

# Appendix 12.6

## Protected Vertebrate Update Survey

## Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Methodology</b>	<b>2</b>
2.1	Water Vole	2
2.2	Wood Ant	2
2.3	Roosting Bats	3
2.4	Great Crested Newt	5
2.5	Other Notable Species	5
2.6	Limitations	5
<b>3</b>	<b>Results</b>	<b>7</b>
3.1	Water Vole	7
3.2	Wood Ant	7
3.3	Roosting Bats	7
3.4	Great Crested Newt	11
3.5	Other Notable Species	11
	<b>Appendix A – Water Vole Survey Results</b>	<b>15</b>
	<b>Appendix B – Great Crested Newt HSI Survey Results</b>	<b>18</b>
	<b>Appendix C – Incidental Observations</b>	<b>19</b>

## Tables

Table 2-1:	Water Vole survey meta data	2
Table 2-2:	Wood ant survey metadata	3
Table 2-3:	LUC 2015 Bat Survey Metadata	4
Table 2-4:	CFJV 2016 / 2017 Bat Survey Metadata	4
Table 2-5:	Bat Hibernation Survey metadata	5
Table 3-1:	Results of Activity Surveys for 2015 and 2016	11

## Photographs

Photograph 3-1:	Building 2 looking east	7
Photograph 3-2:	Building 1 looking south	7
Photograph 3-3:	Chimney with BRP feature	8
Photograph 3-4:	Close-up of BRP feature	8
Photograph 3-5:	Dalnaspidal Culvert	9
Photograph 3-6:	Dalnaspidal Culvert Internals	9
Photograph 3-7:	Allt a' Chaorainn culvert	9
Photograph 3-8:	Allt nan Sg oilearan NCN7 culvert	10
Photograph 3-9:	Gaps between mortar in stonework	10

# 1 Introduction

1.1.1 CFJV completed surveys in order to update the ecology baseline for the purpose of identifying potential ecological impacts of the Proposed Scheme (see **Chapter 12**). This comprised species not included in the initial protected vertebrate survey in 2015 or where additional habitat information was needed to inform the assessment. In addition, surveys were included for species that required follow-up surveys where potential habitat features were recorded within the Proposed Scheme (see **Appendix 12.5**).

1.1.2 On this basis, target species for update surveys include:

- water vole
- roosting bats
- wood ant
- habitat suitability index (HSI) for great crested newt (GCN).

## 2 Methodology

### 2.1 Water Vole

2.1.1 Survey methods are detailed in **Appendix 12.5** and survey timings are displayed in **Table 2-1**. Update surveys were carried out in areas of potential habitat within 100m of the Proposed Scheme (see **Appendix 12.5**). The survey was locally extended to include potential habitat in close proximity to known populations. Potential water vole habitats were divided into separate survey areas (e.g. S1, S2, etc.) as shown in **Drawings 12.29** to **12.35**. The dates when water vole update surveys were undertaken are included in **Table 2-1**.

Table 2-1: Water Vole survey meta data

Date	Personnel	Survey	Temperature	Rain	Wind	Cloud Cover
12.09.2016	Scott Mackenzie Grad CIEEM Susan McAuley Grad CIEEM	Water vole, HSI,	18°C	Rain	BF3	8/8
13.09.2016	Scott Mackenzie Grad CIEEM Susan McAuley Grad CIEEM	Water vole, HSI,	14°C	Rain	BF1	8/8
19.09.2016	Scott Mackenzie Grad CIEEM John Thompson MCIEEM	Water vole, HSI,	12°C	Dry	BF1	1/8

### 2.2 Wood Ant

2.2.1 A search for potential habitat features, including nests, was carried out within accessible areas of woodland. In line with current guidance (Hughes & Broome 2007)<sup>1</sup>, the survey included a systematic visual inspection of woodland edges, rides and glades within, and up to 50m, from the Proposed Scheme. Survey metadata are presented in **Table 2-2**.

<sup>1</sup> Hughes, J. and Broome, A. (2007) 'Forests and Wood Ants in Scotland.' *Forestry Commission Information Note (FCIN) 090*. Available from <<http://scotland.forestry.gov.uk/>>.

Table 2-2: Wood ant survey metadata

Date	Personnel	Survey	Temperature	Rain	Wind	Cloud Cover
10.05.2017	Melanie Roxburgh CEnv Andrew Bell MCIEEM April Park Grad CIEEM Jenni Mcleod	Wood ant surveys	10 -15 °C	Dry	BF1	1/8

## 2.3 Roosting Bats

### Preliminary Bat Roost Potential (BRP) Assessment

- 2.3.1 Two detached single-storey vacant buildings are located directly adjacent to the Highland Mainline railway at Dalnaspidal (Grid Ref. 264516, 773246). For the purpose of this assessment, they have been classified as Building 1 and Building 2.
- 2.3.2 A preliminary BRP assessment of these two buildings was carried out to identify and assess features that may support roosting opportunities for bats throughout the year and may therefore require further targeted surveys. Survey methods are detailed in **Appendix 12.5** and survey timings are displayed in **Table 2-3**.

### Bat Roost Activity Survey (Emergence/ Re-entry)

- 2.3.3 Bat activity surveys were carried out for structures within (and up to 50m from) the Proposed Scheme, where features with BRP were identified. In line with the current guidance (Hundt 2012; Collins 2016), a minimum of one emergence (dusk) and one re-entry (dawn) survey was carried out between May and August to determine presence/ absence of roosting bats (see **Table 2-3**).
- 2.3.4 Each survey was completed during favourable weather conditions (e.g. mild, light wind with little or no precipitation). Emergence surveys commenced at least 20 minutes prior to sunset and continued until at least 1.5 hours after sunset. Re-entry surveys commenced at least 1.5 hours before sunrise and continued until sunrise. Surveys carried out in 2016 continued until 15 minutes after sunrise, in accordance with Collins (2016) updated bat survey guidelines.
- 2.3.5 Each structure was surveyed by two ecologists. One surveyor was positioned with a clear line of sight to the BRP features; and a second was positioned at the opposite end of the culvert to record any relevant qualitative data (e.g. species, activity, direction of flight, etc.).
- 2.3.6 Surveyors used hand-held heterodyne and frequency division bat detectors to help identify bat species in the field.
- 2.3.7 All 2015 inspections were undertaken by Juli Titherington (Comery) BA MSc MCIEEM AEECW, LUC Senior Ecologist, who also holds a personal bat roost licence from Scottish Natural Heritage (SNH). Juli was the lead surveyor for all roost activity surveys undertaken in the 2015 season (see

**Table 2-3**); she was supported by Steve Jackson-Matthews CEnv MCIEEM MEECW, Sophie Punteney BSc (Hons) ACIEEM AEECW, and Rosie MacLellan BA (Hons) MSc, all of whom have several years' experience undertaking bat surveys.

2.3.8 Ecologists from CFJV undertook further surveys in 2016 on the three structures. Consultant Ecologist Scott Mackenzie BSc Grad CIEEM (Fairhurst) was the lead surveyor for the 2016 surveys; Scott is a named assistant to an SNH bat roost licence. **Table 2-4** outlines the survey dates and conditions for the CFJV's surveys; and daytime checks to validate continued potential roost presence were undertaken during the July 2016 visits.

Table 2-3: LUC 2015 Bat Survey Metadata

Structure Name and ID	Date and Sunrise / set time	Start time	Finish time	Weather
Dalnaspidal culvert BA3	7 <sup>th</sup> August 2015 s/r 05:27	03:55	05:27	Sufficient visibility; Temp 6.5 – 7.5°C, Cloud cover 50-100%, no rain; light breeze with e-w draft through culvert
	24 <sup>th</sup> August 2015 s/s 20:36	20:00	22:00	Very good visibility; Temp 12-17°C, Cloud Cover 38:50%, no rain, lightest breeze
Allt Ruidh nan Sgiolearan Cycle path culvert BA4	11 <sup>th</sup> August 2015 s/r 05:35	04:00	05:20	Light mist but sufficient visibility; Temp 9 -10°C; cloud cover 63-100%; no rain during survey, but intermittent showers up to midnight prior to survey; lightest breeze with moderate gusts
	25 <sup>th</sup> August 2015 s/s 20:33	20:10	22:00	Good visibility; Temp 11°C; Cloud cover 38-50%; no rain; lightest breeze
Allt a Chaorainn Culvert BA5	13 <sup>th</sup> August 2015 s/r 05:39	04:00	05:40	Sufficient visibility; Temp 7.5 - 8°C; Cloud cover 50-75%; no rain; light breeze
	24 <sup>th</sup> August 2015 s/s 20:36	20:00	22:00	Good visibility; Temp 12-17°C; Cloud cover 50%; no rain; light wind

Table 2-4: CFJV 2016 / 2017 Bat Survey Metadata

Structure Name and ID	Date and Sunrise / set time	Start time	Finish time	Weather
Dalnaspidal culvert BA3	18 <sup>th</sup> July 2016 s/s 21:54	21:39	23:24	Good visibility; Temp 13°C, Cloud cover 75-100%, no rain; lightest breeze
Allt Ruidh nan Sgiolearan Cycle path culvert BA4	19 <sup>th</sup> July 2016 s/r 04:52	03:22	05:07	Good visibility; Temp 13°C, Cloud cover 100%, no rain, no wind
Allt a Chaorainn Culvert BA5	29 <sup>th</sup> July 2016 s/r 05:10	03:36	05:25	Excellent visibility; Temp 9-12°C; Cloud cover 50-75%; no rain; lightest breeze
Dalnaspidal wooden structure	10 <sup>th</sup> May 2017 s/s 21:18	20:45	22:40	Good visibility; Temp 10°C; Cloud cover 60-65%, no wind, no rain

### Hibernation Roost Assessment

2.3.9 Each structure identified in **Table 2-3** was assessed for hibernation potential following consideration during preliminary BRP surveys identified in **Appendix 12.5**. Following the identification of some features which may support hibernation potential and in line with current professional guidance (Hundt 2012; Collins 2016), a ground-level visual inspection of BRP features during the winter months was undertaken to record incidental sightings of activity (e.g. droppings or urine staining). Dates and survey conditions for hibernation inspections are presented in **Table 2-5**.

Table 2-5: Bat Hibernation Survey metadata

Date	Personnel	Survey	Temperature	Rain	Wind	Cloud Cover
19.01.2017	Scott Mackenzie Grad CIEEM John Thompson MCIEEM	Bat hibernation	9°C	Dry	BF3	6/8
22.02.2017	Scott Mackenzie Grad CIEEM John Thompson MCIEEM	Bat hibernation	8 °C	Dry	BF1	8/8

## 2.4 Great Crested Newt

2.4.1 In line with current guidance (Oldham *et al.* 2000; NARRS 2016), a habitat suitability index (HSI) assessment was carried out to identify the likely presence of breeding GCN in waterbodies within 250m of the Proposed Scheme. Waterbodies were primarily identified from Ordnance Survey (OS) maps; as well as ponds encountered during fieldwork. Waterbodies located beyond major barriers such as watercourses, roads and railway lines were not assessed as these features present barriers to GCN dispersal. HSI assessment was undertaken concurrently with water vole surveys and details of metadata can be found in **Table 2-1**.

## 2.5 Other Notable Species

2.5.1 Whilst not all protected and notable species included within the scope of the wider ecological assessment were included as target species for ecology update surveys, incidental sightings of other notable species encountered during surveys was recorded.

## 2.6 Limitations

2.6.1 Given the transient nature of wildlife, absence of field signs does not always mean absence of a particular species. Therefore, surveys have been carried out in line with current professional guidance using suitably qualified ecologists to determine the presence or likely presence of species.

2.6.2 Every effort was taken to plan surveys during favourable conditions, as prescribed in relevant survey guidance, it must be noted that weather in high altitude/ latitude environments (e.g. the Scottish Highlands) change rapidly. Therefore, whilst surveys avoided adverse weather (e.g. high winds and persistent rain), cooler air temperatures and occasional light rain are representative of local climatic conditions and not considered to be a constraint to the validity of survey findings.

2.6.3 Given that the suitability of water vole habitat can change throughout the season, water vole survey guidance has been updated (Dean *et al.* 2016) and advocates one early visit (between mid-April to June inclusive) and one late visit (between July and September inclusive). Given that the initial water vole survey was completed prior to the publication of this guidance, and that high-altitude habitats are likely to change significantly throughout the season, a single visit was carried out for consistency and following the methods outlined in **Appendix 12.5**.

2.6.4 Rainfall events may erode or wash away field signs, particularly in riverine habitats where river levels may subsequently be higher than normal levels. Water levels in the upper catchment of the River Spey were higher than normal levels on 13.09.2016. Water vole activity was recorded

in target areas of potential habitat on this date; therefore, rainfall events are not considered to a constraint to the validity of survey findings.

- 2.6.5 Due to the height of the Dalnaspidal culvert and the Allt a' Chaorainn culverts, where some crevices are present at joints throughout the arch of the structures, as well as the traditional stone structures of the Allt Ruidh nan Sgoliearan NCN7 culvert (see **Photograph 3-9**) where deep cavities in mortar are present, not all areas could be searched for hibernating bats. However, searches for signs of the species around the entrances to these areas as well as searches in areas that are accessible meant that an assessment of the value of the culverts could be made for hibernating bats.

## 3 Results

### 3.1 Water Vole

- 3.1.1 Evidence of water vole activity was recorded in riparian areas of accessible watercourses within 18 No. survey areas, evidence of water vole presence included latrines, feeding stations, and/ or burrows (see **Appendix A**). This includes areas previously identified as having potential habitat with no signs, as well as presence in newly identified areas.

### 3.2 Wood Ant

- 3.2.1 No wood ant nests were recorded in woodland areas. Potential woodland habitats comprise a mono-culture of thicket-stage coniferous species; however, these stands are relatively small in scale and isolated from extensive woodland areas in the wider landscape. Therefore, wood ant are considered to be absent from the Proposed Scheme.

### 3.3 Roosting Bats

#### *Preliminary BRP Assessment: Dalnaspidal (Building 1)*

- 3.3.1 Building 1 is constructed using a simple timber-frame with the external wall comprising wood panelling. It has fallen into disrepair as the felt-roof has partially collapsed to expose the internal structure where dense vegetation has become established, presumably through natural regeneration. On this basis, a full internal inspection was not carried out on health and safety grounds; however, the building was visually assessed as far as reasonably practicable from windows, doors and surrounding high ground.
- 3.3.2 During the survey, no bat roost potential (BRP) features were noted on any external aspects to the building. Given that the roof has partially collapsed, it is considered that the roof space will be frequently exposed to the elements (e.g. wind and rain). In addition, it is considered that vegetation growing inside the property will likely obstruct access to internal parts of the building. Therefore, building 1 has negligible potential to support summer or winter roosting bats.



Photograph 3-1: Building 2 looking east



Photograph 3-2: Building 1 looking south

*Preliminary BRP Assessment: Dalnaspidal (Building 2)*

- 3.3.3 Building 2 is also constructed using a simple timber-frame with the external wall comprising wood panelling. It has fallen into disrepair and a neighbouring windblown tree has collapsed over the felt-roof. A brick-built rendered chimney is present on the south-facing gable-end. Flooring within the building has partially collapsed and broken glass was scattered below windows and doors. On this basis, a full internal inspection was not carried out on health and safety grounds; however, the building was visually assessed as far as reasonably practicable from windows, doors and surrounding high ground.
- 3.3.4 During the survey, a single BRP feature was noted on the chimney where the pebble-dash rendering has come away from the brickwork above the apex of the roof. The feature did not appear to lead to any internal cavity and on a precautionary basis was characterised as providing low summer roosting potential.



Photograph 3-3: Chimney with BRP feature



Photograph 3-4: Close-up of BRP feature

- 3.3.5 An emergence survey was carried out at dusk to detect any bats emerging from the BRP feature. No bats were seen emerging from this feature or any other parts of the building. During the survey, bat activity in the locality was found to be low with individual bat passes, assumed to be coming from buildings and woodland towards Keepers Cottage. At the end of the survey, the BRP feature was assessed using high-power torch where it could be determined that the feature did not lead to any internal cavity, nor could it support more than a single bat. On this basis, the BRP feature was considered to be unsuitable for roosting bats and no further surveys were carried out.

*Hibernation Roost Assessment: Dalnaspidal Culvert*

- 3.3.6 The Dalnaspidal culvert is constructed with large sectioned concrete structures, connected with expansion joints. The Dalnaspidal culvert connects to a traditional stone built structure that supports traffic to Dalnaspidal and the NCN7.
- 3.3.7 The traditional stone bridge connected to the Dalnaspidal culvert is well sealed and does not support any features suitable for any hibernating bats (see **Photograph 3-5**).
- 3.3.8 The concrete culvert structures have expansion gaps that could support roosting crevice dwelling bats (See **Photograph 3-6**). No bats or signs of bats were found within any part of the structure during this visit undertaken in the winter period.



Photograph 3-5: Dalnaspidal Culvert



Photograph 3-6: Dalnaspidal Culvert Internals

#### *Hibernation Roost Assessment: Allt a' Chaorainn Culvert*

- 3.3.9 The Allt a' Chaorainn culvert is of a similar specification to the Dalnaspidal culvert, with large sectioned concrete structures connected by expansion joints.
- 3.3.10 Expansion joints can provide BRP for crevice dwelling bats; as rubber seals can crack over time and may lead to larger internal cavities behind the expansion joint (See **Photograph 3-7**). No bats or signs of bats were found in any part of the structure during this survey undertaken during the winter period. The absence of any indication of hibernation are consistent with the very low value given in **Appendix 12.5**.



Photograph 3-7: Allt a' Chaorainn culvert

#### *Hibernation Roost Assessment: Allt nan Sigolieren NCN7 Culvert*

- 3.3.11 Within the Allt nan Sigolieren NCN7 culvert, the majority of the structure is well sealed. However, at the western extent of the culvert there are gaps in the mortar between stonework that leads to cavities in the structure that could support roosting bats (see **Photograph 3-8** and **Photograph 3-9**).
- 3.3.12 No bats or signs of bats were found in any part of the structure during this inspection undertaken during the winter period, despite good access being possible within this low structure to the cavities which were present.



Photograph 3-8: Allt nan Sg oilearan NCN7 culvert



Photograph 3-9: Gaps between mortar in stonework

### Summary

- 3.3.13 No hibernating bats were recorded and there is a very low risk of bats being present within the assessed structures. It is therefore considered that hibernating bats are unlikely to be present within the Proposed Scheme.
- 3.3.14 However, as some features are present that could support hibernating bats, there remains a very low risk of bats being present in low numbers. Therefore, survey and protection methods are outlined in the Outline Species Protection Plan, **Appendix 12.12**.

### 2015/2016 Bat Surveys

- 3.3.15 No bats were observed either exiting or entering a roost in the target structures. Small numbers of common and soprano pipistrelle bats were recorded in the surrounding area (see **Table 3-1**); however, these bats were detected out with their expected timings for emergence/ re-entry which suggests their roosts are located beyond the Proposed Scheme.
- 3.3.16 Activity levels were considered to be low, perhaps due to the high altitude/ latitude environment, land management, limited roosting opportunities and lack of important linear features (e.g. extensive woodland). Therefore, it is considered that road side areas are not important supporting habitat to the local bat population.

Table 3-1: Results of Activity Surveys for 2015 and 2016

Location ID and Name	Date	Number of Passes, Species, Activity	Evidence of Roost Present?
Dalnaspidal culvert BA3	25 <sup>th</sup> August 2015 Dusk	0	No
	7 <sup>th</sup> August 2015 Dawn	0	No
	18 <sup>th</sup> July 2016 Dusk	0	No
Allt Ruidh nan Sg oilearan Cycle path culvert BA4	22 <sup>nd</sup> August 2015 Dusk	1 Soprano pipistrelle – commuting northwards along the cycle path. First bat heard at 21:34.	No
	11 <sup>th</sup> August 2015 Dawn	0	No
	19 <sup>th</sup> July 2015 Dawn	3 Soprano pipistrelles – commuting along the southern side cycle path/ culvert. 2 soprano pipistrelles commuting eastwards Last bat heard at 04:10.	No
Allt a Chaorainn Culvert BA5	24 <sup>h</sup> August 2015 Dusk	0	No
	13 <sup>th</sup> August 2015 Dawn	0	No
	21 <sup>st</sup> July 2016 Dawn	0	No

### 3.4 Great Crested Newt

- 3.4.1 The HSI concluded that waterbodies are ‘poor’ or ‘below average’ in terms of the likely presence of breeding GCN (see **Appendix B** to this report and **Drawings 12.44 - 12.46**). In addition, a small pond (pond within a woodland identified by LUC east of the Proposed Scheme at ch. 3,900) was also recorded as being of ‘poor’ suitability for GCN. On this basis, breeding GCN are assumed to be absent from habitats within the Proposed Scheme.

### 3.5 Other Notable Species

- 3.5.1 Incidental sightings of notable species are presented in **Appendix C** to this report.
- 3.5.2 Otter activity was generally recorded in areas previously known to support otter. Of note was a dead otter found next to the northbound A9 carriageway in proximity to layby 85 near ch. 8,600, a short distance north of the Allt Coire Chuirn which highlights that otter may be particularly sensitive the road widening at this location. The results found two new resting places on the Allt a’ Chaorainn with sprainting activity recorded. A requirement for mammal crossing provision at these two watercourses has been identified previously and verified by these update surveys.
- 3.5.3 A potential pine marten print was recorded at ch. 6,850; although it was not of sufficient quality to be verified in the field from prints belonging to other mustelid species.



## Appendix A – Water Vole Survey Results

Table A-1: Water Vole Survey Results

Area Reference	Area Classification	Chainage and Location	Latrines	Burrows	Runs	Feeding Remains	Other
S1	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 2,050 – 2,600 West side	Multiple latrines throughout area	Multiple burrows with feeding remains within, associated lawns and droppings	Well used runs	Present	Sighting
S2	Confirmed water vole presence in newly identified area	Ch. 3,000 West side	Present on watercourse west of cycle path. Potential latrine in <i>Juncus</i> east of cycle path	-	-	Potential <i>Juncus</i> east of cycle path	-
S3	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 2,900 – 3,200 West side	Latrines throughout	Burrows present throughout	-	Present throughout	-
S4	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 3,250 West side	Latrine present	Burrows present	Well used runs	-	-
S5	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 3,350 West side	One latrine present in ditch near S4	One burrow found with no immediate signs	-	-	-
S6	Confirmed water vole presence in newly identified area	Ch. – 3,350 West side	Latrine present	Burrows present	-	-	Dead water vole
S7	Confirmed water vole presence in newly identified area	Ch. – 6,350 West side	Multiple latrines	Burrows in <i>Sphagnum</i> tussocks	Well used runs	-	-
S8	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 3,800 – 3,950 West side	Multiple latrines	Burrows present	Well used runs	Feeding remains present	Runs and burrows present between cycle path and A9 embankment
S9	Confirmed water vole presence in newly identified area	Ch. 3,950 East side	Latrine present	Multiple burrows present	Runs present	Feeding remains present	Within layby watercourse

Area Reference	Area Classification	Chainage and Location	Latrines	Burrows	Runs	Feeding Remains	Other
S10	Confirmed water vole presence in newly identified area	Ch. 4050 East side	Two latrines recorded	Many burrows recorded	Runs present	-	Within layby watercourse
S11	Confirmed water vole presence in newly identified area	Ch. 4000 West side	Latrine present	Burrows present in <i>Sphagnum</i> tussocks	Runs present	-	In small ditch
S12	Confirmed water vole presence in newly identified area	Ch. 4050 West side	Droppings present	Potential above ground nests recorded	Runs present	-	In bog habitats, away from running water
S13	Confirmed water vole presence in newly identified area	Ch. 4,250 – 4,350 West side	Latrines present	No burrows noted but potential ground nests present	Runs present that extend into dry areas	-	Two small ditches approximately 100 m apart Bank / field vole signs
S14	Confirmed water vole presence in newly identified area	Ch. 4,450 West side	Latrines present	Potential ground nests present	Well used runs present	-	-
S15	Confirmed water vole presence in newly identified area	Ch. 6,950 – 7,150 West side and east side	Multiple latrines present	Multiple burrows present	-	Feeding remains present	Activity is on either side of A9
S16	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 7,100 – 7,200 West side	Single latrine and single dropping present	Burrows present	-	-	Reduced activity Bank / field vole signs
S17	Potential habitat	Ch. 7,200 – 7,250 West side	-	Potential burrows present	-	-	-
S18	Confirmed water vole presence in newly identified area	Ch. 7,900 - 8,000 West side	Latrine in grassland	Multiple burrows	Runs present	Feeding remains present	Low activity
S19	Confirmed water vole presence in area previously identified as having potential habitat with no signs	Ch. 9739 West side	Multiple latrines	Multiple burrows	Well used runs present	Feeding remains present	This identified area overlaps with Project 8, north of the proposed Scheme

## Appendix B – Great Crested Newt HSI Survey Results

*Table B-1: Great Crested Newt HSI Survey Results*

Factor	Pond 1 - ch. 2,700	Pond 2 – ch.3,900	Pond 3 - ch. 6,850	Pond 4 - ch. 6,850	Pond 5 - ch. 6,900	Pond 6 - ch. 7,000	Pond 7 – ch. 7,450	Pond 8 - North of ch. 9,741	Pond 9 - North of ch. 9,741
<b>S1 - Location</b>	Zone C	Surveyed as part of the protected vertebrate appraisal in 2015 by LUC	Zone C	Zone C					
<b>S2 – Pond Area (m<sup>2</sup>)</b>	15		625	30	150	18	70	20	300
<b>S3 – Pond Drying</b>	Sometimes		Rarely	Never	Never	Never	Dries Annually	Never	Never
<b>S4 – Water Quality</b>	Moderate		Good	Good	Good	Good	Good	Good	Good
<b>S5 – Shading</b>	0%		0%	10%	0%	0%	40%	0%	0%
<b>S6 – Fowl presence</b>	Absent		Minor	Absent	Absent	Absent	Minor	Absent	Minor
<b>S7 – Fish presence</b>	Absent		Absent	Possible	Absent	Absent	Absent	Possible	Possible
<b>S8 – Ponds within 1km</b>	0		3	0	3	3	0	1	1
<b>S9 – Terrestrial Habitat</b>	Good		Good	Moderate	Good	Moderate	Good	Moderate	Moderate
<b>S10 – Macrophyte coverage</b>	10%		80%	60%	<5%	60%	10%	5%	50%
<b>Habitat Suitability Index</b>	<b>Poor</b>	<b>Poor</b>	<b>Below Average</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>	<b>Poor</b>

## Appendix C – Incidental Observations

Table C-1: Incidental Observations

Project	Species	Chainage and Location	Observation	Details
P07	Otter	Ch. 2,900 West side	Spraint and couch	Along unnamed burn west of the Highland Mainline railway that flows into the Allt Dubhaig where railway sleepers over the burn forms a culvert like structure
P07	Otter	Ch. 3,000 Eastside	Two couches	Couches are present and form a hover with sprainting within. Couches are located on Allt a' Chaorainn; 70m and 90m east of the current carriageway (NN 6334 7555, NN 6332 7553)
P07	Mustelid	Ch. 6,850 East side	Prints	Paired prints present that are directional away from the A9 heading east to ponds at this location, potential pine martin or mink
P07	Otter	Ch. 7,200 West side	Spraint	Under cycle path culvert
P07	Otter	Ch. 8,400	Spraint	Under crossing of Allt Coire Chuim
P07	Otter	Ch. 8,700	Dead otter	Dead otter from road traffic collision at layby 85, northbound of A9 carriageway