



Rampion Offshore Wind Farm



ES Section 24 – Terrestrial Ecology Appendix 24.7

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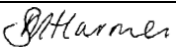
Rampion Offshore Wind Farm –
Onshore EIA

Water Vole and Otter Survey
Technical Report

Prepared For E.ON Climate and
Renewables

October 2012

INTERNAL PROJECT REPORT FOR EON**RSK General Notes****Project No:** 852425**Title:** Rampion Offshore Wind Farm – Onshore EIA – Water Vole and Otter Survey Technical Report**Client:** E.ON Climate and Renewables**Issue Date:** October 2012**Revision:** Rev02**Issuing Office:** Hemel Hempstead

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the findings of Water Vole and Otter surveys carried out along the alignment of a proposed cable route through Sussex associated with a proposed off-shore windfarm development. An outline of the cable route is shown in *Figure 1*. The surveys comprised a preliminary habitat assessment carried out in December 2010 and subsequent detailed surveys of selected areas, carried out between May and early September 2011.

1.2 Scheme Description

The proposed cable route is approximately 27 km long running south to north from a landfall site near East Worthing to a proposed substation site east of the existing Bolney substation near Twineham. Construction activities will be undertaken within a fenced strip of land, known as the working width. The working width is expected to be no wider than 40m, comprising 15m for the cable easement, and 25m for additional areas for storage of excavated material and access along the cable trench. The cable easement will not necessarily be central to the working width.

For the purposes of the ecological surveys, a survey corridor of 65m or 125m (depending on the survey-type) was used. For the detailed surveys the search area extended 100 m up and downstream of the proposed crossing point was carried out at all suitable watercourses.

The term ‘cable route’ has been used throughout this report and represents the area within the Development Boundary for the onshore cable.

As shown on Figure X, the ecology survey corridor for the cable route extends further north than the Development Boundary. This is due to the fact that the cable route connection with the substation was not defined at the time of the surveys and therefore a wider survey area was covered.

Ecological surveys undertaken for the proposed substation are detailed elsewhere in the Substation Technical Report (*Appendix 24.11*), although the survey areas do overlap, as shown in Figure 2.

1.3 *Ecological Context*

The proposed cable route starts at the Sussex coast on the eastern outskirts of Worthing and proceeds in a general north-east direction, crossing the South Downs National Park and terminating east of Bolney Substation.

Between the coast and the A27 road, the route crosses semi-urban habitats, including a golf course, parkland and former allotments, and a section of mostly arable farmland. It then enters the South Downs NP, passing through a landscape of rolling chalk hills predominately converted to intensive arable farming. Beyond Tottington Mount the final half of the route comprises a mixture of arable and pastoral farmland enclosed by hedges.

The route generally avoids large areas of woodland and other semi-natural habitats, though it crosses a few areas of unimproved grassland, most notably at Tottington Mount and Old Erringham Farm Valley and road cutting SNCI. Other noteworthy habitats crossed include coastal shingle, the tidal River Adur (which will be crossed via directional drilling techniques) and a few narrow woodland corridors.

1.4 *Structure of this Report*

The remainder of the report is set out as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the results of the surveys;
- *Section 4* provides the evaluation and conclusions;
- *Section 5* is the reference section;
- *Section 6* provides the figures; and,
- *Appendix A* gives relevant legislation.

2 ***METHODS***

2.1 ***Survey Constraints***

Access was denied by landowners for a 1 km section of the route between Horn Lane and the A281 road, although it was included in the animal walkover in December 2010 so some information is available, although limited.

The majority of the watercourse stretches were surveyed successfully. Six watercourse stretches (Stretches 4, 5, 7, 13 and 16a) were not surveyed as they were dry (and therefore unsuitable for Water Vole or Otter). The locations of these stretches are shown in *Figure 2*.

A minor route change occurred subsequent to the completion of the Water Vole and Otter surveys to accommodate the 'Teville Stream Restoration project'. As a result survey areas 4, 5, 6, 7 and 8 are no longer situated in the centre of the 15m cable easement. However, large sections of these watercourses (up to 200m) were included in the surveys and no evidence of either species was found. Therefore it was not necessary to repeat these surveys, although they will be surveyed prior to construction as a precautionary measure.

2.2 ***Survey Method - Otter***

2.2.1 ***Habitat Assessment***

All areas of wetland and adjacent habitat were assessed on their suitability to support Otter (*Lutra lutra*) during the Phase 1 Habitat Survey undertaken in December 2010. The following factors were considered when undertaking the assessment.

- *Water quality.* The main factor in the decline of Otter populations in England is believed to be organochlorine pesticides in the watercourses.
- *Vegetation.* The level of shading and cover on the banks and water-margins may affect the likelihood of Otters using an area.
- *Food sources.* Otters feed on a variety of prey species, in particular however they feed on fish. Fish species depend on a variety of river habitats for different life-stages such as spawning, fry survival and juvenile and adult habitat. Otters require a food-source all year round.

- *Management.* Management of watercourses (dredging, bank clearance, mowing etc.) and levels of disturbance, in particular if cover is not available for Otters to by-pass sources of disturbance, either by swimming under water or travelling overland, are all factors which might modify the habitat.

2.2.2 *Detailed Survey*

Detailed Otter surveys were undertaken between 17th May and 9th September 2011 by Victoria Gilbey, James Mepsted, Will Holden and Andrew Ross of RSK Environment. All are experienced ecologists and members of IEEM. All suitable watercourses crossed by the proposed cable route, which were highlighted in the Phase 1 Habitat Survey as having potential for Otter use, were fully surveyed. This involved a systematic search 100 m up and downstream of the proposed crossing point, recording any field signs encountered. Field signs include spraints (droppings), footprints, slides, paths, feeding evidence, holts (underground resting places) or couches (temporary resting places).

2.3 *Water Vole*

2.3.1 *Habitat Assessment*

All watercourses crossed by the proposed cable route were assessed for their potential to support Water Vole (*Arvicola amphibius*) during the Phase 1 Habitat Survey in December 2010. The following factors were considered when undertaking the assessment.

- *Water quality.* Some pollutants may negatively affect Water Voles. However, they sometimes use places where the water quality is extremely poor.
- *Water-level regime.* Water Voles are susceptible to fluctuating water levels, particularly if there are no refuge areas. Water speed may also be a factor.
- *Channel dimensions.* Water Voles prefer (but are not exclusive to) channels less than 3m wide, with the banks around 45° and slow-flowing water less than 1m deep.
- *Bank material.* Water Voles burrow into the banks, and therefore the bank material will influence how suitable a site is for Water Voles. Engineering such as concrete or metal bank-reinforcements will reduce the suitability of the habitat.
- *Vegetation.* The level of shading and cover on the banks and water-margins may affect the likelihood of Water Vole using an area.

- *Food sources.* Water Voles are mostly vegetarian and often large grass-like plants make up the bulk of their diet. They require a food-source all year round.
- *Predation and Competition.* American Mink (*Mustela vison*) predation is probably the biggest threat to Water Voles. Domestic Cat (*Felis catus*) and Brown Rat (*Rattus norvegicus*) can also affect populations. Terrestrial predators can also predate Water Voles, particularly if water levels are low; enabling predators to enter Water Voles burrows. For example, Stoats (*Mustela erminea*) and Weasels (*Mustela nivalis*).
- *Management.* Management of watercourses (dredging, bank clearance, mowing etc.) and livestock, which can cause poaching and destroy burrows, are all factors which might modify the habitat.

2.3.2 Detailed Survey

Detailed Water Vole surveys were undertaken between 17th May and 9th September 2011 by Victoria Gilbey, James Mepsted, Will Holden, Andrew Ross and Zoe Greatorex. All suitable watercourses crossed by the proposed cable route, which had been identified in the Phase 1 Habitat Survey as suitable for Water Voles, were fully surveyed. This involved a systematic search 100 m up and downstream of the proposed crossing point, recording any fieldsigns encountered. Field signs include feeding evidence, latrines, burrows, footprints, runs and actual sightings. The surveys were carried out when Water Voles would be actively maintaining their territories and so more signs are likely to be present in areas used by Water Vole.

3

RESULTS

Table 1 summarises the details of the targeted Water Vole and Otter surveys. No evidence of either species was found at any of the watercourses surveyed.

Table 1: Results of Water Vole and Otter Surveys

Stretch number	Habitat information	Wildlife information
1	Large, shallow (0.5-1m deep) lowland lake bordered by parkland / gardens. Banks are steep (>45°) and formed of earth. Vegetation is dominated by bushes, reeds, sedges and short grasses. Site disturbance in mostly from lake users.	Evidence of waterfowl.
2	2-5m wide, <0.5m deep ditch bordered by parkland / gardens. Banks are shallowly sloped and formed of earth. Some evidence of hoof-poaching. Vegetation is dominated by reeds, sedges, tall grass and herbs.	-
3a, 3c & 3d	1-2m wide, <0.5m deep ditch bordered by grassland. Banks are shallowly sloped and formed of earth. Some evidence of hoof-poaching. Vegetation is dominated by reeds, sedges and tall grasses.	Evidence of rats at 3c
6	1m wide, <0.5m deep ditch bordered by arable crops. Banks are steeply (>45°) sloped and formed of earth. Vegetation is dominated by reeds, sedges and short grasses.	-
8	1-2m wide, <0.5m deep ditch bordered by grazing stock. Banks are shallowly sloped and formed of earth. Some evidence of hoof-poaching. Vegetation is dominated by reeds and sedges.	-
9	1-2m wide, 0.5-1m deep ditch bordered by grassland. Banks are steeply (>45°) sloped and formed of earth. Vegetation is dominated by reeds, sedges and bank side trees. Site is undisturbed.	Bank vole signs present.
10	1-2m wide, 0.5-1m deep ditch bordered by grassland. Banks are steeply (>45°) sloped and formed of earth. Sections of bank reinforced with wooden panels and unsuitable for Water Vole burrowing. Vegetation is dominated by reeds, sedges and short grasses. Site is undisturbed.	Evidence of rats and waterfowl.
11	20-40m wide, deep, fast flowing river bordered by grassland and arable crops. Banks are shallowly sloped and formed of sand. Vegetation is dominated by short grasses. Site is disturbed by public and dog walkers.	-

Stretch number	Habitat information	Wildlife information
12	1-2m wide, 0.5-1m deep ditch bordered by grassland. Banks are slowly sloped and formed of earth. Vegetation is dominated by reeds, sedges and tall grasses.	Evidence of moorhens, rabbits and bank voles.
14	1m wide, <0.5m deep stream bordered by grassland and arable crops. Banks are steeply (>45°) sloped and formed of earth. Vegetation is dominated by bank side trees and bushes. Site is undisturbed.	-
15	1-2m wide, <0.5m deep stream bordered by grassland, arable crops and mixed broadleaved woodlands. Banks are steeply (>45°) sloped and formed of earth. Vegetation is dominated by bank side trees and bushes. Site is undisturbed.	-
16b	1m wide, <0.5m deep ditch bordered by grasslands. Banks are shallowly sloped. Vegetation is dominated by herbs and grasses.	-
17	2-5m wide, 1-2m deep river bordered by grassland, arable crops and stock grazing. Banks are steeply (>45°) sloped and formed of earth. Some evidence of hoof-poaching. Vegetation is dominated by reeds and sedges. Some evidence of discharge pollution.	Swans present
20b	1m wide, <0.5m deep ditch overgrown with dense bramble scrub, nettles and tall ruderals. Banks are steeply sloped and formed of earth.	Evidence of bank or field voles.
21	2-5m wide, 1-2m deep ditch bordered by grasslands. Banks are steeply (>45°) to vertically sloped and formed of earth. Vegetation is dominated by reeds, sedges, herbs and tall grasses. Site is undisturbed.	Evidence of rats and bank or field voles.
22	1-2m wide, 1-2m wide river bordered by grazing stock. Banks are a combination of flat, steeply (>45°) sloped and vertical sections and formed of earth. Some evidence of hoof-poaching. Vegetation is dominated by reeds, sedges and herbs. Site is undisturbed.	Evidence of rats and bank or field voles.

4 EVALUATION AND CONCLUSIONS

4.1.1 Otter

No evidence of Otter was found anywhere along the proposed cable route.

On the whole, the banks of the watercourses were made of earth and with a number showing signs of poaching by the feet of livestock. The habitat was generally flowing water or ditches and the vegetation dominated by herb, grass and reed species. The bordering land use is generally grassland, arable crops or parkland / gardens. These habitats are suitable but not ideal for Otter.

However, all areas were thoroughly searched and there were no signs of Otter. The survey is sufficient to show that Otters are absent.

4.1.2 Water Voles

No evidence of Water Vole was found. Whilst there were signs of vole activity found at five separate stretches (9, 12, 20b, 21 and 22) including feeding stations, droppings and burrows, these signs were from either Bank Vole or Field Vole rather than Water Voles, and no Water Vole evidence was found.

On the whole, the banks of the watercourses were made of earth so are suitable for burrowing, though there is some hoof-poaching which reduces suitability. The habitat was generally flowing water or ditches and the vegetation dominated by herb, grass and reed species so there is abundant food for voles. Evidence of rats was present on a large number of watercourse stretches, which would discourage Water Voles.

Though the habitat is suitable for Water Voles, no evidence was found indicating that the species is absent.

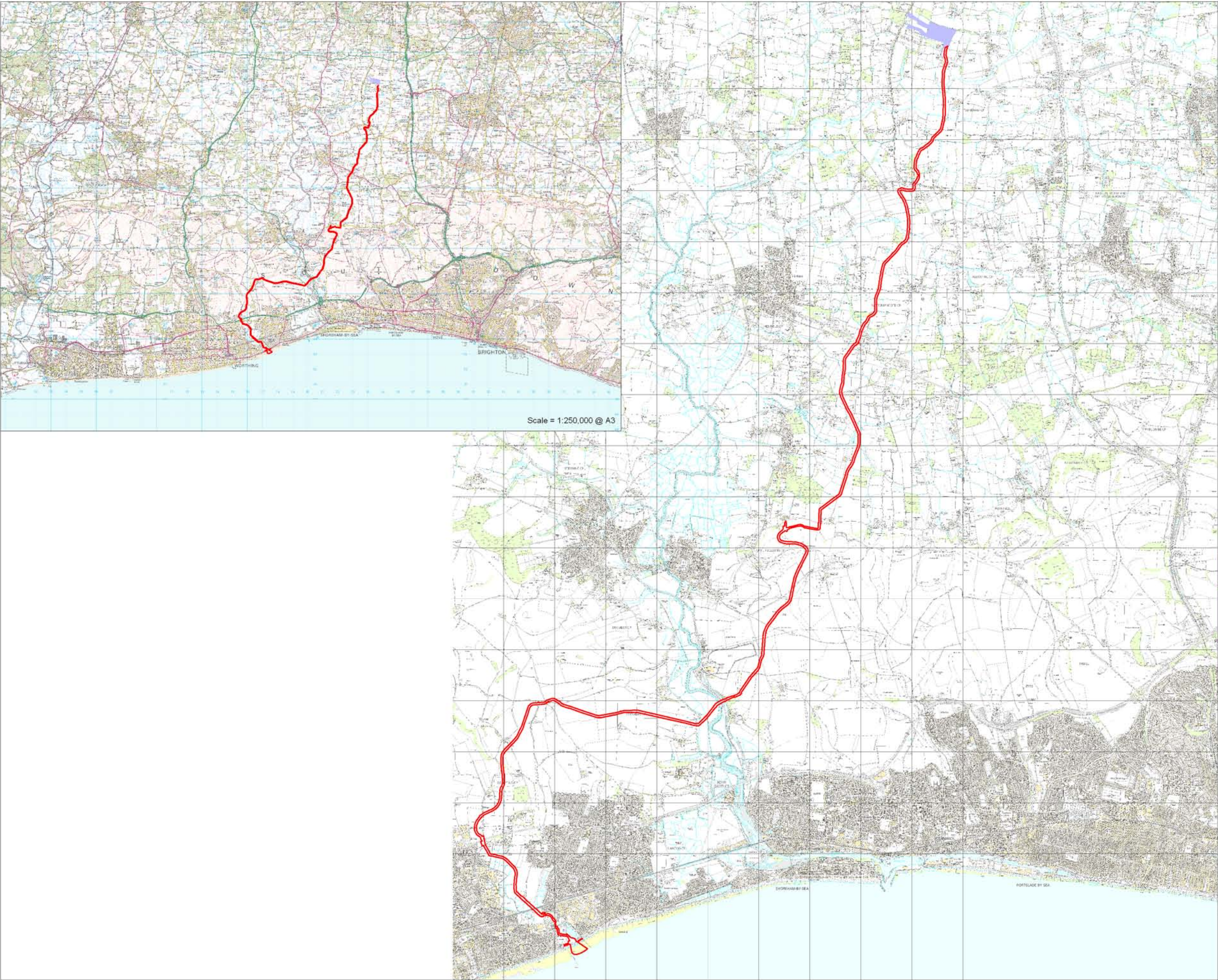
REFERENCES

Strachan, R. and Moorhouse, T. (2006). *Water Vole Conservation Handbook (2nd edition)*. Wildlife Conservation Research Unit, University of Oxford.

FIGURES

Figure 1 – Site location plan

Figure 2 – Survey locations



Legend :

- Development Boundary
- Substation Development Boundary

00	21.11.12	Loc	RG	NH	VG
Rev	Date	Description	Drn	Chk	App

Rampion Wind Farm

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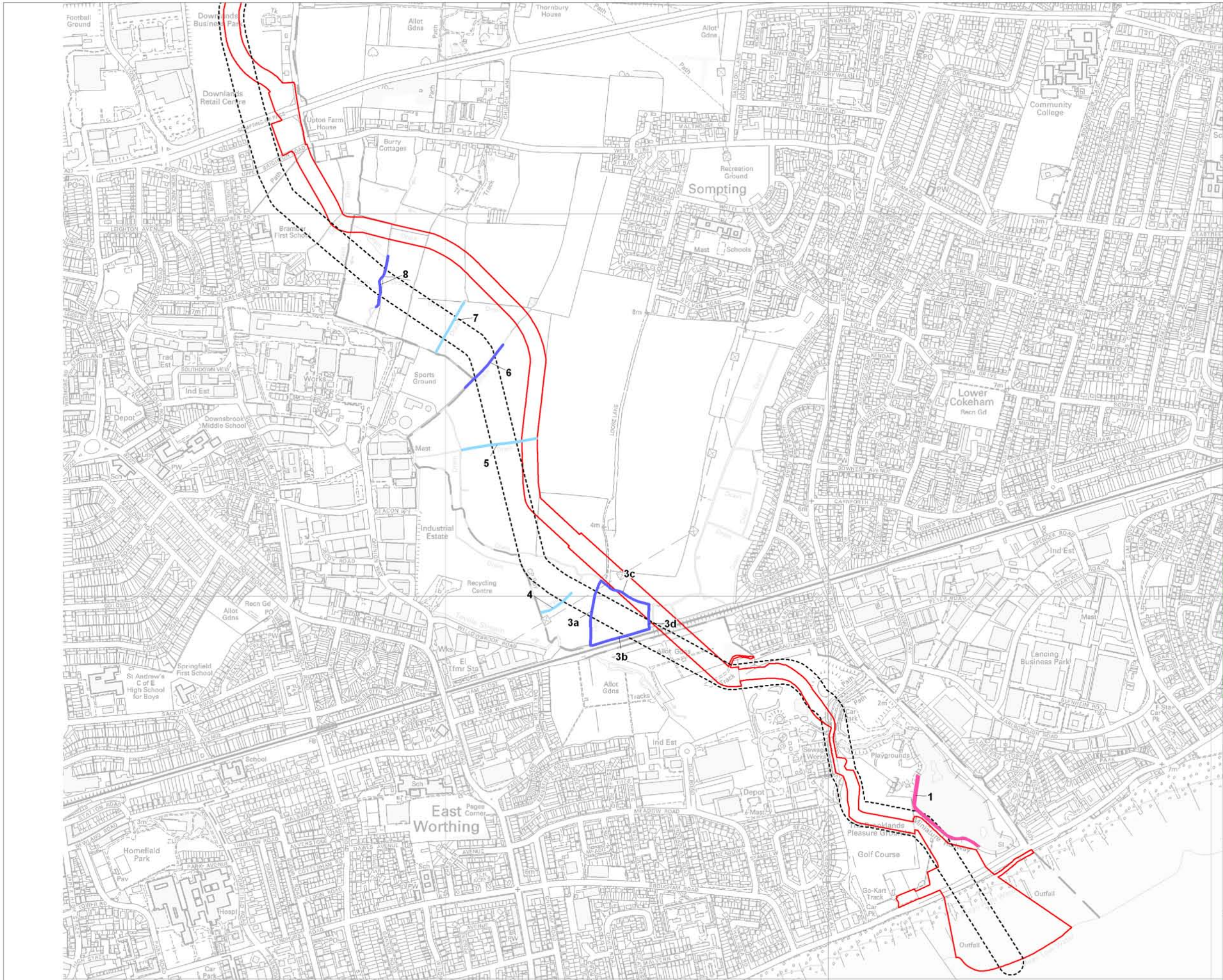
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Figure 1 -
Site Location Plan

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kilometres
Scale = 1:75,000 @ A3

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E
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REV 16



- Legend:
- Ecology survey corridor (65m)
 - Development Boundary
 - Substation Development Boundary
 - No access
 - Dry
 - Water Vole survey area
 - Otter survey area
 - Otter and Water Vole survey area

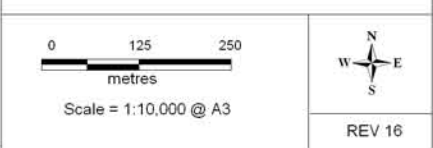


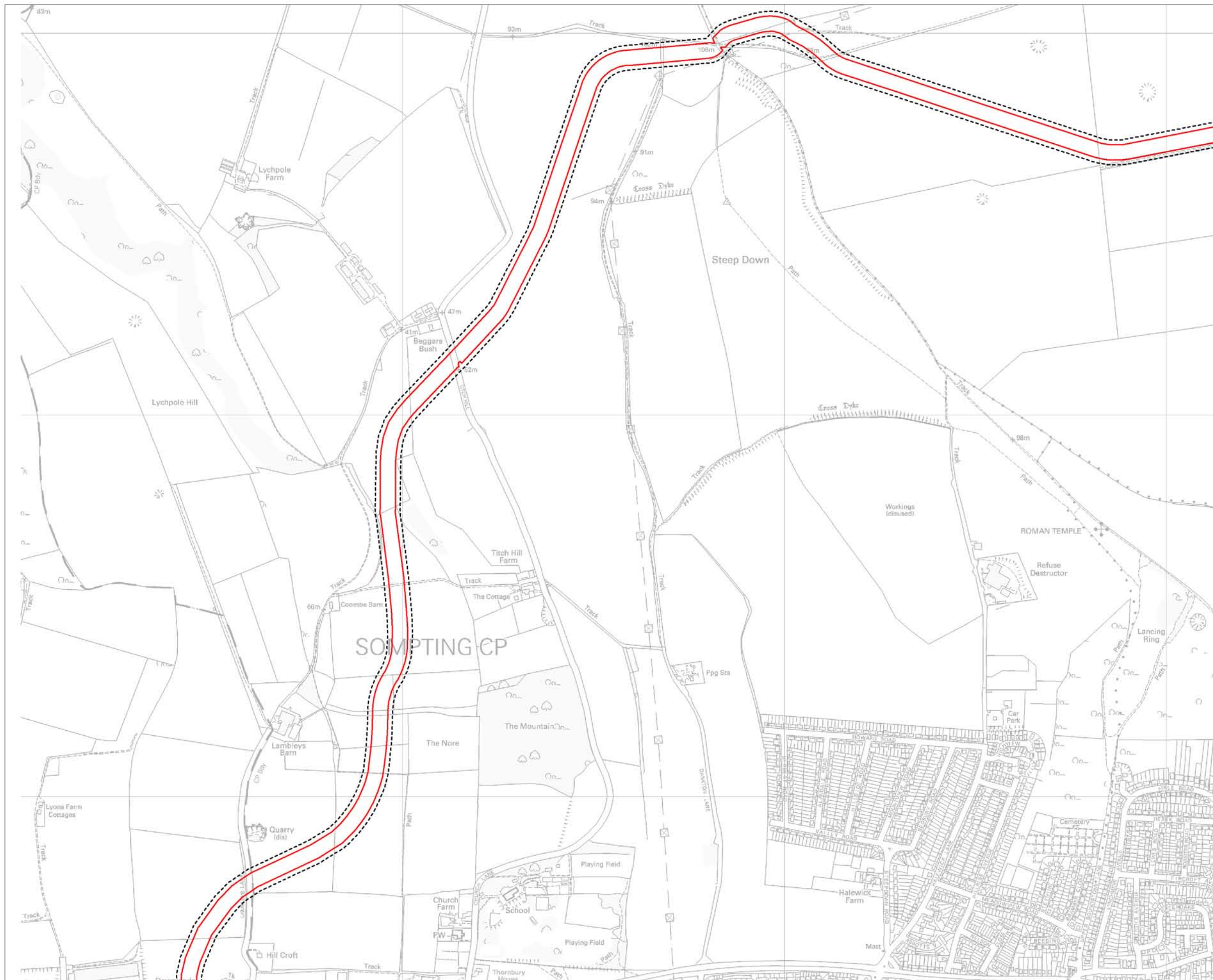
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Rev	Date	Description	Drn	Chk	App

Rampion Wind Farm



Title:
Figure 2 -
Water Vole and Otter Survey
Map 1 of 8





Legend :

- Ecology survey corridor (65m)
- Development Boundary
- Substation Development Boundary
- No access
- Dry
- Water Vole survey area
- Otter survey area
- Otter and Water Vole survey area

Rev **Date** **Description** **Drn** **Chk** **App**

00	21.11.12	P2	RG	NH	VG
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Rampion Wind Farm

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Title :

Figure 2 -
Water Vole and Otter Survey
Map 2 of 8

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metres
Scale = 1:10,000 @ A3

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REV 16



Legend :

- Ecology survey corridor (65m)
- Development Boundary
- Substation Development Boundary
- No access
- Dry
- Water Vole survey area
- Otter survey area
- Otter and Water Vole survey area

Map 3 of 8

Rampion Wind Farm

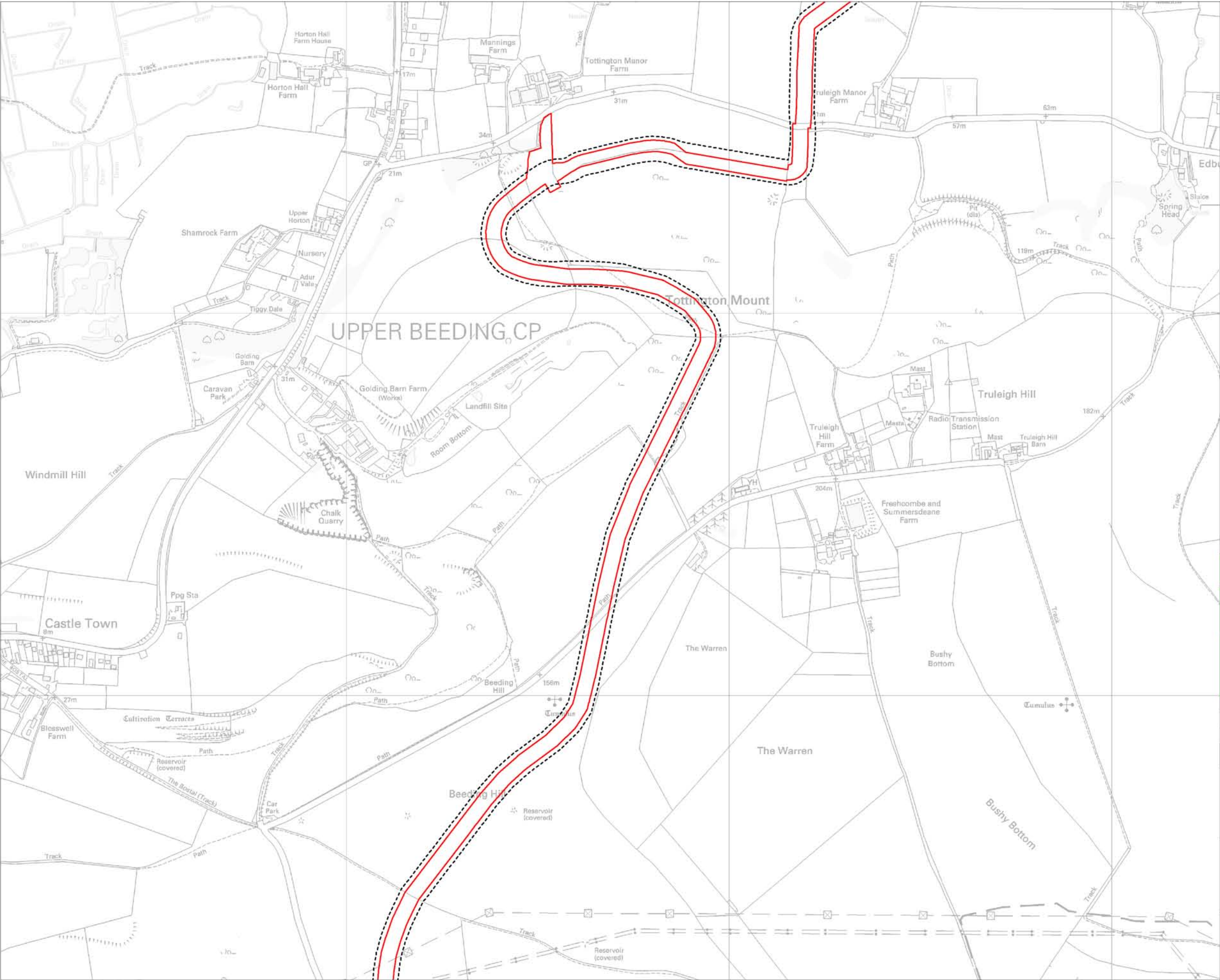
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Figure 2 -
Water Vole and Otter Survey
Map 3 of 8

0 125 250
metres
Scale = 1:10,000 @ A3

REV 16



- Legend:
- Ecology survey corridor (65m)
 - Development Boundary
 - Substation Development Boundary
 - No access
 - Dry
 - Water Vole survey area
 - Otter survey area
 - Otter and Water Vole survey area

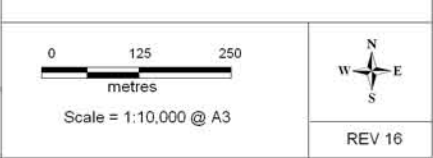


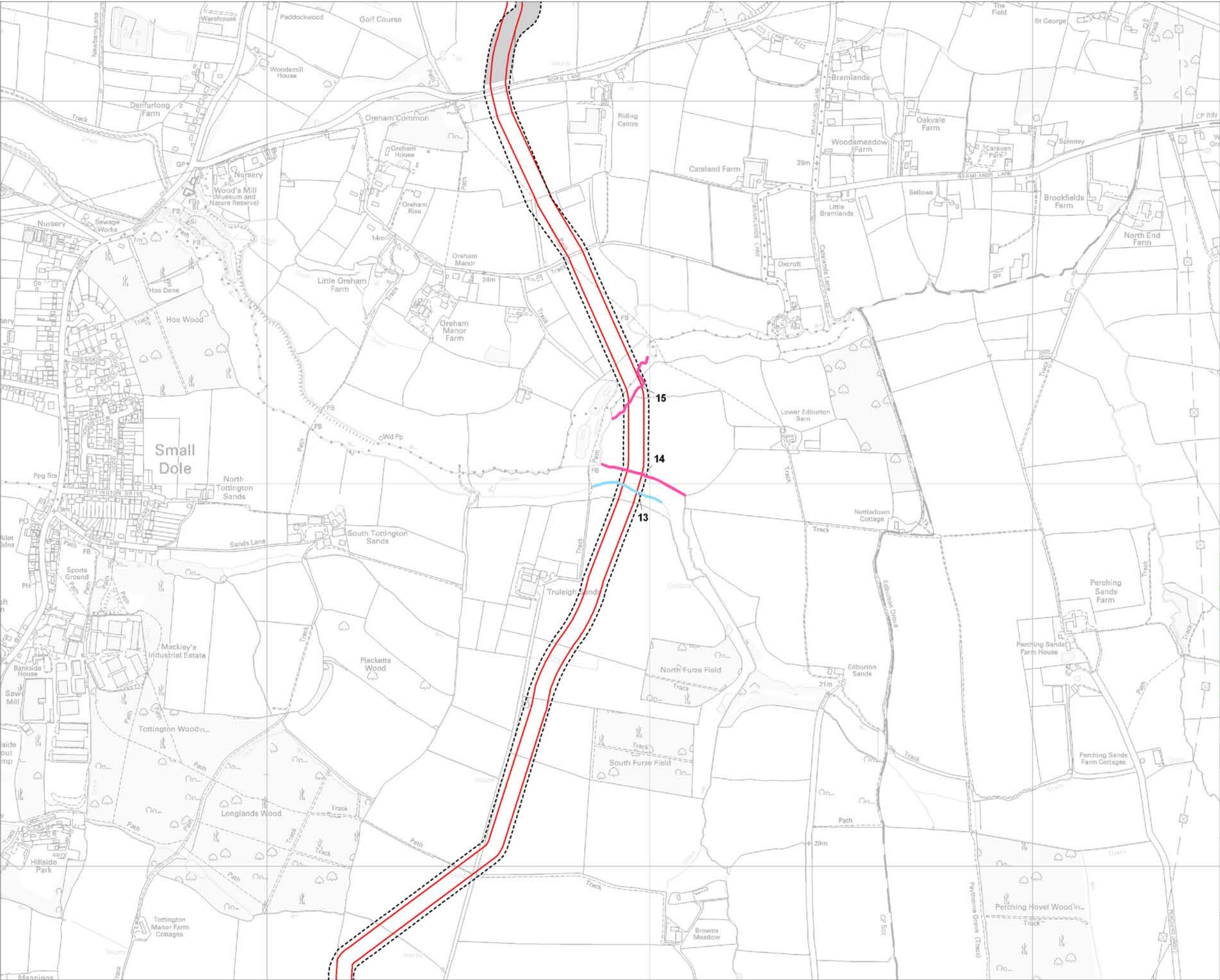
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Rev	Date	Description	Drn	Chk	App

Rampion Wind Farm



Title:
Figure 2 -
Water Vole and Otter Survey
Map 4 of 8





- Legend :**
- Ecology survey corridor (65m)
 - Development Boundary
 - Substation Development Boundary
 - No access
 - Dry
 - Water Vole survey area
 - Otter survey area
 - Otter and Water Vole survey area



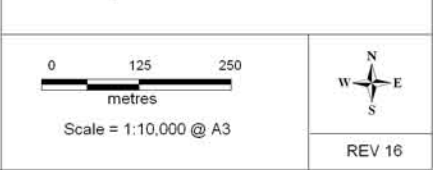
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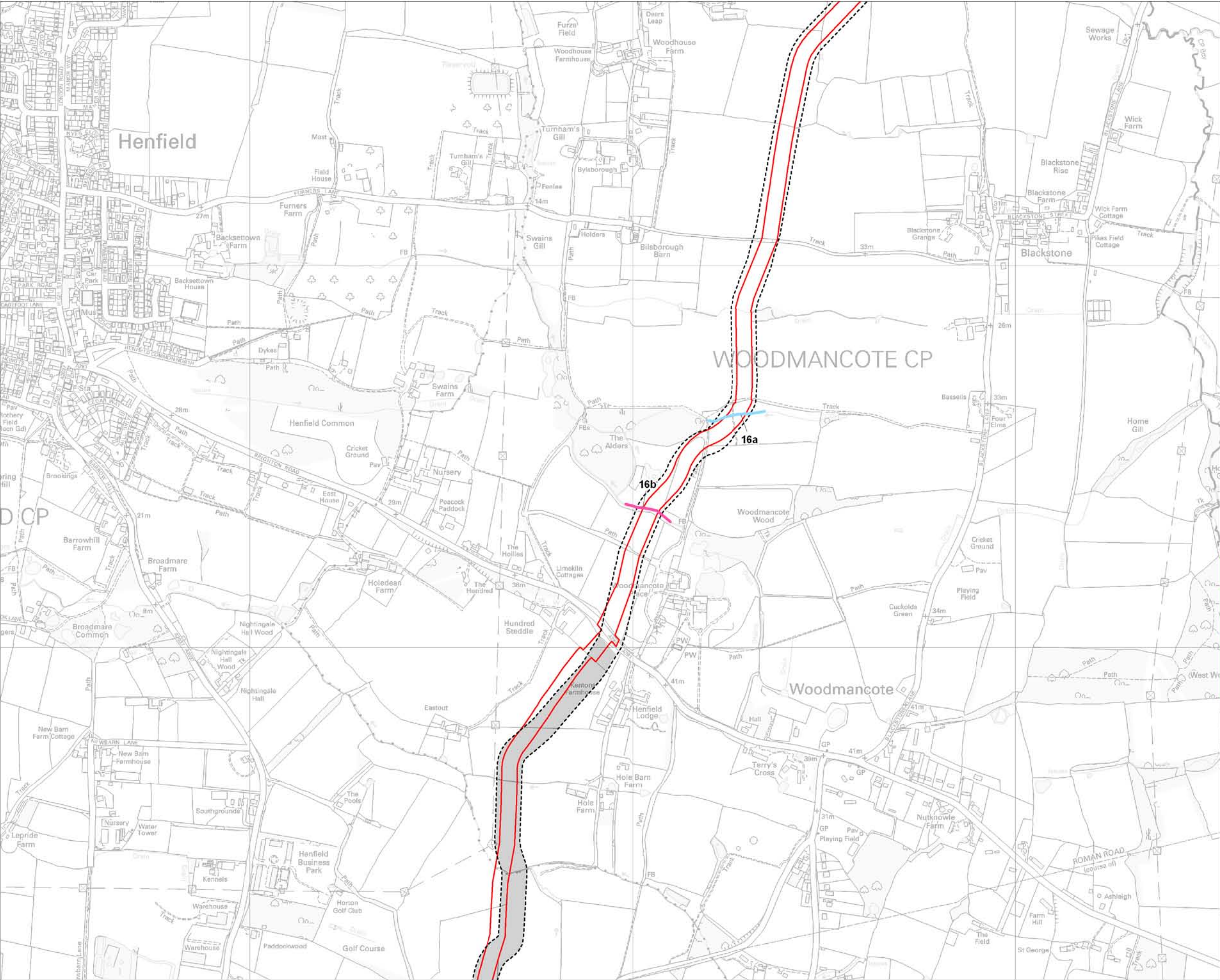
Rampion Wind Farm



Title :

Figure 2 -
Water Vole and Otter Survey
Map 5 of 8





Legend:

- Ecology survey corridor (65m)
- Development Boundary
- Substation Development Boundary
- No access
- Dry
- Water Vole survey area
- Otter survey area
- Otter and Water Vole survey area

00	21.11.12	P2	RG	NH	VG
Rev	Date	Description	Drn	Chk	App

Rampion Wind Farm

RSK e-on

Title:

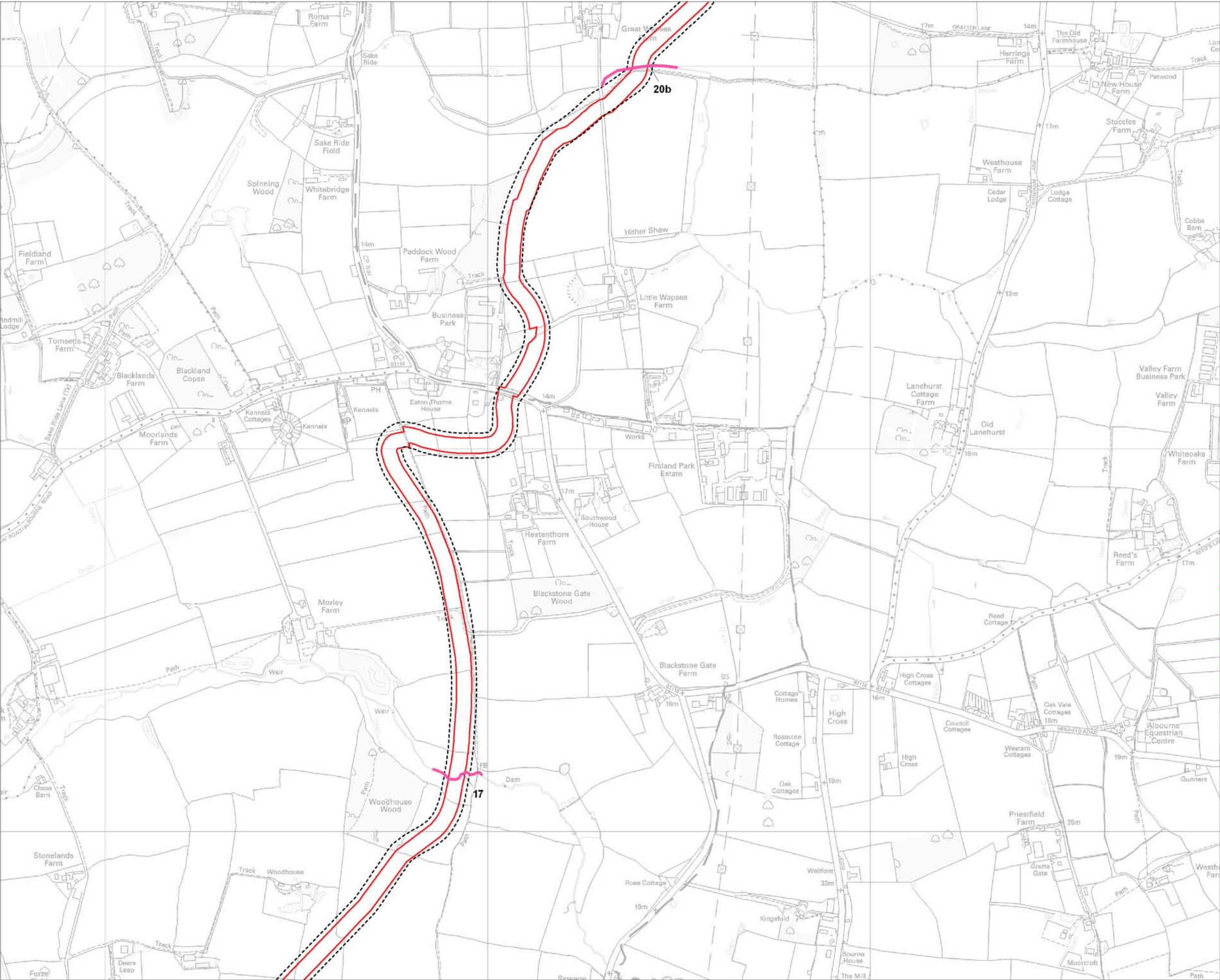
Figure 2 -
Water Vole and Otter Survey
Map 6 of 8

0 125 250
metres

Scale = 1:10,000 @ A3

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REV 16



Legend :

- Ecology survey corridor (65m)
- Development Boundary
- Substation Development Boundary
- No access
- Dry
- Water Vole survey area
- Otter survey area
- Otter and Water Vole survey area

Rev	Date	Description	Drn	Chk	App
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Rampion Wind Farm

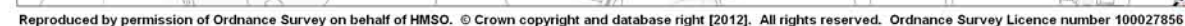
RSK e-on

Title :

Figure 2 -
Water Vole and Otter Survey
Map 7 of 8

0 125 250
metres
Scale = 1:10,000 @ A3

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REV 16



APPENDIX A – LEGISLATION

7.1 Water Vole

Arvicola amphibius (Water Vole) is fully protected under *Section 9* of *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended). Protection was extended by the *Countryside and Rights of Way Act 2000*.

Under this legislation, it is an offence to:

- intentionally kill, injure or take (capture) a Water Vole;
- possess or control a live or dead Water Vole, or any part of a Water Vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection, or to intentionally or recklessly disturb Water Voles while they are using such a place; or
- sell, offer for sale or advertise for live or dead Water Voles.

The Water Vole is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP).

7.2 Otter

Lutra lutra (Otter) is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receives full protection under *Section 9*. This species is also listed as a European Protected Species on *Schedule 2* of the *Conservation (Natural Habitats, etc.) Regulations 1994* which gives it full protection under *Regulation 39*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRow Act).

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The Otter is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under *Section 74* of the CRow Act.

The Otter is also protected under *Schedule 6 of the Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

The European sub-species is also listed as globally threatened on the IUCN/WCMC RDL.