



Tata Steel UK Ltd

Electric Arc Furnace

Water Vole and Otter Survey Report

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EXPERTS IN ECOLOGY

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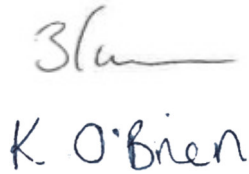
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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Biocensus.

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EXECUTIVE SUMMARY

The report presents the findings of water vole and otter surveys carried out on land at Tata Steelworks in Port Talbot, South Wales. The surveys were carried out in October 2021 and April 2022 with checks of water vole rafts undertaken throughout all of 2022. This report has been produced to support the Electric Arc Furnace project. The surveys were based on the 2021/2022 survey area (the boundary of a previous iteration of the project). No additional surveys were undertaken following the red line boundary change as no additional suitable habitats were identified.

The purpose of this survey was to establish the presence or likely absence of water vole and otter in connection with the proposed development. Habitat suitable for otter and water vole comprised lagoons and a ditch network and was identified in a preliminary ecological appraisal of the site by RSK Biocensus in 2021. The desk study returned records of otter within 2 km of the site, the nearest record approximately 1.4 km east of the site. The desk study returned historic records of water vole (1976) within 2 km of the site.

Presence/likely absence surveys were undertaken following latest industry guidelines (Dean *et al.* 2016).

No evidence of water vole or otter presence was recorded within the site.

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1.0 INTRODUCTION

1.1 Purpose of This Report

- 1.1.1 The report presents the findings of water vole (*Arvicola amphibius*) and otter (*Lutra lutra*) surveys carried out on land at Tata Steelworks in Port Talbot, South Wales (central Grid Ref SS 77524 8602150). The area termed 'the site' throughout this report is delineated on Figure 1 by the red-line boundary.
- 1.1.2 Surveys were commissioned to inform the planning process and Environmental Statement ecology chapter in respect to water vole and otter using the site. The surveys were undertaken to determine the level of water vole and otter activity at the site, identify if either species could be affected by the proposals and, if necessary, inform a mitigation strategy to reduce impacts to non-significant levels.

1.2 Background

- 1.2.1 The otter and water vole surveys were carried out in October 2021 and April 2022 with checks of water vole rafts undertaken throughout the rest of 2022, within the 2021/2022 survey area (shown in purple in Figure 1). Subsequently, adjustments were made to the proposed development, however, no additional suitable habitat with connectivity to the wider landscape was identified for further survey (shown in red in Figure 1).

1.3 Ecological Context

- 1.3.1 A preliminary ecological appraisal (PEA), including a background data search (BDS) was completed by RSK (RSK, October 2021). The desk study returned records of otter within 2 km of the site, the nearest record approximately 1.4 km east of the site. The desk study returned historic records of water vole (1976) within 2 km of the site. Habitat within the site boundary was identified as suitable for otter and water vole during the PEA.
- 1.3.2 The 162.7 ha site is located to the south-east of the town of Port Talbot. The site is predominately bare ground/ developed land. Open mosaic habitat is the most dominant habitat type comprising a mixture of scrub, grassland and ephemeral vegetation. There are a number of channels throughout the site and one large lake associated with the steelworks, located at the northern extent of the site.
- 1.3.3 The site is immediately bordered to the north, east and west by Tata Steelworks with coastal floodplain grassland, reedbed, an access road and Margam Moors Site of Special Scientific Interest (SSSI) adjacent to the south of the site. The surrounding landscape is a mixture of woodland, hedgerows, waterbodies (reservoir), coastal floodplain grassland and residential properties within Margam. Swansea Bay (Bristol Channel) is located approximately 880 m west of the site.

1.4 Development Proposals

- 1.4.1 The Proposed Development will require the demolition of existing buildings and structures, and the construction of a new EAF steel production facility. The Proposed Development also includes a scrap metal handling facility and associated scrap yards, slag processing facility, chemical and material storage structures, buildings, handling systems, electrical control rooms and power infrastructure, laboratories, offices and ancillary facilities, together with new and amended transport infrastructure, landscaping and associated development.

2.0 METHODS

2.1 General

- 2.1.1 The ditches were surveyed between 1 and 8 October 2021 by Jan Skuriat and 25th and 26th April by Ben Faulkner and Kate Gwynn. The water vole rafts were checked monthly during dormouse/ reptile surveys. All surveyors have experience in identifying water vole field signs. The locations of the ditches are shown in Figure 1.

2.2 Habitat Assessment

- 2.2.1 The suitability of the ditches was assessed using the following criteria (Dean *et al.* 2016):

- Dry areas above water level for nesting, either in burrow or above ground woven nests. Need to consider;
 - burrow entrances do not need to be above water level;
 - bank profile – steep banks are preferred as water voles can excavate burrow systems that are more adaptable to changing water levels (*n.b.* water voles can use banks with shallow profiles where water levels are stable);
 - bank substrate – whether water voles can burrow into the banks (*n.b.* burrows can be formed behind stonework with suitably sized gaps, behind sheet piling, where water voles can access the banks behind by either corrosion or by climbing the sheet piling or adjacent vegetation, and water voles can also create burrows some distance back from the water's edge, where substrate at the toe of the bank is unsuitable);
 - daily fluctuations in water level (such as on estuaries or tidal reaches of rivers);
 - the availability of suitable above-ground nest sites, where there are no banks, or banks with a shallow profile, such as in extensive reed/sedge bed habitats or in tussocks within ponds.
- Herbaceous vegetation to provide food and cover. Water voles will generally favour areas with herbaceous vegetation on the banks and (ideally) in the channel. However, it should be noted that:
 - The level of cover provided by vegetation will vary depending on the season and how recently management works has been undertaken;
 - The level of cover required by water voles will vary, with urban / sub-urban populations or those in intensively sheep-grazed uplands surviving in habitat with very little cover;
 - Water voles will eat a wide variety of plant species (as well as amphibians, invertebrates and fish) and can survive in areas where there is a low diversity of species and a lack of lush emergent vegetation;

- Water voles are very capable climbers and will forage up into a hedgerow understorey for fruits and shoots where a watercourse is present as its base; they can also exist in low densities in the banks of watercourses shaded by woodland.
- Water, as a means to escape from predators:
 - Water voles will sometimes use very shallow watercourses that contain a few centimetres of water, and terrestrial populations have been recorded which are unconnected to wetland habitat.

2.2.2 In general, water voles require all three of these habitat ‘preferences’ in close proximity to each other, although there are circumstances where water voles survive in less favourable habitat. With these preferences in mind, classification of habitat suitability for each ditch was made as follows:

- *Excellent* – ideal or optimal habitat with good cover, food sources and other elements that would allow a population of water voles to thrive throughout the year.
- *Suitable* – habitat that has all the elements required for water voles certainly in the summer, and probably through most winters.
- *Marginal* – habitat that has some of the habitat features that are suitable for water vole, but with some constraints so that suitability throughout the year is not certain.
- *Unsuitable* – habitat lacking one or more crucial element for use by water voles. This category does not necessarily preclude the habitat being used by commuting water voles, but it would not be able to support a resident population.

2.3 Presence/ Likely Absence Survey

Water Vole

- 2.3.1 A search for field signs - including droppings (the principal evidence required), feeding remains, burrows and footprints - indicating presence was completed on the ditches suitable for water voles just outside of the breeding season. The breeding season for the majority of the UK is considered to be between mid-April to the end of September (though this can vary depending on season variation based on latitude and altitude) and this is when field evidence is more evident (Dean *et al.* 2016). Water vole rafts were deployed at locations along the ditches, where areas of open water were present. These rafts were checked for field signs during dormouse/ reptile visits throughout the 2022 survey season.
- 2.3.2 The apparent size and distribution of water vole populations can be affected by changes in habitat suitability during the breeding season. Two surveys are recommended according to published guidelines (Dean *et al.* 2016); one between mid-April to the end of June and one between July and September, inclusive (at least two months apart). In some cases it may be possible to justify an assessment based on a single visit if a precautionary approach is followed.

- 2.3.3 Where water vole presence is confirmed, estimates of latrine density can be used to indicate the relative size of the population and highlight the areas of most value to the species (Table 1). Subdivision of the survey area into 'low', 'medium' or 'high' relative population densities could assist with interpretation of the site (Dean *et al.* 2016):

Table 1: Approximate latrine numbers and relative population density

Relative Population Density	Approximate number of latrines per 100 m of bank-side habitat	
	Mid-April to end of June	July to September (inclusive)
High	10 or more	20 or more
Medium	3 – 9	6 – 19
Low	≤ 2 (or none, but with confirmatory signs)	≤ 5 (or none, but with confirmatory signs)

Otter

- 2.3.4 Otter surveys were undertaken in tandem, and included searching for evidence of otter presence such as spraints, footprints, slides, holts, feeding platforms, and resting places such as layup sites and couches.

2.4 Constraints and Limitations

- 2.4.1 RSK Biocensus were commissioned to undertake water vole surveys at the end of September 2021 therefore the first survey could not take place within the traditional survey period (April to September inclusive). It was considered unlikely that field signs would have decreased significantly in number since the end of September (excluding other factors below) so a survey was undertaken in early October.
- 2.4.2 Ordinarily when assessing possible impacts to water vole two surveys are undertaken between April and September, at least two months apart and within the same calendar year. Due to time constraints associated with the project it was not possible to undertake both surveys within the same calendar year.
- 2.4.3 Due to being late commissioning of the water vole surveys the October site visit was arranged for the earliest opportunity. Unfortunately, this coincided with a period of heavy rain in the days leading up to the survey which increased the water levels of the ditches significantly, potentially washing away any field signs which may have been present including droppings (the principal evidence required for confirming water vole presence and estimating population density). It is therefore difficult to conclude whether an absence of field signs along any of the ditches corresponds with an absence of water voles, or if the rain and high-water levels had washed away the signs.
- 2.4.4 Flailing of some of the ditches in the east of the site was carried out whilst the water vole survey was ongoing. This may have caused field signs to be obscured and may discourage further use of these ditches by water voles.
- 2.4.5 Some ditches and stretches of bank were inaccessible from land and/ or the ditch channel due to various constraints including dense vegetation, water pollution and active works areas. Rafts were installed in areas where access was difficult to capture

any mammal field signs. Watercourses/ sections of watercourses where access was possible returned no definitive evidence of water vole, Therefore, lack of access into watercourses and use of water vole rafts with no definitive evidence of water voles found, in place of access is not considered to be a constraint to the survey and does not affect the overall conclusion of the survey findings.

- 2.4.6 During the April 2022 surveys access were identified to the ditches/ watercourses including deep silt/ water, dense vegetation and steep/unstable banks.

3.0 RESULTS

3.1 Habitat assessment

3.1.1 Habitat assessments were undertaken in 2021 for Ditches 1 – 5. All five of these ditches were suitable for water voles. These ditches vary in their condition including both wet and dry ditches and a range of vegetation densities and types. The results of the assessment are provided in Table 2 below.

Table 2: Water vole habitat assessment

Location	Habitat Assessment	Habitat Classification
D1	South bank is stone wall, overgrown with grass. Potential holes in walls for burrowing. Full of common reed. Number of runs throughout. If water vole are present, likely to be in small numbers and / or juveniles / late summer population due to ditch being unlikely to hold water in summer. Five water vole rafts deployed.	Suitable
D2	Full of common reed with areas of dense bramble on banks. Runs present but nothing conclusive. If water vole are present, likely to be low population due to lack of vegetation management in ditch and bankside. Five water vole rafts deployed.	Suitable
D3	Open channel with common reed, willow, hemp agrimony, Canadian fleabane and bramble. Sheet piling on both edges, not suitable for water vole burrowing. No signs of grazing on banks. Eight water vole rafts deployed.	Suitable
D4	Major ditch with deep, flowing water, water collects into lagoon like area with an island. Steep banks and dense scrub around edges. Fourteen water vole rafts deployed.	Suitable
D5	Ditch network full of common reed. Very little areas of open water. Some sections too overgrown to survey. Lots of pathways, but more consistent with rat than water vole. No vegetation management in ditch or on the banks. Sixteen water vole rafts deployed.	Suitable

3.2 Presence/ likely absence survey

Water vole

D3 and D4 - Lower Mother Ditch (North) and Lagoon

3.2.1 The survey on Lower Mother Ditch (North) and the lagoon were both undertaken using a small inflatable boat to improve access to the margins and banksides of both waterbodies.

- 3.2.2 No definitive evidence of water vole e.g. latrines/ droppings were observed during the surveys on either Lower Mother Ditch (North) or the Lagoon. Small mammal evidence was however recorded on Lower Mother Ditch (north) in the form of a single burrow, 4-8 cm in width and oval in shape (Plate 1) and a chewed reed stem. This is considered evidence of the presence or bank or field vole and no evidence to suggest the presence of water vole.



Plate 1: Possible water vole burrow Lower Mother Drain (North)

D1 and D2 - Eastern Drains

- 3.2.3 The survey of the Eastern Drains was undertaken from the bankside and where safe to do so by wading in the channel. At the time of the survey the emergent and bankside vegetation was dense and this restricted access to certain areas of the survey reach (Plate 2).



Plate 2: Dense bankside and emergent vegetation Eastern Drain

- 3.2.4 No definitive evidence of water vole e.g. latrines/droppings were observed during the surveys on the Eastern Drains.
- 3.2.5 A single dropping (which was similar to those of water vole) was collected from one of the survey rafts and sent for DNA analysis however this returned a positive identification for water shrew (see Appendix A).
- 3.2.6 During the survey a black oily tar like substance was recorded on the bed of the watercourse roughly 100 m upstream of the main road crossing (Plate 3). The survey team immediately reported the sighting to the site health and safety supervisor.



Plate 3: Black tar like substance on the bed of the watercourse

D5 - Southern fields

- 3.2.1 The survey on the ditches within the southern fields was undertaken on foot from the bankside and where safe to do so by wading in the channel. At the time of the survey the bankside/instream vegetation was extremely dense restricting access to large sections of the target watercourses (Plate 4). Additionally, many of the channels could not be waded due to the presence of deep water/silt.



Plate 4: Dense bankside and emergent vegetation which restricted access.

- 3.2.2 A single dropping (which was similar to that of water vole) was collected during the survey on bottom field from the drain which forms western border of the site (Plate 5). This was sent for DNA analysis which returned a negative result for water vole and was identified as water shrew (see Appendix A). Several other droppings and a latrine were recorded during the survey however these were characteristic of smaller/ larger mammal species such as bank vole and brown rat.



Plate 5: Water shrew dropping verified by DNA testing.

- 3.2.3 Numerous burrows were recorded several of which were the right size for water vole (4-8 cm diameter and oval in shape) (Plate 7), however given the lack of droppings and other evidence these burrows are considered to be either rat burrows or burrows of a now extinct water vole population.



Plate 6: Small mammal feeding evidence.



Plate 7: Possible water vole burrows.

- 3.2.4** No definitive evidence of water vole e.g. latrines/ droppings were observed during the surveys on the water vole rafts.

Otter

- 3.2.5** No definitive evidence of otters was observed during the surveys.

4.0 EVALUATION AND CONCLUSIONS

- 4.1.1 The surveys conducted to date at the site have found that habitat suitable for water voles and otters can be found in 30 ditches across the site. In the 2022 presence/ likely absence surveys, none of the ditches had water vole field signs or otter field signs recorded. It is therefore considered that neither species poses a constraint to the proposed development and they are absent from the red line boundary.

5.0 REFERENCES

Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Matthews and Paul Chanin. The Mammal Society, London

6.0 FIGURES

Figure 1 – Ditch Locations



Legend:

- Site boundary
- 2021/2022 survey area
- Watercourse location

00	16/08/2024	2487033	TG	EC	KOB
Rev	Date	Description	Drm	Chk	App
P&C EAF					
TITLE: Figure 1: Watercourse locations					
0 140 280 420 Metres SCALE: 1:11,000 @ A3			 REV 00		

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APPENDIX A – EDNA RESULTS



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Sample ID: 46922201-Sample T

Client Identifier: T1

Sample Description: Container of intact droppings

Date of Receipt: 20/06/2022

Material Tested: 1 dropping processed

Determinant	Result (closest match)	Method	Date of DNA Sequence Analysis
Cytochrome oxidase subunit 1 (COI) DNA sequence	<i>Neomys fodiens</i>	DNA extraction from a single dropping followed by PCR amplification of a short fragment of the COI gene, DNA sequencing and comparison to a database of known DNA sequences for species identification	24/06/2022

Sequence Alignment*	Sequence Identity	108/111 (97%)
Query 1 TTCCCTCGAATAAATAATATAAGCTTTTGACTGCTTCCCCATCTTTCTTCTACTTTTA 60 Sbjct 5620 TTCCCTCGAATAAATAATATAAGCTTTTGACTGCTTCCCCATCTTTCTTCTACTTTTA 5679		
Query 61 GCTTCATCTACAGTTGAAGCCGGTGCATGGCACTGGATGGACAGTTTATCC 111 Sbjct 5680 GCTTCATCTACTGTTGAAGCAGGTGCA-GGCACTGGATGGACAGTTTATCC 5729		

Report Prepared by: Dr Steve Kane

Report Issued by: Dr Helen Rees

Signed:



Signed:



Position: Research Scientist

Position: Director: Biotechnology

Date of preparation: 28/06/2022

Date of issue: 28/06/2022

*DNA sequence alignment for the test sample (Query) matched to a known sequence (Sbjct).

§The identity or percentage match of the two sequences (ideally 100%).

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Cytochrome oxidase subunit 1 (COI) DNA sequence	<i>Neomys fodiens</i>	DNA extraction from a single dropping followed by PCR amplification of a short fragment of the COI gene, DNA sequencing and comparison to a database of known DNA sequences for species identification	24/06/2022

Sequence Alignment*	Sequence Identity	167/168 (99%)
Query 1 CTGACTTATTCATTAATGATTGGGGCCCTGATATAGCATTCCTCGAATAAATAATAT 60		
Sbjct 5580 CTGACTTATTCATTAATGATTGGGGCCCTGATATAGCATTCCTCGAATAAATAATAT 5639		
Query 61 AAGCTTTTGACTGCTTCCCCCATCTTTCTTCTACTTTAGCTTCATCTACTGTTGAAGC 120		
Sbjct 5640 AAGCTTTTGACTGCTTCCCCCATCTTTCTTCTACTTTAGCTTCATCTACTGTTGAAGC 5699		
Query 121 AGGTGCAGGCACTGGATGGACAGTTTATCCTCCATTAGCCGGAACCT 168		
Sbjct 5700 AGGTGCAGGCACTGGATGGACAGTTTATCCTCCATTAGCCGGAACCT 5747		

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Signed:



Signed:



Position: Research Scientist

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*DNA sequence alignment for the test sample (Query) matched to a known sequence (Sbjct).

*The identity or percentage match of the two sequences (ideally 100%).