partnership. These are set out in the "Guidelines for the Identification and Selection of Local Geological Sites in West Yorkshire" (April 2011).

Criteria for the Selection of Local Geological Sites

5.6.2 Local Geological Sites are selected on a local basis using the 4 nationally agreed selection criteria set out in the "Local Sites – Guidance on their Identification, Selection and Management (Defra 2006)":-

- Value of the site for educational purposes in life-long learning;
- Value of the site for study by professional and amateur Earth scientists;
- Historic value of a site in terms of important advances in Earth science knowledge, events or human exploitation;
- Aesthetic value of a site in the landscape, particularly in relation to promoting public awareness and appreciation of Earth sciences.

Table 2: Local Geological Sites Selection Criteria

Criteria for designation of Local Geological Sites in West Yorkshire

- That the site should contain geological and/or geomorphological features;
- That the site should have value for one or more of these reasons: scientific, historical, educational and/or aesthetic value;
- That the site should be regionally important for West Yorkshire.

Guidelines to assist in making an objective decision about whether a site should be designated as a Local Geological Site

The site is important because:-

- It has rocks which are representative of their stratigraphic position in West Yorkshire;
- It is a good example of the rock or feature it contains;
- It has an interesting or unusual geological structure or feature which is not found elsewhere in the county;
- It is or has been important for geological research;
- It is particularly easy to access, especially for educational purposes;
- A site may not be of interest on its own, but in combination with other nearby sites, it may tell an interesting or educational story;
- It is being permanently preserved as a rock exposure and will be accessible in the future.

It is expected that only one or two of these statements will apply to each designated site.

Methodology

5.6.3 A summary of the methodology used for the designation of Local Geological Sites is set out below:-

a) West Yorkshire Geology Trust (WYGT), in conjunction with the council, identify candidate sites that are of suitable quality to be surveyed and assessed for designation as Local Geological Sites.
b) Sites are surveyed by competent geologists to record the necessary geodiversity information required to make an assessment.
c) All relevant data and other data collected is provided to West Yorkshire Geology Trust who compile all assessments, descriptions and maps for consideration by the Local Geological Sites Panel.
d) The Local Geological Sites Panel examines the survey reports and assesses the sites against the agreed selection criteria to make a recommendation regarding designation of the site.
e) The outcome of the Local Geological Sites Panel is presented to the full West Yorkshire Local Sites Partnership for formal endorsement and designation as a Local Geological Site. The Partnership advocates that the list of Local Geological Sites is included in local development documents.

5.6.4 All sites identified in the Kirklees Unitary Development Plan for their geological importance as Sites of Scientific Interest/Regionally Important Geological Sites have been considered for their suitability to be surveyed and assessed for designation as a Local Geological Site. New sites have also been identified by the WYGT.

5.6.5 The process of assessing these sites against the agreed selection criteria has resulted in 19 sites being approved by the West Yorkshire Local Sites Partnership for designation as Local Geological Sites in Kirklees. These sites meet the selection criteria for Local Geological Sites, including value for one or more of the following criteria: scientific, historical, educational and/or aesthetic value. Details of the Kirklees Local Geological Sites can be found on the West Yorkshire Geological Trust's website at http://www.wyorksgeologytrust.org/siteskirklees.html. Most sites were approved Local Sites by the West Yorkshire Local Sites Partnership on 11/06/2011 and a further three sites approved on 18/10/2012. These are listed in Appendix 5.

6 Wildlife Habitat Network

6.1 Introduction

6.1.1 In recent years, there has been a change in the approach to nature conservation. This is no longer based solely on the protection of individual sites which is not sufficiently adequate to halt and reverse the decline in biodiversity. Rather the creation and protection of ecological networks can help to address this decline by reducing habitat fragmentation and making the landscape more permeable to wildlife.

6.1.2 An ecological network is the description given to important areas for wildlife and the existing and potential linkages between them into the wider landscape. Identifying and protecting these connections and developing new ones will help create more coherent and resilient networks, especially in the face of climate change and increasing landscape modification. This adheres to the principles laid out in the Lawton Review "Making Space for Nature" (Defra 24/09/2010).

6.1.3 This approach is now embedded in national policy via the 2011 Natural Environment White Paper: The Natural Choice, the England Biodiversity Strategy: Biodiversity 2020 and the National Planning Policy Framework (NPPF).

6.1.4 Kirklees council commissioned West Yorkshire Ecology to identify and map the components of the Kirklees Wildlife Habitat Network in order to connect designated sites of biodiversity and geological importance and notable habitat links within the district, such as woodlands, watercourses, natural and semi-natural areas.

6.1.5 The Kirklees Unitary Development Plan 1999 (UDP) identified green corridors as "links between, and including, areas of semi-natural wildlife habitats within urban areas which also have value or potential value as means of providing for human movement, visual amenity, local climatic regulation or the amelioration of pollution". The UDP green corridor designation has been replaced by two separate designations in the Local Plan: the Kirklees Wildlife Habitat Network and the Core Walking and Cycling Network.

6.2 Methodology

6.2.1 West Yorkshire Ecology identified the Kirklees Wildlife Habitat Network by firstly mapping designated nature conservation sites of at least district-level importance and then linking these by identifying continuous stretches of permeable habitat that can be used over time by species moving between these core areas.

6.2.2 The Wildlife Habitat Network was produced using a Geographical Information System (GIS) using the data set out in the table below:-

Table 3: Spatial Datasets used to identify the Kirklees Wildlife Habitat Network

Datasets	Data
Designated wildlife site boundaries	Natura 2000: Special Area of Conservation (SAC)/ Special Protection Area (SPA)
	Sites of Special Scientific Interest (SSSI)
	Sites of Ecological & Geological Importance (SEGI)
	Local Wildlife Site (LWS)
	Local Nature Reserve (LNR)
	Country Park
	Kirklees Sites of Wildlife Significance (SWS)
Habitat datasets	Ancient Woodland boundaries
	Natural England Priority Habitat Inventory (PHI)
	Natura 2000 (SAC/SPA) 2009 NVC surveys
	SSSI/SEGI 1997 and 2002 NVC surveys
	Local Wildlife Site surveys 2010-2015
	2012 South Pennine Moorland Fringe bird & habitat surveys
	1990- Local Authority Grassland Surveys
Species	Bat species (2000-)
	Great Crested Newt (1990-)
	Twite (2000-)
Other datasets	Kirklees Biodiversity Opportunity Zones
	Kirklees UDP
	Tree Preservation Orders (TPO)
	Kirklees BAP Sites
Natural England	Green Infrastructure Corridors
	Impact Risk Zones (IRZs) for SSSIs
Raster Images	Phase I Habitat Survey 1990
Base layers	OS MasterMap Topo_Area
	OS MasterMap Topo_Line
	Bing Aerial Photography

6.2.3 Core areas were identified using existing habitat spatial layers (e.g. Natural England's Priority Habitat Inventory (PHI) layer; designated site survey data; other information held by West Yorkshire Ecology local records centre) and data derived from OS MasterMapTopo-Area layer. Other sites of lesser value than the Core Areas but with some significant ecological value (e.g. an area with a Habitat of Principal Importance), were identified as 'Stepping Stones' for wildlife.

6.2.4 Field units were taken from MasterMap and assigned the following broad habitat type categories: woodland, grassland, wetland, heathland and other category using Bing aerial photography and the 1990 Phase I Habitat raster maps for West Yorkshire. The habitat type categories cover:-

1. Woodland: broad-leaved/ mixed woodland, including traditional orchards; dense scrub and hedgerows (occasional coniferous plantations).
2. Grassland: semi-improved and unimproved grassland, including upland hay meadow; lowland meadow; lowland dry acid grassland; good quality semi-improved grassland and grass moor.
3. Heathland: upland and lowland dry and wet heathland; bog habitats, including blanket bog; purple moor grass; upland flushes, fens & swamps; bracken.
4. Wetland: rivers/ becks (including culverted stretches), ponds, lakes, lowland fen, floodplain grazing marsh, reedbeds.
5. Other: tracks, hard standing, gardens.

6.2.5 The GIS dataset for Kirklees Wildlife Habitat Network GIS includes the following:

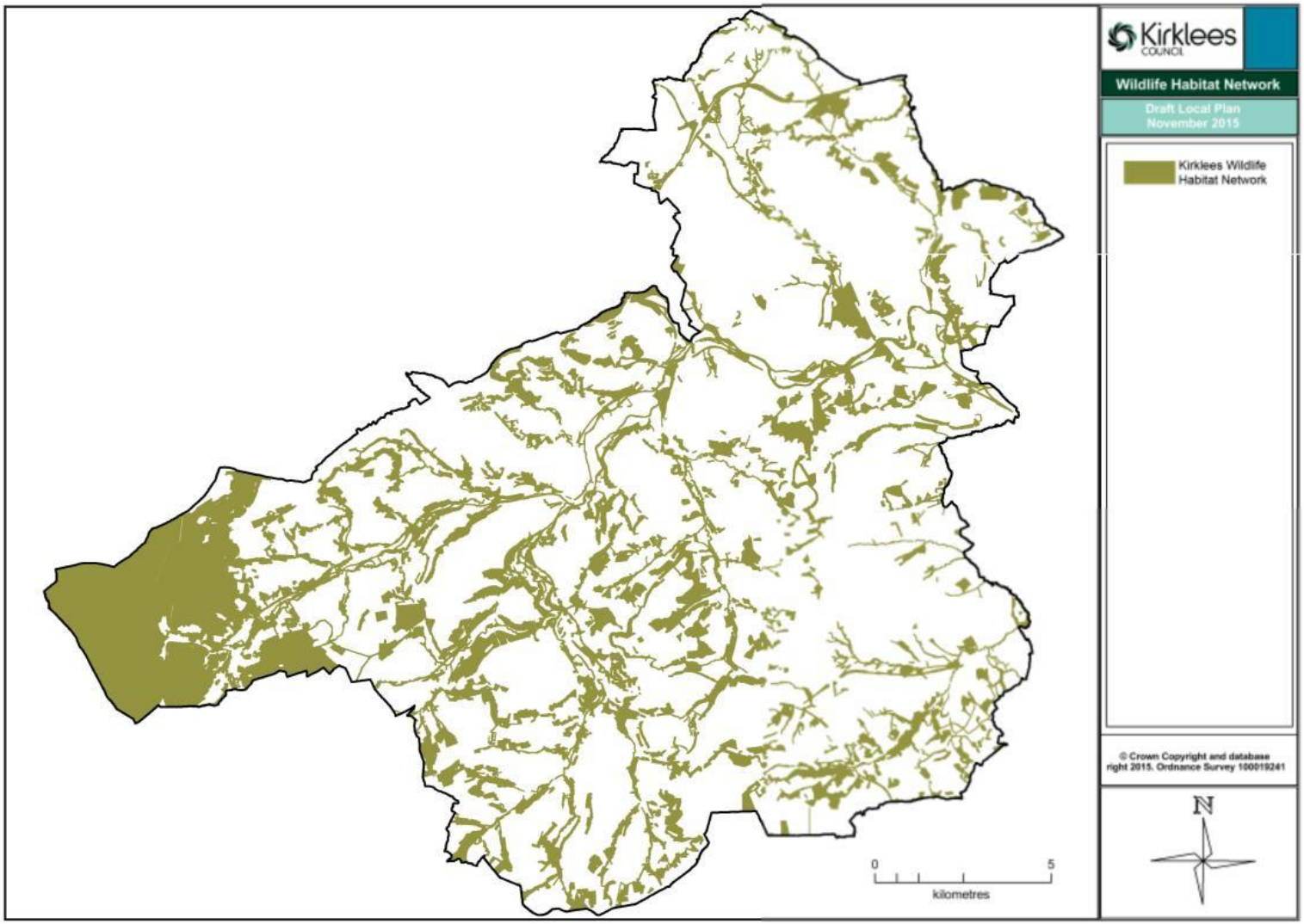
- Wildlife Habitat Network polygons
- Broad habitat type (woodland, grassland, wetland, heathland, other)
- Sources of data
- Size (ha)
- Grid reference Eastings and Northings for polygon centroid

The Kirklees Wildlife Habitat Network

6.2.6 The Wildlife Habitat Network is shown in Figure 1 and is intended to enable species populations to be sustained by protecting and enhancing the ecological corridors and linkages within the wider environment, including links to adjoining districts (particularly Bradford, Leeds and Wakefield who already have identified Wildlife Habitat Networks). This can be achieved through the use of the Wildlife Habitat Network as a guidance tool for decision making relating to the placing of future developments and the provision of ecological mitigation to maintain and enhance the functionality of the network.

6.2.7 Development within the Wildlife Habitat Network will not necessarily be prevented but the council will seek to ensure that development proposals maintain and enhance the continuity of the network and protect the nature conservation of the land affected.

Figure 1: The Kirklees Wildlife Habitat Network



7 Biodiversity Opportunity Zones

7.1 Introduction

7.1.1 The Council has established priorities and opportunities for biodiversity in specific geographical areas of Kirklees, known as the Kirklees Biodiversity Opportunity Zones Map. These distinct biodiversity zones have been identified through the overall habitat types which characterise these areas to ensure that any conservation efforts are effectively targeted.

7.2 Establishing Biodiversity Priorities

7.2.1 **Species and habitat priorities:** For each of the Biodiversity Opportunity Zones, a species/habitat table has been produced as shown in Appendix 6. This identifies the species associated with those habitats within any particular zone. These species and habitats should be the focus of conservation work within each zone unless there is sufficient justification to do otherwise.

7.2.2 **Ecological connectivity priorities:** The relevance of ecological connectivity within and between these zones - and beyond the district - is critical to species survival, especially in adapting to climate change. Three distinct connectivity gradients have been identified:

- North-south or latitudinal gradient;
- East-west or altitudinal gradient;
- Gradient of high to low biodiversity value areas.

The relevance of these gradients within the each zone differs and this is used to determine the nature of the ecological networks found there.

7.2.3 **Efficiency of resource use:** In line with the increasing need to consider multi-functional land use, the potential for integrating biodiversity along with other land uses is also highlighted for the different zones.

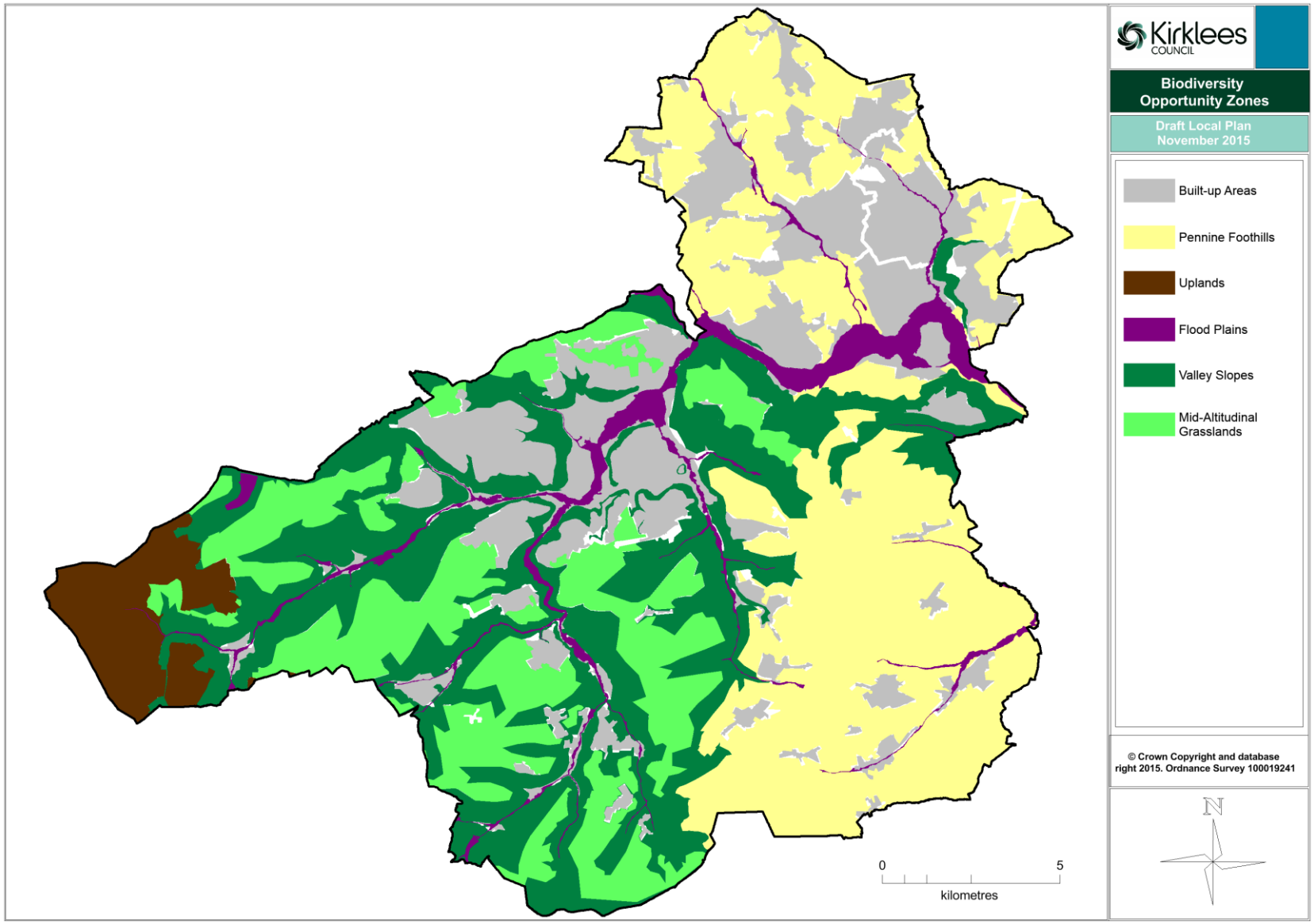
7.3 The Kirklees Biodiversity Opportunities Zones

7.3.1 The Kirklees Biodiversity Opportunity Zones are shown in Figure 2 below and include the following characteristic zones:-

- The Uplands;
- The Mid-Altitudinal Grasslands;
- Valley Slopes;
- Floodplain and Riverine Corridors;
- Pennine Foothills;
- Urban Areas (Built-Up Areas).

The characteristics that are used to define these areas are described below.

Figure 2: Kirklees Biodiversity Opportunity



The Uplands

7.3.2 This area takes in the European designated and protected sites of the South Pennines and Dark Peak. They are dominated by Upland Heath and Blanket Bog, both UK Habitats of Principal Importance. The sites have been designated for their breeding bird communities and are sensitive to the many pressures exerted upon them. Much of the area is classified as being in unfavourable and recovering condition with much restoration work now underway through agri-environment schemes and European Life funding.

Green Infrastructure Value: carbon storage, water resource/flood risk management, stock rearing and recreation/tourism.

Connectivity Issues

- The designation of the uplands along much of the Pennine chain illustrates their importance to nature conservation and the need for a coherent approach to their protection as a unit along a linear north-south axis.
- There is an important interface with the grassland habitats adjacent to the uplands with upland breeding bird communities being dependent upon these areas at some stage during their breeding cycle (see grasslands below).
- Wetlands in the floodplain are of some relevance to the migration of birds breeding in the uplands and wintering elsewhere. There are, however, currently no wetlands of significance in Kirklees, most occurring further east (see floodplain below).

Overarching objectives/opportunities

1. Protect and bring designated areas into favourable condition.
2. Maintain ecological connectivity with other upland areas along the Pennines.
3. Enhance migration routes for upland breeding birds.
4. Bring the adjacent and complementary grasslands into favourable condition.

The Mid-Altitudinal Grasslands

7.3.3 These areas occur primarily in the Valley wards with some representation in the western portion of the Denby Dale ward. The grasslands occur at elevations from around 200 metres upwards. They are characterised by relatively flat land. In the past this would have been managed as pasture and hay meadow (Habitats of Principal Importance) but much is now agriculturally improved for intensive grazing and silage production. The primary importance of the area is for the remaining semi-natural grasslands and their breeding bird communities. Also, the grasslands within 2km of the upland protected sites can be important for the integrity of those sites and the species found there (e.g. feeding areas for Golden Plover and Twite which breed in the Uplands).

Green Infrastructure Value: water resource/flood risk management, stock rearing, recreation/tourism and wind-sourced renewables.

Connectivity Issues

- Ecological connectivity in a linear sense is less important in this area as bird species are highly mobile. Notably, the more ecologically valuable grasslands also tend to coincide with the areas of greatest ornithological interest forming core areas of biodiversity value. The focus of connectivity should, therefore, be to build on these existing 'core areas', to ensure greater resilience of species' populations (eg. against predation).
- There is a linear, north-south ecological connectivity along the Pennine fringe.
- There is some relevance in terms of the interface with other zones. Of primary importance are the upland protected sites (see upland section above relating to breeding birds) and that with the woodlands of the valley slopes are also significant – see valley slopes below.

Overarching objectives/opportunities

1. Protect and enhance those areas which are an important component of the habitats upon which upland breeding bird communities are dependent.
2. Restore grasslands and populations of grassland breeding bird communities focusing around the core areas of greatest interest and diversity.
3. Protect and enhance habitats along the interface with adjacent areas (see valley slopes below).
4. Ensure that new development does not impinge upon areas of ecological value in these areas.

Valley Slopes

7.3.4 The valley slopes – because of their steepness - tend not to have been improved for agriculture and are less developed. Hence, woodland (including some ancient woodland sites) is a dominant habitat. Even within the urban areas this is the case (hence, the identity of the valley slopes through the urban areas has been retained on the Opportunities Map). Woodland type is that found on acidic soils and varies from Upland Oak Woodland at higher elevations to Lowland Mixed Deciduous Woodland, both UK Habitats of Principal Importance. Whilst the primary habitat can be considered as woodland, it needs to be recognised that this is interspersed with Scrub (local Habitat of Principal Importance), Lowland Acid Grassland and Lowland Heath (both UK Habitats of Principal Importance). As such, a more accurate description of the overarching habitat type is a 'Forest Habitat Network'. This mosaic is very distinctive of the district (giving a sense of place) and serves to support a range of Species of Principal Importance.

Green Infrastructure Value: timber and wood fuel production, amelioration of air pollution, flood risk reduction, carbon store, sense of place and recreation.

Connectivity Issues

- Linear ecological connectivity is a significant issue for this woodland based mosaic of habitats. This is especially so in the face of climate change where there is likely to be a shift in species distribution from low altitude (east of the district) habitats to higher altitude (west of the district). A number of species associated with such habitats exhibit poor powers of dispersal across habitats unsuited to their needs.
- The interface between this area and the Floodplain and Mid-altitudinal Grasslands is important for a range of species which utilise different habitats (ie. bats, birds and invertebrates for which the woodland edge is a critical habitat – whether the interface is grassland or wetland).

Overarching objectives/opportunities

1. Maintain and enhance the integrity of the ecological network of woodland associated habitats by maintaining a balanced mosaic to retain species diversity and aid species migration.
2. Maintain and enhance the habitats along the interface of this area with the floodplain, grassland and other zones.

Floodplain and Riverine Corridors

7.3.5 There has been significant development in the floodplain within the district, reducing the areas of wildlife habitat, severing its ecological connectivity and impacting upon the natural flow of rivers and streams. This severing also applies to the in-stream habitats where weirs impact on the sustainability of fish populations by preventing migration. Although there appears to be little of existing significant biodiversity interest, especially wetland based systems; it may be the area's value is understated through lack of knowledge. Even so, if the ecological integrity of these corridors is to be restored then it will be important to maximise opportunities to create new wetland habitats. In particular, there is a number of Species of Principal Importance associated with wetlands and rivers which should benefit from such habitat network enhancements (eg. otter and salmon).

Green Infrastructure Value: flood risk management, water resource management, informal recreation and formal recreation (ie. sport).

Connectivity Issues

- Barriers (essentially weirs) within the rivers are a significant obstacle to the migration of fish, which are returning as water quality is improved.
- The lack of linear connectivity in suitable wetland and terrestrial habitats is a critical issue for some species such as otter, great-crested newt and other species.
- Similarly, whilst birds are more mobile, the lack of larger wetland bodies along the floodplain limits opportunities for the purposes of breeding, wintering and migration stop offs.
- In contrast, the lack of connectivity can be critical to the survival of some species such as the water vole and white-clawed crayfish where isolation can aid survival of populations.

See also comments in Valley Slopes zone with regard to interface of wetland and woodland habitats and use of these areas by a range of species.

Overarching objectives/opportunities

1. Protect and enhance existing wetland features and the associated habitats.
2. Maximise the opportunities to create new larger wetland habitat mosaics through the planning system (eg. mineral extraction) and other mechanisms.
3. Utilise Sustainable Drainage Systems and new Public Open Space to create an enhanced ecological network based upon wetland habitats.
4. Use development opportunities to remove barriers to fish passage.
5. Ensure habitat enhancements are targeted to specific species and their differing requirements and ensure they are not detrimental to other species.
6. Maintain and enhance the habitats along the interface of this area with other zones especially the valley slopes.

Pennine Foothills

7.3.6 The Pennine Foothills encompass the wards of Denby Dale, Kirkburton and those of North Kirklees. The zone is characterised by gently rolling countryside with a mix of woodland (some ancient woodland sites), hedgerows and agricultural land – primarily pasture (mostly agriculturally improved) but with some arable cropping. Both Lowland Deciduous Woodland and Hedgerows are UK Habitats of Principal Importance and the latter especially are widely distributed across the more rural areas. Arable Field Margins, another UK Habitat of Principal Importance, is also relevant.

Green Infrastructure Value: flood risk management, wood fuel, agriculture, wind-sourced renewables and informal recreation.

Connectivity Issues

- Issues revolve around the connectivity of the lattice network of semi-natural corridors within the farmed landscape. This is especially relevant to woodland edge species and linking woodlands and hedgerows.
- The agricultural land bordering these habitats (field margins) is an especially important component of the hedgerow and woodland habitat mosaic for a range of priority species (i.e. replicates the woodland edge interface in both cases). However, much of this land is agriculturally improved and hence of poor quality and many hedgerows managed inappropriately for biodiversity benefit. This is likely to result in long term significant change to the landscape where trees are gradually being lost from hedgerows and not replaced.

Objectives/opportunities

1. Protect, restore and enhance network of hedgerows.
2. Protect, restore and expand areas of woodland, especially adjacent to ancient woodland sites.
3. Enhance the ecological network of habitats, considering opportunities offered by gardens and Public Open Space in new developments.
4. Manage hedgerows to allow new tree growth to replace the dwindling number of trees in hedgerows.

Urban Areas

7.3.7 These cover a significant part of the district, especially in North Kirklees and along the main river valleys. Development has obviously greatly impacted upon natural habitats although some significant areas do still exist on the valley slopes. The characteristic habitat type will be dependent upon where the urban area falls within the above zones, which should influence priorities for habitat creation. Whilst it may be more difficult to do this in a meaningful way in built up areas, the existence of a semi-natural urban habitat network is a fundamental component of urban living which serves to improve quality of life of residents. This is a fundamental principle of green infrastructure.

Green Infrastructure Value: Quality of life issues including amelioration of pollution, flood risk management and active travel.

Connectivity Issues

- Ecological connectivity is much fragmented within urban areas.
- There is a need to reinforce existing semi-natural linear corridors, by making new links between isolated semi-natural sites, utilising greenways, green corridors, transport corridors, gardens, parks and other formal landscaped areas.
- There is need to utilise all above areas to ameliorate the impacts of the urban environment on biodiversity.

Objectives/opportunities

1. Restore the ecological networks and their functionality by creating an urban habitat network utilising the principles as set out in the NPPF and the 'Making Space for Nature' report.
2. Exploit opportunities for enhancement through the planning system, including those involving SuDS and floodplain habitats.
3. Exploit other opportunities for enhancement, especially community based projects.
4. Develop a different approach to the management of formal areas such as gardens and parks to enhance their role in improving the functionality of the ecological network.

Strategic Green Infrastructure Networks

8.1 Introduction

8.1.1 Natural England define green infrastructure as set out below:

"Green Infrastructure is a strategically planned and delivered network comprising the broadest range of high quality green spaces and other environmental features. It should be designed and managed as a multifunctional resource capable of delivering those ecological services and quality of life benefits required by the communities it serves and needed to underpin sustainability. Its design and management should also respect and enhance the character and distinctiveness of an area with regard to habitats and landscape types. Green infrastructure includes established green spaces and new sites and should thread through and surround the built environment and connect the urban environment to its wider rural hinterland. Consequently, it needs to be delivered at all spatial scales from sub-regional to local neighbourhood levels, accommodating both accessible natural green spaces within local communities and often much larger sites in the urban fringe and wider countryside."

Natural England Green Infrastructure Guidance, Natural England, 2009

8.1.2 Natural England, working with the Leeds City Region authorities, has developed a green infrastructure evidence base which includes the mapping and analysis of strategic green infrastructure across the Yorkshire and Humber Region. Although this work was collated to support the delivery of the green infrastructure policy in the Yorkshire & Humber Regional Strategy which has since been abolished, it still remains important for the consideration of green infrastructure issues within Kirklees. It provides a consistent approach to delivery of green infrastructure policies and in particular identifies strategic green infrastructure which runs across administrative boundaries.

8.1.3 The assessment follows a number of steps to map existing and potential green infrastructure sites and corridors and to establish a hierarchy of strategic green infrastructure based on the number of functions each corridor serves. The results show a network of regional, sub-regional and district corridors.

8.2 Methodology

8.2.1 Natural England used the following steps to create a regional data set for green infrastructure across the Yorkshire and Humber region:

Step 1: Mapping of existing physical green infrastructure assets

8.2.1 A baseline dataset of existing green infrastructure assets was created by pulling together GIS greenspace and green infrastructure data from Natural England and partner organisations. This covered sites already in existence such as open space, nature reserves and woodland. All available green infrastructure datasets were included. This asset database included data which covered the whole region and data which was only available at local level. This meant that there was both universal regionally consistent data and locally relevant data. All possible green infrastructure sites, with their exact location and boundaries were collected.

Step 2: Mapping sites with potential for introducing green infrastructure

8.2.2 Sites which did not constitute green infrastructure assets in themselves but might have potential to introduce it, such as derelict land, were collected and mapped. Additional data which helped with understanding the functions of green infrastructure, but was not site based (e.g. area health statistics), was also collected.

Step 3: Mapping of green infrastructure corridors

8.2.3 Natural England held joint workshops with participants from adjacent local authority areas to enable green infrastructure to be examined across administrative boundaries. The workshops included the relevant local authorities and organisations with a close interest such as Forestry Commission, Pennine Prospects, the Wildlife Trusts and Leeds City Region. The staff involved were from a wide variety of disciplines to reflect the multifunctional nature of green infrastructure including Greenspace/Parks & Countryside, Forward Planning, Forestry, Tourism, Nature Conservation/Ecology, Rights of Way, Sport and Recreation, Geographic Information and Historic Environment.

8.2.4 Participants at the workshops examined maps which included all the data collected from stages 1 and 2 and used their local knowledge of land use, land ownership, planning policy and local initiatives, to develop corridors and networks of green infrastructure. The functionality and connectivity between different green infrastructure assets was considered. Firstly in terms of how single functions of green infrastructure can be linked, for instance connecting public open space together into corridors. Secondly linking multifunctional assets together such as connecting a designated nature area, to a lake, a woodland, or a historic tourism site for example. Participants were also asked to consider realistic opportunities to increase green infrastructure based on known proposed initiatives such as major redevelopment schemes. Corridors

were defined on maps using physical boundaries on the ground such as roads and rail lines to define the edges and to ensure future legibility. These maps were then digitised and sent to the organisations involved at the workshops for them to check.

Step 4: Creating a hierarchy of corridors

8.2.5 A follow up workshop was held with participants to look again at the green infrastructure corridors they had defined in the first workshop to:

- Check the corridor boundaries
- Agree the green infrastructure functions that each corridor contained
- Place the green infrastructure corridors into a hierarchy.

8.2.6 Natural England examined various studies which included definitions of green infrastructure functions and agreed a list of fifteen functions to work with in the corridor analysis. These are listed below with key indicators:

- **Open space** – Contains open space assets such as parks and woodlands
- **Biodiversity** – Contains one or more site of significant wildlife value
- **Landscape** – Contains at least one landscape feature worthy of protection or enhancement
- **Products from the land** – Includes areas in agricultural or food production
- **Mitigating flood risk** – Contains floodplain, areas at risk from flooding or areas where green infrastructure could be used to reduce run off into flood risk areas
- **Contribution to mitigating climate change** – Contains areas which are, or could be, managed for non-flooding climate change mitigation through carbon sequestration in areas such as peatlands, managed woodlands or locations for energy crop production
- **Health** – Includes Air Quality Management Areas or locations with populations with poor health where green infrastructure can be used to increase outdoor activity or address pollution issues
- **Accessibility** – Contains rights of way allowing access by foot, cycle or horse riding along the corridor
- **Recreation** – Contains formal and informal outdoor recreational assets such as golf courses, play areas and sports pitches
- **Education** – Visitor centre or site already used for environmental education
- **Cultural** – Contains gardens, cemeteries, historic features or buildings with public access
- **Tourism** – Includes tourism assets which would form part of at least a day trip for people from outside the immediate area
- **Poor quality environment** – Contains existing poor quality environments which could be improved with investment in green infrastructure

- **Land and property values** – Areas where investment in green infrastructure would be likely to positively affect local land and property values
- **Economic growth** – Includes areas where development is proposed and increased green infrastructure is likely to attract further economic investment e.g. higher value industry

8.2.7 Participants considered each corridor in turn and agreed which functions were present. A strategic approach was taken and functions provided within the corridor had to be significant to be considered. Sites providing localised green infrastructure functions were not scored as having strategic functionality e.g. incidental open space. A category for each corridor was determined based on the number of functions present, the corridor size and local knowledge of initiatives and likely opportunities for interventions.

8.2.8 The corridor categories are given below:

- **Strategic/Regional** – Likely to cross several local authority boundaries and demonstrates 13 to 15 functions.
- **Sub-regional** – Likely to cross two or more local authority boundaries and has 10 to 13 functions.
- **District** – Likely to be contained within a single local authority or simply connect two localities across a boundary and demonstrates 8 to 11 functions.

8.2.9 The number of functions in each category overlaps i.e. a corridor scoring 11 functions could be both sub-regional and district. In the pilot work it was found that having an absolute number of functions for each category was too rigid. This was because a few corridors demonstrated a high number of functions but were too small in scale to be considered as being categorised at a higher level. In these cases these corridors were examined in great detail to place them in the right category, taking into account their scale and the degree to which each function was present.

Step 5: Corridor descriptions

8.2.10 In order to provide a robust evidence base justifying the functions identified in the corridors and the hierarchy of each corridor a table was developed which included:

- A description of each corridor explaining the main features and key future opportunities for green infrastructure
- Evidence against each function to justify its inclusion. For example if the biodiversity function had been identified then sites such as SSSIs were named.

8.3 Kirklees Strategic Green Infrastructure Networks

8.3.1 Using the above information the following strategic green infrastructure networks were identified in Kirklees and are shown in Figure 3:-

- The River Calder Corridor
- The River Dearne Corridor
- The River Colne Corridor
- The Spen Valley Corridor
- The Fenay Beck Corridor
- The Holme Valley Corridor
- The South Pennine Moor Special Protection Area/Special Area of Conservation

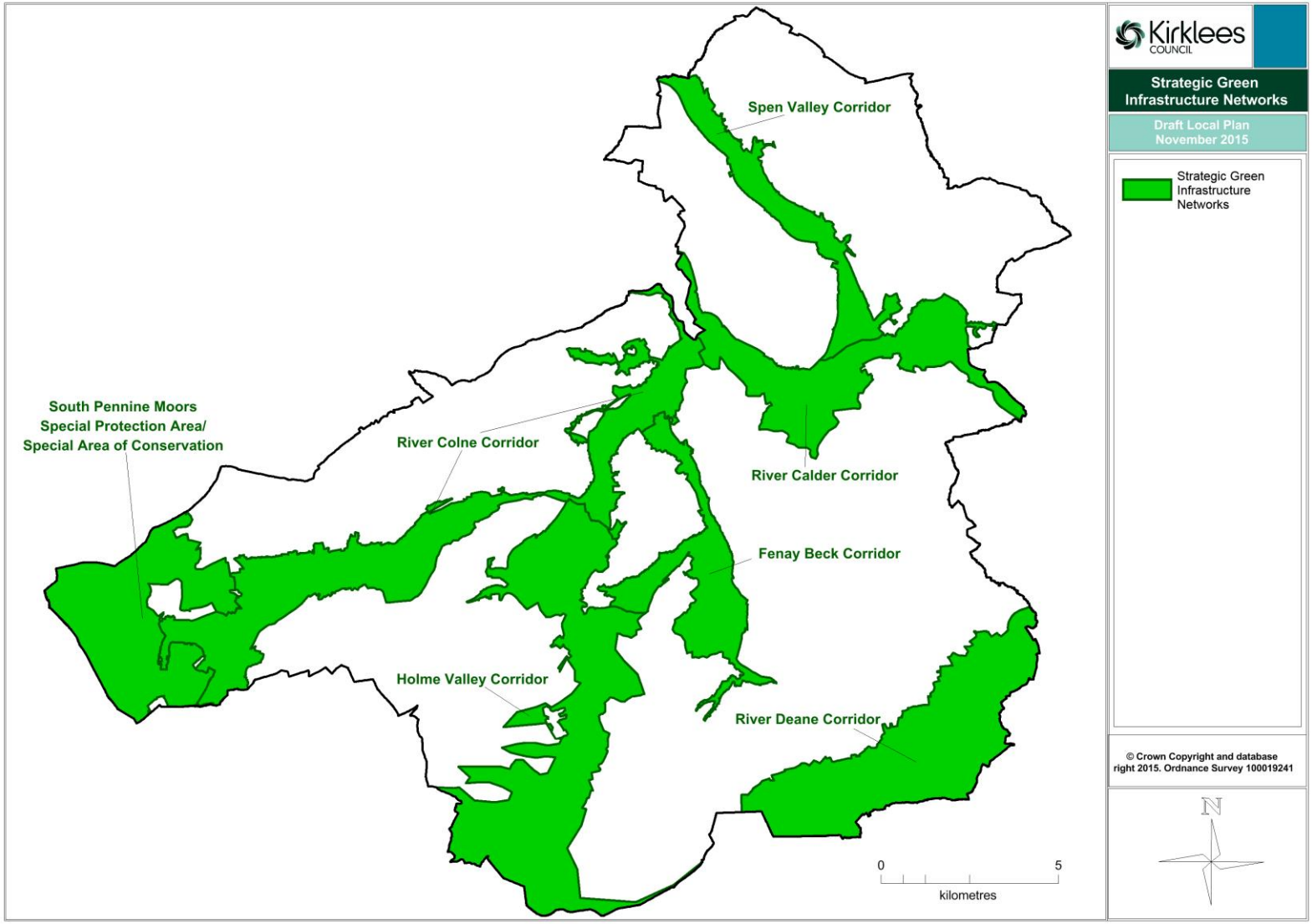
8.3.2 These networks of accessible greenspaces and natural habitats, which occur within and links the towns and villages function in different ways. They can provide multiple benefits for wildlife, people's health and well-being, local food production, timber production, mitigating climate change such as flood alleviation, and for the local economy by providing a high quality environment to help attract further economic investment.

8.3.3 The main river corridors of the Calder and Dearne are regionally important and function as key linkages which connect Kirklees with neighbouring local authorities. Flooding is an important issue within the Calder corridor and green infrastructure investment to provide new green spaces in the valley bottom would be beneficial in helping to ameliorate flooding. Vastly improving water quality is increasing biodiversity and recreation opportunities. Regeneration opportunities in South Dewsbury may provide new and improved green infrastructure.

8.3.4 The Spen Valley and Colne corridors are of sub-regional importance. The Spen Valley corridor links the Calder at Ravensthrope with the River Aire in Shipley. It includes the Spen Valley Greenway, Dewsbury Country Park and the River Spen. The main possibilities for green infrastructure in this corridor lie in urban regeneration and opportunities to increase and improve habitat networks for the benefit of wildlife. Water quality in the Colne corridor is improving with a related improvement in biodiversity.

8.3.5 The Fenay Beck and Holme Valley corridors have been identified as being of district significance. Woodlands are an important biodiversity resource and both have potential for greenway development dependent on funding and partnership working. There is potential to increase recreational use in the Holme Valley corridor.

Figure 3: Kirklees Strategic Green Infrastructure Networks



8.3.6 The council has also identified the South Pennine Moor Special Protection Area/ Special Area of Conservation as part of the strategic green infrastructure network in recognition of the international importance of this landscape and the significant green infrastructure functions this area performs.

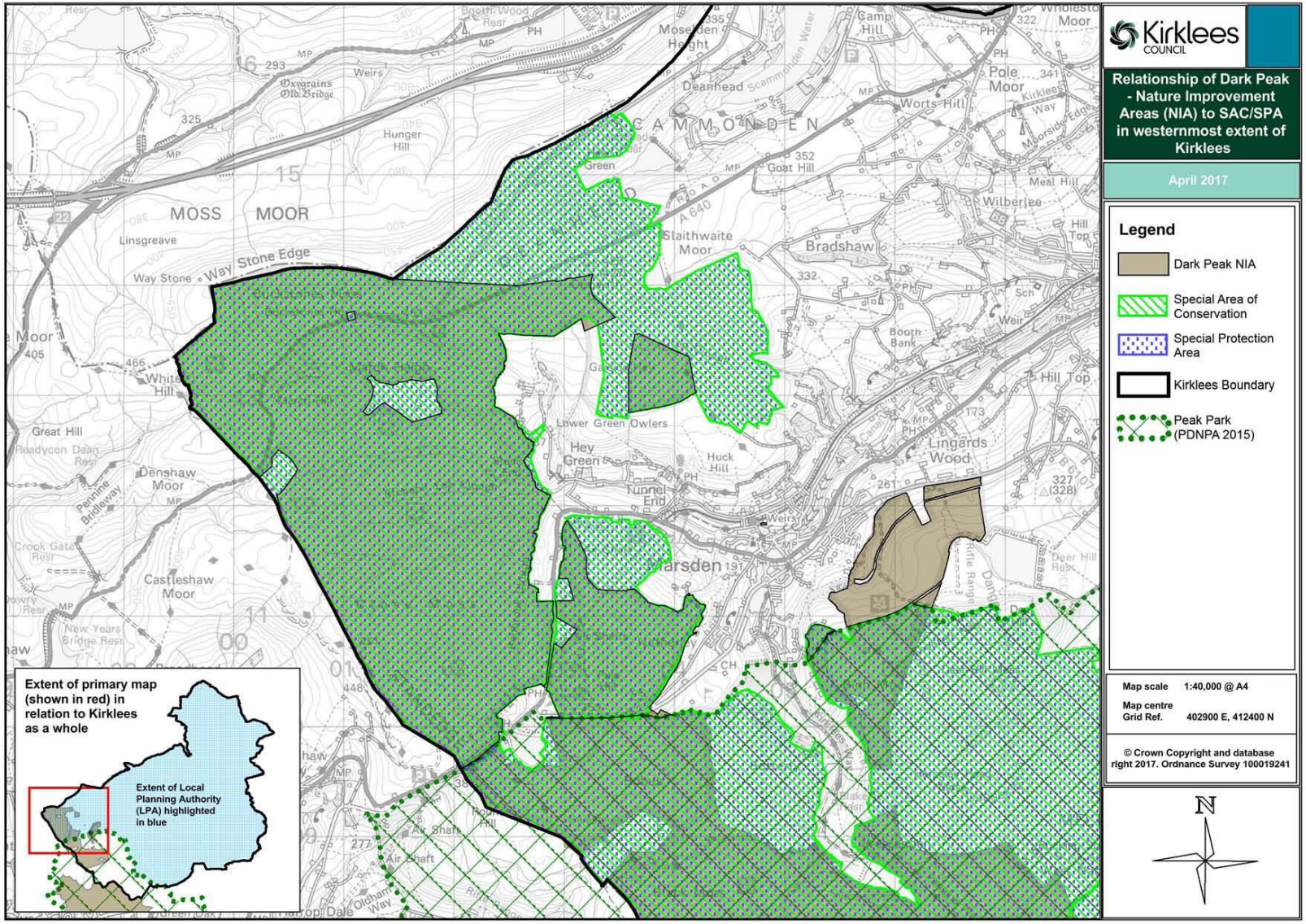
8.3.7 There are other significant areas of green infrastructure in Kirklees that are strategically important, including Oakwell Hall Country Park and Dewsbury Country Park. The council recognises the importance of these to local communities for recreation, education and wildlife conservation.

8.3.8 In locating new development, strategic green infrastructure networks should be carefully considered. Where there are good reasons for developing land within these areas, development will only be acceptable where measures are incorporated to retain or replace key features and functionality of networks. The council will seek to maximise opportunities for new and improved green infrastructure and connecting links into the network where opportunities exist.

9 Further Information:

- The Kirklees Biodiversity Strategy (available on the council's website)
- The Kirklees Biodiversity Action Plan (available on the council's website)
- Local Sites: Guidance on their identification, Selection and Management (Defra 2006)
- The West Yorkshire Local Site Selection Criteria (2016), West Yorkshire Local Sites Partnership, published by West Yorkshire Ecology
- Guidelines for the Identification and Selection of Local Geological Sites in West Yorkshire (2011), West Yorkshire Local Sites Partnership
- Yorkshire and the Humber Green Infrastructure Mapping Project (2010), Natural England

Appendix 1 Peak District National Park & Dark Peak Nature Improvement



Appendix 2 Accepted Local Wildlife Sites

Table 4: Accepted Local Wildlife Sites

Site Ref	Kirklees UDP (1999)	Site Address	Site Area (ha)	LWS Selection Criteria Met	Date Approved by West Yorkshire Local Sites Partnership
LWS1	SWS	Dogloitch Wood, Shaw Cross	6.18	Wd1	09/10/2014
LWS2	SWS	Dunn Wood, Dewsbury	5.34	Wd1	09/10/2014
LWS3	SWS	Scargill Wood, Woodkirk, Dewsbury	2.16	Wd1	25/02/2015
LWS4	SWS	Soothill Wood, Batley	1.97	Wd1	25/02/2015
LWS5	n/a	Cockleshaw Wood, East Bierley	2.31	Wd1, Wd3, Wd5	21/01/2016
LWS6a	n/a	Oakwell Park, Birstall	44.89	Vanl2, Mh2	25/02/2015 Extension 15/09/16
LWS7	SWS	Tong Moor, Birkenshaw	3.99	Vanl2	25/02/2015
LWS8	SWS	Hanging Wood, Cleckheaton	2.39	Wd1	25/02/2015
LWS10	n/a	Hunsworth Little Wood, Hunsworth	2.16	Wd3	21/01/2016
LWS11	n/a	Howroyd Beck Fields, Whitley Lower	2.77	Gr3, Gr5	18/10/2012
LWS12	SWS	Sparrow Wood, Thornhill Lees	3.58	Vanl2	25/02/2015
LWS13	SWS	Lower Spen Local Nature Reserve, Ravensthorpe	3.96	Vanl2	25/02/2015
LWS14	SWS	Briery Bank Wood, Lower Hopton, Mirfield	6.37	Wd5	20141009
LWS15	n/a	Covey Clough Wood, Mirfield	5.22	Wd5 Extension Wd3	25/02/2015 Extension 21/01/2016
LWS16	SWS	Gregory Spring Wood, Mirfield	19.52	Wd3, Wd5	24/07/2016
LWS17	SWS	Jordan Wood & Oliver Wood	10.53	Wd5	09/10/2014
LWS18	SWS	Liley Wood, Lower Hopton, Mirfield	16.87	Wd3, Wd5	24/07/2013
LWS19	SWS	Sunny Bank Ponds	0.16	Vanl2	25/02/2015
LWS20	SWS	Whitley Wood, Mirfield (includes Hagg Wood)	30.85	Wd5	09/10/2014
LWS21	n/a	Arkenley Lane, Almondbury	2.51	Gr3, Gr5	23/07/2015
LWS22	n/a	Castle Hill, Almondbury	9.89	Vanl2	25/02/2015
LWS23	SWS	Gawthorpe Lower Wood, Lepton	1.96	Wd5	09/10/2014
LWS24	SSI	Lepton Great Wood, Lepton	25.15	Wd1, Wd3, Wd5	21/01/2016
LWS26	SWS	Grimescar Wood, Birkby	24.32	Wd5	09/10/2014
LWS28	SWS	Dean Wood, Netherton	15.48	Wd3 & part Wd1	21/01/2016
LWS29	SWS	Delves Wood & Butter Nab Spring, Huddersfield	16.66	Wd3	21/01/2016
LWS30	SWS	Dalton Bank Local Nature Reserve, Dalton	20.07	Vanl2	25/02/2015
LWS31	SSI	Laneside Quarry, Kirkheaton	10.36	Ar2, Ar3	15/09/2016
LWS32	SSI	Huddersfield Broad Canal (Sir John Ramsden Canal), Huddersfield	7.04	Vanl1, Sw5	21/01/2016
LWS33	n/a	Round Wood, Tandem	4.86	Wd1	25/02/2015

Site Ref	Kirklees UDP (1999)	Site Address	Site Area (ha)	LWS Selection Criteria Met	Date Approved by West Yorkshire Local Sites Partnership
					Includes additional area previously LWS34 approved 21/01/2016
LWS35	n/a	Gledholt Woods Local Nature Reserve, Huddersfield	9.4	Vanl2	25/02/2015
LWS36	n/a	Long Hill Plantation, Lowerhouses	0.88	Wd5	21/01/2016
LWS37	SWS	Park Wood, Berry Brow	4.56	Wd3	21/01/2016
LWS38	SWS	Upper Park Wood Local Nature Reserve, Honley	3.34	Vanl2	09/10/2014
LWS39	SSI	Drop Clough, Marsden	8.94	Wd3, Gr4	21/01/2016
LWS41	SSI	Huddersfield Narrow Canal	11.39	Vanl1, Sw1	21/01/2016
LWS42	SSI	Low Westwood Pond, Linthwaite	0.1	Sw1	21/01/2016
LWS44	SWS	Shaw Wood, Outlane	3.46	Wd3, Wd5	09/10/2014
LWS45	n/a	Blacker Wood, Scissett	6.99	Wd3	21/01/2016
LWS46	n/a	Deffer Woods, Denby Dale	101.4	Wd3, Wd4	21/01/2016
LWS47	SSI	Denby Delph, Upper Denby	9.63	Gr3, Mh2	21/01/2016
LWS48	n/a	High Bridge Wood, Scissett	3.32	Wd5	21/01/2016
LWS49	SWS	Kirkby Wood, Flockton	4.61	Wd3	21/01/2016
LWS50	SWS	Lower Jane Well, Upper Cumberworth	0.99	Gr1, Gr3, Gr5	09/10/2014
LWS51	SWS	Park Gate Dyke, Skelmanthorpe	2.27	Gr1	09/10/2014
LWS52	n/a	Riding Wood, Clayton West	6.54	Wd1	25/02/2015 Includes additional area previously LWS53 approved 21/01/2016
LWS54	SSI	Turpin Hill, Upper Cumberworth	0.55	Gr1, Gr4	21/01/2016
LWS55	SWS	Bank Wood, Meltham	3.69	Wd3	21/01/2016
LWS56	SWS	Cliff Wood, Brockholes	6.64	Wd3, Wd5	24/07/2015
LWS57	SSI	Hagg Wood, Honley	19.77	Wd3	21/01/2016
LWS58	SWS	Hall Hayes Wood, Meltham	4.44	Wd1 Wd3 Wd5	25/02/2015 24/07/2015
LWS59	SSI	Hey Wood & West Wood, Farnley Tyas	26.76	Wd1	21/01/2016
LWS60	SSI	Honley Wood, Honley	66.74	Wd1, Wd3	21/01/2016
LWS61	n/a	Round Wood, Brockholes	2.79	Wd1, Wd3	21/01/2016
LWS62	SSI	Spring Wood, Honley	14	Wd1, Wd3, Wd6	18/07/2011
LWS63	n/a	Carr Green Meadows, Holmbridge	2.22	Gr1, Gr5	18/10/2012
LWS64	SSI	Digley Reservoir & Marsden Clough, Holmbridge	48 (12.81 in LPA)	Mh2	21/01/2016
LWS65	SSI	Holme House Grasslands, New Mill	0.68	Gr1 (mq5)	25/02/2015
LWS66	n/a	Holme House Wood, New Mill	3.67	Wd1	25/02/2015
LWS67	n/a	Holmroyd Wood, Netherthong	1.56	Wd1 Wd5	25/02/2015 Wd5 21/01/2016
LWS68	SWS	Malkin House Wood, Holmfirth	5.93	Wd3	09/10/2014
LWS69	SSI	Morton Wood, Hepworth	12.67	Wd1, Wd3	25/02/2015
LWS70	n/a	New Laith Fields, Holmbridge	10.77	Gr1, Gr3, Gr5	18/10/2012
LWS71	n/a	Raikes Wood, Hepworth	2.78	Wd3 Wd5	25/02/2015 21/01/2016
LWS72	SSI	Wild Boar Clough, Hade Edge	2.53	Gr4	21/01/2016

Site Ref	Kirklees UDP (1999)	Site Address	Site Area (ha)	LWS Selection Criteria Met	Date Approved by West Yorkshire Local Sites Partnership
LWS73	SSI	Yateholme Reservoirs & Plantations, Holme	291.5 (30.84 in LPA)	Wd3, Mh3, Fe4, Fe6, Mo1	21/01/2016
LWS74	n/a	Allen Wood, Shelley	2.34	Wd1, Wd3	21/01/2016
LWS75	n/a	Almondbury Common Woods, Almondbury	22	Wd1	22/01/2014
LWS76	n/a	Arthur Woods, Huddersfield	2.66	Wd1	22/01/2014
LWS77	n/a	Birks Wood, Stocksmoor	0.96	Wd5	24/07/2015
LWS78	n/a	Browns Knoll Meadows, Stocksmoor	10.47	Gr1, Gr3, Wd1, Wd5, Mh2	18/10/2012
LWS79	n/a	Carr Wood, Huddersfield	39.96	Wd3, Wd5	21/01/2016
LWS80	n/a	Clough Wood, Stocksmoor	2.71	Wd1	22/01/2014
LWS81	n/a	Gelder Wood, Kirkburton	2.34	Wd3	21/01/2016
LWS83	n/a	Hutchin Wood, Houses Hill, Huddersfield	2.22	Wd1, Wd5	21/01/2016
LWS84	n/a	Lumb House, Stocksmoor	3.13	Gr3. Gr4, Fe3	21/01/2016
LWS85	n/a	Molly Carr Wood, Kirkburton	6.15	Wd1	22/01/2014
LWS86	n/a	Roaf Woods, Kirkburton	3.54	Wd1	22/01/20142
LWS87	SWS	Shelley Wood, Shelley	15.28	Wd1, Wd3	21/01/2016
LWS88	n/a	Shepley Mill Wood, Shelley	3.16	Wd5	21/01/2016
LWS90	n/a	Thunderbridge Meadows, Thunderbridge	5.3	Gr3, Gr4	21/01/2016
LWS91	SSI	Upper & Lower Stones Wood, Shepley	31.99	Wd3, Wd1	25/02/2015
LWS92	SWS	Woodview Meadows (Range Dike), Farnley Tyas	6.41	Gr3, Gr4, Mh2	18/10/2012
LWS93	SWS	Yew Tree Wood, Shepley	5.88	Wd3, Vp3	09/10/2014
LWS114	n/a	Green Hill Clough, Marsden	6.88	Wd3	21/01/2016
LWS115	n/a	Hob Royd & Miry Greaves Shrogg, Denby Dale	3.66	Wd3	21/01/2016
LWS116	n/a	Bradley Wood, Bradley	1.36	Wd5	15/09/2016
LWS117	n/a	Park Hill, Bradley	0.51	Wd5	15/09/2016

The following Local Wildlife Sites are not shown on the Kirklees Local Plan as they are within the Peak District National Park and not within the Kirklees Local Planning Authority area.

Site Ref	Kirklees UDP (1999)	Site Address	Site Area (ha)	LWS Selection Criteria Met	Date Approved by West Yorkshire Local Sites Partnership
LWS40	n/a	Holme Bank Wood	0.77	Wd1	25/02/2015
LWS43	n/a	Naze Top Wood	1.57	Wd1	25/02/2015

Appendix 3 Rejected Local Wildlife Sites

Table 5: Rejected Local Wildlife Sites

Site Ref	Kirklees UDP (1999)	Site Address	Site Area (ha)	Reason
LWS25	n/a	Wakefield Road, Lepton	1.19	Site surveyed and assessed but does not meet the LWS selection criteria.
LWS27	n/a	Lower Fell Greave, Huddersfield	9.12	Site surveyed and assessed but does not meet the LWS selection criteria.
LWS82	n/a	Stocksmoor Grassland Site, Stocksmoor	3.24	Site surveyed and assessed but does not meet the LWS grassland criteria.
LWS89	n/a	Springs Wood, Skelmanthorpe	3.04	Site not surveyed as access permission not given.
LWS94	SWS	Bradley Golf Course, Bradley	0.89	Site surveyed and assessed but there is insufficient evidence of an established population of protected species to justify designation as a Local Wildlife Site.
LWS95	SWS	Clough House Lane Pond, Slaithwaite	0.75	Screened out as very unlikely to meet the LWS selection criteria.
LWS96	SWS	Mill Shaw Grove, Hepworth	1.21	Site surveyed and assessed but does not meet the LWS selection criteria.
LWS97	SWS	Oakcliff Hill Knoll, Denby Dale	2.14	Site surveyed and assessed but does not meet the LWS selection criteria.
LWS98	SWS	Wither Wood, Denby Dale	7.88	Site surveyed and assessed but does not meet the LWS selection criteria. Much of the woodland in plantation with relatively impoverished ground flora.
LWS99	SWS	Woodsome Lees, Farnley Tyas	3.01	Site surveyed and assessed but does not meet the LWS selection criteria.
LWS100	SSI	Blackmoorfoot Reservoir, Huddersfield	50.96	Data obtained from the Huddersfield Bird Watchers but the site does not meet any of the bird criteria.
LWS101	SSI	Holme Styes Heathland, Holmfirth	2.3	Screened out as very unlikely to meet the LWS selection criteria. Site is too small to meet heathland habitat criteria and presence of green hairstreak bufferfly is irrelevant to the LWS selection criteria.
LWS102	SWS	Dogley, Penistone Road, Kirkburton	2.32	Site surveyed and assessed but has no qualifying features to meet the LWS selection criteria.
LWS103	SWS	Smith Wood/Jenkinson Wood, Stocksmoor	17.82	Site surveyed and assessed but has no qualifying features to meet the LWS selection criteria.
LWS104	SWS	Boshaw Whams Reservoir, Hade Edge	5.91	Data obtained from the Huddersfield Bird Watchers but the site does not meet any of the bird criteria.
LWS105	SSI	Merry Dale Clough, Slaithwaite	8.99	Screened out as very unlikely to meet the LWS selection criteria. Main interest seems to be common amphibians and areas of plantation woodland.
LWS106	n/a	Disused Railway Line, Field Head Lane, Birstall, Batley,	3.32	Site put forward through the Draft Local Plan consultation. Site surveyed and assessed but does not qualify for LWS designation on its own merit. However, the site forms part of the wider Oakwell Park LWS unit which qualifies against criteria Mh2. As such, Oakwell Park LWS6a is proposed to be extended to include this site.

LWS107	n/a	Rusby Wood, Dearne Dike Lane, Birds Edge	3.58	Site put forward through the Draft Local Plan consultation. Site surveyed and assessed for LWS designation. Although the site has reasonable habitat quality, it does not meet the threshold for designation as a Local Wildlife Site.
LWS108	n/a	Round Wood at Appleton Quarry, Park Head Lane, Birds Edge	0.32	Site put forward through the Draft Local Plan consultation. The site is 0.32 hectares in size and as such falls below the size threshold for designation as a Local Wildlife Site.
LWS109	Urban Green space	Raikes Lane Open Space, Raikes Lane, Birstall	6.58	Site put forward through the Draft Local Plan consultation. Site surveyed and assessed but does not have any features which would meet the LWS selection criteria.
LWS110	Housing	Land adjacent, Raikes Lane, Birstall	2.35	Site put forward through the Draft Local Plan consultation. Site surveyed and assessed but does not have any features which would meet the LWS selection criteria.
LWS111	n/a	Healey Greave Meadow, Hawthorne Way, Shelley,	2.47	Site put forward through the Draft Local Plan consultation. Site was surveyed in 2015 but did not score sufficiently to meet the LWS selection criteria.
LWS113	Housing	Land off Lady Ann Road, Soothill, Batley,	1.08	Site put forward through the Draft Local Plan consultation. Site surveyed and assessed for LWS designation. However, there in insufficient evidence at this time to meet criteria M4 of the LWS selection criteria.

Note

UDP Designations:-

- SWS: Site of Wildlife Significance
- SSI: Site of Scientific Interest

Appendix 4 Summary of the West Yorkshire Local Site Selection Criteria Relevant to Kirklees Local Wildlife Sites

Table 6: Summary of West Yorkshire LWS Habitat Guidelines Relevant to Kirklees

Habitat	Criteria Reference	Primary habitat
Grassland	Gr1	Areas of semi-natural neutral and calcareous grasslands of at least 0.1 ha in size, or a road verge of at least 50m in length (area unquantified), that support stands of one or more of the following NVC community types: MG4 *Alopecurus pratensis-Sanguisorba officinalis* MG5 *Cynosurus cristatus-Centaurea nigra* MG8 *Cynosurus cristatus-Caltha palustris* CG2 Festuca ovina – Avenula pratensis CG3 Bromus erectus CG4 Brachypodium pinnatum CG5 Bromus erectus - Brachypodium pinnatum
	Gr3	Areas of long-established semi-natural neutral to calcareous grassland of at least 0.25 ha in size, or a road verge at least 50m in length, which lie outside of the Southern Magnesian Limestone Natural Area, scoring 8 or more from the neutral grassland plant species listed in Table 1*; the calcareous grassland species listed in Table 2*; or the acid grassland list in Table 3*.
	Gr4	a) Areas of lowland acid to neutral grassland typically below 250m of at least 0.25ha in size, or a road verge at least 50m in length, that score 8 or more from the acid grassland plant species list in Table 3*. or b) Areas of enclosed upland acid grassland typically above 250m, but below the moorland line, of at least 0.5ha in size, which score 12 or more from the combined acid and neutral grassland plants species lists in Table 1* and Table 3* and have less than 25% heath cover.
	Gr5	Areas of semi-natural grassland, which adjoin or lie within 500 metres of an existing grassland management unit of a Local Site or Site of Special Scientific Interest with grassland interest which meets the criteria in Gr1 to Gr4 above and have a score or size within 20% of the thresholds listed in the other Gr Guidelines.
Woodland	Wd1	Ancient semi-natural woodland of 0.5ha or more in size.
	Wd3	Woodland sites of 0.5ha or more that support field evidence of features of ancient or long standing woodland. Field evidence includes: (a) If it is an acidic woodland a score of 8 or more derived from the species listed on Table 4*.

		(b) If it is a neutral to calcareous woodland a score of 12 or more from the species listed in Table 5*. (c) If it is a wet woodland or scrub community a score of 10 or more derived from the species listed in Table 6*.
	Wd4	Areas of woodland that support: 80 or more species of native woodland vascular plants; or 8 or more species of fern; or 5 or more veteran or over mature trees.
	Wd5	Bluebell woodlands greater than 0.5 ha with a NVC random quadrat constancy for bluebell of III or over and a ground cover by bluebells of 40% or greater in at least 10% of the woodland area.
	Wd6	Semi-natural woodlands of 0.5 ha or more that have a score from Tables 4*, 5* or 6* within 20% of the thresholds for any of the different woodland types and which adjoins, or lies within half a kilometre of an existing woodland statutory designated site or Local Wildlife Site.
Fens, Lowland Mires, Springs & Flushes	Fe3	Rich-fen sites greater than 0.25ha scoring 10 or more from the species listed in Table 7*.
	Fe4	Poor-fen and lowland acid mire sites greater than 0.25ha scoring 8 or more from the species listed in Table 8*.
	Fe6	Any fen of 0.25ha or more that has a score from Tables 7 and/or 8* within 20% of the thresholds and which lies within 500m of an existing statutory designated site or Local Wildlife Site supporting an important fen community.
Standing Water	Sw1	A nutrient –rich standing water site that scores 10 or more from the species listed in Table 9* with at least one species recorded from each of two of the following habitat zones of submerged, floating and emergent/swap habitat.
	Sw5	Any standing water body which lies within 500m of an existing statutory designated or Local Wildlife Site supporting an important standing water community and which has a score from Tables 9 or 10* within 20% of the species diversity thresholds.
Mixed Habitat & Structural Mosaics	Mh2	Sites of 5ha or more in size that support a mosaic of the semi-natural habitats listed in Table 15 that collectively have a habitat diversity score of 12 or more.
	Mh3	Sites of 0.5ha or more in size that support features indicating high structural diversity within habitat types as shown in Table 16* and make a significant contribution to the local biodiversity value of the Natural Area in which they are situation.
Value for the Appreciation of Nature & Learning	Vanl1	Any site which meets 80% or more of the species or habitat diversity scores in any of the habitat selection guidelines, which has a significant value for the appreciation of nature and learning, and which is managed for nature conservation.
	Vanl2	Any site designated as a statutory Local Nature Reserve (LNR).

Upland Moorland	Mo1	Large areas of dry heath, wet heath or blanket bog habitat (typically represented by NVC type H8. H9, H10, H12, H18, M15, M16, M17, M18, M19, M20, M25), which either individually or in combination normally exceed 10 ha is size and form a coherent topographical unit.
Amphibians and Reptiles	AR2	Any site supporting a good population of Great Crested Newt (*Triturus cristatus*).
	AR3	Any site supporting an exceptional/large population of any amphibian.

**Table listed in the West Yorkshire Local Site Selection Criteria (2016)*

Table 7: Summary of Species Guidelines Relevant to Kirklees

Species	Criteria Reference	Primary Species
Vascular Plants	VP3	Any site that supports a population of a county rare species.

Appendix 5 Accepted Local Geological Sites

Table 8: Accepted Local Geological Sites

Site No.	Site Address	Site Size (ha)	Date Approved by West Yorkshire Local Sites Partnership
LGS1	Caulms Wood, Dewsbury	2.53	11/06/2011
LGS2	Castle Hill, Huddersfield	3.29	11/06/2011
LGS3	Lepton Great Wood, Lepton	1.13	18/10/2012
LGS4	Beaumont Park, Huddersfield	2.22	11/06/2011
LGS5	Johnson Wellfield Quarries, Huddersfield	0.31	11/06/2011
LGS6	Old Lindley Moor, Huddersfield	1.27	11/06/2011
LGS7	Butterley Cutting, Marsden (mostly in the Peak Park)	0.54	11/06/2011
LGS8	Pule Edge Quarry, Marsden	0.7	11/06/2011
LGS9	March Haigh and Buckstones, Huddersfield	46.26	11/06/2011
LGS10	Clough Head Quarry, Slaithwaite	0.15	11/06/2011
LGS11	Cliffe Woods Park Quarry, Clayton West	0.06	18/10/2012
LGS12	Longwood Edge Quarry, Huddersfield	0.41	11/06/2011
LGS13	Brockholes & Round Wood, Brockholes	0.45	11/06/2011
LGS14	Folly Dolly Falls, Meltham	0.32	11/06/2011
LGS15	Digley Quarries, Holmbridge	3.4	11/06/2011
LGS16	Scar Hole Quarry, Jackson Bridge	0.36	11/06/2011
LGS17	Burton Dene Quarry, Kirkburton	0.51	18/10/2012
LGS18	Hartley Bank Quarry, Thunderbridge	0.25	11/06/2011
LGS19	Upper & Lower Stone Woods, Stocksmoor	16.87	11/06/2011

Appendix 6 Kirklees Biodiversity Opportunity Zones: Tables

Tables: Habitats and Species of Principal Importance occurring within each Zone

These tables should be used in conjunction with the Biodiversity Opportunity Zones Map, available at www.kirklees.gov.uk/biodiversity

How to use the Tables:

- Each table represents one of the Biodiversity Opportunity Zones described in the accompanying document.
- Within each of these tables are the Habitats and Species of Principal Importance (identified through the UK Biodiversity Action Plan process) that occur within that particular zone.
- Cells coloured green indicates that the species feeds or breeds in that particular habitat. Cells coloured orange refer the user to the relevant Kirklees Species Action Plan (this is for species of particular concern or species with particular requirements).

Table 9: Uplands Biodiversity Opportunity Zone

Habitats and Species of Principal Importance occurring within the Uplands Biodiversity Opportunity Zone				
	HABITATS			
	Blanket Bog	Upland Flushes, Fens & Swamps	Upland Heathland	Upland Oak (also incl. Upland Mixed Ashwoods)
SPECIES				
Birds				
Common Linnet				
Red Grouse				
European Nightjar			Not thought to be present	
Common Cuckoo				
Yellowhammer				
Reed bunting			Wet heath	
Eurasian Curlew				
Black Grouse			No longer present - would require reintroduction	
Ring Ouzel				
Twite	See Twite Species Action Plan (Kirklees BAP)			
Reptiles & Amphibians				
Common Lizard				
Terrestrial Mammals				
West European Hedgehog				
Mountain Hare				
Brown Hare				
Water Vole	See Water Vole Species Action Plan (Kirklees BAP)			

Table 10: Mid-Altitudinal Grasslands

Habitats and Species of Principal Importance occurring within the Mid-Altitudinal Grasslands Biodiversity Opportunity Zone			
	HABITATS		
	Hay Meadows	Scrub	Other Semi-natural Grasslands
SPECIES			
Birds			
Skylark			
Common Linnet			
Yellow Wagtail			
Corn Crake	No longer present		
Common Cuckoo			
Yellowhammer			
Reed Bunting	Wet or marshy areas		Wet or marshy areas
Eurasian Curlew			
House Sparrow	Occurs around buildings		
Eurasian Tree Sparrow			
Grey Partridge			
Common Starling			
Northern Lapwing			
Twite	Only present adjacent to Upland zone. See Twite Species Action Plan (Kirklees BAP)		
Invertebrates			
Wall Brown Butterfly			
Terrestrial Mammals			
Bats			
West European Hedgehog			

Brown Hare			
Water Vole	See Water Vole Species Action Plan (Kirklees BAP)		

Table 11: Valley Slopes Biodiversity Opportunity Zone

Habitats and Species of Principal Importance occurring within the Valley Slopes Biodiversity Opportunity Zone							
	HABITATS						
	Inland Rock Outcrop & Scree Habitats	Lowland Dry Acid Grassland	Lowland Heathland	Lowland Mixed Deciduous Woodland	Upland Oak Woodland/ Upland Mixed Ashwoods	Wood Pasture and Parkland	Scrub
SPECIES							
Birds							
Common Linnet	■	■	■				■
Lesser Redpoll				■	■	■	■
Wood Warbler					■		
Hedge Accentor (Dunnock)				■	■	■	■
European Nightjar		Not thought to be present					
Tree Pipit			■				■
Hawfinch				■			
Common Cuckoo		■	■				■
Yellowhammer	■	■	■			■	■
House Sparrow	Occurs around buildings						
Spotted Flycatcher				■	■	■	
Willow Tit				■	■	■	■
Common Bullfinch				■	■	■	
Common Starling				■		■	■
Song Thrush				■	■	■	■
Twite	Only present adjacent to Upland zone. See Twite Species Action Plan (Kirklees BAP)						

Invertebrates							
Small Heath Butterfly							
Wall Brown Butterfly							
Northern Wood Ant	See Northern Wood Ant Species Action Plan (Kirklees BAP)						
Reptiles and Amphibians							
Common Toad							
Common Lizard		Not thought to be present					
Great-crested Newt	See Great-crested Newt Species Action Plan (Kirklees BAP)						
Terrestrial Mammals							
Bats	Possible roost sites						
Water Vole	See Water Vole Species Action Plan (Kirklees BAP)						
Otter	All habitats adjacent to or near waterbodies						
West European Hedgehog							
Brown Hare							

Table 12: Flood Plains and Riverine Biodiversity Opportunity Zone

Habitats and Species of Principal Importance occurring within the Flood Plains and Riverine Habitats Biodiversity Opportunity Zone							
	HABITATS						
	Open Mosaics on Previously Developed Land	Ponds	Reedbeds	Rivers	Wet Woodland	Scrub	Other Semi Natural Grassland (West/rush pasture, rough grassland)
SPECIES							
Birds							
Skylark							
Common Linnet							
Yellow Wagtail							
Common Grasshopper Warbler							
Hedge Accentor (Dunnock)							
Great Bittern			Not Present				
Common Cuckoo							
Reed Bunting							
Eurasian Curlew							
House Sparrow	Occurs around buildings						
Invertebrates							
Wall Brown Butterfly							
Aquatic Species							
European Eel				Fish passage generally blocked by weirs therefore few or			
River Lamprey							
Brook Lamprey							

Atlantic Salmon				none present			
Brown/Sea Trout							
White-clawed Crayfish	See White-clawed Crayfish Species Action Plan (Kirklees BAP)						
Reptiles and Amphibians							
Common Toad							
Terrestrial Mammals							
Bats							
Water Vole	See Water Vole Species Action Plan (Kirklees BAP)						
Otter	All habitats adjacent to or near waterbodies						
West European Hedgehog							
Brown Hare							
Plant Species							
Floating Water Plantain	See Floating Water Plantain Species Action Plan (Kirklees BAP)						

Table 13: Pennine Foothills Biodiversity Opportunity Zone

Habitats and Species of Principal Importance occuring within the Pennine Foothills Biodiversity Opportunity Zone									
	HABITATS								
	Arable Field Margins	Hedgerows	Hay Meadows	Lowland Mixed Deciduous Woodland	Ponds	Traditional Orchards	Wood Pasture and Parklands	Scrub	Other Semi-natural Grasslands
SPECIES									
Birds									
Skylark	Will nest away from trees & hedgerows								
Common Linnet									
Lesser Redpoll									
Corn Bunting	Probably no longer present								
Yellow Wagtail									
Common Grasshopper Warbler									
Hedge Accentor (Dunnock)									
European Nightjar				Not present					
Tree Pipit									
Hawfinch									
Common Cuckoo									
Yellowhammer									
Reed Bunting	Wet/marshy areas							Wet/marshy areas	
House Sparrow	Occurs around buildings								
Eurasian Tree Sparrow									
Spotted Flycatcher		Hedgerows with high structural diversity							
Willow Tit									

Grey Partridge									
Common Bullfinch									
European Turtle Dove	No longer present								
Common Starling				Nesting					
Song Thrush									
Northern Lapwing	Will nest away from trees & hedgerows								
Invertebrates									
White-letter Hairstreak Butterfly									
Wall Brown Butterfly									
Northern Wood Ant	See Northern Wood Ant Species Action Plan (Kirklees BAP)								
Reptiles and Amphibians									
Great-crested Newt	See Great-crested Newt Species Action Plan (Kirklees BAP)								
Common Toad									
Terrestrial Mammals									
Bats									
Water Vole	See Water Vole Species Action Plan (Kirklees BAP)								
Otter	All habitats adjacent to or near waterbodies								
West European Hedgehog									
Brown Hare									

Table 14: Urban Areas Biodiversity Opportunity Zone

Habitats and Species of Principal Importance occurring within the Urban Areas Biodiversity Opportunity Zone		
	HABITATS	
	Open Mosaics on Previously Developed Land (including gardens)	Ponds
SPECIES		
Birds		
Hedge Accentor (Dunnock)		
House Sparrow		
Common Bullfinch		
Common Starling		
Song Thrush		
Aquatic Species		
White-clawed Crayfish	See White-clawed Crayfish Species Action Plan	
Reptiles and Amphibians		
Common Toad		
Terrestrial Mammals		
Bats		
Water Voles	See Water Vole Species Action Plan	
Otter	All habitats adjacent to or near waterbodies	
West European Hedgehog		

Appendix 7 Definitions & Functions of the Kirklees Strategic Green Infrastructure Networks

R2 – Calder

The Calder corridor comprises both the River Calder and, linking with the North West region, the Rochdale Canal. Regionally important, it runs from Todmorden in the west to Castleford in the east where it joins the Aire. Passing Halifax, Dewsbury and Wakefield along its course, the corridor is relatively narrow, being largely contained within the steep sided valley, with wider sections – especially on meanders – taking in riverside greenspaces such as Cromwell Bottom, Atlas Mills and Clifton Lagoons which provide valuable refuges for wildlife. Running along the corridor, parallel to the river, is the Calder and Hebble navigation. This and the greenway along the towpath are important recreational features. British Waterways has plans to create a linear park alongside the canal. Flooding is an important issue within this corridor so green infrastructure investment may include providing new greenspaces in the valley bottom to help ameliorate flooding. There is potential within the floodplain for some wetland development. Vastly improving water quality is increasing biodiversity and recreation opportunities within the corridor. There is also potential for small scale hydro schemes. At Copley and Sowerby Bridge, regeneration initiatives will include flood alleviation and green infrastructure improvement. South Dewsbury has been identified as being in need of regeneration to support housing renewal and development together with new and improved green infrastructure. To the east of Wakefield, the valley offers scope for major greenspace improvements on the Parkhill, Welbeck, Ashfields and Southern Washlands sites: this is an important opportunity for Growth Point investment in green infrastructure.

Table 15: The Calder Corridor Functions & Indicators

Function	Indicator
Open space	Gargrave Village Green. Horse Close and Greatwood Recreation grounds, Skipton. Skipton Wood. Aireville Park. Glusburn Park. Sutton Park. Vicki Cartman Millennium Green. Alder Carr Wood. Holden Park. Victoria Park. St Ives Estate. Gilstead Moor Edge. Prince of Wales Park. Myrtle Park. Roberts Park. Hirst Wood. Baildon Green. Marstons Nature Reserve. Buck Woods. Spring Woods. Calverley Wood. Kirkstall Valley. Bramley Fall. Gott's Park. Rothwell Country Park. Swillington Park. Chapel Haddlesey Doorstep Green. Beast Fair Amenity Land. Saffron Garth. Brierley Close Amenity Land.
Biodiversity	Malham Tarn NNR & Ramsar. Craven Limestone Complex SAC. Malham Arncliffe SSSI. Haw Crag Quarry SSSI. Bingley South Bog SSSI. Trench Meadows SSSI. Leeds-Liverpool Canal SEGI/SSSI. Rodley Nature Reserve. Mickletown Ings SSSI. Townclose Hills SSSI & LNR. Letchmire Pastures LNR. Fairburn & Newton Ings SSSI. Fairburn Ings LNR. Skipton Wood SINC. Bradford Wildlife Areas (third tier sites) at Holden Beck, Low Wood, Elam Wood, Beechcliffe Ox Bow Lake, Stockbridge Nature Reserve, Riddlesden Hospital site, Marley Sewage Works, Hollin Plantation, Prince of Wales Park, Dowley Gap Sewage works, Rye Loaf Hill, Nab Wood, Milnerfields, Baildon Green, Thackley Wood, Marstons Nature Reserve, Tong Park, St Leonards Esholt, Lamb Springs, Nan Wood, Langholme, Buck Wood, Spring Wood , Gill Wood, Millman Bridge Ox Bow and West Wood. Beechcliffe Ings SEGI. Marley Bog SEGI. Hirst Wood SEGI. Tong Park SEGI. Willow Garths Nature Reserve, Knottingley. Many BAP habitats including Blanket Bog, Lowland Calcareous Grassland, Upland Calcareous Grassland, Deciduous Woodland, Upland Heath, Coastal & Floodplain Grazing Marsh, Purple Moor Grass and Rush Pasture, Fen and Reedbed. Many areas of ancient woodland. Large site at St Aidans where open cast mining is being remediated to create new wildlife habitats. Various UKBAP species such as otter, brown trout, salmon and european eel. These all require installation of fish

	passes or removal of weirs to enhance the watercourse. Leeds City Council is encouraging fish passes on weirs for this purpose.
Landscape	Area around Malham. Saltaire WHS. Wooded areas around Newlay and Rodley. The setting of Kirkstall Abbey and the wetlands of the Lower Aire Valley. Carlton Marsh and Ings at Eggbrough.
Products from the land	Agricultural land throughout the corridor – especially west of Keighley and east of Knottingley. Allotments at Skipton, Cononley, Glusburn, Sutton-in-Craven, Low Utley, Riddlesden, Crossflatts, Bingley, Cottingley, Baildon, Kirkstall, Great Preston, Kippax and Allerton Bywater.
Flood risk	Flooding is an issue along the whole corridor – especially in built up areas where river flow is restricted. Undeveloped valley bottom provides washland function in many areas. Potential for wetland creation/restoration to retain flood water and reduce flooding down the catchment.
Climate Change	Potential to use biomass at Eggborough and Ferrybridge power stations. Many areas of woodland which could be managed for fuel and/or carbon sequestration. Several areas of peatland which could be managed for carbon sequestration. Opportunities to link grey and green infrastructure with potential hydropower on weirs.
Health	Areas of poor health in Skipton, Keighley, north Bradford, east Leeds, Castleford, Knottingley and the south of Selby district.
Accessibility	National Cycle Routes 62, 66, 67, 68 and 69. Trans Pennine Trail. Pennine Way. Yorkshire Dales Cycleway. West Yorkshire Cycle Route. Airedale Greenway. Airedale Way. Millennium Way. Leeds Country Way. Leeds Liverpool Canal Towpath. Many other footpaths and bridleways
Recreation	Skipton Golf Course and Aireville Park Pitch and Putt. Keighley Golf Course. Riddlesden Golf Course. Fardew Golf Club – Riddlesden. Rawdon Golf Course. Camblesforth Golf Course. Sports pitches at Gargrave, Skipton, Carleton, Cononley, Crossflatts, Keighley, Riddlesden, Shipley, Esholt, Apperley Bridge, Bramley, Kirkstall, Armley, Allerton Bywater, Fairburn and Brotherton. Football grounds at Gargrave, Skipton, Glusburn, Silsden, Aireworth, Saltaire, Woodlesford, Brotherton and Beal. Cricket grounds at Gargrave, Skipton, Glusburn, Sutton, Silsden, Stockbridge, Riddlesden, Bingley, Cottingley, Saltaire, Shipley, Rodley, Allerton Bywater and Carlton. Rugby grounds at Skipton, Keighley, Cottingley and Kirkstall. Promoted access routes. Open Access land at Rombalds Moor, east of Skipton. Fishing in Aire and along canal.
Education	Malham Tarn Field Centre. North Yorkshire County Council „Stepping Stones 2" project nurseries (Aireville Park). St Leonard's Farm Park, Esholt. ND Marstons Nature Reserve, Baildon. Rodley Nature Reserve. Skelton Grange Environment Centre. Fairburn Ings.
Cultural	Saltaire World Heritage Site. Medieval Monastic Wayside Cross Base SM. Settlement on Prior Rakes SM. Enclosure & hut Circles on Prior Rakes SM. Rectangular House Sites on Malham Ings SM. Farm sites on Malham Lings SM. Sheriff Hill Round Cairn SM. Lynchets N of Malham village SM. Lower Colgarth Hill Round Cairn SM. Roman Villa at Kirk Sink SM. Park Hill Earthwork SM. Subcircular Enclosed Settlement on Horse Close SM. Black Hill Round Cairn SM. Kildwick Bridge SM. Ore Hearth Smeltmill and Wood Drying Kiln in Lume Clough Wood SM. Late Prehistoric Enclosed Settlement in Crosley Wood SM. Cup Marked Rock in Calverley Wood SM. Kirkstall Abbey & Precinct SM. Length of Grim's Ditch SM. Fairburn Ings (Newton Abbey) Moat SM. Ferrybridge near Knottingley SM. Roman Fort at Kellington SM. Castle Hill Moated Site SM. Skipton Castle. East Riddlesden Hall. Leeds-Liverpool Canal. Armley Mills. Thwaite Mills. Cowick Hall. Conservation Areas at Gargrave, Skipton, Bradley, Cowling, Kildwick, Farnhill, Sutton, Utley, Bingley, Snaith and Rawcliffe.
Tourism	Malham. Skipton. Leeds-Liverpool Canal. Saltaire WHS. Kirkstall Abbey. Armley Mills. Royal Armouries. Thwaite Mills. Fairburn Ings.

Poor Quality Environments	Airedale Masterplan provides opportunities to improve industrial areas as part of the regeneration of the valley. Lower Aire Valley Project (Leeds – Castleford) is remediating ex-industrial mining areas to create new greenspaces in the Aire Valley. Industrial areas surrounding power stations at Eggborough and Drax.
Land/Property Values	Lower Aire Valley Project (Leeds – Castleford) regeneration of the area will increase the desirability of the area.
Economic Growth	Renaissance Market Town initiative in Skipton. Skipton Investment Corridor. Skipton Town Centre Business Improvement District. Installation of fish passes would increase angling potential on the river, as salmon and trout have been found on the Aire upstream of Leeds and Bradford. Airedale Masterplan regards the Aire corridor in north Bradford district as major focus for economic growth. Urban Eco Settlement proposals to create jobs and homes in the Aire Valley in the future.

R4 The River Dearne Corridor

The Dearne corridor starts as the fields and greenspaces around the headwaters of the river in Kirklees. It connects Denby Dale, Clayton West, Barnsley, Darfield, Bolton upon Dearne, Wath upon Dearne and Mexborough before joining the Don corridor at Conisbrough, near Doncaster. Regionally significant, it provides green infrastructure linkages through Barnsley and the Dearne Towns area. The corridor encompasses a number of important sites including the Yorkshire Sculpture Park, Dearne Valley Country Park, Monk Bretton Priory and the RSPB Wetland Centre at Old Moor. In the south of the corridor, a variety of projects are being undertaken to regenerate the area following the decline of the mining industry and to improve the environment including the Dearne Valley Eco-Vision, which sees a quality natural setting as key to economic and social progress, and the Dearne Valley Green Heart Project. Delivery of these projects will provide a model for achievement on other waterway corridors in terms of the proposals and partnership delivery models. This area has received considerable investment over recent years and is still a focus for developer interest. Opportunities include addressing accessible greenspace deficit, landscape and historic environment enhancement, biomass production and flood management opportunities.

Table 15 The River Dearne Corridor Functions & Indicators

Function	Indicator
Open space	Longfields Doorstep Green. Clayton West Millennium Green. Cliffe Wood Park. Yorkshire Sculpture Park. Dearne Valley Park. Brooklands Park. Melton Park.
Biodiversity	Part of Denaby Ings SSSI. Bretton Country Park LNR. Dearne Valley Park LNR. Turpin Hill SSI. Denby Delf SSI. Upper Dearne Woods. Wither Wood Site of Wildlife Significance. RSPB Old Moor Wetland Centre. Manvers Lake & Nature Trail. Cadeby Riddings. Melton Park. BAP habitats including Deciduous Woodland, Lowland Dry Acid Grassland and Coastal & Floodplain Grazing Marsh.
Landscape	Moorland fringe around Upper Cumberworth. Wooded landscape of Upper Dearne woodlands. Bagden Hall Park. Yorkshire Sculpture Park is set in a Capability Brown landscaped parkland. The landscape of much of the Dearne Valley has been considerably changed in recent years through reclamation from a history of intensive industry and redevelopment. The resulting landscape is in good condition and should be maintained – an example being the landscape around the restored Manvers Quarry. The River Dearne itself provides a significant feature.
Products from the land	Agricultural land throughout the corridor
Flood risk	Flooding is an issue along the whole river with several urban areas at risk from flooding. There is potential to use green infrastructure to reduce the effects of flooding by minimising flood run off and slowing water through the catchment.
Climate Change	Large areas of woodland could be managed for fuel and/or carbon sequestration. Opportunities to increase the area of energy crops within the corridor.
Health	Areas of poor health throughout the corridor – especially north of Barnsley town centre, Darfield and Bolton upon Dearne. M1 corridor is an Air Quality Management Area.
Accessibility	Dearne Way. Kirklees Way. Barnsley Boundary Walk. Trans Pennine Trail. National Cycle Network routes 62 and 67. West Yorkshire Cycle Route. Numerous other footpaths, bridleways and cycleways connecting along and across the corridor.
Recreation	Cricket Grounds at Denby Dale, Clayton West, Kexbrough, Darfield and Adwick upon Dearne. Playing Fields at Clayton West, Barnsley, Darfield and Wath upon Dearne. Recreation Grounds at Clayton West and Darton. Sports Ground in Barnsley. Manvers Golf Course. Wath Manvers Lake British Canoe Union Centre. Promoted access routes.
Education	Dearne Valley Park. Bretton Country Park. RSPB Old Moor Wetland Centre.
Cultural	Monk Bretton Priory. Yorkshire Sculpture Park. East Gawber Hall Colliery Tanhouse SM.

Tourism	Kirklees Light Railway. Yorkshire Sculpture Park. Monk Bretton Priory. Old Moor Wetland Centre.
Poor Quality Environments	The collapse of coal mining and its associated industries in the 1980‟s led to large scale dereliction, unemployment and social problems. Parts of the Dearne Valley have benefited from City Challenge Funding, derelict land grants as well as other funding from Central Government and The European Union. It was designated as an Enterprise Zone in 1995; and the Dearne Valley Strategic Economic Zone under the EU Objective 1 programme of funding in 2000. Building upon these foundations, Dearne Valley Eco-Vision and Dearne Valley Green Heart projects are both improving the landscape and environmental quality of brownfield land left over from coal mining.
Land/Property Values	The allocation of suitable land for new economic development was the key ingredient in the adopted Unitary Development Plan (1999) regeneration strategy. Complementary policies and proposals in the UDP were intended to ensure the provision of supporting infrastructure, an attractive environment, good housing and a wide range of shopping, social and community facilities. In taking these ambitions forward, Dearne Valley Eco-Vision and Dearne Valley Green Heart projects are increasing the desirability of the area which is resulting in increasing house prices.
Economic Growth	Potential for local business growth due to concentration of businesses in Denby Dale, Clayton West and Scissett and good motorway links. Strategic Employment Area identified at Clayton West. The sites created as a result of the reclamation of derelict and despoiled land, were well located in relation to transport links and most importantly well located in relation to the communities where unemployment problems were greatest. Dearne Valley Eco-Vision and Dearne Valley Green Heart projects are, in improving the environment of the area, increasing the desirability of the area which is resulting in new investment in the area

S6 - Colne

The sub-regional Colne corridor runs from the edge of the moors above Marsden. Here it follows the steep-sided and narrow valley through Slaithwaite and Linthwaite, broadening into a flood plain below Huddersfield and joining the Calder to the east. The headwaters are an important water resource consisting of a network of reservoirs. The Upper Colne is dominated by architecture from the heyday of the textile industry. The parallel canal system is designated as a SSI for the important range of aquatic and emergent species that it supports as well as being a cross-Pennine link with recreational opportunities. Water quality within the corridor is improving with a related improvement in biodiversity. This corridor has a good mosaic of habitats supporting 8 species of bat along the valley and for Twite in the upper reaches. The flood plain below Huddersfield has been largely developed for industrial use and now forms part of the Kirklees Strategic Economic Zone.

Table 16: The Colne Corridor Functions & Indicators

Function	Indicator
Open space	Marsden Park. Slaithwaite Spa Park. Coronation Park.
Biodiversity	South Pennine Moors SPA. Park Clough SSSI. Dalton Bank LNR. Drop Clough SSI. Merrydale Clough SSI. Huddersfield Canal SSI. Lowestwood Pond SSI.
Landscape	Steep valley slopes supporting upland farming with a patchwork of small pasture fields. Canals, packhorse trails and historic villages form a strong cultural landscape.
Flood risk	Most of the floodplain east of Huddersfield has been developed for industrial use. It is important to protect these areas from flooding. Managing run off and controlling flow through the valley would reduce severity of flooding.
Health	Areas of relative poor health north east of Huddersfield.
Accessibility	National Cycle Network Route 66. West Yorkshire Cycle Route. Kirklees Way. Colne Valley Circular Walk. Station to Station Walk. Standedge Trail.
Recreation	Marsden Golf Course. Longley Park Golf Course. Cricket Grounds in Slaithwaite, Linthwaite and Huddersfield. Playing fields in Slaithwaite, Linthwaite, Milnsbridge and at Leeds Road. Promoted access routes.
Education	Standedge Visitor Centre.
Cultural	Close Gate Bridge SM. Turn Bridge Quay Street SM. Conservation Areas in Marsden, Slaithwaite, Golcar, Wellhouse, Clough and Milnsbridge.
Tourism	Standedge Tunnel. Huddersfield Narrow Canal, Marsden & Slaithwaite. Galpharm Stadium. Huddersfield Broad Canal. Pennine walking. Industrial heritage throughout the valley.
Poor Quality Environments	Many opportunities in the area to improve environmental quality – particularly in the Kirklees Strategic Economic Zone where large scale regeneration aims to improve landscape, air quality and sustainable transport linkages to residential areas to attract investment.
Land/Property Values	Environmental, landscaping and sustainable transport improvements carried out as part of the Kirklees Strategic Economic Zone regeneration are likely to positively affect property values in the area.
Economic Growth	Marsden and Slaithwaite are benefiting from regeneration activity as part of Yorkshire Forward's Renaissance Market Town Programme. Strategic Employment Areas identified in Marsden and Slaithwaite. Kirklees Strategic Economic Zone will be regenerated with opportunities to improve environmental quality and appearance of the area. This will encourage new investment in the area.

S26 Spen Valley Greenway & Canal Road

This corridor forms a sub regionally important link between the Calder at Ravensthorpe to the south and the Aire at Shipley to the north, passing through central Bradford. National Cycle Network Route 66 provides the spine of the corridor, as it runs parallel to Canal Road and then becomes the Spen Valley Greenway – which runs along a disused railway line with cuttings and embankments forming a linear greenspace. North of Bradford the corridor contains the proposed Bradford Canal extension which will link the Leeds-Liverpool Canal at Shipley with central Bradford. This will be a major regeneration initiative with significant potential to improve green infrastructure. Within Bradford, a project to regenerate the city centre by creating a new park will provide an important link in the corridor where there is currently little greenspace. South of Bradford, the corridor is characterised by a mix of industry, farmland and residential land uses. This part of the corridor contains Bradford's only Local Nature Reserve at Railway Terrace – part of a network of greenspaces linked by the Spen Valley Greenway. At the very south of the corridor is an extensive former landfill site – now remediated to be a country park. Poor water quality is a problem here but should be improved by the imminent closure of the adjacent sewage treatment works. This will have a positive impact on biodiversity in the area. The main possibilities for green infrastructure in this corridor lie in urban regeneration. There are also opportunities to increase and improve habitat networks for the benefit of wildlife.

Table 18: The Spen Valley Greenway & Colne Road Corridor Functions & Indicators

Function	Indicator
Open space	Undercliffe Cemetery. Peel Park. Lister Park. Boars Well Nature Reserve. Bowling Park. Railway Terrace LNR. Toad Holes Beck. Victoria Park. Moor End Recreation Ground. Spen Bottoms Recreation Ground. Cleckheaton Memorial Park. Millbridge Park. Green Park. Firth Park. Cawley Lane Recreation Ground. Crow Nest Park. Field Lane Allotments. Dewsbury Cemetery. Crawshaw Park. Holroyd Park.
Biodiversity	Railway Terrace LNR. Lower Spen Wildlife Area LNR. Boars Well. Toad Holes Beck. Multiple Deciduous Woodland BAP sites in Bradford.
Products from the land	Agricultural land within the corridor – mainly within Kirklees.
Flood risk	Canal Road is prone to flooding. Parts of the area adjacent the River Spen are high risk flood areas. Controlling surface drainage and floodwater in this corridor is therefore important. This could be achieved with green infrastructure.
Health	Canal Road, parts of south Bradford, Liversedge, Heckmondwike and Dewsbury have poor health. Air Quality Management Area at Scout Hill, Dewsbury.
Accessibility	National Cycle Network Route 66. Spen Valley Greenway. Spen Ringway. Numerous footpaths and bridleways within the corridor.
Recreation	South Bradford Golf Club. Cleckheaton & District Golf Club. Playing fields at Shipley, Frizinghall, East Bowling, Bierley and Oakenshaw. Rugby grounds at Cleckheaton, Liversedge and Dewsbury Moor. Football grounds at Cleckheaton and Norristhorpe. Promoted access routes.
Education	Safe routes to school on Spen Ringway, Liversedge to Heckmondwike.
Cultural	Conservation Areas in Manningham/Frizinghall and Bradford city centre. Bradford (Undercliffe) and Bowling Cemeteries.
Tourism	National Media Museum, Peace Museum, Colour Museum, Lister Park. Spen Valley Greenway.
Poor Quality Environments	Opportunities exist throughout the corridor, within older housing and industrial areas, to improve environmental quality through regeneration initiatives. Urban deprivation in central wards of Bradford suggests a particular demand for environmental quality to be

	improved.
Land/Property Values	Potential regeneration within the Canal Road area through both the Bradford Canal project and proposed eco town developments. Regeneration opportunities exist throughout the corridor in older housing and industrial areas where there may be potential to improve the attractiveness of the area and increase property values.
Economic Growth	Canal Road corridor – potential regeneration focus for both the Bradford Canal project and eco town proposals. Potential to capitalise on the corridor's strategic location to benefit from economic opportunities arising from the Leeds City Region. Strategic Employment Area identified around M606 in south Bradford and junction 26 of the M62 motorway at Cleckheaton.

D29 Fenay Beck

Fenay Beck rises in the rolling pastoral countryside of Kirkburton ward. Of district importance, the corridor is characterised by farmland (including significant areas of attractive estate land), woodland and villages. These have been greatly added to by modern housing development in the latter 20th century. Its biodiversity interest lies in the network of hedgerows, woodlands and, where they still exist, species-rich grasslands. In the lower reaches, where there is an identifiable floodplain with potential for wetland development, it is increasingly residential, until finally, as it joins the River Colne in Huddersfield, the Beck itself is culverted under extensive industrial premises within the Kirklees Strategic Economic Zone. Potential for greenway development has been identified but is dependent upon funding and partnership working.

Table 19: The Fenay Beck Corridor Functions & Indicators

Function	Indicator
Open space	Woodsome Hall Golf Course. Disused Kirkburton rail corridor.
Biodiversity	Upper & Lowers Stones Wood SSI. Hartley Bank Quarry SSI. Myers Wood. BAP habitats including Deciduous Woodland. Networks of hedges connecting ancient woodland and grassland.
Products from the land	Agricultural land in the corridor – mainly to the south.
Flood risk	Flooding is an issue at the confluence of the Fenay Beck with the River Colne. As this area is heavily developed, it is important to protect these areas from flooding. Reducing run off and controlling flow within the Holme would reduce the severity of flooding.
Climate Change	Large areas of woodland which could be managed for fuel and/or carbon sequestration.
Health	North of the corridor is an area of relative poor health and low sports participation.
Accessibility	Network of many footpaths within the corridor.
Recreation	Woodsome Hall Golf Course.
Poor Quality Environments	Opportunities to improve environmental quality in the north of the corridor as part of the Kirklees Strategic Economic Zone and new housing development.
Land/Property Values	Opportunities to improve environmental quality in the north of the corridor as part of the Kirklees Strategic Economic Zone and new housing development are likely to affect property values in the area.

D40 – Holme Valley

The Holme Valley corridor connects important blanket bog habitat above Holmbridge and the moorland above Hepworth through steep-sided, narrow valleys converging at Holmfirth. Passing northwards to Honley and onwards to Huddersfield, it joins the Colne south of Huddersfield Town Centre. The headwaters are an important water resource consisting of a network of reservoirs. Valley sides are heavily wooded, incorporating settlements characterised by a mix of both cottage and textile industry buildings. The woodlands and upland habitats are important biodiversity resources. Identified potential for greenway development is dependent upon partnership work with private landowners. There is potential to increase the recreational use of the area. This corridor is of district significance.

Table 20: The Holme Valley Corridor Functions & Indicators

Function	Indicator
Open space	Beaumont Park. Upper Park Wood. Digley, Yateholme and Ramsden Reservoirs.
Biodiversity	Rake Dike SSSI. Honley Station Cutting SSSI. Upper Park Wood LNR. Deciduous Woodland, Upland Heath, Lowland Dry Acid Grassland and Rush Pasture BAP habitats.
Landscape	Castle Hill is a particularly visible feature within the corridor with historic and cultural associations.
Products from the land	Agricultural land within the corridor – especially to the south.
Flood risk	Flooding is an issue at the confluence of the River Holme with the River Colne. As this area is largely developed, it is important to protect these areas from flooding. Reducing run off and controlling flow within the Holme would reduce the severity of flooding.
Climate Change	Many areas of woodland within the corridor that could be managed for fuel and/or carbon sequestration.
Recreation	Playing fields, cricket grounds and recreation ground throughout the corridor. Variety of walking and cycling routes.
Cultural	Old Bull Ring late prehistoric settlement SM, Castle Hill SM, Conservation areas in Hinchcliffe, Hepworth, Holmfirth, Honley.
Tourism	Holmfirth is an important centre for tourism based on its setting for the television series "Last of the Summer Wine". Last of the Summer Wine Museum. Variety of walking and cycling routes.
Economic Growth	Potential for growth in local businesses/investors and visitors based on attractiveness of the place and countryside recreation activities.