MOTT MACDONALD

Otter Report - Otley Bridge, Otley

Project:	Otley Bridge, Otley		
Our reference:	100413589-008-OR-OB-V1		
Prepared by:	N.J	**Date:**	01 August 2024
Approved by:	B.C	**Checked by:**	S.S
Subject:	Otter Report – Otley Bridge		

1 Introduction

1.1 Background and Proposed Works

Mott MacDonald Limited were commissioned by Leeds City Council (LCC) to undertake an otter survey to identify constraints and mitigation for the proposed works at Otley Bridge, hereafter referred to as the 'Site'. The Site is located within Otley, Leeds, centred at Ordnance Survey (OS) National Grid Reference SE 20123 45864 (see Figure 1.1).

Otley Bridge provides connectivity between Bridge Street and Billams Hill, over the River Wharfe; the river corridor intersects an urban area, with grassland fields for grazing in the wider landscape. Otley Bridge comprises a single carriageway in both directions with a separated pedestrian footpath attached to the downstream side of the bridge (eastern aspect).

The main works proposed for the Site comprise replacement of the pedestrian footbridge attached to the limestone road bridge of Otley Bridge. 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 of the main works. The temporary crossing would be supported by a pier, positioned in the 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 installed into the river bed using a mixture of percussion and vibration. 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.

1.2 Aims and Objectives

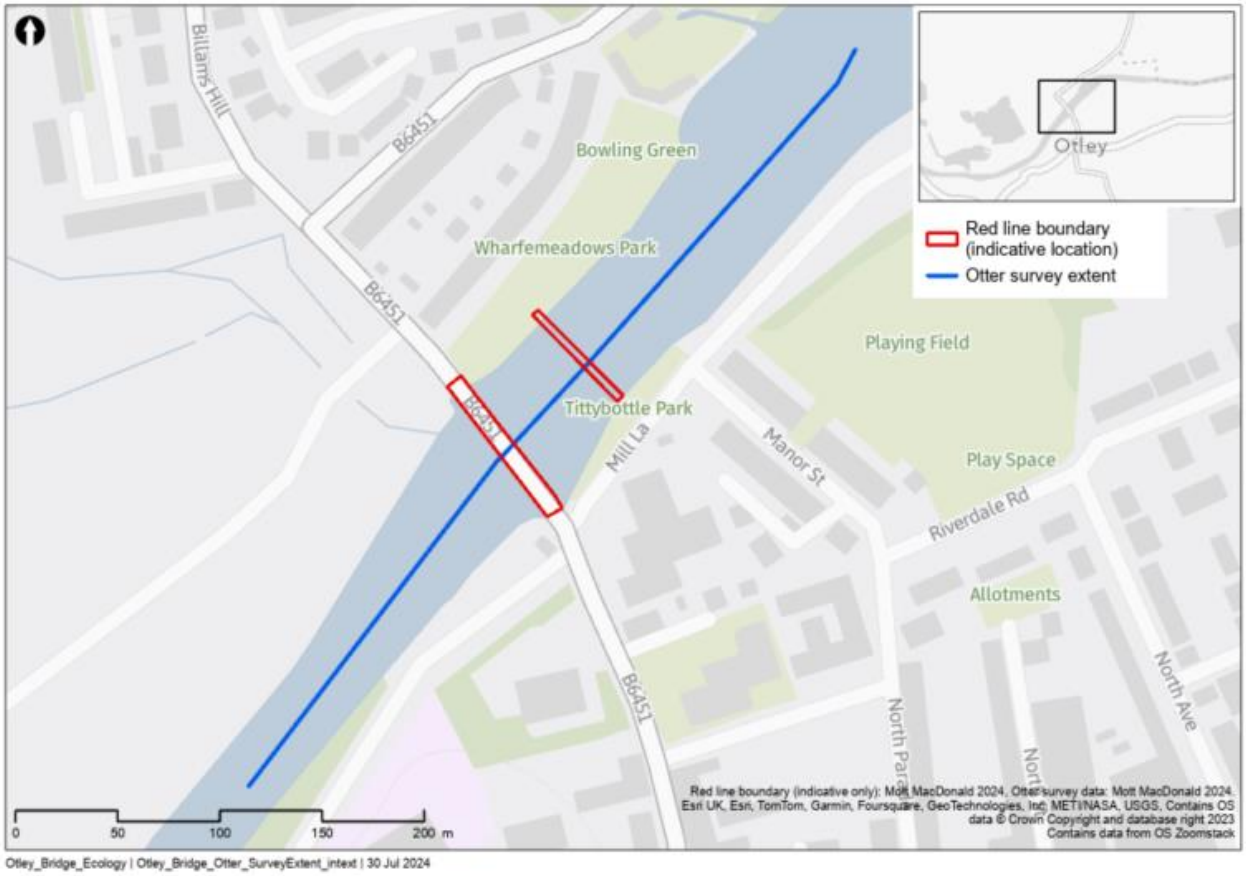
The aim of this report is to detail the methodology and findings from the otter *Lutra lutra* surveys and provide recommendations for any mitigation required to address potential impacts resulting from the proposed works.

The objectives of the surveys and report are to:

- Identify any evidence of otter to establish the presence / likely absence of otter along the River Wharfe up and down stream 200m from the Site;

- Identify any resting sites for otters along the River Wharfe up and down stream 200m from the Site that could be used by otter; and
- Develop appropriate site-specific recommendations in response to the findings and the proposed works to mitigate any impacts to these protected species.

Figure 1.1: Site location (indicative boundary) and otter survey extent



Source: Mott MacDonald, 2024

1.3 Legislation

Otters are fully protected under Section 9 of the *Wildlife and* Countryside *Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2017* (as amended). This legislation results in a level of protection that prohibits the intentional, deliberate or reckless:

- Killing, injuring, taking or disturbance of otters.
- Damage, destruction or obstruction of any place used by otters for the purposes of breeding, sheltering or protection.

For disturbance of an otter to be considered an offense the regulations define it as impairment of their ability:

- To survive, breed or reproduce, or to rear or nurture their young; or
- To significantly affect the local distribution or abundance of otter.

Otters are listed as a species of principal importance (SPI) for nature conservation in England under Section 41 (S41) of the *Natural Environment and Rural Communities (NERC) Act 2006*. Section 40(1) of the Act states that ‘every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’. Section 40(3) explains that

conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

The *Act 1981* (as amended) contains provisions which provide exceptions for certain offences where the following applies:

- Any act made unlawful by that section, if he / she shows that the act was the incidental result of an otherwise lawful action and could not have been reasonably avoided.

2 Methodology

2.1 Survey scope

Designated sites, protected and notable habitats and otters recorded within 2km of the Site, hereafter known as the 'desk study area', were obtained from data supplied by West Yorkshire Ecology Service (WYES) in July 2024. Previous survey data obtained around Otley Bridge in 2021 by Mott MacDonald ecologists from surveys instructed by LCC have been included. Only results relevant to otter have been included in the assessment of this report. Detailed results of the data search are provided in *Ecological Constraints Report - Otley Bridge (100413589-008-ECR-OB-V1).*

The aim of the survey was to assess the ecological constraints, identify the need for any further surveys and mitigation. An assessment of habitat suitability and an otter activity survey was undertaken along the River Wharfe on 05 July 2024, 200m upstream of Otley Bridge and 200m downstream of the proposed temporary pedestrian crossing. Where access allowed, the otter survey was undertaken from an inflatable canoe within the river channel by two experienced Mott MacDonald ecologists, who are also competent canoeists. Where the view of the ecologists at water level was obscured by scrub, a third ecologist acting as banks person, visually scanned the river bank in their immediate vicinity.

The DAFOR (dominant, abundant, frequent, occasional, rare) scale for botanical species abundance was applied to describe the plant composition. Riparian and terrestrial habitat were assessed for suitability to provide opportunities for otter to forage, commute, rest and spraint as well as noting ingress / egress points. Habitat features identified as suitable resting site were categorised into one of the following:

- **Confirmed resting site** - a feature with evidence of otter (i.e. fresh or old field signs), and / or historic records of otter activity.
- **Potential resting site** - suitable feature for use by otter but no evidence of use was found during the survey, including anecdotal evidence which could not be confirmed. These include features that are sub-optimal for otter, or those where full investigation may not be possible.

The habitat features were inspected for otter field signs (recent and old) to establish where there were confirmed otter resting sites likely to be impacted by the works. Field signs included:

- Footprints;
- Spraints;
- Anal jelly;
- Feeding remains, such as fish carcasses;
- Slides and silt/sand heaps; and
- Confirmed and potential resting sites.

Field sign surveys were undertaken with reference to best practice guidelines set out by Chanin (2003)[1], the Joint Nature Conservation Committee (JNCC) (2004)[2] and Bassett and Wynn (2010)[3].

Where resting sites are confirmed during the survey, the following terms and their definitions are used to classify sites, which have been adapted from the Northern Ireland Environment Agency (NIEA) advice note[4] and leading authors of otter ecology and survey methodology, Mike Dean and Paul Chanin. The term 'resting sites' encompass the following:

- **Holt** - an enclosed / covered structure, not always a hole in the ground, which is used by an otter for sleeping and resting. Otters are very versatile in their use of features as holt, utilising natural features such as bankside tree roots and rocks, but also artificial cavities such as pipes. Most holts are situated on the river bank, but some can be up to 100 metres away.
- **Natal holt** - where a female otter gives birth and raises her cubs for the first three months and are normally found in secretive places away from rivers, often in steep wooded bank. There will be no evidence of activity e.g. spraints. Further monitoring using trial cameras are typically required to categorise this type of resting site.
- **Nursery / rearing holt** - where a female otter may move her cubs when a few months old closer to foraging source. She will bring them food and take them out foraging but return to rest. These sites will typically be secluded in areas of minimum disturbance. Easier to identify due to lots of activity e.g. trampling of vegetation and spraints.
- **Hover / lying-up site** - resting sites for otters to shelter from weather, between foraging periods or other exploratory outings, typically used at night when otter are active.
- **Couch** – unenclosed / uncovered structure above ground, where otters rest typically in the day, normally in longer vegetation such as reedbeds, grassland habitats.

2.2 Limitations

Binoculars and a torch were used to view inaccessible banks to assess the suitability of outfall / discharge pipes and cavity size as resting sites and identify spraints or otter prints in mud flats. The location and reason for survey limitation are summarised as follows:

Northern bank upstream of Otley Bridge

- No pedestrian access along bank edge and shallow water around mud flat prevented surveyors inspecting prints in mud (could not get close to the bank and deemed unsafe to stand on the mud shelf).
- Occasional sections of the retaining wall leaned into the river channel creating an overhang, resulting from the slumping earth bank behind.

Southern bank, upstream of Otley Bridge

- Low overhanging, and occasionally dense, tree canopy.
- Overhanging tree branches on southern bank obscured some of the water's edge

Northern bank, downstream of Otley Bridge

- Water's edge inaccessible - steep banks with signs of erosion, with bank crest high above the shallow water below.
- Islands downstream of the weir inaccessible by boat (too shallow) or wading (health and safety concern).

[1] Chanin, P. (2003). Ecology of the European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough.

[2] Joint Nature Conservation Council (JNCC) (2004). Common Standards Monitoring Guidance for Mammals [online]. Available at: Common Standards Monitoring Guidance for Mammals (jncc.gov.uk).

[3] Basset, S. and Wynn, J. (2010) Otters in Scotland - How Vulnerable are they to disturbance. In Practice, No 70.

[4] Northern Ireland Environment Agency (2011). Otters & Development [online]. Available at: https://cieem.net/wp-content/uploads/2019/07/natural-information-otters-and-development-2011.pdf.

- No access to the southern bank opposite (downstream of the weir) and islands obscured view of the northern bank when viewed through binoculars.

Southern bank, downstream of Otley Bridge (adjacent to weir)

- No bankside access adjacent buildings (Hartley House, Otley Hydroelectric Power Station, Garnet Mill). A vantage point from the northern bank facilitated the use of binoculars. However, overhanging tree branches on the northern bank and the islands obscured some of the southern bank when viewed through binoculars
- A safety line was attached to both banks to prevent water craft moving close to the weir. This prevented inspection of approximately 90m of the southern bank from the boat which could not be accessed on foot and was instead observed through binoculars.

Adverse weather in May and June (2024) was a constraint to undertaking the otter survey; the strong current and fast flow was deemed unsafe to survey by boat. Five consecutive days of clear days (no rain) was not achieved prior to the survey undertaken in July (2024), however, the duration and frequency of dry weather periods had increased. Furthermore, water levels were not variable in the week leading up to the survey, and overhanging tree canopies provided some protection against the elements, so that otter field signs may be preserved (footprints in soft ground and spraints). The exception may be if an otter spraint was deposited on dry areas of the weir or on surrounding rocks exposed to the elements, these could have been degraded or washed away by heavy rain.

3 Results

3.1 Desk Study

3.1.1 Ecological Designations

Otter was not a qualifying feature for any of the designated sites or protected habitats identified from the data search, and as such, have been omitted from this report. Details of the data search are provided in *Ecological Constraints Report - Otley Bridge (100413589-008-ECR-OB-V1)*.

3.1.2 Otter

Fifteen records of otter from the last 10 years were within the survey area (200m upstream and downstream of the works), the closest was recorded under / immediately adjacent to Otley Bridge (a count of two individuals in 2021). A further two records (both individual otter sightings) were recorded 50m upstream of Otley Bridge (2020) and 20m downstream of the temporary pedestrian footpath (2021). The most recent data was recorded in the last 12 months (2023) which included one sighting 1.93km south east of the Site and one count 1.48km east of the Site. The latter was the only death recorded in the past 10 years (2023), located on A659 Pool Road (190m south of the River Wharfe). No observations of otter were recorded within the survey area more than 10 years ago; current records suggest that otter may have potentially habituated to anthropogenic disturbance within the survey area.

3.2 Survey Result

3.2.1 Habitats

Photographs of habitat assessment are provided in Appendix A and the location of notable features are provided in Appendix C.

Northern bank upstream of Otley Bridge

Overall, this stretch of the river bank was less vegetated along the water's edge, with steep earth and stone wall banks, with few low lying tree branches, allowing good visibility of the stone retaining wall compared to the southern bank opposite. Whilst there was less vegetation debris in the water, dried debris caught in the lower tree branches was an indicator that water levels rise seasonally.

It was noted that the retaining wall was missing the occasional stone at water level and the earth banks above was slumping, creating an overhang of bramble scrub *Rubus fruticosus* agg*.* and occasionally grassy vegetation with occasional ivy *Hedera helix* and rare meadowsweet *Filipendula ulmaria*. These cavities located approximately 130m upstream, were approximately 40cm and 30cm high and did not appear to extend far into the bank (no more than 60cm), though it was not possible to ascertain whether the cavity extended in a different direction. Bramble scrub overhung into the water, parting it with the canoe paddles revealed open water behind the vegetation, allowing riparian animals to access the wall cavities. It is considered likely that the features partially inspected in this area (see constraints) were likely to have been created in a similar way and offered limited potential as an otter resting site (some cobwebbed).

A mud bank approximately 50m upstream of Otley Bridge offered a potential point of ingress / egress to rest of the bank. This northern bank is considered largely undisturbed; no public access, no evidence of dogs accessing the water's edge, occasional water craft in centre of channel, light splay only from Otley Bridge street lighting. This bank had potential to support otter resting sites, though access to the bank top is limited to the downstream reaches of this section.

Southern bank, upstream of Otley Bridge

The first ~15m of this bankside comprised of a managed garden with a stone wall around its perimeter. Mature and semi-mature trees with a low overhanging, and occasionally dense, tree canopy dominated the length of this bankside. Flood debris was recorded in the lower branches. The ground layer was dominated by ivy, with frequent patches of bramble scrub of varying density in the understorey. Occasional grasses had established in tree clearings exposed to more light, with longer grasses on the bank edge. Manor Garth Park was located on the far side of the trees on this bank, which comprised of modified grassland (managed short) and a footpath (hard standing). A well-worn unofficial footpath (exposed earth in the woodland understorey) was noted parallel to the water's edge with dog prints in the softer substrate. Occasional Himalayan balsam *Impatiens glandulifera* was sparsely spread along the length of the bank.

No suitable cavities in the bank suitable as otter resting sites were observed; the surveyors were able to fully inspect shallow cavities (~20cm) where the water had eroded into the bank, using torch light or the paddle to confirm the depth. A pipe approximately 20cm in diameter was recorded approximately 15cm above the water level, surrounded by low-growing ivy. This feature had potential to be used by otter as a resting site. This section of bank was subject to moderate disturbance; frequently disturbed by pedestrians, dogs and occasional water craft in centre of channel, sparse bankside habitat offered little refuge and trees deemed to filter some lighting splay from Otley Bridge street lighting and parkland lighting.

Northern bank, downstream of Otley Bridge

A footpath (hardstanding) runs parallel to the river from Otley Bridge downstream. The stone retaining wall and amenity grassland beyond the path offered no refuge for otter. The boat launch of Otley Boat Hire had potential to provide a temporary resting site at night (less disturbance likely), when otter commute and forage along this stretch of the river. The river between Otley Bridge and the weir is likely to be subject to light splay from surrounding residual properties and street lighting.

The weir is not considered to be a barrier to otter movement and large rocks at the base provide a features suitable for sprainting (maybe submerged in raise water level). Otley Angling Club fish in the river downstream of the weir. Rocks at the confluence of a drainage / access channel into the river provide opportunities for sprainting. The drainage / access channel was the only ingress / egress from the river noted on this bank, however surveyor access was restricted (see Section 2.2 Limitations). The concrete platform at

water level further downstream had potential to support resting otter and sprainting. This feature was located adjacent to the footpath (hardstanding) and ~30m from a children's playground, so unlikely to be used in the day due to disturbance.

This section of bank is likely subject to moderate disturbance; frequently disturbed by pedestrians (including open water swimmers), dogs and water craft. Sparse ground layer bankside habitat offered little refuge and trees south of the weir (including the islands) were considered to filter some of the surrounding urban light splay.

Southern bank, downstream of Otley Bridge

A concrete platform underneath a large outfall (~0.5m diameter), immediately adjacent Otley Bridge, provided opportunities for sprainting and resting. A footpath (hardstanding) runs parallel to the river from Otley Bridge downstream through Tittybottle Park, joining to Mill Lane at both ends. Frequent semi-mature willow *Salix sp.* overhung the river bank. The stone retaining wall and narrow width of short-managed grassland between the river and Mill Lane offered no undisturbed refuge for resting otter. The bottom steps of the stone stairs leading into the water (upstream of the safety line) may provide a temporary resting platform at night when commuting along this stretch of water. Two outfall pipes observed at water level along the high stone wall at the back of the buildings, looked too small to support a resting otter. Several vegetated islands downstream of weir have potential to support otter resting sites, albeit seasonally as these are likely to be subject to flooding in winter. These islands were inaccessible by boat (too shallow) or wading (health and safety concern) at the time of the survey.

A three-stage Larinier fish pass and baulk fish pass were located at opposite ends of the weir. These allow migration of fish upstream, providing a continuation of foraging resource for otter throughout the survey area. As such, the presence of Archimedes screw turbines at the hydroelectric power station (Garnetts Mill) are not considered a constraint to otter foraging or commuting.

This southern bank was subject to disturbance; frequently disturbed by pedestrians, dogs and water craft. Sparse ground layer bankside habitat offered no refuge, banks north of the weir were likely exposed to the surrounding urban light splay.

3.2.2 Otter

Photographs of field signs are provided in Appendix B. The River Wharfe within the survey area comprised of suitable habitat for commuting and foraging. No confirmed resting sites, including underground holts, were recorded within 200m of the works.

Northern bank, upstream of Otley Bridge

Otter were confirmed to be active along this stretch of the river north of Otley Bridge at the time of survey. An otter spraint was observed on the saddle of tree trunks leaning over the river, close to the water level at the time of survey (0.41m[5]). However, no feature deemed suitable as an otter resting site was observed in the vicinity of this spraint. The two cavities in the wall further upstream were of a suitable size for an otter, though the depth could not be determined. As the works are to be undertaken in the daylight 130m downstream, on the opposite side of Otley Bridge, it is considered that the works will not disturb otter should an individual use these features as a resting site during construction.

Southern bank, upstream of Otley Bridge

This stretch of river bank is subject to disturbance from people and dogs in the daytime, reducing the likelihood of otters resting here in daylight. However, the opening of the outfall pipe 235m upstream of the Site is a potential resting site, likely used at night when disturbance is less likely; two spraints were recorded on a rock, located approximately 120cm from the pipe.

[5] RiverLevels.UK (2024). River Levels. Available at: https://riverlevels.uk/river-wharfe-otley [Last accessed: 05/07/2024]

Northern and southern bank, downstream of Otley Bridge

No otter field signs were noted during the survey. Both banks upstream of the weir were subject to high levels of disturbance from pedestrians, dogs, water craft and light splay. Habitat downstream of the weir had suitability to support otter resting sites, however the vegetated islands could not be safely accessed to search for field signs. Trees along the banks downstream of the weir are considered to provide some filter of the surrounding light splay.

4 Ecological Constraints and Recommendations

Based on survey data collected to date and the details of the construction methodology available at the time of this assessment, the proposed works will not result in the permanent or temporary loss of riparian or terrestrial habitat suitable for use by otter for shelter (resting sites including holts). Furthermore, the closest potential resting site / holt was located approximately 130m upstream on the northern bank, on the opposite side of Otley Bridge to the works. As such, potential use of these features by otter are likely to be of a sufficient distance from the works undertaken in daylight, that disturbance would not affect their survival, breeding success and therefore, the conservation status of the local population. For these reasons, a development licence for otter mitigation is not required, though best practice mitigation to minimise impacts is recommended and summarised in Table 4.1.

As works are proposed over and adjacent to the River Wharfe, there is potential for contaminants to enter the water resulting from short-term pollution events. Deterioration of water quality may result in an adverse effect on an otter's food chain; bioaccumulation of contaminants in otter from consumption of contaminated prey may result in death or illness of individuals. Otter quickly lose thermal protection when oil contaminates their fur and it may be further ingested when an otter grooms it fur, resulting in death or illness of individuals. These impacts would likely adversely affect the breeding success on an individual otter, rather than the local population. With reference to the Water Framework Directive, appropriate mitigation measures are recommended to ensure that no deterioration of waterbodies results from the works.

There is potential for siltation and smothering of salmonoid spawning substrates resulting from the installation of steel tubes into the river bed (temporary pedestrian footbridge). Noise and vibration from the installation of steel tubes into the river bed has potential to directly cause short-term disturbance to otter foraging, and indirectly effect fish distribution and therefore food availability for otter. However, these effects are likely to be local to the works and are to last two days.

The location of the temporary pedestrian crossing is already exposed to light splay along the bankside, so otter foraging or commuting along this section of the river will be habituated to some level of artificial light disturbance. However, there is potential for lighting of the temporary pedestrian crossing to increase disturbance to otter foraging and commuting at night, due to the introduction of a new lighting source intersecting the width of the river channel with no natural filter for the wider area (e.g. tree canopy). There is potential for short-term temporary severance of otter foraging and commuting route, which may last for two consecutive days at the most whilst the steel tubes are fixed into the riverbed. However, due to the proximity of residential properties, this activity would likely be undertaken in the day with several hours of no-activity in between (during the night), therefore avoiding times of increased otter activity. Human activity / 24-hour access to the temporary pedestrian footbridge along the width of the river for approximately three - four months, has potential to have some level of disturbance to otter foraging and commuting.

Mitigation is recommended to make sure otter can commute and forage along the river undisturbed by the additional disturbance for the duration of the works. With mitigation in place, these impacts are considered to not affect the survival or breeding success of otter and otter may continue to use the river as a commuting route and for foraging outside of construction hours, when otter are naturally more active.

Ecological constraints, impacts and recommended mitigation are summarised in Table 4.1.

Table 4.1: Summary of constraints on otter and recommendations

Ecological Constraint	Assessment of Impacts	Effect	Recommendation
Habitat	Contaminants entering in the River Wharfe resulting from short-term pollution events.	● Direct affect - potential for oil on fur to result in loss of thermal properties and ingestion of contaminants from grooming fur ● Indirect affect – potential for consumption of contaminants via prey. Direct and indirect effects could result in death or illness of individuals, adversely affecting their breeding success.	● Refuelling of equipment or plant to be undertaken >10m from the River Wharfe and hydrologically links watercourses, using spill nappies and ideally over hardstanding. ● Control at source to prevent contaminant run-off and debris entering the water course. ● Spill kit to be on hand in case of a pollution incident.
Food resource	Siltation and smothering of salmonoid spawning substrates.	● Indirect affect - potential for adverse effect on salmonoid spawning success and distribution from noise and vibration disturbance, and therefore food availability and food distribution for foraging otter.	● Siltation management to control at source e.g. siltation curtains downstream of steel tube installation into the river bed and system to catch falling debris from the deconstruction of the existing footbridge.
Food resource and otter	Disturbance from vibration resulting from the installation of steel tubes into the river bed (temporary pedestrian footbridge).	● Direct – potential for otter foraging and commuting to cease during this activity. ● Indirect – potential for reduced salmonoid spawning success and distribution from noise and vibration disturbance, and therefore food availability and distribution for otter.	● Undertake works during the day and between June and September, inclusive, to avoid the salmonid migration and spawning season (typically from October to March for brown/sea trout *Salmo trutta* and salmon *Salmo salar* and March to May for grayling and lamprey *Petromyzontidae*). ● Slow start up of plant / equipment used for the installation of steel tubes into the river bed.
Food resource and otter	Visual disturbance from additional lighting and presence of temporary pedestrian footbridge along the width of the river.	● Direct – potential avoidance of temporary pedestrian footbridge by otter, adversely affecting foraging and commuting. ● Indirect – potential to adversely affect spawning success of fish and distribution and therefore food availability and distribution for otter.	● Undertake works during the day and between June and September inclusive, to avoid the salmonid migration and spawning season (typically from October to March for trout and salmon and March to mid-May for grayling and lamprey). ● Use task-specific directional lighting and use cowls for lighting at night to reduce the distance of light splay. ● Bridge is to avoid light spill onto the river, with the use of downward lighting within the channel of the bridge and protection on either side to avoid light spill.
Food resource and otter	Noise disturbance resulting from the dismantling and installation of the new footbridge on Otley Bridge and the temporary pedestrian footbridge.	● Direct – potential to adversely affect otter foraging and commuting. ● Indirect – potential to adversely affect spawning success of fish and distribution and therefore food availability and distribution for otter.	● Undertake works during the day and between June and September, inclusive, to avoid the salmonid migration and spawning season (typically from October to March for trout and salmon and March to mid-May for grayling and lamprey). ● Slow start up of plant / equipment used for the dismantling and installation of the new footbridge on

Ecological Constraint	Assessment of Impacts	Effect	Recommendation
			Otley Bridge and the temporary pedestrian footbridge.

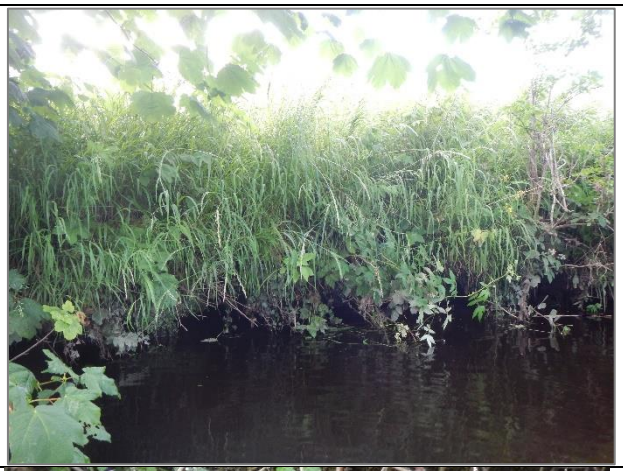
Source: Mott Macdonald, 2024

There will be no severance of commuting routes, reduced access to potential prey, or impacts on resting sites from the proposed works, following the implementation of recommended mitigation.

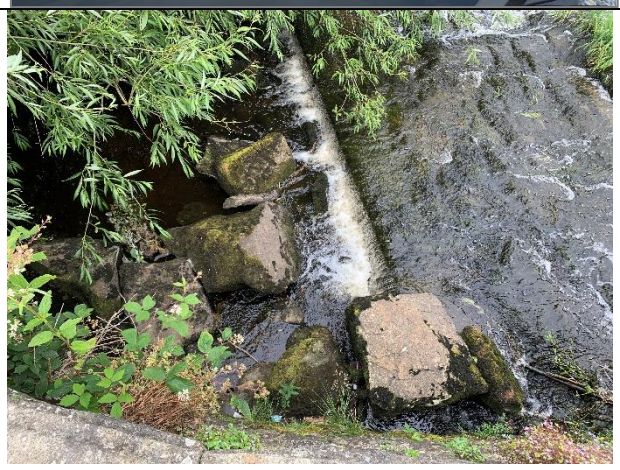
If an otter is seen along the river and associated banks within 200m of the Site, works must pause and the ecologist contacted for advice. If the otter moves out of this area of its own accord, works may commence with a slow start up. Suspected or confirmed spraints observed within the Site and up to 50m along the river (upstream and downstream) at any time during works activities, must be reported to the ecologist within 24 hours of the observations. Heavy construction / activities resulting in high levels of disturbance (e.g. demolition or installation of steel tubes into the river bed) must pause from the point of observation, until further advice is sought from a suitably experienced ecologist, and appropriate action taken. Mitigation could include, but is not limited to, demarcation of a 30m protection zone around any confirmed resting site or supervision of heavy construction by an Ecological Clerk of Works.

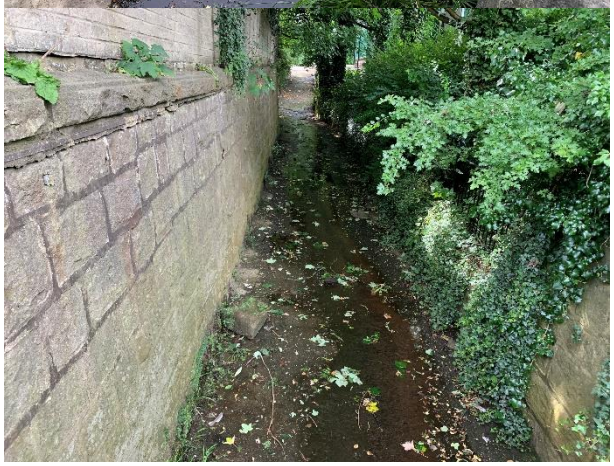
A. Habitat Suitability

Table A.1: Habitat suitability – photos taken 05/07/2024

Bank location	Description	Photo	Photo reference
Northern bank upstream of Otley Bridge	Overview of northern bank upstream of works. Tree canopy and bramble overhanging water level. Less densely vegetated than southern bank. Fewer low-lying tree branches and therefore less debris in water than southern bank. Flood debris present in the lower branches of trees.		1
Northern bank upstream of Otley Bridge	Bank slumping, dominated by long grasses, occasional ivy and bramble and rare meadowsweet. Cavities underneath do not appear to extend far into the bank (up to 20cm).		2
Northern bank upstream of Otley Bridge	Dense, low-growing, narrow strip of bramble scrub over-hanging the water. When lifted up, missing stone from retaining wall observed underneath or possibly the opening to a land drain. Sparse ivy on bare bank under bramble.		3

Bank location	Description	Photo	Photo reference
Northern bank upstream of Otley Bridge	Mud bank inaccessible on foot and too shallow for boat to get close.		4
Southern bank upstream of Otley Bridge	Overview of southern bank upstream of works. Tree canopy overhanging water level (denser than northern bank).		5
Southern bank upstream of Otley Bridge	Bank dominated by ivy		6

Bank location	Description	Photo	Photo reference
Southern bank upstream of Otley Bridge	Low tree branches and flood debris somewhat restrict access to the bank in places.		7
Northern bank downstream of Otley Bridge	A footpath (hardstanding) runs parallel to the river up to Otley Bridge. The stone retaining wall and modified grassland beyond the path offered no refuge for otter. The boat launch of Otley Boat Hire had potential to support a temporary resting site at night when otter commute along this stretch of the river.		8
Northern bank downstream of Otley Bridge	A footpath (hardstanding) runs parallel to the river up to Otley Bridge. Large rocks at base of weir ideal for sprainting.		9

Bank location	Description	Photo	Photo reference
Northern bank downstream of Otley Bridge	Concrete platform at water level, adjacent footpath (hardstanding) and ~30m from a children's playground. Had potential to support resting otter or sprainting.		10
Northern bank downstream of Otley Bridge	Drainage / access channel into the river. Rocks at confluence provided opportunities for sprainting.	 	11 and 12

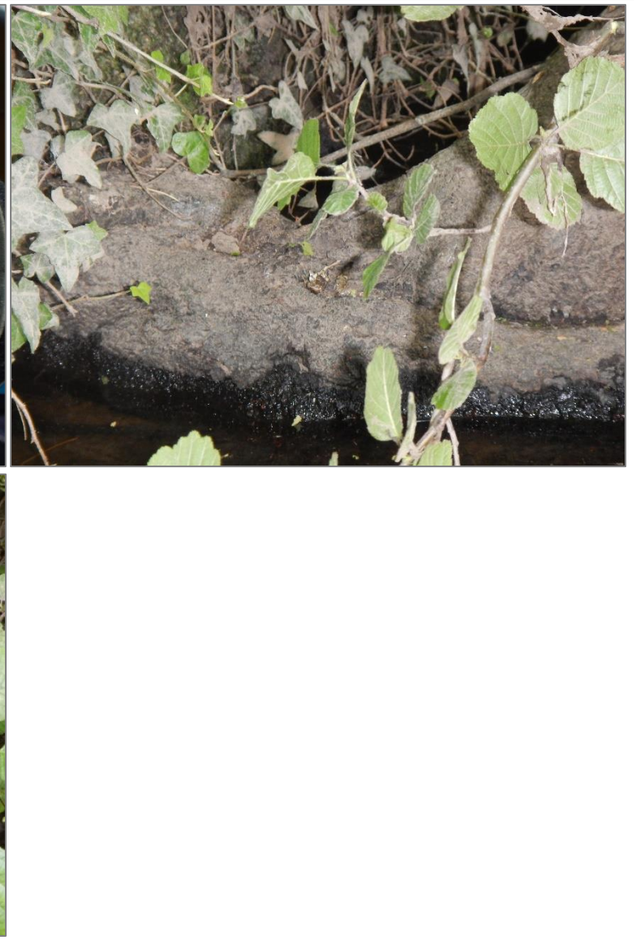
Bank location	Description	Photo	Photo reference
Southern bank downstream of Otley Bridge	Concrete platform underneath outfall (~0.5m diameter), immediately adjacent Otley Bridge, provided opportunities for sprainting and resting.		13
Southern bank downstream of Otley Bridge	Tittybottle Park was located adjacent to Otley Bridge, with a footpath (hardstanding) parallel to the river. The stone retaining wall, modified grassland and frequent trees offered limited undisturbed shelter for resting. The bottom steps of the stone stairs leading into the water (upstream of the safety line) may provide a temporary platform at night when commuting along this stretch of water. Safety line across river prevented access by boat downstream to weir.		14
Southern bank downstream of Otley Bridge	High stone wall at back of buildings, two outfall pipes were observed at water level (looked too small to support a resting otter). Bankside inaccessible by boat as downstream of safety line.		15

Bank location	Description	Photo	Photo reference
Southern bank downstream of Otley Bridge	Between weir and the safety line upstream, and downstream of the weir were inaccessible by boat. Several vegetated islands downstream of weir have potential to support otter resting sites. Inaccessible by boat (too shallow) or wading (health and safety concern).	 	16 and 17

Source: Mott MacDonald, 2024

B. Otter field signs

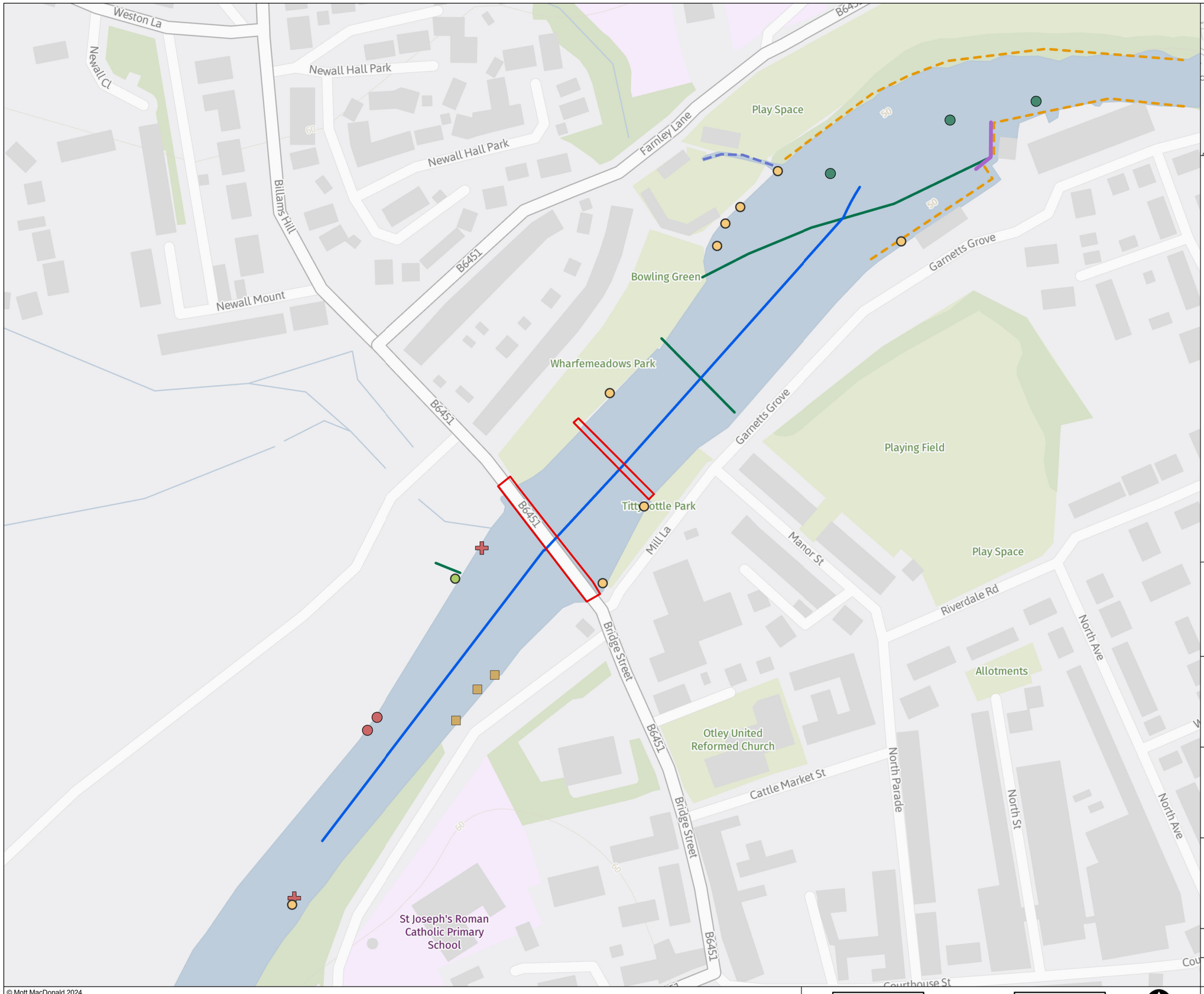
Table B.1:– Otter field signs observed 05/07/2024

Bank location	Field sign	Easting (X)	Northing (Y)	Description	Photo	Photo reference
Northern bank upstream of Otley Bridge	Otter spraint	420,200	445,813	Otter spraint on saddle of tree trunk overhanging the river. Crustacean carapace and legs observed in spraint.	 	18-20

Bank location	Field sign	Easting (X)	Northing (Y)	Description	Photo	Photo reference
Southern bank upstream of Otley Bridge	Otter spraint	420,130	445,666	Two otter spraints on rock, ~120cm downstream of outfall pipe. Comprised of fish scales and small bones / cartilage.	 	21-22
Southern bank upstream of Otley Bridge	Dog prints	420,130	445,666	Dog prints recorded on eroding mud banks on edge of modified grassland (Manor Garth Park). No evidence of this habitat feature being used as an otter slide.	 	23-24

Source: Mott MacDonald, 2024

C. Otter Habitat Suitability and Field Signs Survey Results





Site boundary (indicative location)

Habitat feature
- Bank cavity
- Island
- Mud/silt bank
- Suitable sprainting feature
- River
- Channel

Otter survey - field sign
- Otter spraint
- Worn earth path

Survey constraint
- Barrier to survey
- Fish pass
- Partial access

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources:
Site boundary (indicative only): Mott MacDonald 2024
Otter survey data: Mott MacDonald 2024.

Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Contains OS data © Crown Copyright and database right 2023
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MOTT MACDONALD

Mott MacDonald
26 Whitehall Road
Leeds
LS12 1BE
T +44 (0)113 3946700
W mottmac.com

Leeds CITY COUNCIL

Leeds Bridges - Otley Bridge Ecological Constraints Report Otter Habitat Suitability and Field Signs Survey Results

Drawn	GIS Checked	Checked	Approved
N Johnson	S Glover	S Smith	B Clarkson
Scale at A3	Status	Revision	Security
1:2,000	INF	01	STD

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