MOTT MACDONALD

Ecological Constraints Report - Otley Bridge

Leeds City Council

Project:	Otley Bridge		
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1 Introduction

1.1 Background and site location

Mott MacDonald Limited were commissioned by Leeds City Council to undertake an ecological constraints survey of their Site at 'Otley Bridge', connecting Bridge Street and Billams Hill over the River Wharfe, Leeds (central Ordnance Survey central grid reference: SE 20123 45864). Otley Bridge is a masonry limestone road bridge, with a concrete and metal footbridge located immediately along the eastern side, attached to the bridge. The limestone road bridge has seven arches, with the southern arch labelled Arch 1 and remaining arches northwards labelled, Arches 2-7 in sequencial order. See Figure 1.1 for the Site location.

The ecological constraints survey was undertaken to inform proposed replacement of this pedestrian footbridge. The footbridge is failing and poses a safety concern to human health due to parts of the bridge deteriorating rapidly. A temporary crossing point for pedestrians will be installed approximately 50m downstream (east) of the existing Otley Bridge to provide connectivity across the river during construction . The temporary crossing would be supported by a pier positioned centre of the river. The pier would comprise of three steel tubes installed using a crane on the southern bank of the river. The steel tubes would be secured into the river bed using vibration techniques and percussive methods if required. The temporary pedestrian crossing would be in use for approximately four months, although the piers could be installed and removed in advance of and / or after this period. When in use the temporary crossing would be open 24 hours a day and illuminated at night.

Protected species surveys were undertaken following the results of the ecological survey. These included bat hibernation surveys and three bat dusk emergence surveys of the bridge, an otter survey of the surrounding habitat,fish and crayfish eDNA surveys and macro invertebrate sampling of the River Wharfe. The results of these surveys will be reported seperately and are not included in this report.

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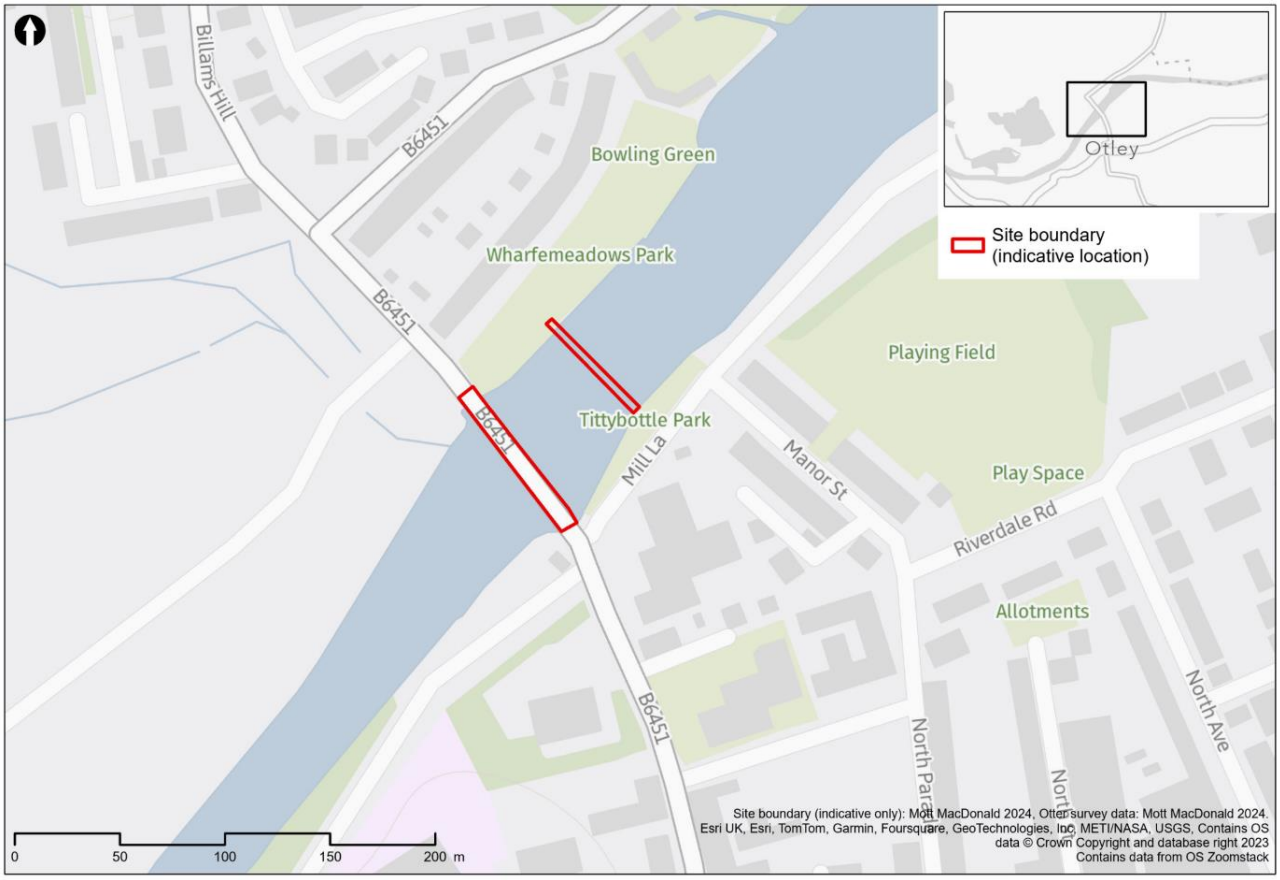
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1.2 Purpose of this document

This document provides a high-level assessment of the potential ecological constraints associated with the proposed works, using desk study information, the results of an ecological survey and any follow up protected species assessments, in conjunction with an assessment of the implications of these constraints for the proposals.

Figure 1.1: Site boundary and location



Source: Mott MacDonald, 2024

1.3 Methodology

1.3.1 Desk study

A desk-based review was undertaken to inform this report and included the following:

- A request for records of designated nature conservation sites, notable habitats / habitat networks and protected / notable species records, located within 2km of the Site, from the West Yorkshire Ecology Service (WYES) and North and East Yorkshire Ecological Data Centre (NEYEDC);
- Previous survey data obtained around Otley Bridge by Mott MacDonald ecologists from surveys instructed by LCC;
- A search of Defra's MAGIC.gov website for information pertaining to statutory designated nature conservation sites, Natural England's priority habitat inventory (PHI), waterbodies within 500m of the Site and records of granted European Protected Species Mitigation Licences (EPSMLs), great crested newt (GCN) *Triturus cristatus* survey licence return forms and GCN pond surveys.

Natural England's PHI is a dataset of the geographic extents and locations of confirmed and potential habitats of principal importance (HPI). This was used to inform if any HPIs could be present.

Data older than 10 years (any records older than 2014) have generally been excluded from the report, as the length of time elapsed between collection and the time of writing means the data is less likely to be valid. However, records older than 10 years are used to inform the assessment and where appropriate, are referenced within the body text. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

1.3.2 Ecological constraints survey

An ecological survey was undertaken by a principal chartered ecologist on 01 February 2024. The weather conditions were fair, with some rain encountered. Where accessible via public footpaths and on the water via kayak, habitats within the zone of influence (ZoI) of the proposed works (up to 30m up and down stream of the bridge and proposed footbridge) were accessed to identify potential ecological constraints. This included a search for any evidence of, or potential for, invasive, protected or notable species. Close focusing binoculars were used to assist with the investigation in less accessible areas.

1.3.3 Limitations

Access to the northern bank, to the west of Otley Bridge, was not possible during the survey on foot. Whilst a detailed walkover of this bank was not possible, the bank could be viewed from the adjacent bank with the use of close focusing binoculars and also viewed on the river close up by kayak. Therefore, the potential ecological constraints could be assessed and this was not considered to be a major limitation.

The survey followed a period of wet weather, resulting in a high and fast flowing River Wharfe at the time of the survey. As such, possible evidence of protected / notable species (e.g., footprints or otter spraints) may have been washed away. The potential for habitats to support protected / notable species could still be determined during the survey. The potential for obscured evidence of protected / notable species has been considered within the recommendations, with follow up surveys completed to minimise this limitation.

A hazardous electric cable was identified dangling into the River Wharfe from the footbridge of Otley Bridge around Arch 4. This prevented close inspection of Arch 4 on the water by kayak. However, this arch could be viewed from distance with the overall suitability for summer roosting and hibernating bats able to be classified with the use of torches and close focusing binocular, minimising this limitation. This hazard was reported and subsequently removed prior to further visits on the water to inspect underneath Otley Bridge.

As per the advice note from CIEEM (2019) *On the Lifespan of Ecological Reports & Surveys;* the findings presented in this report are valid for 12 months from the date of survey. After this date the report should be reviewed by a competent ecologist and an update site walkover may be required.

2 Desk study results

2.1 Ecological designations

There are no internationally designated sites located within 2km of the Site.

One nationally designated site is located within the desk study area. Great Dib Wood Site of Special Scientific Interest (SSSI) is located 1.43km south and is designated due to geographical interest (WYES, 2024). As there are no hydrological links to the Site that would result in any impacts to this designation (higher altitude than the Site), Great Dib Wood SSSI is not considered further in this assessment.

One statutory designated site was within the desk study area. Chevin Forest Park Local Nature Reserve (LNR) is located 1.25km south and is designated due to biodiversity and education under VanI2[1] (WYES, 2024). This LNR is within the boundary of Chevin Forest Park Local Wildlife Site (LWS) and as such, has similar objectives to the LWS. Approximately 1 hectare (ha) at the centre of Chevin Forest Park LNR is also designated as Great Dib Wood SSSI. As there are no hydrological links to the Site that would result in any impacts to this designation (higher altitude than the Site), Chevin Forest Park LNR is not considered further in this assessment.

Four non-statutory designated sites of ecological interest are within the desk study area, as summarised in Table 2.1. The Site is located within the River Wharfe Local Wildlife Site (LWS), designated for its geomorphological features and macrophyte assemblages. Chevin Forest Park LWS is located at a higher altitude than the Site and therefore no hydrological link to the Site would result in any impacts to these designations. Otley Sand and Gravel Pits LWS and Western Park Site of Nature Conservation Interest (SINC) are located upstream of the Site and therefore the qualifying features (habitat) will not be impacted by the works. Therefore, Chevin Forest Park LWS, Otley Sand and Gravel Pits LWS and Western Park SINC are not considered further in this assessment.

Table 2.1: Non-statutory designated sites within 2km of the Site

Name of Site	Distance from the Site	Qualifying feature for designation
River Wharfe LWS	Within the Site	Fw1b[2] (geomorphological features) and Fw1c[3] (macrophyte assemblages)
Otley Sand and Gravel Pits LWS	390m west	Sw1 – Species rich open water/swamp Fe5 – Mixed fen Wd7 – Species rich hedgerow Mh1 – Mixed habitat Mh2 – Mixed habitat/structural diversity
Chevin Forest Park LWS	1.25km south	Significant geological, archaeological and ecological interest
Western Park SINC	1.56km north west	Parkland or wood pasture, with acid grassland.

Source: WYES, 2024

2.1.1 Habitats

A total of eight UK priority habitats were identified within the desk study area, as summarised in Table 2.2. There will be no direct loss of any of these UK priority habitats. Although deciduous woodland and traditional orchard downstream of the Site are situated within Flood Zone 3 (high probability of flooding - 1% chance per annum)[4], works will not be undertaken in times of flooding and therefore these habitats would not be subjected to siltation or contaminants from the works prior to mitigation. All other habitats are not hydrologically linked to the Site and therefore are not assessed further in this report.

Table 2.2: UK priority habitats within 2km of the Site

UK priority habitats	Closest distance from the Site
Open mosaic	30m north west
Deciduous woodland	210m north east
Traditional orchard	1.12km east
Lowland dry acid grassland	1.2km south west

[1] Value for appreciation of nature and learning

[2] Fw1 – Criterion (b): A suite of natural river habitat features, such as islands, pools, riffles and run systems, earth banks, shingle banks, coarse woody debris.

[3] Fw1 - Criterion (c): Botanical (macrophyte) species diversity, including a nationally rare species Potamogeton x suecicus.

[4] Environment Agency (2021). Open Government Licence. Available at: Flood risk information for this location - Flood map for planning - GOV.UK (flood-map-for-planning.service.gov.uk) [Last accessed July 2024]

UK priority habitats	Closest distance from the Site
Lowland fens	1.56km north west
Lowland meadows	1.6km south
Good quality semi-improved grassland	1.6km south
Coastal and floodplain grazing marsh	1.87km north east

Source: WYES, 2024

2.1.2 Protected species

Records provided by WYES, NEYEDC and previous survey results from Mott MacDonald surveys within the last 10 years are detailed below in Table 2.3 that are relevant to the Site. Where relevant, records older than 10 years are discussed in the body text following the table.

Table 2.3: Protected and notable species records

Species	No. of records	Closest record (km)	Date of record
Daubenton's bat *Myotis daubentonii*	6	Within the Site	2021
Soprano pipistrelle *Pipistrellus pygmaeus*	29	Within the Site	2021
Common pipistrelle *Pipistrellus pipistrellus*	1	Within the Site	2021
Eurasian otter *Lutra lutra*	16	Within the Site	2021
Grey wagtail *Motacilla cinerea*	3	0.07 north east	2019
Atlantic salmon *Salmo salar*	1	0.16 north east	2014
Brown / sea trout *Salmo trutta*	1	0.16 north east	2014
European eel *Anguilla anguilla*	1	0.16 north east	2014
Grayling *Thymallus thymallus*	1	0.16 north east	2014
Kingfisher *Alcedo atthis*	4	0.18 north west	2017
Dipper *Cinclus cinclus*	5	0.24 north east	2019
Common toad *Bufo bufo*	50	0.33 west	2014
West European hedgehog *Erinaceus europaeus*	32	0.33 west	2014
Brown long-eared bat *Plecotus auritus*	5	0.37 south west	2019
Pipistrelle *Pipistrellus pipistrellus*	84	0.37 south	2019
Noctule bat *Nyctalus noctula*	13	0.38 south	2020
Myotis bat *Myotis sp.*	4	0.45 north	2019
Tawny owl *Strix aluco*	2	0.46 north	2021
Red kite *Milvus milvus*	3	0.57 south west	2018
House sparrow *Passer domesticus*	2	0.60 south east	2023
Great crested newt *Triturus cristatus*	22	0.62 north east	2019
Common frog *Rana temporaria*	19	0.63 north east	2019
Dunnock *Prunella modularis*	4	0.63 north east	2019
Palmate newt *Lissotriton helveticus*	16	0.63 north east	2019
Mistle thrush *Turdus viscivorus*	3	0.63 north east	2019
Smooth newt *Lissotriton vulgaris*	7	0.63 north east	2019
Sparrowhawk *Accipiter nisus*	2	0.63 north east	2019
Wren *Troglodytes troglodytes*	2	0.63 north east	2019
House martin *Delichon urbicum*	1	0.71 south east	2019
Swift *Apus apus*	4	0.91 south west	2020
Nathusius's pipistrelle *Pipistrellus nathusii*	1	0.91 south west	2020
Bats *Vespertilionidae*	2	0.99 south west	2017

Species	No. of records	Closest record (km)	Date of record
Black-headed gull *Chroicocephalus ridibundus*	1	1.22 north east	2018
Skylark *Alauda arvensis*	12	1.22 north east	2018
Nyctalus bat *Nyctalus sp.*	1	1.23 south east	2018
Barn owl *Tyto alba*	3	1.25 south east	2021
Natterer's bat *Myotis nattereri*	1	1.28 north west	2015
Lapwing *Vanellus vanellus*	5	1.36 south east	2021
Woodcock *Scolopax rusticola*	1	1.50 south east	2021
Leisler's bat *Nyctalus leisleri*	1	1.60 south east	2018
Whiskered bat *Myotis mystacinus*	1	1.60 south east	2018
Tree pipit *Anthus trivialis*	1	1.72 south east	2016
European water vole *Arvicola amphibius*	1	1.90 south east	2020
Badger *Meles meles*	-	Within 2.00 of the Site	2014-2024

Source: WYES, NEYEDC and Mott MacDonald 2024

Badger records were identified within 2km of the Site with increased probability of badger activity south west of the Site and the nearest sett record 1.8km south east of the Site.

Common and soprano pipistrelle and Daubenton's bat maternity roosts were all recorded to be roosting within Otley Bridge in 2013 and 2017. In 2021, these surveys were updated by Mott MacDonald and a Daubenton's maternity roost identified as still present but the common and soprano roosts were reclassified to day / satellite roosts, following updated surveys. A common pipistrelle hibernation roost was also identified within the bridge in 2016.

Otter were recorded foraging around Otley bridge during previous surveys completed by Mott MacDonald in 2021.

Historic records of water vole were recorded 50m west of the Site within the River Wharfe in 2010.

Historic records of white-clawed crayfish *Austropotamobius pallipes* was also returned, with the closest record 1.37km south west of the Site, dated 2003.

Five records of granted EPSMLs were identified following a search of MAGIC and are detailed in Table 2. below.

Table 2.4: Granted EPSMLs within 2km

Species	Date	Distance and direction	Notes
Common pipistrelle	April 2020 – May 2021	335m south west	Ref. 2019-43744-EPS-MIT Allowing the destruction of a resting place
Common pipistrelle	July 2014 – June 2015	680m north	Ref. 2014-739-EPS-MIT Allowing the damage and destruction of a resting place
Common pipistrelle and Daubenton's bat	January 2015 – November 2019	805m east	Ref. 2014-4318-EPS-MIT-1 Allowing the destruction of a resting place
Common pipistrelle	October 2017 – December 2017	980m south west	Ref. 2017-31825-EPS-MIT Allowing the destruction of a resting place
Soprano pipistrelle	October 2018 – December 2019	1.5km south east	Ref. 2018-36902-EPS-MIT Allowing the destruction of a resting place

Source: Magic 2024

A search of MAGIC also identified four ponds located to the west, south and east (between 1.29km - 1.97km) of the Site, which each returned a negative environmental DNA (eDNA) result for GCN in 2019, during surveys undertaken by Natural England.

2.1.3 Invasive non-native species

Records of non-native species located within 2km of the Site and dated within the last 10 years are summarised in Table 2. below.

Table 2.5: Invasive non-native species

Species	No. of records	Closest record (km)	Date of record
American mink *Neovison vison*	7	Within the site	2021
Hollyberry cotoneaster *Cotoneaster bullatus*	1	0.19 west	2015
Wall cotoneaster *Cotoneaster horizontalis*	1	0.19 west	2015
Himalayan balsam *Impatiens glandulifera*	9	0.82 south west	2018
Giant hogweed *Heracleum mantegazzianum*	3	0.89 east	2018
Japanese knotweed *Reynoutria japonica*	3	0.89 east	2018
Montbretia *Crocosmia x crocosmiiflora*	1	0.89 east	2018
Yellow archangel *Lamiastrum galeobdolon*	1	1.13 east	2017
Alpine newt *Ichthyosaura alpestris*	3	1.33 east	2020
New Zealand pigmyweed *Crassula helmsii*	1	1.69 south	2014

Source: WYES, NEYEDC and Mott MacDonald 2024

Sighting of mink were also recorded foraging around Otley bridge during previous surveys completed by Mott MacDonald in 2021.

3 Field survey results

The following section should be read with reference to Appendix 0, which contains photographs collected during the site walkover.

3.1 Habitats

The Site comprises Otley Bridge, a limestone structure, with an asphalt road surface. On the eastern aspect of the bridge sits a metal framed footbridge attached to the main limestone bridge supported by concrete purlins. The limestone bridge is comprised of seven arches, separated by six pointed cutwaters with angled caps (Photograph 1). For the purposes of this report, the arches are numbered in sequence (from one to seven), from south to north. Arches 1 and 7 were flat stone arches, whereas arches 2-6 were a combination of flat and pillar arches with expansion joints between the two sections of the bridge. The Site also included the width of the River Wharfe approximately 50m east of Otley bridge where the temporary bridge will be located to enable passage across the river during the works to the footbridge attached to Otley Bridge.

The surrounding habitats of the Site consisted of the River Wharfe that flows under Otley Bridge, urban parkland with scattered trees and retaining stone walls that runs along the north and south banks to the east

of the bridge and earth and stone banks with overhanging vegetation and trees on the north and south banks to the west of the bridge.

3.2 Protected species

3.2.1 Great crested newt and other amphibians

Ordnance Survey maps (available via MAGIC) show one large waterbody within 500m, located 390m west of the Site with the closest record of great crested newt (GCN) within 0.62km north east of the Site.

The Site itself, comprising an asphalt footbridge (located on Otley Bridge) and the River Wharfe, are not considered to provide suitable terrestrial or aquatic habitat to support or sustain a GCN population within the Site. Otley Bridge is also a well-trafficked road and the River Wharfe is a flowing river, both acting as barriers to dispersal for GCN to remain or be present within the Site, therefore they are unlikely to be impacted by the works and are no longer considered within this report.

Other amphibians such as the common toad, common frog, palmate and smooth newt were all identified locally. However, the Site is not suitable to maintain or sustain these species due to the flow of the river and lack of suitable terrestrial habitat within the Site. Therefore, are unlikely to be present within the Site and are no longer considered in this report.

3.2.2 Bats

3.2.2.1 Roosting bats – structures

Otley Bridge spans the River Wharfe, providing suitable roosting habitat for bats in an urbanised area. Overall, the bridge structure appeared to be in good condition. Stonework was generally intact and pointing between the stonework was in good condition on both the western and eastern aspects of the bridge, showing historic evidence of re-application. Some small gaps were noted in the western aspect of the bridge where missing mortar between the stonework creating a small ingress for roosting bats. Gaps were noted under the arches of the road bridge section of Otley Bridge under arches 2-6 for ingress but did not extend deep into internal cavities. Gaps were also noted all along the bridge where the footbridge and the road bridge meet on the eastern aspect that appear to extend up into internal cavities, however dampness and presence of feral pigeon *Columba livia* were noted in and around these features making them less suitable for roosting bats.

Nevertheless, considering the suitable features for summer roosting bats identified within the bridge and previous records of bats roosting within the bridge, the **bridge is assessed as offering high suitability for roosting bats** with reference to the Bat Conservation Trust (BCT), Good Practice Guidelines[5].

The bridge was also assessed for its hibernation suitability for roosting bats with reference to the guidance set out in the BCT, Good Practice Guidelines[5] for ‘non-classic’ hibernation sites. The **bridge was classified as moderate suitability for hibernating bats** based on:

- Being a non-classical site for hibernating bats with suitable roosting features;
- Good connectivity along the River Whafe, however being within an urban environment; and
- Previous recorded roosts within the bridge.

However, conditions of features appeared damp, along with disturbance from pigeon and road disturbance and the risk of flooding could all further reduce the suitability for hibernating bats.

[5] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

3.2.2.2 Roosting bats – trees

The trees immediately surrounding the Site within 50m were assessed for their suitability to support roosting bats with reference to the BCT, Good Practice Guidelines[5]. Five trees were identified to have suitability to support roosting bats with potential roosting features (PRFs) identified. Four of the trees had bat boxes present, being the only PRF within these trees. The firth tree had a woodpecker hole that extended inwards on the western aspect at 7m up, on a small diameter limb that overhangs the River Wharfe.

No other trees located within 50m of the Site were considered to offer suitability for roosting bats.

No trees are to be directly affected by the works but trees with PRF could be impacted through disturbance from the works.

3.2.2.3 Foraging / commuting bats

Otley Bridge, alone, is considered to be of negligible value for foraging and commuting bats, however the River Wharfe offers a suitable commuting and foraging corridor for bats. Trees line the western riverbanks with limited lighting along this section of river. Lighting was noted on Otley Bridge and along the roads and with the park areas on the northern and southern banks to the east of the bridge with light spill onto the river.

3.2.3 Birds

Feral pigeon were identified to be nesting on Otley Bridge on top of the cutwaters or between the gaps where the footbridge is attached to the road bridge on the eastern aspect of the bridge. Feral pigeons were also noted to be nesting within gaps in the stone brickwork on the southern bank wall to the east of the bridge.

Trees located along the River Wharfe offer suitability to support nesting birds, but these are not to be directedly impacted by the works. These trees could provide suitable habitat for species such as red kite or barn owl that have been locally recorded and are protected through disturbance under Schedule 1 of the Wildlife and Countryside Act 1981. No evidence of nesting red kite or sightings was observed during the survey. The habitat within and surrounding the Site is considered suboptimal for barn owl foraging with little food resource and disturbance barriers such as the well-trafficked road across Otley Bridge. With the works planned to start in September and be completed by January 2025, these species are unlikely to be impacted while nesting, through disturbance due to the works and are therefore given no further consideration.

Missing stones in the retaining wall were noted on the southern bank to the east of Otley Bridge. These were inspected at the time for their suitability to support kingfisher as they have been recorded locally. Whitewash and pigeons were noted to be present within the gaps of missing stonework. Therefore, it is considered that these features are not currently suitable to support kingfisher. However, should they become vacant, they may provide suitable sites for burrowing adjacent to the River Wharfe, which is a suitable foraging resource for kingfisher.

3.2.4 Otter

The River Wharfe provides suitable habitat for otter, with records of otter identified within the Site. Primarily to the west of Otley Bridge where the riverbanks are a mixture of earth and stone banks with overhanging trees with potential suitable resting sites for otter. To the east of Otley Bridge the riverbank habitat is less suitable with stone retaining walls, footpaths and a paved boat launch, providing no refuge for otter. In addition, this area is more publicly accessible with a lot of disturbance from pedestrians using the area for recreational activities. The river does provide suitable habitat for otter to forage and commute along, which has been recorded from previous surveys by Mott MacDonald in 2021.

3.2.5 Water vole

The River Wharfe is approximately 50-70m wide within the Site and is prone to flooding. Riverbank habitat within the Site consists of retaining stone walls that are unsuitable for water vole to burrow into. The river profile is straight with minor bends offering protection from the flow of the river particularly during flood events. Whilst upstream the river banks consist of earth banks, there is little suitable vegetation to support water vole, with the banks largely shaded by adjacent trees.

Records from 2010 evidenced water vole to be present within the River Wharfe, 50m away from the Site. However, with records of mink recorded along the river and the lack of suitable habitat within the Site, it is unlikely that water vole are still present within or along this section of the River Wharfe and are therefore no longer considered within this report.

3.2.6 Badger and other mammals

Records of badger are known within 2km of the Site, however, Otley Bridge, offers no suitability for badger with regards to sett creation or foraging.

Records of hedgehog were recorded locally, but the Site offers not suitable habitat for foraging or refuge.

In addition, Otley Bridge likely acts as a barrier to dispersal for commuting badgers and other mammals due to the lack of banks under the bridge and the presence of stone retaining walls on the eastern aspect do not allow continued movement east of the bridge into the Site. Therefore, badgers and other mammals such as hedgehog are unlikely to be present within the Site and are no longer considered within this report.

3.2.7 Reptiles

No records of reptiles were returned within 2km of the Site and the Site offers no suitability for reptiles. Therefore, reptiles are unlikely to be present within the Site and are no longer considered within this report.

3.2.8 Freshwater ecology

Records of Atlantic salmon, brown / sea trout, European eel and grayling were all returned from the local record centre being present within the River Wharfe. Due to the works within the Site directly impacting the River Wharfe, it is likely that these fish species present could be affected by the works through sediment pollution from the installation of the pier for the temporary bridge.

Historic records of white clawed-crayfish and no records of signal crayfish *Pacifastacus leniusculus* were returned from the data search. Therefore, it is possible that white clawed-crayfish are still present within the river with suitable habitat identified downstream of the weir where the water levels are shallower and there is a gravel / pebble river bed substrate. This substrate is suitable to support white clawed-crayfish and could be impacted through sedimentation from the installation of the pier for the temporary bridge.

3.3 Non-native invasive species

Records of Himalayan balsam, giant hogweed, Japanese knotweed, hollyberry and wall cotoneaster, montbretia, yellow archangel and New Zealand pigmyweed were returned from the data search, but none were identified within the Site. Therefore, no further consideration is given to these invasive species within this report.

Records of alpine newt were returned from the data search. However, the Site is not suitable to maintain or sustain these species due to the flow of the river and lack of suitable terrestrial habitat within the Site. Therefore, no further consideration is given to this invasive species within this report.

Records of mink have been identified within the Site from previous surveys by Mott MacDonald capturing their presence on camera around Otley Bridge in 2021. The works are unlikely to trap or cause wider

dispersal of this species to impact other watercourses biodiversity locally, therefore their presence within the Site will not impact the works and are not considered further within this report.

4 Consideration of ecological constraints and implications

4.1 Outline of key ecological constraints

The below constraints have been assessed in respect of key environmental legislation and planning policy, notably the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). Many protected species have specific seasonal survey windows, as well as seasonal constraints associated with mitigation. The key constraints and relevant implications for the proposal are detailed within Table 4.1 below, as identified through desk-based study and ecological walkover by an experience Mott MacDonald ecologist.

Table 4.1: Outline of key ecological constraints

Key ecological constraint	Conclusion, implications and recommendations
Designated sites	The River Wharfe LWS is designated for its geomorphological features and macrophyte assemblages. None of the qualifying geomorphological features or a diverse macrophyte assemblage was present within the Site, therefore will not be directly impacted by the in-channel works. However, the macrophyte assemblage could be impacted if present downstream. Therefore, best practice measures during the works should be adopted to further reduce the likelihood of potential impacts upon the river. These measures include: ● Designated re-fuelling areas, with the use of drip trays when re-fuelling and spill kits to be held on site during works. ● Storage of fuel and other potential pollutants in designated areas, with the use of fuel bunds (or similar). ● Where required, the installation of a protective barrier / siltation curtains to prevent accidental pollution / sedimentation of the river downstream following the installation of the steel tubes for the pier. ● Appropriate refuse disposal on the Site, to prevent littering of the river.
Bats	● Otley Bridge was classified as high suitability for summer roosting bats and moderate potential for hibernating bats. Therefore, three dusk emergence surveys for summer roosting bats should be undertaken and hibernation inspections should be completed of Otley Bridge (See Otley Bridge Bat Report 100413589-008-BSR-OB-V1) with reference to the Bat Conservation Trust (BCT), Good Practice Guidelines[5]. ● Five trees with PRFs were identified within 50m of the Site: – One tree that contains a bat box is over 50m away, with three other trees with bat boxes within them that are located 50m away from the potential high disturbance works of the installation of the steel pier within the River Wharfe and are also buffered by other trees to further minimise any level of disturbance result from the works. – The firth tree with a natural PRF located on a limb overhanging the River Wharfe is located within 45m of the potential high disturbance works of the installation of the steel pier. – With the installation of the steel pier estimated to take two days and primarily use vibratory methods of installation, further surveys of these trees are not considered required. This is due to the temporary nature of the works and the unlikely impacts from vibratory methods on these trees by these works or from the dismantling and rebuilding the footbridge on Otley Bridge. However, should percussive methods for installation of the

Key ecological constraint	Conclusion, implications and recommendations
	steel pier be required, then further aerial inspection will be required of four of the trees located within 50m of the percussive methods. For the firth tree overhanging the River Wharfe, this will likely require use of a mobile elevating work platform (MEWP) to safely inspect the PRF prior to the works starting. ● Bat activity surveys are considered disproportionate for the works and small-scale nature of the Site that consists mainly of Otley Bridge which is considered to be of negligible value for foraging and commuting bats. However, due to the temporary addition of lighting required for the temporary bridge, bat foraging and commuting behaviours should also be recorded during the recommended emergence surveys of Otley Bridge to understand how bats are using the River Wharfe during the active season and to inform any lighting mitigation required for the temporary bridge.
Birds	● Prior to the works being carried out, a nesting bird check should be completed. Kingfisher can occupy burrows all year round, therefore the gaps in the stone retaining wall should be inspected prior to the installation of the pier for the temporary bridge and removal and installation of the new footbridge on Otley Bridge; and ● Feral pigeons were identified nesting within Otley Bridge. Therefore, a nesting bird check should be completed of the bridge prior to its removal. If a bird nest is found, works must cease, the nest be retained *in-situ* and an ecologist be contacted to advise further. Any active nests will likely require protection from works, typically requiring a 'no-works' buffer to be adopted, within which no works can be undertaken in that area until the young birds have fledged from the nest, or the nest becomes inactive. An ecologist would confirm the required buffer zone size (typically no less than 5m) and at which point the nest ceases to be active. ● As the works need to be undertaken at the earliest opportunity without delay due to the poor condition of the current footbridge, it is likely that the works will overlap with the start of the bird nesting season, which is widely understood to start in northern England in March or April, dependant on climatic conditions. Pigeons are known for having the ability to nest year-round, depending on food availability and climatic conditions. As observed during the ecological walkover, pigeon numbers on site (including under the bridge, immediately adjacent to the bridge and within surrounding habitats) were considerable. Nesting pigeons (and other nesting birds) are therefore a risk to programme slippage, as all nesting birds are protected under legislation. ● It is therefore likely that any suitable nesting locations beneath the bridge and locations immediately adjacent to the bridge will have access to them limited via the installation of angled timber ledges within cavities (where possible), the installation of Visqueen sheeting over gaps that cannot be fitted with angled timber ledges, and the fitting of wet newspaper in to smaller cavities. All of these features should be inspected by an ecologist for evidence of bats and presence of birds prior to any materials being installed. Should the ecologist identify evidence or bats or observe birds displaying nesting behaviour, then the feature should be retained, and disturbance avoided. If the feature cannot be fully inspected by the ecologist (e.g. the feature is too deep for the endoscope to observe the whole feature) then unless there are other means of checking the feature (such as use of a thermal scope), it may be necessary to retain the feature as it is. No netting of any size or shape should be used during this exercise, in line with CIEEM and BCT guidance.
Otter	● Previous evidence of otter has been identified using the watercourse and suitable habitat for resting sites has also identified, primarily upstream to the west of Otley Bridge. Therefore, further surveys for otter are recommended to understand if otters and any potential resting sites will be impacted by the works. Otter surveys can be completed at any time of year when the weather has been clear of rainfall for serval days prior and during the survey.
Freshwater ecology	● Previous records of fish including Atlantic salmon, brown / sea trout, European eel and grayling were all recorded within the River Wharfe along with historic records of white clawed-crayfish. Therefore, a preliminary aquatic ecology assessment is recommended to understand how freshwater ecology could be

Key ecological constraint	Conclusion, implications and recommendations
	impacted by the works and if any further survey / mitigation is required for the proposed works.

Source: Mott MacDonald 2024

4.2 Ecological Supervision

4.2.1 Summary of supervision

Tree inspections by MEWP were attempted to be completed on the 13 September 2024 of the four trees with bat roosting suitability located within 50m of the Site that could be impacted by percussive piling works planned for the installation of the steel pier. These features were not able to be aerially inspected due to the limitation of space for the MEWP being able to manoeuvre. These features could not be tree climbed due to health and safety constraints as the trees were either hanging over the River Wharfe or a public road with railing under the trees.

The trees were therefore inspected from ground level with binoculars and torches to identify if there was any evidence of bats or further information on the condition of the suitable features or bat boxes.

The three trees with bat boxes were located south of Mill Lane which were all sycamore trees *Acer pseudoplatanus* and a willow tree *Salix sp.* that overhung the River Wharfe. See Table 4.2 for more details.

Table 4.2: Further tree inspections

Species	Grid Reference	Roosting Feature		Survey Notes	
Sycamore	SE 20205 45876	1. 2.	Bat box, north facing at 7m. Bird box, south east facing at 3m.	3. 4.	No cobwebs over the entrance hole visible. Possible nesting material visible at gaps between door and unit base from nesting birds. Managed to inspect the bird box, with no evidence of bats but old birds nest noted as present.
Sycamore	SE 20211 45882	5.	Bat box, north facing at 7m.	6.	Cobwebs over the entrance hole of the box, no recent evidence of use by bats.
Sycamore	SE 20190 45858	7.	Bat box, east facing at 7m.	8.	No cobwebs over entrance visible from ground level.
Willow	SE 20207 45915	1. 2.	Woodpecker hole on the western aspect at 7m on an overhanging limb of the river. Stress fracture noted on another limb at 8m on the eastern aspect (likely happened in high winds since the initial survey).	3. 4.	No cobwebs over entrance visible from ground level. No cobwebs or bats noted within the stress fracture.

Source: Mott MacDonald 2024

4.2.2 Recommendations

Following the inspections of the trees at ground level and discussions with the piling contractor, it was agreed that vibratory methods would be the primary method for installing the steel tubes into the river bed due to its composition as alluvium clay. Therefore, should percussive methods be required then this would only be to get the tubes through the last 500mm and take less than one day of work.

As vibratory methods are the primary method, then no further surveys are required when using this method. However, it is recommended that an Ecological Clerk of Works (ECoW), be present during any percussive

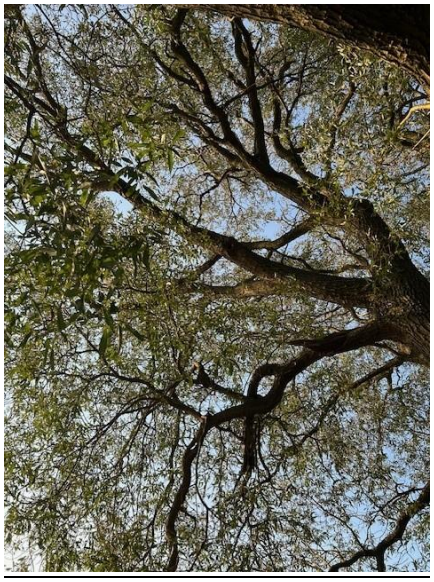
methods used in case bats are found to be disturbed by the works that may be roosting within the trees within 50m of the Site. In the unlikely event that a bat is found to be disturbed, then works should stop and appropriate action taken immediately.

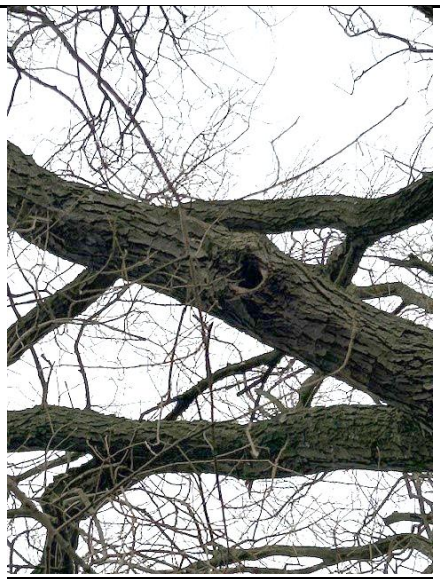
4.2.3 Conclusion

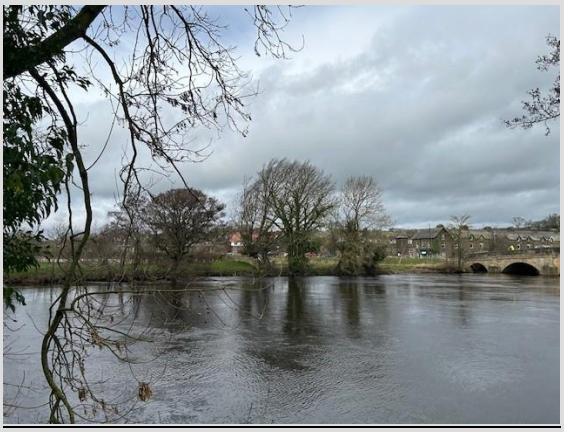
The percussive works were overseen by a qualified ECoW from Mott MacDonald on the 19 September 2024. The works used a ‘slow start’ method for the percussive piling to minimise and monitor disturbance. During the works, no bats were seen to emerge from any of the suitability roosting features that had been identified, therefore it is considered no bats were disturbed by the works.

A. Photographs

Photograph Nº	Description	Photograph
1	Otley Bridge footbridge.	
2	The River Wharfe where the temporary footbridge will be positioned.	
3	Gaps in the stone work on the western aspect of Otley Bridge.	

Photograph Nº	Description	Photograph
4	View of a gap between the flat and pillared underneath section of the road bridge section of Otley Bridge under arch four. Gaps similar to this were also noted in arches 2-6.	
5	View of the gap at arch three between the road bridge and the footbridge. This type of gap spans across the entire bridge with varying degrees in the size of gap.	
6	Tree with PRF feature identified over hanging the River Wharfe.	

Photograph Nº	Description	Photograph
		
7	Tree to the west of Otley Bridge containing a bat box.	

Photograph Nº	Description	Photograph
8	Gap in the southern bank to the east of Otley bridge with a missing stone.	
9	River habitat to the west of the bridge with overhanging trees	 

Source: Mott MacDonald 2024