



Colne Valley
Regional Park
Panel



HIGH SPEED 2: ADDITIONAL MITIGATION PLAN FOR THE COLNE VALLEY

October 2017

This Plan represents the input and collective decision of the HS2 Colne Valley Regional Park Panel, upon which sit the following organisations:

- Colne Valley Park Community Interest Company (CIC)
- London Borough of Hillingdon
- South Bucks District Council
- Chiltern District Council
- Three Rivers District Council
- Hertfordshire County Council
- Buckinghamshire County Council
- Natural England
- Environment Agency
- Herts and Middlesex Wildlife Trust
- London Wildlife Trust
- Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
- Canal and River Trust
- High Speed 2 Limited (HS2 Ltd)
- Department for Transport.

This document has been prepared and checked in accordance with ISO 9001:2008.

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Broadwater Lake, Mid Colne Valley SSSI



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1.0 INTRODUCTION

1.1 INTRODUCTION

The Colne Valley Regional Park (the Park), established in 1965, has a particular importance as the first large area of countryside to the west of London. Covering 43 square miles, from Rickmansworth in the north to Staines and Egham in the south; and from Uxbridge and Heathrow in the east to Chalfont St Peter and Langley in the west (as shown on Figure 1), it is attractive, highly valued by local communities and, although not designated for its landscape quality, has significant environmental sensitivities.

The construction of High Speed 2 (HS2) will bring profound change to parts of the Colne Valley, resulting in substantial environmental and social impacts.

In October 2015, the High Speed Rail Select Committee recognised the impacts that would be borne by the area and backed the creation of an independent panel, the Colne Valley Regional Park Panel (the Panel) to lead the development and implementation of a comprehensive and holistic approach to mitigation based on the objectives of the Colne Valley Regional Park. HS2 Ltd.'s commitment to the Panel was formalised by an assurance (reference 704), which states that:

“opportunity exists for HS2 mitigation and restoration proposals within the Colne Valley Regional Park to be brought forward in a way that is compatible with the aims and objectives of the local stakeholders in this regional park and for other bodies to bring forward complementary measures to, where possible, enhance the locality”.

1.2 COLNE VALLEY REGIONAL PARK PANEL

In March 2016, HS2 Ltd. published the Terms of Reference for the Panel which were developed and agreed in a collaborative way with its members.

The Panel is independently chaired and its membership comprises the following organisations, enabling it to represent and coordinate the views of key stakeholders in the Park, and the views of HS2 and the Department for Transport:

- Colne Valley Park Community Interest Company (CIC)
- London Borough of Hillingdon
- South Bucks District Council
- Chiltern District Council
- Three Rivers District Council
- Hertfordshire County Council
- Buckinghamshire County Council
- Natural England
- Environment Agency
- Herts and Middlesex Wildlife Trust
- London Wildlife Trust
- Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
- Canal and River Trust
- High Speed 2 Limited (HS2 Ltd)
- Department for Transport.

As stated in the Terms of Reference, the Panel's function is to:

“work in partnership to harness local knowledge and pro-actively input into the design development of new landscape and ecological mitigation and enhancement, land use development and HS2 structures, (including the proposed Colne Valley viaduct), brought forward as part of HS2's Proposed Scheme in the Colne Valley Regional Park.”

In addition, the Terms of Reference note that:

“In all it does the Panel will consider how best to respond to the social, economic and ecological aspects of the locality in addition to environment matters to achieve a more distinctive and sensitive outcome within the Colne Valley Regional Park.”

To complement this, the Panel were charged with developing an “HS2 Additional Mitigation Plan for the Colne Valley”.

Further information on the Colne Valley Regional Park Panel and the Terms of Reference can be found at the following address:

<https://www.gov.uk/government/collections/hs2-colne-valley-regional-park-panel>

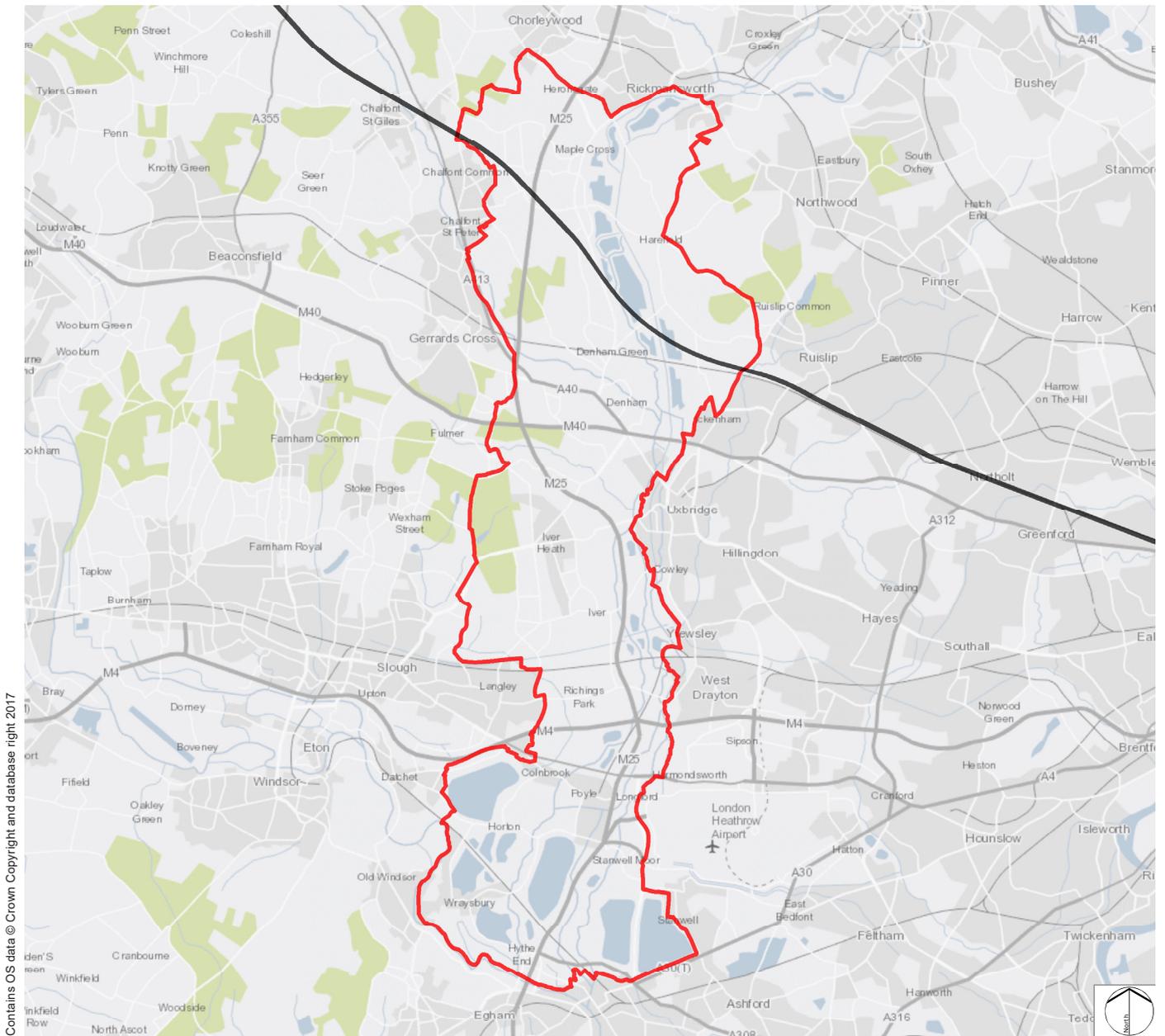


FIGURE 1: COLNE VALLEY REGIONAL PARK

-  Colne Valley Regional Park
-  HS2 Route Alignment

Sources: Ordnance Survey, Groundwork, South Bucks District Council



1.3 THE PURPOSE OF THE ADDITIONAL MITIGATION PLAN (AMP)

The purpose of the AMP, as stated in the Terms of Reference, is to

“identify additional landscape and ecological mitigation and enhancements within the Colne Valley Regional Park, in furtherance and beyond the mitigation proposed within the HS2 Proposed Scheme. This may encompass proposals both within and outside the present HS2 Bill limits”.

Once the AMP is complete, HS2 Ltd. has made an assurance to work with the Panel to deliver the key proposals in the AMP, which will include making £3 million available to support its delivery.

The construction of HS2 will take place over many years and some additional mitigation proposals may not be able to be implemented until construction is well advanced or complete. In addition, the AMP has been prepared in advance of the appointment of a contractor, who will undertake the detailed design and construction planning of the works associated with HS2. For these two reasons, the AMP proposals set out in this document may need to evolve as circumstances change or as detailed design and construction information for HS2 becomes available. Other opportunities for additional mitigation and enhancement associated with HS2 may also be identified in the future. This AMP is therefore intended to be a live document, which can evolve to respond to changing circumstances and additional information or opportunities as they arise.

1.4 METHODOLOGY

In May 2016, LDA Design were commissioned to develop the AMP, in conjunction with the Panel.

To aid the preparation of the AMP, a Steering Group comprising members from the Panel was set up, enabling the Panel to meet more frequently and guide the AMP's development. In addition to the Panel and Steering Group, HS2 have funded the post of a Programme Manager to support the development and implementation of the AMP.

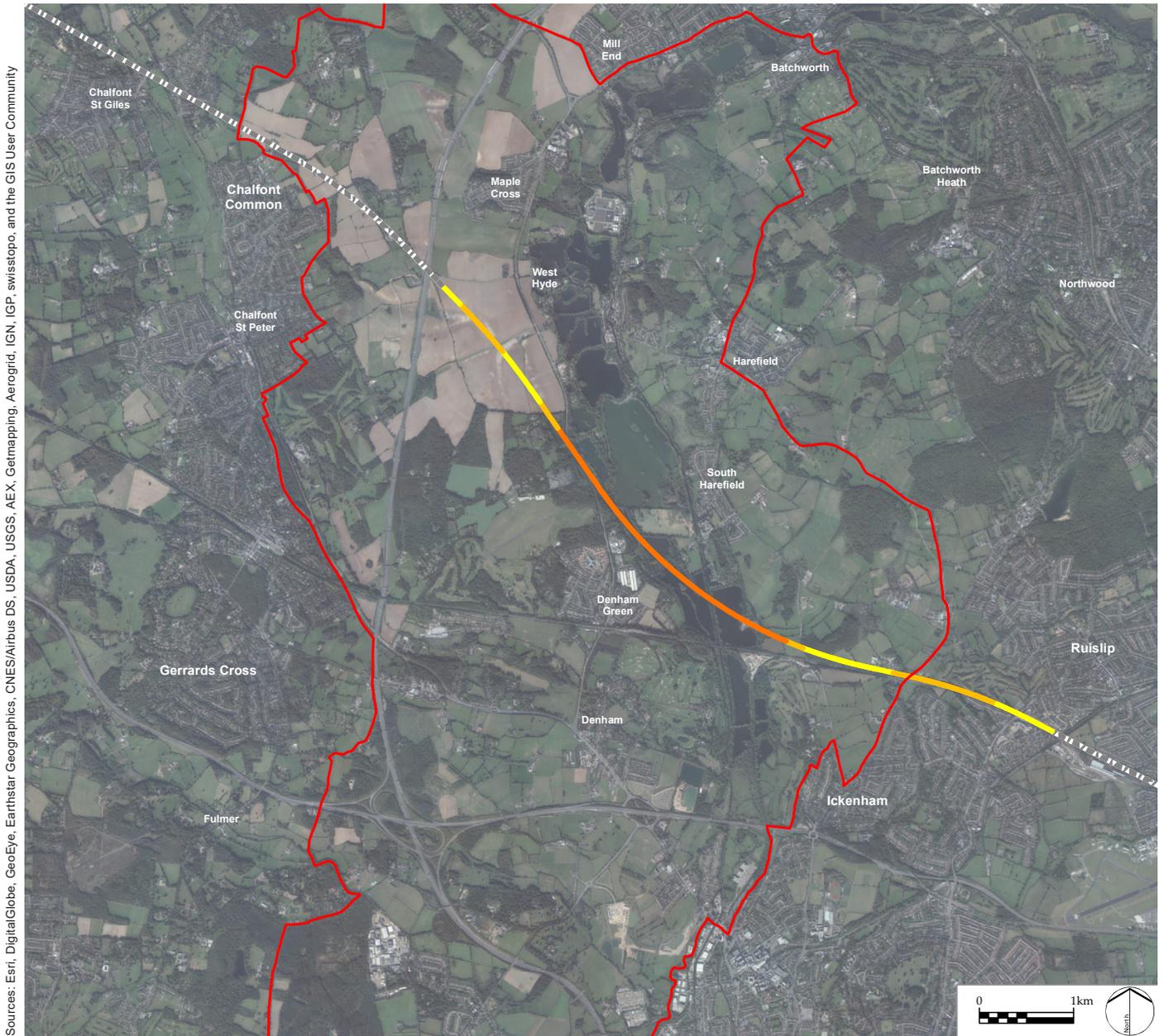
Due to the intangible nature of the impacts of HS2 on aspects of the Park such as recreation, views and ecology, it was not considered appropriate to precisely define a study area. The broad area of

study (the AMP area) focuses on the northern half of the park, as shown on Figure 2 and Annex B of the Terms of Reference (see Appendix A) and covers a wider geographic area than land identified within the Enabling Act Limits.

The preparation of the AMP has involved a four-stage methodology, as follows:

- **Stage 1 - Information Gathering**, involving the collection and assimilation of baseline information through:
 - Briefings and meetings with relevant representatives of the Panel, CVRP CIC and HS2.
 - Consultation with key stakeholders, including user groups.
 - Understanding HS2's proposals, including a review of HS2's Environmental Statement.
 - Desk study, including review of planning policies and designations, along with published landscape character assessments, Green Infrastructure Strategies, Biodiversity Action Plans and various other publications.
 - Sitework.
- **Stage 2: Proposals Longlist**, involving the development of a vision for the Park and the preparation of a longlist of mitigation proposals for consideration by the Panel. This stage included the rationalisation and consolidation of the longlist into a set of fourteen AMP Projects.
- **Stage 3: Public Exhibitions**, presenting the fourteen AMP Projects and giving members of the public an opportunity to provide general feedback and comment on their preferred mitigation options.
- **Stage 4: Final AMP Proposals List**, involving the development of further information about each project to be included in the AMP, providing enough detail on all fourteen AMP Projects to allow the Panel to decide which projects should be developed in greater detail.

A fifth stage has followed the production of this report, involving a selection process to identify a set of AMP projects that will be taken forward for further design development.



Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 2: LOCATION PLAN (AMP AREA)

-  Colne Valley Regional Park
- Proposed HS2 Phase 1 route
 -  Bored Tunnel
 -  Cutting
 -  Embankment
 -  Viaduct

Sources: Aerial - ESRI, Groundwork, South Bucks District Council



1.5 REPORT STRUCTURE

The report is structured as follows:

- **Section 1.0 Introduction:** Sets out the scope and aim of the document and provides information on the methodology followed.
- **Section 2.0 Context:** Provides contextual analysis of the Park.
- **Section 3.0 HS2 Proposals:** Identifies HS2 Ltd. current proposals and impacts on the AMP area.
- **Section 4.0 Issues and Opportunities:** Sets out a review of the issues and opportunities from the perspective of movement and connectivity.
- **Section 5.0 Stakeholder Engagement:** Describes the engagement undertaken with stakeholders and members of the public, including a series of public exhibitions.
- **Section 6.0 Evolution of Proposals:** Outlines how the proposed mitigation projects have evolved through the duration of the AMP preparation.
- **Section 7.0 AMP Proposals:** Sets out detail on fourteen AMP projects.
- **Section 8.0 Recommendations for HS2:** Presents summary recommendations from the Panel to HS2 Ltd.
- **Appendices:** Includes Annex B (Broad Area of Interest) from the Colne Valley Regional Park Panel Terms of Reference, a schedule of stakeholders, notes on workshops and a summary of ecology designations.





2.0 CONTEXT

2.1 COLNE VALLEY REGIONAL PARK

DESCRIPTION

The AMP is concerned with the northern part of the park, north of the M40, where the route of the HS2 railway emerges from a tunnel at West Ruislip and curves northwards across the Colne Valley, largely on viaduct, before entering the Chilterns Tunnel, where it continues beyond the Park boundary towards Birmingham.

The Park sits between the suburban fringe of London and the Chilterns and is characterised by agricultural land and extensive waterbodies interspersed with urban development linked to commuter towns and villages. The urban areas include Ickenham, Denham, Denham Green, Hyde, Harefield and South Harefield, West Hyde and Maple Cross. Chalfont St Peter lies to the west of the M25, beyond the Park boundary. The Park centres on the Colne Valley Lakes, the Grand Union Canal and the River Colne. This mosaic of water features runs in a north-south direction, with the lakes constituting the remnants of gravel abstraction in the valley bottom. The lakes are divided by spurs of land that have become heavily wooded and which screen direct views around the area. The majority of these water features are now used for a range of leisure activities including sailing, fishing, water skiing, walking and bird watching. Either side of the central wetland area the land use is predominantly agricultural (mainly arable cropping to the west of the valley and pasture to the east) but interspersed with urban fringe development and other recreational facilities, notably golf courses and Denham Aerodrome.

ADMINISTRATION

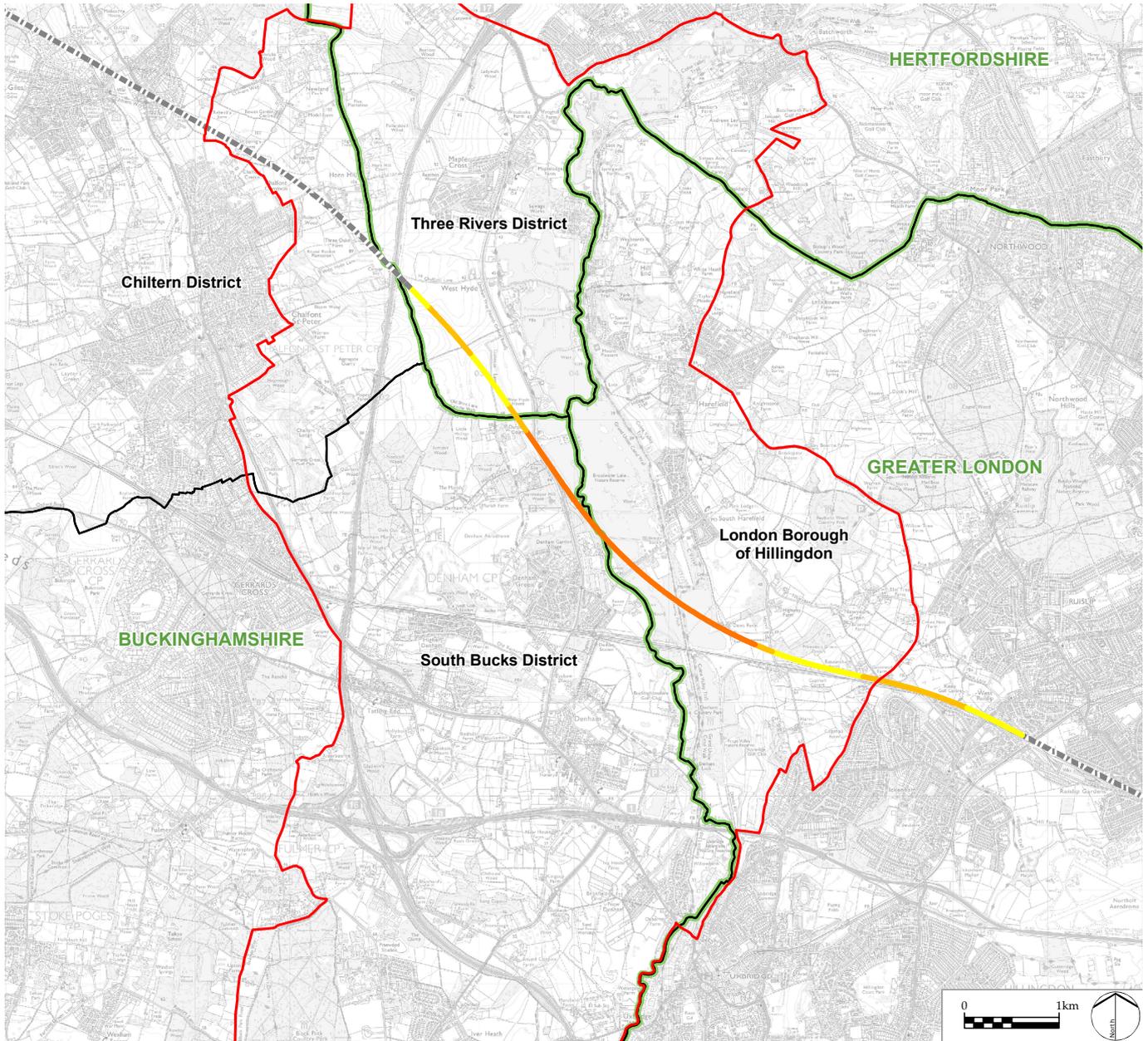
The Park is administered by the Colne Valley Park Community Interest Company (CIC) which represents the interests of everyone who lives, works and plays in the Colne Valley.

The AMP area encompasses several administrative boundaries, including the following authorities, as shown on Figure 3: South Bucks District Council; Chiltern District Council; Three Rivers District Council; London Borough of Hillingdon; Buckinghamshire County Council; Hertfordshire County Council; and the Greater London Authority.

COLNE VALLEY REGIONAL PARK OBJECTIVES

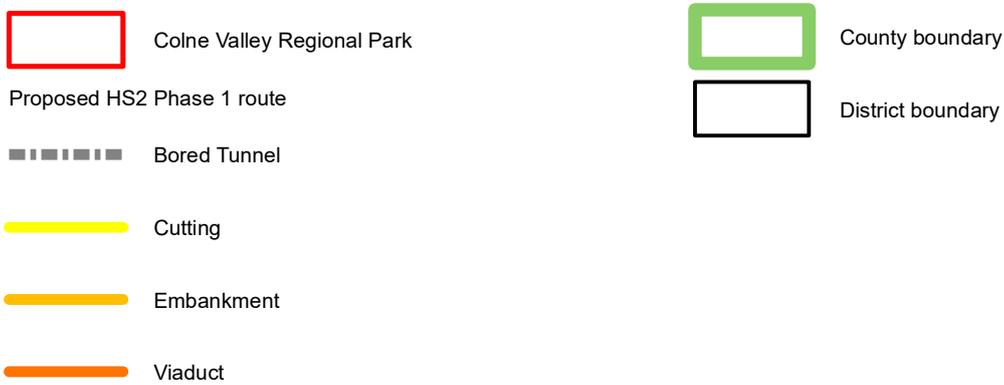
The CIC has identified six objectives, which have been used to govern how the Park is managed. These objectives area as follows:

- **1. To maintain and enhance the landscape**, historic environment and waterscape of the Park in terms of their scenic and conservation value and their overall amenity.
- **2. To safeguard the countryside** of the Park from inappropriate development. Where development is permissible it will encourage the highest possible standards of design.
- **3. To conserve and enhance biodiversity** within the Park through the protection and management of its species, habitats and geological features.
- **4. To provide opportunities for countryside recreation** and ensure that facilities are accessible to all.
- **5. To achieve a vibrant and sustainable rural economy**, including farming and forestry, underpinning the value of the countryside.
- **6. To encourage community participation** including volunteering and environmental education. To promote the health and social well-being benefits that access to high quality green space brings.



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FIGURE 3: LOCAL PLANNING AUTHORITY ADMINISTRATIVE BOUNDARIES



Sources: Ordnance Survey, Groundwork, South Bucks District Council



2.2 LANDSCAPE

TOPOGRAPHY & GEOLOGY

The area that forms the northern reaches of the Park is defined by the River Colne that winds its way through a pronounced valley, marked by slopes that rise from the floodplain to an elevated plateau to the west and undulating farmland and the edge of London to the east (see Figure 4). The contrasting terrain gives rise to a landscape of varied character, from the contained, low lying waterbodies of the valley floor to large scale, open farmland of the dry valley slopes. The underlying geology is varied. On the western valley side is Upper Cretaceous chalk around Maple Cross, reaching as far south as Denham, reflecting the rolling hills of the nearby Chilterns. Further south, the bedrock deposits shift to clay, silt and sand of the London Clay and Lambeth Group, surrounding the chalk ridges and extending to the eastern valley side. In much of the area, the bedrock is overlain by sands and gravels and by alluvium along the course of the River Colne. It is this composition that has primarily been sought after by the aggregates industry, lending the Colne Valley well to mineral extraction and subsequent regeneration as a landscape of lakes. However some areas of bedrock remain on the surface, in particular around Harefield and Maple Cross, further contributing to the diverse character of the Park's landscape.



VIEW LOOKING WESTWARDS ACROSS VALLEY FLOOR TOWARDS WESTERN VALLEY SLOPES



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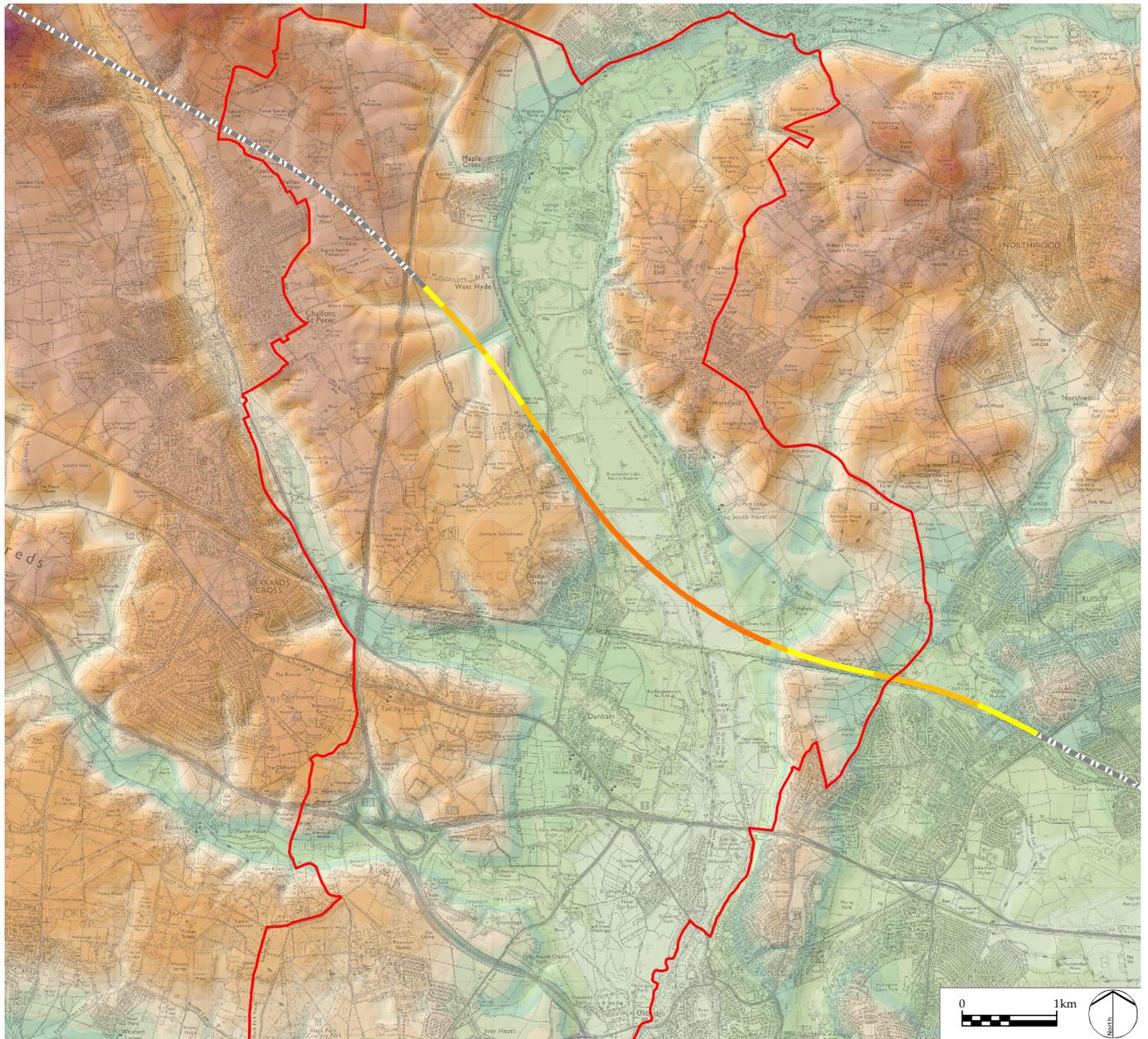
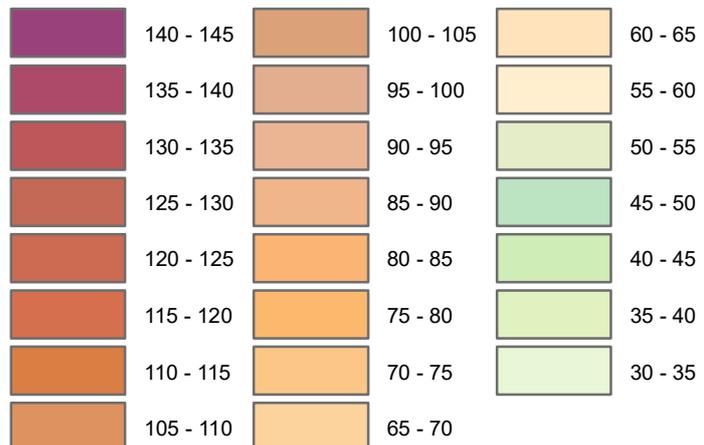


FIGURE 4: TOPOGRAPHY

- Colne Valley Regional Park
- Proposed HS2 Phase 1 route
- Bored Tunnel
- Cutting
- Embankment
- Viaduct

Elevation (mAOD)



Sources: Ordnance Survey, NextMap25, Groundwork, South Bucks District Council



LANDSCAPE CHARACTER

The AMP area is located within Natural England's National Character Area (NCA) 115 – Thames Valley. NCAs are undertaken at a national level and cover large areas that share similar landscape characteristics. The NCA is too broad an assessment to form the basis of analysis for this report. At a local level, several landscape character assessments have been carried out by the local authorities that cover the northern reaches of the park. Those character areas of relevance to the AMP, and illustrated on Figure 5, are as follows:

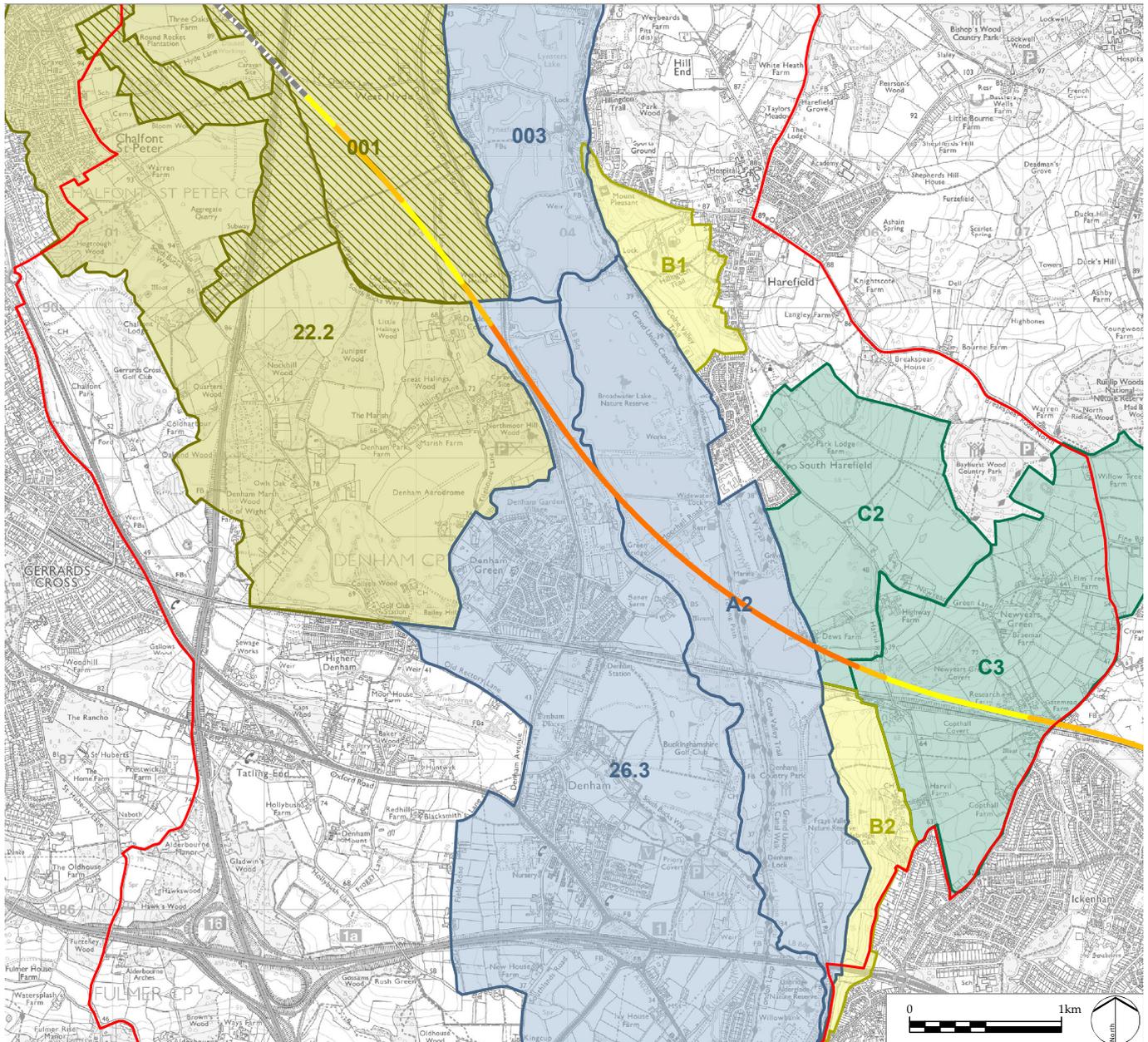
Landscape Character Assessment	Landscape Character Area
Buckinghamshire Landscape Character Assessment	Colne Valley Floodplain (LCA 26.3)
	Chalfont St Peter Mixed Use Terrace (LCA 22.2)
Hertfordshire Landscape Character Assessment	Maple Cross Slopes (LCA 001)
	Colne Valley Gravel Pits (LCA 003)
Hillingdon Landscape Character Assessment	Mid Colne Floodplain – Broadwater Lake to Shire Ditch (LCA A2)
	Harefield Open Valley Sides (LCA B1)
	Uxbridge Open Valley Sides (LCA B2)
	South Harefield Undulating Farmland (LCA C2)
	New Years Green Undulating Farmland (LCA C3)

The landscape character areas identified above have largely been defined by the administrative boundaries of the local authorities, giving rise to different character areas that cover similar landscape character types. It is worth noting that, at the time of writing, a Landscape Character Assessment is being completed for the Colne Valley Regional Park.

For the purposes of this report, the LCAs can be broadly grouped into four landscape zones:

- the River Colne Valley;
- the valley sides to the west of the River Colne;
- the valley sides to the east of the River Colne;
- the undulating farmland further east.

The following summaries are drawn from the landscape character assessments mentioned above.

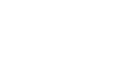


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FIGURE 5: LOCAL LANDSCAPE CHARACTER

-  Colne Valley Regional Park
-  Proposed HS2 Phase 1 route
-  Bored Tunnel
-  Cutting
-  Embankment
-  Viaduct

Local Landscape Zones

- River Colne Valley**
 -  Colne Valley Floodplain (LCA 26.3)
 -  Colne Valley Gravel Pits (LCA 003)
 -  Mid Colne Floodplain – Broadwater Lake to Shire Ditch (LCA A2)
- Western Valley Slopes**
 -  Chalfont St Peter Mixed Use Terrace (LCA 22.2)
 -  Maple Cross Slopes (LCA 001)
(Note: hatched area of LCA 001 overlaps with LCA 22.2)
- Eastern Valley Slopes**
 -  Harefield Open Valley Sides (LCA B1),
Uxbridge Open Valley Sides (LCA B2)
- Undulating Farmland**
 -  South Harefield Undulating Farmland (LCA C2)
 -  New Years Green Undulating Farmland (LCA C3)

Sources: Ordnance Survey, Groundwork, South Bucks District Council, Hillingdon London Boro, Hertfordshire County



River Colne Valley

Includes: Colne Valley Floodplain (LCA 26.3); Colne Valley Gravel Pits (LCA 003); Mid Colne Floodplain – Broadwater Lake to Shire Ditch (LCA A2)

The River Colne Valley comprises the valley floor of the River Colne: a flat, wide lowland floodplain with very little topographic variation. Sand and gravel extraction has shaped the landscape, with former gravel pits restored into a string of waterbodies, although some small pockets of industry still remain.

The River Colne and its associated tributaries meanders through the valley and, together with the waterbodies and the Grand Union Canal, provides a valuable wildlife and recreational resource. A well established network of public rights of way associated with these features exists, including the Colne Valley Trail and the Grand Union Canal Walk. A variety of wetland and riparian habitats which support a diverse fauna and flora, particularly within designated SSSIs at Frays Farm Meadows, Denham Lock Wood and Mid Colne Valley, demonstrate a legacy of industry and wildlife.

Tree cover, typically situated along waterways and lakes, creates a strong sense of containment and enclosure, restricting views to adjacent landscapes. Views within the valley are intermittent and often confined by woodland, however long views are afforded across the Colne Valley lakes from higher ground to the east and west of the valley floor and linearly along watercourses such as the Grand Union Canal. Transport corridors pass through the valley floor, including the M40 to the south, the Chiltern railway line, the A412 and Moorhall Road which have visual and audible influences.

Western Valley Slopes

Includes: Chalfont St Peter Mixed Use Terrace (LCA 22.2), Maple Cross Slopes (LCA 001)

To the west of the River Colne, the landform rises up from the edge of the floodplain towards a plateau that extends north-westwards towards the Chilterns AONB. The western slopes of the Colne to the south

of Maple Cross are cut by dry tributary valleys which form a varied landscape of undulating, large scale open farmland interspersed with mature blocks of woodland (many of which are ancient), providing varying degrees of openness and enclosure. Panoramic views across the Colne Valley towards the valley slopes to the east of the river are valued, and reinforce the sense of rurality. There are few watercourses on the valley sides due to the well drained calcareous soils and underlying chalk, a contrast to the watery environment of the river valley.

The M25 is a dominant feature within the landscape, both visually and audibly, and marks a break between strong east-facing slopes and a broader plateau to the west. On the steeper tributary valley slopes, winding sunken lanes are a distinctive feature, in particular Tilehouse Lane. Several recreational routes cross the area, following historic field boundaries, such as Old Shire Lane. On a spur of higher, more level ground to the north of the River Misbourne valley, is Denham Aerodrome, which underpins the sense of a landscape able to accommodate a variety of land uses

Eastern Valley Slopes

Includes: Harefield Open Valley Sides (LCA B1), Uxbridge Open Valley Sides (LCA B2)

To the east of the River Colne, the landscape is broadly defined by two character types: open valley slopes that transition to elevated, undulating farmland plateau further to the east. The open valley slopes are characterised by the rolling terrain that rises up from the valley floor to the top of the valley sides, typically of grassland with a few small areas of woodland, some of which are designated areas for nature conservation. Settlement density is low, comprising scattered farmsteads and individual buildings, with the eastern edge of the slopes being contained by denser areas of settlement at the top of the valley sides, namely Harefield, South Harefield, Ickenham and Uxbridge. A number of footpaths and long distance recreational routes cross the valley slopes, one of which passes through an area of open access land to the south of Mount Pleasant and another through Uxbridge Golf Course. Long views across the Colne



Valley from higher slopes are available, particularly to the west of Harefield. Small streams traverse the valley slopes and the rolling landform allows for the collection of water in small depressions, in contrast to the drier areas of the western valley slopes, adding to the diversity of landscapes with the Park.

Undulating Farmland

Includes: South Harefield Undulating Farmland (LCA C2), New Years Green Undulating Farmland (LCA C3)

East of the Colne Valley, the area is characterised by elevated, gently undulating and in parts sloping farmland, where tree cover is sparse, bar occasional areas of woodland. The character of the landscape contrasts with the steeper valley sides to the west and the wooded farmland to the north, which includes Bayhurst Wood that forms a backdrop to views across farmland and a point of reference. Due to the busy roads, pylon lines and interspersed waste and recycling facilities, the landscape feels fragmented, contributing to an urban fringe character, although the historic field pattern in the New Years Green area is relatively intact. The area is crossed by footpaths which link the Colne Valley to Ruislip Woods, further contributing to the sense that this is a transitional landscape.

LANDSCAPE DESIGNATIONS:

Despite the varied character and quality of the landscape, the Park is not a nationally designated landscape in its own right, although it is recognised in various local policy documents as an important regional landscape. The only landscape designation that falls within the northern reaches of the Park is a small part of the Chiltern Hills AONB, however this is located beyond the area with which the AMP is concerned.

Almost all of the Park falls within Green Belt land, bar the larger settlement areas. Although Green Belt is not a landscape designation, it affords the landscape some protection from development in line with the five purposes of the Green Belt.

There are two sites of geological interest in the AMP area, not strictly landscape designations, but are worth noting, as follows:

- **Harefield Pit SSSI**, covering part of a disused chalk quarry and the only known site for calcareous floral remains.
- **Northmoor Hill Wood Local Geological Site**, whilst having only a little geological exposure, its interest is in demonstrating how the contrasting geology controls habitats.



2.3 ECOLOGY

One of the key assets of the Park is its ecology. The northern part of the Park has a wide range of habitats of national and local significance that support an equally wide range of species. Figure 6 identifies the key sites within the AMP area, although it should be noted that locations of the Sites of Metropolitan and Borough Significance, as defined on the London Borough of Hillingdon's Local Plan proposals map, have not been provided for inclusion.

This section summarises the baseline gathered from a review of HS2's London-West Midlands Environmental Statement, a review of relevant Local Biodiversity Action Plans or similar local authority policy documents, consultation with stakeholders and a field survey. It should be noted that the majority of survey information is taken from the HS2 ES and further survey will be needed as the AMP Projects progress to the next level of detail.

DESIGNATED SITES

National Nature Reserves (NNR)

- **Ruislip Woods NNR, and Ruislip Woods Site of Special Scientific Interest (SSSI):** Ruislip Woods is an extensive ancient semi-natural woodland. It supports a diverse range of oak and hornbeam woodland types as well as other semi-natural habitats such as acidic grass-heath mosaic and areas of wetland. This mosaic of habitats supports a number of rare and scarce plant and insect species in a national and local context together with a range of breeding birds. The woodland lies in four major blocks, known as Bayhurst Wood, Mad Bess, Wood, Copse and Park Wood. Bayhurst Wood is located with the Regional Park boundary. This woodland is mostly dominated by pedunculated oak, sessile oak, hornbeam and birch. This area is designated as a Site of Special Scientific Interest (SSSI), a National Nature Reserve (NNR) and an SMI (Ruislip Woods and Poor's Field SMI).

Site of Special Scientific Interest (SSSI)

- **Mid Colne Valley SSSI**, located in an area of land through which HS2 will pass. It is designated primarily for its significant ornithological interest, particularly breeding woodland and wetland

birds and its numbers of wintering wildfowl. This site includes large lakes, semi-natural broadleaved woodland, including ancient woodland plots, and the last remaining area of unimproved chalk grassland in Greater London.

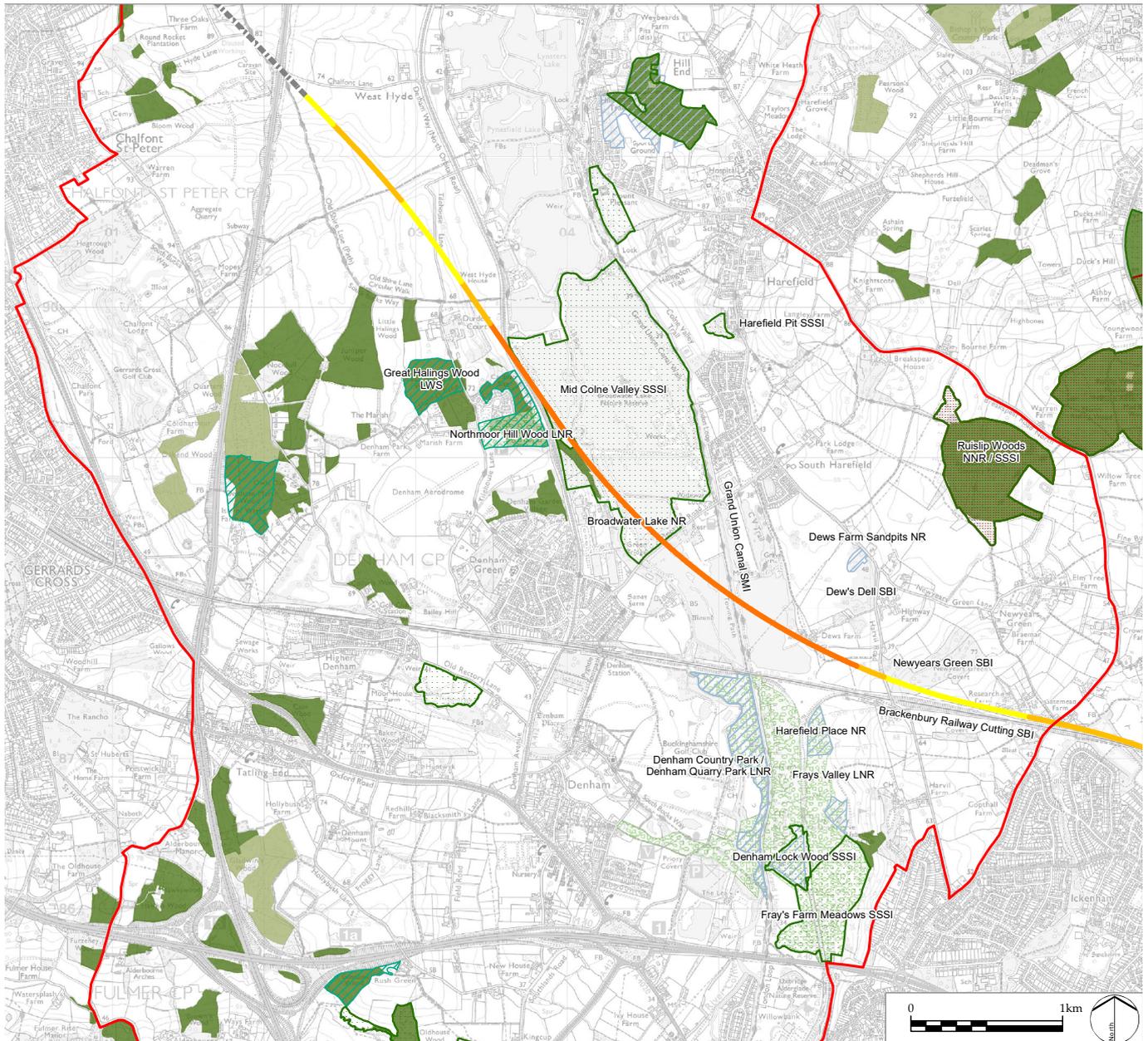
- **Denham Lock Wood SSSI**, located approximately 1km south of the HS2 route. It is designated for its diverse open mire and wet woodland habitats.
- **Fray's Farm Meadows SSSI**, located adjacent to the southern boundary of Denham Lock Wood SSSI. Designated for its relatively unimproved wet alluvial grassland. These meadows include a variety of grassland communities as well as linear features which add further diversity.
- **Ruislip Woods SSSI** (overlaps with Ruislip Woods NNR), detailed above.

Local Nature Reserves (LNR)

- **Denham Country Park LNR:** designated for woodland, grassland, scrub and wetland habitats. This LNR is also part of the larger Mid-Colne Valley Site of Metropolitan Importance (SMI);
- **Fray's Valley LNR:** designated for woodland, grassland, scrub and wetland habitats. This LNR is also part of the larger Mid Colne Valley SMI;
- **Denham Quarry Park LNR:** designated for wetland birds, invertebrates and grassland habitat.
- **Northmoor Hill Wood LNR:** designated for ancient woodland.

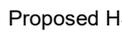
LOCAL WILDLIFE SITES

A number of non-statutory designated sites are also present within the AMP area. These include Local Wildlife Sites (LWS) and Sites of Nature Conservation Importance (SINCs). There are three tiers of SINCs: Sites of Metropolitan Importance (SMI), Sites of Borough Importance (SBI) (Grades I and II) and Sites of Local Importance. These are designated for similar habitats to those listed as SSSI and LNR and in many places overlap with these designations. Of particular relevance are:



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FIGURE 6: ECOLOGY

-  Colne Valley Regional Park
-  Proposed HS2 Phase 1 route
-  Bored Tunnel
-  Cutting
-  Embankment
-  Viaduct

Statutory Designations

-  National Nature Reserves
-  Sites of Special Scientific Interest
-  Local Nature Reserves
-  Ancient & Semi-Natural Woodland
-  Ancient Replanted Woodland

Non Statutory Designations

-  Local Wildlife Sites
-  Nature Reserves

Sources: Ordnance Survey, Groundwork, South Bucks District Council, Natural England



- **Great Halings Wood LWS:** designated for ancient woodland that is relatively species-rich and dominated by mature beech and hazel coppice.
- **Grand Union Canal SINC:** a SMI which is designated for wetland plants and water birds.
- **Mid Colne Valley SINC:** a SMI which coincides with the three SSSIs as described above and extends further across the valley.
- **Dew's Dell SINC:** a Grade I SBI, designated for broad-leaved woodland with small areas of species-rich grassland.
- **Newyears Green SINC:** a Grade I SBI which includes a covert dominated by pedunculated oak, ash and hornbeam. This site also supports the locally notable, buckthorn and musk thistle.
- **Brackenbury Railway Cutting SINC:** a Grade II SBI which comprises a broad, wooded railway cutting. This supports dense tree and scrub cover dominated by pedunculate oak, elder and English elm.

Several nature reserves which are not designated as per the sites above are also present. These are:

- **Broadwater Lake Nature Reserve:** managed by Herts and Middlesex Wildlife Trust, the nature reserve includes Korda Lake, Long Pond, the River Colne and the western side of Broadwater Lake.
- **Frays Farm Meadows Nature Reserve:** managed by the London Wildlife Trust and is one of the finest examples of rare wet grazing meadows in London. It is part-designated SSSI (as noted above) and also forms part of Fray's Valley LNR.
- **Dews Farm Sandpits Nature Reserve:** managed by the London Wildlife Trust, this supports acid grassland habitat.
- **Harefield Place Nature Reserve:** managed by the Hillingdon Natural History Society, this supports woodland and scrub habitats and several ponds.

Due to the overlapping boundaries of the sites identified above, the table provided in Appendix D is a summary of the AMP area's designated and non-designated sites.

HABITATS

The AMP area includes the River Colne, which runs south through the valley, and a large number of lakes created as a result of past gravel extraction. The standing water is associated with marginal habitats, often dominated by mature woodland areas, though swamp vegetation is present on the shores of Broadwater Lake, Korda Lake, Harefield Moor Lake and Long Lake (refer to drawing Figure 7 for lake names). This has been estimated as 3ha in total and is of generally low diversity.

The woodland is dominated by semi-natural broadleaved woodland. Much of this qualifies as lowland deciduous woodland habitat of principal importance for the conservation of biodiversity. Ancient woodland is present at a number of locations across the study area, including adjacent to the North Orbital Road (A412) north of Denham Green and at Bayhurst Wood, which is designated as an NNR and a SSSI.

Hedgerows are also present with at least 0.5km of species rich hedgerow with trees, as well as species poor hedgerow.

The grasslands present are dominated by amenity or agriculturally improved grassland, though neutral semi-improved and poor semi-improved grasslands are also present*. Areas of marsh and marshy grassland are present in the Frays Valley and Denham Quarry Park areas.

Arable fields dominate the western end of the AMP area. These are large and occupy much of the landscape between the valley floor and the M25.

* Modern agricultural practice is often aimed at increasing productivity of grassland through a variety of means. The result is often that this leads to lower biodiversity within the grassland as productive agricultural grasses are favoured over other grasses and wildflowers. The classifications of improved, semi-improved seek to reflect the extent to which grassland productivity has been increased.

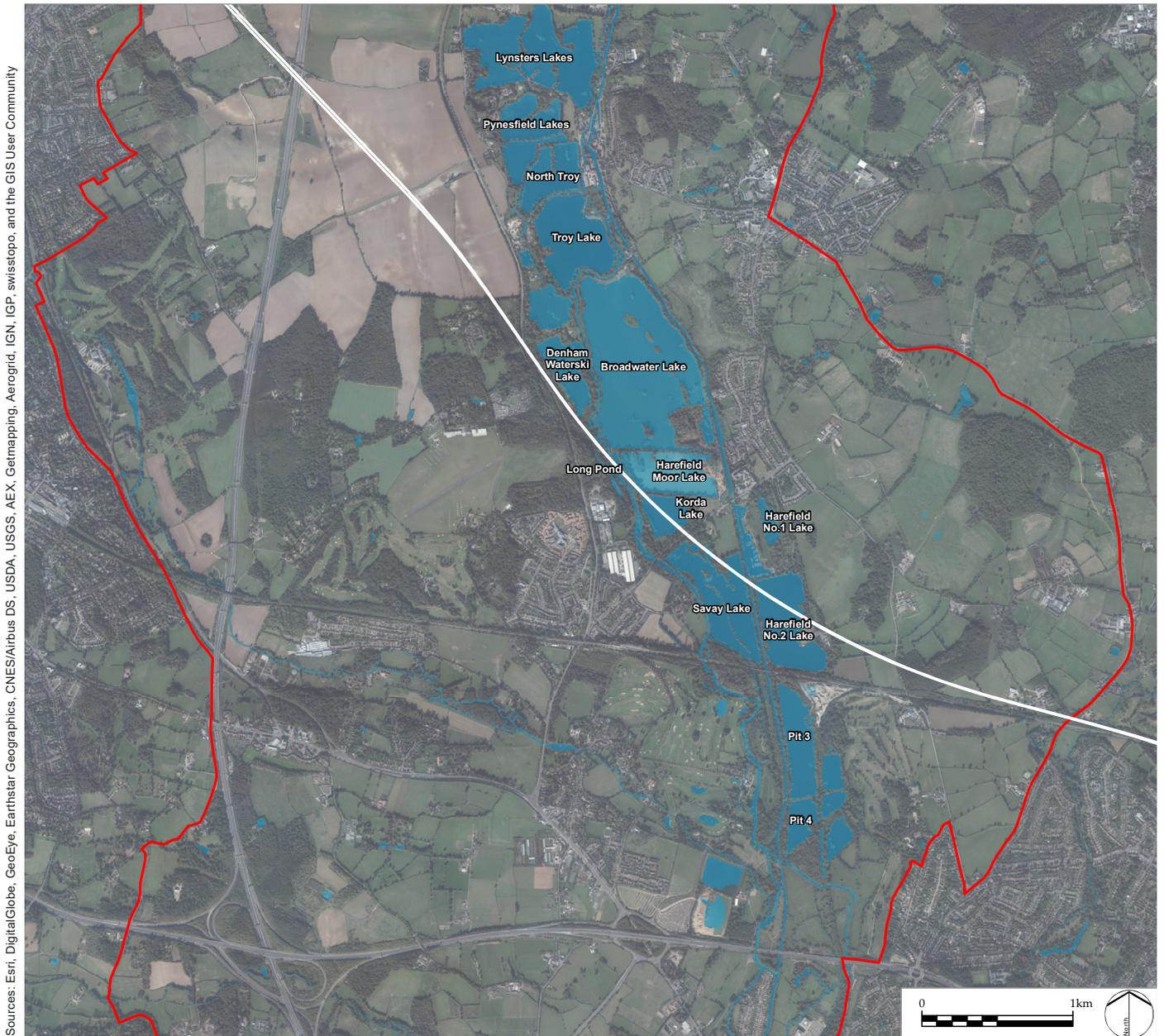


FIGURE 7: COLNE VALLEY LAKES

 Colne Valley Regional Park



PROTECTED SPECIES

Table - Summary of known protected species

The below information is taken from HS2's Environmental Statement.

Species/taxa	Known baseline
Great crested newt	In the Colne Valley Community Forum Area (CFA7) three accessible ponds were surveyed and the species was not recorded. A further 41 ponds deemed suitable could not be accessed for the baseline study, though this includes potentially dry or unsuitable ponds. In the South Ruislip to Ickenham CFA6, a population is known from fields north-west of Bayhurst Wood but this was not surveyed.
Reptiles	<p>Surveys were carried out in the Colne Valley area (CFA7) though limited access was gained. These recorded small numbers of grass snake. Habitat is present which may support other species (e.g. hedgerow, woodland edges) though none were recorded by the baseline surveys.</p> <p>A population of reptiles in fields south of Bayhurst Wood is known, but no further surveys were carried out.</p>
Bats	<p>Habitats for roosting, foraging and commuting bats are present in the CFA7 area. Field surveys identified 12 species of bat in the area. The baseline surveys identified a particular concentration of activity and roosts in the Mid-Colne Valley SSSI. Foraging and commuting bats were recorded along the River Colne near Broadwater Lake and the woodland in this area including barbastelle. A minimum of eight tree roosts were identified, though at least 79 with the potential to support roosts were present. Of the buildings surveyed, four were found to support roosts of four species: Myotis, common pipistrelle, brown long-eared and serotine.</p> <p>Bayhurst Wood in CFA6 supports an assemblage including rarer bat species such as Daubenton's bat, Natterer's bat, Leisler's bat and Nathusius' pipistrelle.</p>
Breeding birds	<p>The principal ornithological interest in the Colne Valley area is centred around the lakes and associated habitats, which support a range of Birds of Conservation Concern Red and Amber list species (Eaton et al., 2016) as well as Schedule 1 species such as red kite, kingfisher, barn owl and Cetti's warbler. The breeding gadwall, oystercatcher and common tern populations recorded during the survey are likely to be of County importance. Species associated with farmland habitats also include lapwing and corn bunting.</p> <p>Further ornithological interest is likely to be present in Bayhurst Wood, which is known to support species such as hawfinch, lesser spotted woodpecker.</p>
Wintering birds	<p>The most important lakes for wintering wildfowl are Broadwater Lake, Savay Lake and Troy Lake. Based on the available survey information, Broadwater Lake is the most important in terms of the abundance and diversity of wintering bird species supporting peaks of 111 pochard, 84 shoveler and 83 wigeon, and a roost site of up to 60 cormorants. The most important lake in the SMI (excluding the SSSI lakes) is Savay Lake as it supported a large wintering pochard population with a peak count of 62. Troy Lake was also assessed as being an important site supporting peak counts of 110 coot and 41 gadwall.</p> <p>Vantage point survey data is given for winter and breeding season, however it is split into species, height bands and number of flights, making the significance of the data in terms of impacts associated with interruption of flight lines hard to assess. Bayhurst Wood's wintering bird community is likely to be similar to the breeding bird community and therefore of interest.</p>



<p>Terrestrial invertebrates</p>	<p>Field surveys at the Mid Colne Valley SSSI recorded 146 species, of which two have Red Data Book species status and two are Nationally Scarce. The Red Data Book species are <i>Ctenophora flaveolata</i> (RDB 2) and <i>Aulonothroscus brevicollis</i> (RDB 3), and the scarce species are <i>Ischnomera cyanea</i> (Notable-B) and <i>Ischnomera sanguinicollis</i> (Notable-B).”The area around Bayhurst Wood is likely to support a range of notable invertebrate species.</p> <p>Desmoulin’s whorl snail is known to be present in the Mid Colne Valley SMI. This species is listed as ‘rare’ in the British Red Data Book and on Annex II of the Habitats and Species Directive.</p>
<p>Aquatic invertebrates</p>	<p>EA data obtained through the desk study from Moorfield Road, Harefield (less than 100m from the point of the viaduct and the Colne), indicates that there is generally a good diversity of macroinvertebrate taxa present, with fairly high numbers of taxa found in each sample. Pollution sensitive mayflies (Ephemeroidea and Ephemeroidea) and pollution sensitive caddisflies (Trichoptera) are regularly present in samples, sometimes in high numbers.</p> <p>Data from the 2012 baseline surveys for the Colne Valley recorded a low number of taxa with limited conservation interest. The Colne was found to have a Proportion of Sediment-sensitive Invertebrates index of moderately to heavily sedimented.</p> <p>The white-clawed crayfish is unlikely to be present due to the high numbers of signal crayfish recorded in the Colne and associated water bodies.</p>
<p>Otter</p>	<p>The area supports a mosaic of aquatic habitats with plentiful foraging areas and terrestrial habitat suitable to support holts and couches. Baseline surveys confirmed that otter use the River Colne for foraging and commuting or dispersal. Spraints, lying up sites and one possible holt were recorded. Due to the restricted coverage, the presence of holts could not be ruled out.</p>
<p>Water vole</p>	<p>Areas of heavily shaded lake shore were deemed unsuitable, though suitable habitat was present at Tilehouse Lake South and along the River Colne. No signs of the species were recorded here. Other potentially suitable habitats at Savay Lake, Harefield No. 2 Lake and south of the Chiltern Railway along either side of the Grand Union Canal could not be surveyed.</p>
<p>Dormouse</p>	<p>Habitats suitable for dormouse exist in the study area. Surveys were undertaken at Little Halings Wood and Great Halings Wood and Ranston Covert (020HD1-028-001). No evidence of dormouse was recorded in these areas. Other suitable habitats within areas where access could not be gained were not surveyed, though based on the level of coverage, the baseline studies concluded that dormouse is unlikely to be present in CFA7.</p> <p>Further habitats are present in the CFA6 area such as adjacent to and in Bayhurst Wood itself which were not surveyed and the presence of the species cannot be ruled out.</p>



2.4 CULTURAL HERITAGE

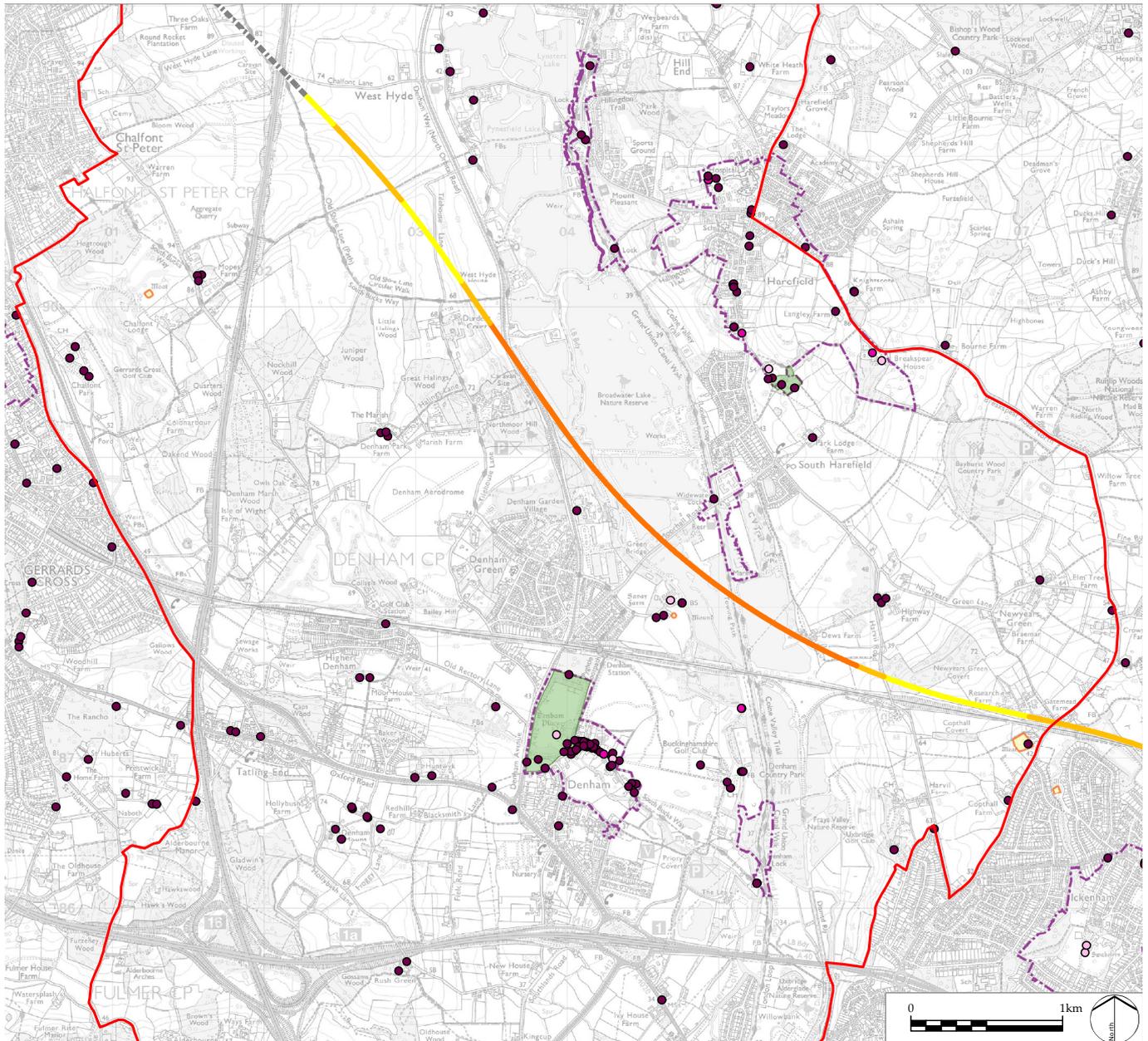
The Colne Valley has a complex history and, whilst it has experienced rapid change in the past 200 years, from an intact agricultural landscape to a post industrial regional park, the heritage of the Park, including its archaeology, remains apparent.

The cultural heritage assets within the AMP area include (refer to Figure 8):

Scheduled Monuments, including Brackenbury Farm moated site, bordering Ickenham to the south of the Chiltern Main Lane and a mound and ditch associated with Savay Farm.

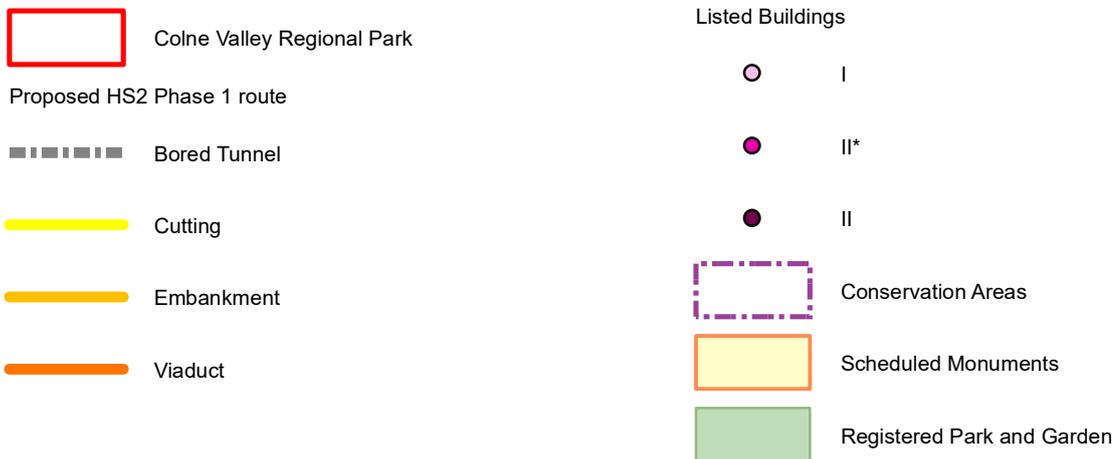
- **Conservation Areas**, in particular Widewater Lock to the west of South Harefield.
- **Registered Parks and Gardens**, including Denham Place and Harefield Place.
- **Listed Buildings**, of which there are many, including Savay Farm (Grade I)
- **Locally Listed Buildings**, including Dews Farm.
- **Colne Valley Archaeological Priority Zone**, as identified on the London Borough of Hillingdon Local Plan proposals map.

Alongside these designations, the fabric of the Park also encompasses numerous features of historic interest, including historic farmsteads and estates, historic field patterns and boundaries, historic lanes and routes, remnant open land, navigable waterways and watercourses, ancient woodlands, hedgerows and veteran trees. Unveiling these assets and ensuring that, post construction of HS2, the heritage of the Park is not overshadowed by the new railway is an important element of the AMP proposals.



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FIGURE 8: CULTURAL HERITAGE



Sources: Ordnance Survey, NextMap25, Groundwork, South Bucks District Council, Historic England



2.5 ACCESS AND MOVEMENT

RAIL AND VEHICULAR ACCESS

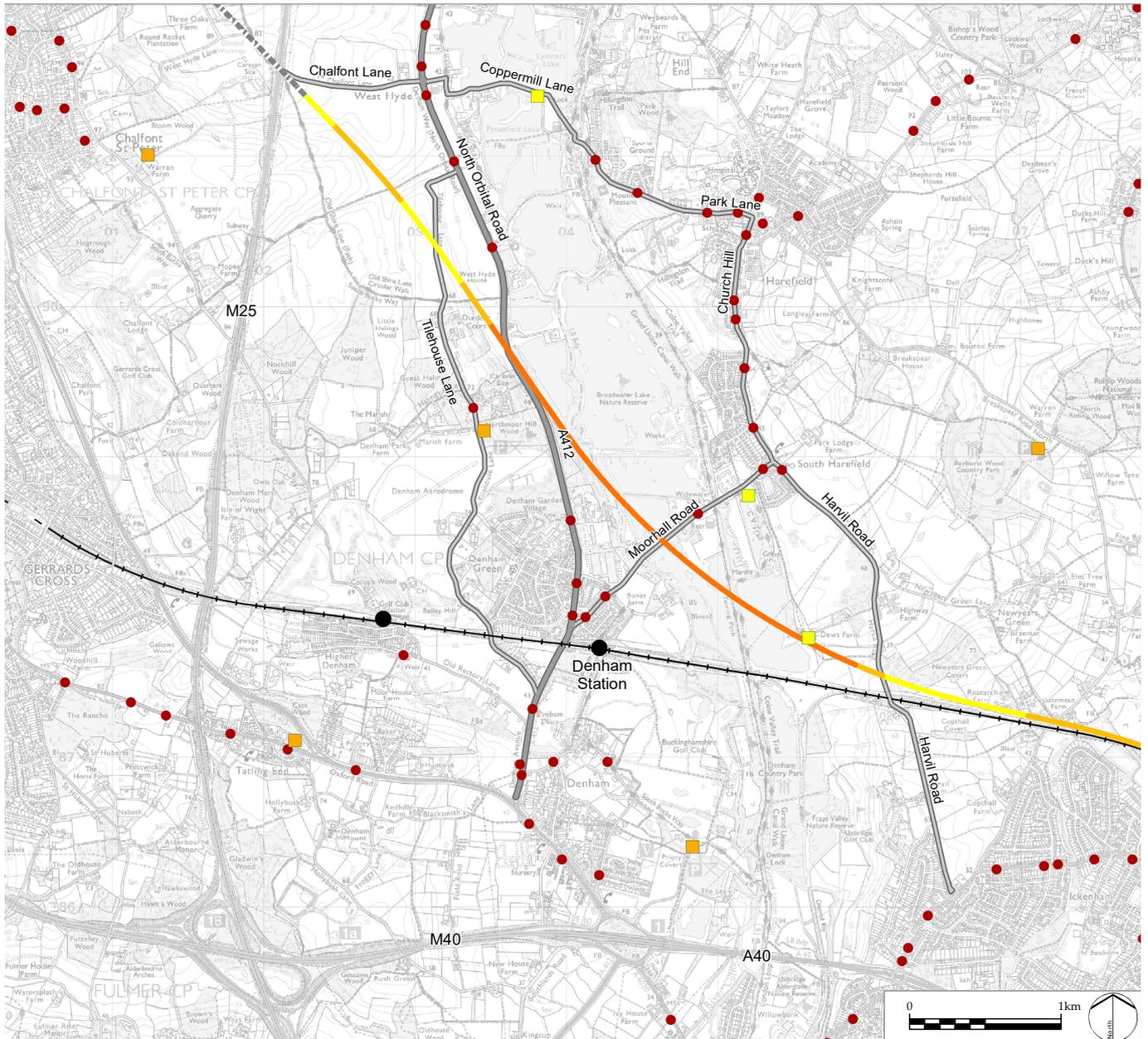
The northern reaches of the CVRP is crossed by a number of major arterial transport routes, in particular the M25, the M40/A40 and the A412 (Denham Way / North Orbital Road); and the Chiltern Main Line (refer to Figure 9).

Denham station on the Chiltern Main Line is centrally located within the Park.

Numerous local roads serve the Park, many of which follow historic routes through the valley. Of particular note for this report is:

- **Tilehouse Lane**, which runs north-south along the top of the western valley slopes, parallel with the A412.
- **Harvil Road**, which runs north-south along the top of the eastern valley slopes;
- and two local roads that cross the valley floor on an east-west alignment linking with the A412, namely **Moorhall Road** (which becomes Moorfield Road to the west) and **Coppermill Lane** (which becomes Chalfont Lane at its western end and Park Lane at its eastern end).

Along these local roads (and the A412) run bus routes, connecting the northern parts of the Park to the larger urban areas. However, access to some of the Park's key attractions via public transport, namely Denham Country Park and Bayhurst Wood Country Park, is limited. Access to the Park via car is better catered for, however there are areas where there is a notable absence of public parking facilities (i.e. those not associated with a private enterprise), namely around South Harefield and West Hyde/Mount Pleasant.



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FIGURE 9: TRANSPORT ROUTES

Proposed HS2 Phase 1 route

- ■ ■ ■ ■ Bored Tunnel
- Cutting
- Embankment
- Viaduct

- Bus Stops
- Public Car Park
- Private Car Park
- National Rail Stations
- Chiltern Main Line
- A Road (A412)
- Local Road

Sources: Ordnance Survey, Groundwork, South Bucks District Council



RECREATIONAL ROUTES

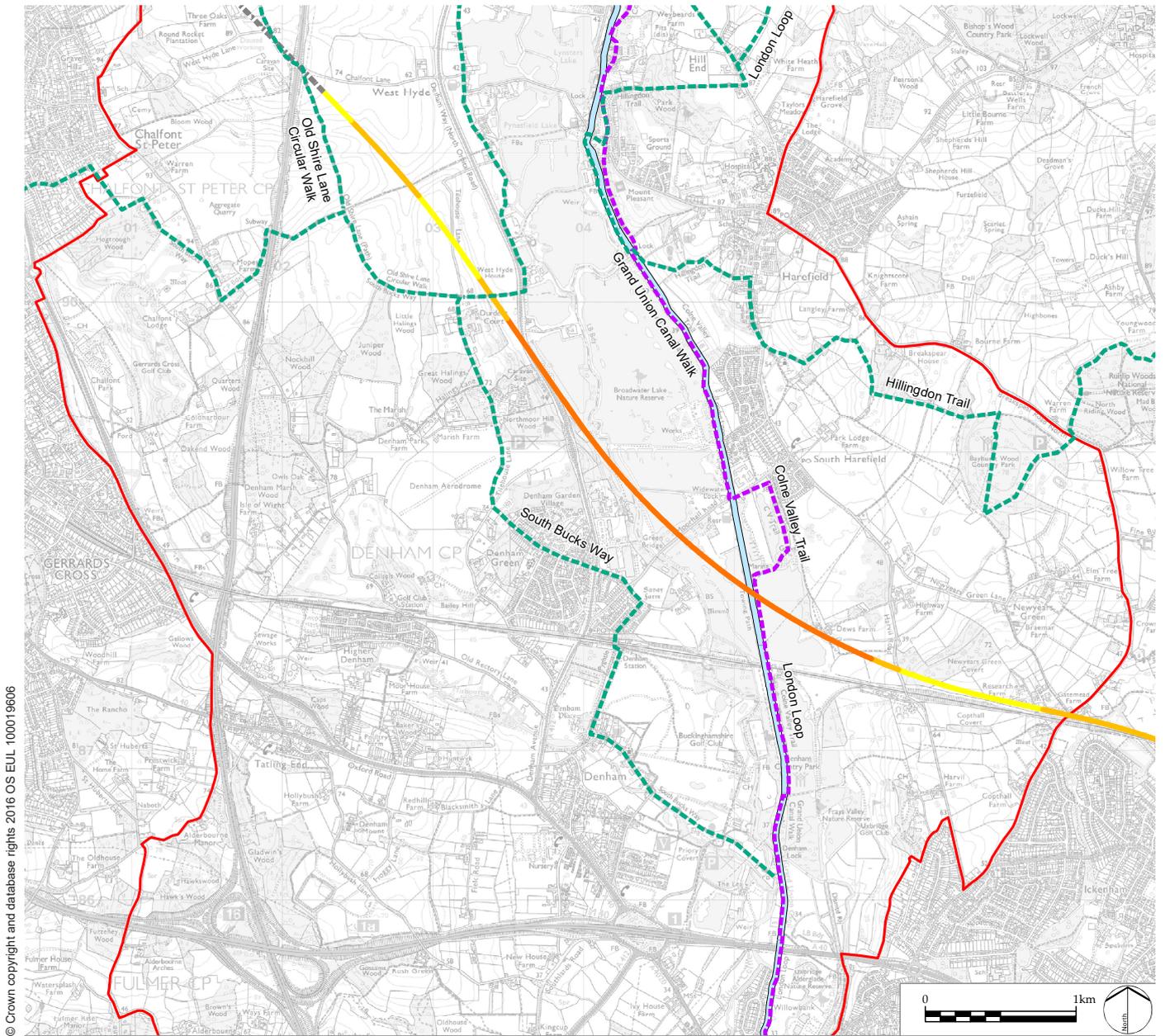
The CVRP has a comprehensive pedestrian and cycle network that serves movement locally within the Park boundary and beyond.

Strategic Connections

Strategic movement through the CVRP, to areas beyond the park boundary, centre on the **Grand Union Canal Corridor** (refer to Figure 10). This historic route spans virtually the entire length of the Park on a north-south alignment, and connects the Colne Valley with central London to the south-east and areas beyond the M25 to the north. Associated with the Canal are several strategic recreational routes, namely the **Grand Union Canal Long Distance Path**, the **Colne Valley Trail Long Distance Path** (more so in the northern reaches of the Park), and Sustrans National Cycle Route No. 6.

There are several other strategic recreation routes associated with the northern parts of the Park, as follows:

- **South Bucks Way Long Distance Path**, which starts at Denham Country Park on the Grand Union Canal towpath and heads north-west, connecting the CVRP with Chalfont St Peter and areas beyond.
- **Hillingdon Trail Long Distance Path**, which spans the London Borough of Hillingdon from Cranford Park in the south to Springwell Lock on the Grand Union Canal in the north, passing through Bayhurst Wood.
- **London Loop Long Distance Path**, which provides a green ring route around London, generally towards the outer edges of the suburbs or in countryside and passes through numerous woods, commons and parks and on waterside paths alongside the Grand Union Canal and the River Colne.
- **Old Shire Lane Circular Walk**, which follows part of the Old Shire Lane and loops back through the villages of West Hyde and Maple Cross.



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FIGURE 10: RECREATIONAL ROUTES: STRATEGIC CONNECTIONS



Sources: Ordnance Survey, Groundwork, South Bucks District Council



RECREATIONAL ROUTES

Local Connections

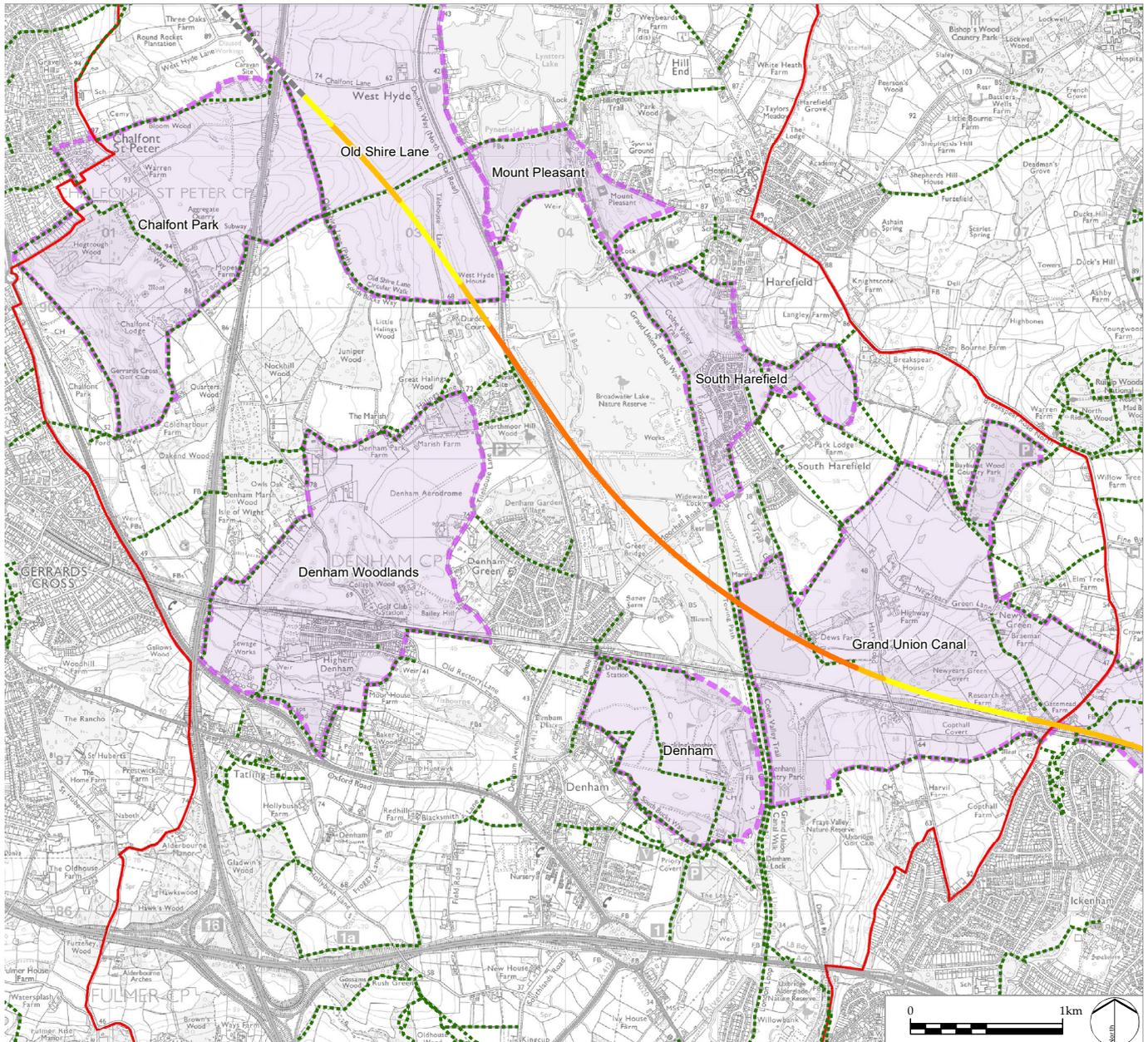
The AMP area is crossed by an extensive network of Public Rights of Way that provide essential access to the countryside for local communities within and in the vicinity of the Park (refer to Figure 11). The strategic Long Distance Paths often coincide with public footpaths and bridleways but the rights of way permeate the local countryside in a far more comprehensive manner than the strategic routes.

The Colne Valley Regional Park CIC promotes several circular walks within the boundaries of the Park. Those walks of relevance to the northern parts of the Park are as follows:

- **Old Shire Lane Circular Walk**, as described above.
- **Chalfont Park Circular Walk**, which is situated on the eastern edge of the Chilterns near Chalfont St Peter, and passes along Old Shire Lane.
- **Grand Union Canal Circular Walk**, which starts in Denham Country Park and follows the canal as far as Harefield Marina before heading away from the valley floor up to Bayhurst Wood and looping back down through Frays Valley.
- **Denham Circular Walk**, which follows a loop from Denham station through Denham Country Park
- **Denham Woodlands Circular Walk**, which follows a loop around Denham Aerodrome and the woodlands
- **Mount Pleasant Circular Walk**, which follows a loop through the open access land to the south of Mount Pleasant and passing by several lakes on the valley floor.
- **South Harefield Circular Walk**, which follows a loop around South Harefield, following the Grand Union Canal and public rights of way top the west of Harefield.

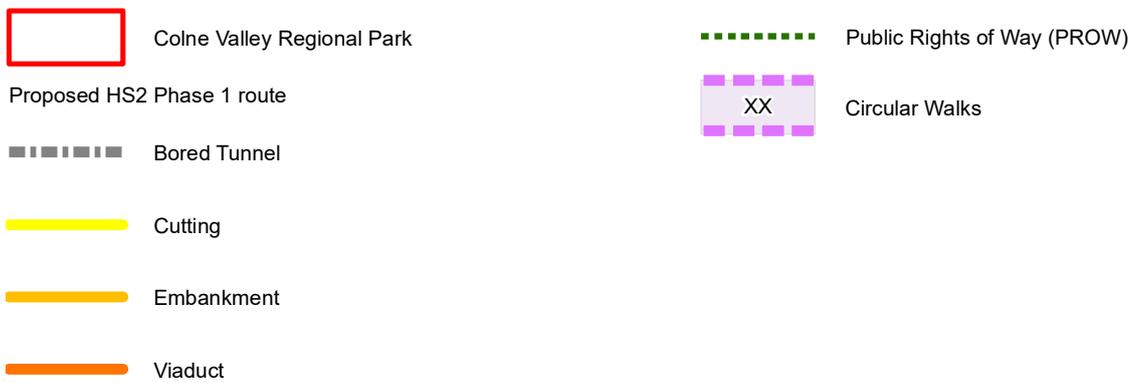
In addition to the local and strategic movement network, there are other pedestrian routes associated with the various nature reserves within the Park. Although not designated public rights of way, they are accessible to the public and in some instances there are facilities associated with these routes, such as seating, picnic benches and interpretation boards.

It is worth noting that, whilst the movement network (both strategic and local) is relatively comprehensive across the northern reaches of the park, there is an absence of publicly accessible footpaths around the waterbodies between Denham Green and South Harefield / Harefield (i.e. Broadwater Lake, Harefield Moor Lake, Korda Lake, and Savay Lake). The experience of walking the Park is often limited to the linear routes along the Grand Union Canal, where thick vegetation along the Canal often screens the lakes, or along routes that generally have limited interfaces with the Park's waterbodies.



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FIGURE 11: RECREATIONAL ROUTES: LOCAL CONNECTIONS



Sources: Ordnance Survey, Groundwork, South Bucks District Council



2.6 RECREATION

There is a recognition that the Colne Valley Regional Park has an important role to play in providing recreational opportunities for its immediate population and also for visitors from the wider area. In addition to the extensive network of recreational routes, as described above, and the numerous nature reserves that are an important recreational resource within the Park, there are several other recreational facilities within the AMP area that will be affected either directly or indirectly by HS2's proposals (refer to Figure 12). These facilities, private and public, include the following:

- **Denham Waterski Club**, a private members facility located west of the River Colne.
- **Broadwater Sailing Club**, located at the northern end of Broadwater Lake.
- **Hillingdon Outdoor Activity Centre (HOAC)**, a water sports and activity centre located at Harefield No. 2 Lake and run in partnership with the London Borough of Hillingdon.
- **Buckinghamshire, Denham and Uxbridge golf clubs**.
- **Harefield Marina** (with approximately 250 moorings) with additional moorings along the Grand Union Canal.
- **Angling clubs**, including Harrow Angling Society (Harefield No. 1 and No. 2 Lake), British Carp Study Group (Korda Lake). Savay Lake and lakes within Fray's Valley are also used for angling.
- **Denham Country Park**, which includes the Colne Valley Park visitor centre and its associated facilities.
- **Bayhurst Wood Country Park** (associated with the Ruislip Woods facilities beyond the park boundary to the east).
- **Denham Quarry Park**, a local nature reserve also used for rock climbing activities.
- **Denham Aerodrome**

2.7 CONCLUSION

COLNE VALLEY REGIONAL PARK - GREEN INFRASTRUCTURE

As described in Buckinghamshire County Council's Green Infrastructure Delivery Plan (August 2013)

"Green infrastructure provides a vital life support system, encompassing a network of green spaces, access routes, landscapes and natural and historic elements that intersperse and connect urban and rural settlements with each other and the surrounding countryside.

Operating at all spatial scales it enables a holistic overview of the natural and historic environment, acknowledging its multi-functional benefits for the economy, wildlife and health and well-being of local people and communities".

The Colne Valley is acknowledged in numerous planning policy documents and strategic initiatives as an essential component of the region's Green Infrastructure. The proposals that form part of the AMP should not only be measured against the six objectives of the Colne Valley Regional Park but they must also ensure that the functionality of the region's Green Infrastructure is safeguarded and enhanced for future generations.

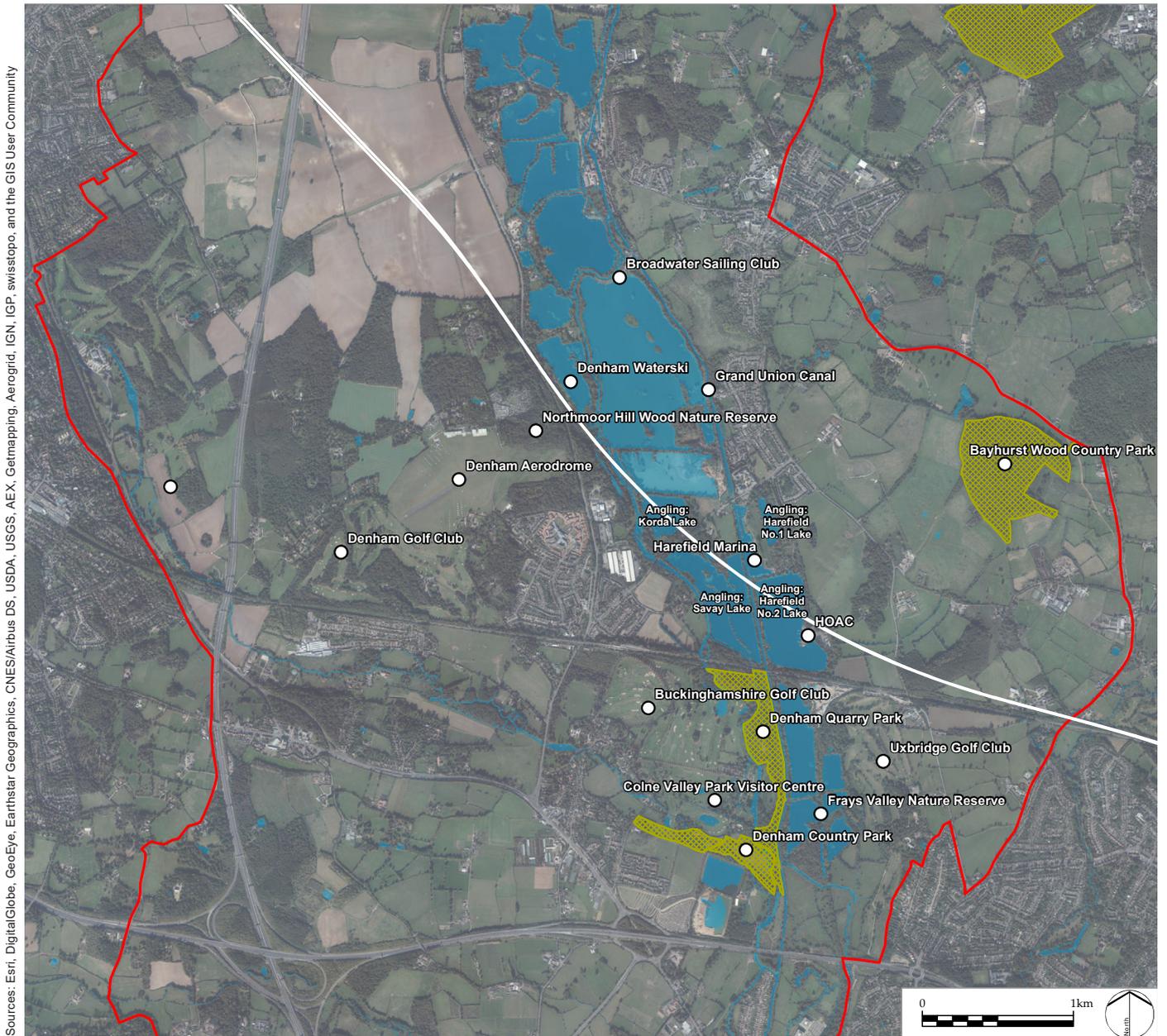


FIGURE 12: RECREATIONAL ASSETS

-  Colne Valley Regional Park
-  Country Parks
-  Recreational Assets

Sources: Aerial - ESRI, Groundwork, South Bucks District Council



3.0 HS2 PROPOSALS

Phase One of HS2, involving the construction of the proposed scheme between London and the West Midlands, is expected to take place between 2017 and 2026 (including a period of testing and commissioning). The duration, intensity and scale of construction along the route will vary over this period but passenger services will be provided by high speed trains from 2026. Some aspects of construction, such as reinstatement of areas used for spoil storage, will continue after the scheme comes into operation.

3.1 CONSTRUCTION

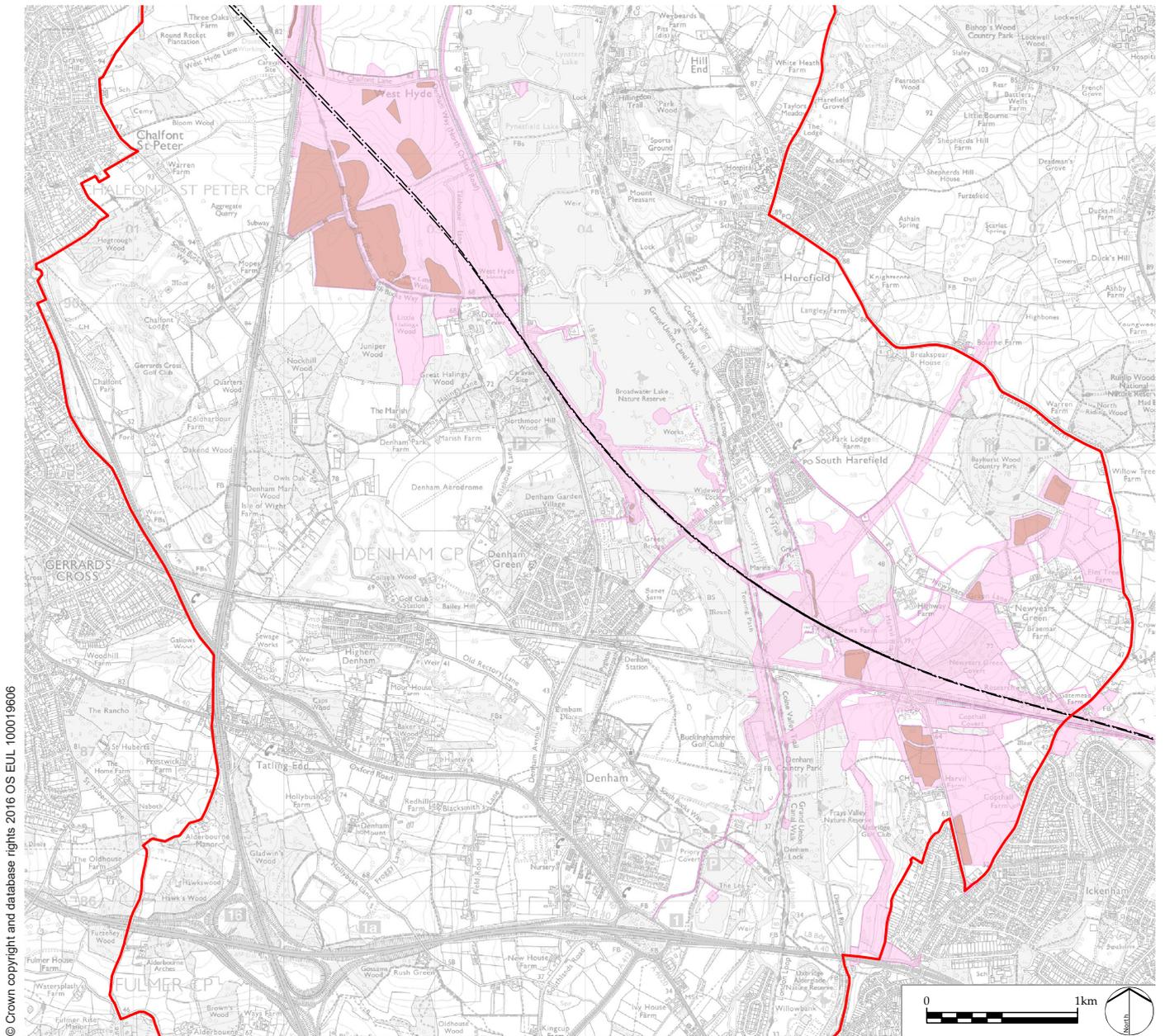
(refer to Figure 13)

During construction, land required for the project will include site compounds, the temporary stockpiling of materials (generally topsoil, subsoil and other excavated materials including spoil from the Chiltern and London tunnels), a construction jetty across the waterbodies and temporary diversion of roads, public footpaths / bridleways and private access routes. Land required temporarily for construction will ordinarily be restored to its existing use following completion of the project.

3.2 OPERATION

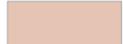
(refer to Figure 14)

During operation, land required for the project will include the operational rail corridor and mitigation, including earthworks, land used for the placement of excavated material, drainage areas and new ecological habitats. Land will also be acquired to divert or realign some roads, public footpaths / bridleways and watercourses. Most land outside the operational boundary of the railway will be handed back by HS2 to its original owners.



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FIGURE 13: HS2 PROPOSALS: CONSTRUCTION

-  Colne Valley Regional Park
-  Rail Alignment
-  Temporary material stockpile
-  Land potentially required during construction

Sources: Ordnance Survey, Groundwork, South Bucks District Council, HS2



3.3 LIKELY IMPACTS OF HS2 ON THE PARK

As part of the design process, HS2 Ltd undertook an Environmental Impact Assessment (EIA) to determine the level of mitigation needed to avoid, reduce or manage significant environmental effects arising from the construction and operation of the railway.

After taking into account the mitigation identified in the Environmental Statement (ES), there are residual (or remaining) impacts of HS2 on the Colne Valley. Some of these residual impacts are identified in the ES and others relate to residual impacts identified by the Panel. The aim of the AMP proposals is to provide additional mitigation for these residual impacts, where possible, or to provide enhancements to areas within the Colne Valley to compensate for residual effects of HS2 that can not be mitigated further.

The residual impacts of relevance to the AMP can be broadly related into themes, as follows. It should be noted that the residual impacts identified below arise from professional judgments of Panel members and its consultant team, as well as from residual impacts identified within the ES, and are provided in summary:

Landscape and Visual Impact

- Landscape impacts will largely lie outside of the valley floor in areas close to the Chiltern South and Northolt tunnel portals, owing to construction compounds, feeder stations and land needed to temporarily store excavated material from tunnel construction. This will lead to the erosion of landscape character through changes in natural topography.
- Within the valley floor, tree cover will generally limit the visual impact of the viaduct. In the short to medium term, trains and infrastructure associated with the railway (particularly overhead line equipment (OLE) gantries) will be visible above the tree line in many places, but the existing trees alongside the viaduct (currently around 15-20 m high) have yet to reach mature heights (20-25m) which will reduce visibility in the long term.
- In areas where the viaduct could be visible (for example across Broadwater Lake and along the Grand Union Canal), there is an opportunity to create controlled views of the viaduct, without unduly impacting on views across the valley or within the valley floor. AMP proposals could also seek to create views of countryside, uninterrupted by HS2 construction works and the final proposed scheme.

Ecological Impact

- The route of the railway will lead to severance (both during construction and operation) of a number of habitats within the valley floor, including several lakes (Harefield No. 2, Korda Lake, Long Lake, Savay Lake), the River Colne and Frays Farm Meadows.
- Ecological disturbance of wildlife populations will extend to areas beyond the route of the railway line, where noise and air quality is likely to be affected.

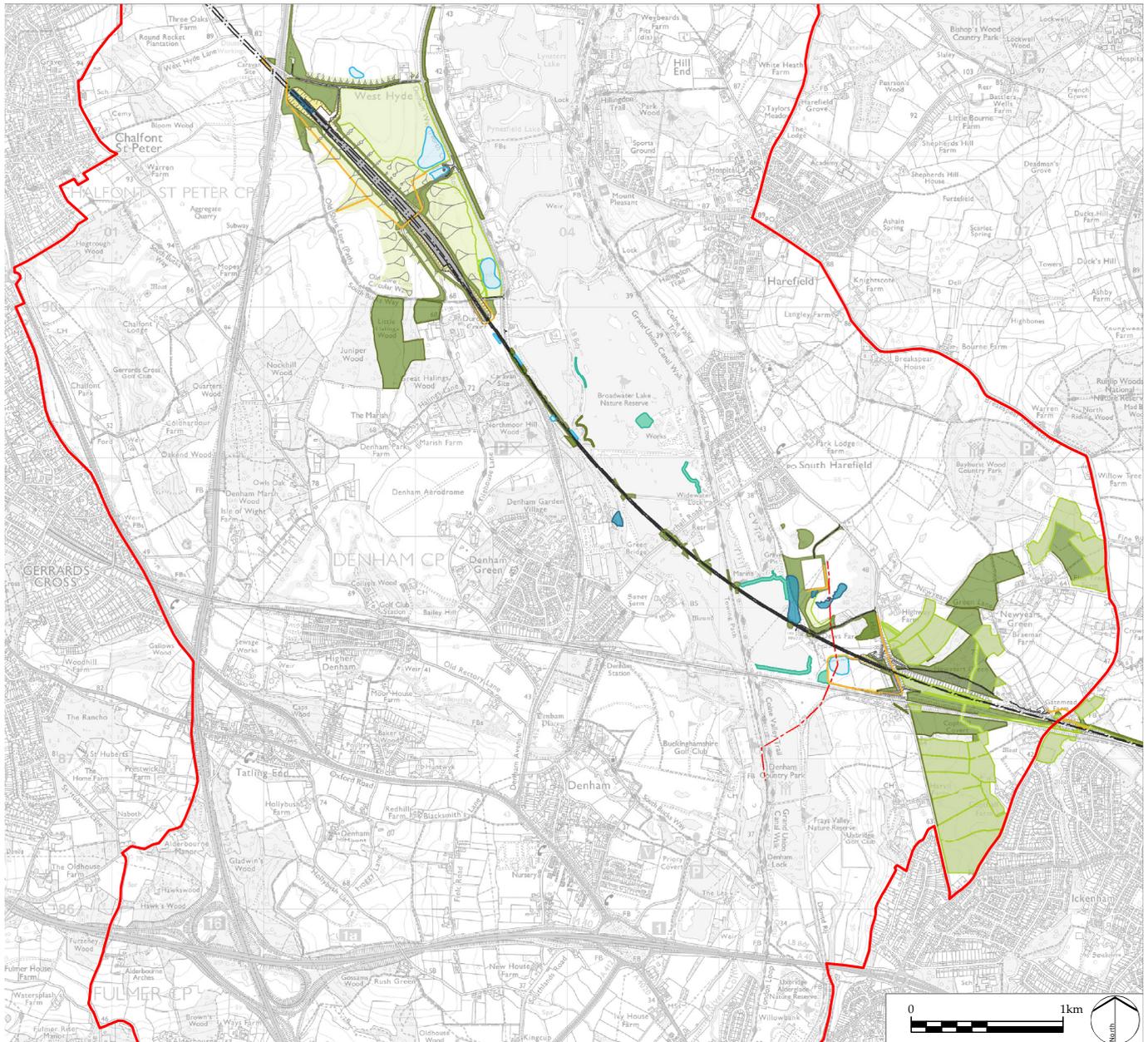
Recreational Impact

- Several key recreational routes will be impacted during the construction of the viaduct, including the Colne Valley Trail, Grand Union Canal Walk and Old Shire Lane Circular Walk.
- Several public rights of way will also be disrupted during construction, with some being permanently diverted on circuitous alignments, in particular around the National Grid Feeder Station at Harefield Moor.
- Potential disruption caused by the route of the railway will lead to the permanent and / or temporary relocation of users such as HOAC (from Harefield Lake No.2), British Carp Study Group (Korda Lake), Harrow Angling Society (Harefield Lake No2), the angling club associated with Savay Lake, and Denham Waterski Club.
- There is likely to be a loss of tranquillity in areas close to the line of the route, including publicly accessible areas that lie outside the Enabling Act Limits, such as Northmoor Hill Wood and the open access land adjacent to Denham Garden Village.

Reputational Impact

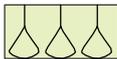
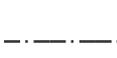
- Addressing the reputational harm HS2 will have on the Park during construction and operation is an important consideration, and one that has not been addressed by HS2. Considering the impacts on the Park as they will be perceived by existing and potential users and visitors, as well as those who live and work there, requires an approach that ensures that, so far as possible, the current qualities of the Park remain undiminished and that changes to the Park (both as a result of HS2 and the AMP proposals) are positively embraced.

Further detail on the remaining effects of HS2 can be found within the AMP Project Sheets at section 7.0.



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FIGURE 14: HS2 PROPOSALS: OPERATIONAL

- | | | | |
|---|---|---|---|
|  | Colne Valley Regional Park |  | Balancing Pond |
|  | Landscape earthworks |  | Grassland Habitat Creation |
|  | Engineering earthworks |  | Woodland habitat creation / landscape mitigation planting |
|  | Tunnel portal |  | Rail Alignment |
|  | Wetland habitat creation |  | Main Utility Works |
|  | Replacement floodplain storage / ecological mitigation pond |  | New, diverted or realigned PRoW |

Sources: Ordnance Survey, Groundwork, South Bucks District Council



4.0 ISSUES & OPPORTUNITIES

It is clear from the analysis of the Park and its context in section 2.0 that connectivity between various locations within the Park and between the Park and neighbouring communities is a key issue. The Park provides a varied and valued recreational resource but communities within and adjoining the Park do not have good quality pedestrian and cycle links to the full range of recreational opportunities it offers. The Park also provides an attractive environment for movement between the various communities but, similarly, good

movement routes are not always available. During construction and (to a lesser extent) operation, HS2 will adversely affect connectivity in a number of locations.

This section sets out a review of the issues and opportunities from the perspective of movement and connectivity. The analysis informed the development of the AMP projects which are presented in section 7.0.

COMMUNITIES

Communities within and adjacent to the AMP area include:

- Chalfont St Peter
- Denham
- Denham Green
- Gerrards Cross
- Harefield
- Higher Denham
- Ickenham
- Maple Cross
- Mount Pleasant
- New Denham
- Northwood
- Rickmansworth
- Ruislip
- Tatling End
- West Hyde
- Uxbridge

LANDSCAPE AREAS

Three broad landscape areas can be found within the AMP area, as follows:

- **The Valley Floor:** which includes the River Colne, the Grand Union Canal and the lakes.
- **West of the Valley:** which extends towards the Chilterns plateau and is bound by the builtup areas of Chalfont St Peter and Gerrards Cross.
- **East of the Valley:** which extends towards the western edge of London across undulating farmland.





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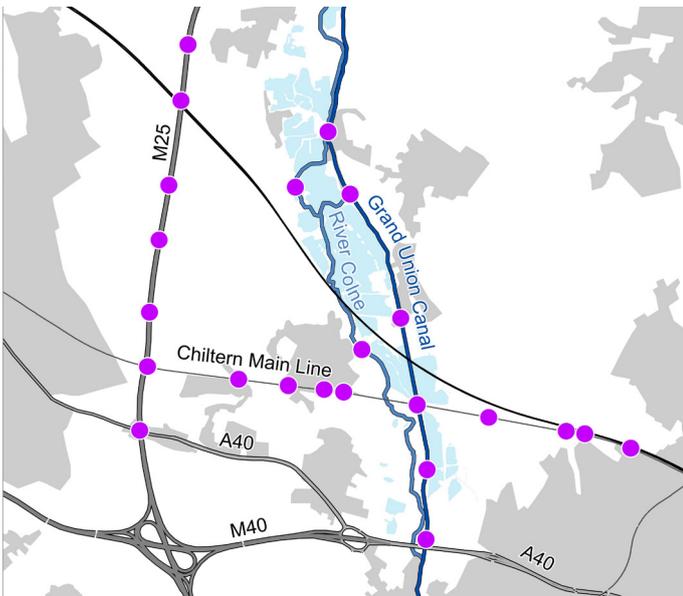
VISITOR ATTRACTORS

Key visitor attractors within the Park are:

- **Colne Valley Park Visitor Centre**, located at the western edge of the valley floor.
- **Bayhurst Wood Country Park**, located to the east of the valley on higher ground characterised by woodland.
- **Northmoor Hill Wood**, located to the west of the valley, again on higher ground within a wooded area.
- **HOAC**, a community facility located at the eastern edge of the valley floor.
- **Rickmansworth Aquadrome**, located within the valley floor to the north (off plan).

To broaden the visitor experience within the Park, more visitor attractors could be located in the valley floor, providing better access to the lakes or at a location that provides elevated, open views across the park (as opposed to a more enclosed experience within woodland).

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BARRIERS AND CROSSING POINTS

There are several significant barriers to movement within the valley, namely:

- M25
- M40
- A40
- Chiltern Main Line
- River Colne
- Grand Union Canal

HS2 will also become a significant barrier to movement.

In most cases, crossing points along these barriers are limited.

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EXISTING ROUTES

The existing routes within the Park comprise Public Footpaths, Public Bridleways, Sustrans Cyle Routes and other promoted recreational paths, such as South Bucks Way and the Hillingdon Trail. The network of routes within the landscape areas to the west and east of the valley floor is relatively comprehensive, whereas the network within the valley floor is relatively sparse, particularly with few routes crossing the valley floor.



STRATEGIC CYCLE ROUTES

Strategic cycle routes have been identified within the AMP area, which connect communities and key visitor attractors. These routes are largely focused on the north-south Sustrans National Cycle Route that follows the Grand Union Canal. Cycle movement across the valley floor is restricted by the river and canal and movement between communities is limited. To the east, there are promoted cycle routes within the urban areas (and Ruislip Woods) but generally these do not cross into the Park and do not descend into the valley floor.

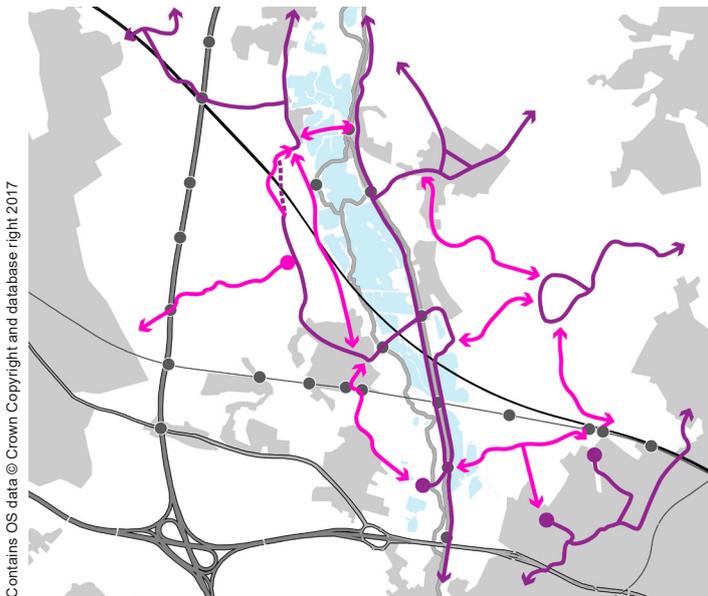
STRATEGIC CYCLE OPPORTUNITIES

The main opportunities to supplement the existing routes are:

- Provide cycle routes that connect communities at the edges of the Park (east and west) with the valley floor.
- Promote routes that connect communities within the Park to visitor attractors, such as Harefield to Bayhurst Wood.
- Provide links across the valley floor.



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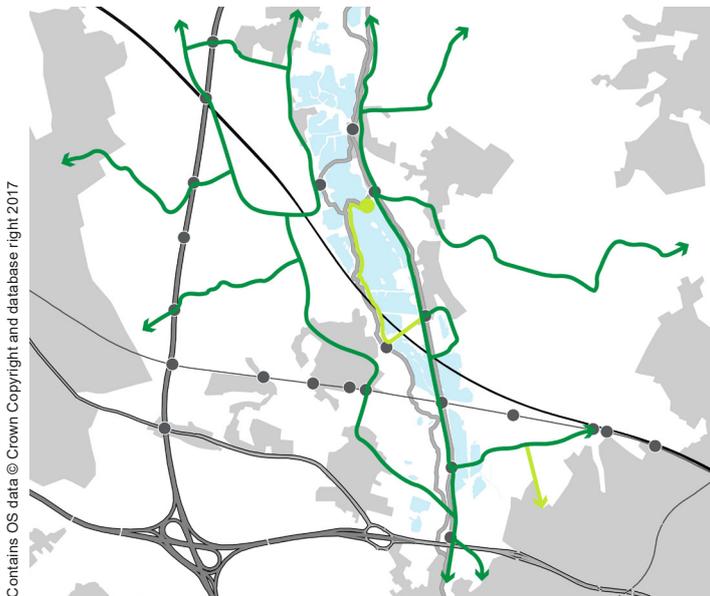
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STRATEGIC PEDESTRIAN ROUTES

Strategic pedestrian routes have similarly been identified. The network is relatively comprehensive within the AMP area. However, movement within the valley floor is limited to the north-south canal corridor, restricting access to the lakes.



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STRATEGIC PEDESTRIAN OPPORTUNITIES

The main opportunities are:

- Provide better links off the strategic network to the lakes
- Provide more links to neighbouring communities to the south-east (Ickenham)



ISSUES & OPPORTUNITIES

The above analysis is brought together on Figure 15 opposite, which provides the context for the individual AMP projects presented in section 7.0. The drawing highlights existing visitor attractors offering a range of visitor experiences, and two potential new attractors to complement the existing, as follows:

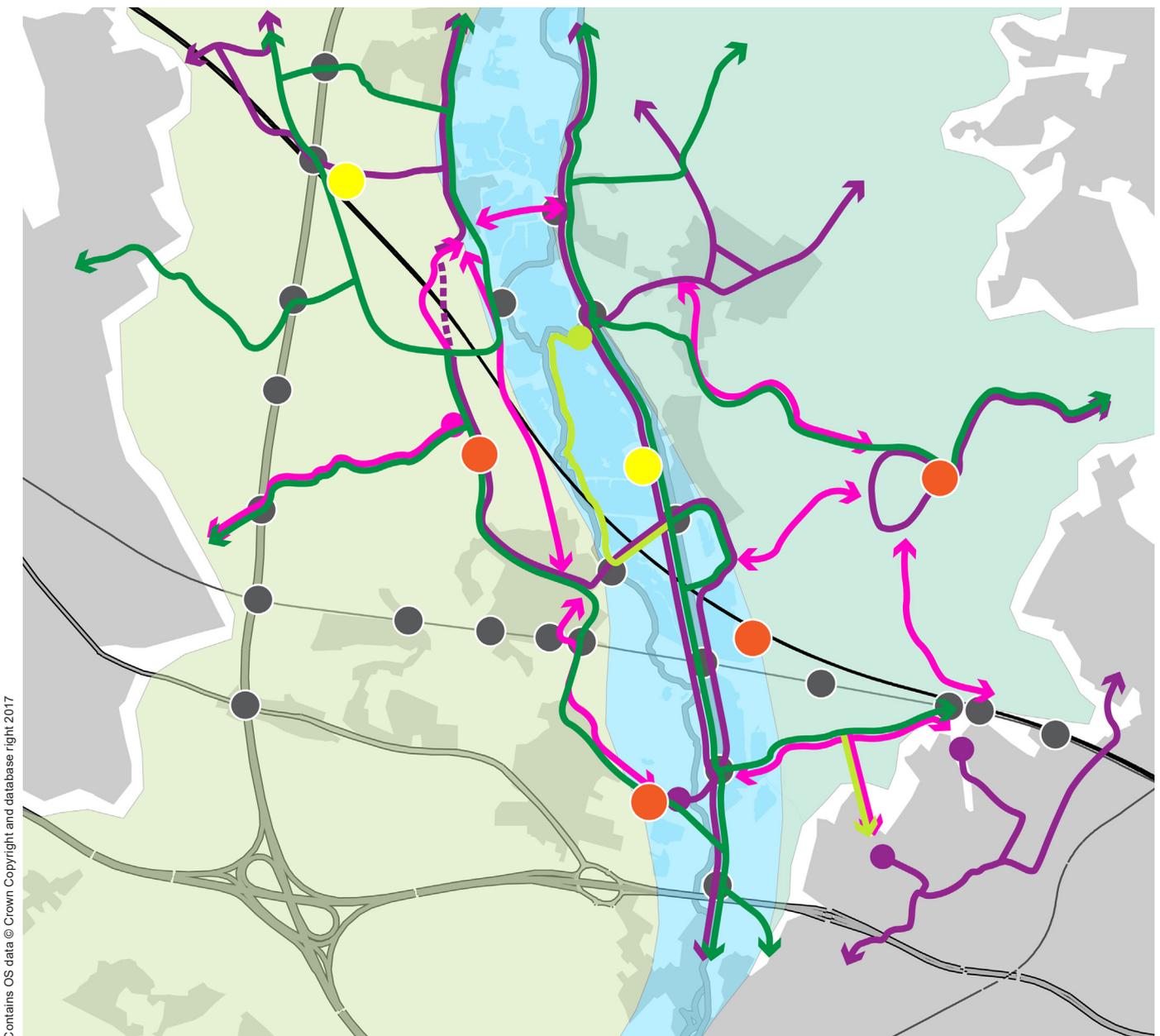
- Broadwater Lake (project 1), focussed around the birdlife using the lake.
- Western Valley Slopes (project 6), offering an experience on the open valley side in an area which is currently arable farmland but will be substantially affected by the construction of HS2.

Strategic cycle and pedestrian routes are shown to illustrate connectivity between visitor attractors and communities. The opportunities for new cycle and pedestrian connections, and for enhancements to existing connections, are reflected in the relevant AMP projects.

The availability of funding, the availability of land and other matters mean that the AMP projects will be brought forward over a period of time. The projects have been planned to enable them to be implemented on a phased basis and the non-spatially specific projects (such as project 9, Recreational Routes) can be delivered incrementally to enable appropriate connections to be brought forward alongside visitor attractors and other aspects being delivered in specific locations.



-  Existing visitor attractor
-  Potential visitor attractor
-  Crossing point
-  Existing strategic cycle route
-  Potential strategic cycle route
-  Existing strategic pedestrian route
-  Potential strategic pedestrian route



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FIGURE 15: ISSUES & OPPORTUNITIES



5.0 STAKEHOLDER ENGAGEMENT

Being situated between communities to the east (Harefield, Ruislip, Ickenham) and west (the Chalfonts, Denham, Maple Cross), the Colne Valley serves numerous groups including local residents and businesses, schools, farmers and landowners, all of whom have an interest in the park and the effects of HS2.

From the very start of the process, engagement with key stakeholders and members of the public has been at the centre of the AMP's preparation and has been ongoing since April 2016. The Panel itself is drawn for a wide range of organisations with an interest in the Colne Valley and each member of the Panel represents their stakeholders within the jurisdiction of their governance.

5.1 COMMUNICATION STRATEGY

As part of the engagement process, a Communication Strategy was formulated which gave the Panel members a common vision to help the Panel engage effectively and consistently with external stakeholders. The aim of the Communications Strategy was to ensure an inclusive and transparent process with the public throughout the preparation and implementation of the AMP.

Set out in the communication strategy the Panel identified a set of aims, as follows:

- 1. To achieve a positive long-term legacy for the Park which local residents and visitors can be proud of.
- 2. Provide effective engagement, keeping local communities informed throughout the AMP process.
- 3. Engender confidence from the public that CVRP can continue to function as a whole and that impacts on the functionality of the Park are minimised where possible.
- 4. To achieve good quality and value for money when undertaking work.

- 5. Attain the highest level of transparency on mitigation proposals and why they are being taken forward.
- 6. Ensure the Panel effectively represents the interests of CVRP and its stakeholders.

Within the Communication Strategy, a list of key stakeholders was drawn up (the full list is appended to this report – refer to Appendix B). Through various means, either through meetings, telephone conversations or written correspondence, all the organisations identified within the Strategy have been contacted as part of the AMP's preparation.

5.2 PUBLIC EXHIBITION

In addition to the targeted engagement of key stakeholders, four public exhibition events were held during February 2017 to allow the public to share their views on the emerging AMP proposals. A set of exhibition banners were displayed and also made available online via the Colne Valley Regional Park website.

Attendees were given the opportunity to provide general feedback and to comment on their preferred mitigation options via a feedback form, email or verbally. The outcomes of the exhibitions were summarised in a report, which has been uploaded to the Government website by HS2, and the feedback from the exhibitions has been used to assist the Panel in refining the AMP proposals:

<https://www.gov.uk/government/publications/hs2-colne-valley-regional-park-panel-meeting-resources>

5.3 ONGOING ENGAGEMENT

It is anticipated that engagement with key stakeholders and members of the public will continue throughout the preparation and implementation of the AMP and that the public will be updated on the progress of the Panel, although it should be noted that the final decision on the proposals to be shortlisted within the AMP lies with the Panel.



EXHIBITION BANNERS



6.0 EVOLUTION OF PROPOSALS

The process of reaching a final set of AMP Projects has involved a series of stages, enabling early stage proposals to evolve and be refined, in consultation with the Panel, key stakeholders and members of the public. These stages were as follows:

- Defining a vision for the northern reaches of the Colne Valley Regional Park that include the area affected by HS2, to help guide the evolution of the AMP proposals.
- Preparation of a Proposals Longlist
- Establishment of criteria for selection of proposals.
- Workshops and meetings with Panel members to refine Longlist Proposals (see Appendix C for notes from workshops).
- Rationalisation of Proposals Longlist for Public Exhibition.

6.1 VISION

To ensure the AMP proposals match wider aspirations for Colne Valley Regional Park and form part of a coherent strategy, an overarching Vision was developed for the Park, in consultation with the Panel. The vision focuses on the northern part of the Park that will be affected by HS2. It offers a potential description of the Park in 2035, a few years after completion of HS2.

2035: A VISION FOR THE COLNE VALLEY REGIONAL PARK

Colne Valley Regional Park is widely known and loved as an area of richly diverse, accessible, productive and attractive countryside adjoining the west edge of London. It is noted for the distinctiveness of its varying landscape character, which reflects the underlying geology – from the undulating clay farmland to the rolling chalk downland at the foot of the Chilterns, with the historic River Colne flowing through its centre, flanked by the Grand Union Canal and numerous lakes.

These landscapes and waterscapes are enjoyed by local residents and visitors for the varied recreational opportunities they offer, for their ever-changing views, for their biodiversity and the chance to come into contact with nature, and for their historic and cultural interest. They accommodate vibrant village communities and businesses that take advantage of the attractive setting.

The strong rural character and diversity of the landscape has enabled it to absorb and accommodate major changes throughout its history; in some cases, changes have enriched the character of the Valley and provided additional features of interest. Alongside this, the predominantly agricultural landscape accommodates uses as diverse as Denham aerodrome and the film industry. It also provides resilience to climate change, flooding, soil loss and ongoing development.

Colne Valley Regional Park is a landscape that integrates city and countryside, people and nature, activity and tranquillity, change and stability, the past and the future.



6.2 DRAFT AMP PROPOSALS

INITIAL LONGLIST

Following the information gathering stage of the project, LDA Design drew up a longlist of approximately thirty proposals for the Panel's consideration. This longlist was presented and discussed at a CVRP Panel workshop in October 2016.

In order to refine the longlist, a set of criteria was identified, against which the AMP proposals could be tested.

CRITERIA FOR SELECTION:

It was determined that the **six** objectives of the Colne Valley Regional Park (see section 2 of this report) should be used as the primary criteria to assess the merit of the longlist proposals. Two additional objectives were defined and included within the selection criteria, as follows:

- **To raise the profile of the Park**, encouraging people to use and value it so that it becomes one of the most recognised and appreciated facilities in the area.
- **To secure the long-term sustainable future** of the Park, seeking to ensure that appropriate management, monitoring and funding arrangements are in place to ensure the performance, maintenance and operation of its features and facilities to a high standard.

It was agreed that each AMP Project **MUST** align with at least one of the **eight** objectives.

In addition, it was agreed that the AMP Proposals **MUST** also achieve the following:

- Have developed as a result of following the mitigation hierarchy; avoid – mitigate – compensate – enhance
- Mitigate impacts caused by HS2 and/or reduce the reputational damage that HS2 works will have on the Park.

A set of secondary criteria were also defined, noting that AMP Proposals **SHOULD**:

- Achieve good value for money – projects that can draw in match funding would be of advantage.
- Be preferred if they have a community benefit over a private landowner benefit.
- Be likely to pass the planning process where applicable.
- Be deliverable within a given timescale – the AMP should include quick wins.

REFINED LONGLIST:

During the course of late 2016 and early 2017, additional workshops were held to refine the longlist proposals and gather further information on technical aspects of the proposals. The initial set of approximately thirty proposals from the October longlist were rationalised and consolidated into a set of fourteen AMP Projects, with only a few of the original Longlist Proposals omitted, as follows:

- **Denham Waterski:** HS2 have made assurances to fund costs for a planning application to relocate the clubhouse to the eastern side of the lake.
- **Savay Lake:** Given that the mitigation of effects on Savay Lake are to be covered by HS2, the Panel decided that the only elements the AMP could deliver would be related to strategic measures across the wider AMP area associated with Protected Species (Project 14).
- **Pylon relocation:** It was agreed that it was not appropriate for the AMP to pursue exemplar designs for pylons within the Park. Impacts due to pylon relocation are covered by other AMP projects (Project 14)
- **Motocross in the Park** (between Old Shire Lane and the M25): The proposal falls within an area that would be required by HS2 for a long period of time and the Panel raised concerns about the planning implications of using the land for motocross.



7.0 ADDITIONAL MITIGATION PLAN PROPOSALS

7.1 INTRODUCTION TO AMP PROJECTS

This section sets out the detail on fourteen shortlisted AMP Projects.

Of the fourteen, seven projects are spatially specific and the projection locations are identified on Figure 16.

The remaining seven are non-spatially specific projects and address issues such as enhancements to recreational routes to offset impacts of route closures and diversions, ecological enhancements to offset impacts arising from HS2, initiatives to raise the profile of the Park and enhance visitor experience.

7.2 FUNDING

It is anticipated that the £3 million to be made available by HS2 Ltd. to support the delivery of the AMP will not be sufficient to deliver all the proposed AMP projects. However, other existing and potential funding opportunities could allow the Panel to maximise the delivery of the AMP projects. These could include partnership funding to help deliver AMP projects or could consist of separate funding streams such as the two funds available to communities and local economies that are impacted by the construction of HS2, namely the Community and Environment Fund (CEF) and Business and Local Economy Fund (BLEF).

7.3 PROJECT INFORMATION

The following information is provided on the fourteen AMP Projects:

- Tabulated Project Sheets
- Indicative Proposals drawings (Projects 1 – 7)
- Image sheets (where appropriate) include site photography and images of similar proposals that have been undertaken elsewhere to help illustrate and explain what is proposed.

It should be noted that the numbering of projects has no bearing on their standing and does not reflect any form of prioritisation or ranking.



7.4 FORMAT OF THE PROJECT SHEETS

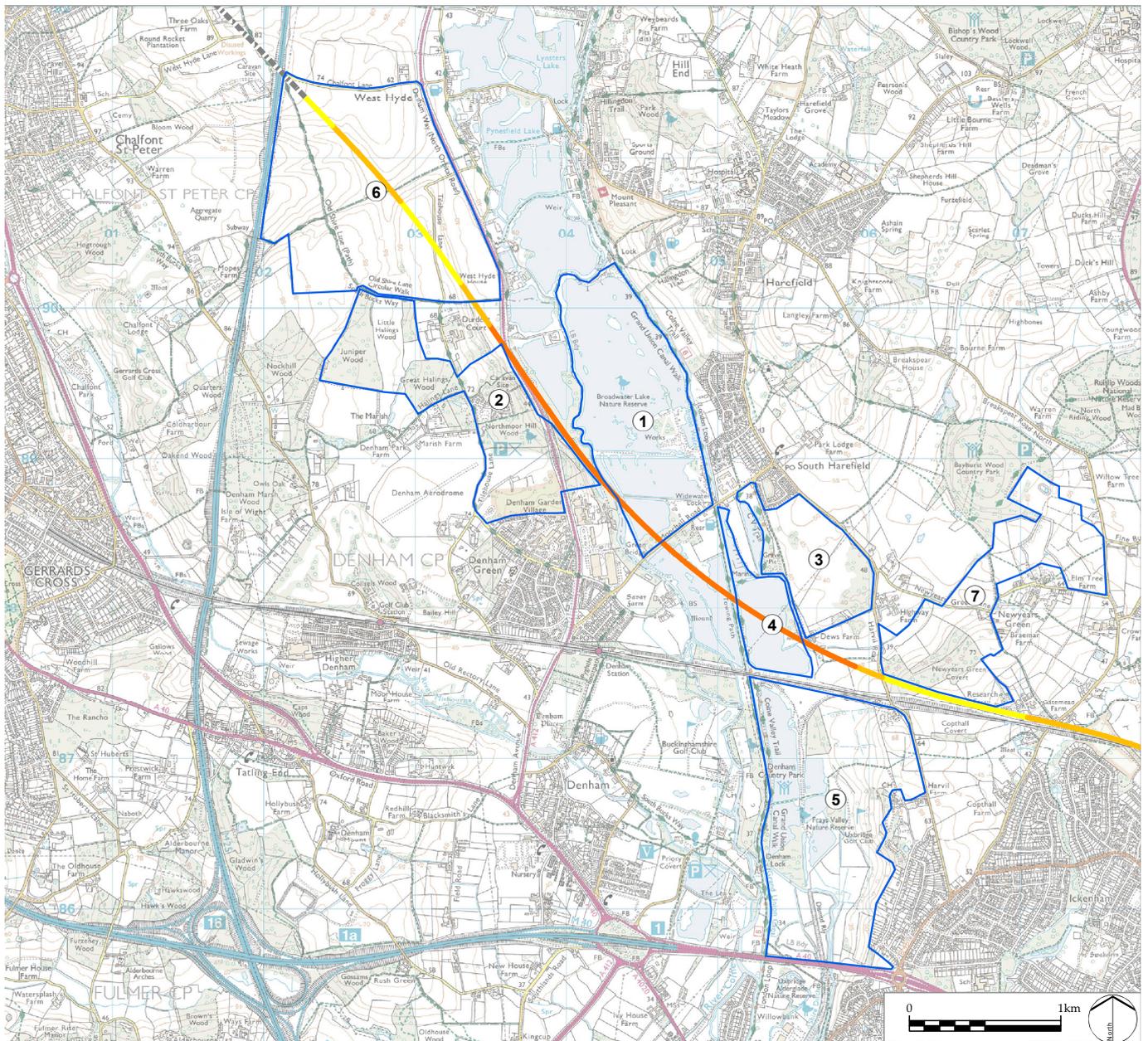
For the location specific projects (Projects 1–7), the sheets include information on the area where the project is to be located, as follows:

- Location and Existing Description
- Location Plan
- Existing Land Ownership
- Anticipated HS2 Works
It should be noted that the HS2 works summarised in this section are taken from HS2's Environmental Statement. The proposed works are subject to change as the nominated undertaker will develop HS2's design proposals in greater detail.

For all Projects, the sheets describe the proposal and the effects it is intended to address, summarise feedback from the public exhibition, and set out various matters relevant to the timing and delivery of the project, as follows:

- Residual effects after taking account of HS2 mitigation/Need for the Project
This section details the remaining effects of HS2 on the Colne Valley, largely derived from professional judgments made by Panel members and its consultant team.
- Project Description
This section describes the project proposals. The proposals either provide additional mitigation for residual effects of HS2 and / or provide enhancements to compensate for residual effects of HS2 that can not be mitigated further.
- Feedback from Public Exhibition
- Cost Implications
Specialist cost advice has not been obtained during the preparation of the AMP. High level commentary on the likely level of implementation costs is therefore provided.

- Delivery Timescale
- Consents / Agreements Required
- Pre-Design Requirements
Some of the proposals require survey work as part of the pre-design requirements. It should be noted that those projects located with HS2 Bill limits should make use of HS2 survey work where they have been undertaken and that HS2 may need to update the surveys.
- Potential Revenue Implications
This section identifies opportunities for generating revenue, and where maintenance costs are likely to increase.
- Potential Delivery Responsibility
- Potential Maintenance Responsibility
- Success Measures
- Potential Risks



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FIGURE 16: AMP PROJECT AREAS (PROJECT 1 - 7)

- Proposed HS2 Phase 1 route
- ■ ■ ■ ■ Bored Tunnel
- Cutting
- Embankment
- Viaduct
- Project Areas

Sources: Ordnance Survey, Groundwork, South Bucks District Council



7.5 AMP PROJECTS

PROJECT 1: BROADWATER AREA (p.53)

PROJECT 2: TILEHOUSE LANE WOODS AREA (p.61)

PROJECT 3: HAREFIELD MOOR AREA (p.69)

PROJECT 4: HOAC (p.77)

PROJECT 5: FRAYS VALLEY (p.83)

PROJECT 6: WESTERN VALLEY SLOPES (p.89)

PROJECT 7: NEWYEARS GREEN AREA (p.97)

PROJECT 8: ACCESS POINTS, WAYFINDING AND SIGNAGE (p.103)

PROJECT 9: RECREATIONAL ROUTES (p.107)

PROJECT 10: MULTIMEDIA (p.111)

PROJECT 11: VIEWS (p.115)

PROJECT 12: PUBLIC ART (p.119)

PROJECT 13: LOCAL COMMUNITY ENGAGEMENT(p.123)

PROJECT 14: WILDLIFE IMPROVEMENTS (p.127)



PROJECT SHEETS



PROJECT 1: BROADWATER AREA

Project 1: Broadwater Area

Location and Existing Description

The project area is on the valley floor bounded by Moorhall Road to the south, River Colne to the west and Grand Union Canal to the east. South Harefield lies to the east, immediately beyond the canal. Denham lies a short distance west of the river.

The project area comprises the majority of the Mid-Colne Valley SSSI, which is designated for its breeding birds and wintering wildfowl. Korda Lake, Long Pond and the western edge of Broadwater Lake are within an existing Herts & Middlesex Wildlife Trust nature reserve.

The project area includes Broadwater Lake, Harefield Moor Lake, Korda Lake and Long Pond. The lakes are surrounded by naturally regenerated woodland which gives them an enclosed, tranquil quality. All the lakes within the nature reserve are used for angling by British Carp Study Group (BCSG) and are accessible by the public for quiet enjoyment of the nature reserve. Harefield Moor is the site of a minerals operation, located at its east end and accessed from Moorhall Road. The south end of Broadwater Lake is an important bird refuge, whilst the northern part of the lake is used for sailing. Although not a designated right of way, there is public access along the east bank of the river via a footpath from Moorhall Road. Aligned with the project area's eastern boundary is the Grand Union Canal and its associated towpath. There is a private vehicular route from Moorhall Road past the minerals operation at the east end of Harefield Moor Lake which continues northwards to the top of Broadwater Lake.

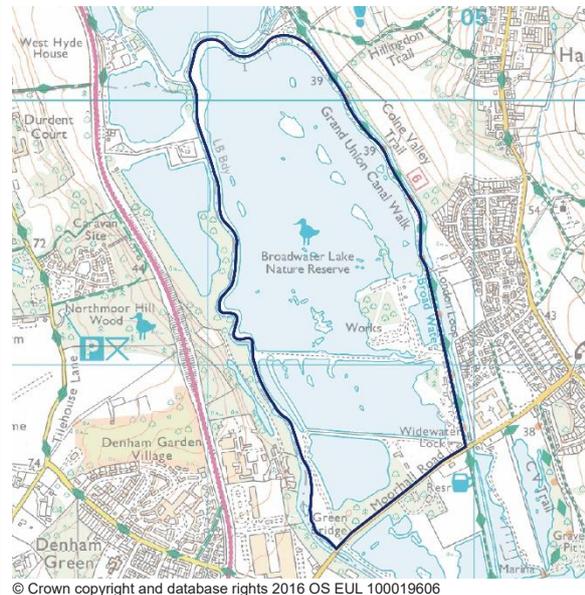
Existing Land Ownership

Broadwater Lake: private ownership.

Harefield Moor Lake: private ownership.

Korda Lake and the west bank of Broadwater Lake: private ownership and tenanted by HMWT.

Location Map



Anticipated HS2 Works

The viaduct will cross the south-western corner of the area, bisecting Korda Lake and Long Lake and crossing the river west of Long Lake. There will be major disruption to these two lakes during construction and it is likely that fishing will have to cease. There is also likely to be significant disturbance to waterfowl and breeding birds during construction, including to the bird refuge area on Broadwater Lake. In addition to this, there may be long term disturbance effects. The visitor experience is likely to be significantly reduced in quality long-term. Public access along the east bank of the river will be suspended during construction, inhibiting access to the Broadwater Lake Nature Reserve. Woodland will be cleared along the viaduct corridor to enable construction.

Following construction, HS2 have committed to areas of wetland and woodland planting to compensate for the loss of habitat within the SSSI and to help integrate the viaduct into the landscape.

There is an assurance from HS2 for the nominated undertaker to work with the Herts and Middlesex Wildlife Trust to develop and agree reasonably practicable access to Broadwater Lake during construction, for the Wildlife Trust and its members.

Residual effects after taking account of HS2 Mitigation

- The ES notes residual effects on the character of the area due to the visibility of the viaduct, leading to a reduction in the sense of isolation and tranquillity in the valley.
- The ES also notes that one of two locations used by pochard for breeding in this area will be lost, resulting in a temporary adverse effect on the population.

Other residual effects include:

- HS2's proposals do not provide an alternative means of access for the public to Broadwater Lake during the suspension of access along the east bank of the river, as the assurance is only for the benefit of the Wildlife Trust and its members.
- There is no mitigation proposed for the degraded visitor experience of the nature reserve during the long-term. Nor do HS2's proposals make provision for the likely displacement of the Angling Club during construction and potentially in the longer term.
- Noise during construction and subsequent train noise in the operational phase are likely to disturb birds, and this is not fully mitigated.

Project Description

Broadwater Lake

- Establish a new nature reserve in the wooded area at the south-east corner of the lake, with potential for a larger area extending along the eastern edge of the lake. There may need to be some minor reinstatement works and screening to minimise disturbance to birds.
- Create a vehicular access using the existing route from Moorhall Road past the minerals operation, leading to an informal parking area on arrival at the new nature reserve. The parking area would be surfaced in gravel, hoggin or similar.
- Provide a number of bird-watching hides at carefully selected locations on the lake edge.
- Provide informal pedestrian access routes from the parking area to the hides, potentially a circular walk past the hides and returning through the woodland. The paths would be designed to be accessible to wheelchair users and include waymarking signage and an orientation board at the parking area.
- Potential for a link between the lake and canal, subject to landownership, location and design (which in principle is supported by the Canal & River Trust)
- Provide interpretation boards in the bird-watching hides and at other appropriate locations,

focussing on birds and other ecology.

- Explore the possibility of providing a small toilet block/compost toilet at the car park.

Other Lakes

Notes:

1. Proposals for Korda Lake depend on whether angling continues during or after HS2 construction works.
 2. Proposals for Harefield Moor Lake depend on clarification of the future of the minerals operation.
- Provide new informal pedestrian paths along some of the lake edges in locations carefully selected to allow sufficient areas to remain undisturbed for wildlife. There is potential for some of these paths to be created or dedicated as Public Rights of Way to increase connectivity within the Park. Provide bird-watching hides or viewing platforms at appropriate locations. Provide interpretation boards at appropriate locations, including at the hides and viewing platforms.
 - Potential management changes (including possible management of silt, reprofiling of edges or changes to vegetation management) to Harefield Moor Lake and/or Korda Lake (subject to availability) to create a range of marginal, fen and shallow water habitats not found to any great extent elsewhere within the Colne Valley.

Feedback from Public Exhibitions

Comments included a suggestion of a footpath extending around the lake and linking to the canal (subject to landownership). Another comment raised concerns about the ongoing cost of maintenance of the new nature reserve.

Cost Implications

Depending on land tenure arrangements being offered by the landowner, the largest cost would be land purchase. The provision of paths, bird-watching hides and interpretation boards is relatively low cost, although the potential extent of new paths is significant. Although the type of surfacing is relatively low cost, and it is possible that the existing ground surface is already adequate anyway, the parking area might be a significant item due to the area involved.

Overall, the project is expected to be of high-medium cost, depending on land purchase options. The cost would be higher if a toilet block was provided or if significant bank reprofiling or silt modelling works were undertaken in the lakes.

Delivery Timescale

Broadwater Lake

These aspects should be prioritised so as to have the new nature reserve in place and established as far as possible before HS2 construction works commence.

Other Lakes

These areas cannot be implemented until HS2 construction works are complete.

<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Consent for works within SSSI will be required from Natural England. • If the project continues to include partial filling of Harefield Moor Lake there may be consent required from the EA. • Protected species licences may be required if protected species such as water vole, otter or bat are affected by the proposed works. • Forestry felling licence may be required if trees are to be felled. • Landowner agreements. • Planning permission likely to be required for erection of toilet blocks, bird hides and car park. • Works in the lakes may be subject to a ROMP or Environmental Permitting requirements. 	<p>Pre-Design Requirements</p> <p>Ecology surveys may be required to inform design. More detailed baseline information of the Project area would be useful, especially to determine which protected species may be already using the banks of Harefield Moor Lake.</p> <p>Clarity on the future of the minerals operation and Korda Lake angling are required to inform any proposals affecting those lakes.</p>
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Parking charges • Increased membership of Wildlife Trust • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Herts & Middlesex Wildlife Trust • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Herts & Middlesex Wildlife Trust. • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Breeding bird surveys • Wintering bird surveys • Visitor numbers • Visitor experience feedback 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u> of birds and other wildlife disturbed by HS2 not being attracted by the new nature reserve and being lost from the area. <u>Mitigation:</u> Carefully considered design informed by specialist ecology advice. • <u>Risk</u> of excessive visitor numbers causing disturbance to wildlife. <u>Mitigation:</u> Limit the amount of parking and ensure screening is in place to minimise disturbance to sensitive areas. • <u>Risk</u> of wildlife disturbance by dogs. <u>Mitigation:</u> Strict dogs on leads policy with enforcement by Wildlife Trust wardens. Dogs prohibited from some areas.

	<ul style="list-style-type: none"> • <u>Risk</u> of impact to flood zone from infill designs for Broadwater Lake. <u>Mitigation:</u> Risks/constraints to be explored in terms of what will be permitted as 'fill' within a water body and source protection zone 1. A Flood Risk Assessment would help manage the risk. Meeting has been held between HMWT and the Environment Agency to discuss. Initial discussions have been positive. • <u>Risk</u> of potential conflict with Broadwater Sailing Club, depending on extent of new nature reserve. <u>Mitigation:</u> explore options for win-win enhancements to Broadwater Lake for the benefit of both the nature reserve and sailing at the northern end. • <u>Risk</u> of uncertainty over the future of angling at Korda Lake. <u>Mitigation:</u> Undertake early consultation with angling clubs to determine future existence. • <u>Risk</u> of antisocial behaviour, including risk of fly tipping <u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using new footpaths. • <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners.
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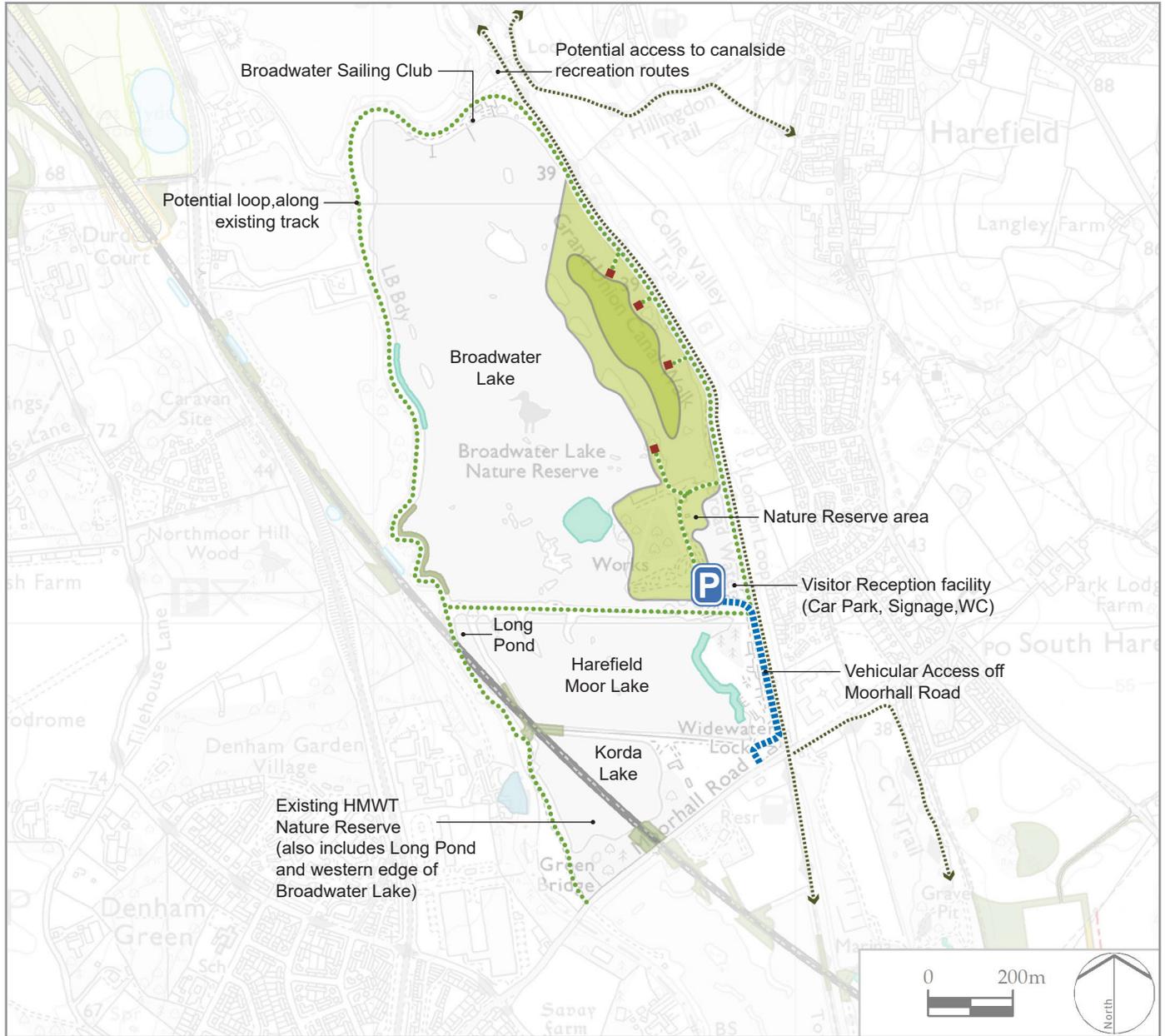
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 STATUS Draft APPROVED CC

PROJECT TITLE
COLNE VALLEY AMP

DRAWING TITLE
**Project 1: Broadwater Area
 Indicative Proposals**

DWG. NO. **5368_201_B**

X:\JOBS\5368_COLNE_VALLEY\6DOCS\STAGE 4_DRAFT_AMP\PROJECTS\PROJECT 1_BROADWATER_AREA



EXISTING RECREATIONAL ROUTES

Formal route (PRoW, Sustrans, Recreational Path)

AMP PROPOSALS

Footpath / enhancements to existing track

Vehicular Access

Nature Reserve area

Bird Hides (indicative locations)

Car Parking / Visitor Facility

HS2 PROPOSALS

Landscape earthworks

Engineering earthworks

Tunnel portal

Wetland habitat creation

Rail Alignment

Replacement floodplain storage / ecological mitigation pond

Balancing Pond

Grassland Habitat Creation

Woodland habitat creation / landscape mitigation planting

New, diverted or realigned PRoW

Site Photography



KORDA LAKE (THE VIADUCT WILL SPAN THE VIEW)



FOOTPATH ALONG WESTERN EDGE OF BROADWATER LAKE



BROADWATER LAKE, LOOKING TOWARDS EASTERN EDGE



VIEW ACROSS GRAVEL WORKS TO KORDA LAKE

Precedent Images



LAKESIDE WALKS



ROUTES THROUGH WOODLAND



INTERPRETATION SIGNAGE AT KEY POINTS



CLEAR AND LEGIBLE WAYMARKING SIGNAGE



BIRD HIDE



PUBLIC CAR PARK

PROJECT 2: TILEHOUSE LANE WOODS AREA

Project 2: Tilehouse Lane Woods Area

Location and Existing Description

The project is focussed on the area of land between Denham Aerodrome and the A412, including Northmoor Hill Wood and Wyatts Covert but also extends north west to include Great Halings Wood, Little Halings Wood and Juniper Wood, and south to include an open field (currently used for grazing) and Nightingale Wood.

The majority of woodland within the project area, and those woodlands identified above, are designated as ancient woodland, and form part of a network of ancient woodlands that extend from the valley floor, up the valley side and westwards across the plateau landscape towards and beyond the M25. Northmoor Hill Wood is also a Local Nature Reserve and has a well understood and varied geology. Great Halings Wood is a Local Wildlife Site designated for its ancient woodland

There is an extensive network of recreational routes within or adjacent to the project area, including the South Bucks Way and Old Shire Lane Circular Walk.

A gravel car park is also located in Northmoor Hill Wood, accessible off Tilehouse Lane.

Existing Land Ownership

Northmoor Hill Wood: Bucks County Council. Managed by the Colne Valley Park CIC from 2015 on a long lease.

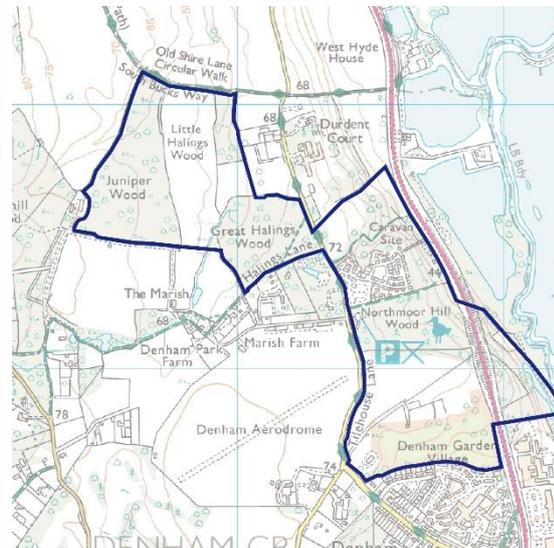
Wyatts Covert: South Bucks District Council. Managed by Colne Valley Park CIC from 2017 on a long lease.

Juniper Wood: Private ownership.

Little Halings Wood and Great Halings Wood: Private ownership.

Land north of Wyatts Covert: Private ownership.

Location Map



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<p><u>Nightingale Wood</u>: Private ownership.</p> <p><u>Land between Northmoor Hill Wood and Denham Garden Village</u>: Private ownership.</p> <p><u>Battlesford Wood</u>: Private ownership.</p>	
<p>Anticipated HS2 Works</p> <p>To the north west, between Great Halings Wood, Little Halings Wood and Juniper Wood, HS2 propose to plant new woodland to compensate for loss of habitat.</p>	<p>Residual effects after taking account of HS2 Mitigation</p> <ul style="list-style-type: none"> • The route of the railway will pass immediately to the east of Northmoor Hill Woods and Wyatts Covert and, due its proximity, will have an impact on the tranquillity and amenity of these publicly accessible woodlands, both during construction and operation. The ES identifies that the setting and tranquillity of the area will be affected by the railway. • The ES also notes that due to the viaduct passing through Battlesford Wood, a historic landscape will be severed. There will also be permanent loss of Ancient Woodland. <p>Other residual effects are:</p> <ul style="list-style-type: none"> • Impacts on historic landscape character and loss of farmland through new woodland planting. • Loss of attractiveness of Old Shire Lane as part of the Park's path network.
<p>Project Description</p> <p>In general, to consolidate the existing recreational routes network in the project area, promote alternative paths further away from HS2 noise, and enhance woodland habitats and linkages.</p> <ul style="list-style-type: none"> • Potential to provide a link between Northmoor Hill Wood and Old Shire Lane, through Great Halings Wood and the HS2 proposed woodland areas, providing a more attractive route away from construction activities and the viaduct. • Existing permissive path at Great Halings could be formalised – either as a PROW or through reaching a formal agreement with the landowner. • Potential to create a cycleway alongside the A412, extending the cycle route from Hertfordshire into Buckinghamshire. • Potential to consolidating the cycle network of the area by promoting existing bridleways and recreational routes as cycleways, tying in with proposals for the Western Valley Slopes. • Habitat creation and enhancements associated with the areas through which new links pass (Great Halings Wood) and existing areas of woodland. • Potential opportunity for woodland edge habitat works e.g. for reptiles along southern boundary of Northmoor Hill Wood. 	

Other opportunities:

- Potential opportunity for woodland planting in project area 6 (Western Valley Slopes) adjacent to Juniper Wood to re-create woodlands that have been lost since the OS first edition map of 1880.
- Opportunity for translocations of seed bank from Battlesford Wood to Northmoor Hill Wood/Wyatts Covert.
- If landowner agreement can be reached – the project area might be expanded to create and implement a management plan for the remaining areas of Ranston Covert and Battlesford Wood.
- If the proposed path connection on the west side of the A412 North Orbital Road between Northmoor Hill and Denham Green cannot be progressed, an alternative could potentially be created on the east side of the A412 (if a safe crossing area can be identified that has clear views in both directions). The existing path here is the former route of the North Orbital Road and is believed to be a Bucks County Council owned pavement. This path could form part of the proposed cycle route.

Feedback from Public Exhibitions

Comments included investigating both pedestrian and cycle links. Support was given for improving the circular route network. Another comment raised the need to consider maintenance and there were requests not to have a direct footpath leading to Denham Garden Village.

Cost Implications

The provision of paths through woodland is relatively low cost. The creation of a cycleway alongside the A412 would be greater due to the type of surfacing required and potential works to the highway. Habitat creation and enhancements would be low cost. Production of a management plan and ongoing management/maintenance of habitat and paths would be a low cost.

Overall, the project is expected to be of medium cost, unless land purchase is required.

Delivery Timescale

All aspects of the project could be delivered before HS2 construction works commence or during HS2 planting works (between Juniper and Little Halings Wood).

Consents/Agreements Required

- Landowner agreements.
- Protected species licences may be required if protected species are present and affected by the proposed works.
- Forestry felling licence may be required if trees are to be felled.
- Consent for works within SSSI will be required from Natural England (in reference to Battlesford Wood and Ranston Covert).
- Groundworks, surfacing on new PRoWs

Pre-Design Requirements

- Ecology surveys may be required to inform design.
- Monitoring of receptor site to verify suitability for translocation of ancient woodland seedbank.
- The species composition of the adjacent woodlands would need to be determined and mirrored in the final planting schemes.

<p>may require planning permission, although HS2 have advised that the path through HS2 woodland would be grassed.</p> <ul style="list-style-type: none"> • Should any planning consents be required, works affecting Ancient Woodland would be assessed by the Local Planning Authority. 	
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Parking charges • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Colne Valley Park CIC • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Colne Valley Park CIC • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Visitor numbers • Species diversification • Inclusion of network in CVRP circular walks 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u> of not gaining landowner agreement. For example, the landowners between Old Shire Lane and Northmoor Hill Woods & Wyatts Covert may not be willing to allow connecting paths. <u>Mitigation</u>: Land purchase might be a more agreeable option to landowners. • <u>Risk</u> of antisocial behaviour, including fly tipping <u>Mitigation</u>: put in place measures to prevent unauthorised vehicles using recreational routes. • <u>Risk</u> of land being unsuitable for translocation of ancient woodland seedbank. <u>Mitigation</u>: monitor ground conditions of receptor site to verify suitability (ideally this would involve one year's worth of monitoring). • <u>Risk</u>: potential increased maintenance requirements on private land for litter picking etc. (e.g. Great Halings Wood) <u>Mitigation</u>: Ensure funds set aside for litter picking.

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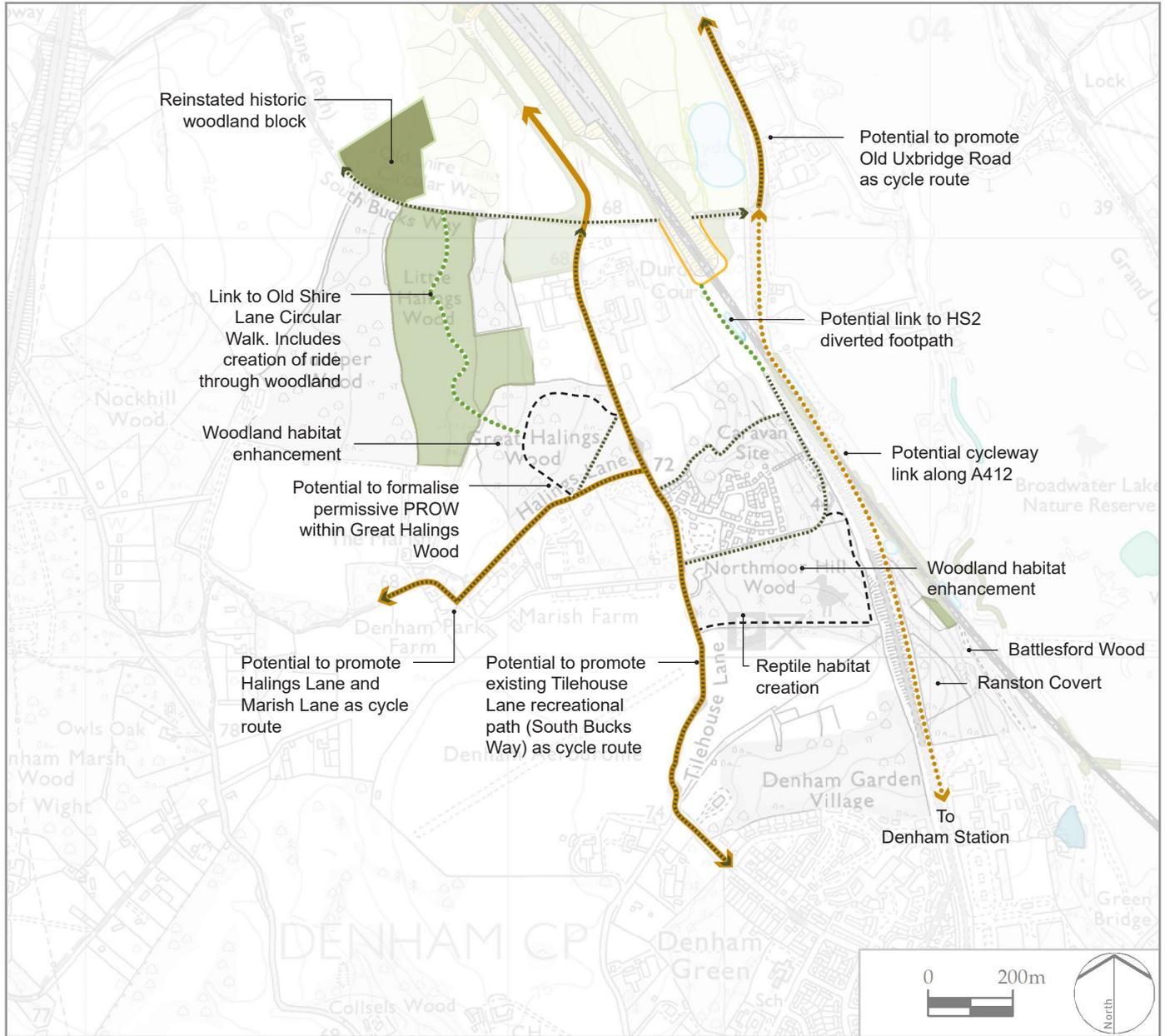
PROJECT TITLE
COLNE VALLEY AMP

DRAWING TITLE

Project 2: Tilehouse Lane Woods Area
 Indicative Proposals

DWG. NO. **5368_202B**

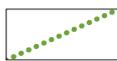
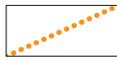
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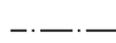
EXISTING RECREATIONAL ROUTES

-  Formal route (PRoW, Sustrans, Recreational Path)
-  Informal routes

AMP PROPOSALS

-  Footpath
-  Potential cycleway along A412
-  Promoted cycle route (located on existing recreational routes)
-  Reinstated historic woodland block

HS2 PROPOSALS

-  Landscape earthworks
-  Engineering earthworks
-  Tunnel portal
-  Wetland habitat creation
-  Rail Alignment
-  Replacement floodplain storage / ecological mitigation pond
-  Balancing Pond
-  Grassland Habitat Creation
-  Woodland habitat creation / landscape mitigation planting
-  New, diverted or realigned PROW

Site Photography



NORTHMOOR HILL LOCAL NATURE RESERVE + FOOTPATH ALONG TILEHOUSE LANE, LINKING PROJECT AREA TO NORTH AND SOUTH



BOARDWALK THROUGH NORTHMOOR HILL WOOD



VIEW FROM TILEHOUSE LANE OVER OPEN FIELD TOWARD NORTHMOOR HILL NATURE RESERVE AND EAST TOWARD THE A412

Precedent Images



SEGREGATED CYCLEWAY (A412)



FOOTPATH RUNNING THROUGH A WOODLAND EDGE SURROUNDED GLADE



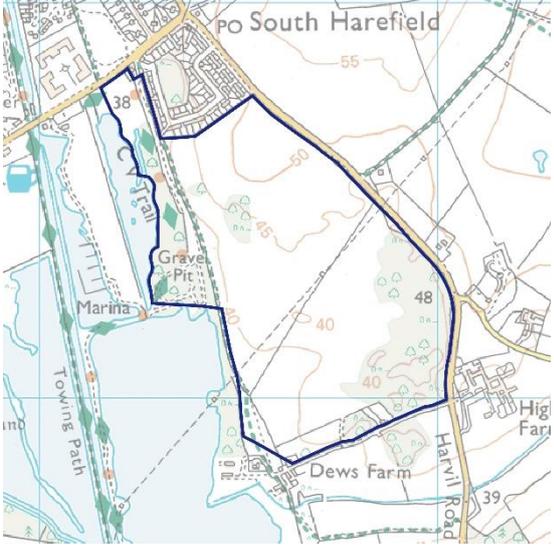
PATH THROUGH YOUNG SPECIMEN AND COPPICE WOODLAND



WOODLAND EDGE HABITAT

PROJECT 3: HAREFIELD MOOR AREA

Project 3: Harefield Moor Area

<p>Location and Existing Description</p> <p>The project area is located to the south of South Harefield, between Harvil Road and the Colne Valley lakes, and encompasses Harefield Moor and parts of Old Denham Quarry. The eastern part of the project area is Dew's Dell SINC, designated as a Site of Borough Importance Grade I. Dews Farm Sandpits Nature Reserve, managed by the London Wildlife Trust, is located within the SINC.</p> <p>Immediately adjacent to the west of the area are two lakes (Harefield No.1 and Harefield No.2), both fished by Harrow Angling Society. Harefield No.2 is also used by HOAC.</p> <p>Several recreational routes pass through the area, in particular the Colne Valley Trail where it veers away from the Grand Union Canal and follows a path through Old Denham Quarry. A public footpath passes through Harefield Moor, linking the valley floor to Bayhurst Wood, and forms part of the Grand Union Canal Circular Walk.</p> <p>Car parks off Moorhall Road serving the Marina and fishing lakes are not publicly accessible.</p>	<p>Location Map</p> 
<p>Existing Land Ownership</p> <p><u>Harefield Moor</u>: owned by Hillingdon Council (as is Dews Farm Sandpits) and currently tenanted as part of a larger land holding (Park Lodge Farm).</p> <p><u>Old Denham Quarry</u>: owned by Hillingdon Council.</p>	
<p>Anticipated HS2 Works</p> <p>HS2 propose to locate a National Grid Feeder Station within Harefield Moor, requiring access roads (during construction and operation), the diversion of overhead powerlines and public footpaths, and extensive woodland planting to screen the feeder station. HS2 commitments also include</p>	<p>Residual effects after taking account of HS2 Mitigation</p> <ul style="list-style-type: none"> The ES notes residual effects during construction on the amenity of residents along sections of Harvil Road at South Harefield, just south of the junction with Moorhall Road.

<p>replacement floodplain storage and the creation of grassland habitats.</p> <p>HS2 are currently looking at moving the Feeder Station further southwards.</p>	<ul style="list-style-type: none"> • The ES notes residual effects during operation on landscape character, stating that tranquillity will be affected by trains travelling frequently. • The ES notes that, by year 15, the proposed planting will have started to integrate and screen the National Grid Feeder Station, although the viaduct will still be perceptible. <p>Other residual effects are:</p> <ul style="list-style-type: none"> • Disruption to the Public Rights of Way network, including inappropriate diversion alignments. • Impacts on historic landscape character (new woodland planting around existing historic woodlands) • Effect on the visual amenity of South Harefield residents, during construction and in the short to medium term (15 years) post construction.
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<p>Project Description</p> <p>Pre / during construction:</p> <ul style="list-style-type: none"> • Improved management of the area to the east of Harefield No 1 lake (Old Denham Quarry) which is partly degraded (fly tipping etc.) • Better public access to land at Harefield Moor, through the provision of informal or formal pedestrian paths and cycle routes. Improved connections would encourage movement between two different parts of the park: the wooded plateau to the east (Bayhurst Wood Country Park) and the valley floor lakes to the west. • Improvements to existing recreational routes, including footpath signage and interpretation boards. • Potential management changes to area north of the Feeder Station, to improve and create wildlife areas and habitats that are publicly accessible. <p>Post construction</p> <ul style="list-style-type: none"> • There is potential to locate a suitable screened car park off the proposed access road serving the National Grid Feeder Station, subject to HS2 agreement. HS2 have confirmed the permanent access road to the Feeder Station will be off Dews Lane. • Better public access to Dew's Dell SINC, subject to impacts on wildlife.

<p>Feedback from Public Exhibitions</p> <p>Respondents welcomed improvements to Denham Quarry and identified an opportunity for the creation of a wildlife area within Harefield Moor. Other opportunities included provision for cyclists and dog walkers.</p>
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<p>Cost Implications</p> <p>Clean up of Old Denham Quarry would be low cost. Additional pedestrian footpaths / cycleways through Harefield Moor would be a low cost, assuming a hoggin surface, although the potential extent of new paths would be significant. Habitat creation and improvements would be low cost. The parking area would be a significant item, although the need for a car park would require assessment.</p> <p>Overall, the project is expected to be of low cost, without the inclusion of a car park.</p>	<p>Delivery Timescale</p> <p><u>Old Denham Quarry</u></p> <p>This area could be improved prior to the commencement of HS2 construction works.</p> <p><u>Harefield Moor</u></p> <p>Large parts of Harefield Moor fall within the Hybrid Bill area required for construction. Pedestrian linkages and habitat improvements north of the feeder station could commence prior to construction.</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Landowner agreements. • Forestry felling licence may be required if trees are to be felled. • Groundworks, surfacing on new PRowWs may require planning permission. Planning permission likely to be required for car park. 	<p>Pre-Design Requirements</p> <ul style="list-style-type: none"> • Ecology surveys may be required to inform design. Additional baseline information on the nature of the adjacent woodlands would be used to tailor the planting of new woodland plots. • Needs assessment may be required to provide evidence that better public access to area is necessary.
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Parking charges • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • London Borough of Hillingdon • London Wildlife Trust • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • London Borough of Hillingdon • London Wildlife Trust • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Sense of community ownership and engagement, resulting in greater use and reduction in anti-social behaviour. 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Continued risk</u> of anti-social behaviour (unauthorised motor access, flytipping) <u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using recreational routes and foster sense of community ownership. • <u>Risk</u> of loss of revenue for landowner should the land be unfarmable (currently used for grazing). <u>Mitigation:</u> Potential for grazing to continue alongside recreation and habitat enhancements. However, it should be

	<p>noted that HS2 proposals will impact significantly on the viability of the land.</p> <ul style="list-style-type: none"> • <u>Risk</u> of uncertainty about land use and tenancy of Park Lodge Farm. <u>Mitigation:</u> Consult early with tenants and landowners about future existence of land holding. • <u>Risk</u> of conflict with neighbouring angling club, given that Harefield No.1 lake is immediately adjacent to the project area and one of the main proposals is to encourage greater public access and use of the land. <u>Mitigation:</u> Consult angling club on proposals. Ensure interpretation boards inform users of the lakes and their related activities. • <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners (note Hillingdon Council are the landowners)
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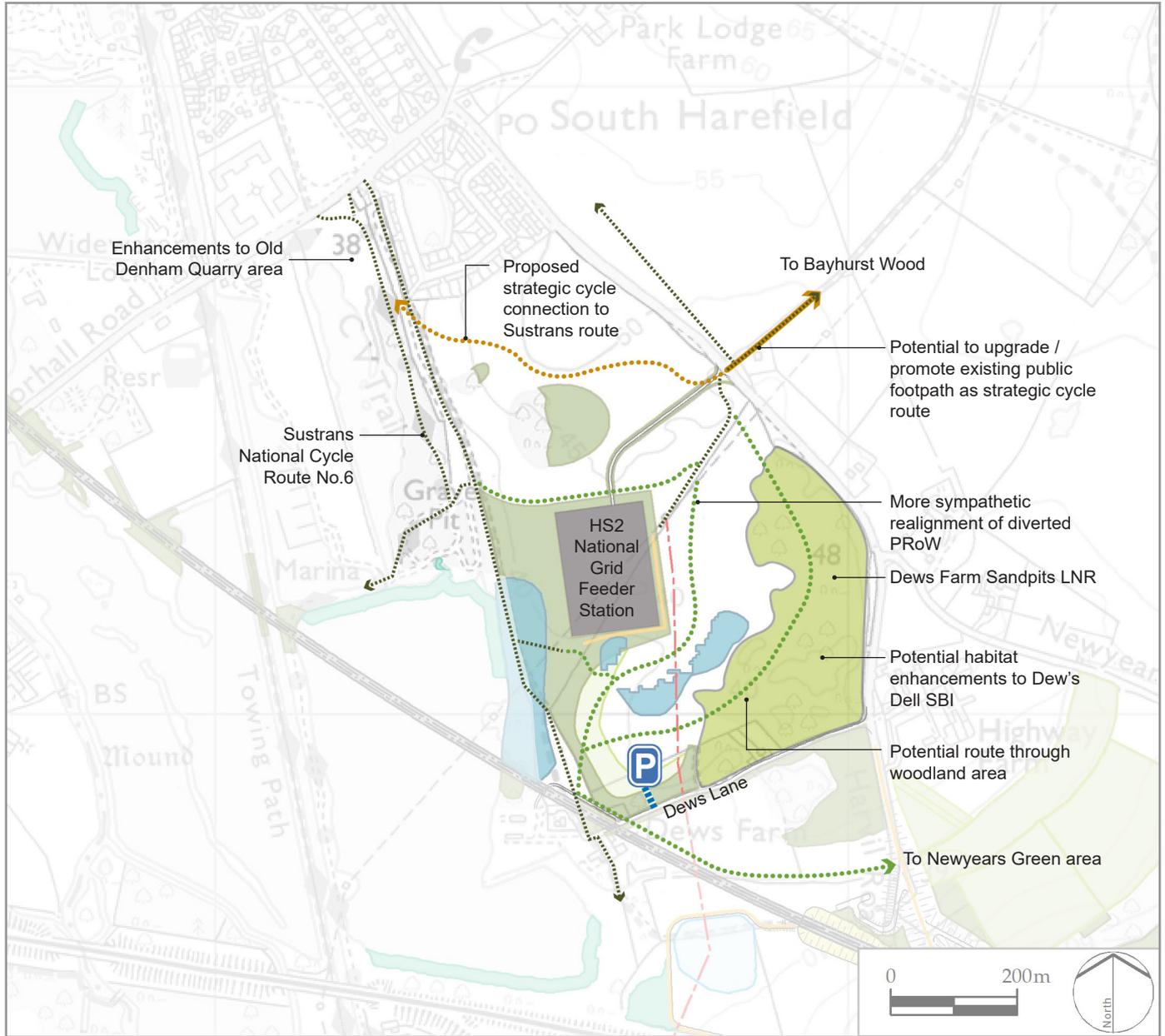
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PROJECT TITLE
COLNE VALLEY AMP
 DRAWING TITLE

Project 3: Harefield Moor Area
 Indicative Proposals

DWG. NO. **5368_203A**

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EXISTING RECREATIONAL ROUTES

Formal route (PRoW, Sustrans, Recreational Path)

AMP PROPOSALS

- Footpath
- Vehicular Access
- New Cycleway and footpath
- Promoted cycleway and footpath (located on existing recreational route)
- Enhancements to woodland
- Potential Car Park

HS2 PROPOSALS

- Landscape earthworks
- Engineering earthworks
- Tunnel portal
- Wetland habitat creation
- Rail Alignment
- Replacement floodplain storage / ecological mitigation pond
- Balancing Pond
- Grassland Habitat Creation
- Woodland habitat creation / landscape mitigation planting
- New, diverted or realigned PRoW
- Main Utility Works

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Site Photography



VIEWS TOWARD SOUTH HAREFIELD



VIEW OVER FALLOW FIELD TO WOODLAND COPSE



REMAINS OF BOAT NEAR HAREFIELD NO. 1



HAREFIELD NO.1 LAKE (USED BY HARROW ANGLING SOCIETY)

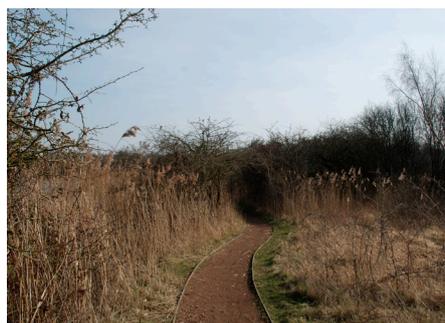


GATEWAY TO OLD DENHAM QUARRY

Precedent Images



INFORMAL ROUTES THROUGH OPEN LAND



FORMAL ROUTE ALONGSIDE WETLAND AREAS



INFORMAL ROUTE THROUGH WOODLAND



APPROPRIATE INTERPRETATION SIGNAGE



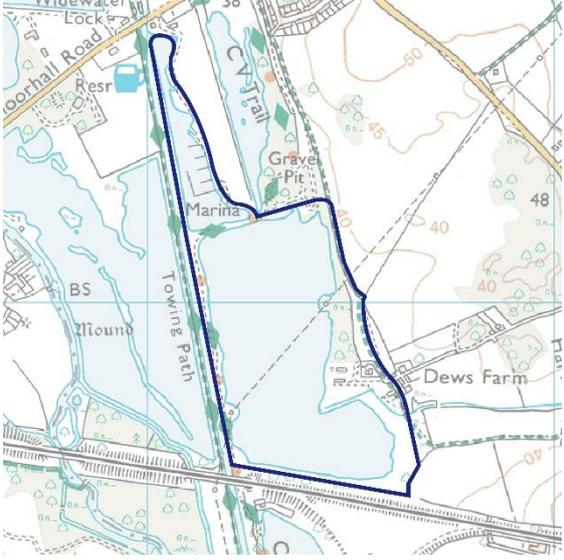
PUBLIC CAR PARK



WATER'S EDGE HABITAT

PROJECT 4: HOAC

Project 4: HOAC

<p>Location and Existing Description</p> <p>The project area is bounded to the west by the Grand Union Canal and the south by the Chiltern railway line. It encompasses the existing Hillingdon Outdoor Activity Centre (HOAC) and its associated lake (Harefield No.2 Lake) and Harefield Marina. Harefield No.2 is used for angling and is managed by Harrow Angling Society.</p> <p>Along the western edge of Harefield No.2 Lake is the Colne Valley Trail, also a National Sustrans Route.</p>	<p>Location Map</p> 
<p>Existing Land Ownership</p> <p>HOAC: London Borough of Hillingdon Harefield No.2 Lake: London Borough of Hillingdon Harefield Marina: Private ownership</p>	<p>Residual effects after taking account of HS2 Mitigation</p> <ul style="list-style-type: none"> • The ES notes residual effects on the landscape character of the area due to the visibility of the viaduct, leading to a reduction in the sense of isolation and tranquillity in the valley. • The ES also notes that it is unlikely HOAC will continue to operate during the construction phase. In the event that HOAC is operating at its existing site, there will be an effect on the amenity of users and staff. <p>Other residual effects include:</p> <ul style="list-style-type: none"> • Ecological severance (reduction of regular commuting may cause effect on species). • Potential dereliction. • Amenity of users of the Marina, including houseboats (both due to visual intrusion of the viaduct and noise – during construction and operation).
<p>Anticipated HS2 Works</p> <p>The route of the viaduct will pass across Harefield No.2 Lake and parts of the HOAC site, requiring construction access routes and the diversion of overhead powerlines. HS2 commitments include the creation of wetland and woodland habitats to compensate for losses elsewhere.</p>	

	Likely cessation of angling activities during construction.
<p>Project Description</p> <ul style="list-style-type: none"> The details of HS2's restoration scheme in this area are not yet known, although it is understood that the intention is to relocate HOAC to a new site. The AMP would include any recommendations on restoration and enhancement that go above and beyond HS2's restoration scheme. <p>This could include:</p> <ul style="list-style-type: none"> Creation of additional habitats for wildfowl. Potential for angling to continue on the lake (particularly along western edge). Angling would be zoned and managed to accommodate both biodiversity interests and recreation. Should HOAC relocate, there is potential for a visitor attraction with an emphasis on nature conservation, making use of the existing buildings and making the car park publicly accessible. 	
<p>Feedback from Public Exhibitions</p> <p>Respondents commented that HOAC as a facility should be preserved, whether it is re-located or not.</p>	
<p>Cost Implications</p> <p>The creation of habitats, in addition to HS2's enhancements, and the provision of interpretation boards is relatively low cost, although the costs of extensive areas of aquatic and marginal planting could be more significant. Costs associated with upgrading or repurposing the existing buildings would depend on the renovations required.</p> <p>Overall, the project is likely to be medium cost, depending on the nature and extent of works.</p>	<p>Delivery Timescale</p> <p>Post construction</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> Landowner agreement. Planning permission for a Change of Use will be required if existing buildings are repurposed. Protected species licences may be required if protected species are affected by the proposed works. If the project includes partial filling of Harefield No. 2 Lake (reprofiling banks, building potential new islands etc.) there may be consent required from the EA. Approval would be needed from Canal and 	<p>Pre-Design Requirements</p> <p>Ecology surveys may be required to inform design.</p> <p>Clarity on the future of angling at Harefield No. 2 is required to inform any proposals affecting the lake.</p>

River Trust if works affect the Grand Union Canal.	
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Parking charges • Tenancy or charged use of the existing buildings • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <p>London Borough of Hillingdon HS2</p>	<p>Potential Maintenance Responsibility</p> <p>London Borough of Hillingdon HS2</p>
<p>Success Measures</p> <ul style="list-style-type: none"> • Breeding bird surveys • Wintering bird surveys • Visitor numbers • Continuation of angling, alongside nature conservation. 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u> of excessive visitor numbers causing disturbance to wildlife. <u>Mitigation:</u> Ensure screening is in place to minimise disturbance to sensitive areas. • <u>Risk</u> of birds and other wildlife disturbed by HS2 not being attracted by proposed habitats. <u>Mitigation:</u> None identified. • <u>Risk</u> of potential conflict between angling club and nature conservation. <u>Mitigation:</u> explore options for win-win enhancements to Harefield No. 2 Lake for the benefit of wildlife and angling club, through consultation. • <u>Risk</u> of antisocial behaviour, including risk of fly tipping <u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using new footpaths. • <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners (note Hillingdon Council are landowners of Harefield No. 2 Lake and HOAC)

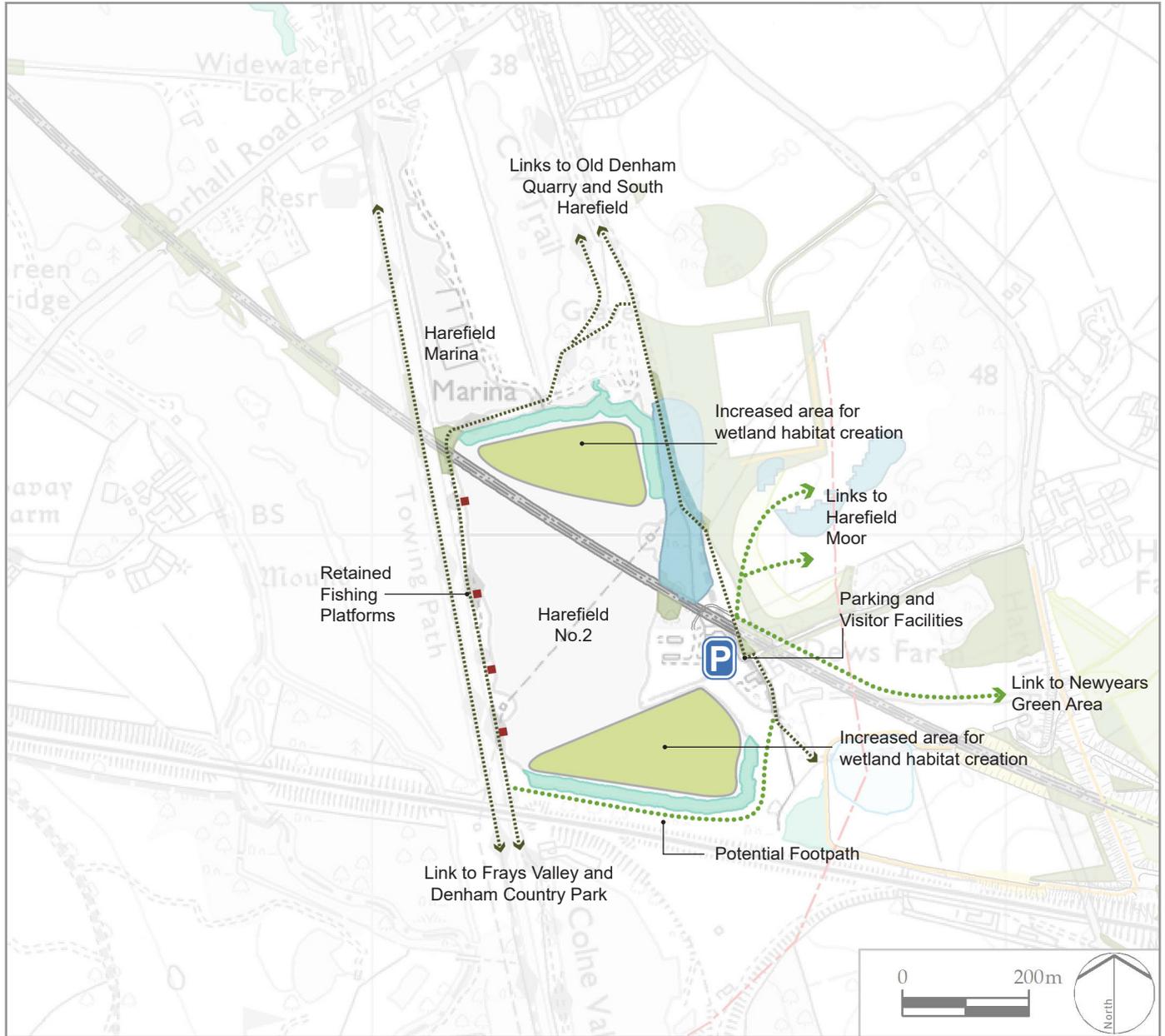
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PROJECT TITLE
 COLNE VALLEY AMP

DRAWING TITLE
 Project 4: HOAC
 Indicative Proposals

DWG. NO. 5368_204A

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EXISTING RECREATIONAL ROUTES

Formal route (PRoW, Sustrans, Recreational Path)

AMP PROPOSALS

Footpath

Habitat Creation

Existing Fishing Platform

Car Parking

HS2 PROPOSALS

Landscape earthworks

Engineering earthworks

Tunnel portal

Wetland habitat creation

Rail Alignment

Replacement floodplain storage / ecological mitigation pond

Balancing Pond

Grassland Habitat Creation

Woodland habitat creation / landscape mitigation planting

New, diverted or realigned PRoW

Site Photography



VIEW OVER HAREFIELD NO.2 LAKE LOOKING SOUTH FROM THE NORTHERN SHORE



LAKESIDE PATH ALONG EASTERN BANK OF HAREFIELD NO.2 LAKE



COLNE VALLEY TRAIL, ALONG WESTERN EDGE OF HAREFIELD NO.2 LAKE

Precedent Images



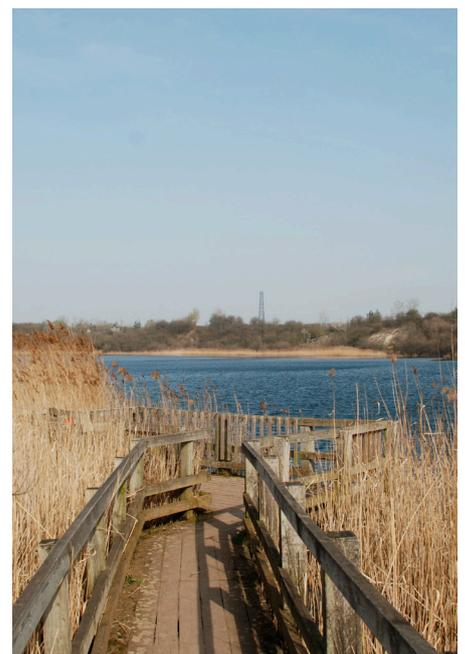
WETLAND HABITAT CREATION



WETLAND HABITAT CREATION



ANGLING OPPORTUNITIES



POTENTIAL FOR A VISITOR ATTRACTION WITH AN EMPHASIS ON NATURE CONSERVATION

PROJECT 5: FRAYS VALLEY

Project 5: Frays Valley

Location and Existing Description

The project covers Frays Valley, an area located between the A40 and the Chiltern railway line, and between the Grand Union Canal and Harvil Road.

The area encompasses the Mid Colne Valley SMI, which includes Fray's Farm Meadows SSSI, Denham Lock Wood SSSI, Frays Valley Local Nature Reserve, Frays Farm Meadows Nature Reserve, Denham Lock Wood Nature Reserves and Harefield Place Nature Reserve (managed by the Hillingdon Natural History Society).

The area also encompasses Uxbridge Golf Course. The 'Golf Course' lakes (to the west of Uxbridge Golf Course) are managed and fished by Uxbridge Rovers Angling Society. The lakes between the Canal and the dismantled railway line are fished by Gerrards Cross Angling Club.

To the west of the area, beyond the Grand Union Canal, is Denham Country/ Quarry Park Local Nature Reserve, and Denham Country Park.

Existing Land Ownership

Frays Farm Meadows SSSI: owned by London Borough of Hillingdon and tenanted by London Wildlife Trust.

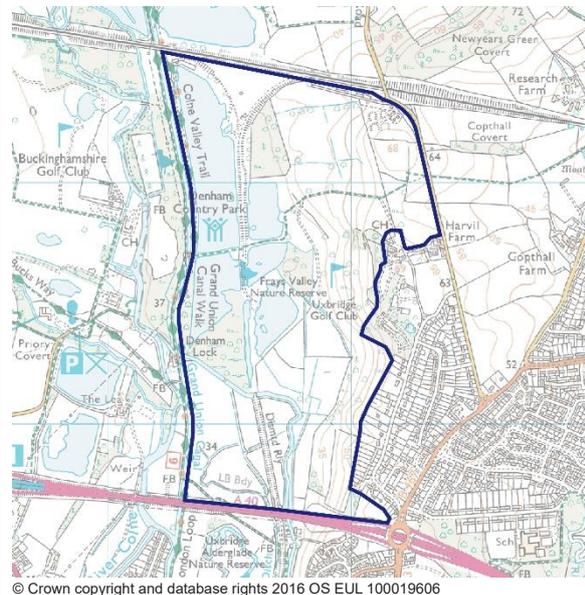
Denham Lock Wood SSSI: owned by London Borough of Hillingdon.

Uxbridge Golf Course, Frays Valley LNR, Harefield Place LNR: London Borough of Hillingdon

Old railway embankment from A40 north to Frays River Bridge: Private ownership.

The area also comprises a number of other private businesses.

Location Map



<p>Anticipated HS2 Works</p> <p>HS2 propose to locate a temporary haul road through the area, accessed off the A40. Land will be required for access roads, the temporary stockpiling of materials and the installation of new pylons and associated overhead lines.</p> <p>Land will be restored once the Uxbridge Golf Course haul road is removed (should it be built) towards the end of the construction period.</p>	<p>Residual effects after taking account of HS2 Mitigation</p> <ul style="list-style-type: none"> The ES notes residual effects on the character of the area due to the introduction of pylons to a different part of the park. <p>Other residual effects include:</p> <ul style="list-style-type: none"> Impact on habitats caused by haul route. Modification of hydrological profile resulting from haul route. Impacts on managers and users of the SSSI and LNR.
<p>Project Description</p> <ul style="list-style-type: none"> The details of HS2's restoration scheme in this area are not yet known. The AMP would include any recommendations on restoration and enhancement that go above and beyond HS2's restoration scheme. <p>This could include:</p> <ul style="list-style-type: none"> Enhancements to sites within the environs of Mid-Colne Valley SMI, including Denham Country Park and Quarry Park Local Nature Reserve. Potential areas to create refuges for diving ducks and other wildfowl should be sought. Roosting opportunities here have been historically lacking. Enhance and increase marginal vegetation through the creation of new shelves protected against erosion with soft landscaping such as willow wattle and planting of a mix of native wetland plants. Seek to reduce shading through selective thinning. Benefits for invertebrates, riparian species and birds. Explore the current water quality situation, as during the site visit high levels of algal bloom were noted. 	
<p>Feedback from Public Exhibitions</p> <p>Comments included carrying out improvement measures with or without the haul road and investigating the potential for monitoring.</p>	
<p>Cost Implications</p> <p>The creation and enhancement of additional habitat is likely to be relatively low cost.</p>	<p>Delivery Timescale</p> <p>Majority of work undertaken during construction, once the route of the haul road has been established.</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> Any works within the SSSI will require consent from Natural England. 	<p>Pre-Design Requirements</p> <ul style="list-style-type: none"> Ecology surveys / local environmental survey may be required to inform design.

<ul style="list-style-type: none"> Protected species licences may be required. Landowner agreements. 	<p>The current water quality status should be explored, as high levels of algal bloom were noted.</p>
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> London Wildlife Trust. Groundwork South. Hillingdon Council HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> London Wildlife Trust Hillingdon Council Hillingdon Natural History Society HS2
<p>Success Measures</p> <ul style="list-style-type: none"> Breeding bird surveys Wintering bird surveys Visitor numbers Insect surveys (target species such as glow worm, butterfly, dragonfly) Favourable condition of SSSIs Area of wetland meadow created / improved 	<p>Potential Risks</p> <ul style="list-style-type: none"> <u>Risk</u> of potential conflict with Uxbridge Rovers Angling Society. <u>Mitigation:</u> explore options for win-win enhancements to lakes for the benefit of both the nature reserve and angling club, through consultation. <u>Risk</u> of antisocial behaviour, including risk of fly tipping <u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using access routes. <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners.

Site Photography



VIEW WITHIN FRAYS VALLEY NATURE RESERVE AND FRAYS FARM MEADOWS SSSI TOWARDS PROPOSED LOCATION OF HAUL ROUTE (BEYOND HEDGEROW)



DENHAM COUNTRY PARK: PYLONS



FRAY'S RIVER

Precedent Images



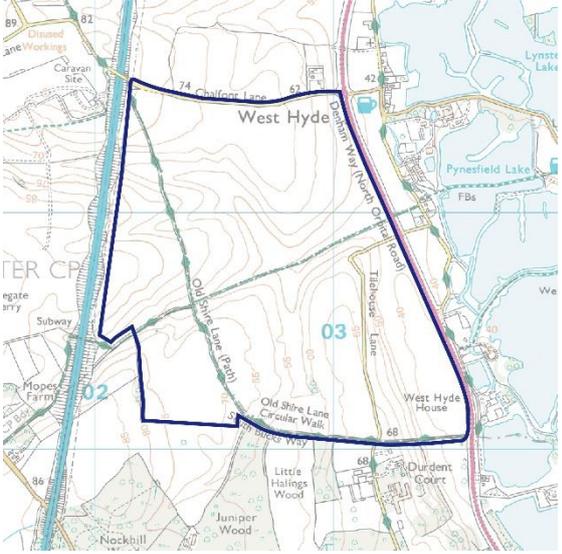
WILDFOWL ROOSTING HABITAT CREATION



COIR ROLL PRE-PLANTED WITH WETLAND PLANTS

PROJECT 6: WESTERN VALLEY SLOPES

Project 6: Western Valley Slopes

<p>Location and Existing Description</p> <p>The project covers an area of land located south of Chalfont Lane, that slopes from the M25 eastwards towards the valley floor and the A412.</p> <p>Several recreational routes pass through the area, including Old Shire Lane Circular Walk, South Bucks Way and Chalfont Park Circular Walk. A bridleway crosses the area on an east-west alignment, connecting the plateau to the west with the valley floor to the east.</p> <p>The east facing slopes of the area are cut by dry tributary valleys which form a distinctive landscape of undulating, large scale open farmland, contrasting with the mature blocks of woodland on the valleys sides to the south.</p>	<p>Location Map</p> 
<p>Existing Land Ownership</p> <p>Largely private ownership.</p>	
<p>Anticipated HS2 Works</p> <p>The whole area will be used for construction including stockpiling of excavated materials. The land will be re-profiled and reinstated following the completion of construction. To the east of the line, as the land slopes to the valley floor, HS2 has committed to areas of grassland habitat and balancing ponds at the foot of the slopes. HS2 also intend to divert Tilehouse Lane via an overbridge across the railway. Some sections of public footpath will be closed during construction, before reopening on diverted routes. A cantering route is proposed, running parallel with railway line from the tunnel portal to the overbridge. Around the tunnel portal and north of Chalfont Lane there will be areas of woodland planting to help screen and integrate HS2's proposals.</p>	<p>Residual effects after taking account of HS2 Mitigation</p> <ul style="list-style-type: none"> • The ES notes residual effects on the landscape character of the area due to characteristic open views available across the valley being interrupted by the Chiltern tunnel south portal that will be perceptible in the landscape. • The ES notes that tranquillity will be affected by trains travelling in and out of the tunnel portal. • The ES notes that land required for the construction and operation will in places sever and fragment agricultural land, which has the potential to impact on its effective use. • The ES notes that during construction, users of the Old Shire Lane circular walk will be significantly affected due to its closure and the length of the alternative route. • The ES also notes corn bunting habitat will be lost from the farmland between the M25 and the A412, resulting in a permanent adverse effect on the

	<p>population.</p> <p>Other residual effects include:</p> <ul style="list-style-type: none"> • Eroding of valley landscape character through changes to the distinctive natural topography. • Tilehouse Lane proposals out of keeping with existing character of lane. • Potential loss of productive arable land post reinstatement (due to fragmentation / potentially reduced yields / or change from arable use). • Impacts on users of the circular walks and users of the South Bucks Way during operation (noise and visual amenity).
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Project Description

The details of HS2’s restoration scheme in this area are not yet known. The AMP would include any recommendations on restoration and enhancement that go above and beyond HS2’s restoration scheme.

AMP proposals could include options such as:

- Provision of a new circular route within the project area, connecting existing public footpaths / bridleways (Old Shire Lane) via an additional multi-user path to and from a new visitor facility off Chalfont Lane or Tilehouse Lane, allowing visitors to view the railway. The facility would include a car park and might also include a coach park, a café, toilets and cycle racks. Consideration should be given to potential landscape and visual impacts when identifying the location of the car park and associated facilities.
- Improvements to existing circular routes (Old Shire Lane, Chalfont Park, South Bucks Way) and cycling network to allow alternative recreation.
- Improve pedestrian access to the public footpath on Chalfont Lane and the proposed new footpath from The Oaks public house, with a safe pedestrian crossing over the A412.
- Biodiversity enhancements (not covered by HS2 works), including management of hedgerow, increased fields margins, provision of reptile refugia, deadwood for invertebrates, habitat creation for badgers.
- Potential woodland planting to reinstate historic woodland pattern.
- Potential for land art / chalk figure on the valley sides, perhaps depicting a heron, stag or corn bunting.
- Potential for the creation of orchards in concentric pattern adjacent to the A412.
- Potential to use balancing ponds for fishing (subject to water quality and whether the ponds are designed to hold a permanent body of water)
- Promotion of Shire Lane
- Potential to have a Care Farm using the property on Chalfont Lane, incorporating allotments.
- Promotion of the area for bird (Corn Bunting) spotting opportunities.
- Creation of calcareous grassland habitat, aligned with grazing opportunities.
- Opportunity to create terraced embankments with specified planting.
- Opportunity for bee keeping.

<p>Feedback from Public Exhibitions</p> <p>Respondents were concerned about the uncertainty of what the area will look like post construction. Suggestions including separating cycling routes from footpaths, enhancing grassland areas for arable birds, protecting ancient hedgerows, and the potential for a line of trees along Chalfont Lane to the North of the tunnel exit to reduce noise and dust pollution.</p>	
<p>Cost Implications</p> <p>Additional pedestrian footpaths / cycleways through would be a low cost, assuming a hoggin or grass surface, although the potential extent of new paths would be significant. The parking area would be a significant item, although the type of surfacing is relatively low cost. The cost would be higher if a toilet facility was provided with the car park. Biodiversity enhancements would be low cost.</p>	<p>Delivery Timescale</p> <p>Phased throughout construction, although some biodiversity enhancements could be undertaken pre construction.</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Earthworks, change of use, built facilities such as a car park may require planning permission / consents unless carried out by HS2 under the Act. • Landowner agreements. 	<p>Pre-Design Requirements</p> <p>AMP proposals are intended as a platform to inform the Colne Valley Regional Park Panel feedback on HS2 proposed designs.</p>
<p>Potential revenue implications and generating income</p> <ul style="list-style-type: none"> • Maintenance costs • Care farm • Services from visitor centre. • Retail uses connected with local land use (e.g. farm shops, other appropriate commercial uses as agreed with the Panel) • Sales of produce, honey and flowers. 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • HS2 • Possible commercial organisations or relevant local authority.
<p>Success Measures</p> <ul style="list-style-type: none"> • Land use not derelict • Monitoring of park usage • Success stories / citations in local and national press. • Visually coherent and beautiful landscape 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u>: Should the land become unproductive for agricultural use, there is a risk of fragmentation and dereliction. <u>Mitigation</u>: Should land parcels become fragmented, there is potential for smaller land parcels to provide better ecological connections through different husbandry / management techniques.

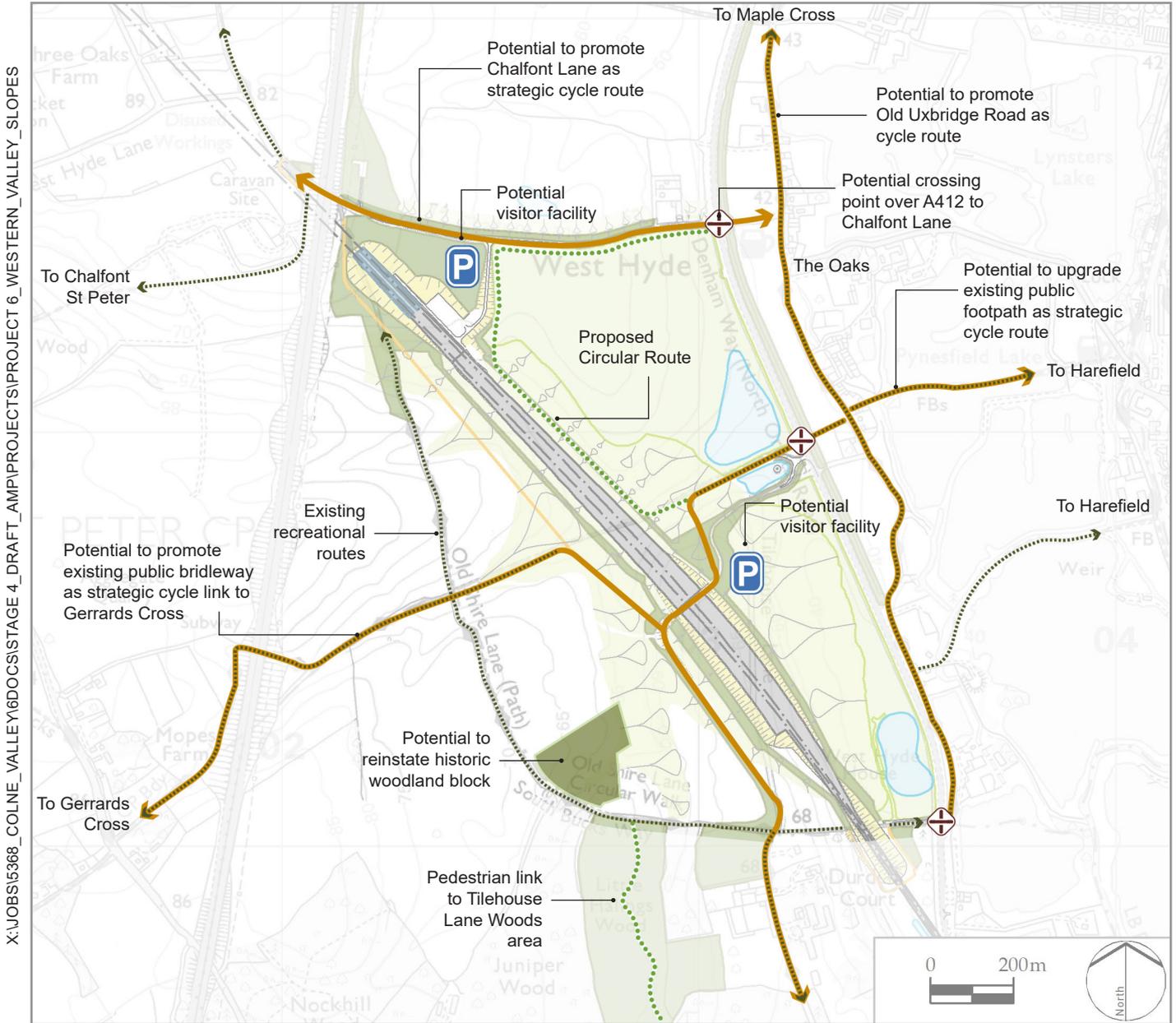
	<ul style="list-style-type: none"> • <u>Risk</u> of antisocial behaviour, generated by increased visitor numbers and access to valley side trails, including fly tipping. <u>Mitigation</u>: put in place measures to prevent unauthorised vehicles using new recreational routes. Ensure funds set aside to repair / reinstate damaged areas. • <u>Risk</u>: impact of potential infrastructure on attractiveness of the area. <u>Mitigation</u>: Ensure landscape repair is sensitive to existing character of the area and identify opportunities for new infrastructure to attract visitors. • Future financial viability and management mechanisms will need to be discussed and agreed with the local authority.
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PROJECT TITLE
COLNE VALLEY AMP
 DRAWING TITLE

Project 6: Western Valley Slopes
 Indicative Proposals

DWG. NO. **5368_206C**



EXISTING RECREATIONAL ROUTES

Formal route (PRoW, Sustrans, Recreational Path)

AMP PROPOSALS

- Footpath
- Promoted cycle route (located on existing recreational routes or local roads)
- Potential location for visitor facility (Chalfont Lane or Tilehouse Lane)
- Potential Crossing Point
- Reinstated historic woodland block

HS2 PROPOSALS

- Landscape earthworks
- Engineering earthworks
- Tunnel portal
- Wetland habitat creation
- Rail Alignment
- Replacement floodplain storage / ecological mitigation pond
- Balancing Pond
- Grassland Habitat Creation
- Woodland habitat creation / landscape mitigation planting
- New, diverted or realigned PRoW

Site Photography



UNDULATING GROUND VIEWED FROM OLD SHIRE LANE



OLD SHIRE LANE



VIEW OF THE WESTERN VALLEY SLOPES FROM THE OLD ORCHARD



LAND EAST OF TILEHOUSE LANE

Precedent Images



CREDIT: MIKE WILLIAMS PHOTOGRAPHY



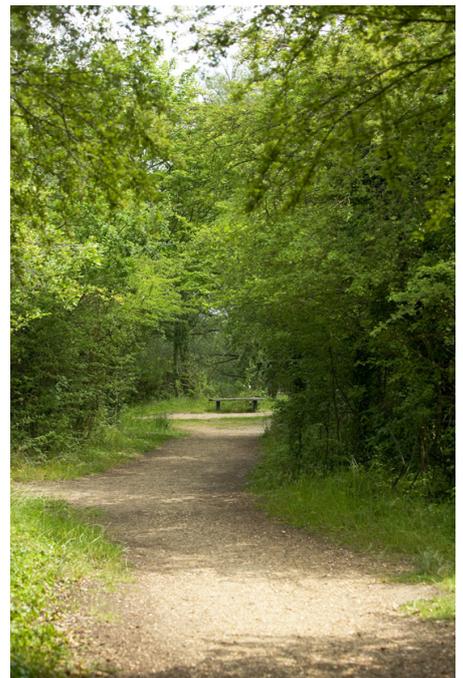
UFFINGTON WHITE HORSE



INFORMAL CAR PARKING FACILITIES



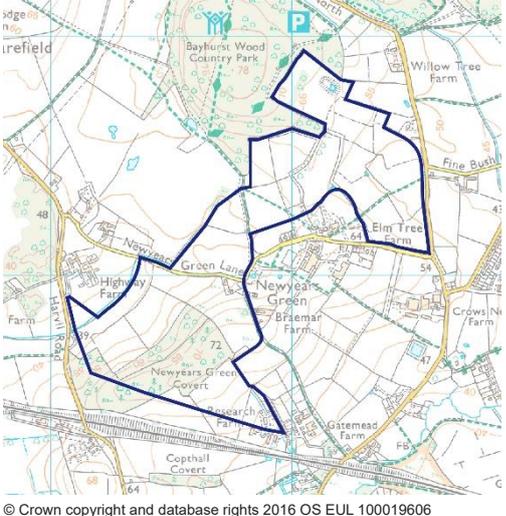
DEADWOOD HABITAT



PATH THROUGH RECENTLY PLANTED WOODLAND

PROJECT 7: NEWYEARS GREEN AREA

Project 7: Newyears Green Area

<p>Location and Existing Description</p> <p>The project covers a large area of land between Breakspear Road in the east and Harvil Road to the west. It is bounded by Bayhurst Wood to the north and the Chiltern railway line to the south. The area also includes Newyears Green SINC in the south of the area.</p>	<p>Location Map</p> 
<p>Existing Land Ownership</p> <p>Largely private ownership</p>	<p>Residual effects after taking account of HS2 Mitigation</p> <ul style="list-style-type: none"> The ES notes the permanent loss of barn owl territory and the potential loss of barn owls that nest close to the route due to train strike. <p>Other residual effects include:</p> <ul style="list-style-type: none"> Effects on landscape character and fabric across the area, due to the permanent placement of excavated materials (raising the ground levels by approximately 3m); the loss of historic field patterns, particularly to the north-east; obscuring views to Bayhurst Wood (a landmark and reference point) due to extensive woodland planting.
<p>Project Description</p> <ul style="list-style-type: none"> The details of HS2's restoration scheme in this area are not yet known. The AMP would include any recommendations on restoration and enhancement that go above and beyond HS2's restoration scheme. <p>This could include:</p> <ul style="list-style-type: none"> Potential to create sculpted landforms from excavated materials as part of a visitor attraction, potentially comprising a new country park which could operate as an extension to Bayhurst Wood. Creation of a new natural landmark, to compensate for the loss of Bayhurst Wood in views look north. 	

<ul style="list-style-type: none"> • Creating viewpoints across valley from the top of new landforms, through designed avenues in HS2 woodland. • Providing cycle routes from Bayhurst Woods to the valley floor, connecting communities to the west and east, linking with AMP Project 3 (Harefield Moor Area) and Project 4 (HOAC). • Creation of other recreational links to consolidate recreational movement to and from the Colne Valley Regional Park. • Potential for additional barn owl nesting boxes in the area, above and beyond HS2 proposals. • Creation of stepping stone habitats to assist in the movement of wildlife to and from Ruislip Woods NNR / SSSI into the valley. 	
<p>Feedback from Public Exhibitions</p> <p>Respondents requested that stockpiles be placed in a sympathetic way and that the natural feel of the area should be preserved.</p>	
<p>Cost Implications</p> <p>Landform creation would be relatively low cost and could form part of HS2 proposals. Creation of footpaths linking landform to existing footpath network would be relatively low cost, depending on surface treatment.</p>	<p>Delivery Timescale</p> <p>On completion of construction works.</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Planning permission likely to be required for visitor attraction and creation of country park. Groundworks, surfacing on new PRoWs may require planning permission. • Landowner agreements. 	<p>Pre-Design Requirements</p> <p>AMP proposals would need to respond to HS2's implemented design (yet to be finalised).</p>
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <p>HS2</p>	<p>Potential Maintenance Responsibility</p> <p>HS2</p>
<p>Success Measures</p> <ul style="list-style-type: none"> • Visitor numbers • Landmark attraction • Alleviated pressure on Ruislip Woods (National Nature Reserve/SSSI/Ancient Woodland) • Incorporation into CVRP circular walks • Areas of habitat created • Target species provided for 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u>: Country Park proposal would require revenue funding to establish and maintain. <u>Mitigation</u>: Identify match funding opportunities that align with existing Country Park / Ruislip Woods funding. • <u>Risk</u> of antisocial behaviour, including risk of fly tipping

<ul style="list-style-type: none"> Length of new footpaths created 	<p><u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using access routes.</p> <ul style="list-style-type: none"> <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners. <u>Risk:</u> Dependent on HS2 proposals <u>Mitigation:</u> None
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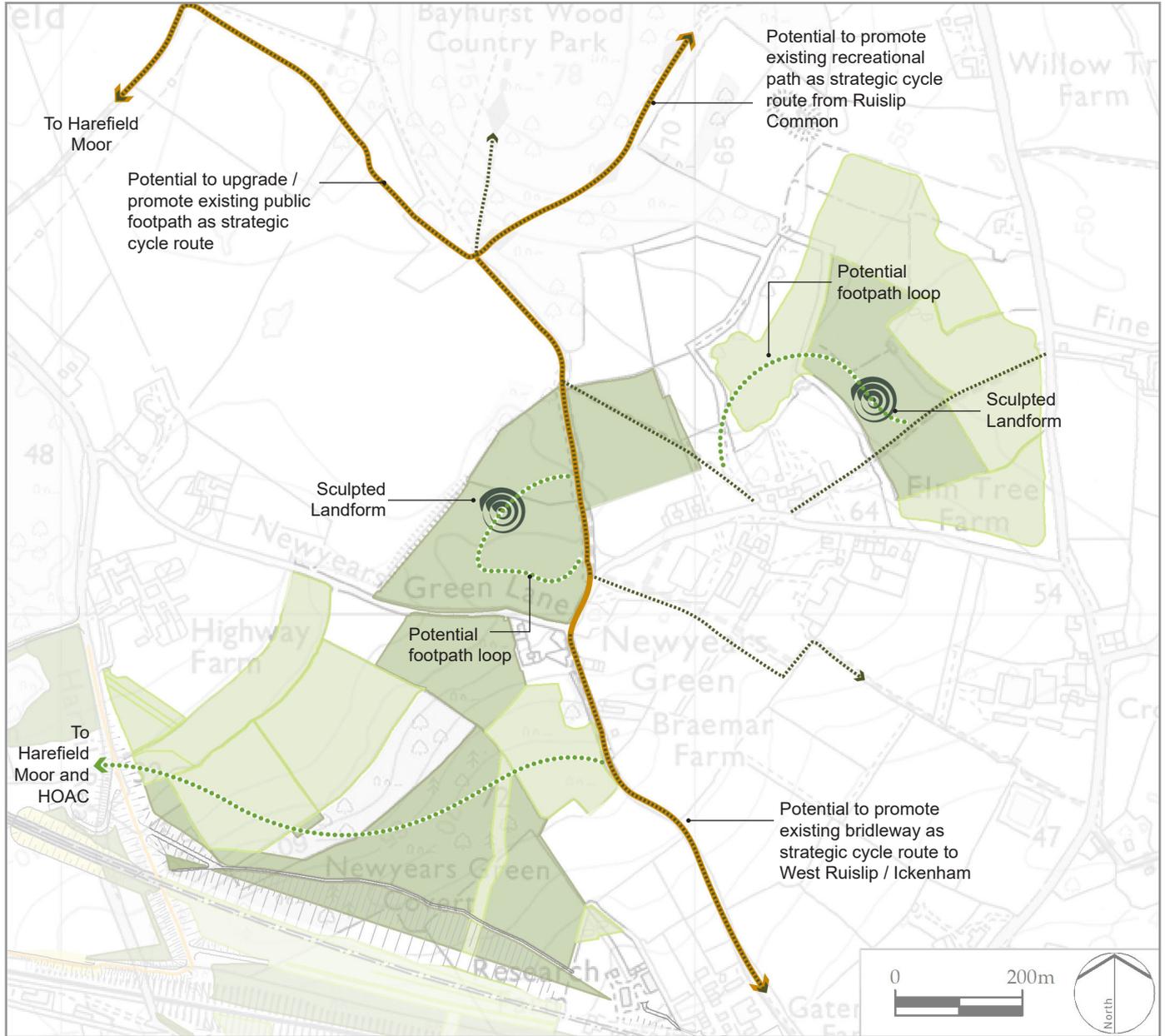
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PROJECT TITLE
COLNE VALLEY AMP
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Project 7: Newyears Green Area
 Indicative Proposals

DWG. NO. **5368_207A**

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EXISTING RECREATIONAL ROUTES

Formal route (PRoW, Sustrans, Recreational Path)

AMP PROPOSALS

Footpath / recreational route

Promoted cycle route (located on existing recreational routes or local roads)

Sculpted Landform (indicative)

HS2 PROPOSALS

Landscape earthworks

Engineering earthworks

Tunnel portal

Wetland habitat creation

Rail Alignment

Replacement floodplain storage / ecological mitigation pond

Balancing Pond

Grassland Habitat Creation

Woodland habitat creation / landscape mitigation planting

New, diverted or realigned PRoW

Site Photography



VIEW TOWARDS BAYHURST WOOD



ENTRANCE TO BAYHURST WOOD



ROUTE TO BAYHURST WOOD FROM NORTH RIDING



BAYHURST WOOD FROM BREAKSPEAR ROAD N

Precedent Images



LARGE SCALE LANDFORM ART



SMALL SCALE LANDFORM ART



MILLENNIUM CENTENARY PARK



OPEN LAND AND YOUNG WOODLAND



OPEN LAND AND YOUNG WOODLAND



ELEVATED VIEWS FROM RAISED LANDFORM



PROJECT 8: ACCESS POINTS, WAYFINDING AND SIGNAGE

Project 8: Access Points, Wayfinding & Signage

<p>Need for Project (Residual effects after taking account of HS2 Mitigation)</p> <p>To compensate for the impacts HS2 will have on the Colne Valley Regional Park during construction and operation, measures will be needed to raise the profile of the Park and ensure visitors, residents and workers understand that the Park remains open and accessible.</p>	
<p>Project Description</p> <p>Increase awareness of the Park by defining its key access points and routes.</p> <ul style="list-style-type: none"> • Provide ‘welcome’ signage at key entry points to the Park on roads, public footpaths and the Canal. For example, at the Colne Valley Regional Park Visitor Centre and Rickmansworth Aquadrome, and from villages within the park, such as Denham Green and Maple Cross. • Project Areas 1 – 7 to act as key nodes within the Park. By positioning signage in appropriate locations, project areas could act as localised gateways to the wider park. • Provide directional signage and route marking on recreational routes. • Provide interpretation at viewpoints and other locations within the Park (ecology, heritage, waterways) and reveal overlooked features where appropriate. • Ensure signage and other materials feature consistent branding to help promote the identity of the Colne Valley Regional Park. • Promote and improve accessibility to the Park’s facilities, for example through the upgrade of footpaths. 	
<p>Feedback from Public Exhibitions</p> <p>Comments were limited but a suggestion was made that the initiatives should form part of a route plan.</p>	
<p>Cost Implications</p> <p>The provision of signage, route marking and interpretation boards is relatively low cost, although numbers could be extensive. The cost of improving accessibility through the upgrade of footpaths would be dependent on the extent needed.</p> <p>Overall, the project is expected to be of low to medium cost.</p>	<p>Delivery Timescale</p> <p>Before commencement of construction and continuing during construction</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Planning permission may be required for interpretation signage/materials. • Landowner agreement. • Signage / maps at railway stations subject to permissions from TfL / Network Rail / Chiltern Railways 	<p>Pre-Design Requirements</p> <p>Access audit and strategy.</p>

<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Advertising / Sponsorship on signage / route markers / interpretation boards • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Groundwork South • Canal & River Trust (for proposals along canal) • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Groundwork South • Site owners / managers • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Increased visitor numbers • Greater awareness of Colne Valley Regional Park 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners. • <u>Risk</u> of antisocial behaviour <u>Mitigation:</u> Ensure funds set aside to repair damage.

Site Photography



ENTRANCE TO BAYHURST WOOD COUNTRY PARK AT THE EDGE OF COLNE VALLEY REGIONAL PARK



GATEWAY TO PARK AT ICKENHAM RIVER PINN GREEN CORRIDOR... CONTINUING...



...ALONG BREAKSPEAR ROAD SOUTH...



...TO FOOTPATH ALONG PRIVATE DRIVEWAY (NEAR BRACKENBURY FARM SCHEDULE MONUMENT)

Precedent Images



BOX HILL SIGNAGE



CONSISTENT SIGNAGE STRATEGY HELPS...



...TO UNITE DIFFERENT PARTS OF THE PARK.



SIGNAGE EXTENDS TO INFORM BOAT USERS



CLEAR AND LEGIBLE FINGER POST WAYMARKING

PROJECT 9: RECREATIONAL ROUTES

Project 9: Recreational Routes

<p>Need for Project (Residual effects after taking account of HS2 Mitigation)</p> <p>During the construction and operation of HS2, there will be disruption to a number of the Park's recreational routes, including temporary closures, temporary diversions and permanent realignments.</p>	
<p>Project Description</p> <p>This project proposes to look at those recreational routes affected by HS2 to ensure a comprehensive approach is taken to the Park's path network, providing improved and extended access and connectivity. Promotion of existing and new walks and cycle routes, to include:</p> <ul style="list-style-type: none"> • Circular routes. • Strategic connections, taking into account the needs of residents (e.g. connections between Denham and Denham Country Park). • Identifying potential new links to compensate for disruptions caused by HS2 works. E.g. link between HS2 diverted U34 and U42. • Integration of walks with themed trails. • Cycle links to the National Cycle Network. • Promote awareness of the Park's attractions by defining an interlinked network of footpaths that connect between visitor locations. 	
<p>Feedback from Public Exhibitions</p> <p>A number of suggestions were made by respondents, such as: Linking footpaths and cycle ways to create longer off road routes; provide wider linkages; ensure local walkers are able to walk as freely as possible around the Colne Valley Regional Park during the construction process.</p>	
<p>Cost Implications</p> <p>The provision of interpretation boards is relatively low cost. The cost of upgrading or providing new footpaths would be dependent on the extent needed.</p> <p>Overall, the project is expected to be of medium cost due to the potential extent and specification of new routes.</p>	<p>Delivery Timescale</p> <p>Before commencement of construction and continuing during construction</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Planning permission may be required for works to change levels, surfacing etc. or for new PRoWs. • Landowner agreement. 	<p>Pre-Design Requirements</p> <p>Access audit and strategy, including an understanding of the closures / diversions during construction with a view to providing alternatives away from the main construction areas and a focus on access for disabled users.</p>

<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Advertising / Sponsorship on signage / interpretation boards • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Local Authorities or Groundwork South • Canal & River Trust (for improvements to canal towpath) • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Local Authorities or Groundwork South • Site owners / managers • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • HS2 to agree on more appropriate PROW diversions. • Disruption to existing circular walks minimised. • Take up of alternative circular walks. • Increased use of routes and growth of visitor numbers at key destinations. • Relieving areas of visitor pressures • Length of new routes 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners. • <u>Risk</u> of antisocial behaviour, including risk of fly tipping <u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using access routes. • Alternative alignments within Bill limits will need to be proposed prior to MWCC and be agreed the highway authority. Redirection of these routes may not be affordable / tenable / legal.

Site Photography



HOGGIN TRACK - DENHAM COUNTRY PARK



VIEWS ACROSS RIVER COLNE FROM FOOTWAY



TOWPATH ALONG GRAND UNION CANAL

Precedent Images



DESIRE LINE TRACK



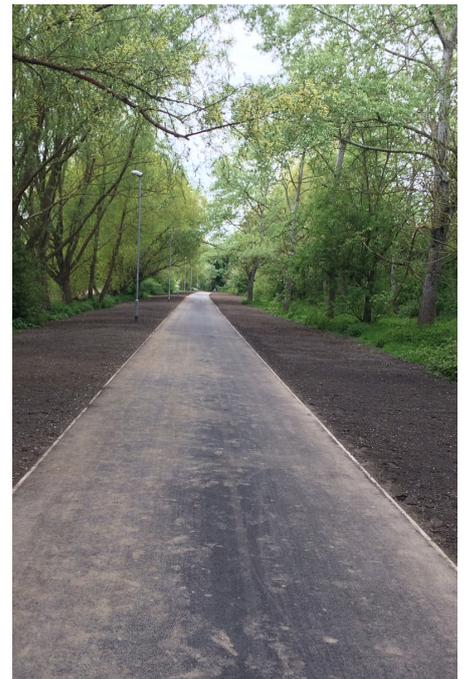
MOWN GRASS FOOTWAY



SELF BINDING GRAVEL CYCLE/FOOTWAY



BOARDWALK



NEWLY UPGRADED BLACKTOP CYCLEWAY

PROJECT 10: MULTIMEDIA

Project 10: Multimedia

<p>Need for Project (Residual effects after taking account of HS2 Mitigation)</p> <p>This project is designed to address the impact HS2 will have on the reputation of the Park during construction and operation by raising the profile of the Colne Valley Regional Park and helping inform people of HS2's activities within the Park.</p>	
<p>Project Description</p> <p>The aim of the project is to raise the profile of the Colne Valley Regional Park and help inform people of HS2's activities within the Park. This could include:</p> <ul style="list-style-type: none"> • Create a mobile phone app (and QR codes) to help inform people of the changes occurring within the Park, including information on recreational routes, heritage (such as newly excavated archaeology associated with HS2 works), ecology, and so on. • Provide 'Before' and 'After' photography, including historical images. • Downloadable walks (including temporary alternatives to those routes affected by HS2 works). • Ensure information is shared as widely as possible through multiple means of communication, including digital (website, email, apps) and print (display boards, leaflets, newsletters). 	
<p>Feedback from Public Exhibitions</p> <p>A comment from public noted that the proposal was not directly aimed at regenerating habitats.</p>	
<p>Cost Implications</p> <p>The initial outlay for an app would be relatively low cost, if kept simple, although the ongoing maintenance of the app would take up resources.</p>	<p>Delivery Timescale</p> <p>Before commencement of construction and continuing during construction and operation</p>
<p>Consents/Agreements Required</p> <p>None identified</p>	<p>Pre-Design Requirements</p> <p>None identified</p>
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Advertising / Sponsorship on signage / leaflets • Maintenance costs (of website, apps etc) 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Colne Valley CIC • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Colne Valley CIC • HS2

Success Measures	Potential Risks
<ul style="list-style-type: none">• Increased hits on website• Increased visitor numbers• Take up of app• Positive visitor feedback	<ul style="list-style-type: none">• <u>Risk</u>: Existing Colne Valley website may negate the need for other multimedia platforms <u>Mitigation</u>: the website already provides an established platform for communication and should also be viewed as an opportunity.

PROJECT 11: VIEWS

Project 11: Views

<p>Need for Project (Residual effects after taking account of HS2 Mitigation)</p> <p>This project is focussed on ‘revealing’ features of interest within the Park, in the knowledge that with the arrival of HS2 there will be changes to existing views and opportunities for the creation of new views.</p>	
<p>Project Description</p> <p>The project could include:</p> <ul style="list-style-type: none"> • Limited tree works and/or hedgerow management in carefully selected locations (e.g. Coppermill Lane, Moorhall Road, Iver Lane etc.) to open up views to water and across lakes. • Enhancements to existing viewpoints (provision of seats, clearance/ thinning/ pruning of vegetation). • Identification of new viewpoints at accessible locations, to view landscape, waterscape and features of interest. • Promotion of views and viewpoints, including interpretation boards. 	
<p>Feedback from Public Exhibitions</p> <p>A comment from public requested that trees and hedgerows are not damaged.</p>	
<p>Cost Implications</p> <p>Cost associated with the provision of interpretation boards and seating is relatively low, as are costs associated with vegetation works.</p>	<p>Delivery Timescale</p> <p>Before commencement of construction and continuing during construction and operation</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Planning permission may be required for works to trees (if works are substantial, fall within a conservation area or trees have TPO) and for construction to facilitate viewpoint creation. • Forestry felling licence may be required if significant number of trees are to be felled. • Landowner agreement. 	<p>Pre-Design Requirements</p> <p>Ecology and arboricultural surveys may be required to inform design.</p>
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Advertising / Sponsorship on interpretation boards • Maintenance costs 	

<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Groundwork South • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Groundwork South • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Visitor numbers 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u> of antisocial behaviour, including risk of fly tipping <u>Mitigation:</u> put in place measures to prevent unauthorised vehicles using access routes. • <u>Risk</u> of not gaining landowner agreement <u>Mitigation:</u> Land purchase might be a more agreeable option to landowners.

Site Photography



VIEW FROM THE HILLINGDON TRAIL TOWARD BROADWATER LAKE



VIEW FROM THE HILLINGDON TRAIL



VIEW FROM MOORHALL ROAD



RIVER COLNE FROM MOORHALL ROAD

Precedent Images



SEATING IN AN ELEVATED VIEWING POSITION...



...OFFERING VIEWS TOWARD A LAKE



INTERPRETATION BOARD MAPPING A VIEW. CREDIT: NIGEL DAVIES

PROJECT 12: PUBLIC ART

Project 12: Public Art

<p>Need for Project (Residual effects after taking account of HS2 Mitigation)</p> <p>Public Art has the potential to generate a sense of local identity and distinctiveness and help generate pride in the places it is located. A programme of public art would help raise the profile of the Colne Valley Regional Park and compensate for the impact HS2 will have on the reputation of the Park during construction and operation.</p>	
<p>Project Description</p> <p>The project could include:</p> <ul style="list-style-type: none"> • Public art along new, diverted and existing recreational routes (including sculpture trails). • Public art at visitor locations. • A public artwork could have multiple benefits: cultural (of its place), ecological (e.g. unusual hibernaculas, living willow sculptures), educational (combined with interpretation boards), social (community participation) and so on. • Potential for integrated and community led public art opportunities. 	
<p>Feedback from Public Exhibitions</p> <p>A comment from public noted the project was too expensive for the limited budget.</p>	
<p>Cost Implications</p> <p>Costs associated with the provision of public art would vary from low cost interventions to high end / high cost pieces.</p>	<p>Delivery Timescale</p> <p>Before commencement of construction and continuing during construction and operation</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Planning permission likely to be required, particularly for larger artworks. • Landowner agreement (locating art work on private land) 	<p>Pre-Design Requirements</p> <ul style="list-style-type: none"> • Engagement with artists. • Engagement with local schools • Consider HS2's emerging public arts strategy.
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Advertising / Sponsorship associated with artwork. • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Colne Valley CIC • HS2 • Other stakeholders 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Groundwork South • Site owners / managers • HS2

Success Measures	Potential Risks
<ul style="list-style-type: none">• Visitor numbers• Visitor feedback• Success stories / citations in local and national press	<ul style="list-style-type: none">• <u>Risk</u> of antisocial behaviour, including vandalism (potential review liability) <u>Mitigation:</u> Ensure funds set aside to repair damage.

Site Photography



PUBLIC ART WITHIN DENHAM COUNTRY PARK

Precedent Images



ART EMPHASISING PLACE



ART AS A GATEWAY FEATURE



ART AS PLAY



HIDDEN ART AS PART OF A LAYERED LANDSCAPE



ART AS LANDMARK



ART AS PUBLIC PARTICIPATION CRAFT



ART AS SEATING



ART AS HABITAT. CREDIT: WAMEDU

PROJECT 13: LOCAL COMMUNITY ENGAGEMENT

Project 13: Local Community Engagement

<p>Need for Project (Residual effects after taking account of HS2 Mitigation)</p> <p>There is an opportunity to involve local groups and volunteers in the delivery of AMP projects and actively engage local people with the proposals and the local countryside, helping compensate for the reputational harm HS2 will have on the Park during construction and operation.</p>	
<p>Project Description</p> <p>Local Community Engagement could include:</p> <ul style="list-style-type: none"> • Public events, such as festivals, guided walks and talks. • Educational events that involve conservation tasks. • Social media presence, including the potential to use social media to coordinate events. 	
<p>Feedback from Public Exhibitions</p> <p>Comments from public included a statement that the project should happen, regardless of HS2; and that the project would be easy to incorporate.</p>	
<p>Cost Implications</p> <p>Costs would be minimal and largely associated with the allocation of resources for coordinating events (time, printing costs etc.)</p>	<p>Delivery Timescale</p> <p>Before commencement of construction and continuing during construction and operation</p>
<p>Consents/Agreements Required</p> <p>Planning permission unlikely to be required subject to scale, frequency and location of public events.</p>	<p>Pre-Design Requirements</p> <p>None identified.</p>
<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Advertising / Sponsorship associated with events. • Potential revenue generated from concessions. 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Colne Valley CIC • Canal & River Trust • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Groundwork South • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Visitor numbers • Increased engagement of schools, community groups, etc. in the Park 	<p>Potential Risks</p> <ul style="list-style-type: none"> • None identified

PROJECT 14: WILDLIFE IMPROVEMENTS

Project 14: Wildlife Improvements

Need for Project (Residual effects after taking account of HS2 Mitigation)

A range of ecological impacts of HS2 can be mitigated for through smaller scale measures included in this project, to be implemented more widely within the Colne Valley (within and outside Project Areas 1 - 7). These measures aim to strengthen the ecological resilience of key species populations and habitat communities, especially in areas most likely vulnerable to direct and indirect impacts.

Project Description

This project aims to introduce a package of wide-ranging strategic enhancements for a range of species, that could be combined with other AMP projects or opportunities that arise in other areas that are not covered by the AMP projects.

The AMP would include any recommendations on restoration and enhancement that go above and beyond HS2's restoration scheme.

Background to project (at a generic level) as follows:

Several impacts on key species have been identified:

- Bats: severance/impact on foraging routes, roosting sites.
- Water vole: fragmentation of populations, mink predation, riparian management.
- Grass snake and slow worm: loss of habitat and connectivity
- Brown hare: habitat management
- Wildfowl e.g. shoveler, gadwall, tufted duck, wigeon, teal, great crested grebe: disturbance
- Kingfisher: riparian management, pollution impacts on prey, disturbance
- Fish: migration barriers¹, river morphology, pollution
- Glow-worm: habitat management
- Barn owl: loss of one territory during construction and potential impacts during operation (bird strike)
- Desmoulin's whorl snail: hydrology, habitat management²

As several of these key species are currently already either patchily distributed in the Colne Valley or present in very small areas only, further severance of linkages would be detrimental. A combination of new habitat creation, management of existing habitats to increase carrying capacity and potentially the cessation of certain recreational activities from certain areas would benefit several species. This would include identifying associations between SSSI's, habitat types and stepping stone sites, aimed at outward and inward connectivity.

A number of measures to help address adverse effects have been proposed, such as:

- Creation of stepping stone habitats to aid dispersal for water vole.
- The creation of suitable foraging open areas and opportunities for additional roosting for bats.
- New artificial holts in undisturbed locations along the River Colne and other lakes as well as facilitating the passing of locks and under bridges through the provision of ledges or ladders.
- Funding for habitat management or creation for glow worm to increase the distribution of

¹ London Wildlife Trust has recently been commissioned by the Environment Agency to survey fish barriers on the River Colne downstream from the Chess confluence. Results of this, due summer 2017, can help inform proposals

² London Wildlife Trust has just secured funding to undertake works to benefit this species at Denham Lock Wood SSSI.

<p>the species in the Colne Valley.</p> <ul style="list-style-type: none"> • Biodiversity enhancements at Project 6: Western Valley Slopes. • Enhancements to Denham Country Park Local Nature Reserve. These measures may include the creation of refuges for diving ducks and other wildfowl (roosting opportunities here have been historically lacking); enhancement and increase of marginal vegetation through the creation of new shelves protected against erosion with soft landscaping such as willow wattle and planting of a mix of native wetland plants; reduction of shading through selective thinning. • Improvements to marginal / emergent / aquatic habitat along eastern edge (non-towpath side) of the canal to benefit water vole and other species. • Local tree management to benefit fish spawning. • Additional areas of suitable barn owl habitat, such as small mammal-rich rough grassland or reed bed margins, located a minimum of 1km from dual carriageways (including motorways and A roads). Provision of suitable artificial nesting sites in these newly created habitats. 	
<p>Feedback from Public Exhibitions</p> <p>Attendees at the consultation event were highly supportive of the project and commented on the potential for real gains, noting the need to safeguard wildlife, including microfauna.</p>	
<p>Cost Implications</p> <p>Most measures will be relatively minor (low cost) and would not require major infrastructure creation. However, the aim is to develop a package that can deliver tangible gains across the valley that could amount to medium level costs, depending on the number and extent of interventions.</p>	<p>Delivery Timescale</p> <p>Potential for early delivery, pre construction. Measures could also be implemented during or post construction (such as at Frays Valley)</p>
<p>Consents/Agreements Required</p> <ul style="list-style-type: none"> • Any works within the SSSI will require consent from Natural England. • Protected species licences are unlikely to be required as the proposed works are aimed at enhancing habitat where protected species are currently absent within the Colne Valley. • Planning may be required depending on the extent of earthworks, tree felling/thinning and erection of structures to support wildlife. • Forestry felling licence may be required if significant number of trees are to be felled. • Works affecting watercourses (e.g. weir removal for fish passage) will require EA consents. • Landowner agreements. 	<p>Pre-Design Requirements</p> <ul style="list-style-type: none"> • Strategy defining targeted priorities. • Ecology surveys may be required to inform design. More detailed distribution data on water vole and other species would help inform where to target measures to enhance habitats and connectivity.

<p>Potential Revenue Implications</p> <ul style="list-style-type: none"> • Maintenance costs 	
<p>Potential Delivery Responsibility</p> <ul style="list-style-type: none"> • Colne Valley CIC • Wildlife Trusts • Canal & River Trust • HS2 	<p>Potential Maintenance Responsibility</p> <ul style="list-style-type: none"> • Groundwork South / Wildlife Trusts • HS2
<p>Success Measures</p> <ul style="list-style-type: none"> • Breeding bird surveys • Wintering bird surveys • Protected species surveys • Fish surveys 	<p>Potential Risks</p> <ul style="list-style-type: none"> • <u>Risk</u>: Unknown landownership <u>Mitigation</u>: define landownership once proposal locations identified and, where possible, avoid privately owned land • <u>Risk</u> of conflicts with ambitions of other AMP proposals. E.g. access / use / management. <u>Mitigation</u>: where possible, design out conflicts as multifunctional proposals provide greater benefits. • <u>Risk</u>: Relies on landownership and management agreements. <u>Mitigation</u>: Land purchase might be a more agreeable option to landowners. • <u>Risk</u> of antisocial behaviour, including risk of fly tipping <u>Mitigation</u>: put in place measures to prevent unauthorised vehicles using access routes.



8.0 RECOMMENDATIONS FOR HS2

In the course of developing the AMP proposals, various opportunities were identified to mitigate impacts or deliver enhancements for the Park arising from the detailed design of the HS2 works or the way in which those works are delivered. These are presented as recommendations from the Panel to HS2 Ltd, which it is requested to take forward with its contractors once they are appointed.

PROJECT SPECIFIC RECOMMENDATIONS

Project	Recommendations for HS2
Project 1 – Broadwater Area	<ul style="list-style-type: none"> • Contribution from HS2 to assist in providing alternative access to Broadwater Lake (via existing track along east of lake) during construction. This will need to include appropriate screening/visitor management. • HS2 mitigation areas as drawn up in ES to be reviewed. Marginal planting within Harefield Moor Lake could be relocated to Broadwater Lake, given the ongoing aggregates operation. • Potential for the nominated undertaker to reprofile the banks of Harefield Moor or assist in silt modelling works (subject to ongoing aggregates work. It is not envisaged that new material would be brought into the lake but rather reshaping of material from the aggregates operation • Relocation of carp from Korda Lake to stock for a new location if angling club decides to relocate
Project 2 – Tilehouse Lane Woods Area	<ul style="list-style-type: none"> • Woodland planting: some of the areas (e.g. Little Halings Wood) are already marked up for woodland planting. If historic woodland shown on OS 1880 map at Western Valley Slopes is restored, some of the proposed planting could be relocated from Little Halings Wood and instead be used to recreate the lost historic woodland area. • Woodland to be planted should ensure maximum biodiversity gains (e.g. feathered woodland edge, rides, glades etc.) • Habitat creation and enhancements associated with the areas through which new links pass (i.e. woodland edge planting / marginal habitat along footpath link, creating species-rich corridor through the woodland)
Project 3 – Harefield Moor Area	<ul style="list-style-type: none"> • More sympathetic PROW realignments. Potential relocation of feeder station southwards to mitigate further. • Consider impacts of woodland planting on historic woodland pattern (i.e. two blocks within northern part of project area) • Dews Farm Sandpits: Land may be affected by compulsory purchase. Clarification required as to proposed use during and after construction.
Project 4 - HOAC	<ul style="list-style-type: none"> • Return land in a condition suitable for potential use as a visitor centre. If HOAC relocates, opportunities to use as cafe, information, toilets and other facilities, making use of existing HOAC buildings and facilities. This would need to be coordinated with existing visitor centres. • HS2 should avoid carpet planting of wetland habitat along the lake (as shown in the ES) and allow breaks in the wetland habitat to maintain the functionality of the lake for use by the angling club.



<p>Project 5 – Frays Valley</p>	<ul style="list-style-type: none"> • Discussions should be had on how avoidance of impacts (e.g. soil compaction) could be achieved. • Frays Farm Meadows SSSI: Provide access to allow continued conservation grazing which is important for ecology and the rural economy. • Opportunities should be taken to look at the following mitigation in this area: <ul style="list-style-type: none"> - Wetland management - Water management plan - Access for livestock • Haul road needs to be constructed so as to ensure that biodiversity impacts and site management (inc. hydrology) are minimised. A hydrological study could assess the implications of a haulage road on Frays Farm Meadows and Denham Lock Wood SSSIs.
<p>Project 6 – Western Valley Slopes</p>	<ul style="list-style-type: none"> • The design of the railway and landscape mitigation, and any restoration schemes of temporary land-take need to stand the test of time and, where they interact with PRoW, need to be enjoyable. • Land should remain productive / useable and must not become derelict. • Landscape forms should be carefully considered - avoid sunken areas (due to placement of soil and lifting of other areas), preserve and enhance natural landscape where possible. • Sympathetic placing of stockpiles (landscape) – plant appropriate, native seed mixes. • Plan ahead to ensure enough quantities of native seed mixes (preferably locally sourced) are available. • Fencing should be designed to make the landscape more attractive (including ponds) • Long distance views need to be considered. If facilities are provided as part of additional or HS2 mitigation, they will need to be accessible for all and financially sustainable. Land should be returned to agricultural land that is productive or alternative use of land should be investigated (e.g. orchards, care farm). • Potential for HS2 access road to be used by members of the public, either to access potential car park or proposed AMP footpaths. • The design of Tilehouse Lane overbridge to be considered as a beacon structure for train spotting opportunities. The design should respond to the Chiltern tunnel south portal.
<p>Project 7 – Newyears Green Area</p>	<p>Opportunities to enhance character of sustainable placement areas by:</p> <ul style="list-style-type: none"> • Providing a new country park or extension (to complement Bayhurst and Ruislip Woods) by using Sustainable Placement to create sculpted landforms as visitor attraction. • Creating viewpoints across valley from top of new landforms • Retaining higher quality fields to north and east and focus on landscape repair to the west • Reducing proposed woodland cover to retain legibility of the historic boundaries of the Ruislip Woods (including Bayhurst Wood)
<p>Project 9 – Recreational Routes</p>	<ul style="list-style-type: none"> • Reduce impact of closures or diversions (potential rerouting of diversions and investment in alternative routes) caused by HS2. • HS2’s diversions should be reviewed and diverted along more sympathetic alignments (i.e. not a straight, engineered route). Avoid positioning diversions immediately adjacent to major construction works. Provide diversions that are enjoyable for the public to encourage their use. • Routes to review area: <ul style="list-style-type: none"> - Area around Old Shire Lane (CSP 16, Rick 04, Den3) - Area from Denham Quarry to Breakspear Road South (u31, U34, U42) - Effects of temporary closure of Colne Valley Trail and Grand Union Canal Circular Walk (closure between Moorhall Road and just north of Denham Lock) - Affected walks: Old Shire Lane Circular Walk (Den/2, 002 and CSP/44) - Colne Valley Trail (footpath U75) - South Bucks Way / London Loop / Hillingdon Trail
<p>Project 13 - Local Community Engagement</p>	<ul style="list-style-type: none"> • Nominated undertakers to seek opportunities to involve local groups / communities / volunteers and neighbouring communities in the Park. E.g. Maple Cross, Denham, Harefield.



GENERAL RECOMMENDATIONS

Theme	Recommendations for HS2
Long-Term Land Use	<ul style="list-style-type: none"> • Severance may result in areas being isolated and unviable as farmland. Mechanisms should be put in place for monitoring land use and the sustainability of afteruse proposals. • Where land is not returned to agriculture and instead forms part of the HS2 mitigation, consideration should be given as to whether any recreational use and/or access can be achieved. • Where land is unexpectedly found unviable for farming following construction, a sustainable alternative land use should be identified. • Discussions should be held with the Panel to decide how land that may become derelict can be used.
Ecological principles (also Project 14 – Wildlife Improvements)	<ul style="list-style-type: none"> • Seek opportunities to enhance ecological networks by creation/restoration of appropriate habitats to the existing network and ground conditions. • Vegetation clearance / tree loss should be limited where possible and appropriate tree management should be put in place. Any new planting should be with native species appropriate to the location. • Vegetation clearance needs to be sympathetic to the locale. • Seek opportunities to achieve wide-ranging enhancements for rare and protected species. Examples include the creation of stepping stone habitats to aid dispersal (water vole); the creation of suitable foraging open areas and opportunities for additional roosting (bats); and new breeding sites in undisturbed locations along the River Colne and other waterbodies.
Revealing the Heritage	<ul style="list-style-type: none"> • Display archaeological findings from HS2 construction locally and in a timely manner.



APPENDICES

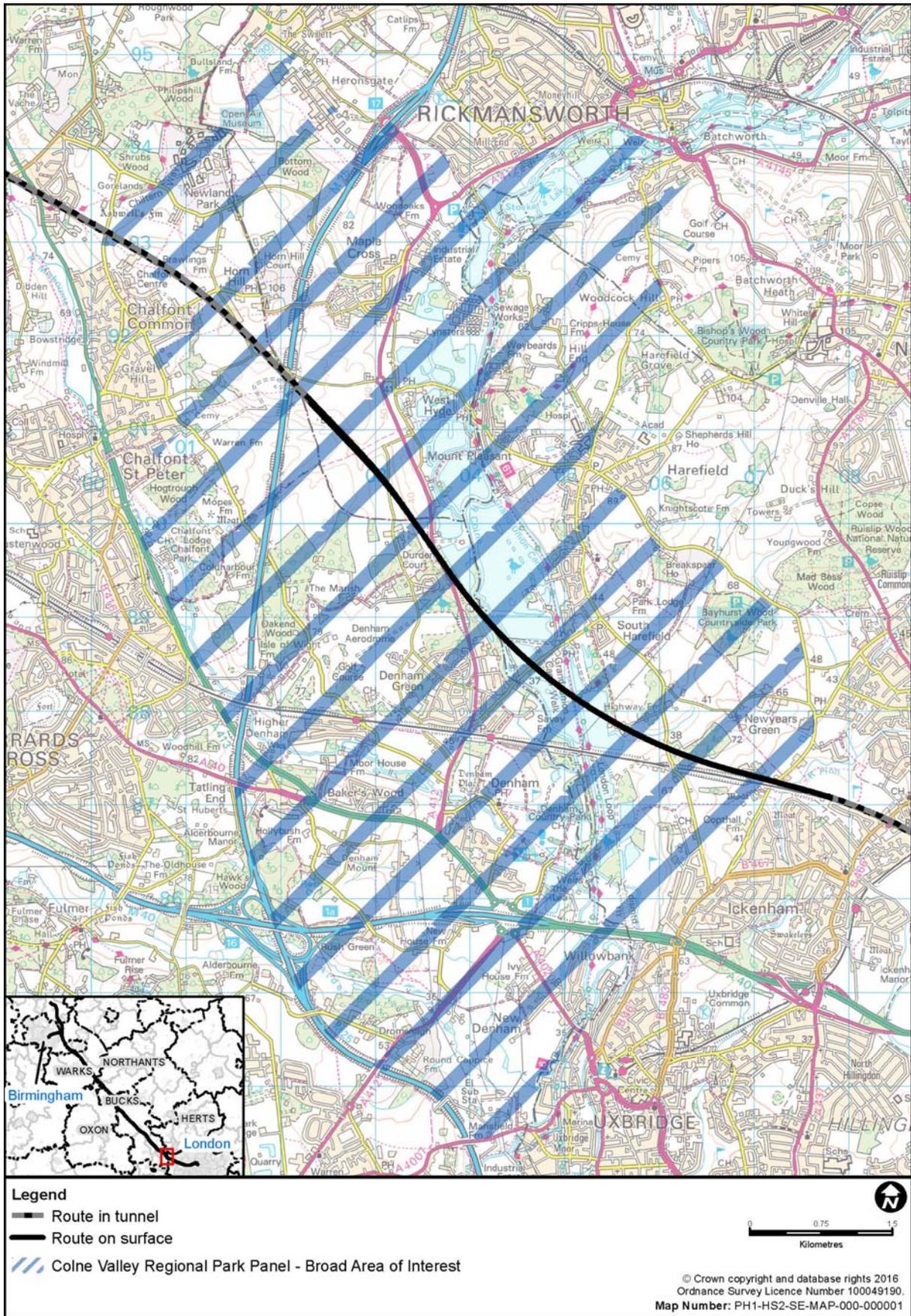
APPENDIX A:

HS2 COLNE VALLEY REGIONAL PARK PANEL TERMS OF REFERENCE

4 MARCH 2016 (PUBLISHED VERSION)

ANNEX B - COLNE VALLEY REGIONAL PARK PANEL - BROAD AREA OF INTEREST

Annex B





APPENDIX B: LIST OF STAKEHOLDERS

List of key stakeholders:

PM – Official CVRP Panel member

- a) Colne Valley Park Community Interest Company (PM) (incl CIC board meetings, annual forum)
- b) Chilterns AONB Review Group
- c) Local authorities
 - a. London Borough of Hillingdon (PM)
 - b. South Bucks District Council (PM)
 - c. Chiltern District Council (PM)
 - d. Three Rivers District Council (PM)
 - e. Hertfordshire County Council (PM)
 - f. Buckinghamshire County Council (PM)
 - g. District and County Council Members (direct contact with South Bucks District Council and Chilterns District Council)
- d) Parish Councils
 - a. Denham Parish Council
 - b. Iver Parish Council
- e) Statutory consultees
 - a. Environment Agency (PM)
 - b. Natural England (PM)
 - c. Historic England
- f) Department for Transport (PM)
- g) Wildlife Trusts
 - a. Herts and Middlesex Wildlife Trust (PM)
 - b. London Wildlife Trust (PM)
 - c. Bucks, Berks and Oxfordshire Wildlife Trust (PM)
- h) Country Parks
 - a. Denham Country Park
 - b. Bayhurst Wood Country Park
- i) Recreational facilities
 - a. Angling clubs
 - i. Uxbridge Rovers Angling and Conservation Society
 - ii. British Carp Study Group
 - iii. Harrow Angling Society
 - iv. Savay Lake
 - b. Water sports
 - i. Denham Waterski Club
 - ii. Broadwater sailing club
 - iii. Rickmansworth sailing club (Troy Lake)
 - iv. Hillingdon Outdoors Activity Centre (HOAC)
 - c. Grand Union Canal
 - i. Canal & River Trust(PM)
 - ii. Arthur Daily Trips
 - iii. Harefield Marina
 - d. Paccar Scout Camp
- j) Other local businesses
 - a. De Vere Hotel, Tilehouse Lane,
 - b. Martin Baker Aircraft

- c. Bosch
- d. Denham Aerodrome
- e. IHG
- f. Summerleaze – New Denham Quarry
- g. Public houses (e.g. the Old Orchard)
- h. Tilehouse Lodge and Tilehouse Studios
- k) Historical buildings
 - a. Savay Farm (Grade I) and surrounding buildings
 - b. Dew's Farm (locally listed)
- l) Member organisations
 - a. Ramblers Association
 - b. British Horse Society
 - c. Cycling Touring Club
 - d. Sustrans
 - e. Hillingdon Natural History Society
 - f. Friends of Colne Valley Park
 - g. Friends of Iver Heath
- m) Tenants and residents associations
 - a. Harefield Tenants and residents association
- n) Campaign groups
 - a. Denham against HS2
 - b. Hillingdon against HS2
 - c. Harefield against HS2
 - d. Chalfonts No to HS2
- o) Wyatts Covert Caravan Club Site
- p) Local landowners
 - a. Little Halings B&B and Great Halings
 - b. Park Lodge Farm
- q) Schools and youth centres
 - a. Denham Village Infant school
 - b. Denham Green E-Act primary Academy
 - c. Maple Cross Junior Mixed & Infants School
 - d. Harefield Infant School & Children's Centre
 - e. Harefield Junior School
 - f. Meadows Pre-School
 - g. Shepherds Hill Nursery
 - h. The Harefield Academy
 - i. West Hyde & Maple Cross Youth Centre
- r) Health facilities and care homes
 - a. Harefield Hospital
 - b. Denham Manor Care Home
- s) Golf clubs
 - a. Uxbridge Golf Course
 - b. Buckinghamshire Golf Club
 - c. Denham Golf Club
 - d. Ruislip Golf Club



APPENDIX C: WORKSHOP NOTES

WESTERN VALLEY SLOPES – SUB-GROUP WORKSHOP – 24TH NOVEMBER 2016

ECOLOGICAL SUB-GROUP WORKSHOP – 30TH NOVEMBER 2016

Western Valley Slopes – sub-group workshop – 24th November 2016

General principles:

- Any restoration scheme will need to make sure that it is futureproof and enjoyable for generations to come
- Productive landownership and sustainable land use - land has to remain productive / useable and must not become derelict or abandoned
- Carefully considered landscape forms - avoid unnatural sunken areas, preserve natural landscape if possible
- Consider accessibility in the design approach
- Sympathetic placing of stockpiles in relation to landscape - make sure that stockpiles are placed in a considerate manner and stabilised where required – is there an opportunity to temporarily plant seeds on the stockpiles to reduce the visual impacts? (e.g. chalk)
- There will be a large quantity of seedbanks needed – careful planning is required to ensure enough quantities of native seed mixes are available
- Fencing to be placed as to not make landscape less attractive

Recommendations for HS2 / NNL to discuss:

- If possible, land should be returned to agricultural land that is productive and can be used (grazing can be a possibility as long as there is a landowner who would manage)

If this is not a possibility, the following recommendations are put forward to HS2:

- Visitor centre
 - o There is an opportunity to have a visitor centre/café near the portal with facilities which will provide an opportunity for the visitors to see the train - needs to be financially sustainable
 - o The visitor centre could inform people about points of interests within the wider Colne Valley Park, e.g. Grand Union Canal, Denham Country Park, Broadwater etc.
 - o The Western Valley Slopes could have its own circular route, e.g. Rights of Way from the new visitor centre south towards the bridleway, linking with Old Shire Lane and back to the visitor centre
 - o The visitor centre could link with the wider footpath network of the Park, linkages with footpaths of the Park
- Biodiversity
 - o Corn buntings (consideration in line of HS2 assurances), protection of species may require some areas to be returned to agriculture if possible
 - o Hedgerow habitat creation
 - o Use chalk to create chalk grassland (possible in the west?)
 - o Restore woodland shown on OS 1880 map
 - o Avoid blanket wood planting

Ecological sub-group workshop – 30th November 2016

Proposals 1 & 6 - Broadwater Lake NR / Harefield Moor L / Korda L / Long Lake

This proposal consists of a set of sub-proposals. If some elements of this proposal cannot be delivered, other elements of this proposal should still be delivered.

Harefield Moor Lake:

- There is an HS2 mitigation area already drawn up on Harefield Moor Lake
- It is currently unclear if a site restoration scheme was submitted as part of Harleyfords planning application; however, it is expected that there is no site restoration scheme in place.
- If there is no site restoration scheme, HS2 could start conversations with Harleyfords to establish if there is a different way to achieve sustainable restoration – agreement on easily implemented restoration on lake?

Broadwater Lake:

- Would there be an opportunity to infill soil at the western margin of Broadwater Lake? Could any of the excavated material be used for this?

Actions:

- HS2 to confirm what are their powers within the Bill limits, has there been any correspondence with Harleyfords and what could be the next steps in getting conversations started.
- EA to confirm whether Harleyfords need to apply for a waste permit.
- Natural England to confirm whether there is already an existing site restoration scheme.

Proposal 11 – Frays Valley

In the first instance, discussions should be had to see how avoidance of impacts (e.g. soil compaction) can be achieved.

There are a range of additional ecological opportunities that could be investigated as part of the HS2's assurances and the No Net Loss target:

- Wetland creation to the south of Fray's Farm
- Creating glow worm habitat near Fray's Valley
- Wetland enhancement
- Water management plan
- Ensure appropriate access for livestock



APPENDIX D: SUMMARY OF ECOLOGY DESIGNATIONS

Summary of Ecology Designations:

	SSSI	LWS	LNR	Other nature reserve	notes
Site	Mid Colne Valley	X		part	Lies entirely within Mid-Colne Valley SMI. Broadwater Lake NR lies within boundary.
	Denham Lock Wood	X	X		Lies entirely within Mid-Colne Valley SMI. Managed as a nature reserve within Frays Valley LNR
	Frays Farm Meadows	X	X		Lies entirely within Mid-Colne Valley SMI. Managed as a nature reserve within Frays Valley LNR
	X	Mid-Colne Valley	part	part	Contains the three SSSIs, Denham Country/Quarry Park LNR, Frays Valley LNR, Broadwater Lake NR, Frays Farm Meadows NR and Harefield Place NR
		Dew's Dell		part	Includes Dews Farm Sandpits NR
		Great Halings			
		X	Denham/Country Quarry Park		Lies within Mid-Colne Valley SMI
	X	X	Frays Valley	X	Contains Denham Lock Wood and Frays Farm Meadows SSSIs, and Harefield Place NR. Lies entirely within Mid-Colne Valley SMI
			Northmoor Hill Wood		
	X	X		Broadwater Lake NR	Lies within Mid Colne Valley SSSI and Mid-Colne Valley SMI
	X	X		Denham Lock Wood	Lies within Mid-Colne Valley SMI and Frays Valley LNR
		X		Dews Farm Sandpits	Lies within Dew's Dell SBI
	part	X	X	Frays Farm Meadows	Lies within Mid-Colne Valley SMI and Frays Valley LNR
		X	X	Harefield Place	Lies within Mid-Colne Valley SMI and Frays Valley LNR



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