Solihull Metropolitan Borough Council Additional Site Options Ecological Assessment:

UK Central Hub & HS2 Interchange

Habitat Biodiversity Audit Partnership for Warwickshire, Coventry and Solihull

Warwickshire Wildlife Trust

Ecological Services Warwickshire County Council

January 2020

Contents

UK CENTRAL HUB & HS2 INTERCHANGE

Area: 153 hectares

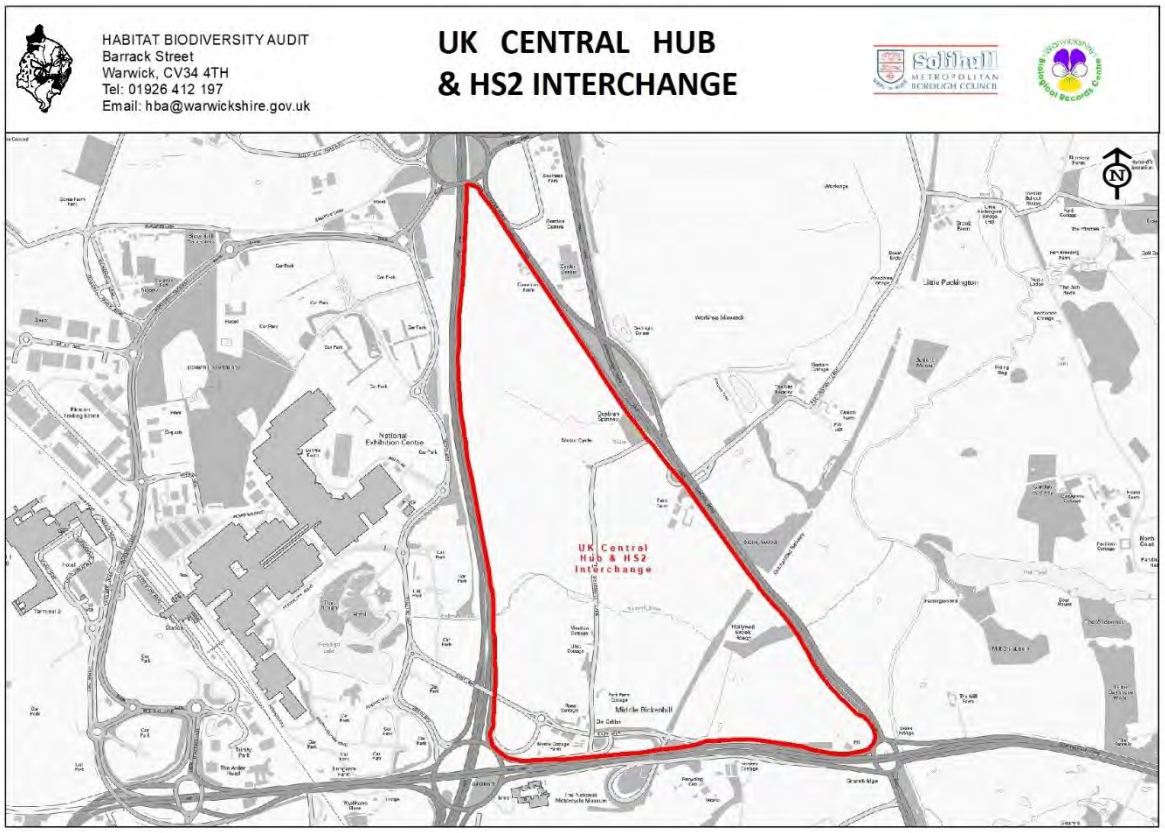

Figure 1 Site Location

Overview

The triangular land parcel bordered by large scale road infrastructure on all sides has been named the Arden Cross Site in preparation as the location of the proposed UK Central Hub and the HS2 Birmingham Interchange Station. As such, mixed use space is proposed for the entirety of the site.

The land parcel is located to the east of and bordered by the M42 separated only from the National Exhibition Centre with the A45 marking the southern boundary and Stonebridge Island marking the south-eastern corner with Junction 6 of the M42, the south-western corner. The A452 separates the eastern boundary from open agricultural land of the Packington Estate and Packington Landfill.

Centrally the land parcel is dominated by the small hamlet of Middle Bickenhill segmented by Middle Bickenhill Lane which runs linearly through much of the north and central part of the land parcel. Eventually leading to the now derelict Olympia Motor Cross Racetrack Club and Denbigh Spinney. Hollywell Brook runs from Pendigo Lake within the NEC grounds across the land parcel and flows into the River Blythe SSSI marking Hollywell Brook Rough and connects numerous ponds and marshy grassland.

The disused Hampton branch of Birmingham and Derby Junction Railway intersects Holywell Brook and cuts through the south-eastern corner of the land parcel.

Park Farm dominates the eastern periphery where sand and gravel extraction has left an extensive sand pit. Park Farm is a Grade 2* listed Gothic house dating from the later 18th or early 19th century.

Key Features

- Hollywell Brook (SP28B1)
- Veteran/Notable Trees
- Denbigh Coppice LWS (SP28C3)
- Birmingham & Derby Disused Junction Railway pLWS (SP29Li30a)
- Middle Bickenhall Lane (Linear Woodland, Hedgerow & Veteran/Notable Trees)
- Japanese Knotweed
- Ecological Constraints Equate to 9.1% of the Total Area

Recommendations

The development parcel is currently affected from recent large-scale changes due to works under the HS2 umbrella. Construction works have formerly started across the parcel and are represented by bare ground with large extents to the north and construction headquarters on the southern periphery.

The former arable or improved grassland fields which consisted much of the development parcel have succeeded to set-a-side dominated by coarse and common weeds and grasses due to the abandonment of cultivation or grazing. Much of the ecological mitigation works appear to have already been implemented due to the timing of works in relation to this report.

The Hollywell Brook and its associated habitats comprising of marshy grassland, ponds and wet woodland particularly Hollywell Brook Rough act as important habitat connectors and should be retained within development proposals. It is necessary to ensure that water quality and flood prevention are maintained, and no adverse effects impact the River Blythe SSSI. The flood plain of the Hollywell Brook should be kept intact so not to result in surface and ground water impacts. This should be controllable through a sensitive Surface Water Management Plan.

Veteran and/or notable trees particular to the north of the parcel look to have been retained with construction works and would form an important component of future green infrastructure. Trees within hedgerows and small linear woodlands that mark Middle Bickenhill Lane are also important elements that should be preserved as they provide strong connectivity of green infrastructure across much of the parcel.

Trees within the development parcel that are subject to a Tree Preservation Order (TPO; Town and Country Planning Act 1990), require consent from the local planning authority before such protected trees are cut down, topped or lopped.

Denbigh Spinney is a small 0.81ha area of alder wood. Wet woodlands such as this are nationally important and are listed as a priority habitat in the UK Biodiversity Action Plan. This type of alder wood vegetation has a widespread but local distribution throughout the English lowlands. The vegetation at Denbigh Spinney shows unusual variation, not typical of alder woods in Warwickshire, as it has an abundance of Downy Birch and Broad Buckler-fern. Given the spinneys proximity to the eastern periphery, the woodland could be easily incorporated into green screening and incorporated into development proposals.

The implementation of a 30m wooded buffer zone and the use of passive management techniques such as fencing to prevent impacts of development on Denbigh Spinney Wood should be considered to protect against edge effects and encroachment activities.

Japanese knotweed is present within the Olympia Motor Cross Racetrack and the frontage of Middle Bickenhill Lane presumably established from fly-tipping. As such, The Wildlife and Countryside Act 1981 makes it illegal to plant or otherwise cause to grow in the wild any plant listed in Schedule 9 to the Act. Japanese knotweed must be prevented from spreading into the wild. Spraying with chemicals can be an effective treatment to stop invasive plants from spreading. You must only use approved herbicides. Before burying non-native invasive plant waste on your land, check with the Environment Agency to see if this is allowed. You will not normally be allowed to bury waste on land unless it's at a landfill site that has a suitable permit. Landowners could be fined up to £5,000 or be sent to prison for up to 2 years if you allow contaminated soil or plant material from any waste you transfer to spread into the wild.

Park Farm is a designated heritage asset and roosting bats have been confirmed within the property and at Common Farm, further north.

Constraints

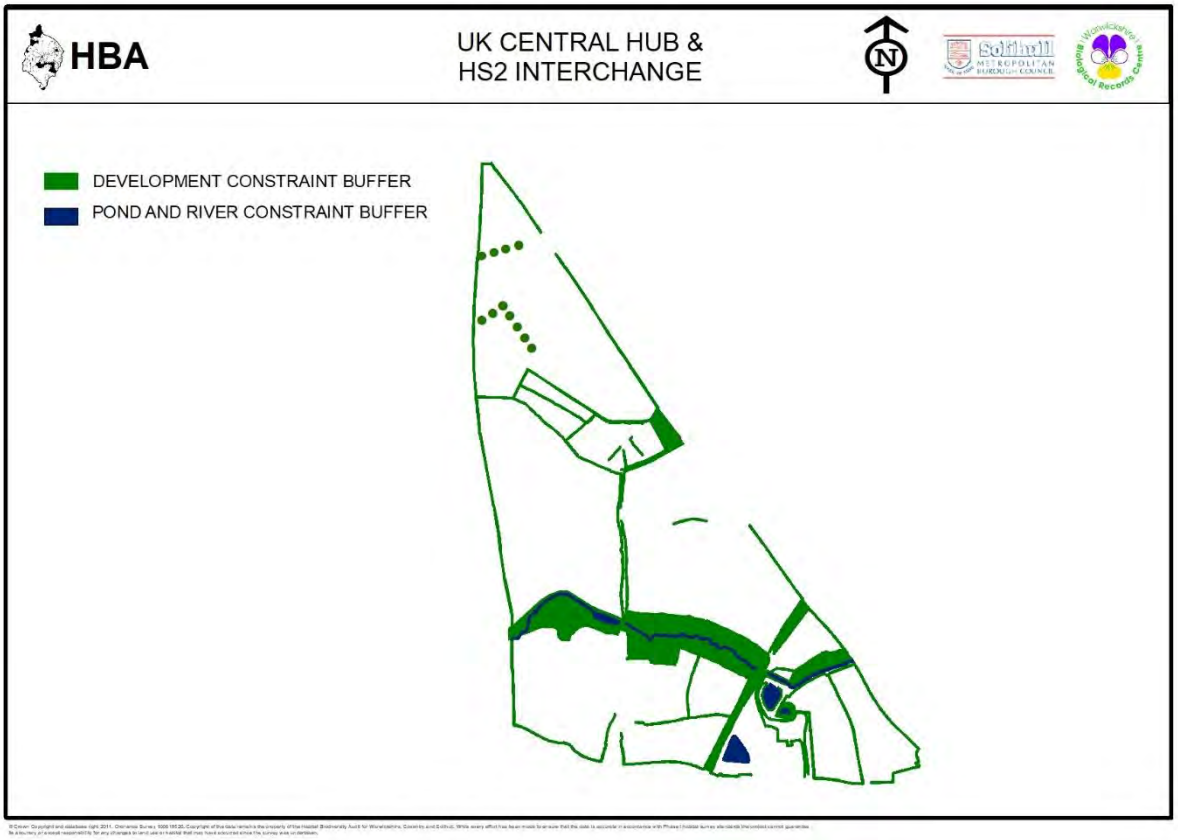

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map as a component of a very early and preliminary assessment represent existing biodiversity value and should ideally be retained and incorporated into any development proposals. They indicate where development should be avoided, and ecological enhancement encouraged. The maps show's a feasible case scenario with the aim to meet no net loss and the net gain approach. The green and blue areas at the absolute minimum highlight the need for further ecological investigation.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

The circular green dots represent notable/veteran trees which should be retained and incorporated into green infrastructure. They are currently buffered by default at 15 metres as recommended by Natural England. A tree or arboriculture survey is recommended for the site to distinguish on such issues, determining height of tree and the spread of the tree's canopy so that adequate buffers can then be calculated. The buffers are not exact but illustrative based on the extent of

the canopy from aerial photography. You could buffer these trees either by 5m from the extent of the canopy, or by the length of the tree trunk or by a standard length being 15 to 30m depending on results from an arboriculture survey. If veteran trees are identified, a buffer of 30m would be recommended.

The hedgerows are buffered at 5 metres to coincide with the no net lost and biodiversity net gain approach, likewise these should remain and not be re-created forming part of any development as green infrastructure.

The riparian buffer should reflect stream size and the natural dimensions of the riparian zone. Minimum widths for either side of the stream/river/canal channel are:

- 5 m for streams <1 m wide
- 10 m for streams 1 – 2 m wide
- 20 m for streams >2 m wide.

Where the natural riparian zone exceeds these widths, the dimensions of the buffer area should be increased, up to twice the minimum recommended width.

Ecological constraints equate to 9.1% of the total area of the development parcel particularly focused around the Hollywell Brook and Hollywell Brook Rough alongside Denbigh Spinney.

Designated Sites

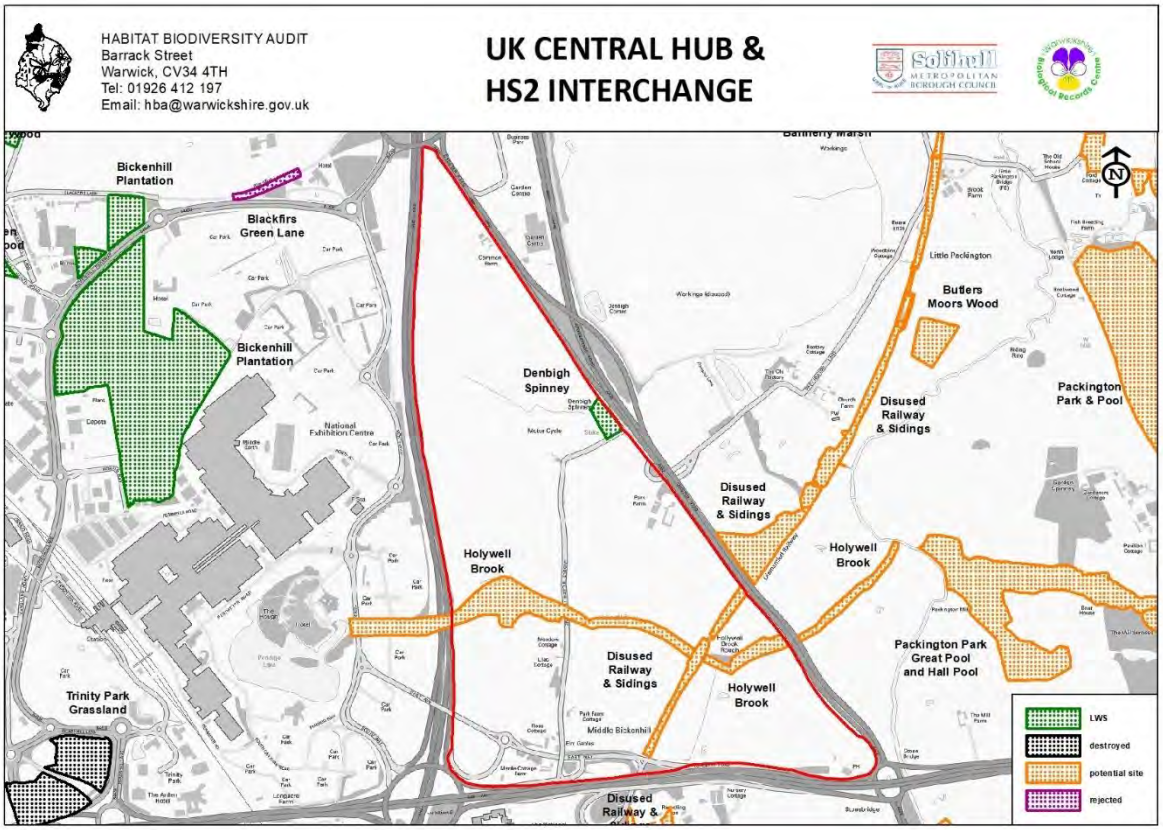

Figure 3 Designated Sites

The development parcel directly encompasses Denbigh Spinney LWS (SP28C3) and two potential LWS, Holywell Brook pLWS (SP28B1) and Disused Railway & Sidings (SP29Li30a).

LWS NAME	STATUS	AREA (HA)	SURVEY DATE
DENBIGH SPINNEY (SP28C3)	LWS	0.81	04/10/01
HOLYWELL BROOK (SP28B1)	Potential LWS	8.91	04/10/01
DISUSED RAILWAY & SIDINGS (SP29Li30a)	Potential LWS	27.65	01/10/97

Local Wildlife Site

DENBIGH SPINNEY LWS[1] SP28C3 Area;0.81ha Survey Date; 04/10/01

Denbigh Spinney is a small 0.81ha area of broad-leaved semi-natural woodland in the Middle Bickenhill area of Solihull. The surrounding land use is generally arable, although there is a motorcycle track adjacent to the west. There are a few similar woodlands within 2km of the site including Coleshill and Bannerly Pools SSSI plus two SINCs: Bickenhill Plantation and Todd's Rough, Bannerly Rough and Bannerly Marsh. The boundary of Denbigh Spinney Remains largely unchanged since the first edition Ordnance Survey map. The vegetation is perhaps best classified as an example of W6e Alnus glutinosa-

[1] Local Wildlife Sites Project – HBA, Warwick

Urtica dioica woodland Betula pubescens sub-community. The canopy consists of abundant Alder (Alnus glutinosa) with locally frequent Downy Birch (Betula pubescens), particularly around the edges. There is also occasional Sycamore (Acer pseudoplatanus) plus rare English Oak (Quercus robur) and Rowan (Sorbus aucuparia). The shrub layer is sparse comprising occasional Elder (Sambucus nigra) plus rare Hawthorn (Crataegus monogyna) and Holly (Ilex aquifolium). The ground flora contains abundant Broad Buckler-fern (Dryopteris dilatata) with locally frequent Bramble (Rubus fruticosus). Other herbs at a lower frequency are occasional Three-nerved Sandwort (Moehringia trinervia), Creeping Buttercup (Ranunculus repens), Gipsywort (Lycopus europaeus), Enchanter's-nightshade (Circaea lutetiana), Honeysuckle (Lonicera periclymenum), Red Campion (Silene dioica), Soft-rush (Juncus effusus) plus rare frequency Nettle (Urtica dioica), Lesser Burdock (Arctium minus), Wood-sedge (Carex sylvatica), Remote Sedge (Carex remota), Lady-fern (Athyrium filix-femina), Male-fern (Dryopteris filix-mas), Marsh Thistle (Cirsium palustre), Rosebay Willowherb (Chamerion angustifolium), Greater Bird's-foot-trefoil (Lotus uliginosus), Foxglove (Digitalis purpurea) and Selfheal (Prunella vulgaris). An earlier survey of 28/03/83 recorded these additional species including Bluebell (Hyacinthoides nonscripta), Cleavers (Galium aparine) and Raspberry (Rubus idaeus).

Habitat Description

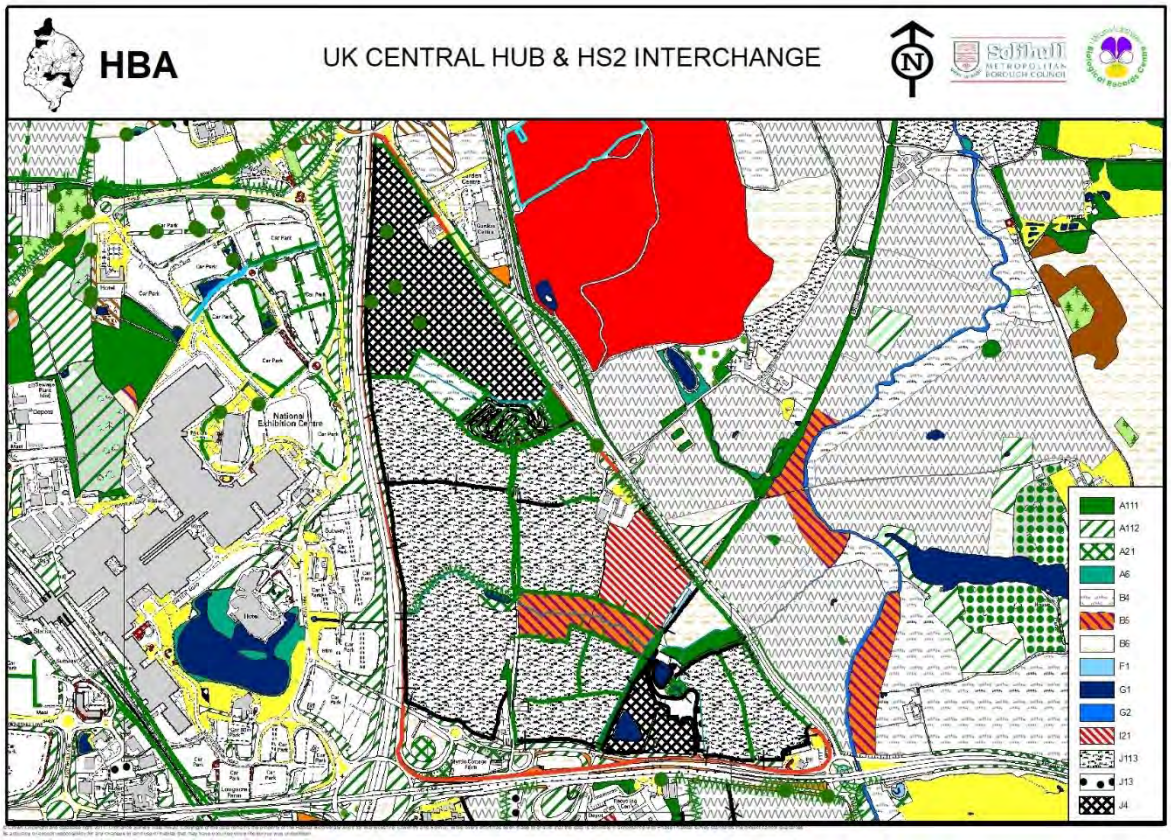

Figure 4 Phase 1 Habitats

The habitats within the parcel currently comprise 56% set-a-side (J113) with a high percentage (21%) currently bare ground (J4). The former quarry has left a large infill (6%) becoming covered by ephemeral vegetation and where water has settled, marginal and inundated vegetation. Swamp habitat has been created in the former railway siding and Hollywell Brook (G2) snakes across the parcel creating wet woodland (A6) and marshy grassland (B5) of value on its fringes. Denbigh Spinney comprises woodland and scrub of the former Olympia Motor Cross Racetrack. Middle Bickenhill Lane has well-established hedgerows with veteran/notable trees which where the verge increases in size, allows broad-leaved woodland to materialize. Habitats indicative of better quality include semi-natural broad-leaved woodland at 3%, broad-leaved plantation and marshy grassland both at 4%, poor semi-improved grassland at 2% and running water at 1%.

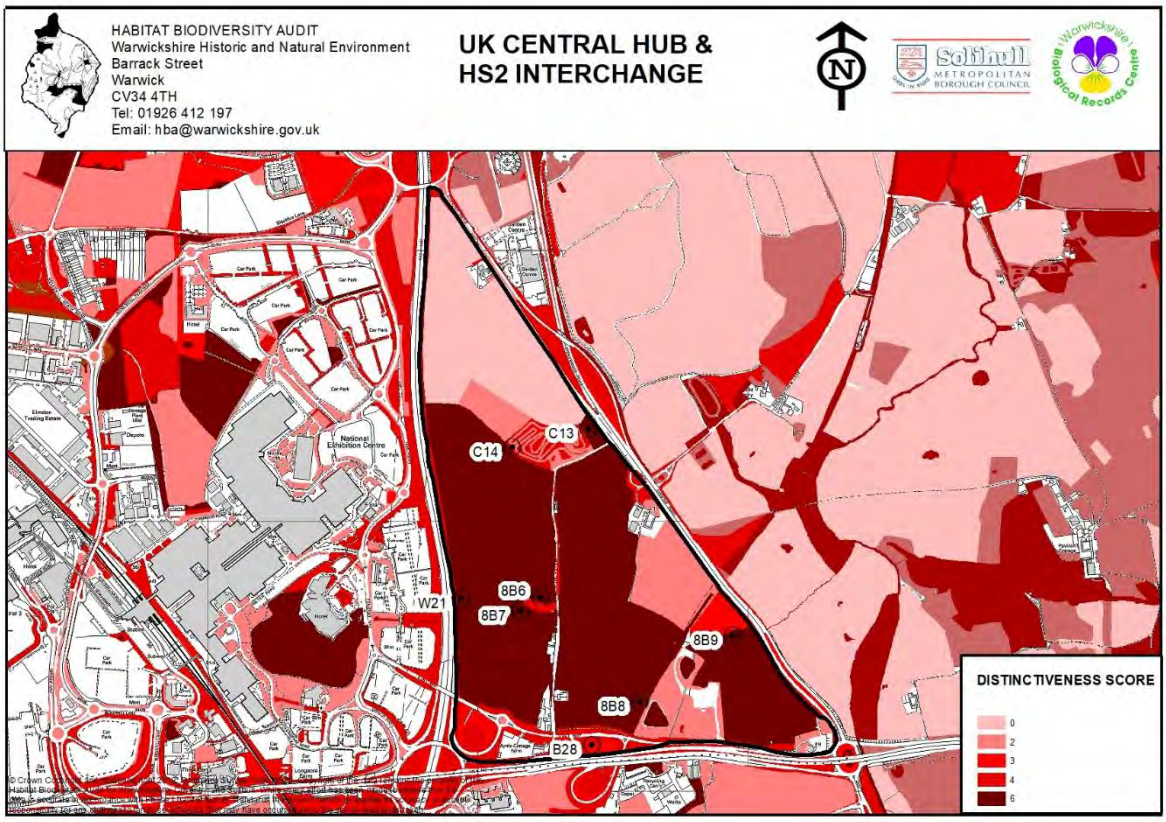

Figure 5 Habitat Distinctiveness & Target Notes

Highly distinct habitats include the semi-natural broad-leaved woodland (A111) of Smiths Wood and amenity grasslands (J12) associated within a number of school grounds.

Target Notes

Number	Grid Reference	Survey Date
SP28C13	**SP2040784330**	**05/06/2011**

Silver birch (Betula pendula) and alder (Alnus glutinosa) coppice woodland around Hollywell Brook with occasional pedunculate oak (Quercus robur) and a sparse understorey of hazel (Corylus avellana) and elder (Sambucus nigra). Bramble (Rubus fruticosus agg.) and foxglove (Digitalis purpurea) are abundant with frequent honeysuckle (Lonicera periclymenum), broad buckler-fern (Dryopteris dilatata) and common nettle (Urtica dioica), occasional male-fern (Dryopteris filix-mas) and localised soft rush (Juncus effusus) and creeping buttercup (Ranunculus repens).

UPDATE 05/06/2011 MF

As described, however, elder is now abundant in understorey with additional species of ash (Fraxinus excelsior), goat willow (Salix caprea), hawthorn (Crataegus monogyna) and holly (Ilex aquifolium). Ground flora includes foxglove (Digitalis purpurea), male

fern (Dryopteris filix-mas), herb-Robert (Geranium robertianum), red campion (Silene dioica), green alkanet (Pentglottis Sempervirens) and variegated-yellow-archangel (Lamiastrum galeobdolon subsp. argentatum).

UPDATE 04/10/2019 GP

Designated as Denbigh Spinney LWS with mature hedgerows of Middle Bickenhill Lane acting as important habitat connectors.

SP28C14 SP2012684262 05/06/2011

Semi-improved grassland on the edge of a motor-cycle track. Yorkshire-fog (Holcus lanatus) and common bent (Agrostis capillaris) are abundant with sweet vernal-grass (Anthoxanthum odoratum), Poatrivialis, false oat-grass (Arrhenatherum elatius), timothy (Phleum pratense), broad-leaved dock (Rumex obtusifolius), common ragwort (Senecio jacobaea) yarrow (Achillea millefolium), cat's-ear (Hypochaeris radicata), dandelion (Taraxacum officinale agg.), white clover (Trifolium repens), wild teasel (Dipsacus fullonum), ribwort plantain (Plantago lancelota) and occasional hop trefoil and purple toadflax (Linaria purpurea). Within the track area are small recently created ponds with bulrush (Typha latifolia).

UPDATE 05/06/2011 MF

No access to Olympia Motor Cross Racetrack.

UPDATE 04/10/2019 GP

Olympia Motor Cross Racetrack is closed due to proposed HS2 works with scattered dense scrub and invasive Japanese Knotweed (Fallopia japonica) present on the road verge.

SP18W21 SP1993483701 27/07/1998

Poor semi-improved or improved grassland with frequent crested dog's-tail (Cynosurus cristatus) and perennial rye-grass (Lolium perenne) plus occasional common bent (Agrostis capillaris), hard rush (Juncus inflexus) and creeping bent (Agrostis stolonifera). Herbs include frequent white clover (Trifolium repens) and creeping buttercup (Ranunculus repens) with rare spear thistle (Cirsium vulgare), common ragwort (Senecio jacobaea), marsh thistle (Cirsium palustre), lesser trefoil (Trifolium dubium) and common nettle (Urtica dioica).

SP28B6 SP2023083705 10/06/2011

Large manmade pool containing a fringe of emergent common reed (Phragmites australis) withhard rush (Juncus inflexus), watercress, brooklime (Veronica beccabunga), water dock (Rumex hydrolapathum), mint, marsh bedstraw (Galium

palustre), celery leaved crowfoot, branched bur-reed, bulrush (Typha latifolia). Much of the south bank is wet and heavily cattle poached.

UPDATE 11/06/2011 MF

Habitat remains as described and is surrounded by hawthorn (Crataegus monogyna) and elder (Sambucus nigra) scrub to the south and a pedunculate oak (Quercus robur) and elder plantation to the north. The banks surrounding the pool are disturbed and/or heavily poached.

UPDATE 04/10/2019 GP

The large man-made pool still contains a fringe of emergent common reed (Phragmites australis) surrounded by small trees and associated scrub.

SP28B7 SP2015583655 10/06/2011

Grassland dissected by Hollywell Brook which feeds the large pool is dominated by hard rush (Juncus inflexus) and watercress with water forget-me-not (Myosotis scorpioides), water figwort (Scrophularia auriculata), brooklime (Veronica beccabunga), creeping buttercup (Ranunculus repens), some meadowsweet (Filipendula ulmaria), tufted hair-grass (Deschampsia cespitosa), soft rush (Juncus effusus) and great willowherb (Epilobium hirsutum). Part of the brook is lined by gorse, dog-rose (Rosa canina), hawthorn (Crataegus monogyna) and goat willow (Salix caprea). The surrounding grassland is quite poor and dominated by crested dog's-tail (Cynosurus cristatus) with common bent (Agrostis capillaris), Yorkshire-fog (Holcus lanatus) and tufted hair-grass (Deschampsia cespitosa) with frequent creeping buttercup (Ranunculus repens), thistle, common ragwort (Senecio jacobaea) selfheal (Prunella vulgaris) hard rush (Juncus inflexus) andautumn hawkbit (Leontodon autumnalis). Cattle and rabbit grazed.

UPDATE 11/06/2011 MF

The majority of the Hollywell Brook is now lined with scrub bordering cattle grazed improved grassland.

UPDATE 04/10/2019 GP

Due to the abandonment of management and/or heavy grazing, the originally improved grassland has converted to set-a-side and/or poor semi-improved rank grassland.

SP28B8 SP2059783322 01/07/1996

Dismantled Birmingham and Derby Junction Railway Line from Derby to Hampton-in-Arden containing hawthorn (Crataegus monogyna), elder (Sambucus nigra), pedunculate oak (Quercus robur) and ash (Fraxinus excelsior). The ground flora is generally dominated by common nettle (Urtica dioica) with herb-Robert (Geranium robertianum), cow parsley (Anthriscus sylvestris), hairy-brome (Bromopsis ramosa) with lords-and-ladies (Arum maculatum), bramble (Rubus fruticosus agg.), red campion

(Silene dioica), hogweed (Heracleum sphondylium), wood avens (Geum urbanum) and ivy (Hedera helix).

UPDATE 04/10/2019 GP

The southern construction site headquarters for HS2 directly borders the Dismantled Birmingham and Derby Junction Railway Line. No construction encroachment seems to have occurred.

SP28B9 SP2094183564 01/07/1996

Mature oak woodland with ash (Fraxinus excelsior), crack willow (Salix fragilis) and an understorey of hawthorn (Crataegus monogyna), elder (Sambucus nigra) and some young alder (Alnus glutinosa). The ground flora includes locally dominant common nettle (Urtica dioica), wood meadow-grass (Poa nemoralis), cock's-foot (Dactylis glomerata) with bramble (Rubus fruticosus agg.) and red campion (Silene dioica). An area of Carex riparia dominated swamp also occurs with bittersweet (Solanum dulcamara), great willowherb (Epilobium hirsutum), some meadowsweet (Filipendula ulmaria), reed canary-grass (Phalaris arundinacea) and male-fern (Dryopteris filix-mas).

UPDATE 11/06/2011 MF

Semi-natural broadleaved woodland with additional species of hazel (Corylus avellana) and elder (Sambucus nigra).

UPDATE 04/10/2019 GP

Mature oak woodland named Hollywell Brook Rough which borders either side of the Hollywell Brook.

SP28B28 SP2042083161 10/06/2011

Poor semi-improved meadow, rabbit grazed with red fescue (Festuca rubra) and Yorkshire-fog (Holcus lanatus) are dominant grasses. Forbs include common vetch (Vicia sativa), lesser trefoil, creeping buttercup (Ranunculus repens), occasional meadow buttercup (Ranunculus acris), smooth tare (Vicia tetrasperma), white clover (Trifolium repens), oxeye daisy (Leucanthemum vulgare), daisy (Bellis perennis), ribwort plantain (Plantago lancelota), and a crane’s bill (Geranium spp.).Abundant grasshoppers and butterflies including meadow brown and small blue with burnet moths (5) also seen. The verge leading up to the gate to the meadow has a diverse mix of grasses including crested dogs-tail (Cynosurus cristatus) with forbs of St John’s-wort,

meadow buttercup (Ranunculus acris), red clover (Trifolium pratense), fox and cubs, common knapweed (Centaurea nigra) and smooth tare (Vicia tetrasperma).

UPDATE 04/10/2019 GP

Poor semi-improved grassland isolated by road infrastructure of Coventry Road and East Way.

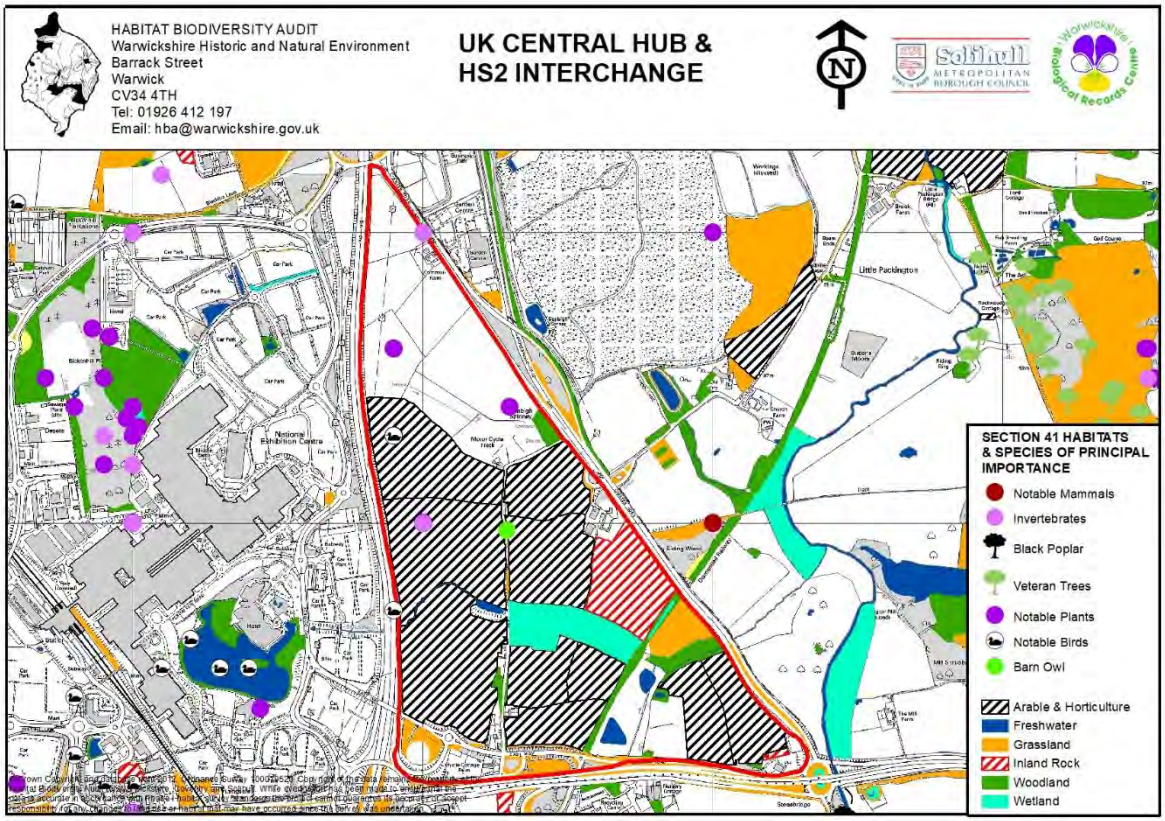

Figure 6 Section 41 Habits and Species of Conservation Importance

Habitat Connectivity

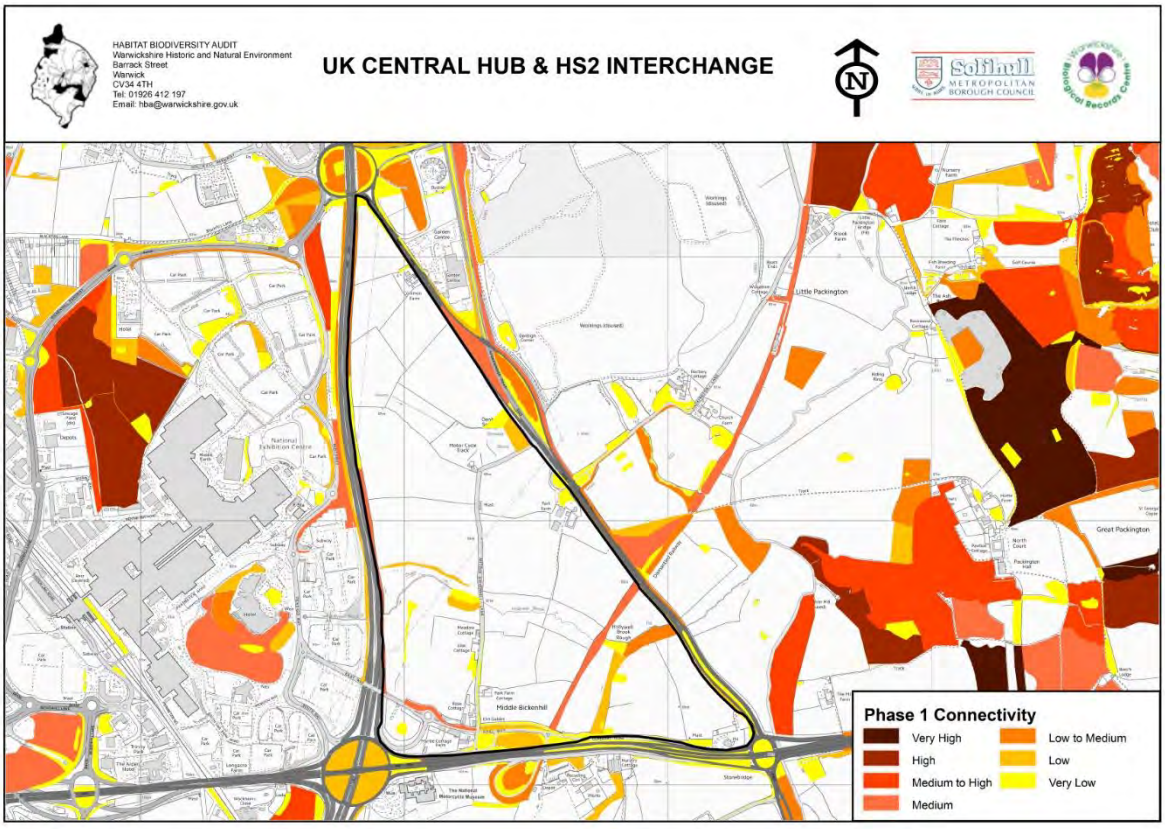

Figure 7 Habitat Connectivity

The development parcel holds very limited connectivity given known changes have occurred across the parcel. Woodland connectivity ranges from low - low to medium with wetland connectivity very low to low. Grassland connectivity is absent across the parcel, however given the amount and extent of set-a-side now prevalent, connectivity would be very high for this habitat with 74.4 ha now established.

Protected Species

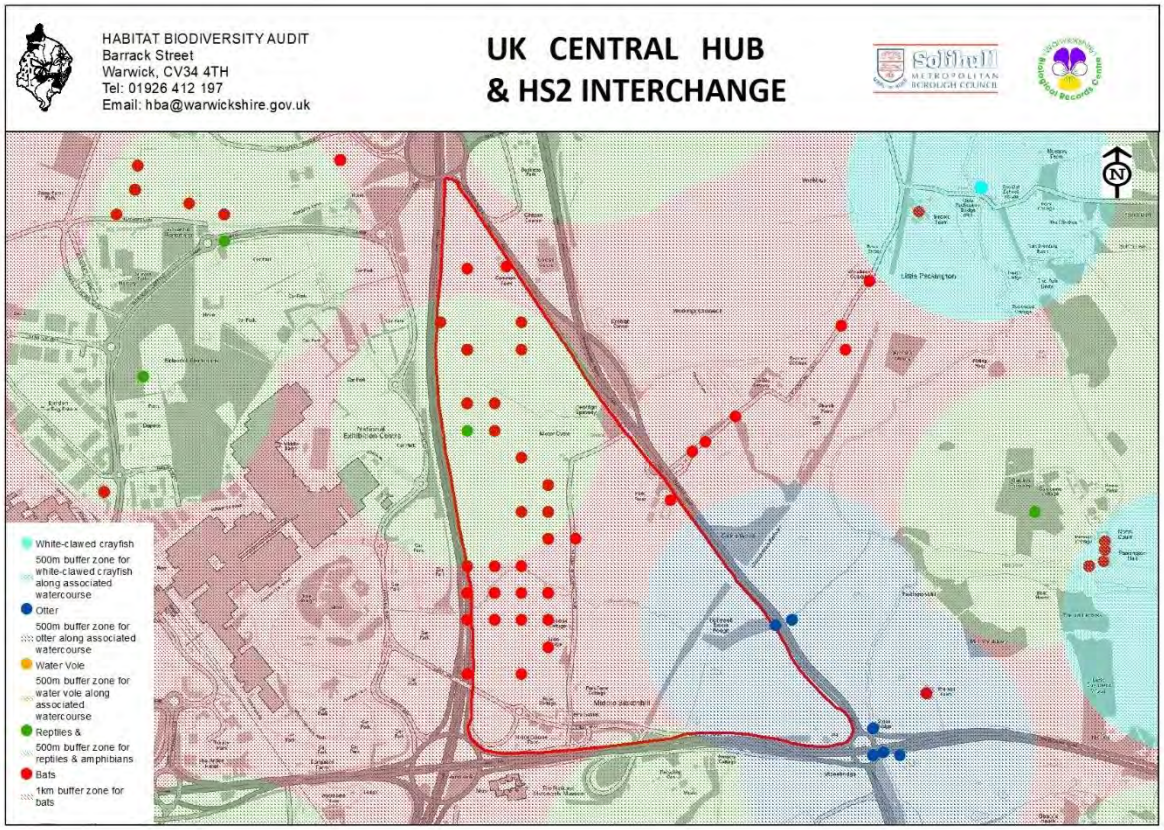

Figure 8 Protected Species

Given the commencement of works on site, the parcel has been subject to numerous protected species surveys. Consequently, several occurrences exist for many bat species including common pipistrelle (Pipistrellus pipistrellus), Soprano pipistrelle (Pipistrellus pygmaeus), brown long-eared (Plecotus auritus) and natterer's bat (Myosotis nattereri). Bat roost records occur buildings in the proposed development parcel. All records hold recent currency, our valid and up-to date.

We recommend that protected species continue to be taken into consideration through detailed ecological monitoring given the changes across the proposed development parcel. Please take note that an absence of species records does not mean an absence of species.