

Technical Appendix

Drummarnock Wind Farm

Technical Appendix 6-4: Protected Species
Survey

Drummarnock Wind Farm Limited

July 2024



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Glossary of Terms

Term	Definition
Baseline Condition	The ecological status of the environment at the time of survey, prior to any works taking place.
Protected Area	A clearly defined geographical space, recognized, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

List of Abbreviations

Abbreviation	Full Term
Ltd	Limited
NGR	National Grid Reference
EIA	Environmental Impact Assessment
LERC	Local Environmental Records Centre
M	Metres
Km	Kilometres
TN	Target Note



1 Introduction

1.1 Terms of Reference

This report presents the findings of a Protected Species survey at a Site at Drummarnock, Stirlingshire. Located at National Grid Reference (NGR) NS 75471 87114, circa 10km southwest of Stirling, in the Fintry, Gargunnock and Touch Hills (as shown in Figure 1-1).

The site is associated with a proposed windfarm consisting of four turbines at up to 180m to tip height along with associated infrastructure and access tracks (the Proposed Development).

The survey was conducted in February 2023 based on the results of an Extended Phase One survey conducted between April 21st and May 5th, 2020. This survey was undertaken as per published guidance (JNCC, 2011). This determined the requirement for further protected species surveys, with a focus on otter *Lutra lutra* and water vole *Arvicola amphibius*.

This report is presented as a Technical Appendix to Chapter 6: Ecology of the Environmental Impact Assessment (EIA) Report. It should be read in conjunction with that Chapter and the following technical appendices:

- Appendix 6-1: Extended Phase one Survey;
- Appendix 6-2: National Vegetation Classification Survey; and
- Appendix 6-3: Bat Surveys.

1.2 Objectives

The objectives of this report are to provide details of:

- A desk study to establish whether the proposal could affect any protected areas and to assess protected species data for the given study area; and
- Protected species surveys to confirm presence within the Proposed Development Site and to determine the potential of these areas to support protected species.

2 Methodology

2.1 Desk Study

The Proposed Development Site is located within an area covered by The Wildlife Information Centre, a local environmental records centre (LERC), which was contacted for the following information. Distances were measured from the approximate nearest point of the Proposed Development Site boundary:

- Protected species records and records of high conservation significance (Scottish Biodiversity List, Scheduled species from the Wildlife and Countryside Act 1981, local Biodiversity Action Plan species) for up to 3km from the Proposed Development; and
- Records of mobile species (bats) for up to 10km.

2.2 Protected Species Survey

All field signs were marked on a map (Figure 6-4-1) and notes were taken regarding findings. The protected species survey was completed over three days, from February 22nd to February 24th 2023.

Target species were considered to be otter *Lutra lutra*, water vole *Arvicola amphibius*, red squirrel *Sciurus vulgaris* and badger *Meles meles*. Bat roost potential within trees and/or buildings was also noted. The Study Area was defined as the Proposed Development Site as access was not available outwith this area.

Survey extents for red squirrel were applied to trees bordering the Proposed Development Site. No suitable tree-blocks were present within were within the Proposed Development Site

2.2.1 Otter

Otter is a European protected species under the Conservation of Habitats and Species Regulations, 2010.

Waterways within the Proposed Development Site and within the 200m buffer were surveyed, where access was available. Survey methods followed standard methodologies (Purseglove, 1995; Chanin, 2003; Bang and Dahlstrøm, 2006; Muir and Morris, 2013). Any field signs observed were recorded and mapped along with standard key parameters, including weather conditions, water levels and habitat suitability.

2.2.2 Water Vole

In Scotland, water voles and their places of shelter or protection are protected under the Wildlife & Countryside Act 1981 (as amended).

Presence/absence level surveys were conducted as described in the third edition of the Water Vole Conservation Handbook (Strachan, 2011). The survey season for water voles is generally between April and September. The water vole survey was carried out in conjunction with the other surveys.

The survey comprised a thorough search along suitable waterways within the zone of influence of the Proposed Development, recording species evidence and habitat features.

2.2.3 Red Squirrel

Red squirrels and their dreys (resting places) receive full protection under Schedules five and six of the Wildlife and Countryside Act 1981 (as amended).

Visual surveys for dreys and dens were carried out, where permitted, within the Study Area which included suitable forestry and a small area of broad-leaved woodland habitat.

2.2.4 Badger

Badgers and their setts are fully protected under the Protection of Badgers Act, 1992.

The badger survey was conducted on the same days as the other protected mammal and habitat surveys and entailed searching for signs indicating presence/absence of badgers (e.g., setts and latrines) as per Harris et. al. (1989).

2.2.5 Bat species

All bat species found in Scotland are classed as European Protected Species. They receive full protection under the Conservation of Habitats and Species Regulations, 2010.

In accordance with NatureScot (SNH, 2019) guidance, static recording devices were deployed at four locations over three visits in April, June and August 2023. The four locations corresponded to the turbine locations at the time of survey. Technical Appendix 6-3 Bat Surveys provides further information on these surveys.

Additionally, a preliminary ecological appraisal was carried out on the same days as the other protected mammal surveys. Following recommended guidance (Collins, J. (ed.), 2016), a walkover survey of the Study Area was conducted and any suitable roost structures and habitats were identified and recorded.

2.3 Limitations

Few limitations were identified as the survey was carried out in good weather and access was fully available within the Proposed Development Site. The period that surveys were conducted was suitable for most protected species.

Early February is a sub-optimal time for carrying out water vole surveys, however, given surveys from 2020 indicated an absence of the species and desk top results returned no records for the area, this is not considered a limitation.

Areas outside of the Proposed Development Site could not be surveyed unless from a public road. Following infrastructure design freeze, all suitable areas of habitat outside the Proposed Development Site were included in the surveys.

3 Baseline

3.1 Desk Study

3.1.1 Species Records

Table A6-4-1 comprises European protected species within 3km of the Proposed Development boundary, and up to 10km for bat species, from the last ten years. Distances are approximate, and each species may be associated with multiple records within the data as provided by the Local Record Centre.

Table A6-4-1: The Wildlife Information Centre Historical Protected Species Records.

Species	Summary of records
Eurasian Otter, <i>Lutra lutra</i>	1 record 2.3km south in 2015
Eurasian Badger, <i>Meles meles</i>	2 records 1.5km north in 2020
Red Squirrel, <i>Sciurus vulgaris</i>	2 records 1.6km north in 2013
Brown long-eared Bat, <i>Plecotus auritus</i>	1 record 8.3km southeast in 2016
Myotis Bat Species, <i>Myotis</i>	2 records 2.9km southeast in 2016
Natterer's Bat, <i>Myotis nattereri</i>	1 record 7km southeast in 2016 1 record 7.7km southeast in 2016 2 records 2.9km southeast in 2016
Daubenton's Bat, <i>Myotis daubentonii</i>	2 records 7km southeast in 2016 1 record 8.3km northeast in 2019 2 records 6.8km southeast in 2016 1 record 7.7km southeast in 2016 1 record 8km southeast in 2016
Common Pipistrelle, <i>Pipistrellus pipistrellus</i>	2 record 7km southeast in 2016 2 records 8.3km northeast in 2015 6 records 8.3km southeast in 2016 2 records 5.2km southeast in 2014 2 records 7.3km southeast in 2016 2 records 8.1km southeast in 2016 2 records 7.2km southeast in 2016 2 records 6.8km southeast in 2016 2 records 7.7km southeast in 2016 2 records 8km southeast in 2016 1 record 5.5km northeast in 2016 3 records 2.9km southeast in 2016
Pipistrelle species, <i>Pipistrellus pipistrellus sensu lato</i>	2 records 7km southeast in 2016 2 record 8.3km southeast in 2016 2 records 7.3km southeast in 2016 1 record 8.1km southeast in 2016 1 record 6.8km southeast in 2016 1 record 7.7km southeast in 2016 1 record 8km southeast in 2016 1 record 5.5km northeast in 2016 2 records 2.9km southeast in 2016

Species	Summary of records
Soprano Pipistrelle, <i>Pipistrellus pygmaeus</i>	6 records 7km southeast in 2016 2 records 8.3km northeast in 2015 6 records 8.3km southeast in 2016 2 records 5.2km southeast in 2014 1 record 9.8km west in 2016 2 records 7.3km southeast in 2016 2 records 8.1km southeast in 2016 2 records 7.2km southeast in 2016 2 records 6.8km southeast in 2016 2 records 7.7km southeast in 2016 1 record 8km southeast in 2016 1 record 5.5km northeast in 2016 2 records 2.9km southeast in 2016

Considering the habitats present from aerial photos, and previous records identified, the capacity for the Proposed Development Site to support protected species appears to be limited. The absence of substantial woodland within the development boundary further limits the potential for the presence of protected species. Reptiles are likely to be present but can be managed through mitigation.

3.2 Protected Species

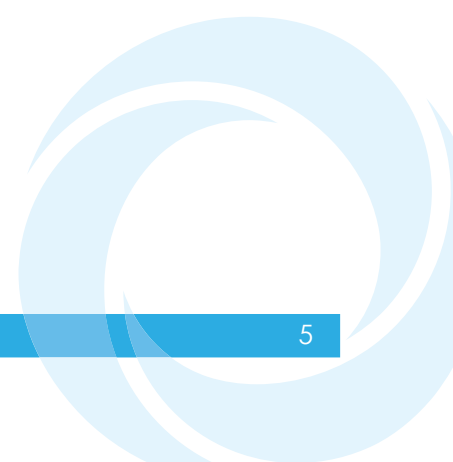
Although no signs of otter or water vole were observed along any of the watercourses during the surveys, suitable habitat does exist within the Proposed Development Site.

Several bat roost potential ash *Fraxinus excelsior* trees were observed in the south of the Survey Area (Figure 6-4-1: TNs 3,4 & 6). Most of these trees had loose bark and some small cracks which provide moderate roosting potential for bats. One large ash tree with a snapped trunk exposing a large cavity has high bat roost potential (TN 7).

Between these trees is a bridge built on gabion blocks (TN 5). The fissures within the gabion blocks have potential to house small numbers of roosting bats. Subsequent bat roost surveys carried out in 2020 and 2021 focused on trees within 30m of infrastructure and this bridge, no roosts were found.

There are high, medium and low potential bat features around the farmyard consisting of trees and damaged buildings. The buildings themselves offer a high (TN8) and low to moderate feature (TN9) due to the buildings being open, enabling many bats to roost within. A tree adjacent to the farmyard has a small crevice classified as low potential for bats (TN17).

No evidence of other non-avian protected species, including pine marten, red squirrel and badger, was observed during the surveys.



4 References

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Appendices

Appendix A. Target Notes

Table A6-4-2: Target Notes relating to Figure 6-4-1.

TN	Description	Easting	Northing	Grid Reference
3	Moderate BRP ash tree	273870	686662	NS7387086662
4	Group of four moderate BRP ash trees	273835	686665	NS7383586665
5	Bridge with fissures within gabion supports, suitable for small numbers of roosting bats	273811	686684	NS7381186684
6	Moderate BRP ash tree	273600	686739	NS7360086739
7	One high BRP ash tree. Main stem snapped in half, large cavity	273635	686726	NS7363586726
8	Assumed high BRP given age and design. Close inspection not possible.	275554	687121	NS7555487121
9	Low/mod BRP based on pitched roof visible from aerials. Close inspection not possible.	275539	687119	NS7553987119
17	Low potential bat features in tree	275408	687171	NS7540887171

Drummarnock Wind Farm

wind2

Figure 6-4-1a
Protected Species - Overview

Key

- Site boundary
 - ▲ Proposed turbine
 - Survey area - 250m site buffer
 - Target Note
- Infrastructure**
- Crane hardstanding
 - Auxiliary crane hardstanding
 - Blade storage area
 - Nacelle storage area
 - Tower storage area
 - Boom assembly area
 - Turning head
 - Borrow pit
 - Substation
 - Construction compound
 - Onsite access track - cut
 - Onsite access track - floating
 - Earthworks - cut
 - Earthworks - fill
 - ⊗ Watercourse crossing

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Meters

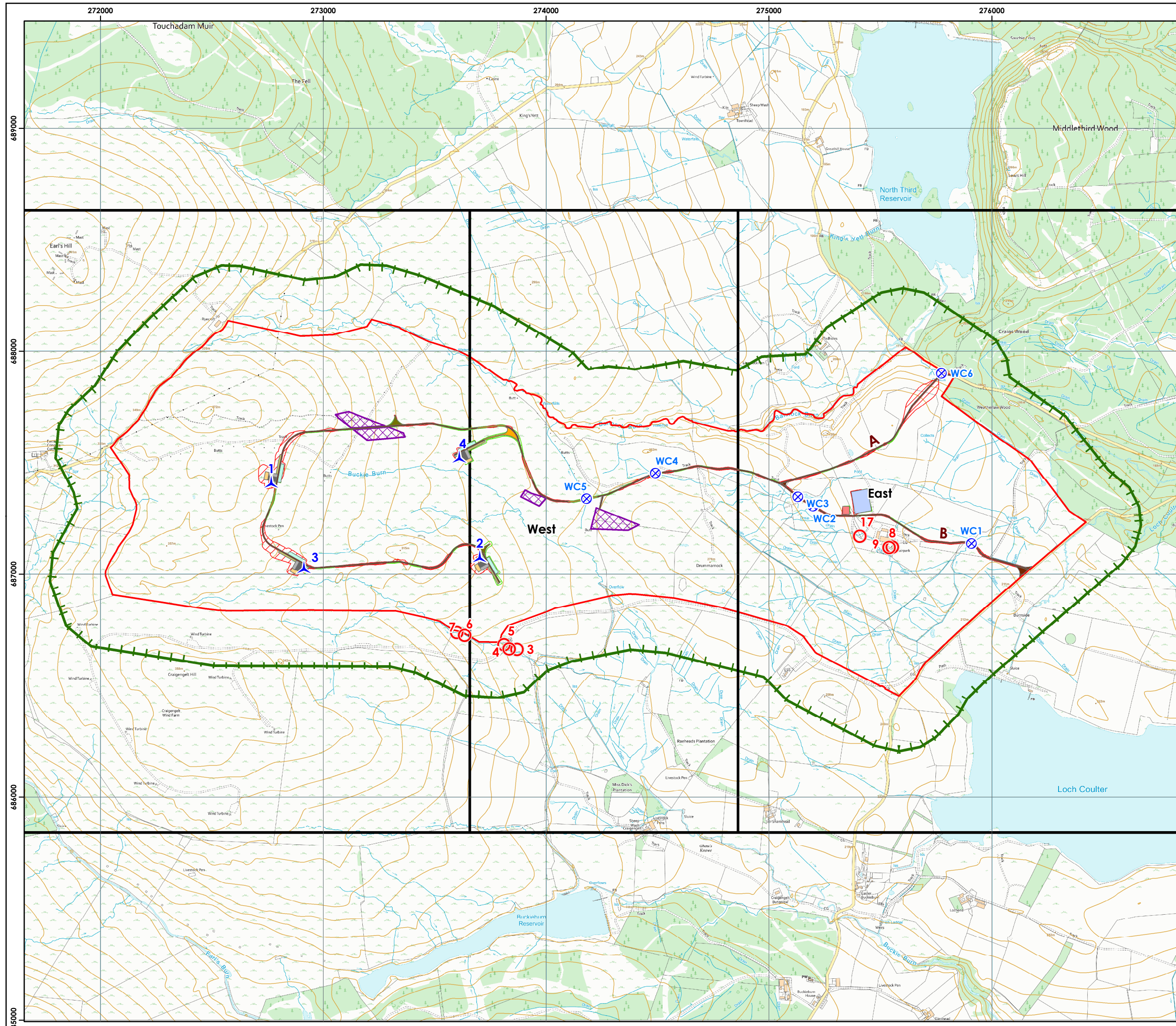


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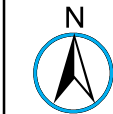
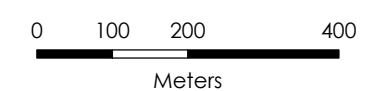
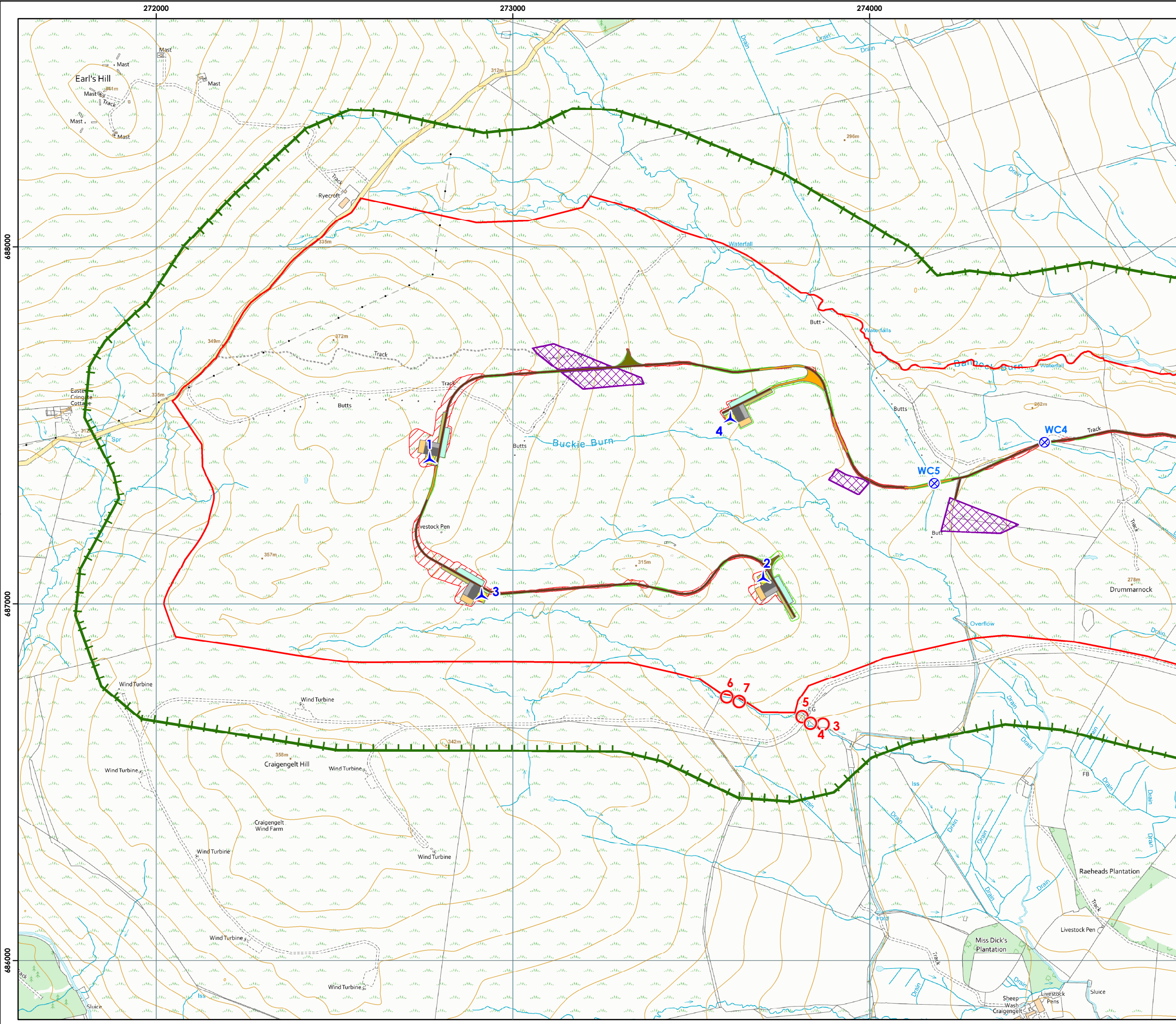
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Figure 6-4-1b
Protected Species - West

Key

- Site boundary
 - ▲ Proposed turbine
 - Survey area - 250m site buffer
 - Target Note
- ### Infrastructure
- Crane hardstanding
 - Auxiliary crane hardstanding
 - Blade storage area
 - Nacelle storage area
 - Tower storage area
 - Boom assembly area
 - Turning head
 - Borrow pit
 - Turbine foundation
 - Onsite access track - cut
 - Onsite access track - floating
 - Earthworks - cut
 - Earthworks - fill
 - ⊗ Watercourse crossing



Scale @ A3:
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Drummarnock Wind Farm

wind2

Figure 6-4-1c
Protected Species - East

Key

- Site boundary
 - ▲ Proposed turbine
 - Survey area - 250m site buffer
 - Target Note
- Infrastructure**
- Crane hardstanding
 - Auxiliary crane hardstanding
 - Blade storage area
 - Nacelle storage area
 - Tower storage area
 - Boom assembly area
 - Turning head
 - Borrow pit
 - Substation
 - Construction compound
 - Turbine foundation
 - Onsite access track - cut
 - Onsite access track - floating
 - Earthworks - cut
 - Earthworks - fill
 - ⊗ Watercourse crossing

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