nationalgrid

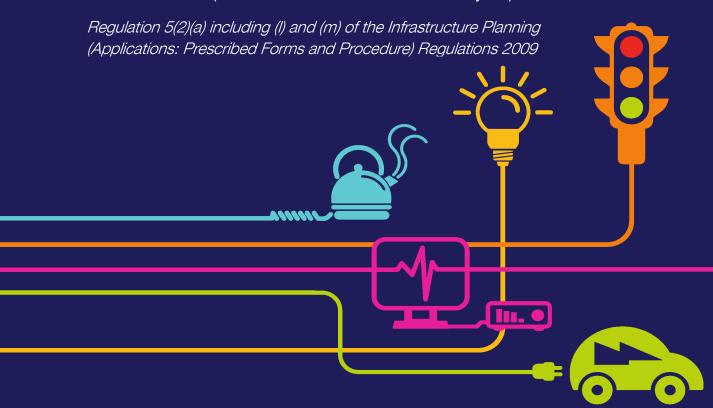
5.9.2.11

Bat Activity Report

(Confidential Information Removed)

Chapter 9 – Appendix 11

National Grid (North Wales Connection Project)



nationalgrid

North Wales Connection Project Volume 5

Document 5.9.2.11 Appendix 9.11 Bat Activity Report

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Final September 2018

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Document Control				
Document I	Document Properties			
Organisatio	on	AECOM	AECOM	
Author		Anna Davies		
Approved b	у	Nicola Lewis		
Title		Appendix 9.11 Bat Activity Report		
Document Reference		Document 5.9.2.11		
Version His	Version History			
Date	Date Version Status Description/Changes		Description/Changes	
September 2018	Rev A	Final	Final for submission	

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1 Introduction

1.1 INTRODUCTION

Description of the Proposed Development

- 1.1.1 The Proposed Development would provide a new 400 kilovolt (kV) connection between the existing substations at Wylfa and Pentir and includes the following principal components:
 - extention to the existing substation at Wylfa;
 - sections of new 400 kV overhead line between Wylfa Substation and Braint Tunnel Head House (THH) and Cable Sealing End Compound (CSEC) on Anglesey including modifications to parts of the existing 400 kV overhead line between Wylfa and Pentir;
 - Braint THH and CSEC on Anglesey;
 - tunnel between Braint and Tŷ Fodol THHs;
 - Tŷ Fodol THH and CSEC in Gwynedd;
 - new section of 400 kV overhead line between Tŷ Fodol THH and CSEC and Pentir Substation;
 - extension to the existing substation at Pentir; and
 - temporary construction compounds, access tracks, construction working areas, localised widening of the public highway and third party works that are required to construct the infrastructure listed above.
- 1.1.2 The Proposed Development has been split into six sections (A F), see Figure 1.
- 1.1.3 A full description of the Proposed Development is provided in Chapter 3, Description of the Proposed Development (**Document 5.3**) and Chapter 4, Construction, Operation, Maintenance and Decommissioning of the Proposed Development (**Document 5.4**).

Introduction to the Report

- 1.1.4 This report identifies where bats have been recorded within and up to a distance of 2 km from the Order Limits through a desk-based assessment and in suitable habitat present within 50 m from the Order Limits through field surveys carried out during 2016 and 2017.
- 1.1.5 This report also identifies relevant legislation and planning policy relating to bats which are outlined in section 2.

Objectives

- 1.1.6 The objectives of the bat activity surveys and report are to:
 - review existing ecological data to identify any records for foraging and commuting bat species within and up to 2 km from the Order Limits referred to as the study area in this report (in addition to this, a search for statutory sites for nature conservation designated for bats within 10 km of the Order Limits was also undertaken);
 - provide baseline results about the presence of bats following bat activity transect surveys and use of static bat detectors within the Order Limits; the transect locations are referred to as survey areas in this report;
 - evaluate the status of bat species within the survey areas;
 - use the above information to inform the Ecological Impact Assessment (EcIA) set out in Chapter 9, Ecology and Nature Conservation (Document 5.9) to determine whether bats could be affected by the Proposed Development; and
 - inform the Biodiversity Mitigation Strategy (**Document 7.7**) for the Proposed Development.

2 Legislation and Planning Policy

2.1 LEGISLATION

2.1.1 Several different acts of legislation and regulations refer to the protection of wildlife. Legislation relevant to bats is outlined below.

The Conservation of Habitats and Species Regulations 2017

- 2.1.2 The Conservation of Habitats and Species Regulations 2017 (referred to as the 'Habitats Regulations') consolidates all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law and came into force on 30 October 1994.
- 2.1.3 The Habitats Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European sites.
- 2.1.4 In summary the Habitats Regulations protect against:
 - deliberate capture, injury or killing;
 - deliberate disturbance, where this is likely to impair the species ability to survive, breed, reproduce, rear young, hibernate or migrate, or significantly affect the local distribution or abundance of the species;
 - deliberate destruction of eggs (where applicable); and
 - damage or destruction of a breeding or resting place.
- 2.1.5 It is also an offence to be in possession or control, transport, sell or exchange any live or dead (or part of an) wild animal listed on Schedule 2.
- 2.1.6 All British bat species are listed on Schedule 2 making them European protected species, protected under the Habitats Regulations.

The Countryside and Rights of Way Act, 2000

- 2.1.7 The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.
- 2.1.8 The Act places a duty on Government Departments and the Welsh Government to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.
- 2.1.9 Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981 (as amended), strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', include an offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and enable heavier penalties on conviction of wildlife offences.

Wildlife and Countryside Act 1981 (as amended)

- 2.1.10 All species of bat are fully protected under the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to:
 - intentionally or recklessly kill, injure or capture a bat;
 - intentionally or recklessly disturb a bat when it is occupying a roost;
 - intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
 - deliberately disturb bats, in particular any disturbance which is likely to

 (i) impair their ability to survive, breed, reproduce or to rear or nurture
 their young, hibernate or migrate; or (ii) to affect significantly the local
 distribution or abundance of the species to which they belong.

Environment (Wales) Act 2016

2.1.11 Section 6 of the Environment (Wales) Act 2016 places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty (Ref 1).

- 2.1.12 To assist in complying with this duty, public authorities must have regard to relevant evidence provided in the State of Natural Resources Report and any relevant area statement for an area in which the authority exercises functions, as well as having regard to the list of living organisms and habitats published under Section 7 of the Act (which replaces the section 42 list for Wales provided in the NERC Act 2006) (Ref 1).
- 2.1.13 Barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed under Section 7 of the Act. Section 7 is a list of species of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. This list is currently under review by the Welsh Government in consultation with National Resources Wales (NRW).

2.2 PLANNING POLICY

National Policy

- 2.2.1 Government planning policy guidance throughout the UK requires local planning authorities to take account of the conservation of protected species when determining planning or development consent applications. This makes the presence of a protected species a material consideration when assessing a development proposal. In the case of a European Protected Species, such as all UK bat species, planning policy emphasises the strict statutory provisions to which a planning authority must have due regard.
- 2.2.2 In Wales this is implemented through Planning Policy Wales Edition 9, November 2016, supplemented by a series of Technical Advice Notes (TANs) (Ref 2) which sets out the land use planning policies of the Welsh Government. Consultation is currently being held on the draft Planning Policy Wales Edition 10 which was issued in February 2018; the consultation period ends in May 2018.
- 2.2.3 Chapter 5 of PPW (9) sets out the Welsh Government's objectives for the natural heritage of Wales which includes the safeguarding of protected species. It states that 'the presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat'. It also states that 'an ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the planning decision'.

2.2.4 Further information on the detail of Planning Policy Wales is provided in Chapter 9, Ecology and Nature Conservation (**Document 5.9**).

Local Policy

- 2.2.5 There are a number of local planning policies set out in the Anglesey and Gwynedd Joint Local Development Plan 2017 (Ref 3) that relate to ecology and nature conservation which in combination with other planning policies will guide local authority expectations in relation to the Proposed Development:
 - Strategic Policy PS 19 relates to conserving and enhancing the natural environment;
 - Policy AMG 4 relates to coastal protection;
 - Policy AMG 5 relates to the protection and enhancement of local biodiversity; and
 - Policy AMG 6 relates to protecting sites of regional or local significance.

Biodiversity Policy

- 2.2.6 As a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK Biodiversity Action Plan (BAP) is now focussed at a country-level rather than a UK-level. The UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK list of priority species and habitats, however, remains an important reference source and has been used to help draw up statutory lists of priorities in England, Scotland, Wales and Northern Ireland. In Wales the current lists are those under Section 7 of the Environment (Wales) Act 2016 which includes several British bat species as priority species requiring conservation.
- 2.2.7 The national strategy for biodiversity is delivered at local level via Local Biodiversity Action Plans (LBAPs). Species and habitats of local conservation concern or value are included in the LBAP and an action plan is created for each species and certain habitat types.
- 2.2.8 The LBAPs relevant to the study area for the Proposed Development are the Anglesey LBAP published by Isle of Anglesey County Council (IACC) and the Natur Gwynedd LBAP for Gwynedd developed by a partnership of organisations and individuals. Lesser horseshoe bat is included in the Natur Gwynedd LBAP. Noctule, pipistrelle and lesser horseshoe bat are included within the Anglesey LBAP, with brown long-eared bat listed as a Species of

Conservation Concern which should benefit through the Anglesey LBAP Broadleaved Woodland Habitat Action Plan (HAP).

2.2.9 The Wales Biodiversity Partnership (WBP) brings together key members from the public, private and voluntary sectors to promote and monitor biodiversity and ecosystem action in Wales. WBP provides a leadership role and an expert steer on priorities for action on biodiversity and ecosystems in Wales. The WBP Steering Group has now formally disbanded and the biodiversity action work programme taken on by the Wales Biodiversity Strategy Board (WBSB) and the WBP working groups

3 Methodology

3.1 DESK STUDY

- 3.1.1 A desk study was carried out to identify existing information concerning the presence of bats within the study area.
- 3.1.2 Protected species record data (including bat records) were requested from Cofnod, the local environmental record centre, in February 2018; this provided an update to data obtained in May 2015 and November 2016.
- 3.1.3 As bat populations may fluctuate as a result of natural and human-made changes, only records dated since 2007 were considered in the baseline; older activity records were considered to offer limited value in determining current presence and distribution.
- 3.1.4 A search was conducted on the magic.gov.uk and Natural Resources Wales (NRW) websites for statutory sites for nature conservation designated for bats within 10 km of the Order Limits.
- 3.1.5 A combination of sources including: Phase 1 Habitat surveys; Ordnance Survey (OS) Mastermap 1:25000; the Multi-Agency Geographic Information for the Countryside (MAGIC) website (http://magic.defra.gov.uk/), NRW website and aerial photography, were used to identify potentially suitable habitat to include in the bat activity surveys.
- 3.1.6 The proposed Wylfa Newydd Power Station and the surrounding area have been subject to bat activity survey work between 2012 and 2014 (Ref 4). The reports prepared for this survey work have been reviewed and relevant information has been summarised within the results section.

3.2 FIELD SURVEY

3.2.1 Bat surveys in 2016 and 2017 were undertaken in general accordance with current best practice guidance for bat survey (Ref 5).

Bat Activity Transects

3.2.2 The number of bat activity transect surveys required to achieve a robust survey effort was assessed in relation to habitat suitability and the nature of the Proposed Development.

- 3.2.3 There are a variety of habitats present within the Order Limits which vary in suitability for bats. The majority of habitats within the northern sections (Sections A to B) of the Order Limits are of negligible or low value to bats comprising of open pasture (sheep grazing) fields with defunct/low hedgerows with low numbers or no trees present. Further south there are woodland blocks, a higher density of trees and the hedgerows are more substantial offering more cover/protection for foraging and commuting bats, however the majority of these habitats within this area lie within the tunnel crossing Order Limits only and therefore will not be affected. More substantial areas of these habitats present in the south lie in the wider area of the Order Limits. Overall, the habitats present within the Order Limits are largely of negligible or low suitability for bats.
- 3.2.4 Eleven transect routes were identified within the Order Limits, based on areas thought to be of most value to bats i.e. woodland, network of higher density of hedgerows, watercourses, other linear features such as former railway lines. The location of the 11 transects are shown on Figure 2.
- 3.2.5 Consideration was also given to areas where it is likely that there would be permanent loss of woodland/tree/hedgerow habitat (i.e. habitats which are considered to be of value to commuting and foraging bats) within the Order Limits.
- 3.2.6 As the habitats varied in suitability for bats, the number of survey visits for each transect also varied.
- 3.2.7 Where possible and in general accordance with current best practice survey guidelines (Ref 5), a minimum of one survey visit was undertaken in each transect location per season in spring (April/May), summer (June/July/August) and autumn (September/October). Table 3.1 provides a summary of the number of surveys per transect and the dates the surveys were undertaken.

Table 3.1: Activity Transect Summary		
Transect Number	Transect Dates	Dusk or Pre-Dawn
1	Transect surveys not undertaken in 2016/2017 (existing data used for the assessment)	
	1 June 2016	Dusk
2	21 July 2016	Pre-Dawn
	31 August 2016	Dusk

Table 3.1: A	Activity Transect Summary	
Transect Number	Transect Dates	Dusk or Pre-Dawn
	27 September 2016	Pre-Dawn
	11 October 2016	Dusk
	1 June 2017	Pre-Dawn
	23 May 2016	Dusk
	23 July 2016	Pre-Dawn
3	19 September 2016	Dusk
	31 May 2017	Dusk
	24 May 2016	Dusk
	21 July 2016	Pre-Dawn
	24 August 2016	Dusk
4	22 September 2016	Pre-Dawn
	12 October 2016	Dusk
	28 June 2017	Pre-Dawn
	23 May 2016	Dusk
	19 July 2016	Pre-Dawn
_	22 August 2016	Dusk
5	7 September 2016	Dusk
	10 October 2016	Dusk
	19 June 2017	Dusk
	24 May 2016	Dusk
	26 July 2016	Pre-Dawn
	25 August 2016	Dusk
6	29 September 2016	Pre-Dawn
	18 October 2016	Dusk
	10 April 2017	Dusk
	30 May 2017	Dusk
7	26 May 2016	Dusk

Table 3.1: Activity Transect Summary		
Transect Number	Transect Dates	Dusk or Pre-Dawn
	19 July 2016	Dusk
	21 September 2016	Pre-Dawn
	11 April 2017	Dusk
	25 May 2016	Dusk
	23 August 2016	Dusk
	30 August 2016	Dusk
	5 September 2016	Dusk
8	27 September 2016	Dusk
	11 October 2016	Dusk
	17 October 2016	Dusk
	1 June 2017	Dusk
	20 June 2017	Dawn
	31 May 2016	Dusk
	27 July 2016	Dusk
	2 August 2016	Dusk
	21 September 2016	Dusk
	29 September 2016	Dusk
9	10 October 2016	Dusk
	20 October 2016	Dusk
	8 June 2017	Dusk
	12 June 2017	Dusk
	27 June 2017	Dusk
	3 July 2017	Dusk
	26 July 2016	Dusk
10	1 August 2016	Dusk
10	20 September 2016	Dusk
	28 September 2016	Dusk

Table 3.1: Activity Transect Summary		
Transect Number	Transect Dates	Dusk or Pre-Dawn
	10 October 2016	Dusk
	19 October 2016	Dusk
	6 June 2017	Dusk
	13 June 2017	Dusk
	28 June 2017	Dusk
	4 July 2017	Dusk
	8 June 2017	Dusk
11	5 July 2017	Dusk
	18 July 2017	Dusk
	3 August 2017	Dusk

- 3.2.8 The direction of each transect route was alternated and a mixture of dusk and pre-dawn transects were undertaken, this is with the exception of Transects 8, 9 10 and 11 whereby the methods had to be modified due to health and safety concerns; this is further explained in section 3.3 assumptions and limitations.
- 3.2.9 Each activity survey involved two surveyors walking the pre-determined transect route which included a series of 'listening points' spaced out at periodic intervals along the transect. At each 'listening point', the surveyors remained stationary for three to five minutes and bat activity was noted as well as bat flight direction. Any additional activity encountered whilst walking between spot counts was also noted.
- 3.2.10 Surveyors carried bat detectors (these included: Batbox Duets, Echo Meter EM3 and Batlogger M) to help determine the species present. The dusk transect activity surveys commenced approximately 15 minutes before sunset and continued for two to three hours. The dawn surveys commenced two hours before sunrise until sunrise (or later if bats were still active).
- 3.2.11 The time, location, number, species (where possible) and direction of flight were recorded for each bat pass (discrete burst of echolocation heard, or bat activity observed) encountered during the surveys. The echolocation calls detected were recorded to digital MP3 recording device (Edirol R-

09HR) or on the Batlogger M to allow further analysis where required in BatSound or BatExplorer software.

Static Bat Detectors

- 3.2.12 Song Meter SM2 BAT+ (SM2) detectors and Anabat Express detectors (both types of automated static bat echolocation detector programmed to record bat echolocation calls) were deployed at several points along each transect, the locations of the devices are shown on Figures 3 to 12. Automated detectors (hereafter referred to as 'static detectors') do not record the number of bats present or the direction of movement, however they do provide a useful baseline of bat activity over an extended period of time that cannot reasonably be recorded during transect surveys. The detectors were programmed to start recording approximately 30 minutes before sunset and stop recording 30 minutes after dawn.
- 3.2.13 Bat calls were analysed using AnalookW (Version 3.8s) to determine the number of bat passes (this is defined as a discrete burst of bat echolocation) and the bat species recorded during each period of monitoring.
- 3.2.14 Table 3.2 below provides information as to when the static bat detectors were deployed in each transect and the deployment duration.

Table 3.2: Static Detector Summary	
Transect Number	Deployment Dates
1	Static detectors not deployed at Transect 1 in 2016/2017 (existing data used for the assessment)
	2 to 7 June 2016
	21 to 27 July 2016 (static failed, no data)
2 (one static	31 August 2016 to 6 September 2016
detector)	27 September to 5 October 2016
	31 May to 4 June 2017
	23 to 31 May 2016
	21 to 26 July 2016
3 (one static detector)	21 to 27 September 2016
	31 May to 4 June 2017
	24 to 29 May 2016

Table 3.2: Static Detector Summary		
Transect Number	Deployment Dates	
	20 to 26 July 2016	
	24 to 31 August 2016	
4 (one static	20 to 27 September 2016	
detector)	12 to 17 October 2016	
	22 to 28 June 2017	
	23 to 31 May 2016	
	19 to 24 July 2016	
	22 to 29 August 2016	
F (one	7 to 14 September 2016	
5 (one static	12 to 17 October 2016	
detector)	31 May to 6 June 2017	
	25 to 31 May 2016	
	26 July to 31 July 2016 (static failed, no data)	
6 (one static	25 August to 1 September 2016	
detector)	29 September to 4 October 2016 (static failed, no data)	
	18 to 24 October 2016	
	10 to 16 April 2017	
	23 to 31 May 2016	
	19 July 2016 to 7 August 2016	
7 (one static	21 to 26 September 2016	
detector)	11 to 14 April 2017	
	23 May to 1 June 2016	
	23 to 29 August 2016	
	30 August to 8 September 2016	
8 (one-two static	27 September to 7 October 2016	
detectors)	11 to 21 October 2016	
	1 June to 6 June 2017	

Table 3.2: Static Detector Summary	
Transect Number	Deployment Dates
	19 to 27 June 2017
	27 July to 10 August 2016 (static at location B failed, no data)
	21 September to 4 October 2016
9 (two	11 to 20 October 2016
static detectors)	6 to 15 June 2017
	27 June to 3 July 2017
	21 to 31 July 2016
	20 September 2016 to 4 October 2016 (static at location C failed)
10 (two	11 to 20 October 2016
static detectors)	6 to 15 June 2017
detectors	28 June to 6 July 2017
	8 to 15 June 2017
11 (one static detector)	30 June to 4 July 2017
	29 July to 2 August 2017

3.3 ASSUMPTIONS AND LIMITATIONS

- 3.3.1 The aim of a desk study is to help characterise the baseline context of a proposed development and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species do not occur in a study area. Likewise, the presence of records for particular species does not automatically mean that these still occur within the area of interest or are relevant in the context of a proposed development.
- 3.3.2 The detail and accuracy of the desk study records rely on those provided to Cofnod from a variety of sources. The results of the updated desk study undertaken in February 2018 have been considered for the baseline

assessment. The latest desk study search was conducted on the Proposed Development layout which now covers a smaller area resulting in some records being excluded that had previously been considered. The search also uses the latest priority and conservation lists which has also resulted in some further additions and exclusions of certain species.

- 3.3.3 The following weather limitations were encountered during the surveys.
 - during the survey of Transect 2 on 27 September 2016, it started to drizzle at 06:20 hrs but stopped after 10 minutes.
 - during the survey of Transect 2 on 11 October 2016, there was a brief shower at 20:18 hrs which stopped at 20:22 hrs.
 - during the survey of Transect 8 on 25 May 2016 light to moderate showers throughout the survey.
 - during the survey of Transect 8 on 1 June 2017 there was light rain which at 21:45 hrs moved into heavier drizzle for approximately 10 minutes.
- 3.3.4 In all cases due to the short duration of the rain and as bat activity was still being recorded, the surveys were not cancelled and it did not affect the outcomes of this report.
- 3.3.5 No survey work was undertaken between mid-April and May 2017 (missing the spring season), as a result transect surveys and deployment of static detectors could not be completed in Transects 2, 3, 4, 5, 8, 9, 10 and 11. Surveys have been completed in spring 2018 to address this.
- 3.3.6 Health and safety and access issues influenced when transect surveys could be undertaken and also the type of survey undertaken i.e. pre-dawn or dusk. This did not affect the conclusions of this report as the required minimum number of transect surveys were completed.
- 3.3.7 Transects 9 and 10 could not be walked safely due to the presence of livestock, unsafe terrain and impenetrable vegetation/ woodland. Instead of transect routes, surveyors stood in two safe locations and recorded and observed bat activity for 20 minutes after sunset for one-two survey periods each month. The use of static detectors within these areas was increased from five consecutive nights to ten consecutive nights in each month.
- 3.3.8 The route within Transect 8 was walked safely in May 2016, however due to the presence of livestock in the preceding months the route could not be walked safely. Therefore the methods used for Transects 9 and 10 were adopted. The transect was walked safely again in June 2017

- 3.3.9 The majority of the woodland within Transect 5 could not be accessed due to presence of dense vegetation and associated health and safety concerns. The perimeter of the woodland was walked instead which provided adequate coverage of the proposed transect route and visibility of bats flying in and out of the woodland.
- 3.3.10 On 5 July 2017, the majority of the route within Transect 11 could not be walked due to the presence of livestock. The survey was repeated on 18 July 2017, both transect surveys figures have been included within the report for completeness.
- 3.3.11 Transect 1 which is located in the north of the Order Limits was not surveyed in 2016 or 2017. Extensive transect surveys have been undertaken within this area in 2013 and 2014 as part of Wylfa Newydd Power Station project and the data collected during these surveys provided sufficient baseline information for this area.
- 3.3.12 The following static detectors failed:
 - within Transect 2, between 21 and 27 July 2016.
 - within Transect 6, between 26 July and 31 July 2016 and 29 September and 4 October 2016.
 - within Transect 9 between 27 July and 10 August 2016. This was the static located at location B. Static A recorded data during this time.
 - within Transect 10 between 20 September and 4 October 2016. This
 was the static at location C. Static detectors at locations A and B
 recorded data during this time.
- 3.3.13 The failure of the static detectors within Transects 9 and 10 is not considered to have affected the outcome of the survey results (in terms of bat species identified) as more than one static was deployed within these transect areas which collected sufficient data for the deployment period.
- 3.3.14 For Transects 2 and 6, static detectors were deployed in the preceding and following months capturing late May/June and August 2016 data collecting sufficient data for the summer months. The static detector within Transect 6 collected data for October 2016 which covers the autumn bat season. The failure of the static detector is therefore not considered to be a constraint.

4 Results

4.1 DESK STUDY

Statutory Designated Sites

4.1.1 There are no international or national nature conservation sites designated for bat species within 10 km of the Order Limits.

Bat Records

- 4.1.2 The desk study identified the presence of a number of bat species within the study area. Cofnod returned 74 field records (non-roost records) comprising of the following species: common pipistrelle, soprano pipistrelle, noctule, Daubenton's, Natterer's (*Myotis nattereri*), whiskered/Brandt's (*Myotis mystacinus/brandti*), *Myotis* species, lesser horseshoe and brown longeared bat. This data includes records for foraging and commuting bats but also general activity records, bat dropping evidence, casualties and dead bats.
- 4.1.3 The field records provided have been summarised in Appendix A and are shown on Figure 1. Ten of the field records were located within the Order Limits or within the 50 m buffer of the Order Limits (eight of these are within the underground tunnel section); these records were dated between 2013 and 2015.
- 4.1.4 Due to the precision of some of the grid references provided e.g. 1 km² grid reference which then places the record at the centre of the square, several of the records show slightly outside the 2 km study area (Records 24 30 on Figure 1) and two records fall within Cemlyn Bay (Records 1 and 2 on Figure 1); however these have been included for completeness.
- 4.1.5 Following a review of the reports prepared for the Wylfa Newydd Power Station, it was determined that coniferous woodland was the dominant habitat within the Transect 1 area during surveys undertaken in 2013 and 2014. Species recorded throughout the surveys were soprano and common pipistrelle bats and less frequent noctule and *Myotis* sp. bat passes.
- 4.1.6 The two anabats deployed within the transect route area recorded common and soprano pipistrelle bats, *Myotis* sp. noctule and a low number (less than ten) of Nathusius' pipistrelle (*Pipistrellus nathusii*) passes.

4.2 FIELD SURVEY

Activity Transect Surveys

- 4.2.1 Bat activity recorded and observed during each transect survey is presented on Figures 3 to 12. A summary of bat species recorded within each transect is provided below along with a brief description of the habitats.
- 4.2.2 The term 'Pipistrelle species' recorded during the transects and static detector surveys refers either to common or soprano pipistrelle as peak frequency overlaps¹.

Transect 2

- 4.2.3 Transect 2 is located within the north of the Order Limits in Section A, and comprises mixed woodland blocks, a stream, and open grazed fields with hedgerow boundaries.
- 4.2.4 Species recorded during the transect surveys were soprano pipistrelle, *Myotis* sp.², and noctule bats. Results are shown on Figure 3 (A to F).

Transect 3

- 4.2.5 Transect 3 is located within the north of the Order Limits in Section B, the transect largely comprises open grazed fields with boundary hedgerows, however the main focus of the transect is a former railway line and bridge forming a linear feature which could be of value to bats.
- 4.2.6 Species recorded during the transect surveys were common and soprano pipistrelle, pipistrelle species, and *Myotis* sp. Results are shown on Figure 4 (A to D).

¹ Common pipistrelle and soprano pipistrelle can be difficult to separate using a zero crossing file when calls recorded are towards the lower end of the soprano pipistrelle peak frequency and higher end of the common pipistrelle peak frequency. As such any pipistrelle bat with a peak frequency between 49 kHz and 51 kHz has been classified as 'pipistrelle species'.

² Myotis bat calls can be very similar; therefore have been classified as Myotis species unless call characteristics or observations of the bat and behaviour have been recorded to enable species level identification

Transect 4

- 4.2.7 Transect 4 is located within the centre of the Order Limits in Section C and comprises a mixed woodland block, watercourses, marshy grassland and grazed fields.
- 4.2.8 Species recorded during the transect surveys were common pipistrelle, pipistrelle species, *Myotis* sp., and noctule bats. Results are shown on Figure 5 (A to F).

Transect 5

- 4.2.9 Transect 5 is located below the central area of the Order Limits in Section D and focuses on Glyched Covert, a circular shaped block of unmanaged woodland.
- 4.2.10 Species recorded during the transect surveys were common and soprano pipistrelle, *Myotis* sp., and noctule bats. Results are shown on Figure 6 (A to F).

Transect 6

- 4.2.11 Transect 6 is located below Transect 5 in Section D and comprises grazed fields, scrub with a strip of woodland with a watercourse.
- 4.2.12 Species recorded during the transect surveys were common and soprano pipistrelle, *Myotis* sp., noctule and brown long-eared bats. Results are shown on Figure 7 (A to G).

Transect 7

- 4.2.13 Transect 7 is located to the east of the Order Limits in Section C and covers part of the Anglesey and Llyn Fens Special Area of Conservation/Ramsar and Cors Erddreiniog Site of Special Scientific Interest/National Nature Reserve (NNR) which comprises marshy grassland, scrub and trees.
- 4.2.14 Species recorded during the transect surveys were common and soprano pipistrelle, pipistrelle species and noctule. Results are shown on Figure 8 (A to D).

Transect 8

4.2.15 Transect 8 is located in the north of the Order Limits in Section A and comprises woodland and watercourses.

4.2.16 Species recorded during the transect surveys were common and soprano pipistrelle, pipistrelle species and *Myotis* sp. Results are shown on Figure 9 (A to I).

Transect 9

- 4.2.17 Transect 9 is located in the Order Limits in Section F and comprises a deep-sided woodland valley.
- 4.2.18 Species recorded during the transect surveys were soprano and common pipistrelle, pipistrelle species and *Myotis* species. Results are shown on Figure 10 (A to K).

Transect 10

- 4.2.19 Transect 10 is located in the Order Limits in Section F around Pentir Substation and comprises largely coniferous woodland.
- 4.2.20 Species recorded during the transect surveys were soprano and common pipistrelle, pipistrelle sp. and *Myotis* sp. Results are shown on Figure 11 (A to J).

Transect 11

- 4.2.21 Transect 11 is located in the Order Limits in Section F just to the west of Transect 9 and comprises grazed fields with a dense network of hedgerows.
- 4.2.22 Species recorded during the transect surveys were soprano and common pipistrelle, pipistrelle sp., noctule and *Myotis* species. Results are shown on Figure 12 (A to D).
- 4.2.23 Table 4.1 provides a summary of bat activity at each transect.

Table 4.1: Bat Activity Transect Summary	
Transect Number	Bat Species Recorded
2	Soprano pipistrelle, <i>Myotis</i> sp., noctule
3	Pipistrelle sp., soprano pipistrelle, common pipistrelle, <i>Myotis</i> sp.
4	Pipistrelle sp., common pipistrelle, <i>Myotis</i> sp. and noctule.
5	Soprano pipistrelle, common pipistrelle, <i>Myotis</i> sp. and noctule.
6	Pipistrelle sp., soprano pipistrelle, common pipistrelle, noctule and brown long-eared bat.
7	Pipistrelle sp., soprano pipistrelle, common pipistrelle, noctule
8	Pipistrelle sp., soprano pipistrelle, common pipistrelle, <i>Myotis</i> sp., and noctule
9	Pipistrelle sp., soprano pipistrelle, common pipistrelle and <i>Myotis</i> sp.
10	Pipistrelle sp., soprano pipistrelle, common pipistrelle and <i>Myotis</i> sp.
11	Pipistrelle sp., soprano pipistrelle, common pipistrelle, <i>Myotis</i> sp., and noctule.

Weather Conditions

4.2.24 Table 4.2 provides a summary of the weather conditions for each transect survey. The start and end times of the survey are also included in addition to the sunset or sunrise time.

Table 4.2: Activity Transect Weather Conditions				
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions	
	1 June 2016	Start Time: 21:16 End Time: 23:31 Sunset: 21:35	Dry, clear, 11°C.	
2	21 July 2016	Start Time: 03:51 End Time: 05:07 Sunrise: 05:15	Dry, overcast, no wind, 14°C.	
	31 August 2016	Start Time: 20:08 End Time: 22:08 Sunset: 20:08	Dry, cloudy, 19°C.	
	27 September 2016	Start Time: 05:12 End Time: 07:12 Sunrise: 07:12	Mostly dry with a light rain shower, overcast, strong breeze, 15°C.	
	11 October 2016	Start Time: 18:29 End Time: 20:30 Sunset: 18:29	Mostly dry with light rain showers, overcast, 14°C.	
	1 June 2017	Start Time: 03:02 End Time: 05:10 Sunrise: 04:57	Dry, overcast, strong breeze, 11°C.	
3	23 May 2016	Start Time: 20:58 End Time: 23:30 Sunset: 21:23	Dry, clear, 15°C.	
	23 July 2016	Start Time: 03.47 End Time: 04.44 Sunrise: 05.18	Dry, overcast, light breeze, 17°C.	
	19 September 2016	Start Time: 19:05 End Time: 20:42 Sunset: 19:22	Dry, cloudy, no wind, 18°C.	
	31 May 2017	Start Time: 21:19 End Time: 23:52	Dry, cloudy, moderate breeze,	

Table 4.2: Activity Transect Weather Conditions			
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions
		Sunset: 21:25	13°C.
4	24 May 2016	Start Time: 21:06 End Time: 23:45 Sunset: 21:33	Dry, little cloud, fresh breeze, 11°C.
	21 July 2016	Start Time: 03:45 End Time: 05:17 Sunrise: 05:17	Dry, cloudy, no wind, 13°C.
	24 August 2016	Start Time: 20:24 End Time: 22:24 Sunset: 20:24	Dry, moderate cloud, 18°C.
	22 September 2016	Start Time: 05:20 End Time: 07:23 Sunrise: 07:03	Dry, minimal cloud, no wind, 13°C.
	12 October 2016	Start Time: 18:29 End Time: 20:30 Sunset: 18:29	Dry, moderate cloud cover, 11°C.
	28 June 2017	Start Time: 02:54 End Time: 04:54 Sunrise: 04:54	Overcast, light breeze, 14°C.
5	23 May 2016	Start Time: 21:14 End Time: 23:18 Sunset: 21:29	Dry, clear, 10°C.
	19 July 2016	Start Time: 03:30 End Time: 05:29 Sunrise: 05:19	Dry, clear, no wind, 15°C.
	22 August 2016	Start Time: 20:28 End Time: 22:28 Sunset: 20:28	Dry, overcast, light breeze, 16°C.
	7 September 2016	Start Time: 19:50	Dry, cloudy, light air, 20°C.

Table 4.2: Activity Transect Weather Conditions			
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions
		End Time: 21:51	
		Sunset: 19:50	
	10 October	Start Time: 18:29	Dry, light to
	2016	End Time: 20:30	moderate cloud,
		Sunset: 18:29	light breeze, 11.5°C.
	19 June 2017	Start Time: 21:34	Dry, moderate
		End Time: 23:49	cloud, light
		Sunset: 21:49	breeze, 16°C.
	24 May 2016	Start Time: 21:04	Dry, minimal
		End Time: 23:30	cloud, light
6		Sunset: 21:24	breeze, 16°C.
	26 July 2016	Start Time: 03:25	Dry, cloudy, light
		End Time: 05:25	breeze, 14°C.
		Sunrise: 05:25	
	25 August 2016	Start Time: 20:21	Dry, sunny, light
		End Time: 22:25	breeze, 18°C.
		Sunset: 20:21	
	29 September	Start Time: 05:15	Dry, moderate
	2016	End Time: 07:14	cloud, moderate to fresh breeze,
		Sunrise: 07:14	14°C.
	18 October	Start Time: 18:13	Dry, light breeze
	2016	End Time: 20:15	and cloud, 14°C.
		Sunset: 18:13	
	10 April 2017	Start Time: 19:38	Dry, minimal
		End Time: 21:38	cloud, 9°C.
		Sunset: 20:08	
	30 May 2017	Start Time: 21:15	Gentle breeze,
		End Time: 23:30	light cloud cover, light rain shower
		Sunset: 21:33	during survey,

Table 4.2: Activity Transect Weather Conditions			
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions
			18°C.
7	26 May 2016	Start Time: 21:03 End Time: 23:20 Sunset: 21:25	Dry, minimal cloud, no wind, 10°C.
	19 July 2016	Start Time: 21:00 End Time: 22:50 Sunset: 21:32	Dry, overcast, light breeze, 21°C.
	21 September 2016	Start Time: 05:20 End Time: 07:10 Sunrise: 07:02	Dry, clear, no wind, 8°C.
	11 April 2017	Start Time: 19:40 End Time: 21:40 Sunset: 20:10	Dry, cloudy, moderate breeze, 9°C.
8 30 5 5	25 May 2016	Start Time: 21:02 End Time: 23:25 Sunset: 21:25	Light to moderate rain showers, overcast, light air, 11°C.
	23 August 2016	Start Time: 20:26 End Time: 20:48 Sunset: 20:26	Dry, overcast, 18°C.
	30 August 2016	Start Time: 20:10 End Time: 20:52 Sunset: 20:10	Dry, overcast, moderate breeze, 17°C.
	5 September 2016	Start Time: 19:46 End Time: 22:00 Sunset: 19:56	Dry and mild, 18°C.
	27 September 2016	Start Time: 19:05 End Time: 19:50 Sunset: 19:02	Dry, moderate cloud, gentle breeze, 15°C.
	11 October	Start Time: 18:19	Dry, overcast, no

Table 4.2: Activity Transect Weather Conditions				
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions	
	2016	End Time: 19:00	wind, 14°C.	
		Sunset: 18:19		
	17 October 2016	Start Time: 18:18	Dry, clear, no	
		End Time: 20:45	wind, 11.4°C.	
		Sunset: 18:39		
	1 June 2017	Start Time: 21:21	Rain showers,	
		End Time: 23:30	overcast, light	
		Sunset: 21:35	breeze, 16°C.	
	20 June 2017	Start Time: 02:49	Dry, minimal cloud, gentle	
		End Time: 04:49		
		Sunset: 04:49	breeze, 13°C.	
	31 May 2016	Start Time: 21:15	Dry, light breeze,	
		End Time: 23:40	cloudy, 10°C	
		Sunset: 21:35		
9	27 July 2016	Start Time: 21:19	Dry, light cloud,	
		End Time: 22:03	14°C.	
		Sunset: 21:19		
	2 August 2016	Start Time: 21:00	Slight breeze, dry	
		End Time: 23:10	and clear 16°C.	
		Sunset: 21:10		
	21 September	Start Time: 19:00	Dry, light breeze,	
_	2016	End Time: 19:45	partial cloud, 13°C.	
		Sunset: 19:03		
	29 September 2016	Start Time: 18:59	Moderate cloud, light breeze, 12°C.	
		End Time: 19:39		
		Sunset: 18:57		
	10 October 2016	Start Time: 18:30	Dry, cool, clear evening, 8°C.	
		End Time: 19:25		
		Sunset: 18:32		

Table 4.2: Activity Transect Weather Conditions			
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions
	20 October 2016	Start Time: 18:08 End Time: 20:10 Sunset: 18:08	Dry, mostly clear, 12°C.
	8 June 2017	Start Time: 21:40 End Time: 22:32 Sunset: 21:43	Dry, mostly clear, moderate breeze, 13°C.
	12 June 2017	Start Time: 21:29 End Time: 22:17 Sunset: 21:44	Dry, overcast, 13°C.
	27 June 2017	Start Time: 21:49 End Time: 22:37 Sunset: 21:49	Dry, overcast, no wind, 15°C.
	3 July 2017	Start Time: 21:52 End Time: 22:37 Sunset: 21:48	Dry, overcast, no wind, 13°C.
10	26 July 2016	Start Time: 21:18 End Time: 22:30 Sunset: 22:21	Overcast, light to moderate breeze, 16°C.
	1 August 2016	Start Time: 21:15 End Time: 21:35 Sunset: 21:12	Dry and warm, 16°C
	20 September 2016	Start Time: 19:15 End Time: 21:30 Sunset: 19:20	Dry, light cloud, 14°C.
	28 September 2016	Start Time: 18:59 End Time: 20:14 Sunset: 18:59	Dry, mostly cloudy, strong breeze, 16°C.
	10 October 2016	Start Time: 18:31 End Time: 19:42	Dry, light cloud, 12°C.

Table 4.2: Activity Transect Weather Conditions				
Transect Number	Transect Dates	Start/End Time and Sunset/Sunrise	Weather Conditions	
		Sunset: 18:31		
	19 October	Start Time: 18:10	Dry, cloudy, 11°C.	
	2016	End Time: 19:12		
		Sunset: 18:10		
	6 June 2017	Start Time: 21:39	Mild, dry, breezy,	
		End Time: 22:51	11°C.	
		Sunset: 21:34		
	13 June 2017	Start Time: 21:30	Mild, dry, light	
		End Time: 22:50	wind, 14°C.	
		Sunset: 21:45		
	28 June 2017	Start Time: 21:45	Dry, overcast,	
		End Time: 22:51	light to moderate	
		Sunset: 21:46	breeze, 15°C.	
	4 July 2017	Start Time: 21:58	Light breeze, 12°C.	
		End Time: 22:56		
		Sunset: 21:58		
	8 June 2017	Start Time: 21:26	Dry, minimal	
		End Time: 23:40	cloud, moderate	
		Sunset: 21:41	breeze, 14°C.	
	5 July 2017	Start Time: 21.32	Dry, overcast,	
11		End Time: 22.53	light breeze, 16°C.	
		Sunset: 21.46		
	18 July 2017	Start Time: 21:20	Dry, moderate	
		End Time: 23:30	cloud, 18°C.	
		Sunset: 21:35		
	3 August 2017	Start Time: 20:55	Dry, cloudy, light	
		End Time: 22:55	breeze 16°C.	
		Sunset: 21:10		

Static Bat Detectors

- 4.2.25 Data collected from the static detectors are shown within Figures 3 to 12. The weather conditions for the static deployment durations are provided within Appendix B.
- 4.2.26 The data is presented with a total number of calls (single SM2 file, approximately two seconds in length) for each bat species per night.
- 4.2.27 Lesser horseshoe bats were recorded in Transects 9, 10 and 11, but were not observed or recorded during any of the transect surveys.
- 4.2.28 Brown long-eared bats were recorded in Transects 2 and 7 but not during the transect surveys.
- 4.2.29 Noctule bats were recorded within Transect 3 but not observed or recorded during the transect surveys.

5 Conclusion

- 5.1.1 An assemblage of common pipistrelle, soprano pipistrelle, pipistrelle (either soprano or common), noctule, brown long-eared, lesser horseshoe and *Myotis* species bats were recorded and observed during the transect or static detector surveys.
- 5.1.2 Across all of the transect surveys the highest number of bat passes were from soprano pipistrelle (with the exception of Transect 5, which is further explained below). Noctule and common pipistrelle bats were the lowest recorded bat across all transects, with the exception of lesser horseshoe which was only recorded in Transects 9, 10 and 11 with low numbers of passes. It should be noted that the number of bat passes does not however directly relate to bat activity or numbers of bats.
- 5.1.3 Lesser horseshoe calls were recorded only within Transects 9, 10 and 11, these transects are located in Gwynedd and there are existing lesser horseshoe records within this area. The calls were picked up on the static detectors only and not during any of the transect surveys. Relative to the soprano pipistrelle, the number of lesser horseshoe passes recorded was low, i.e. maximum of five passes in one night, and sometimes not recorded during the static deployment duration or on only one or two nights. This would indicate that these are bats commuting and not using the habitats within these transect for foraging, or use is very infrequent.
- 5.1.4 Myotis calls were recorded in all transects. Myotis species cannot normally be accurately identified based on sound recording alone. It is widely accepted that these species can be grouped into the genus. Anglesey and North Wales is outside the geographical range for Bechstein's and barbastelle bats (Bat Conservation Trust website). Myotis calls recorded during the surveys documented in this report are therefore considered most likely to be Daubenton's bat, Whiskered/Brandt's and/or Natterer's bat. Although not confirmed, it is thought that Natterer's calls were recorded within Transects 2 and 8 and Whiskered/Brandt's and Daubenton's bat within Transect 5.
- 5.1.5 Transect 5, Glyched Covert, had the highest number of bat calls with soprano and *Myotis* species calls dominating, but more noctule and common pipistrelle passes were also recorded than in other transects.

- 5.1.6 The number of bat passes recorded within Transects 3, 6, 7 and 10 was lower than the number of bat passes recorded within Transects 2, 4, 5, 8, 9 and 11. This could suggest that the habitats present within these transects are of a lower value to bats than habitats within the other locations.
- 5.1.7 The static detector surveys detected a slightly greater diversity of bat species (relative to the activity surveys) within Transects 2, 3, 8, 9, 10 and 11. The number of bat passes differed greatly between each transect and survey period. Usage is difficult to place into context because the static detectors do not record the numbers of bats present or the direction of movement, however they provide a useful baseline of bat usage over an extended period of time that cannot reasonably be recorded during transect surveys, which capture a 'snapshot' of bat usage in a particular area at a particular time.
- 5.1.8 Effects as a result of the Proposed Development and mitigation measures are detailed in Chapter 9, Ecology and Nature Conservation (**Document 5.9**). Further details on the mitigation measures are provided in the Biodiversity Mitigation Strategy (**Document 7.7**). Potential enhancement opportunities are detailed within the Enhancement Strategy (**Document 7.13**) which includes opportunities for enhancements for bats, and also for habitats that would in turn also benefit this species group.

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Ref 4: Jacobs (2016) Wylfa Newydd Project Consultancy Report: Bat Monitoring 2014.

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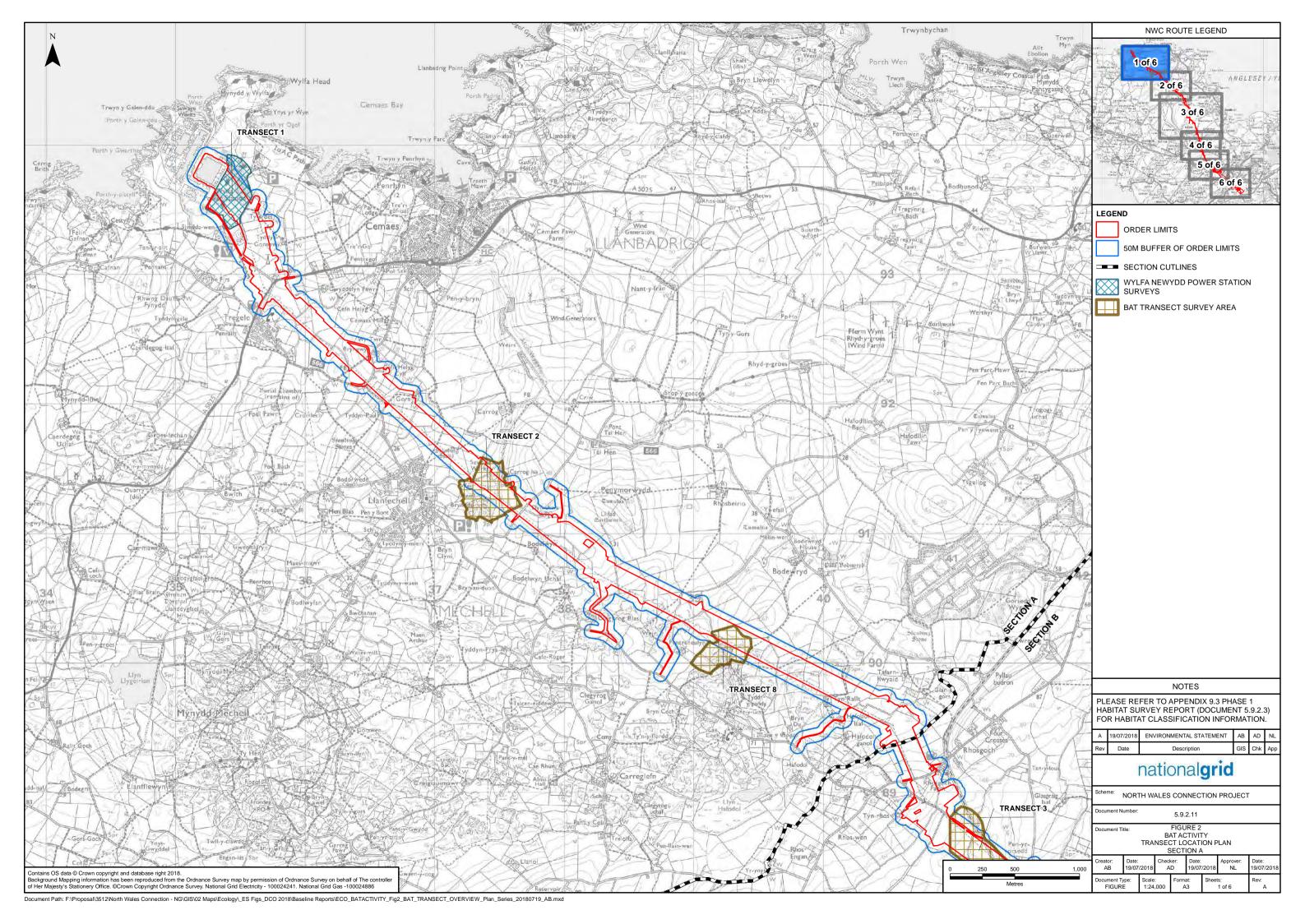
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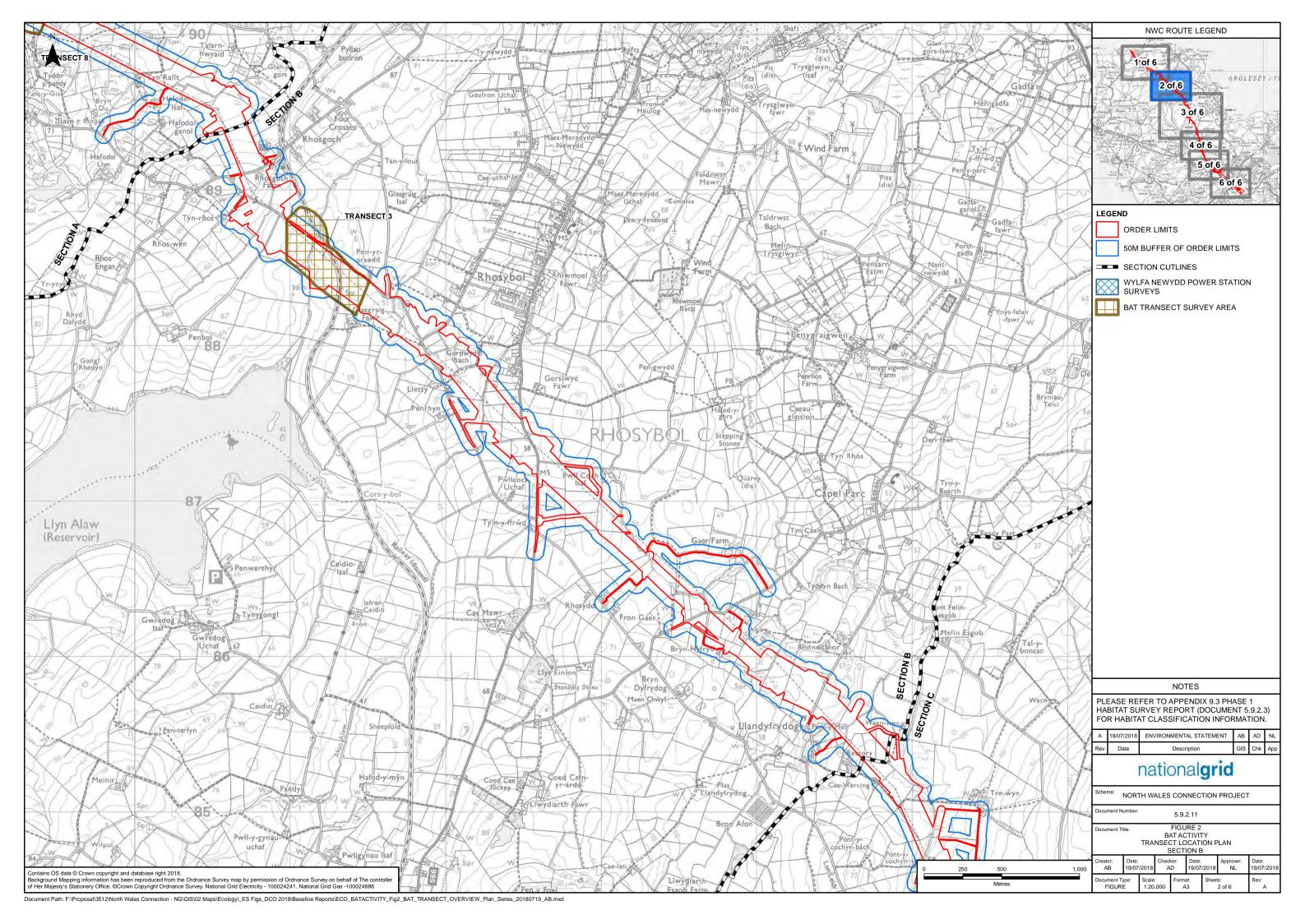
Figures

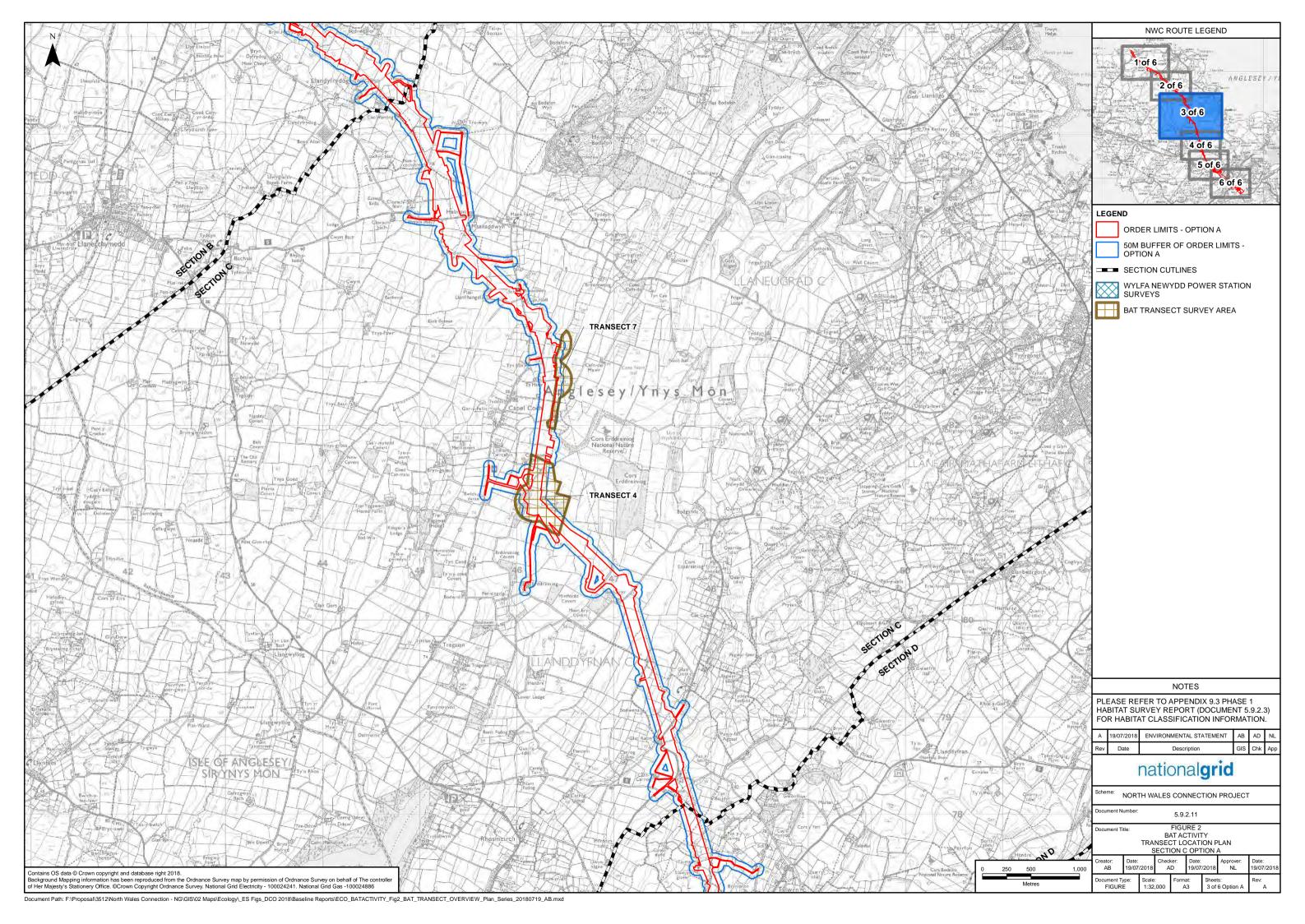
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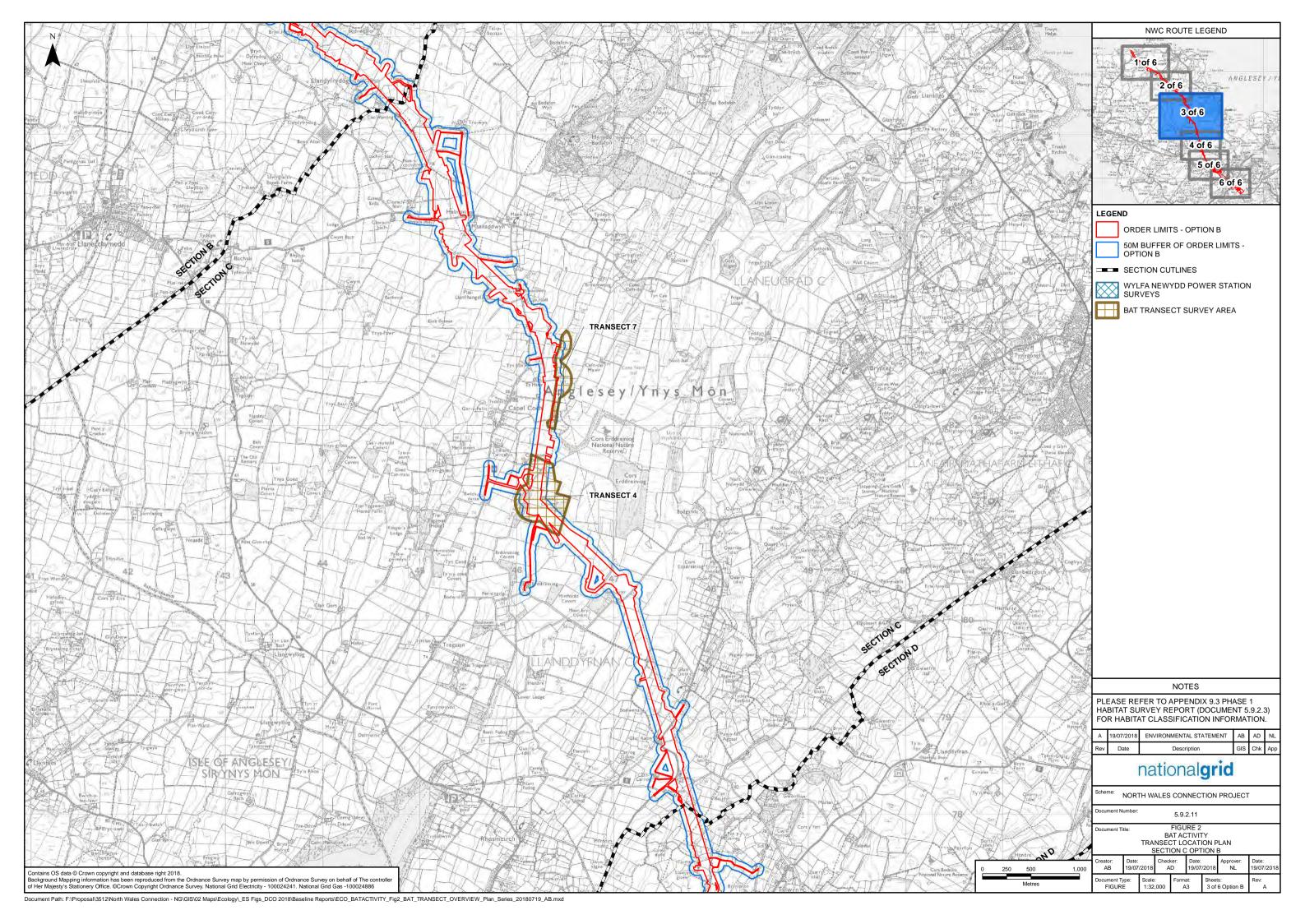
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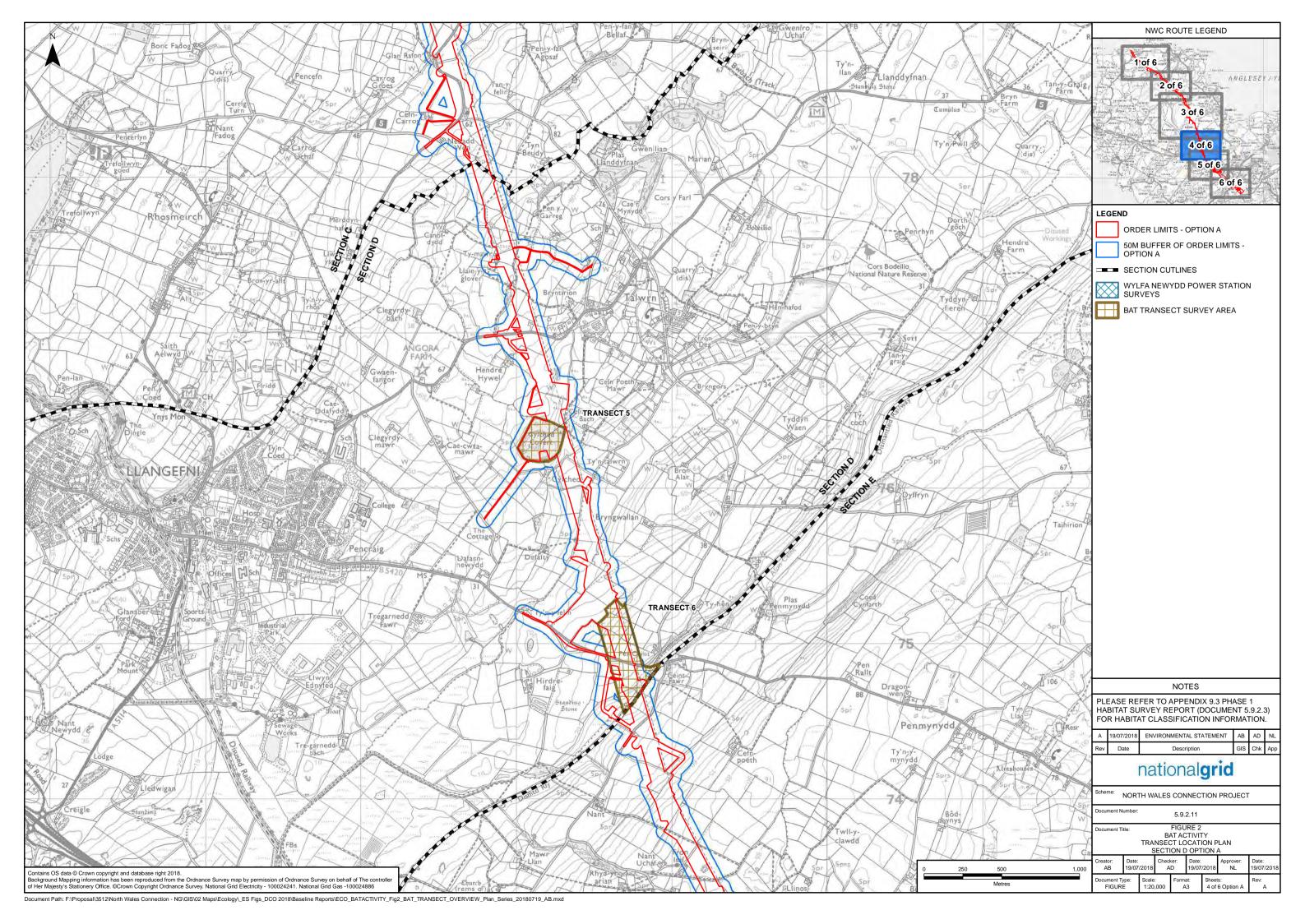
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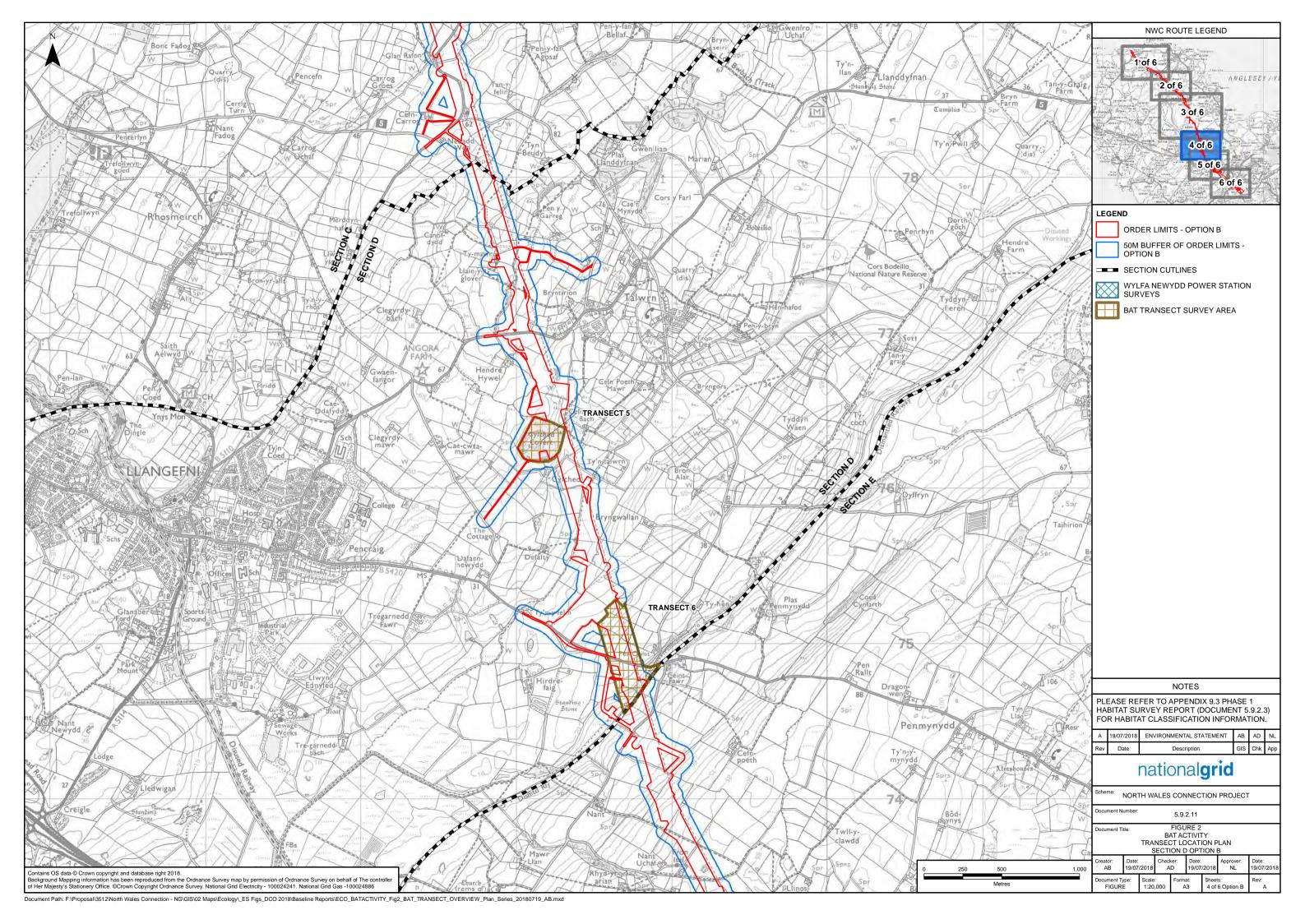


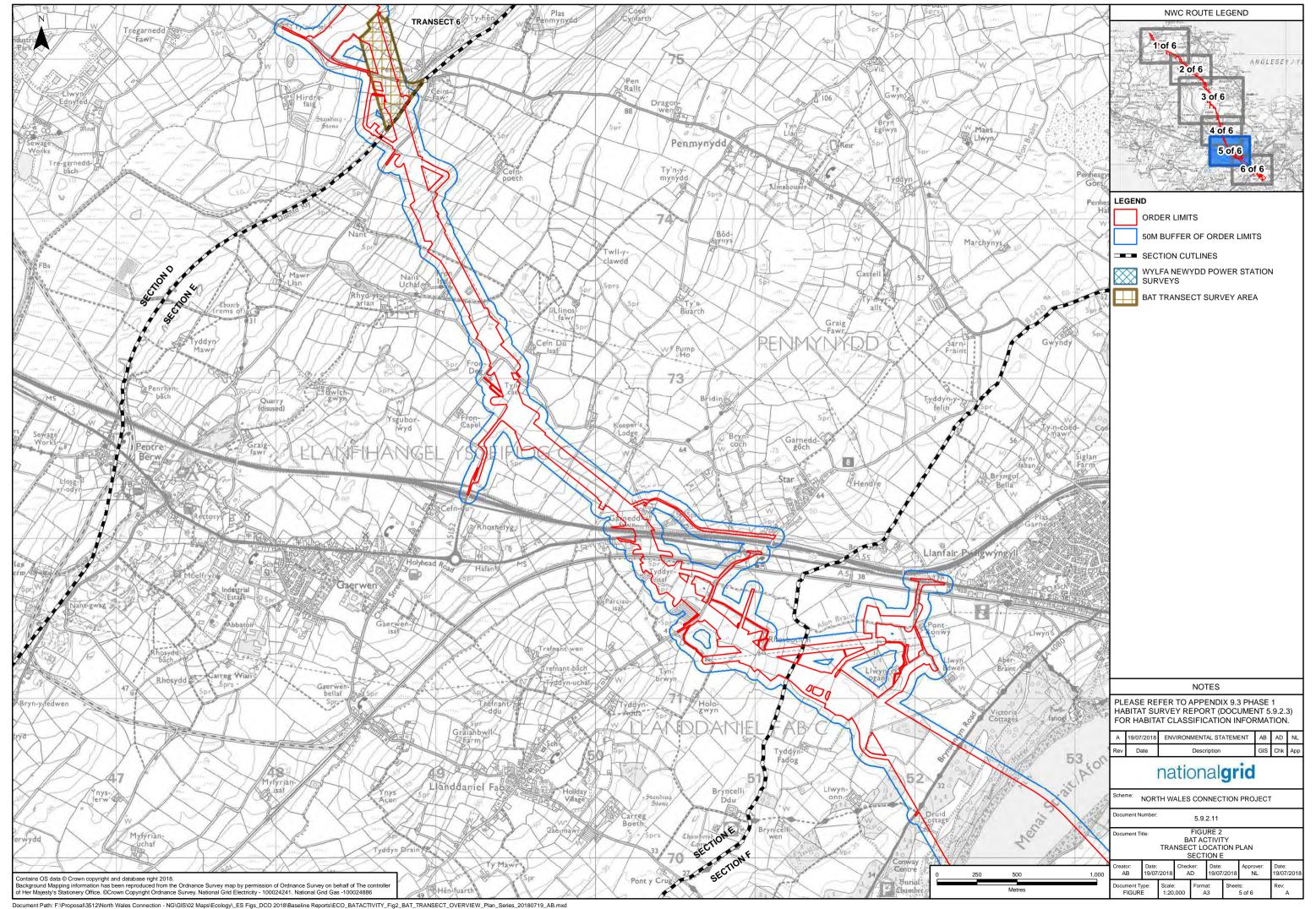


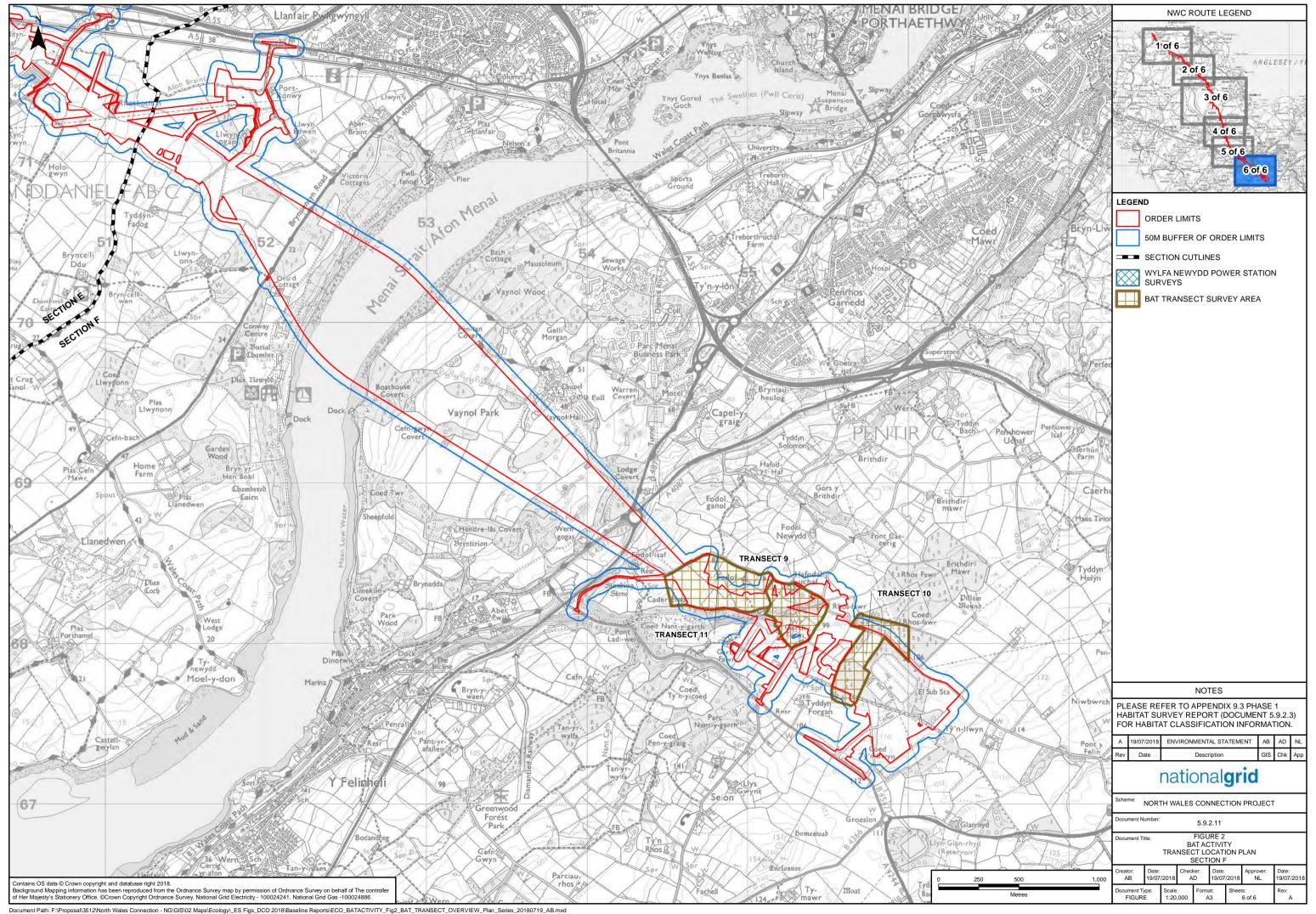


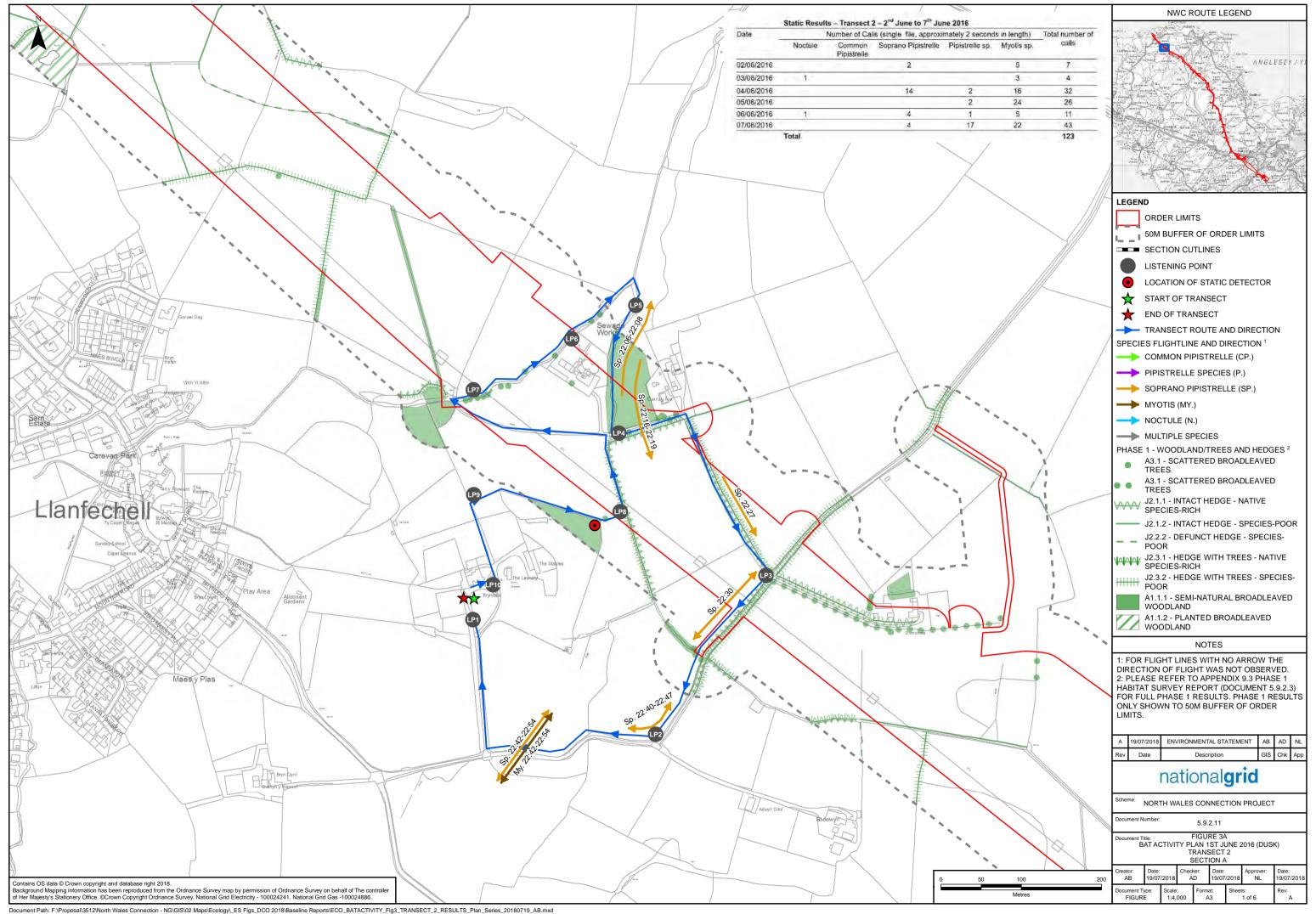


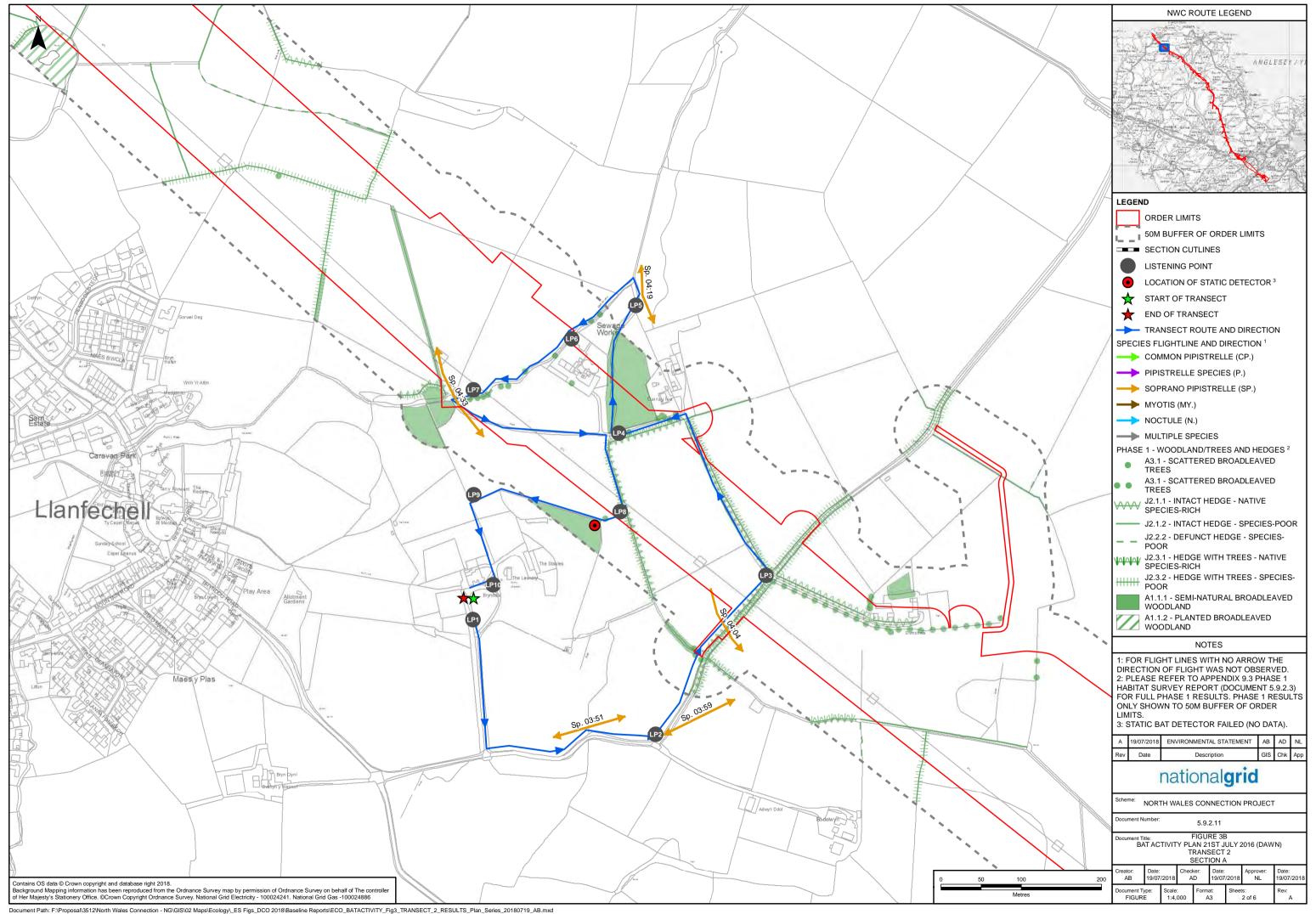


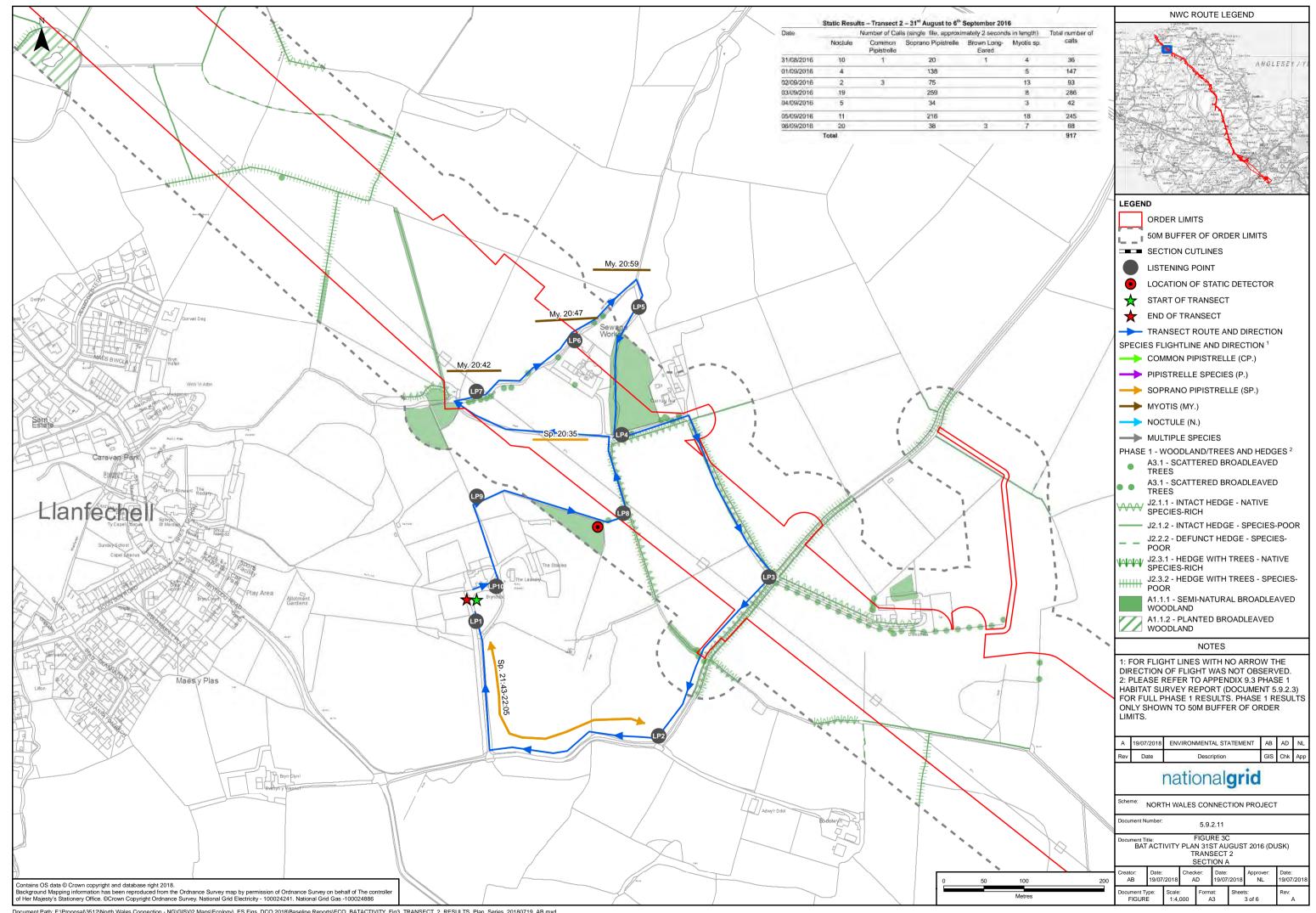


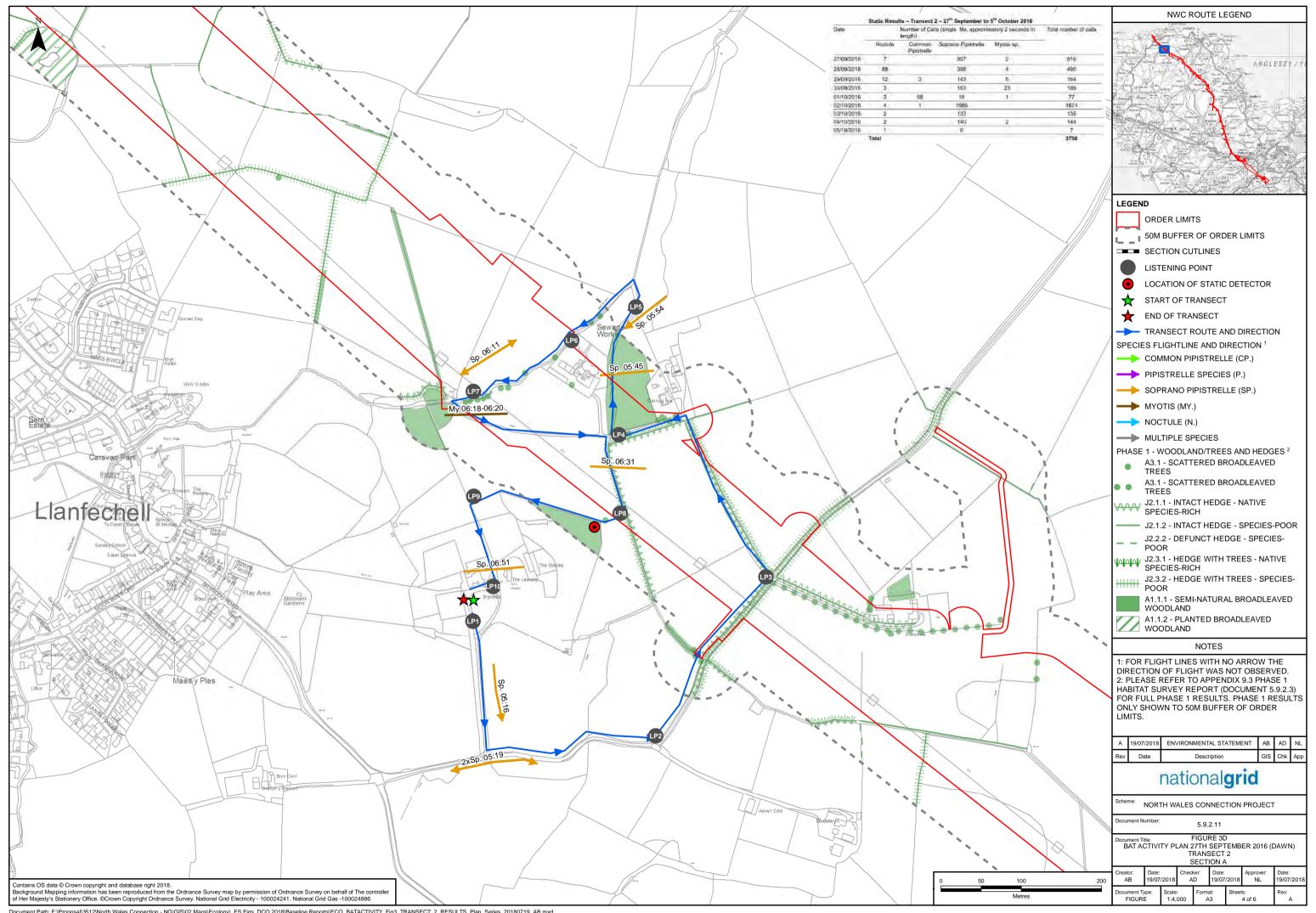


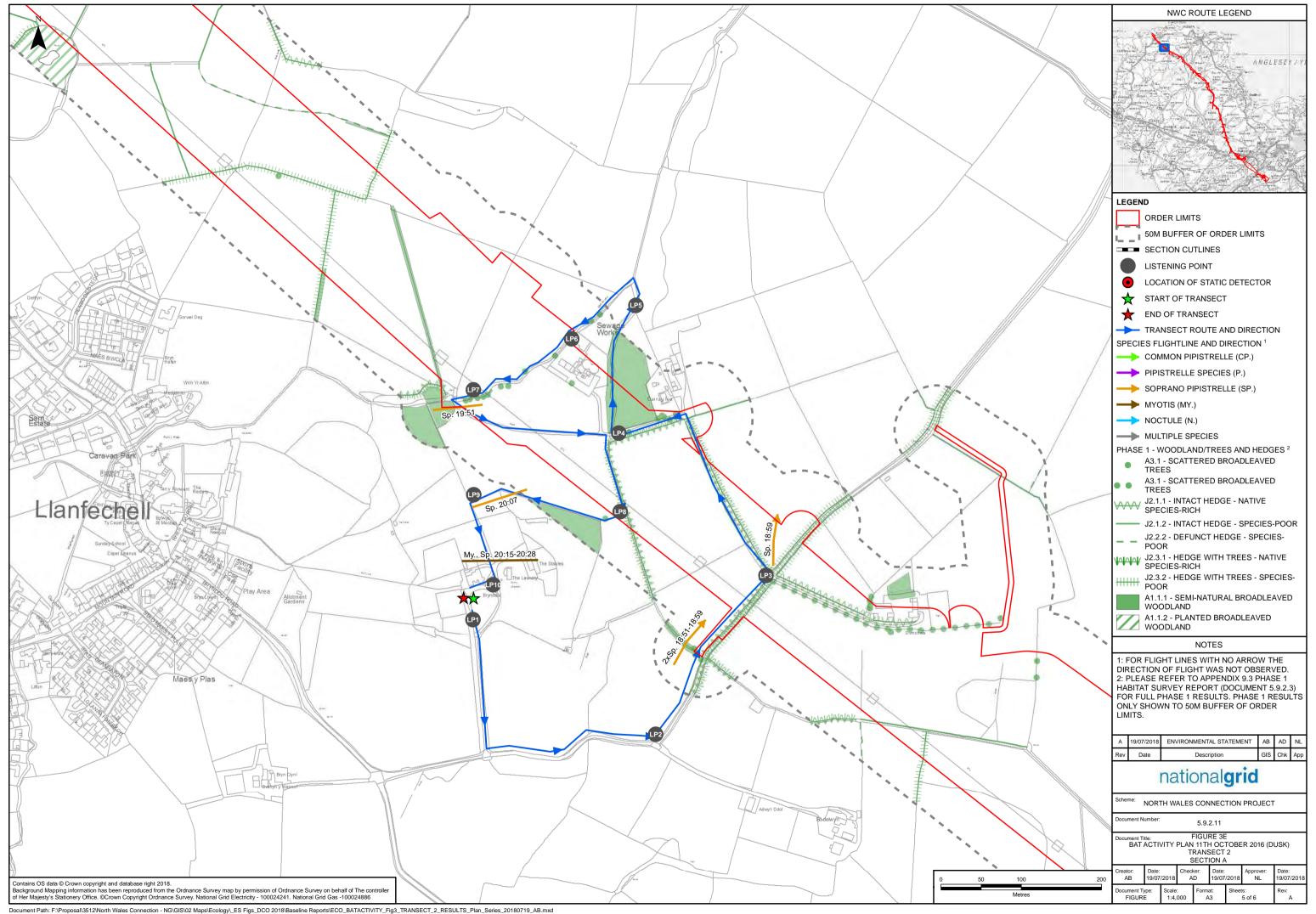


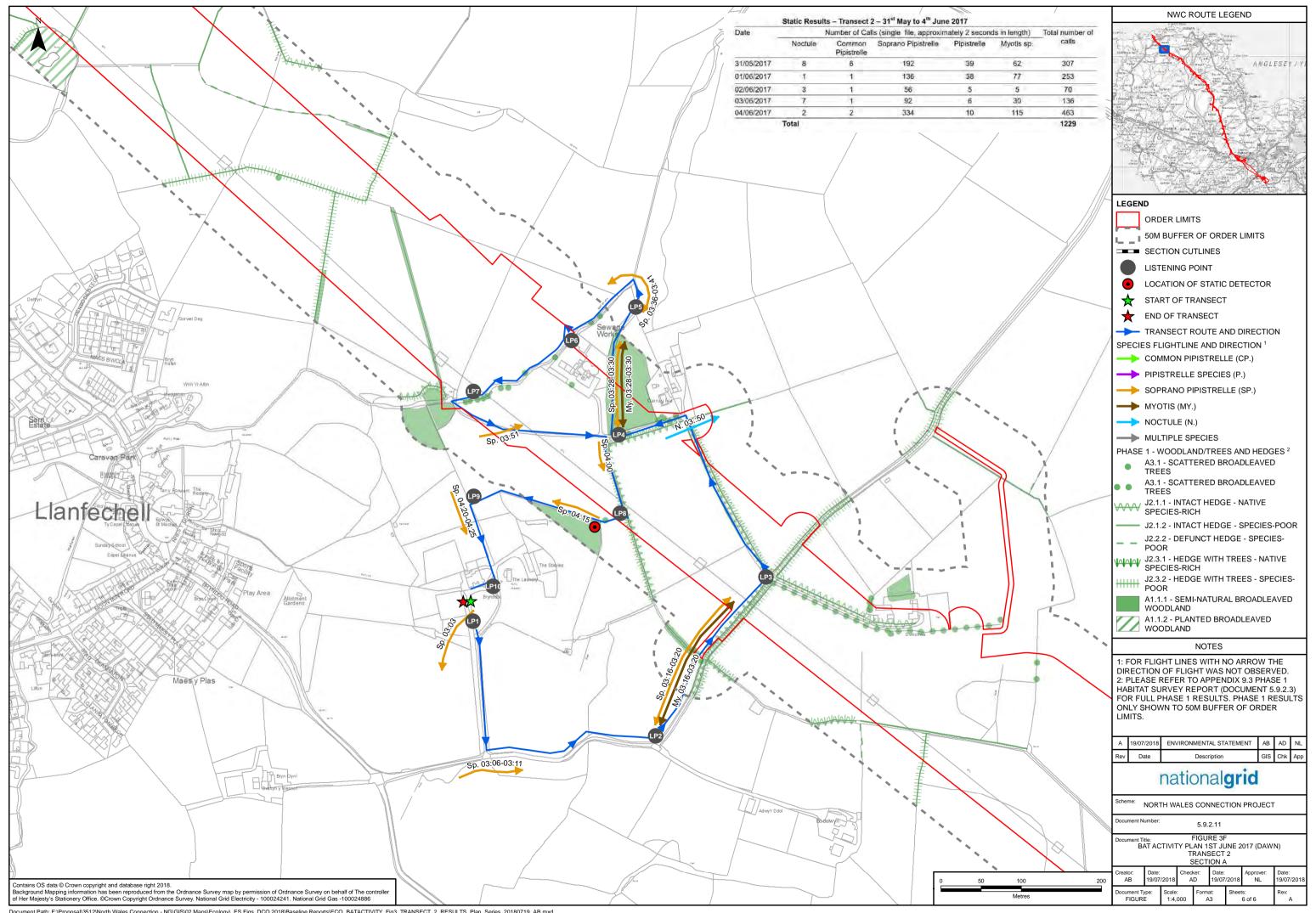


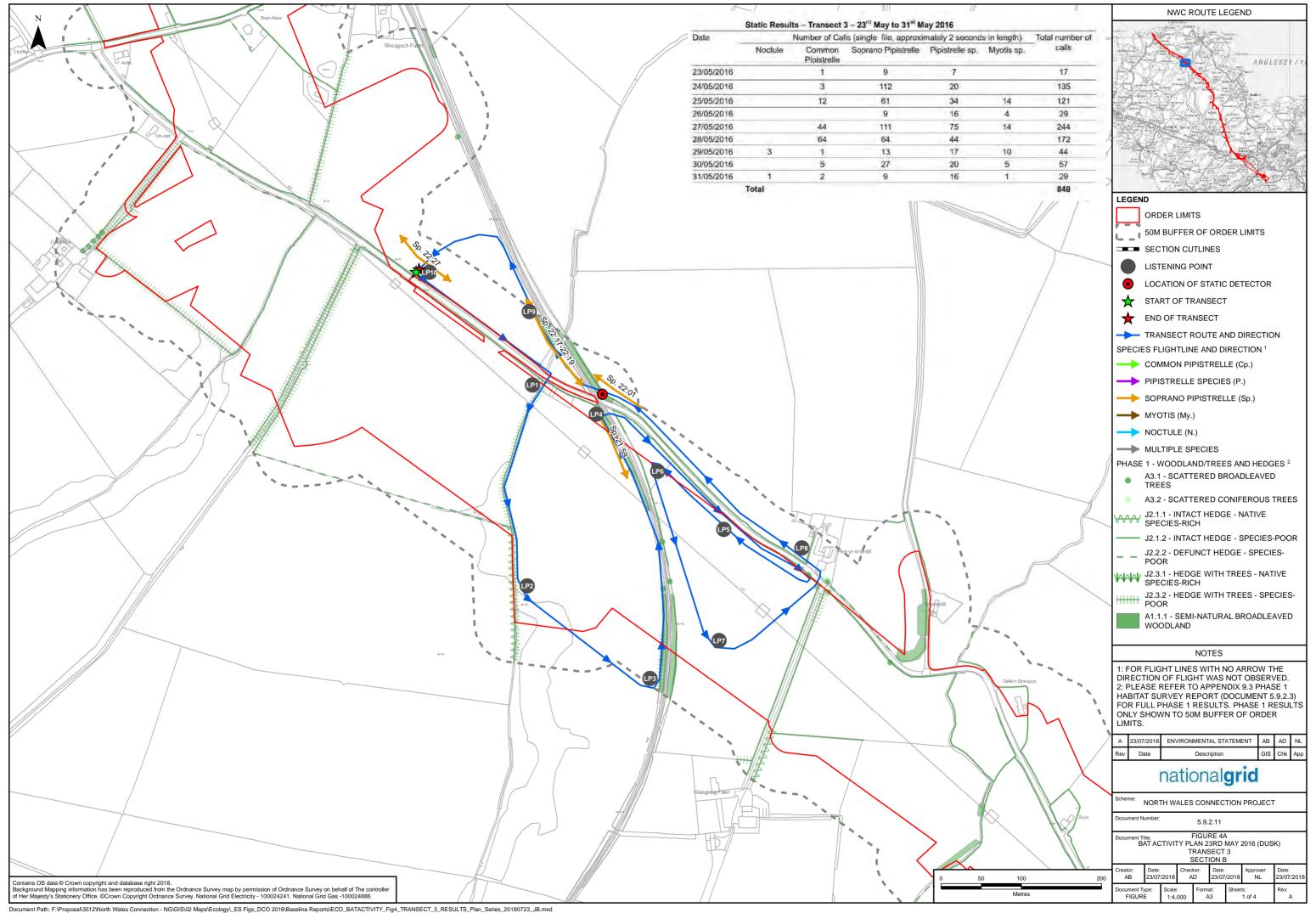


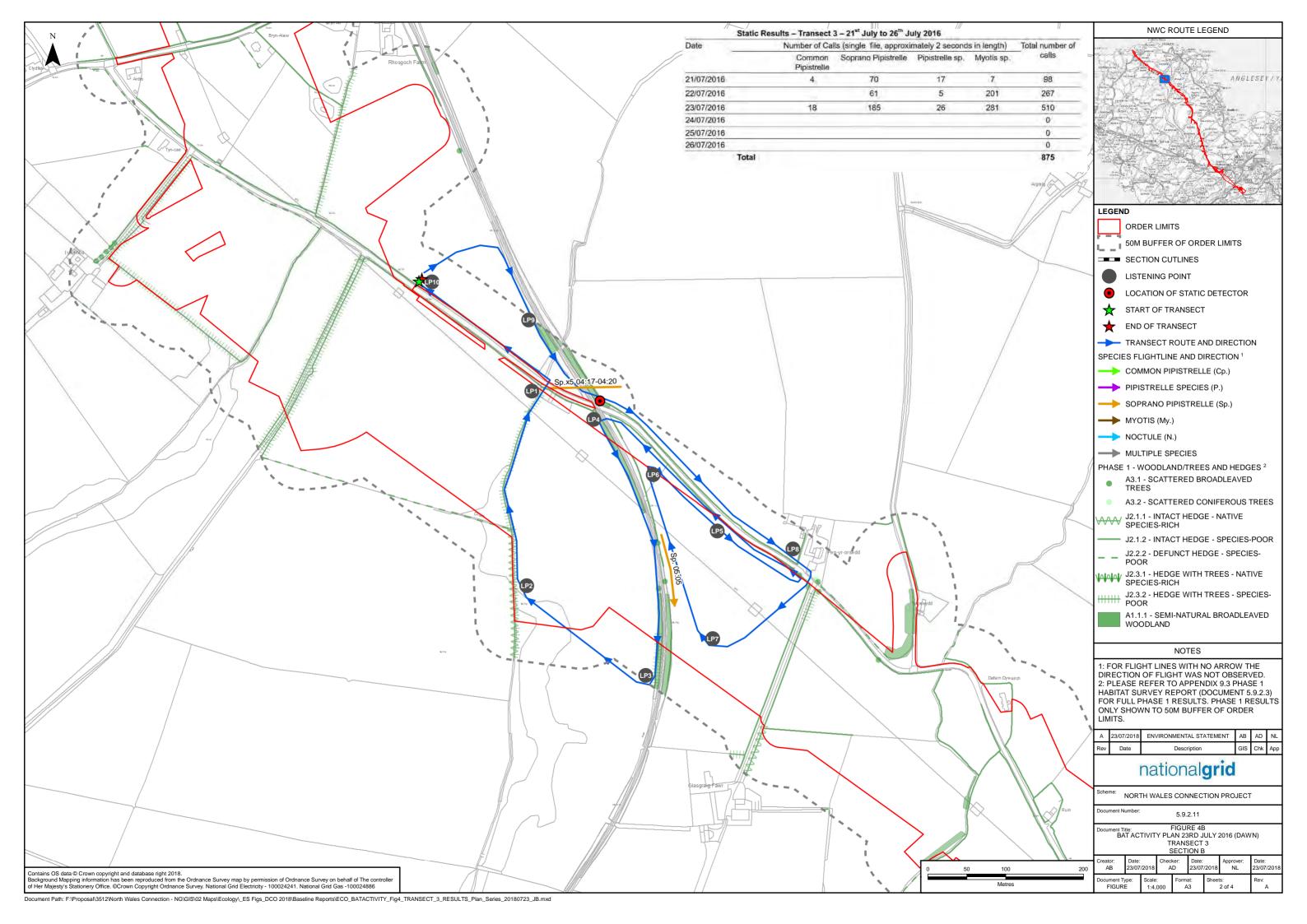


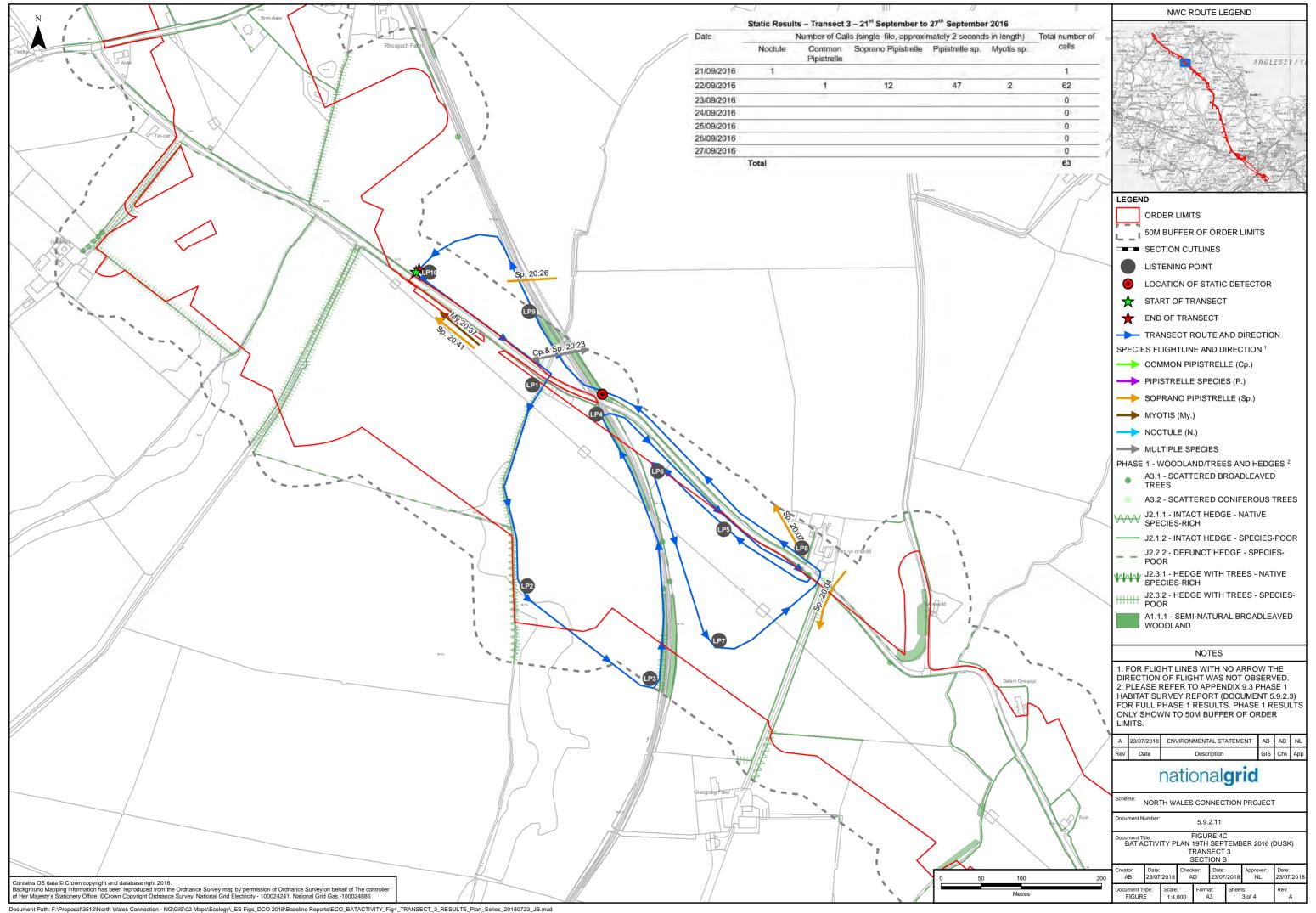


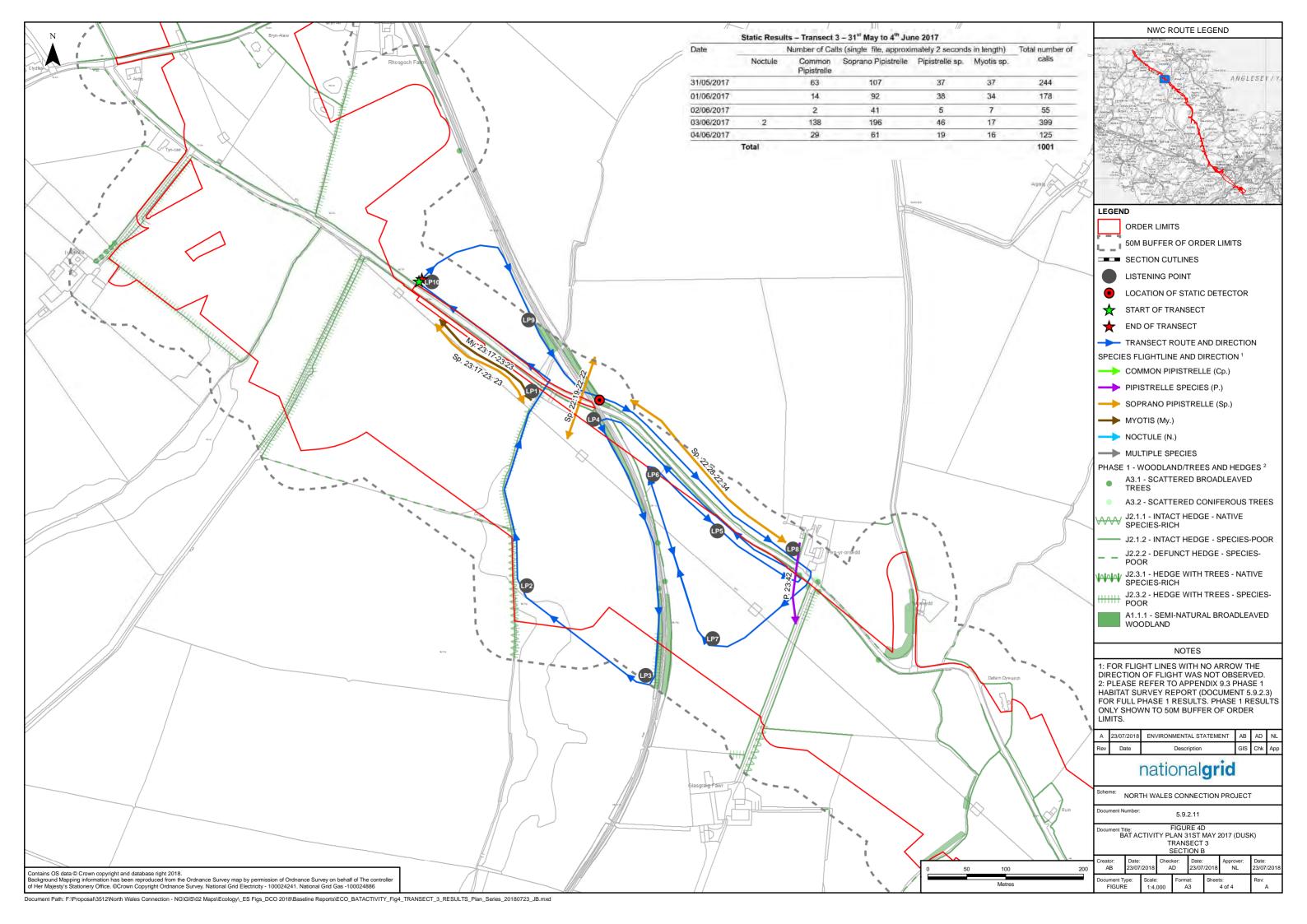


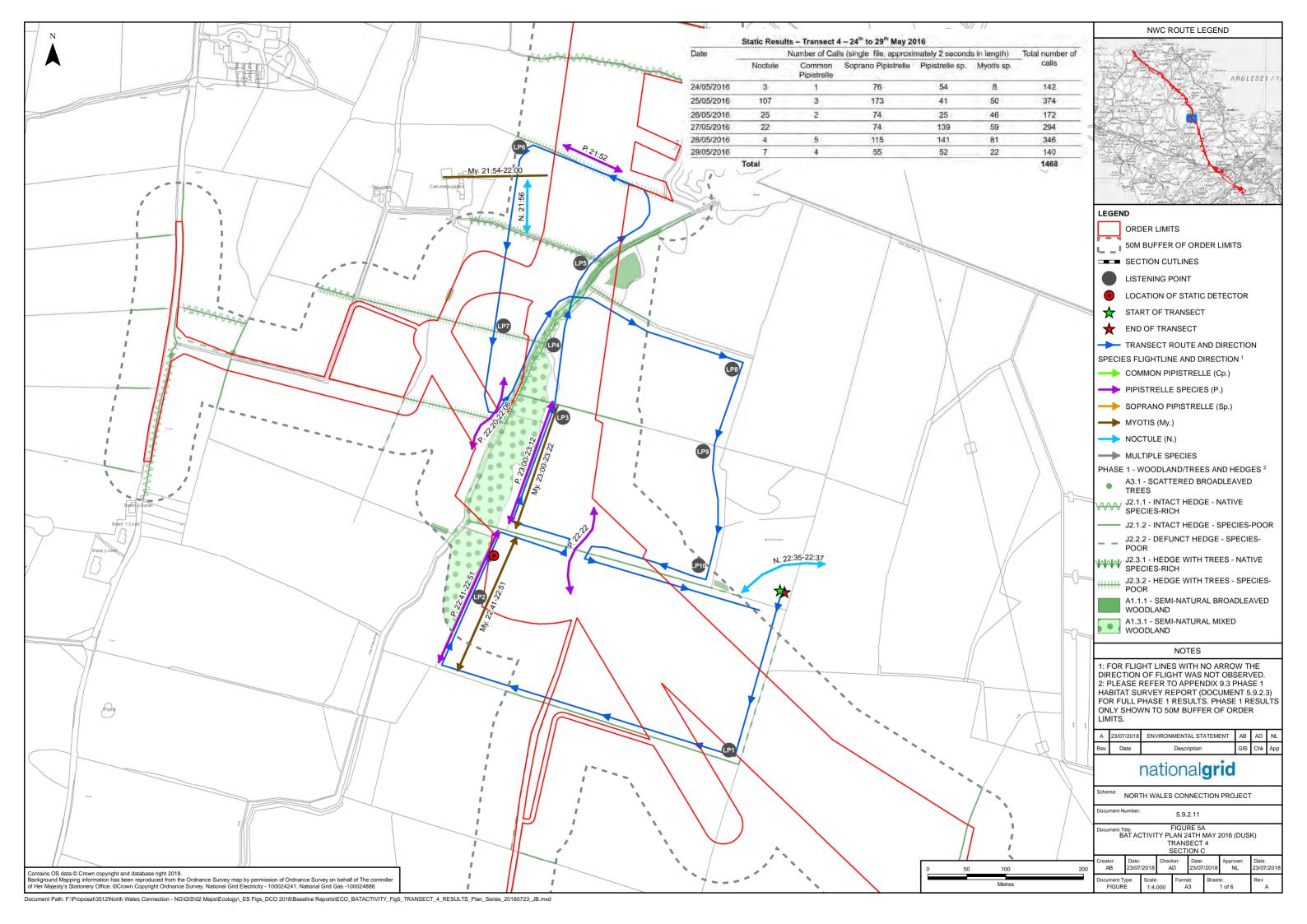


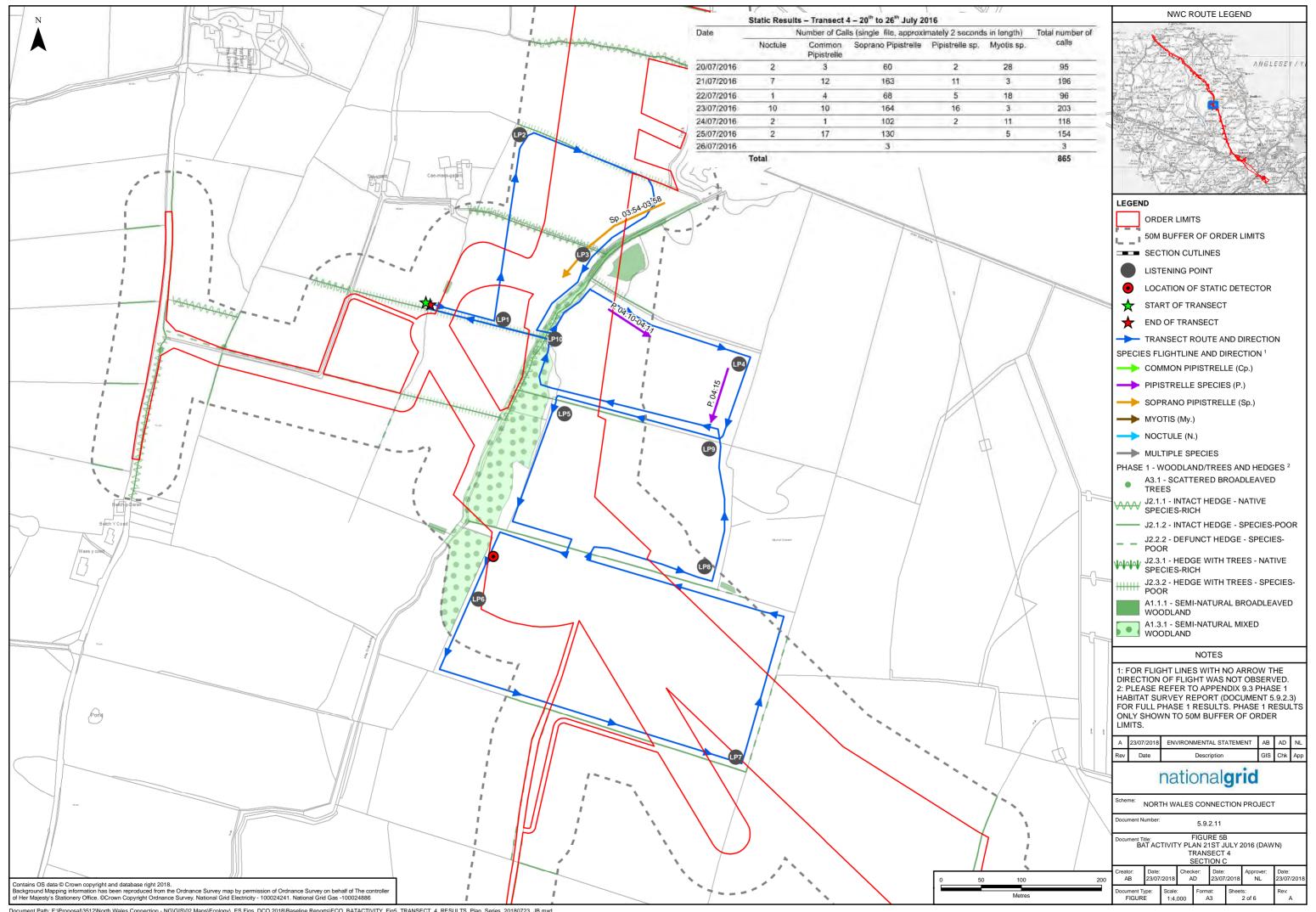


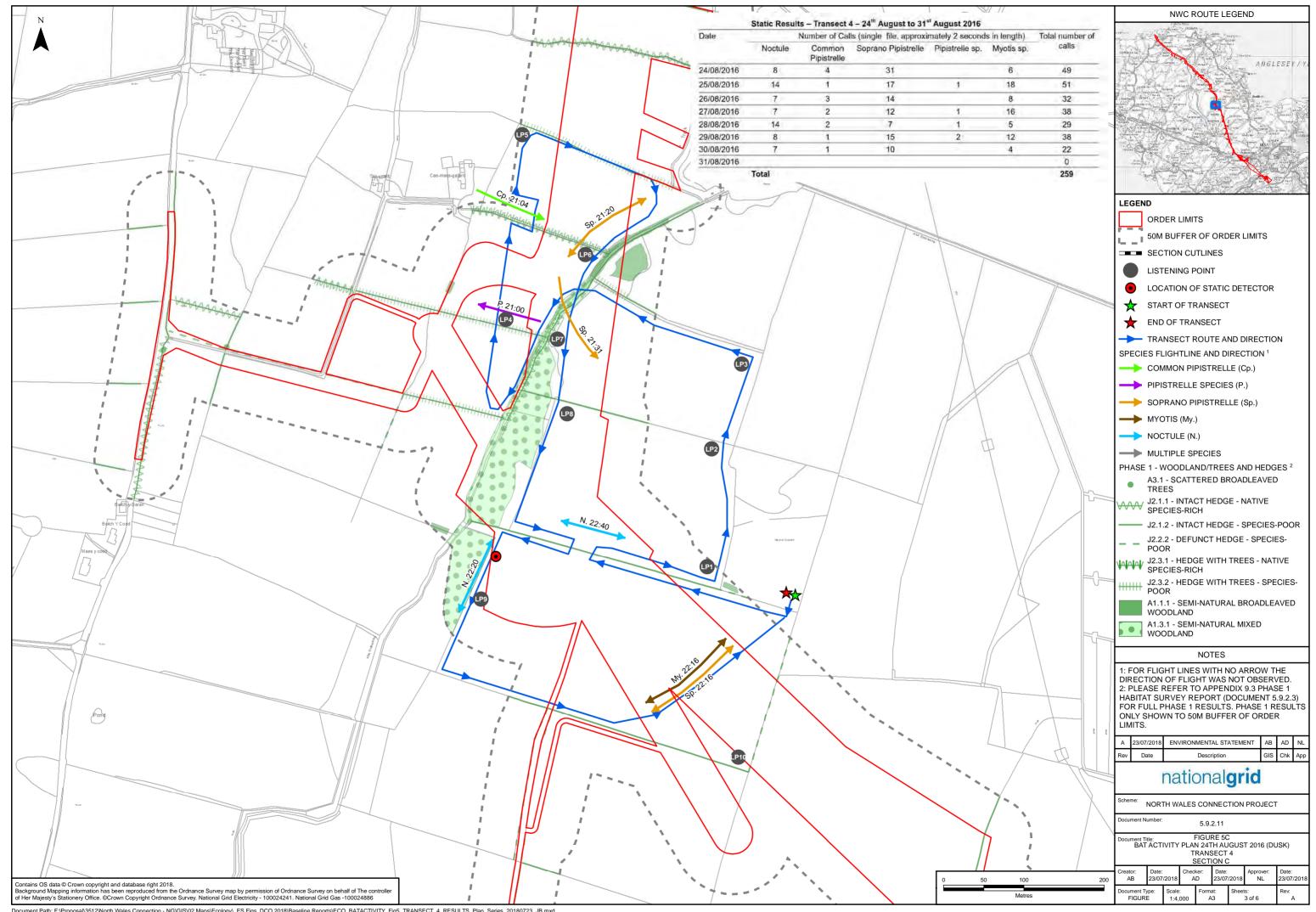


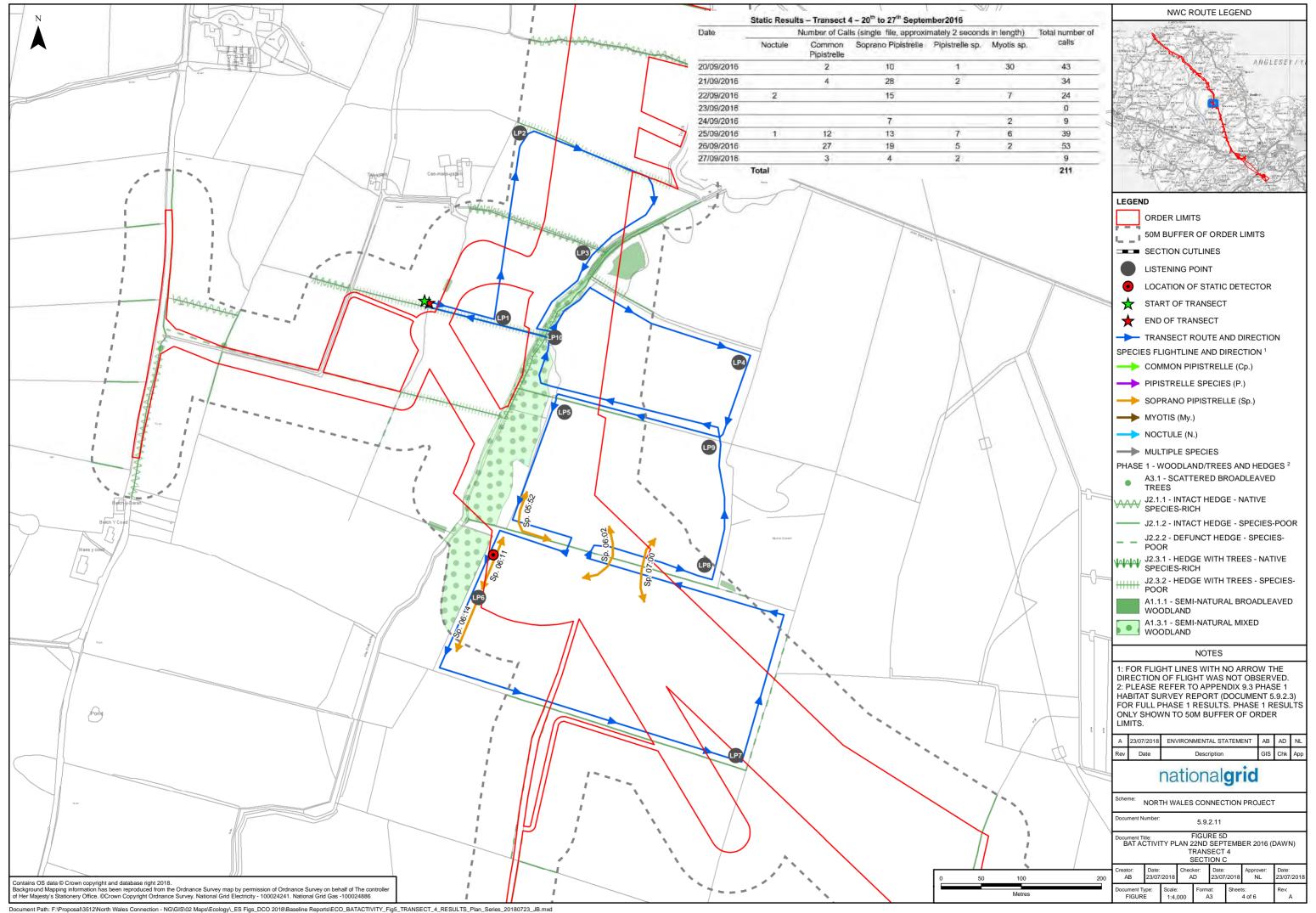


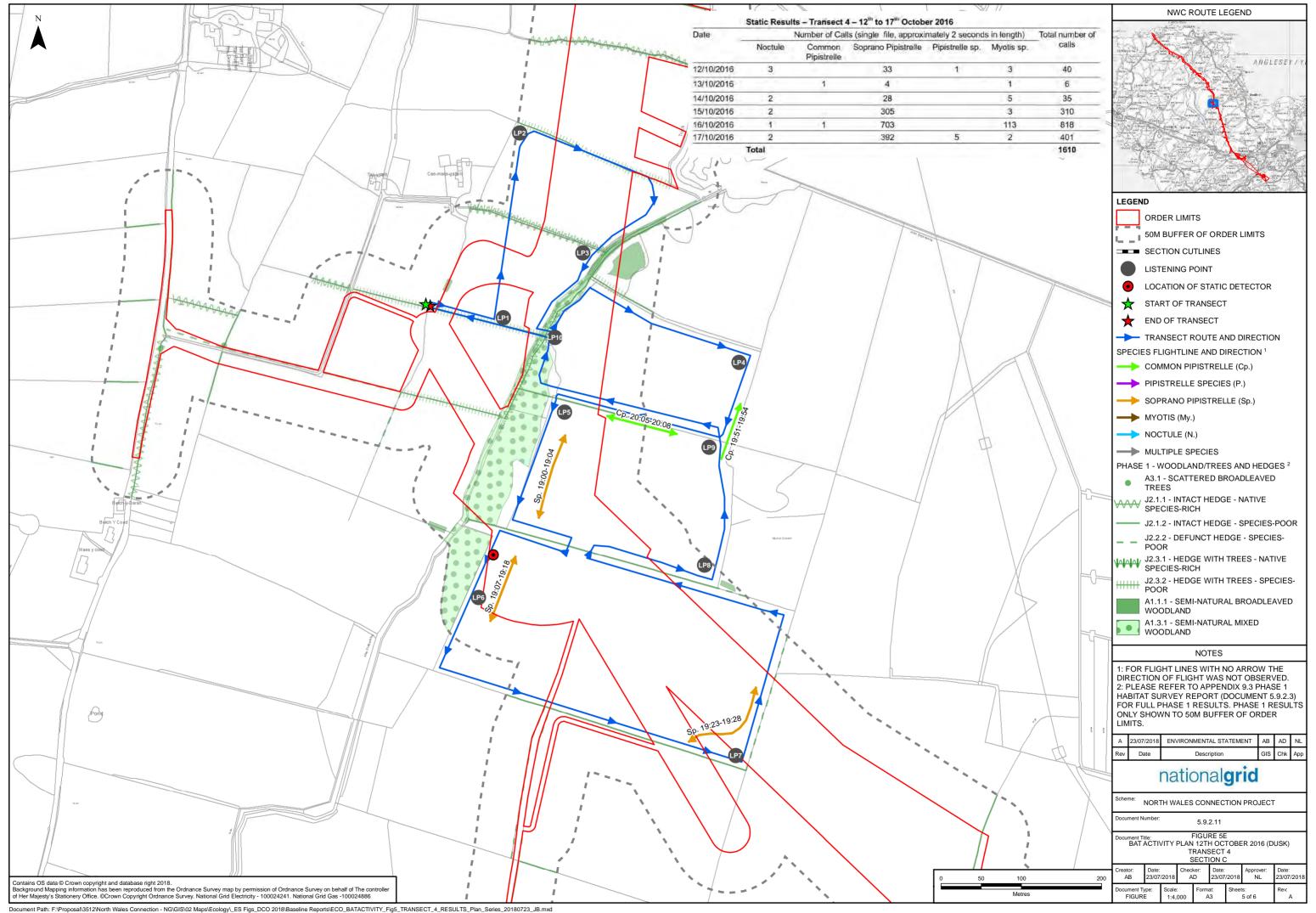


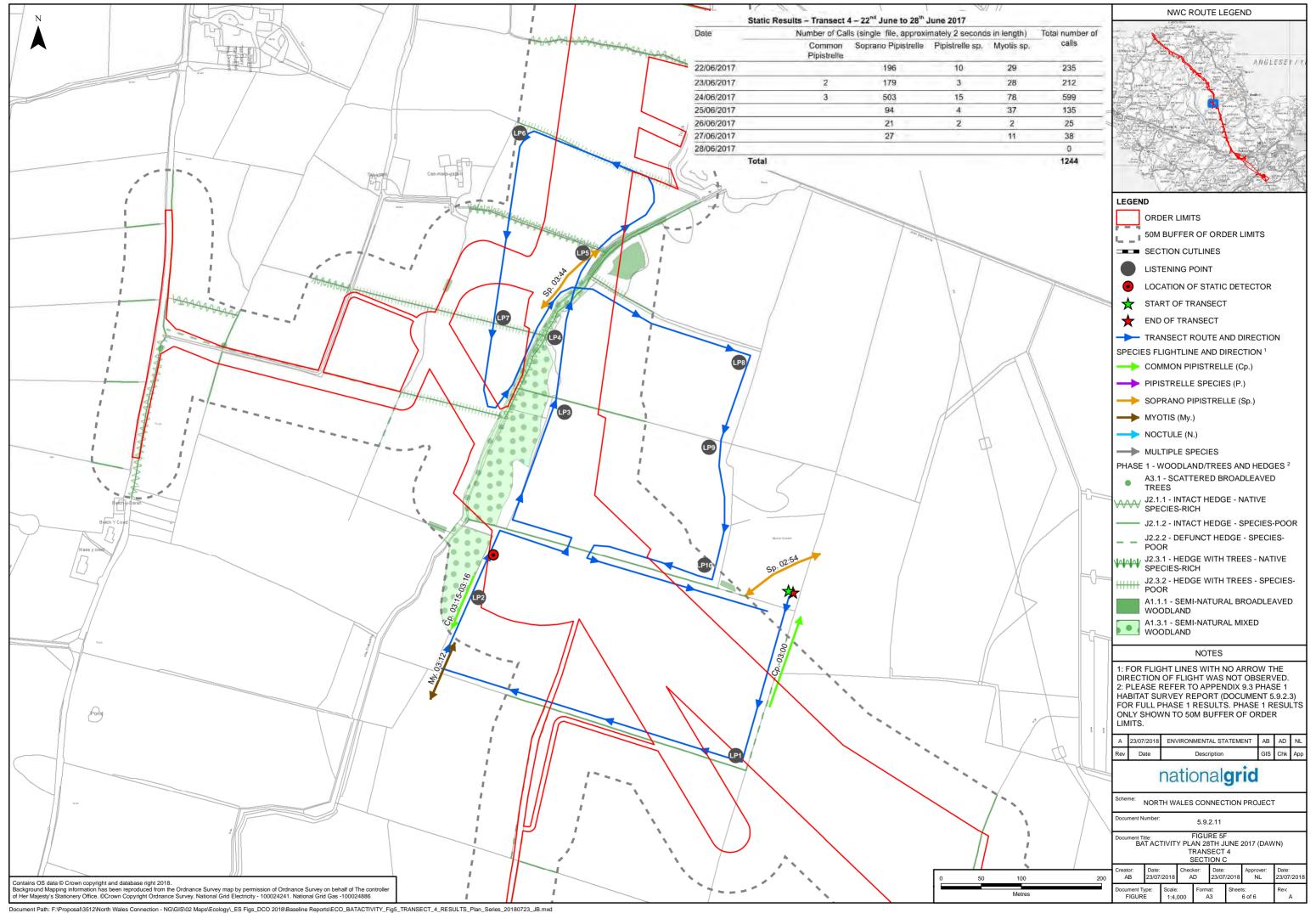


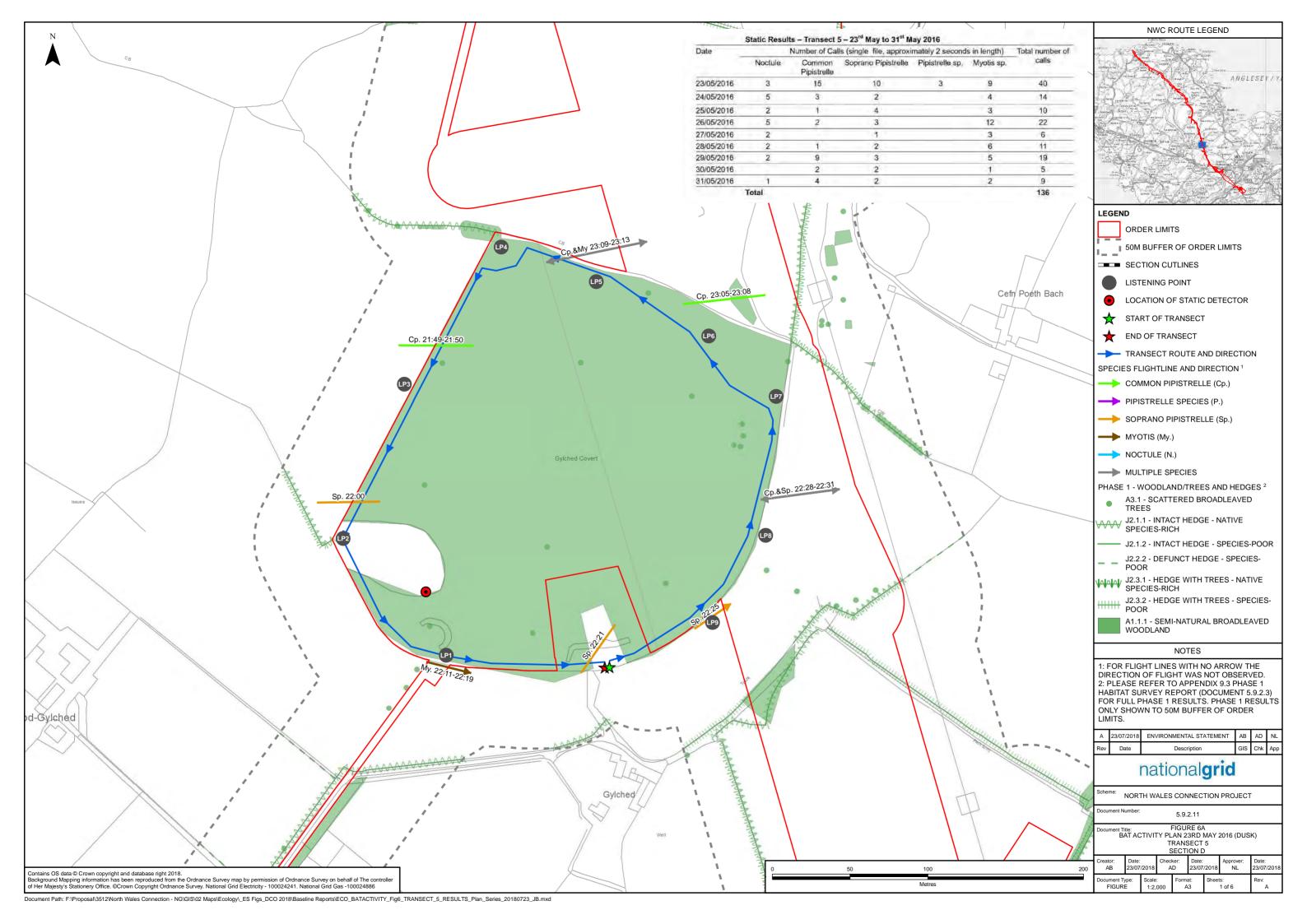


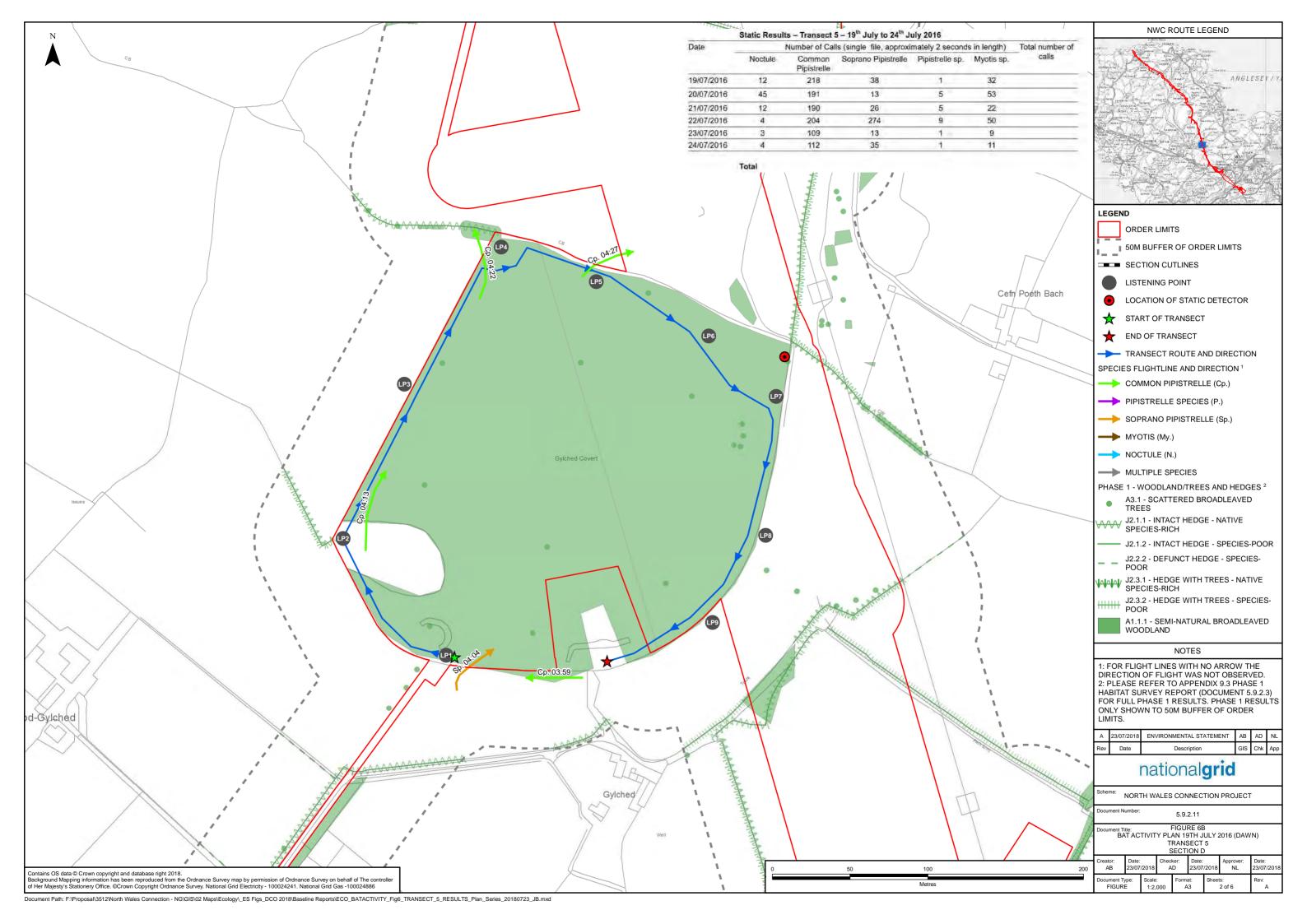


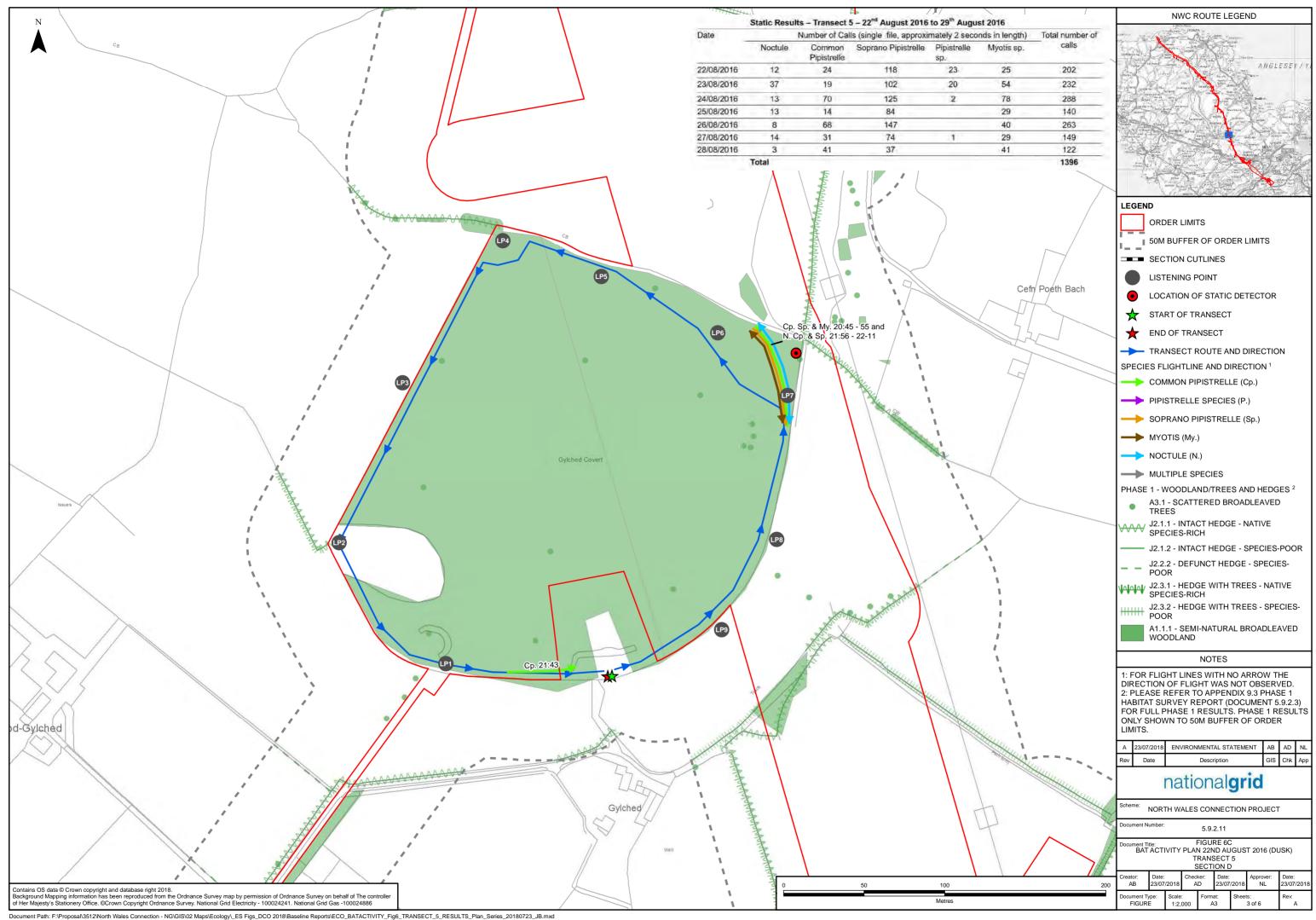


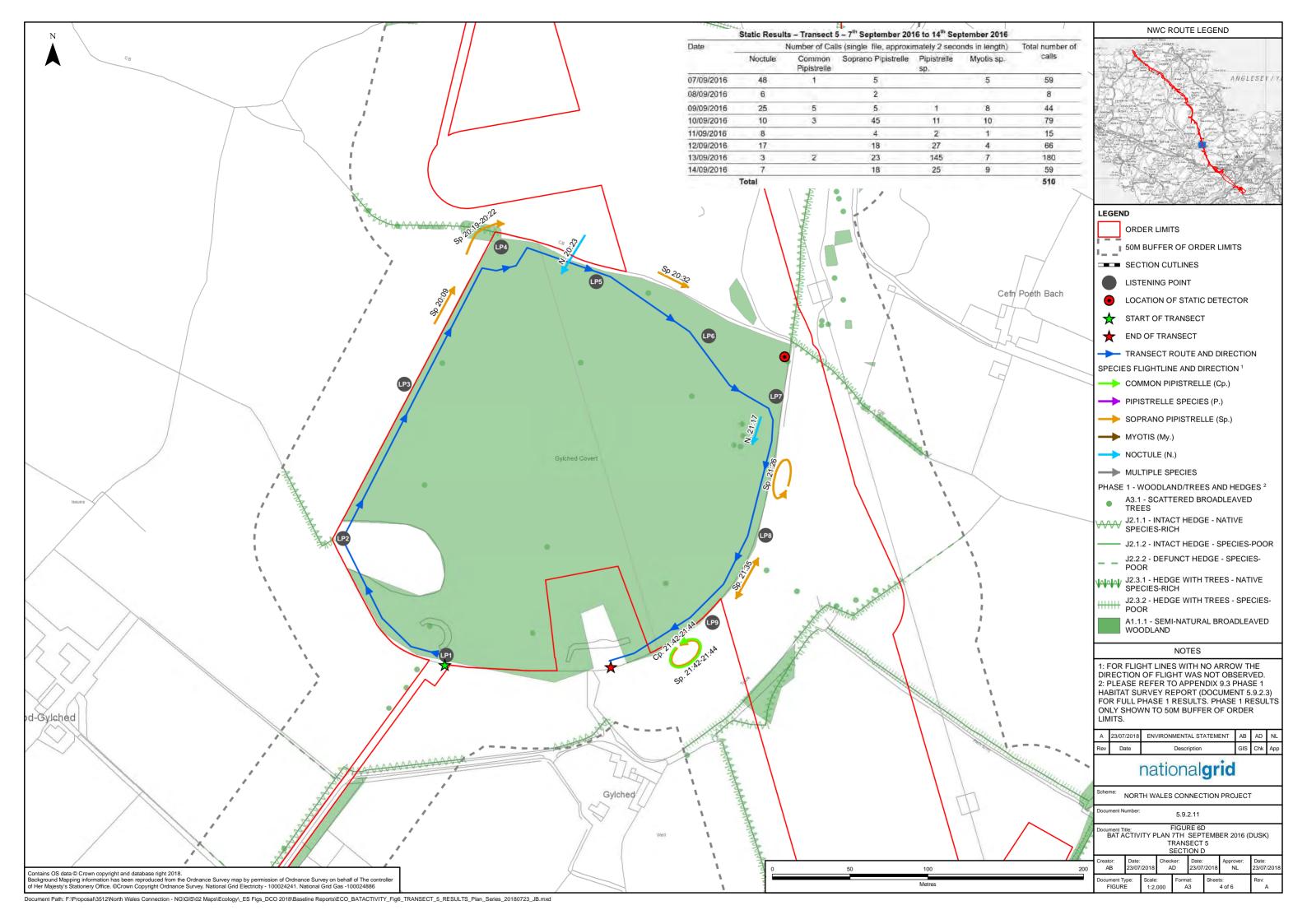


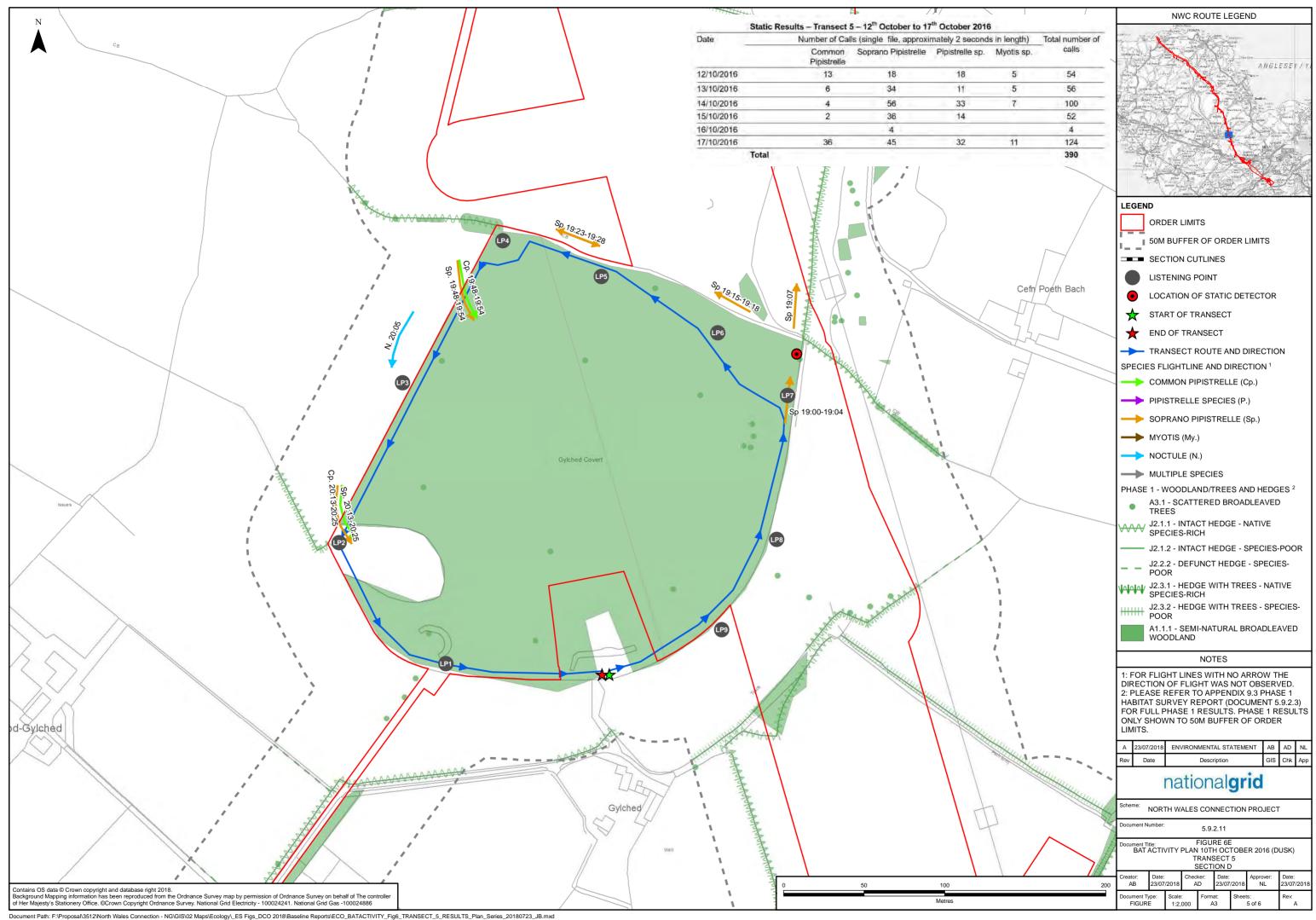


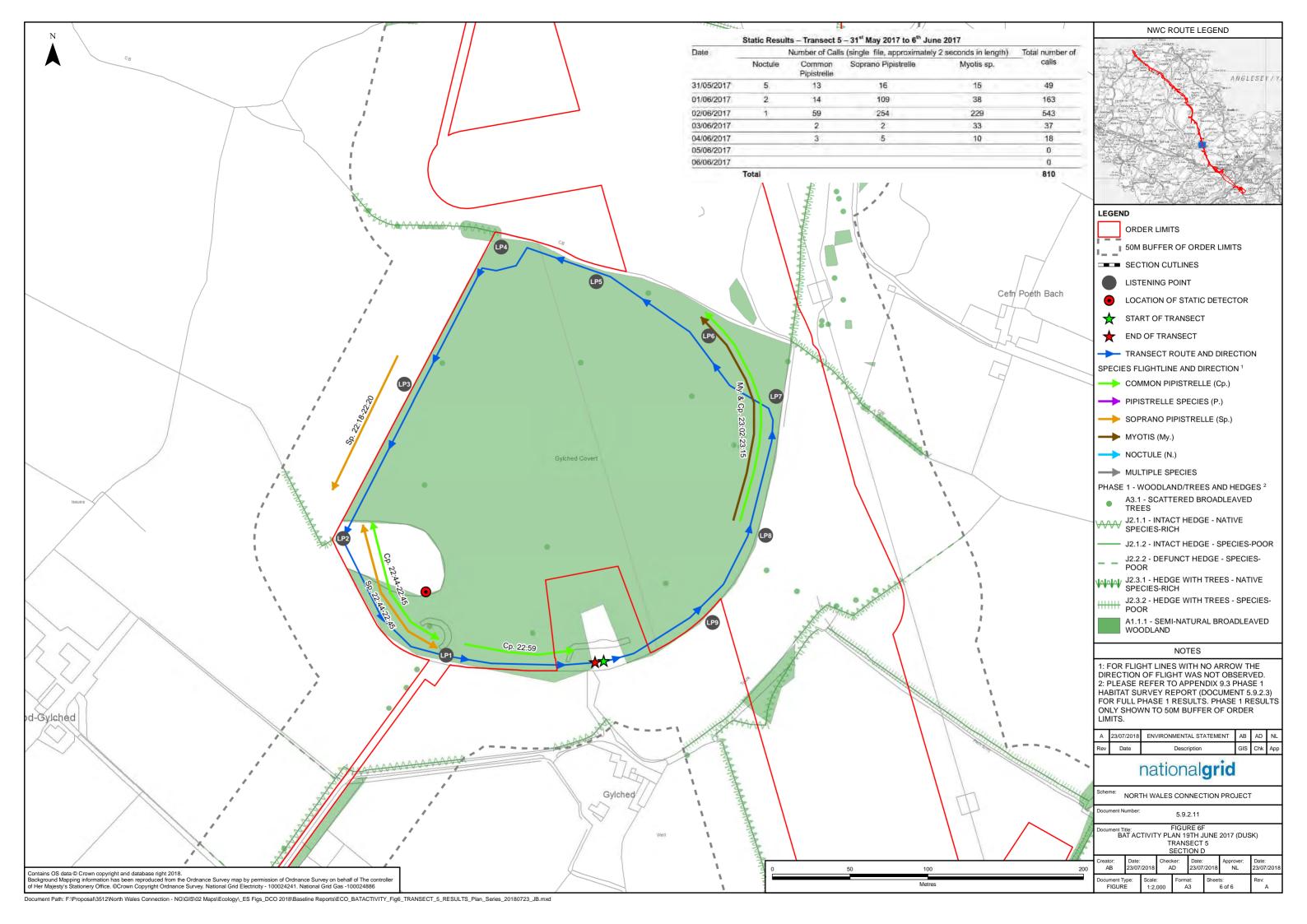


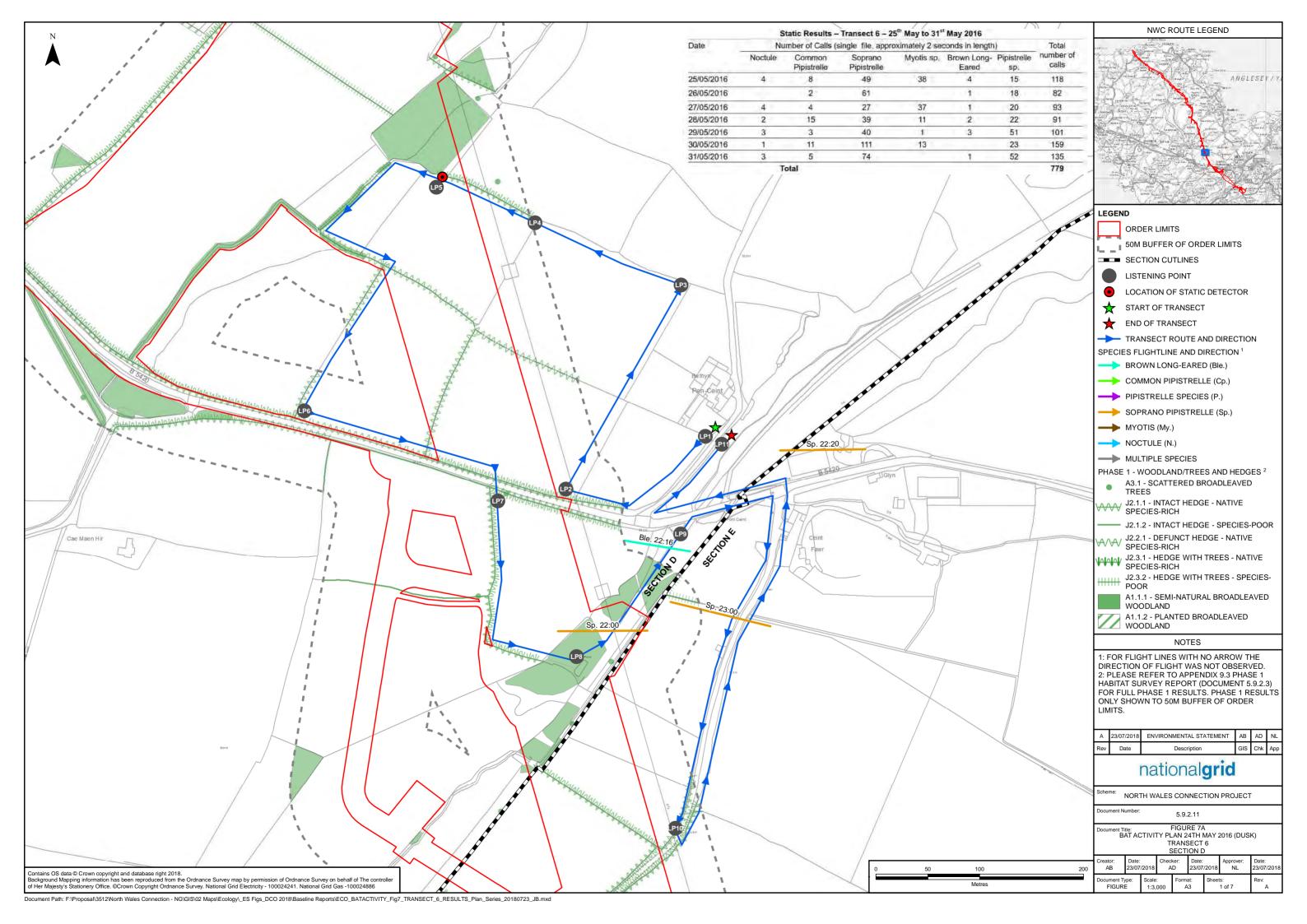


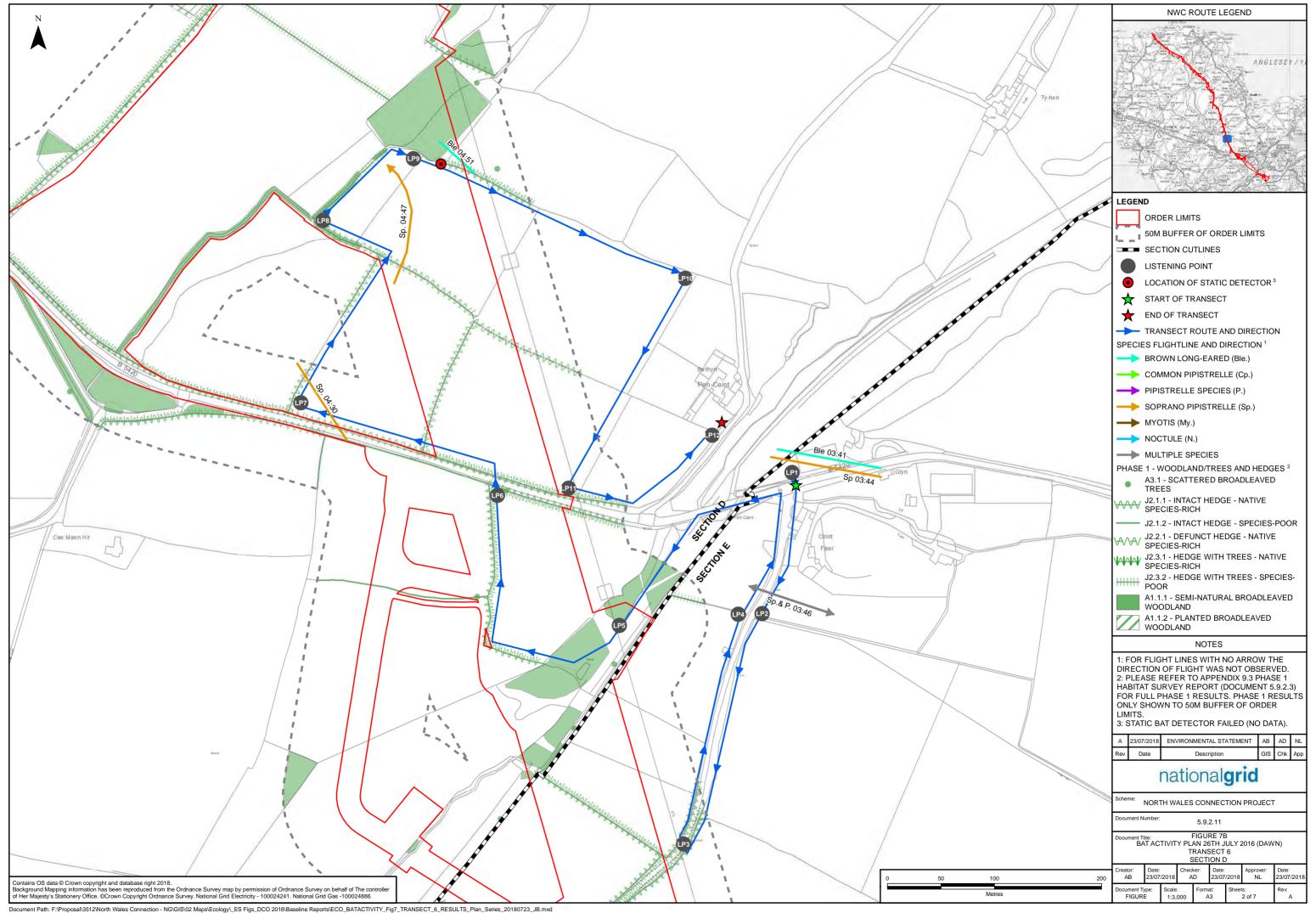


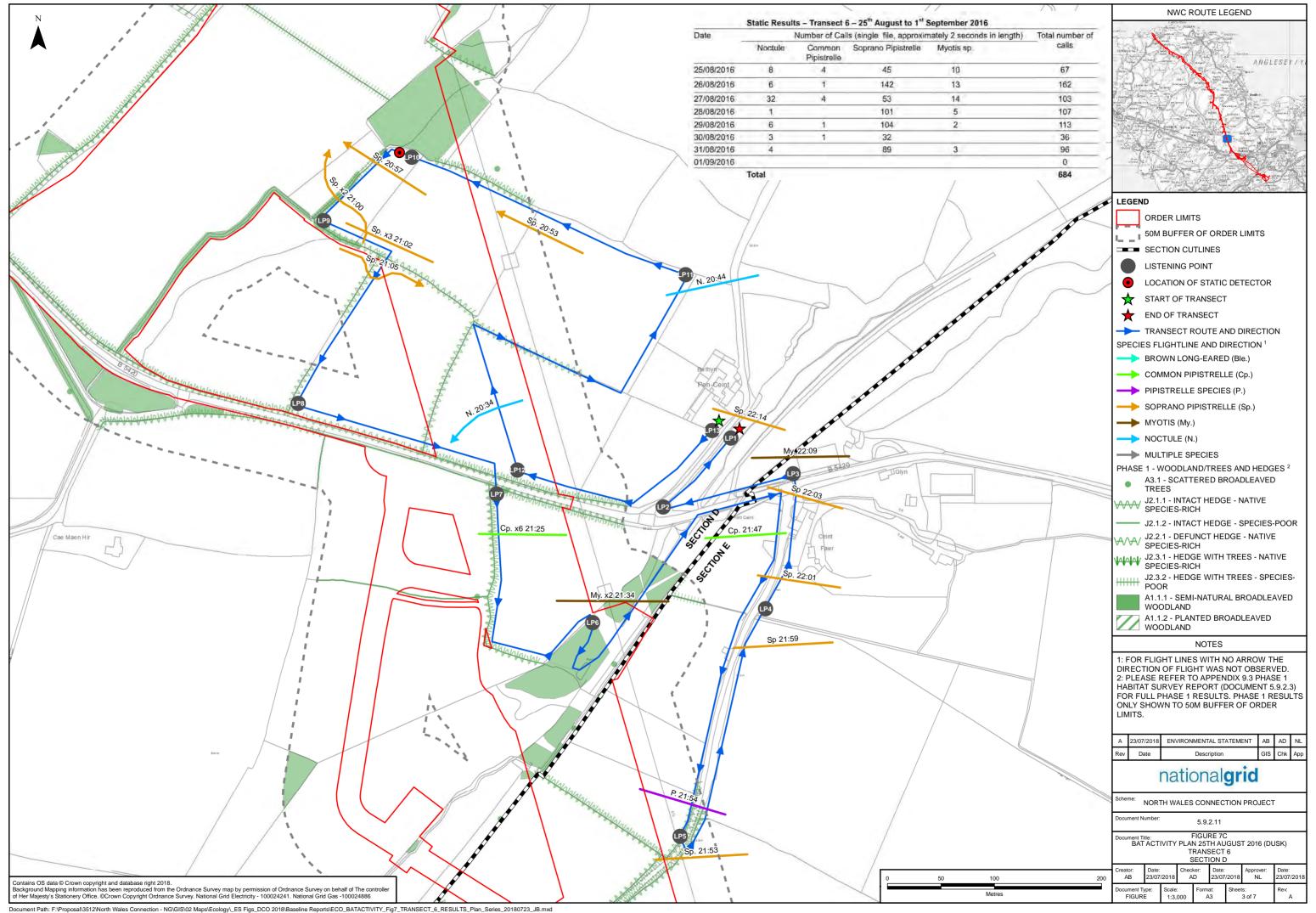


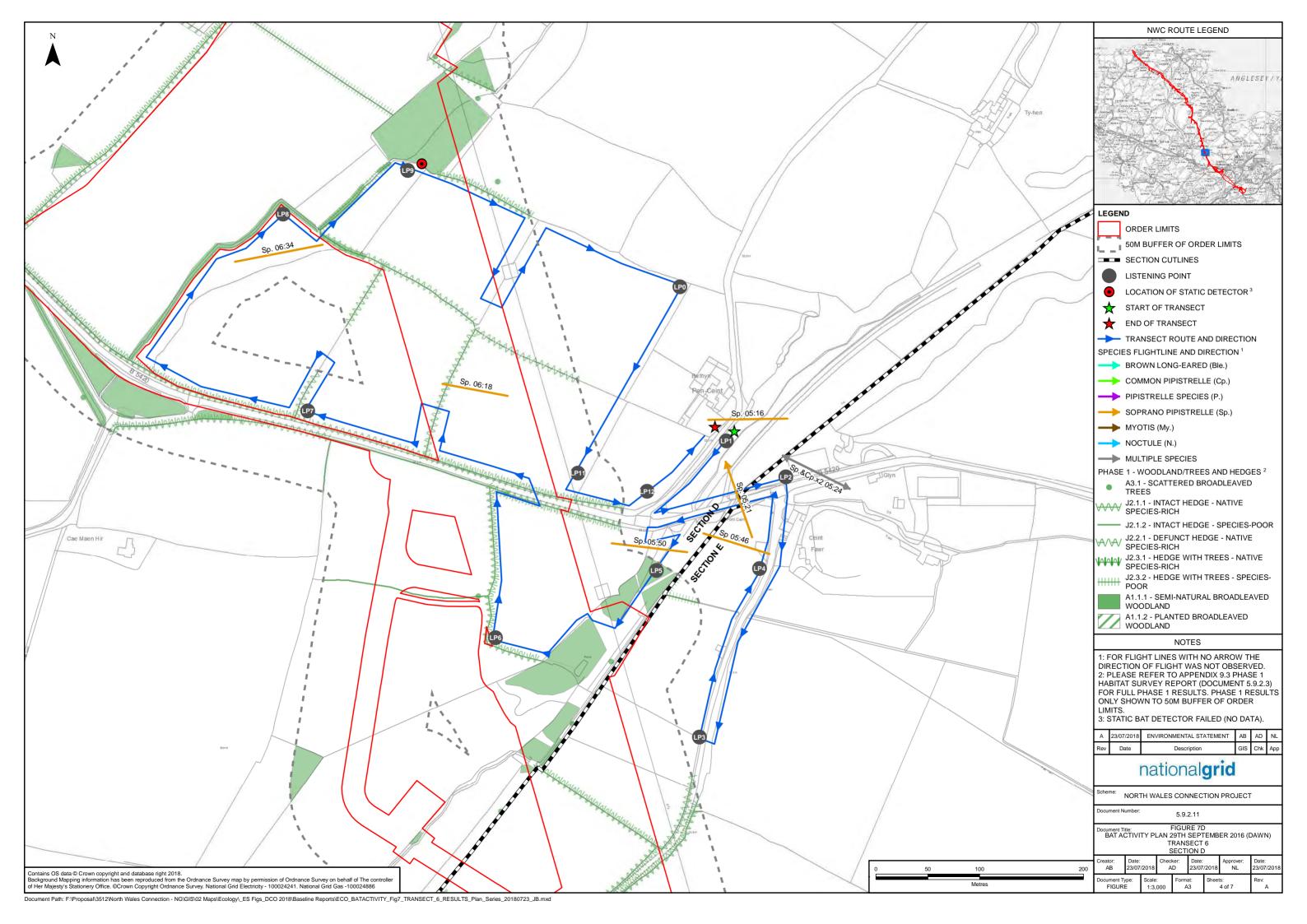


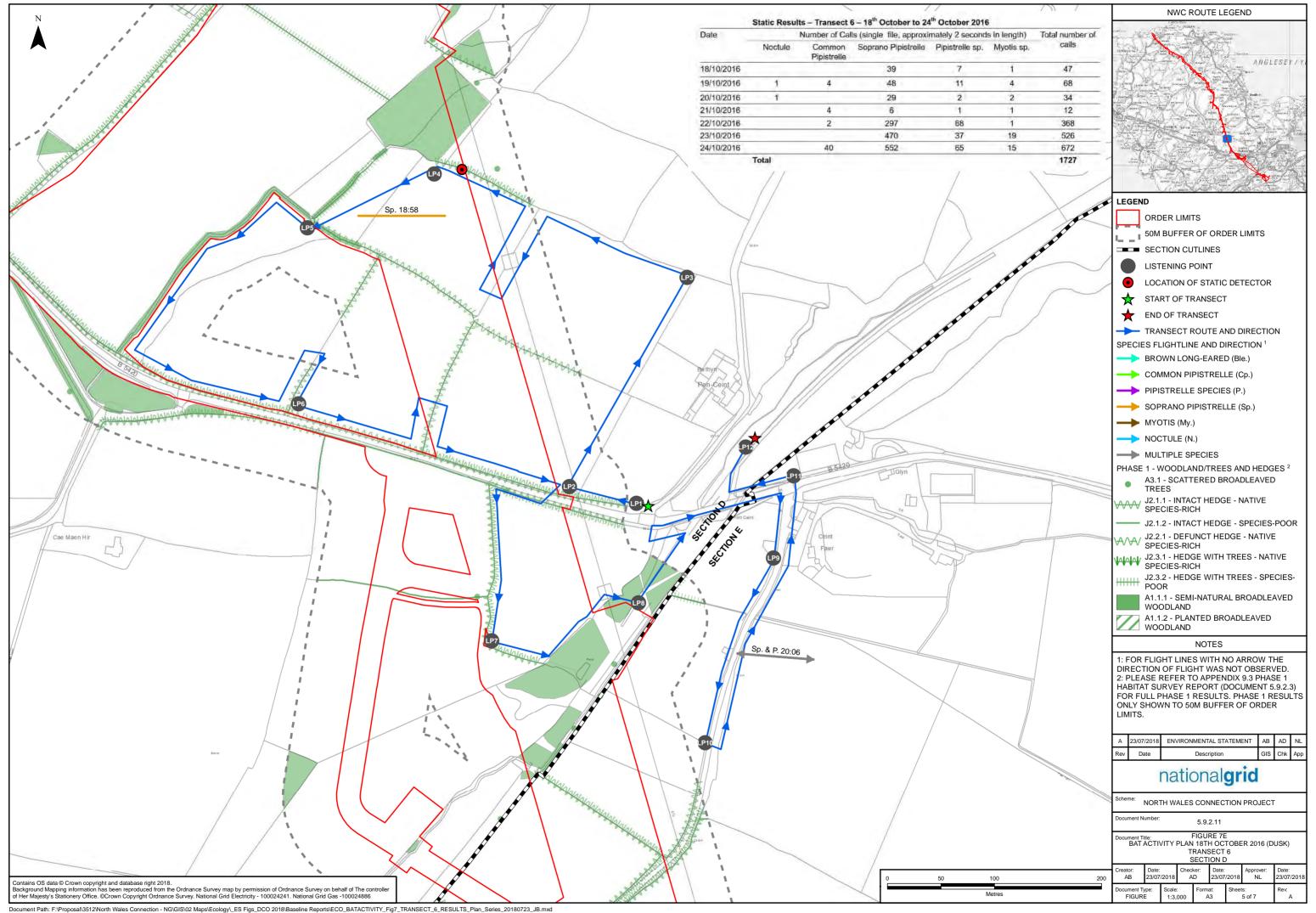


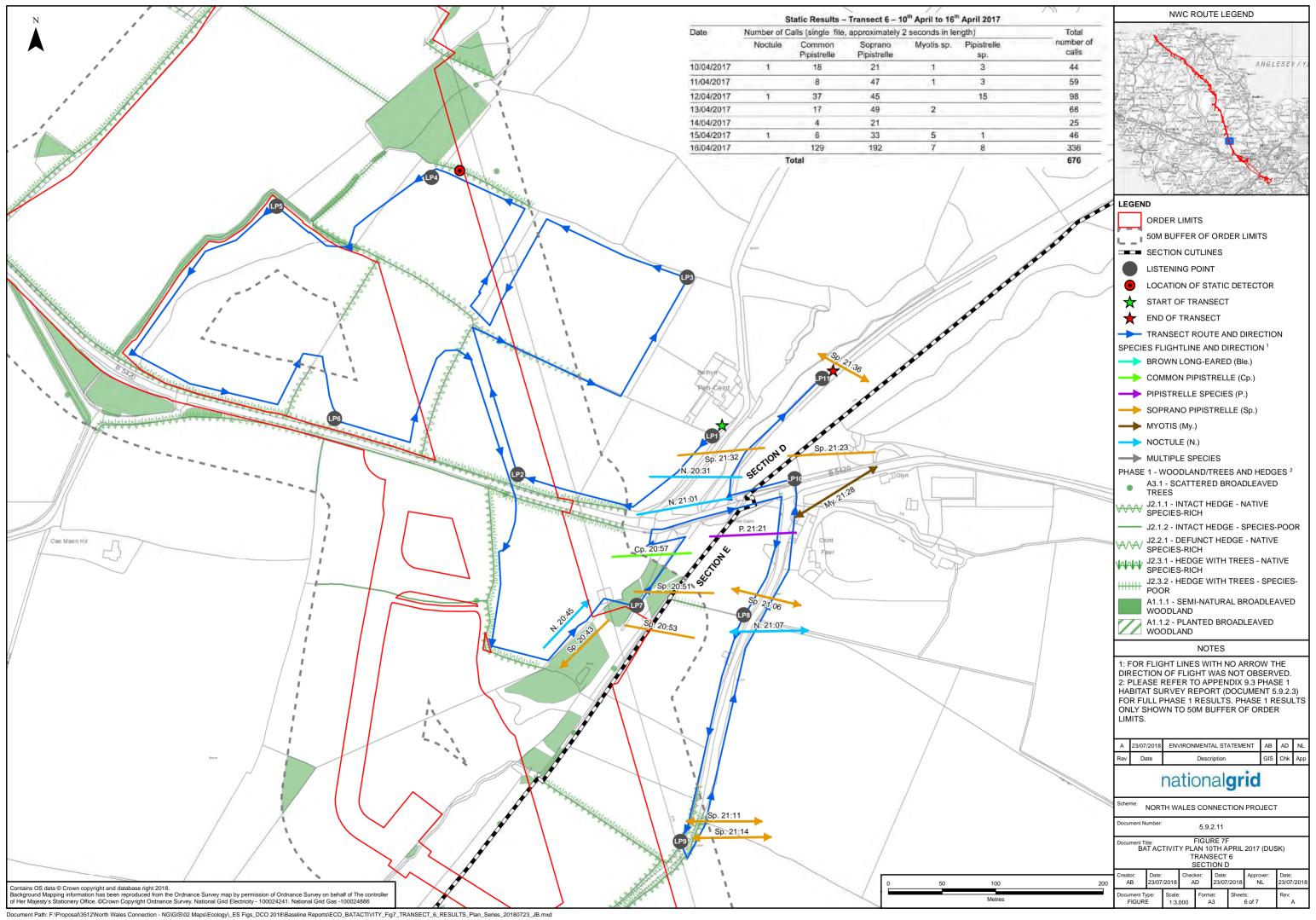


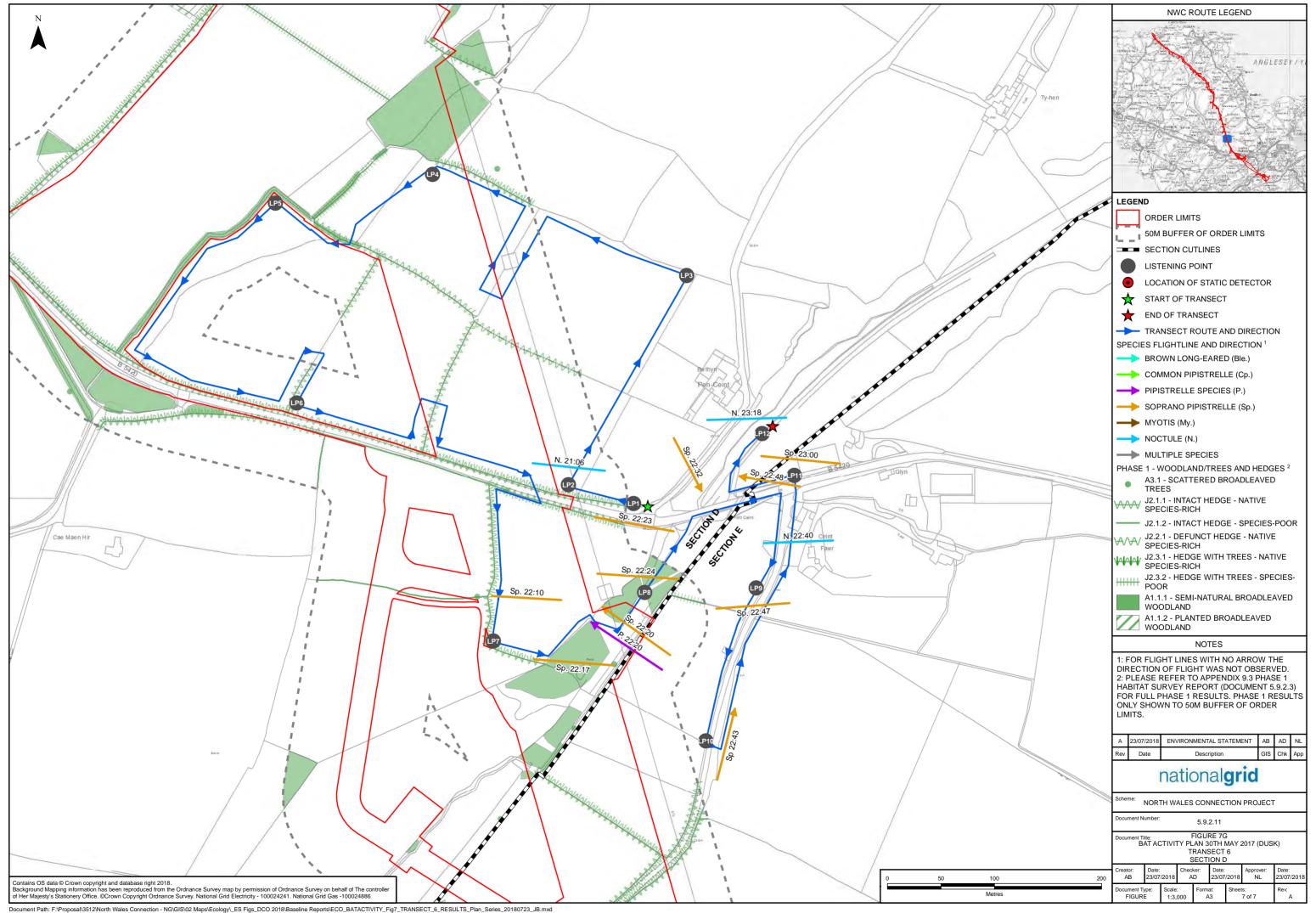


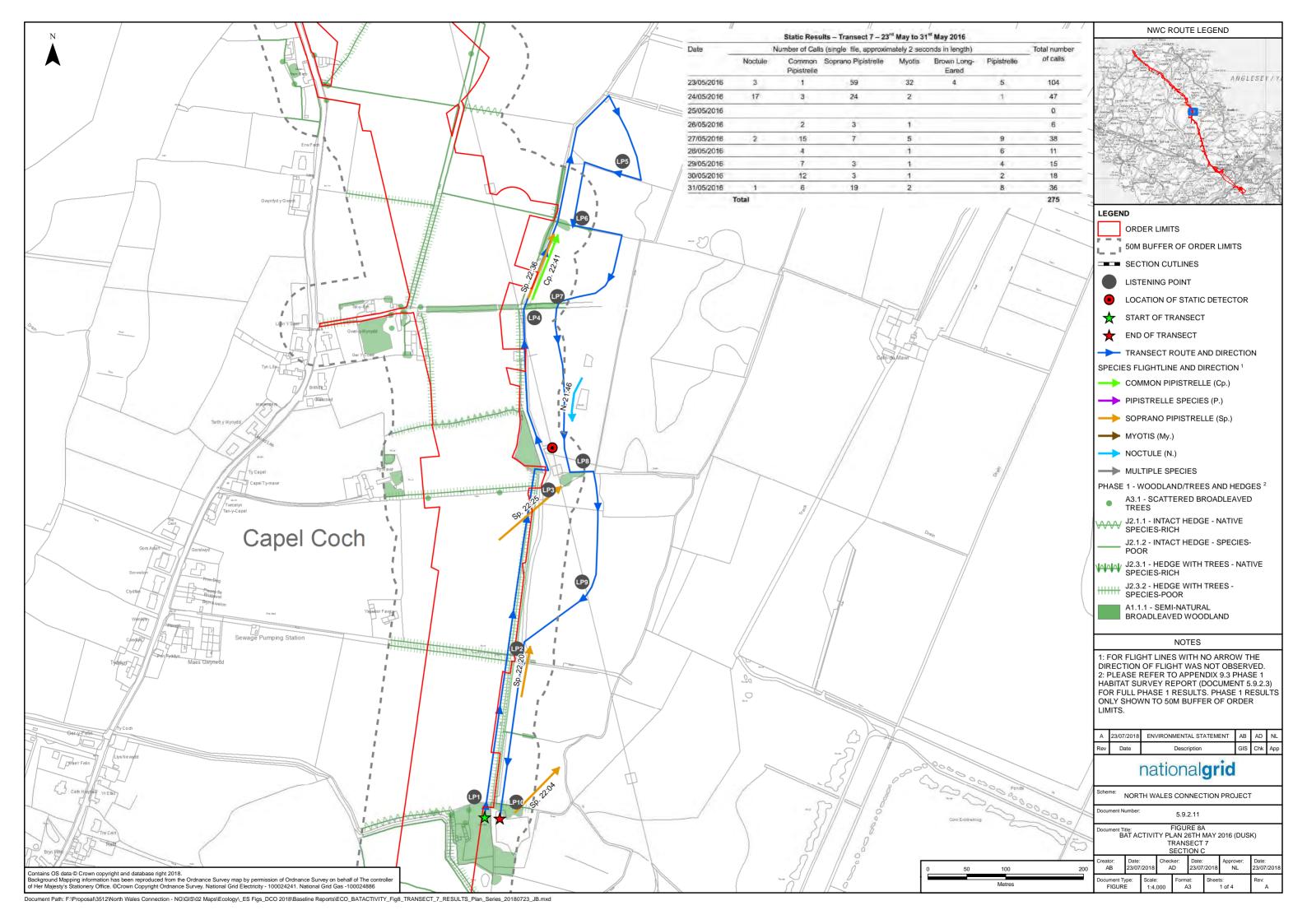


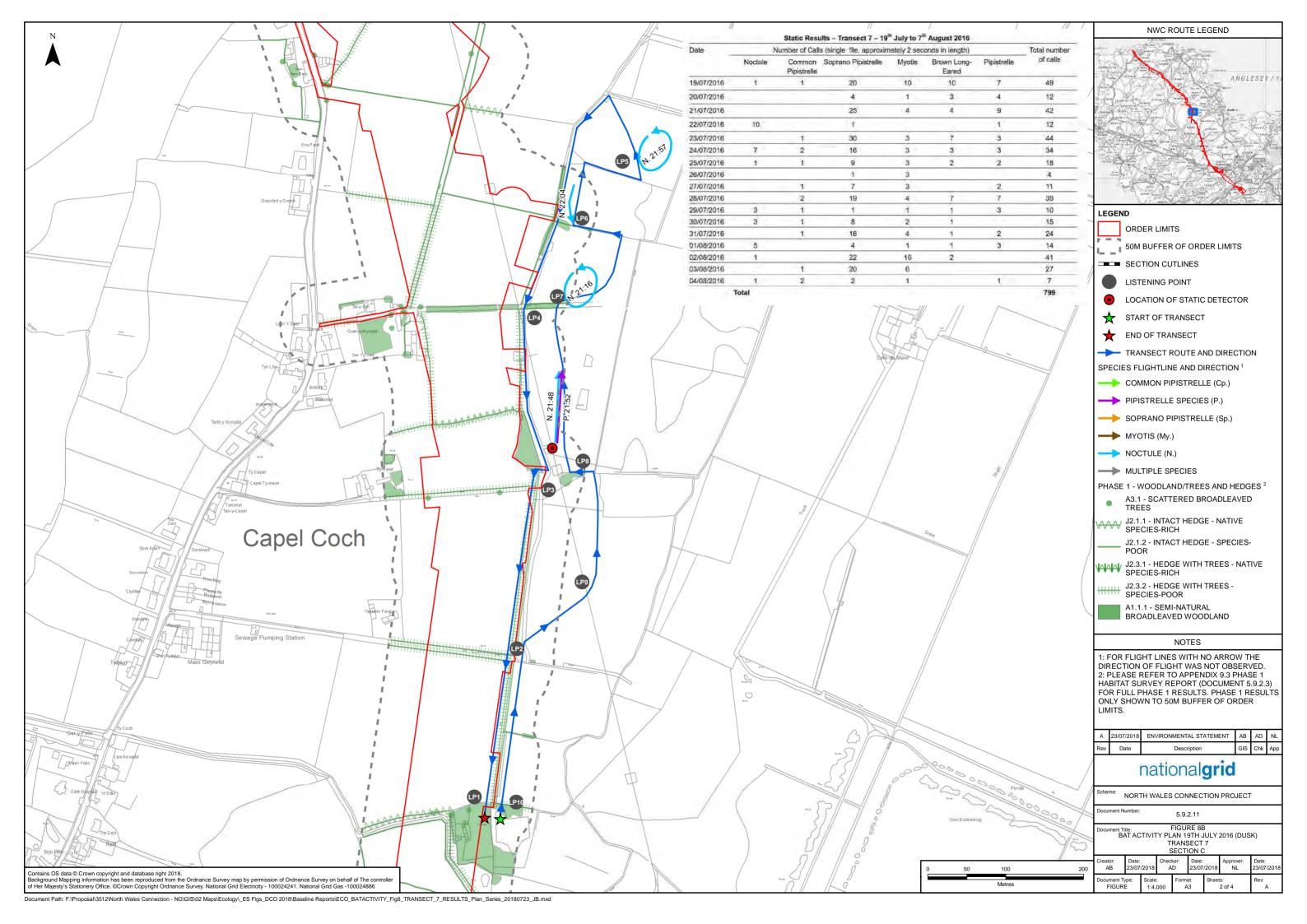


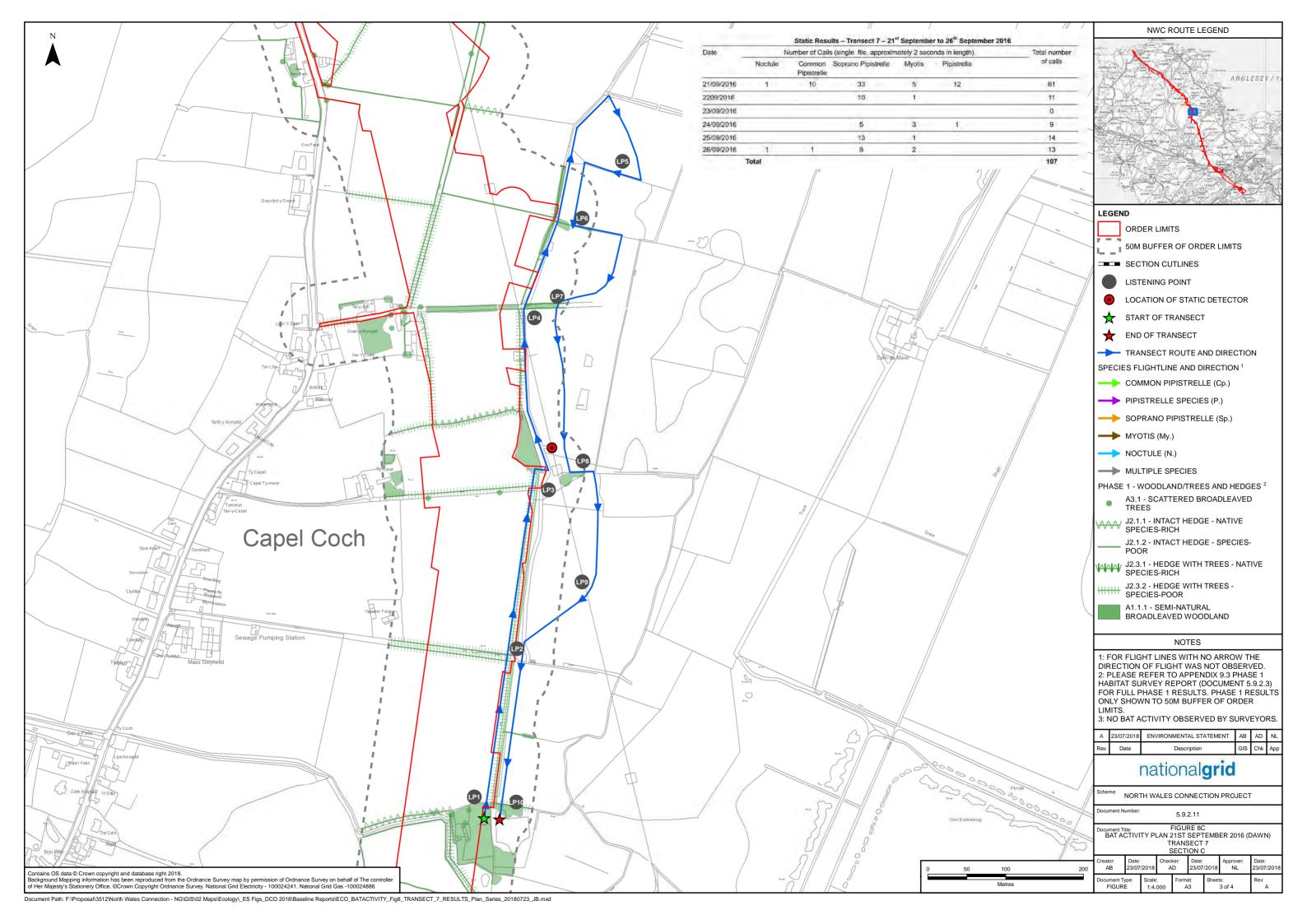


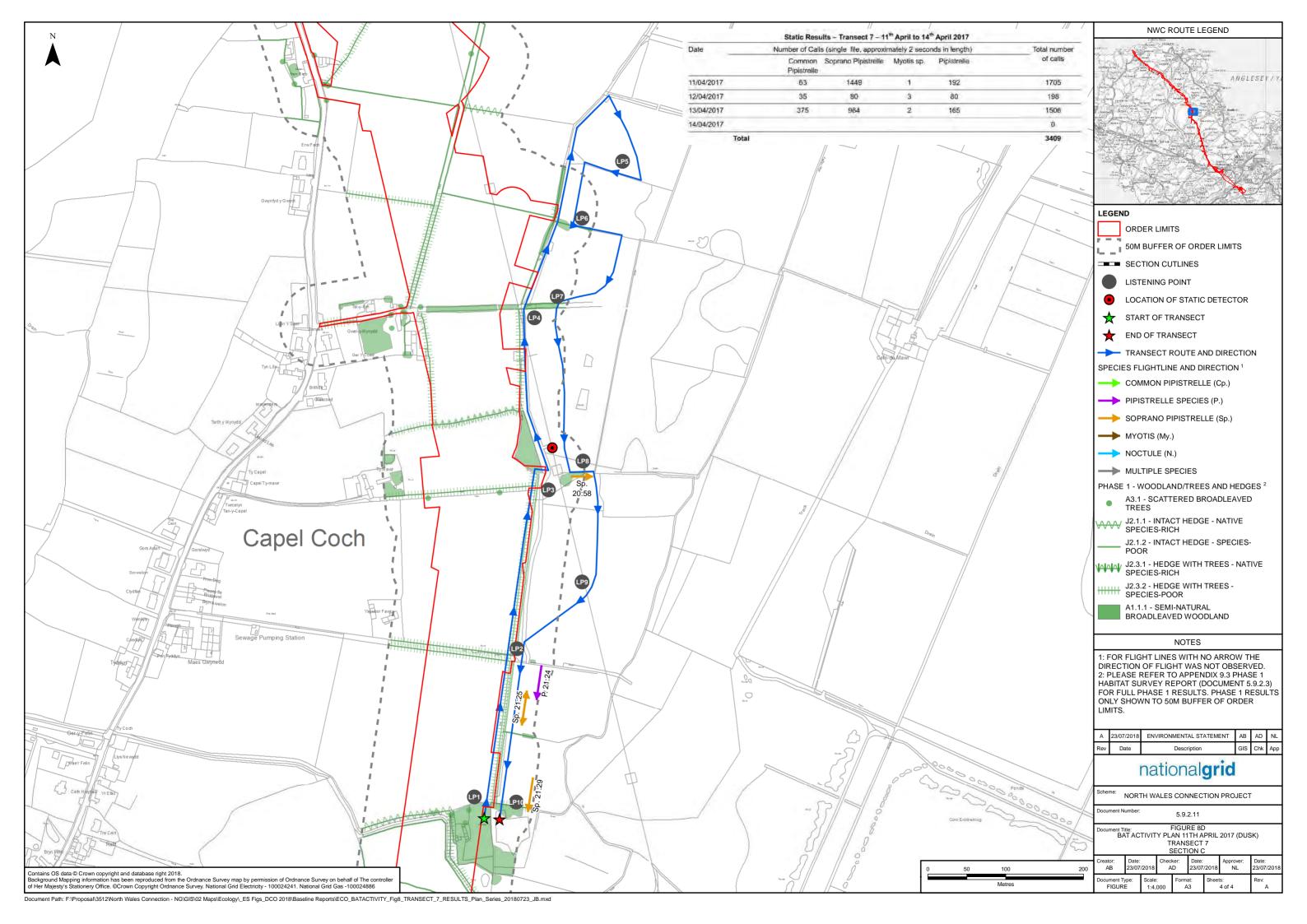


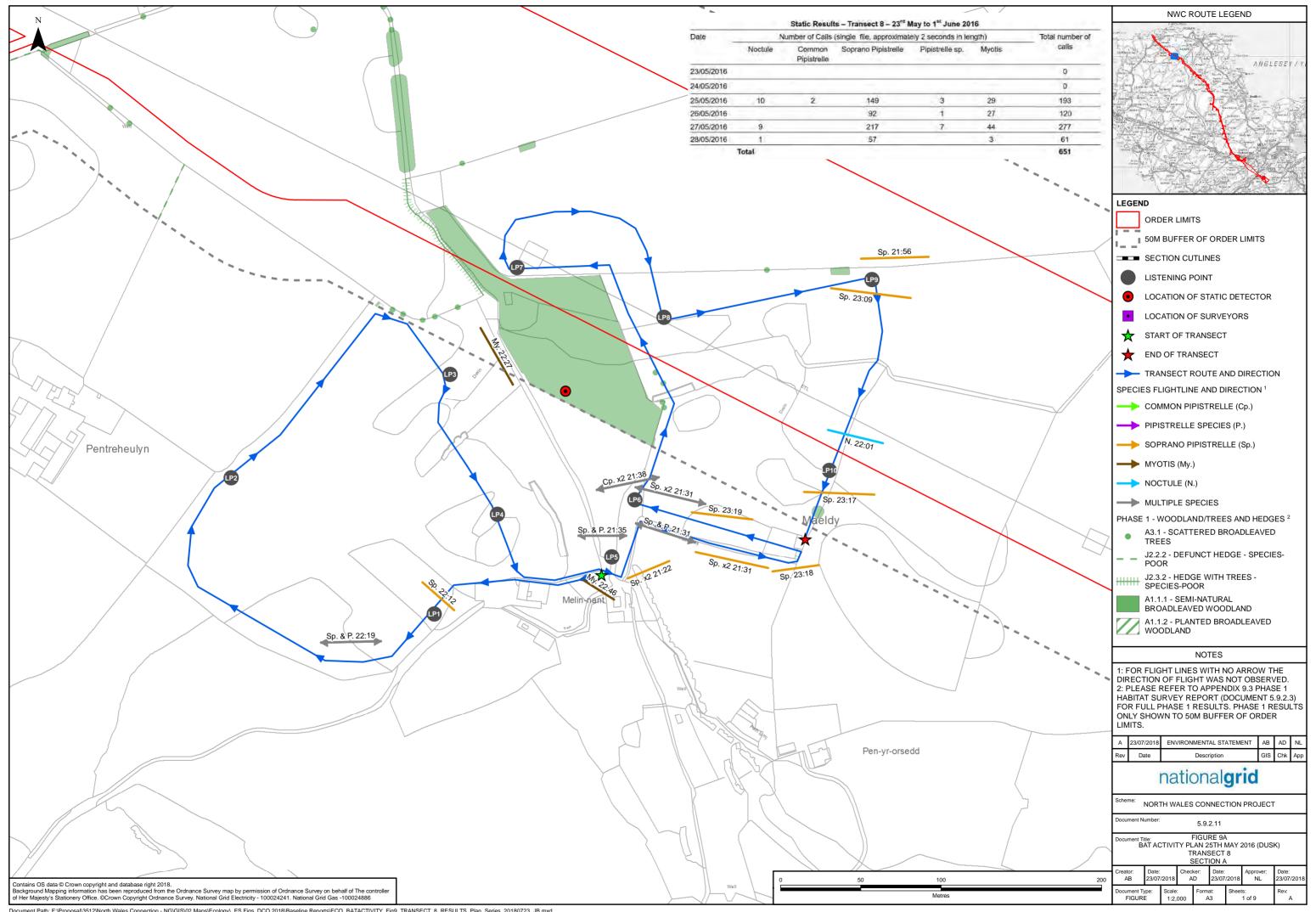


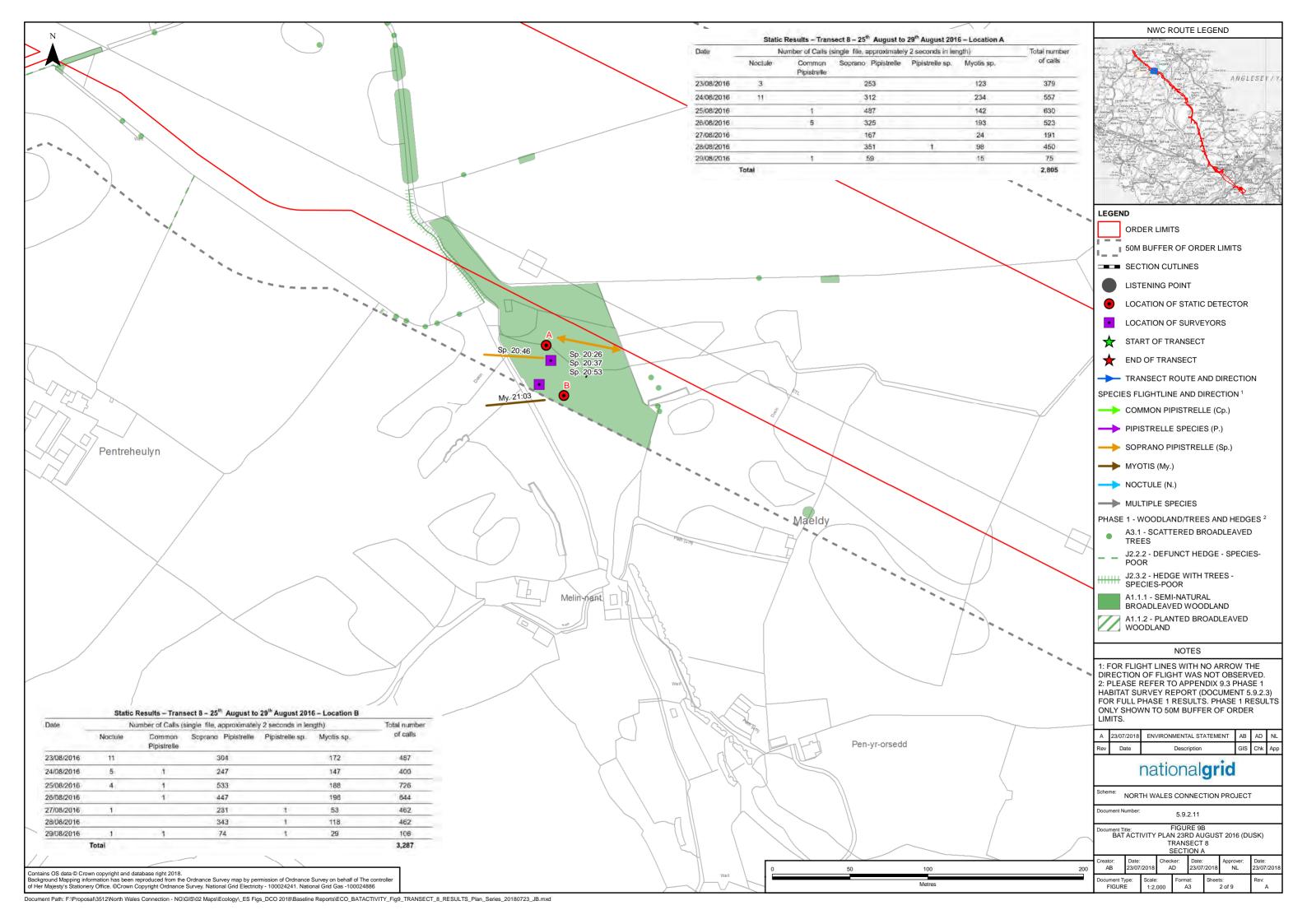


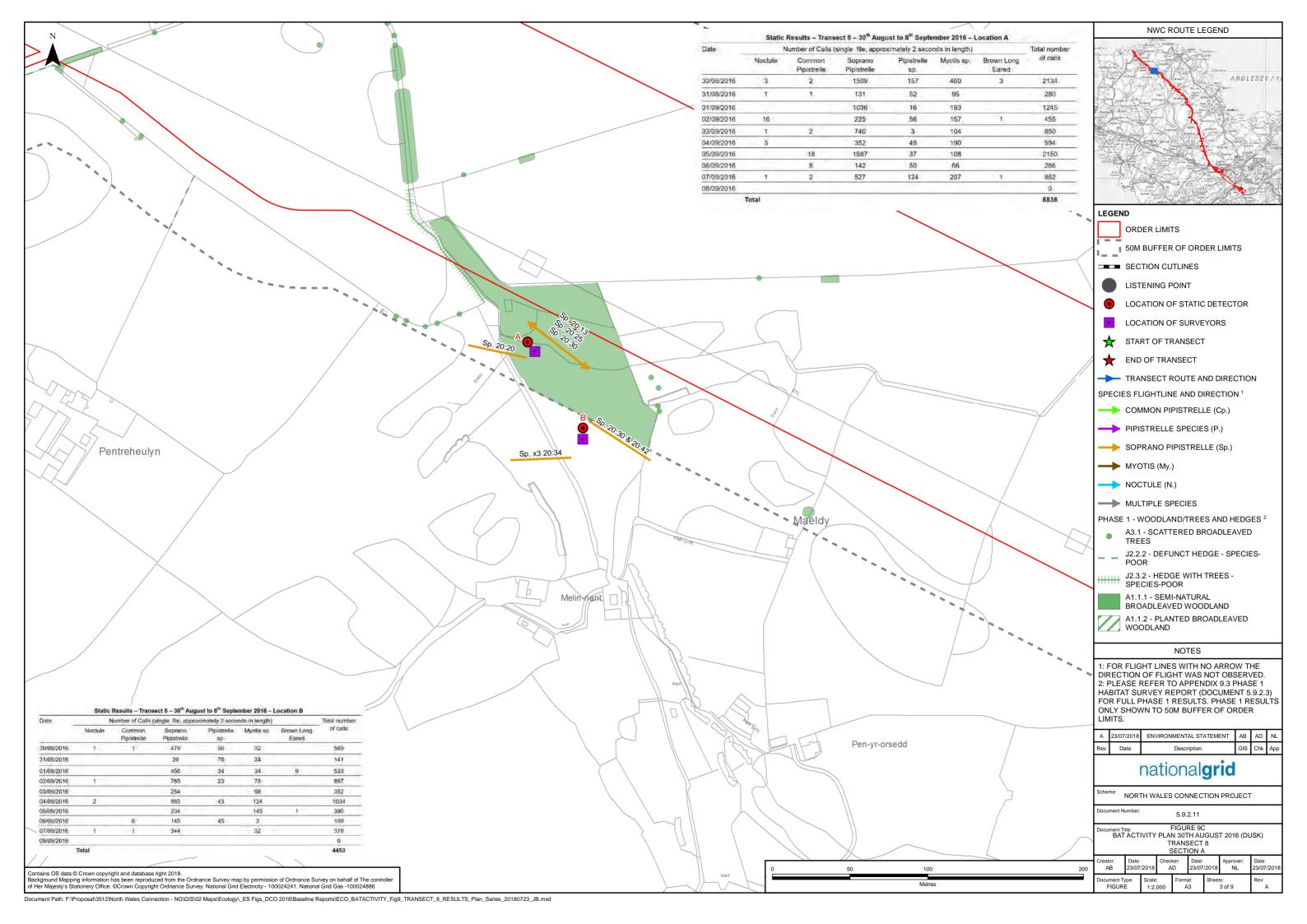


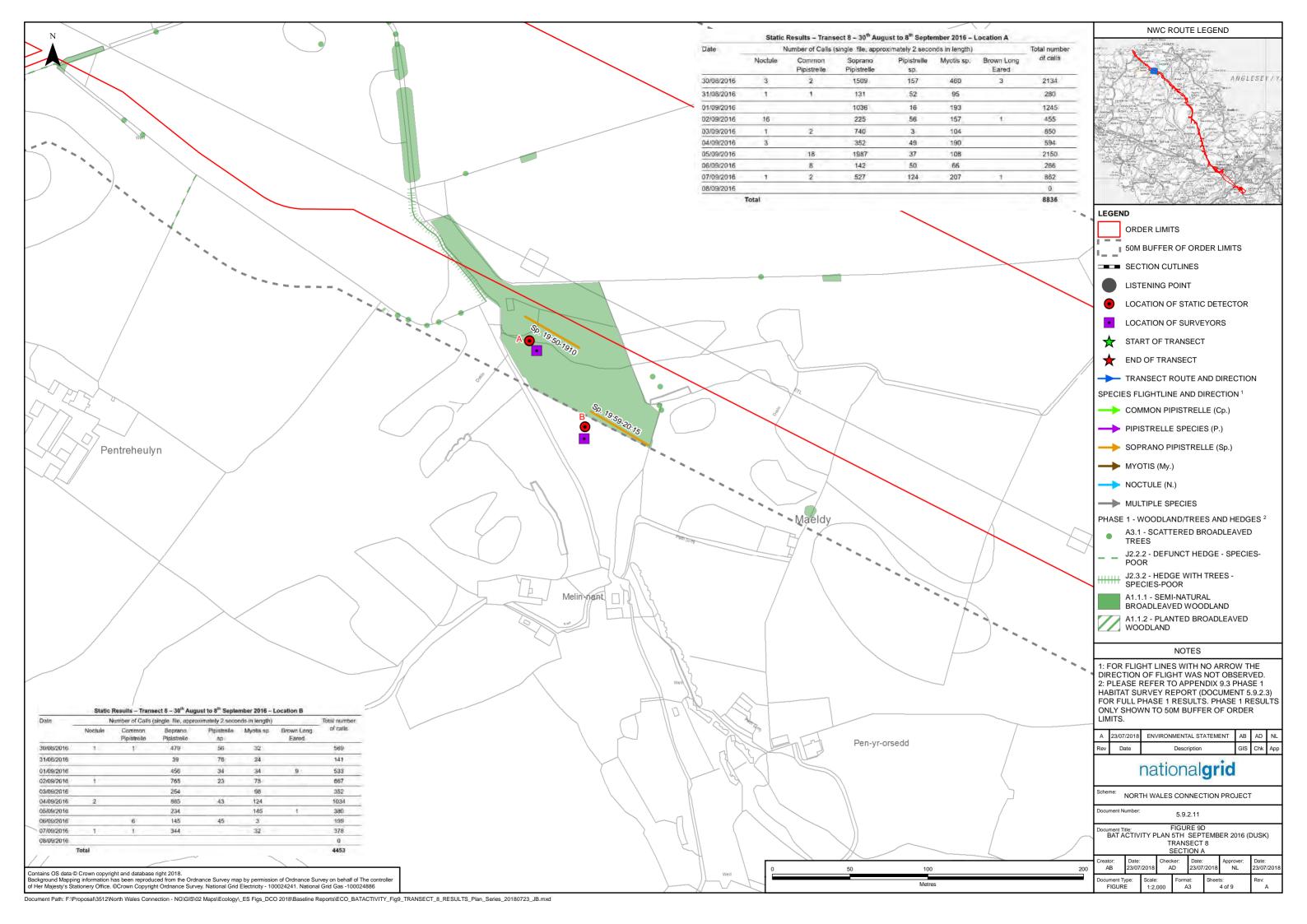


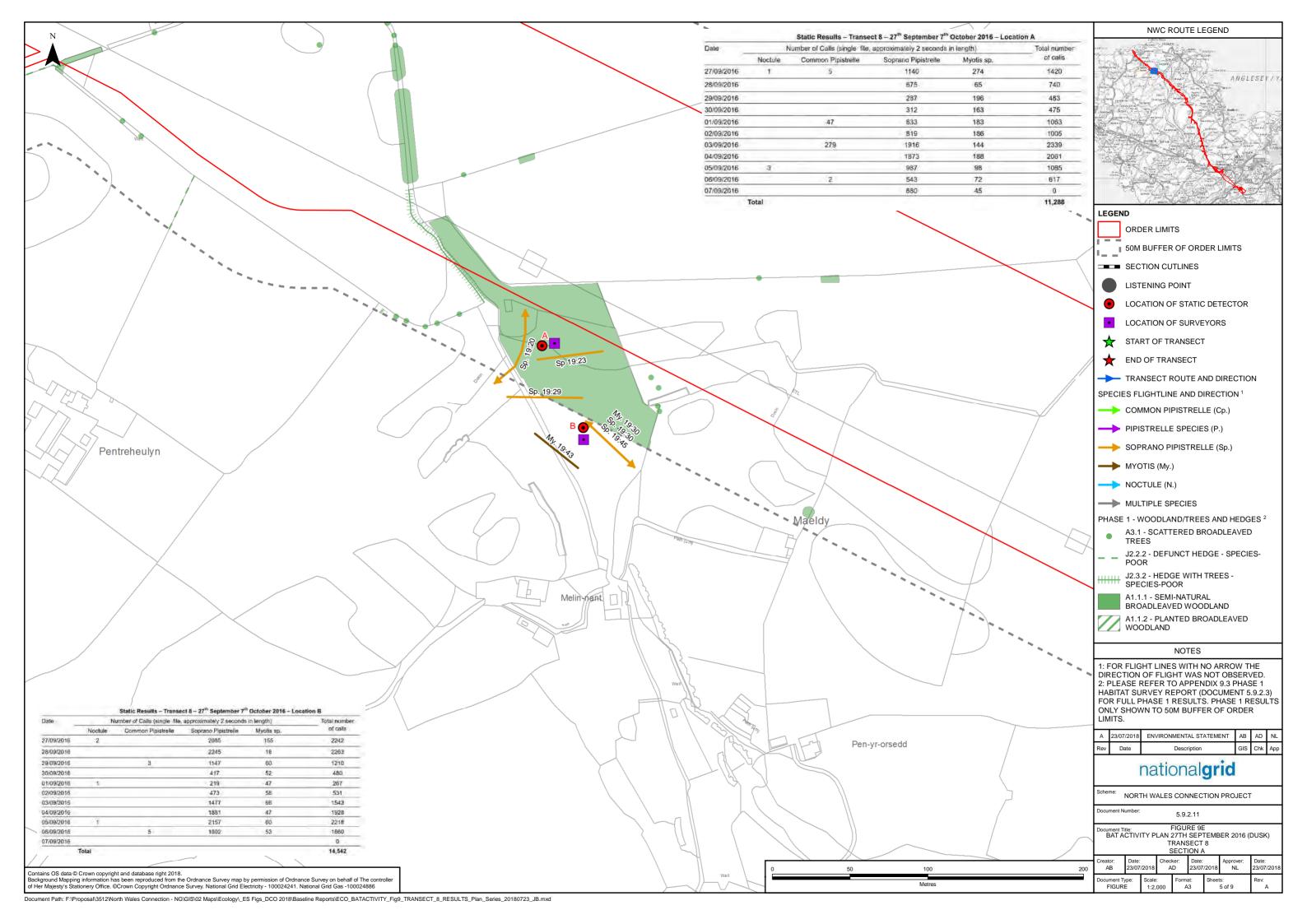


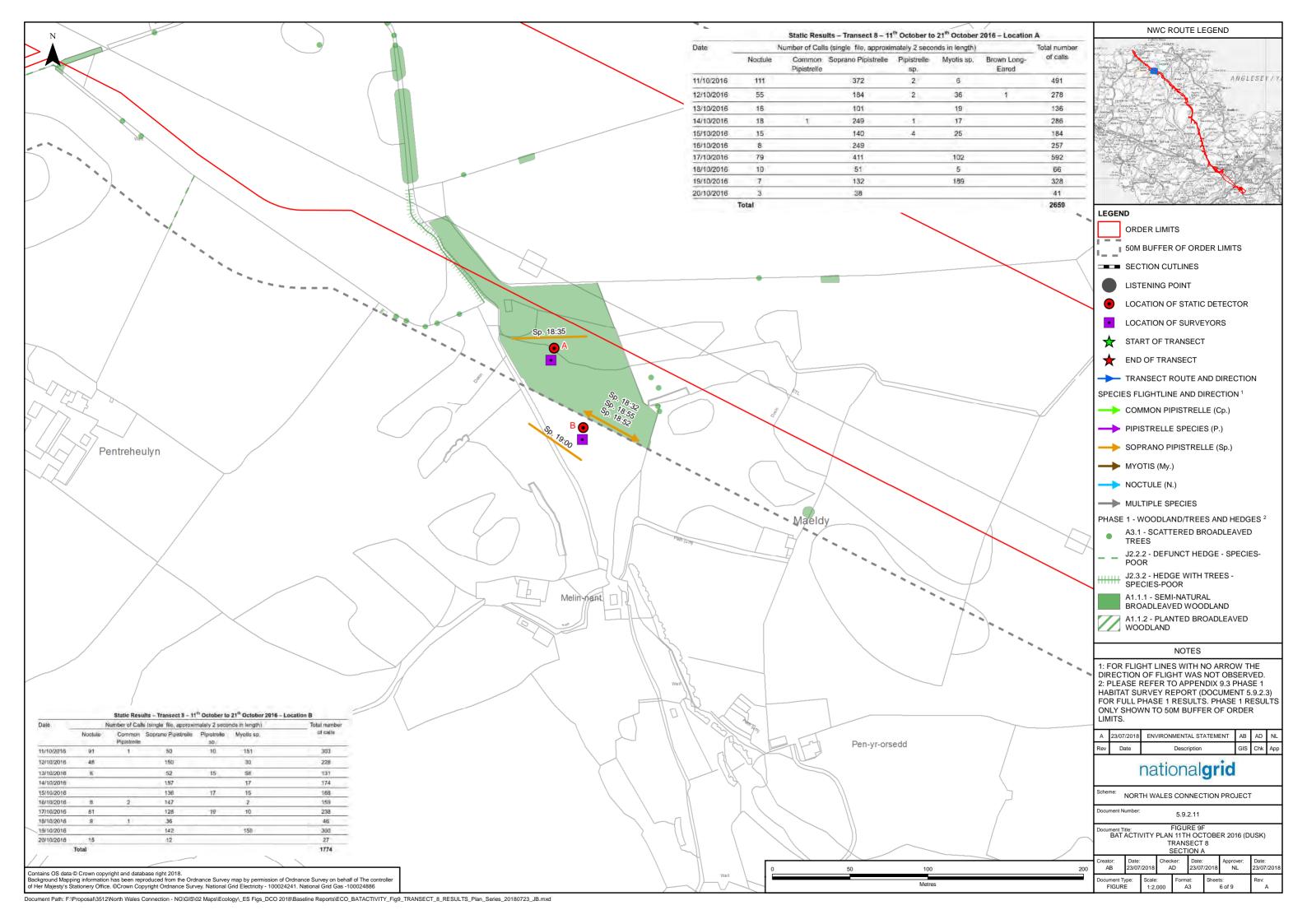


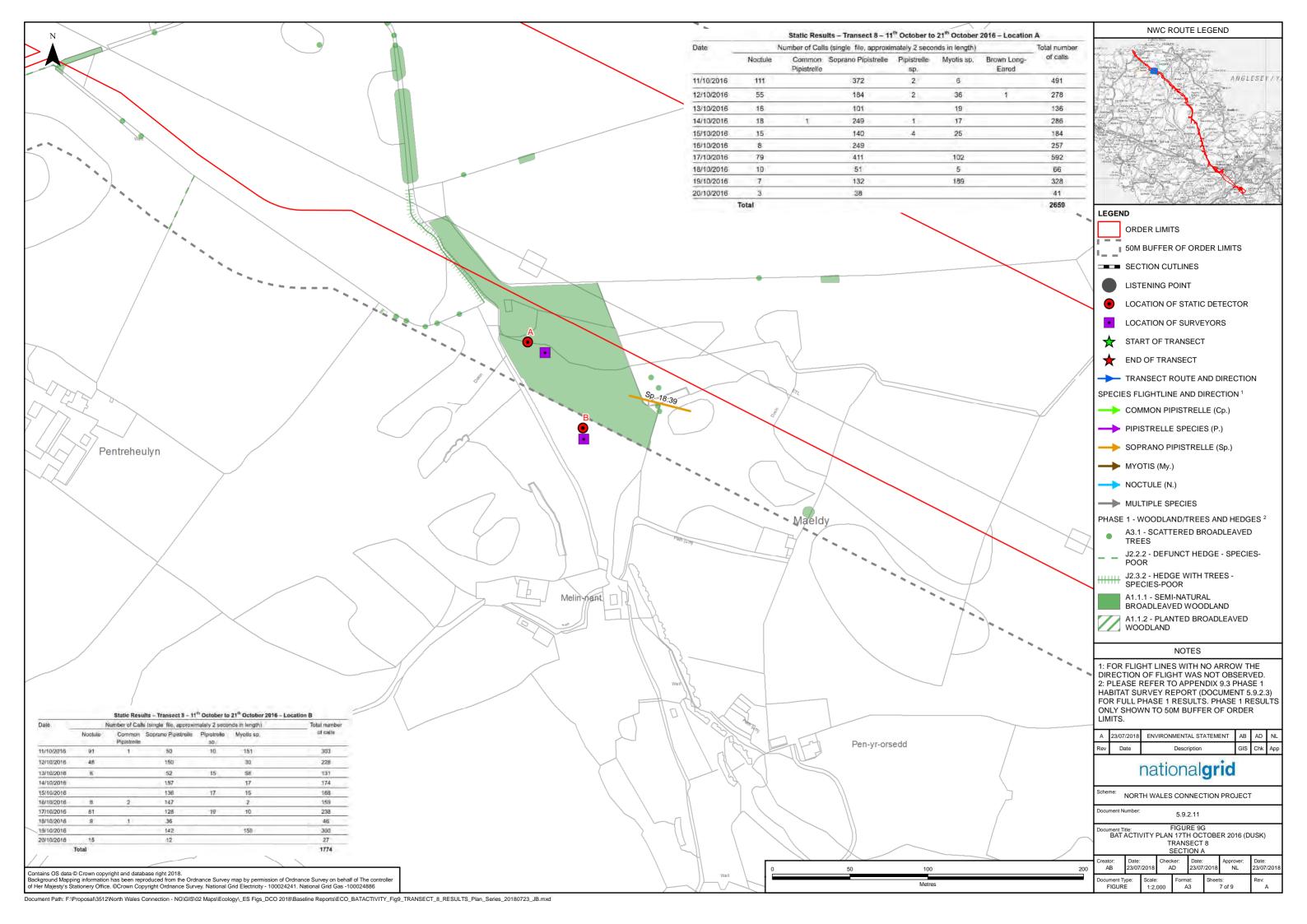


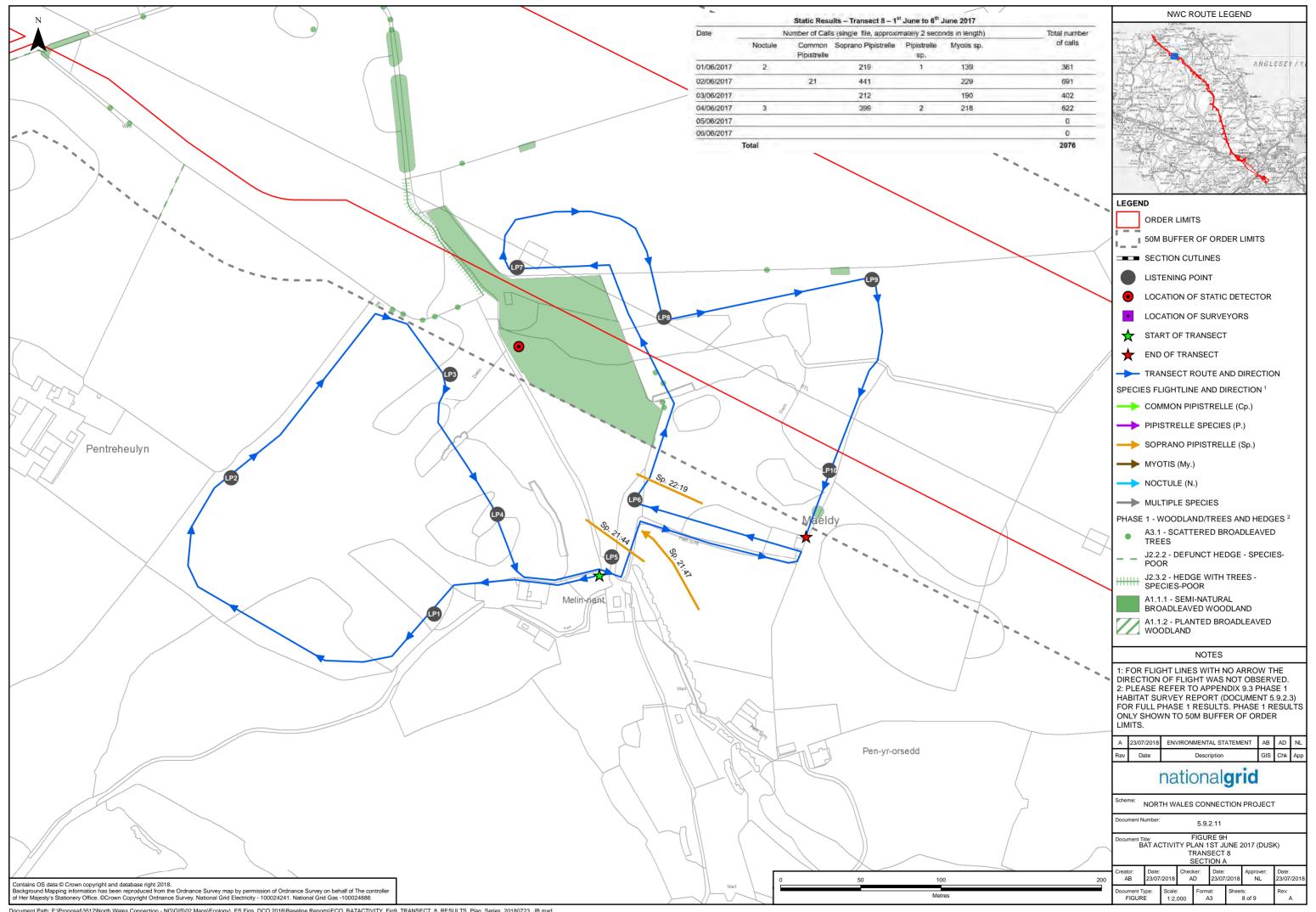


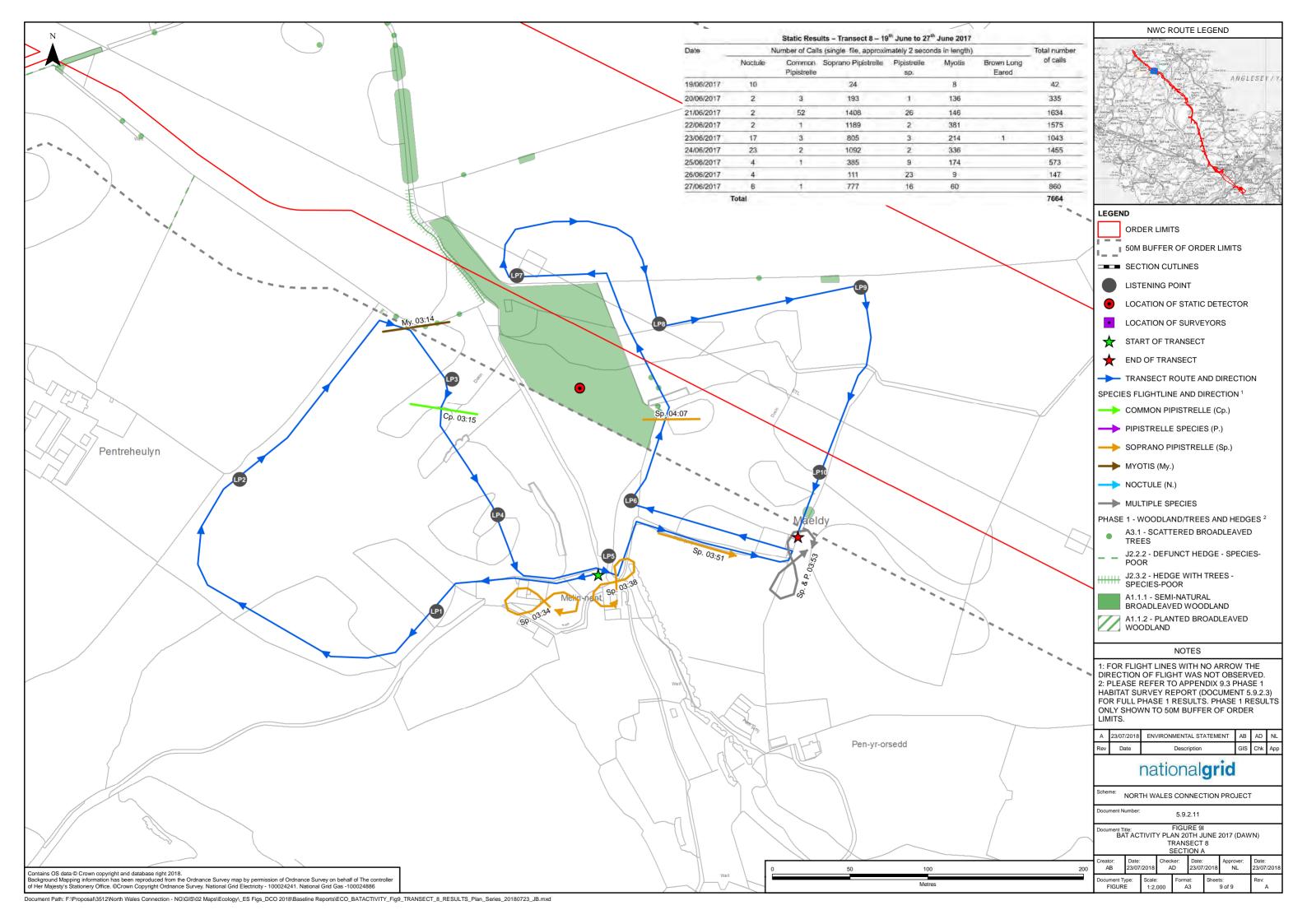


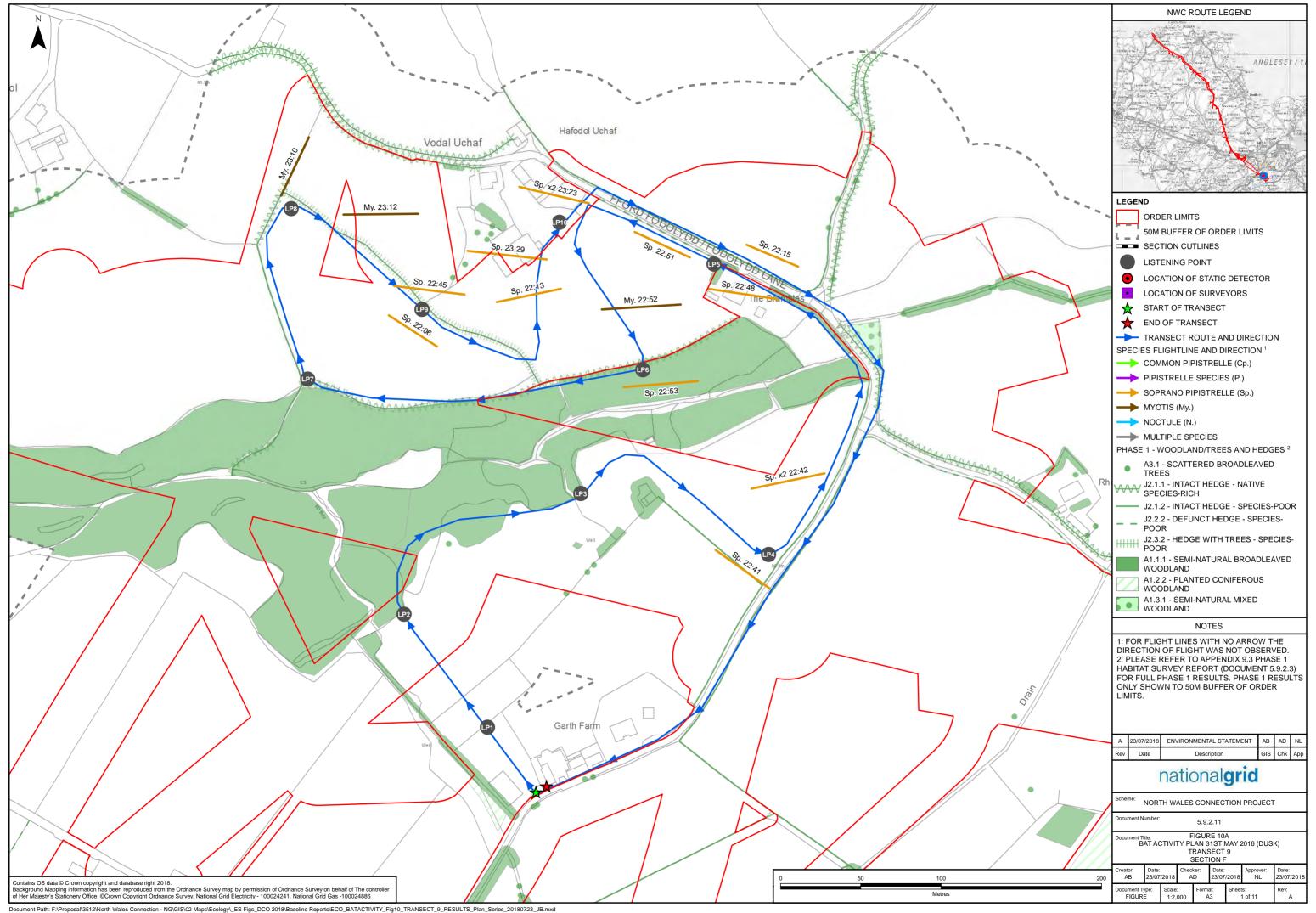


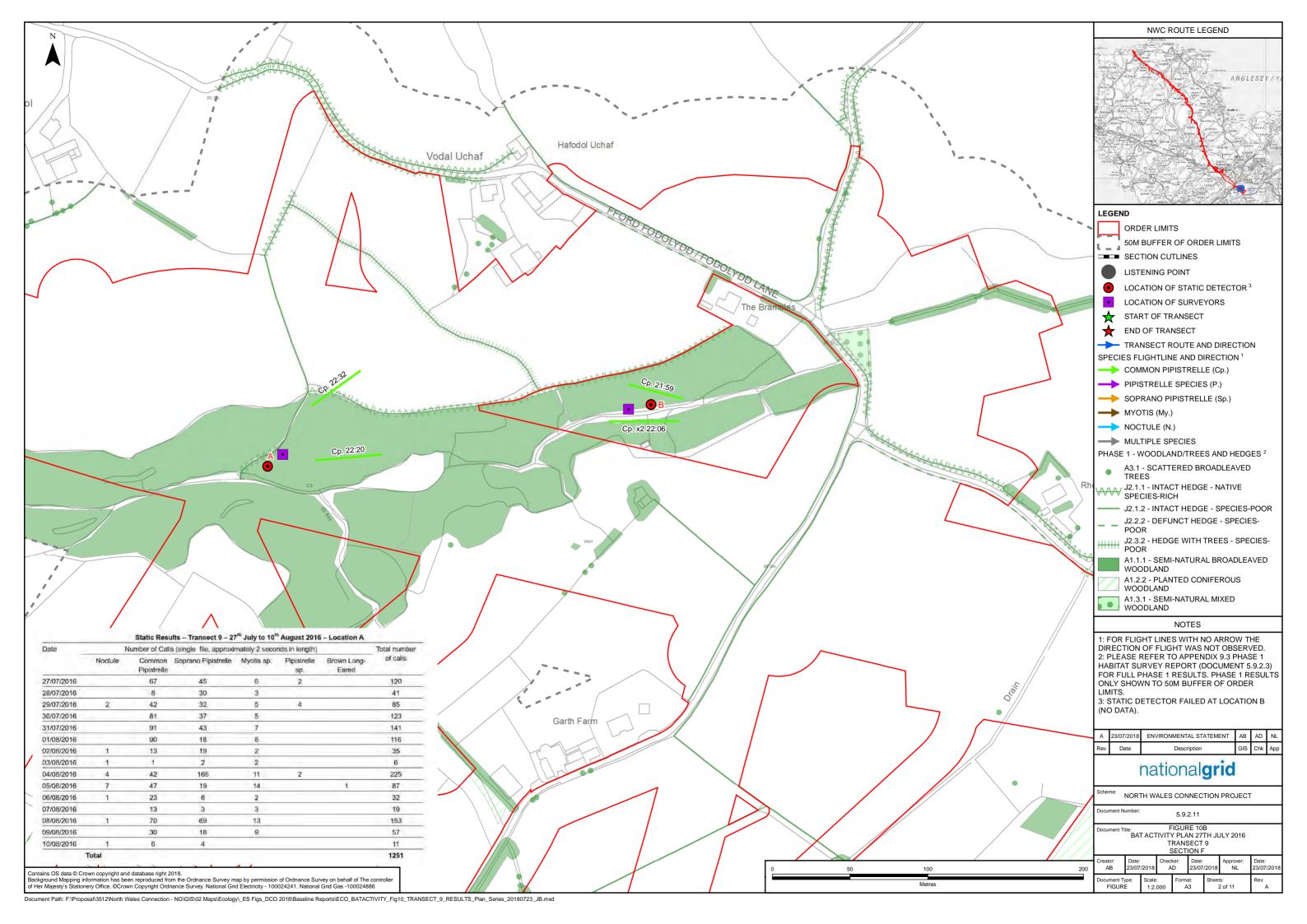


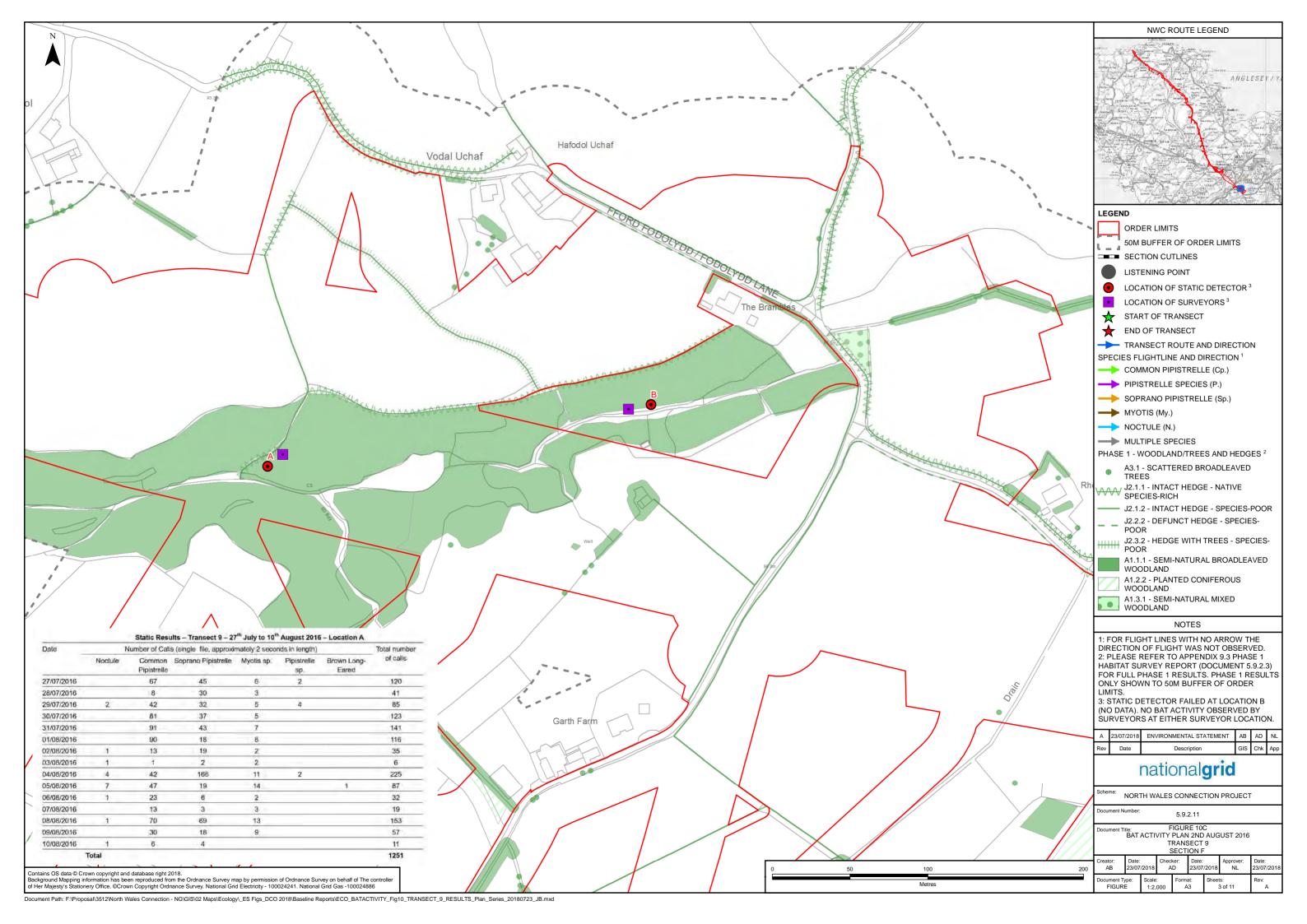


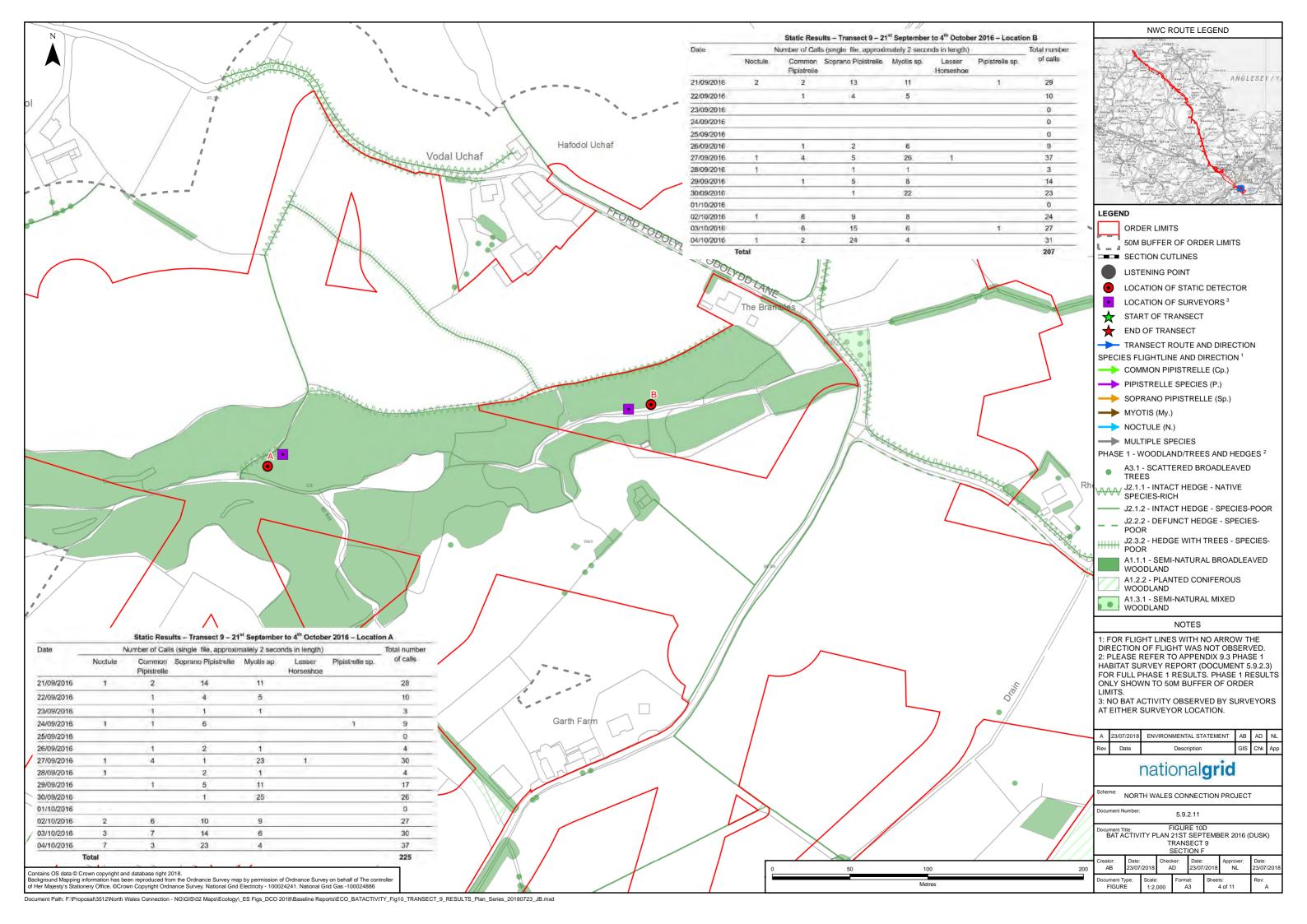


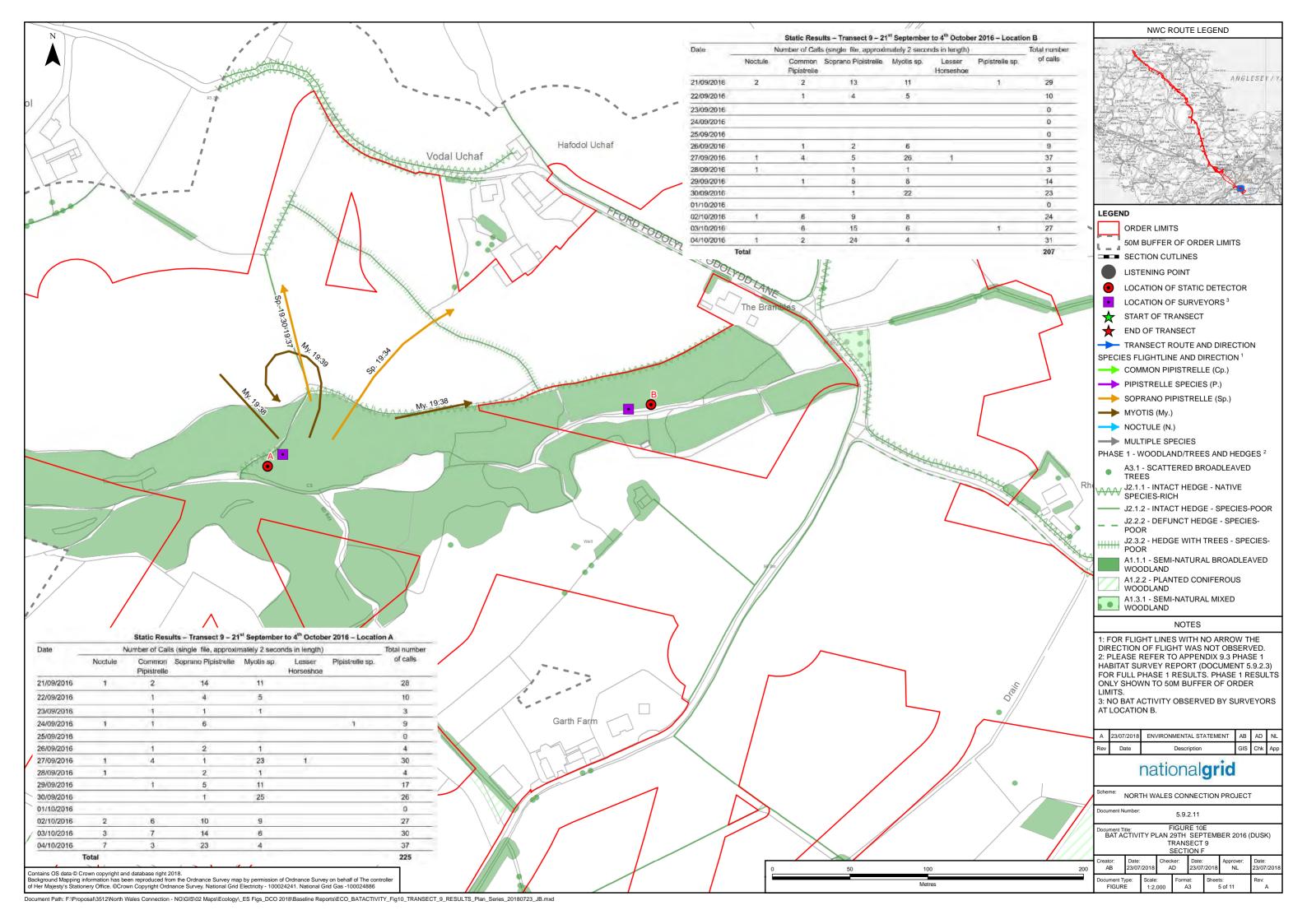


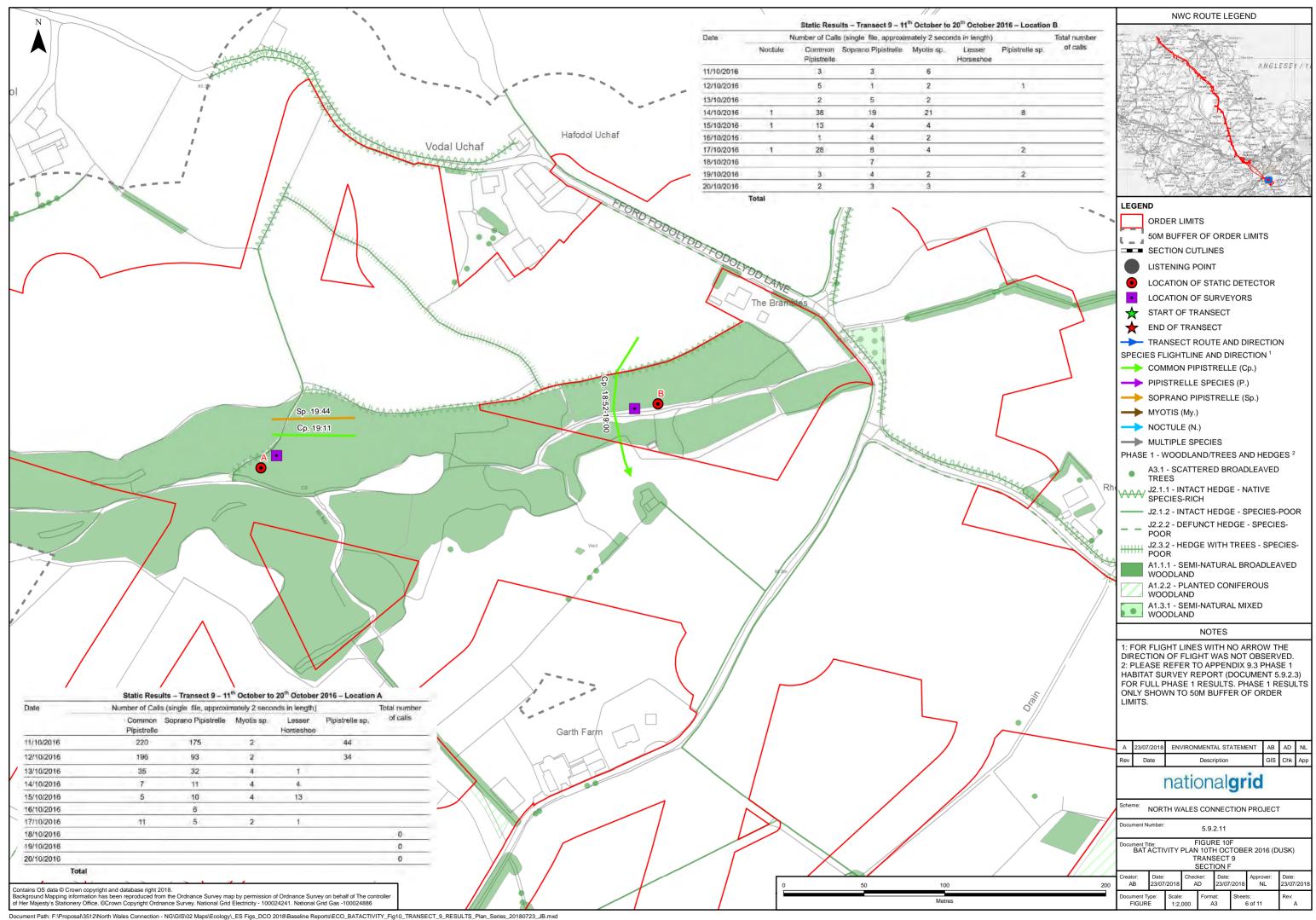


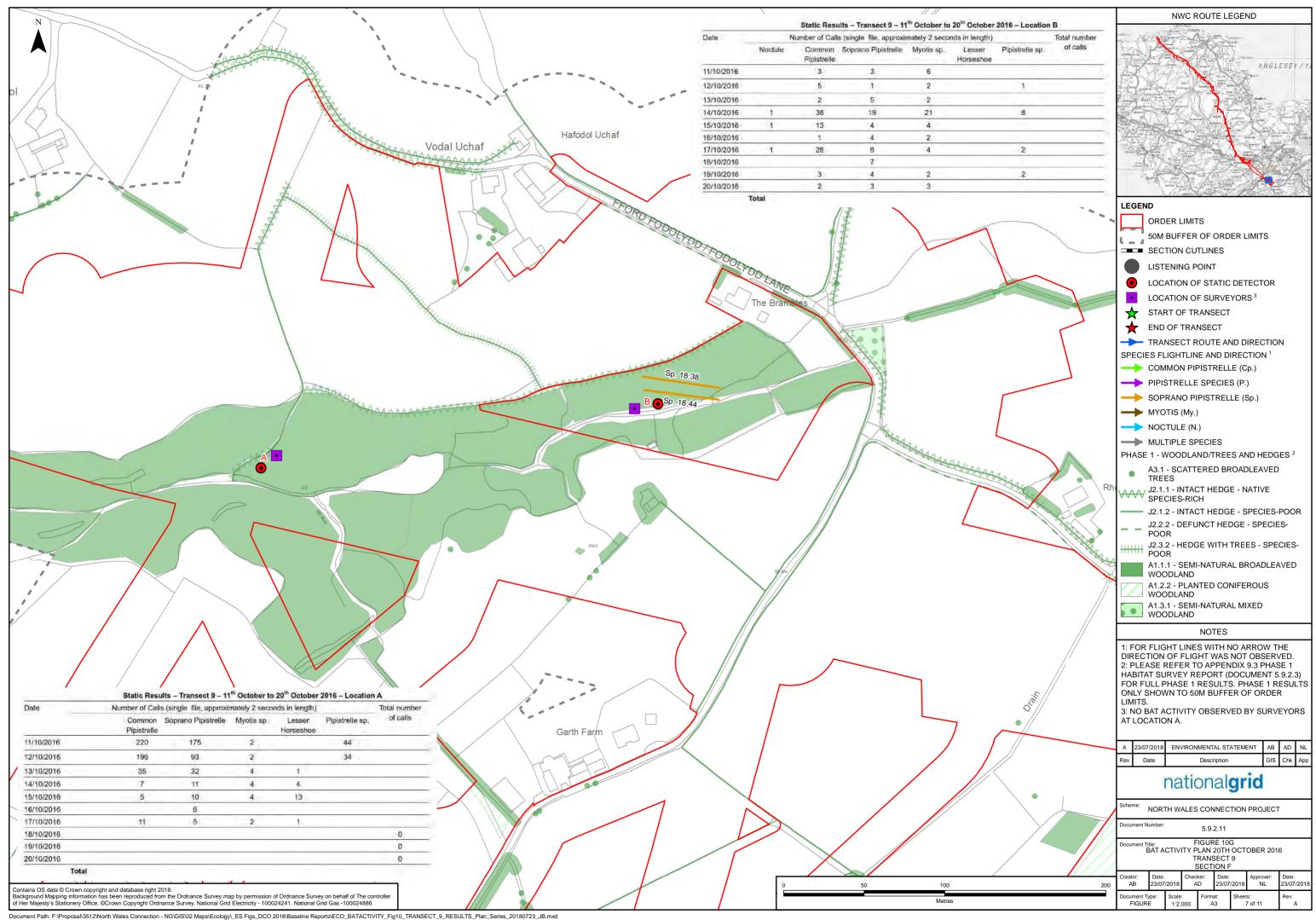


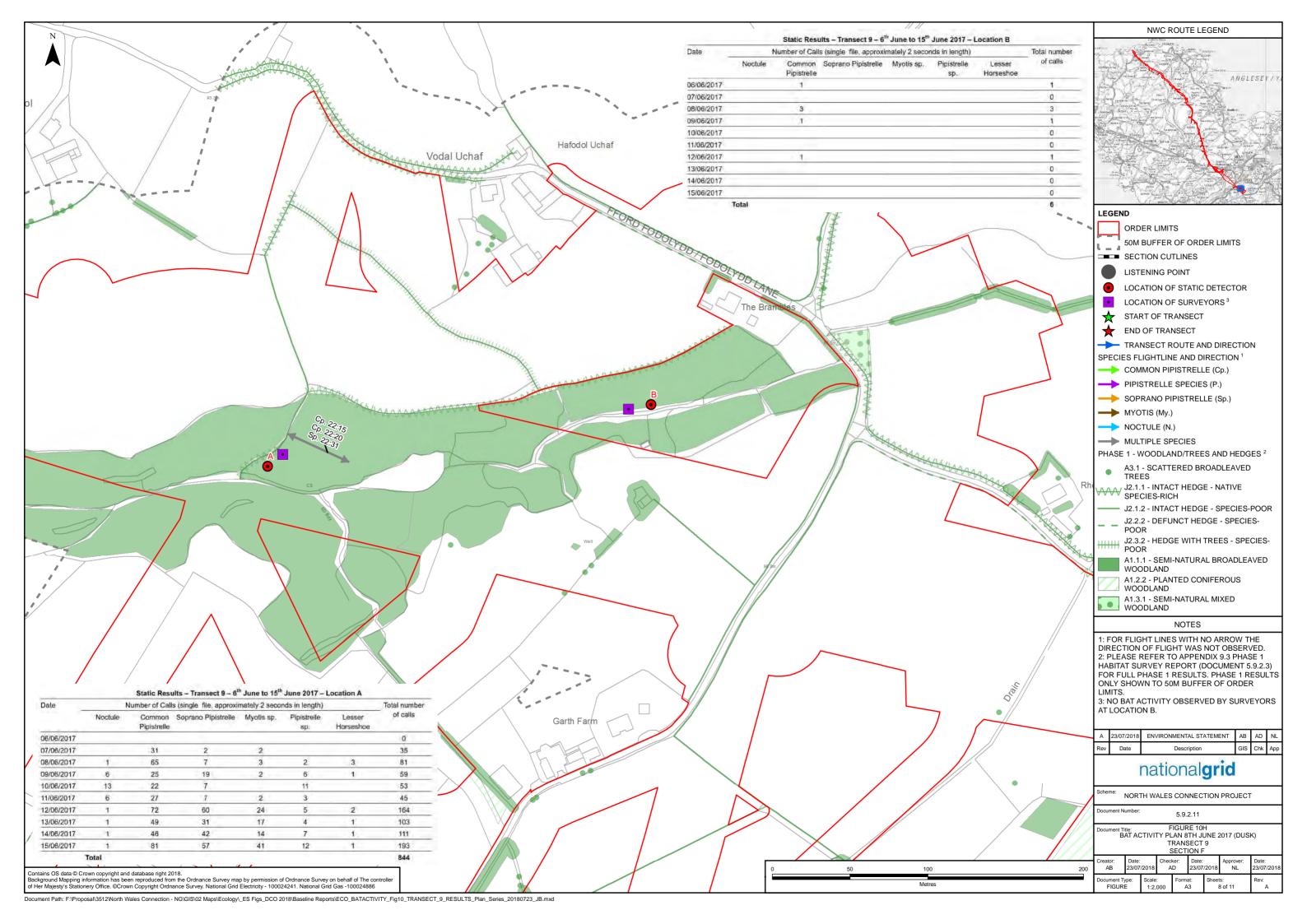






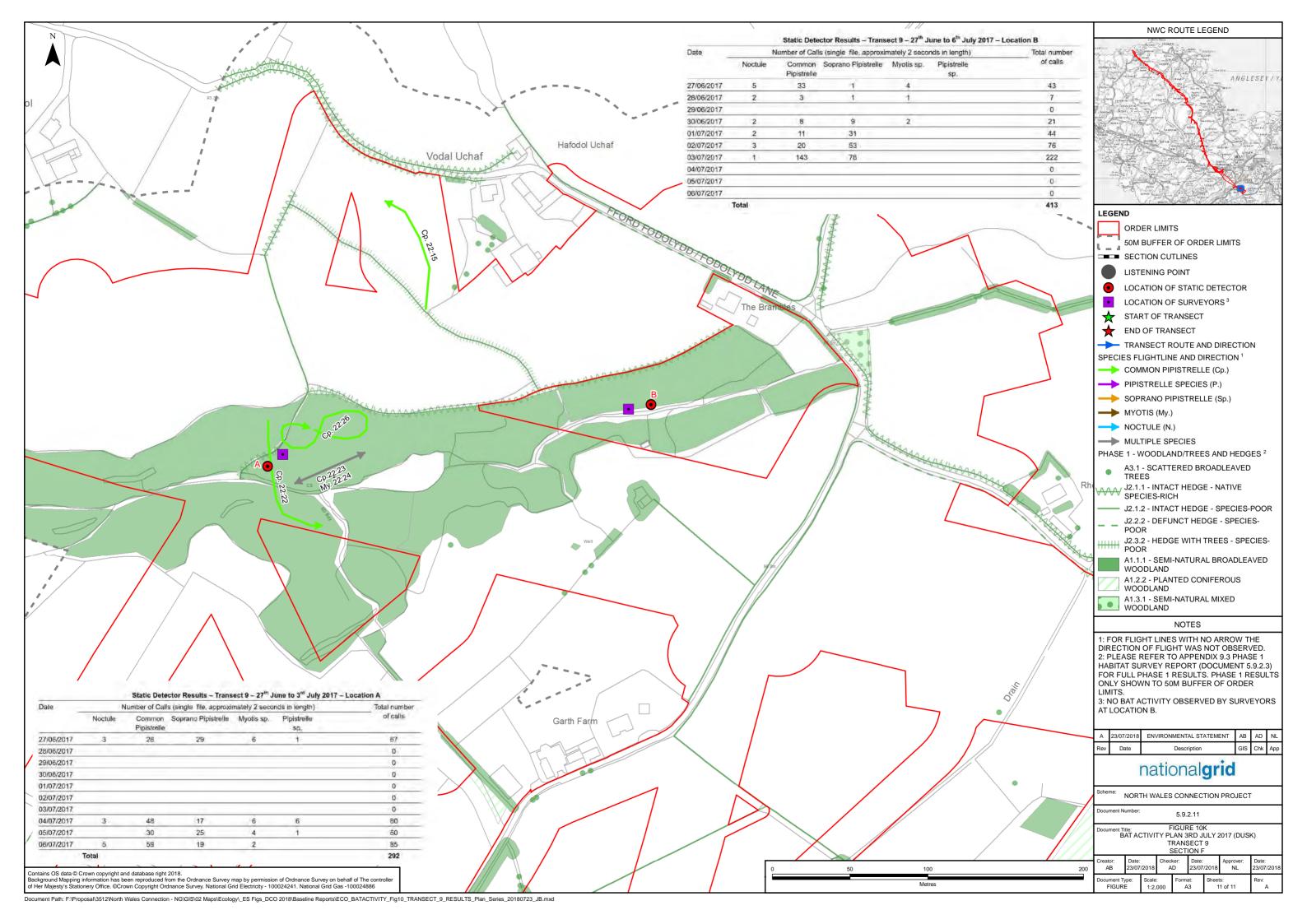


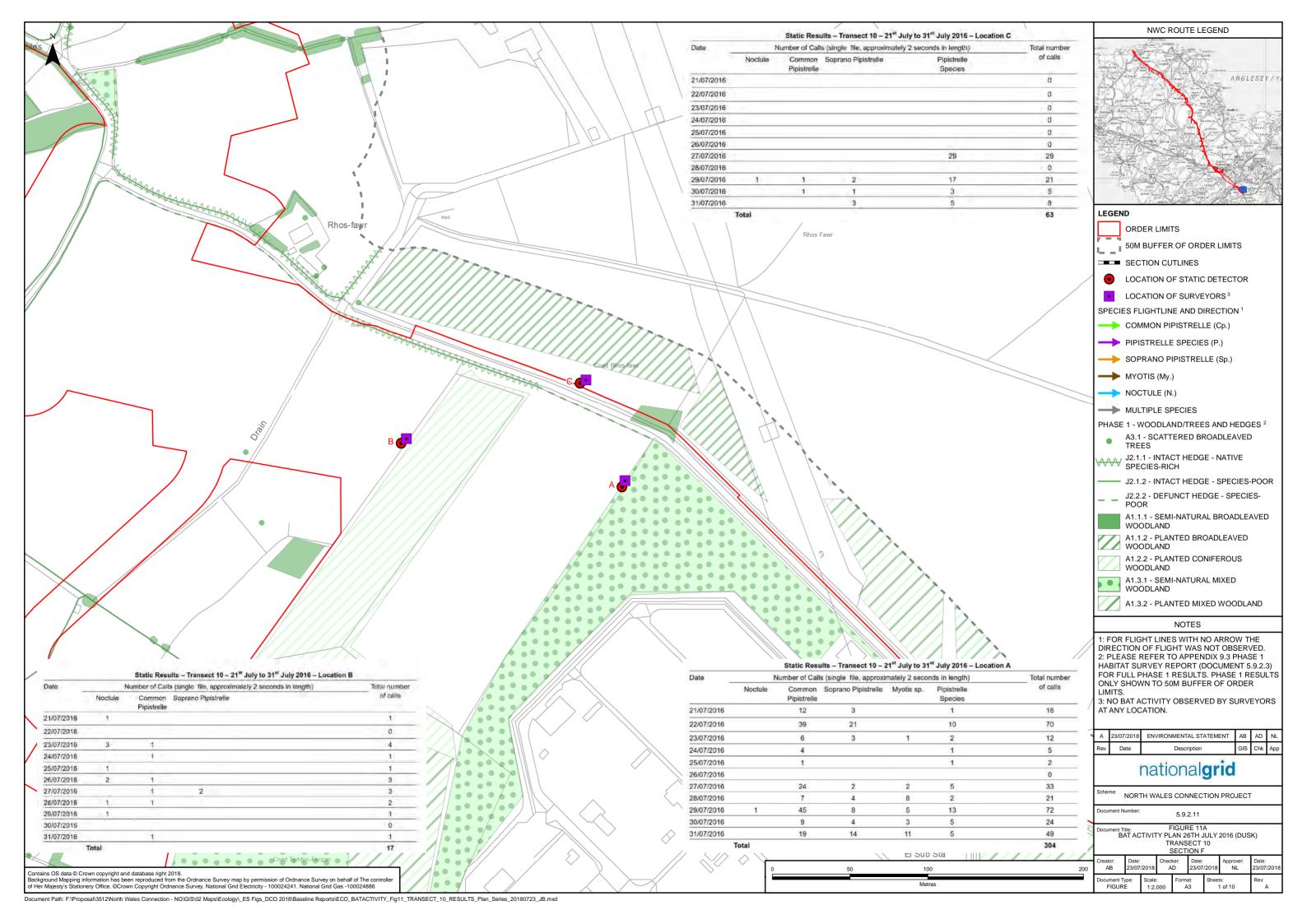


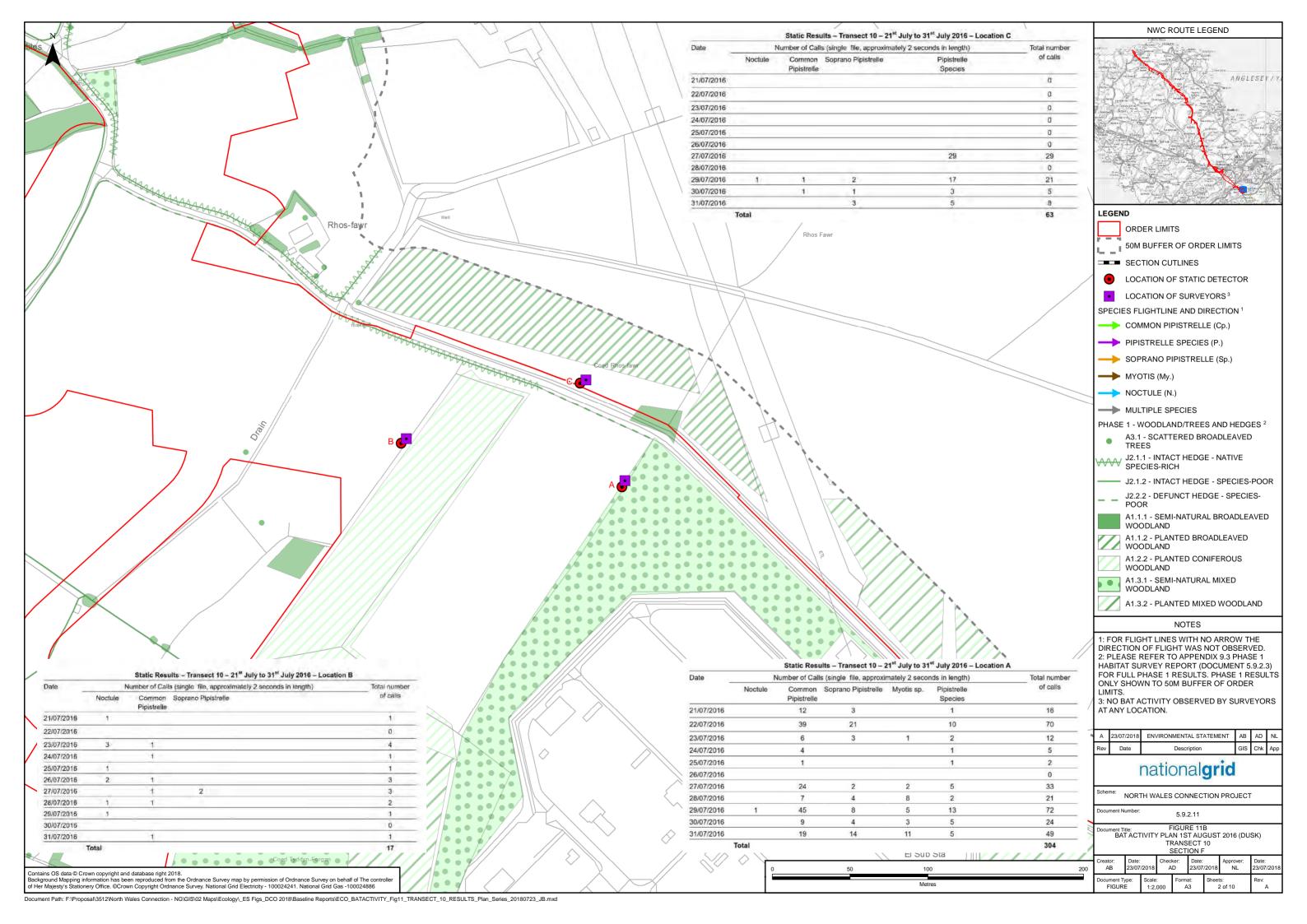


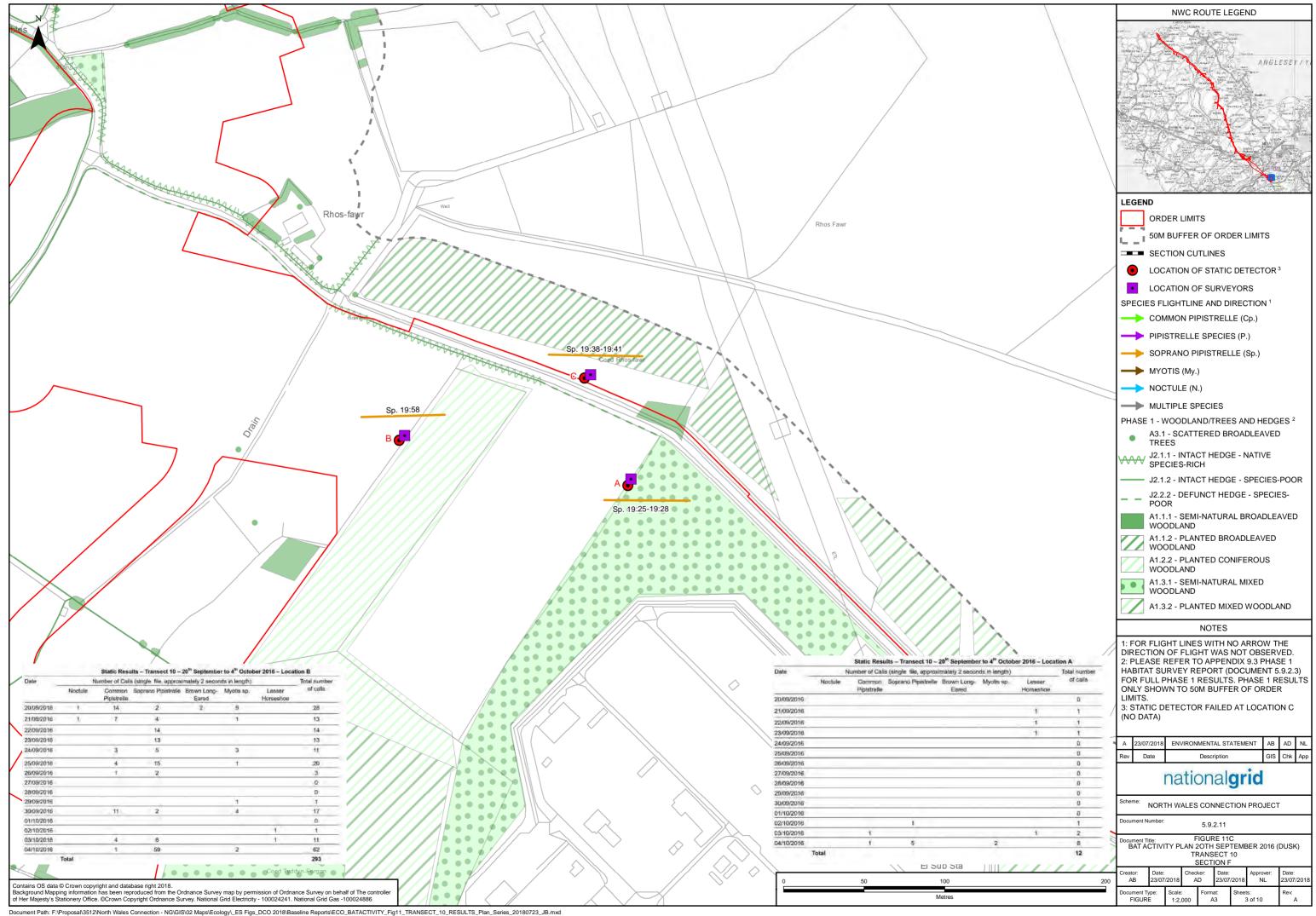


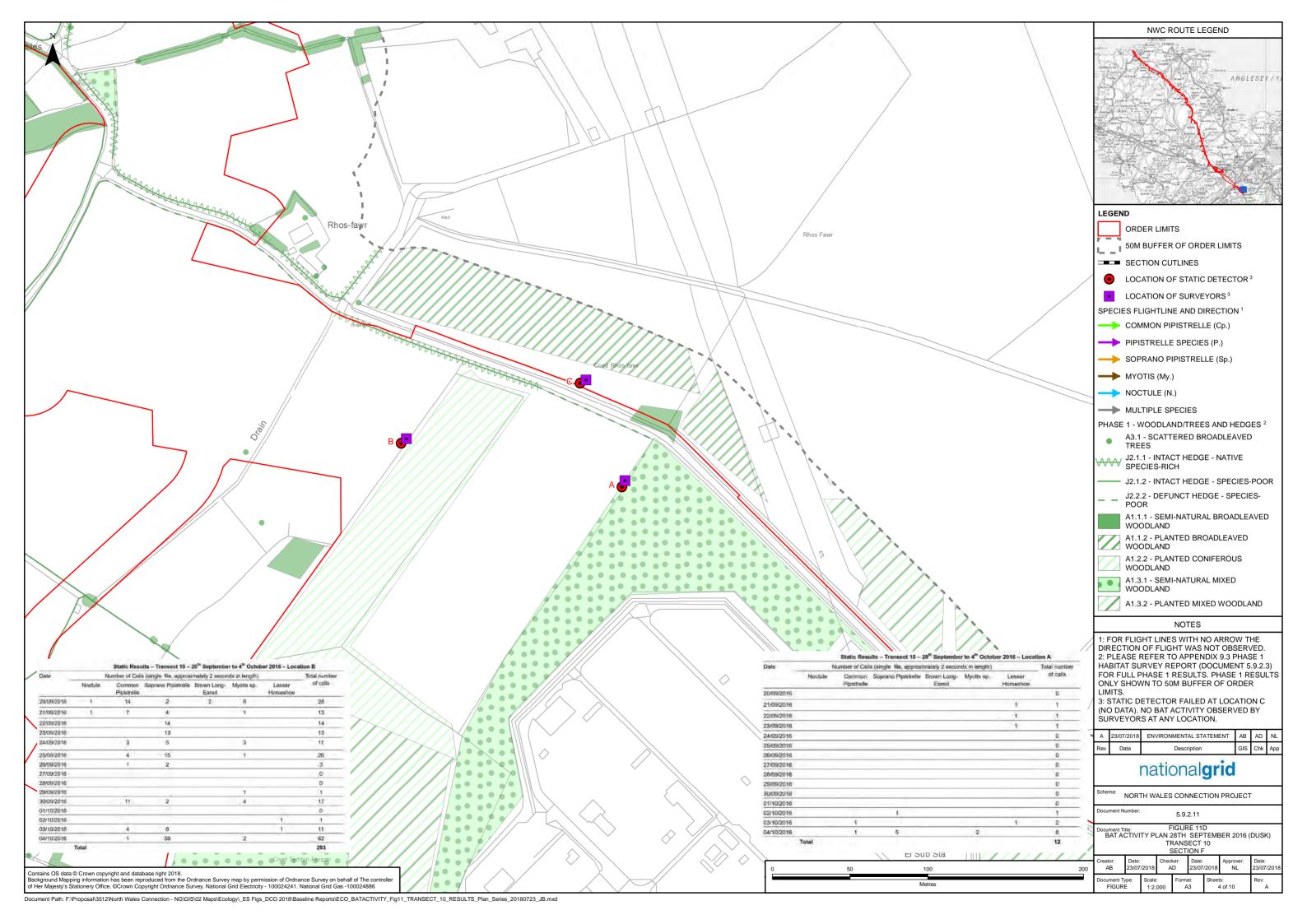


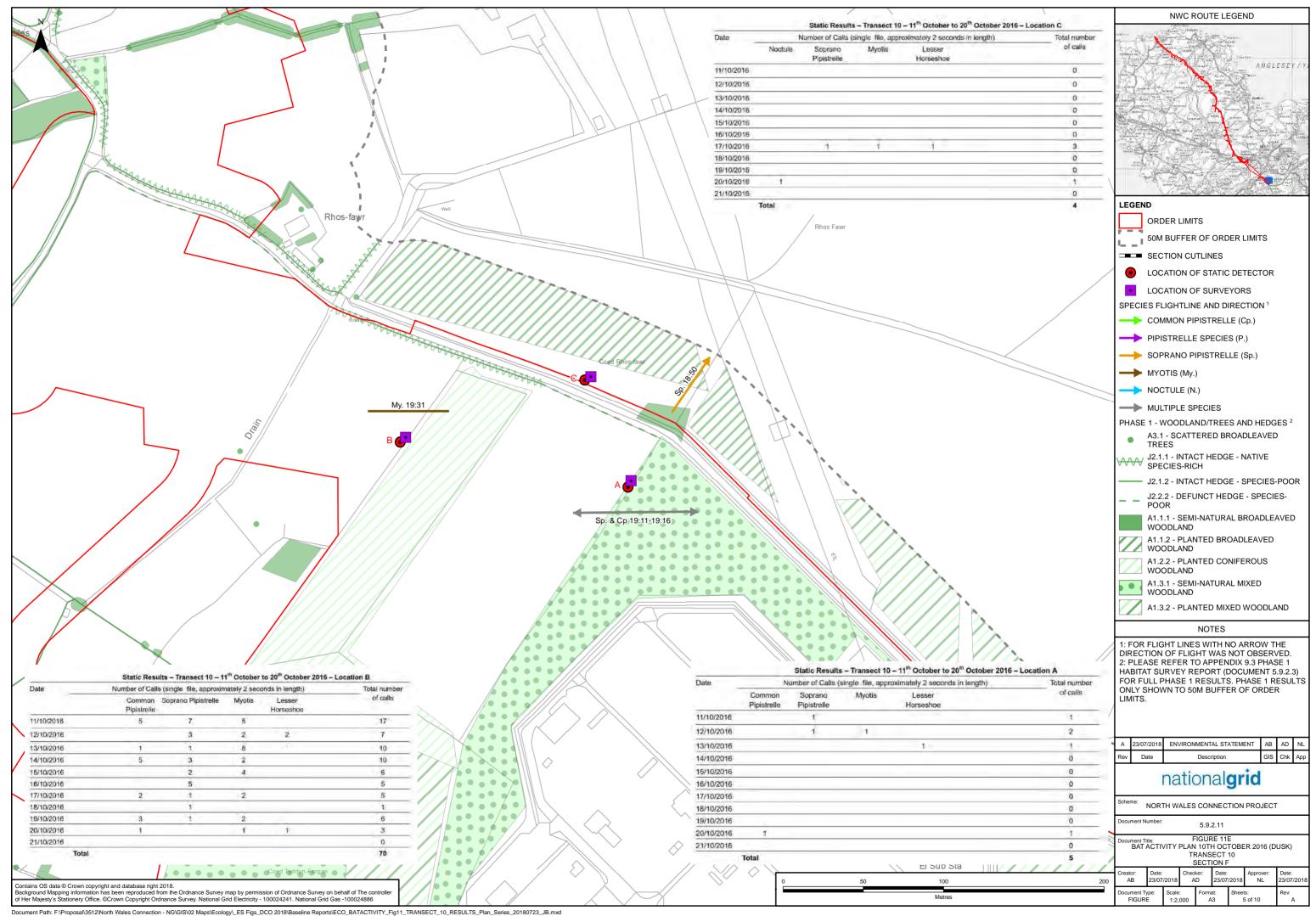


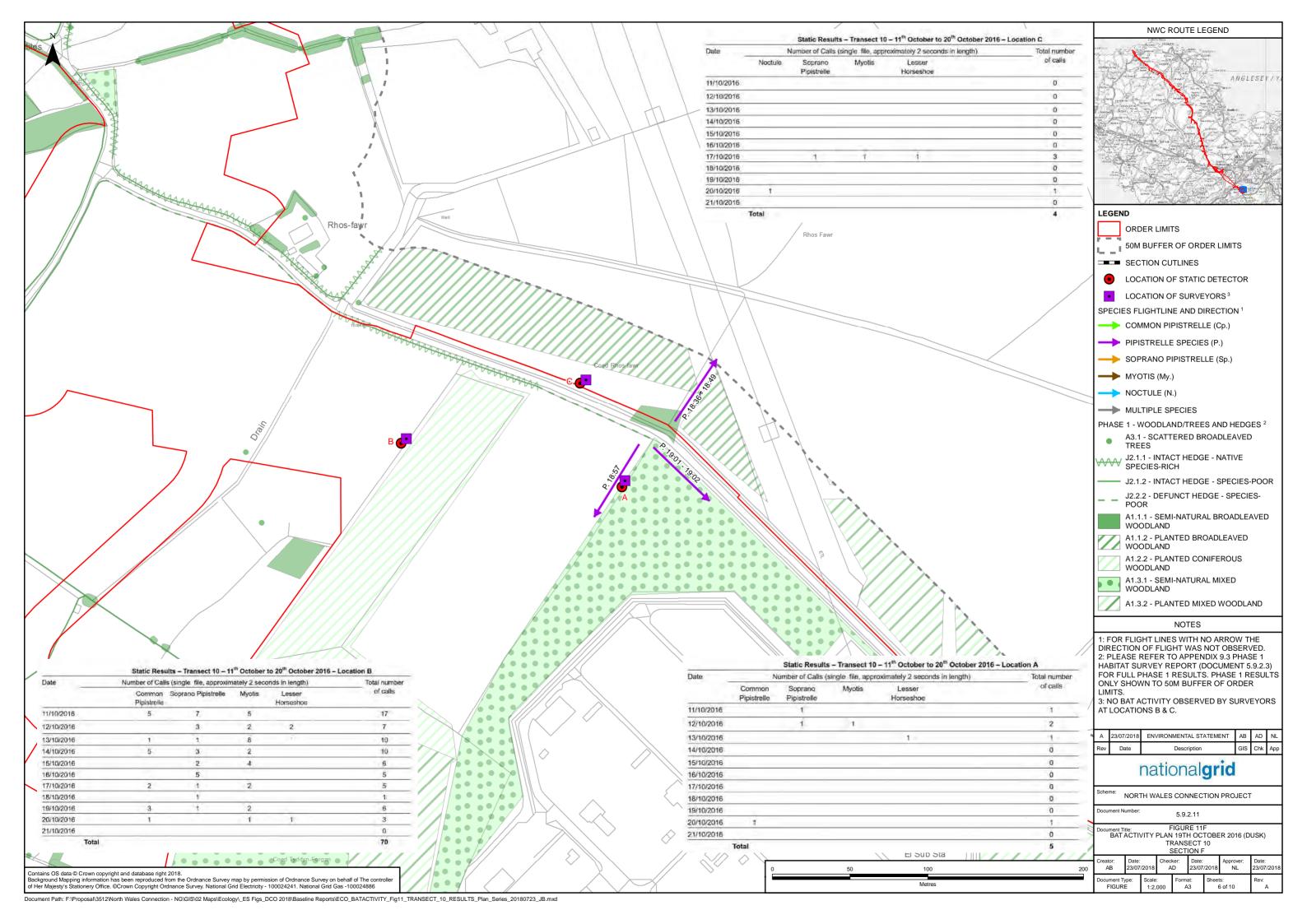


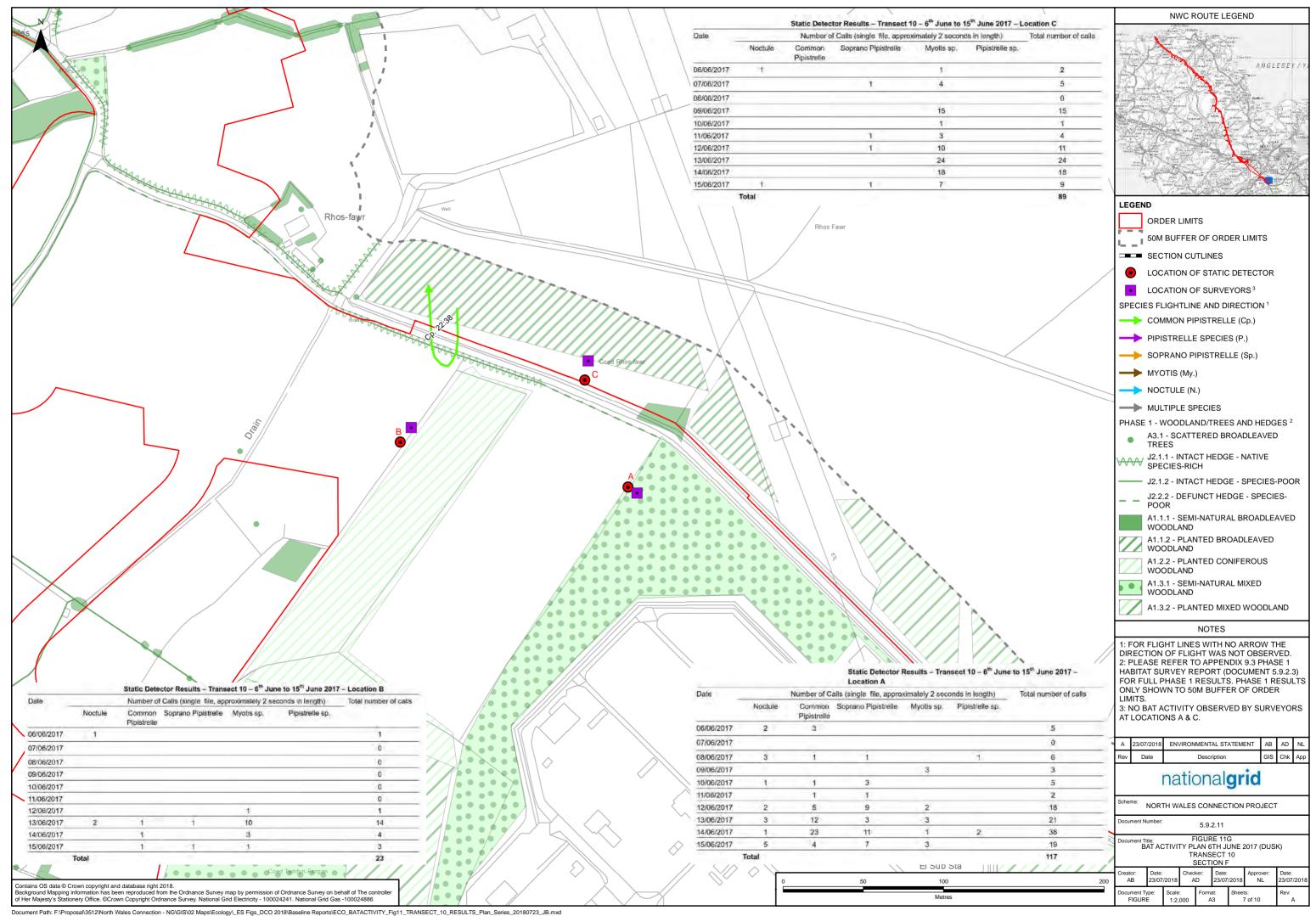


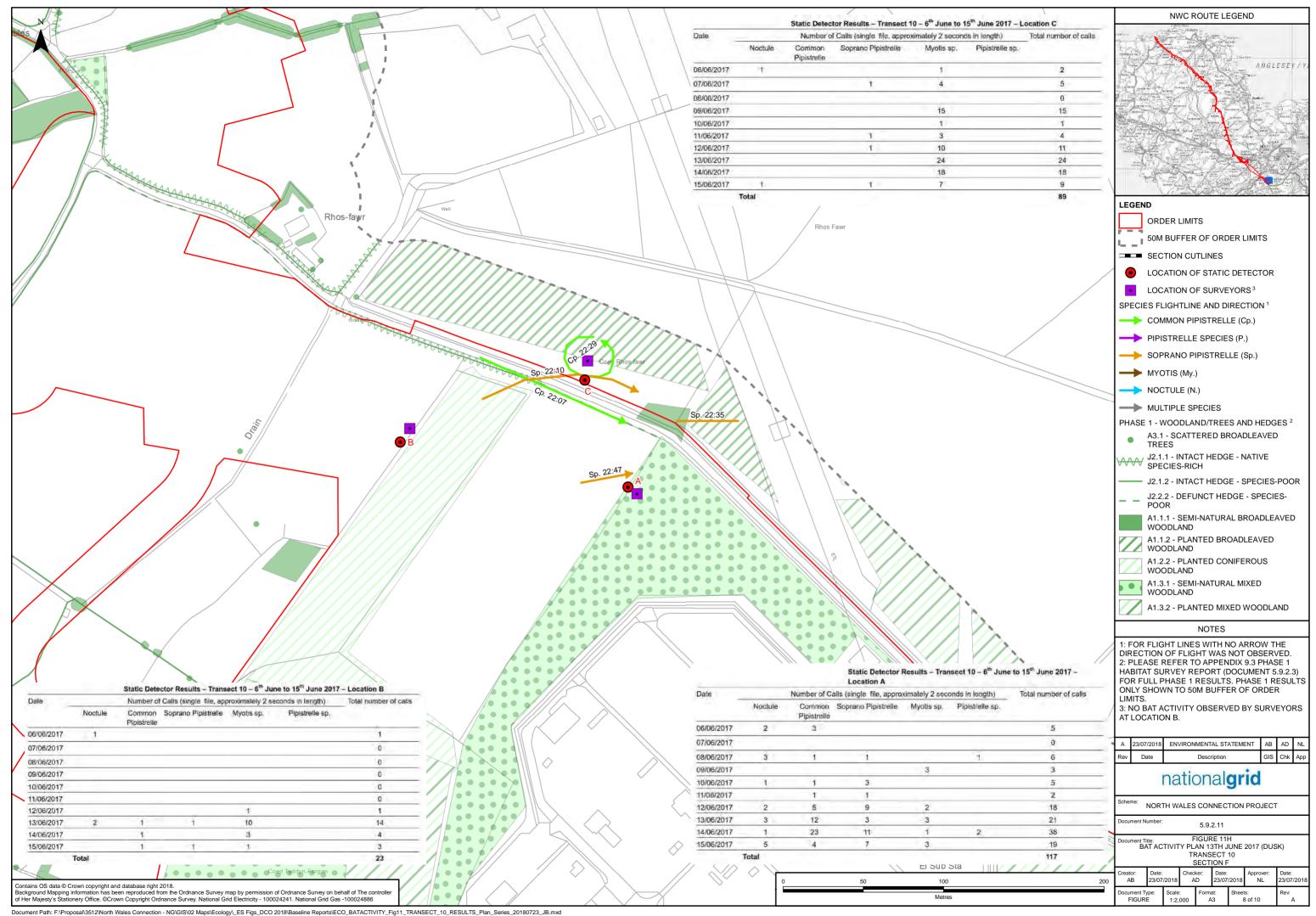


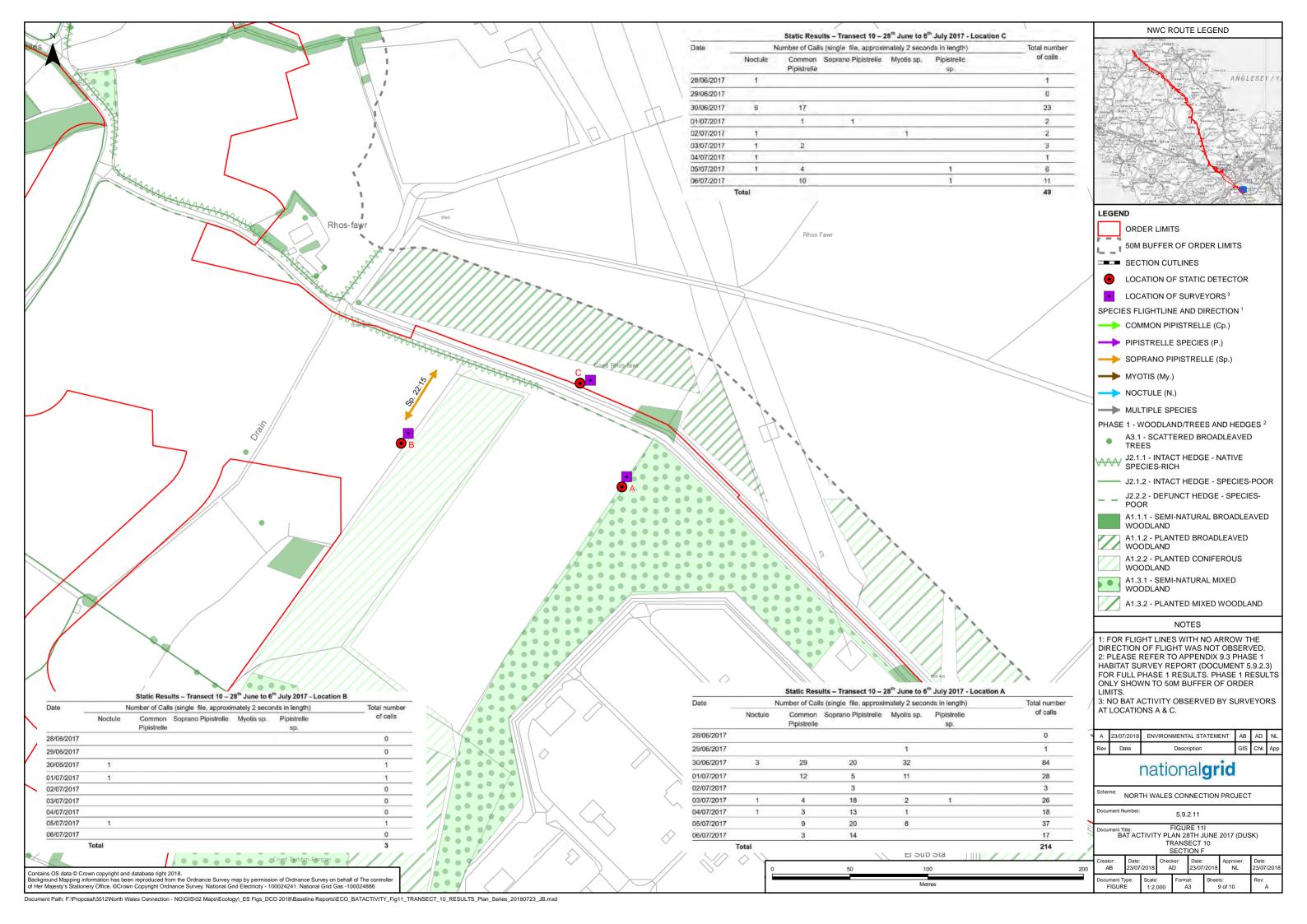


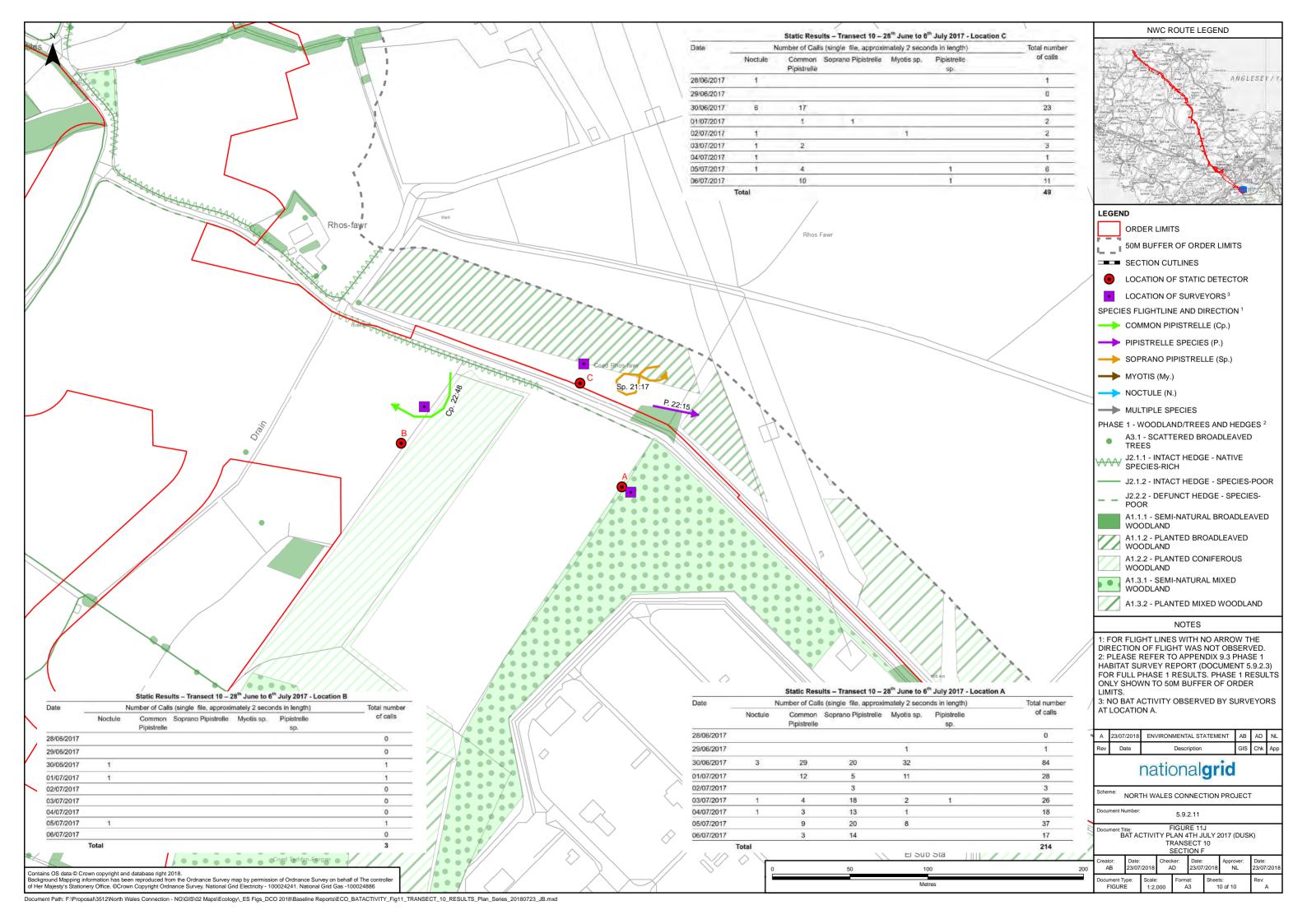


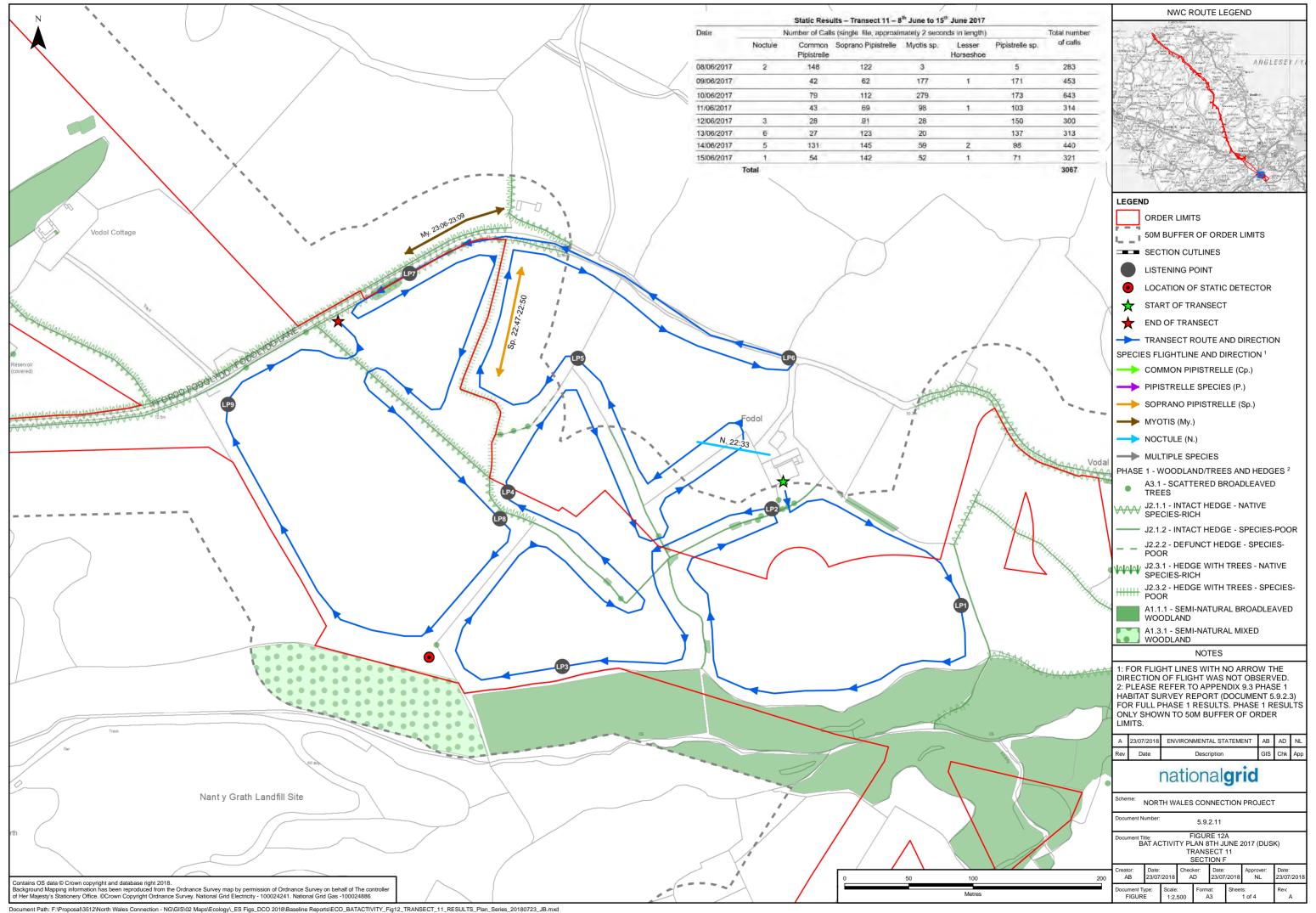


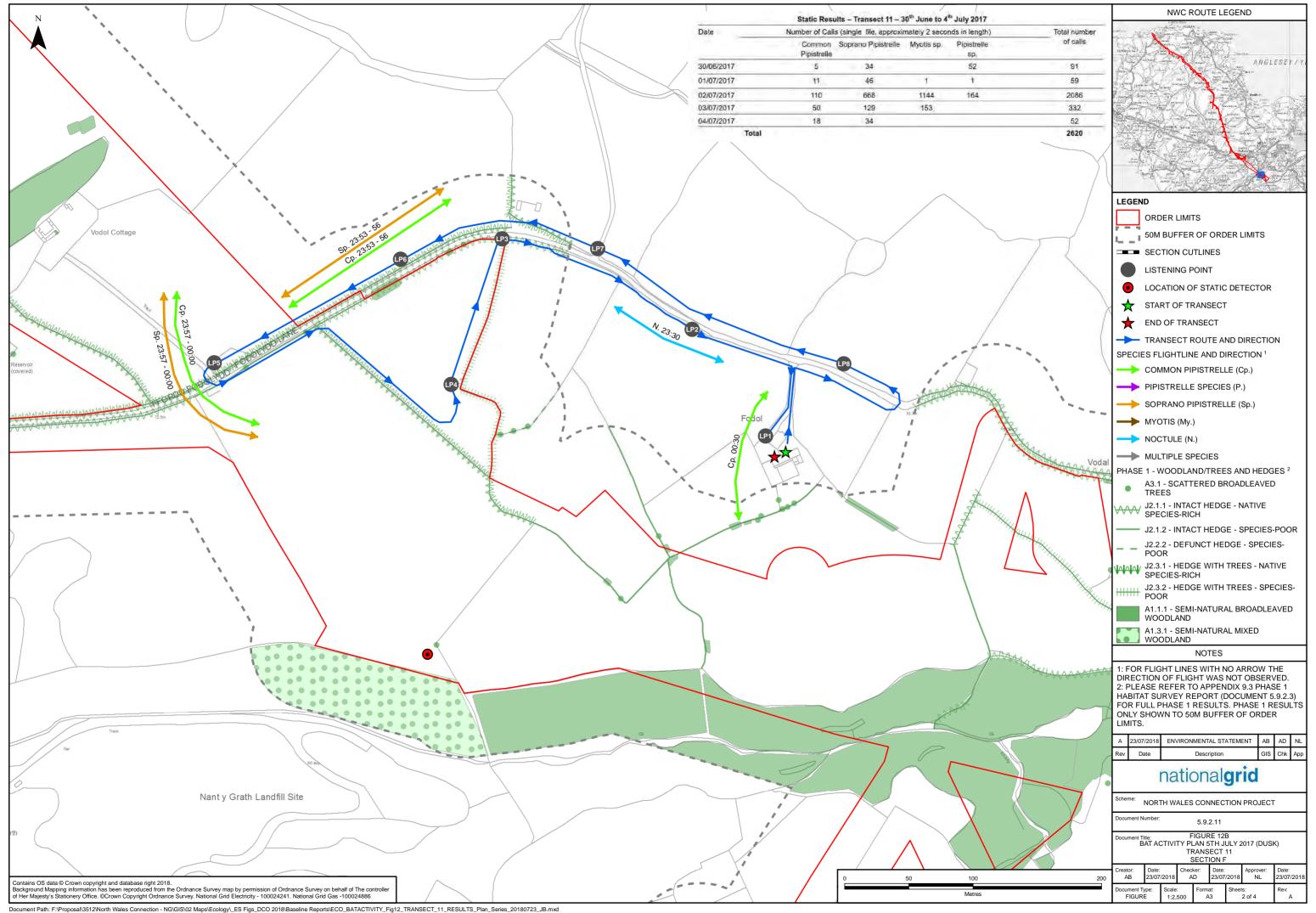


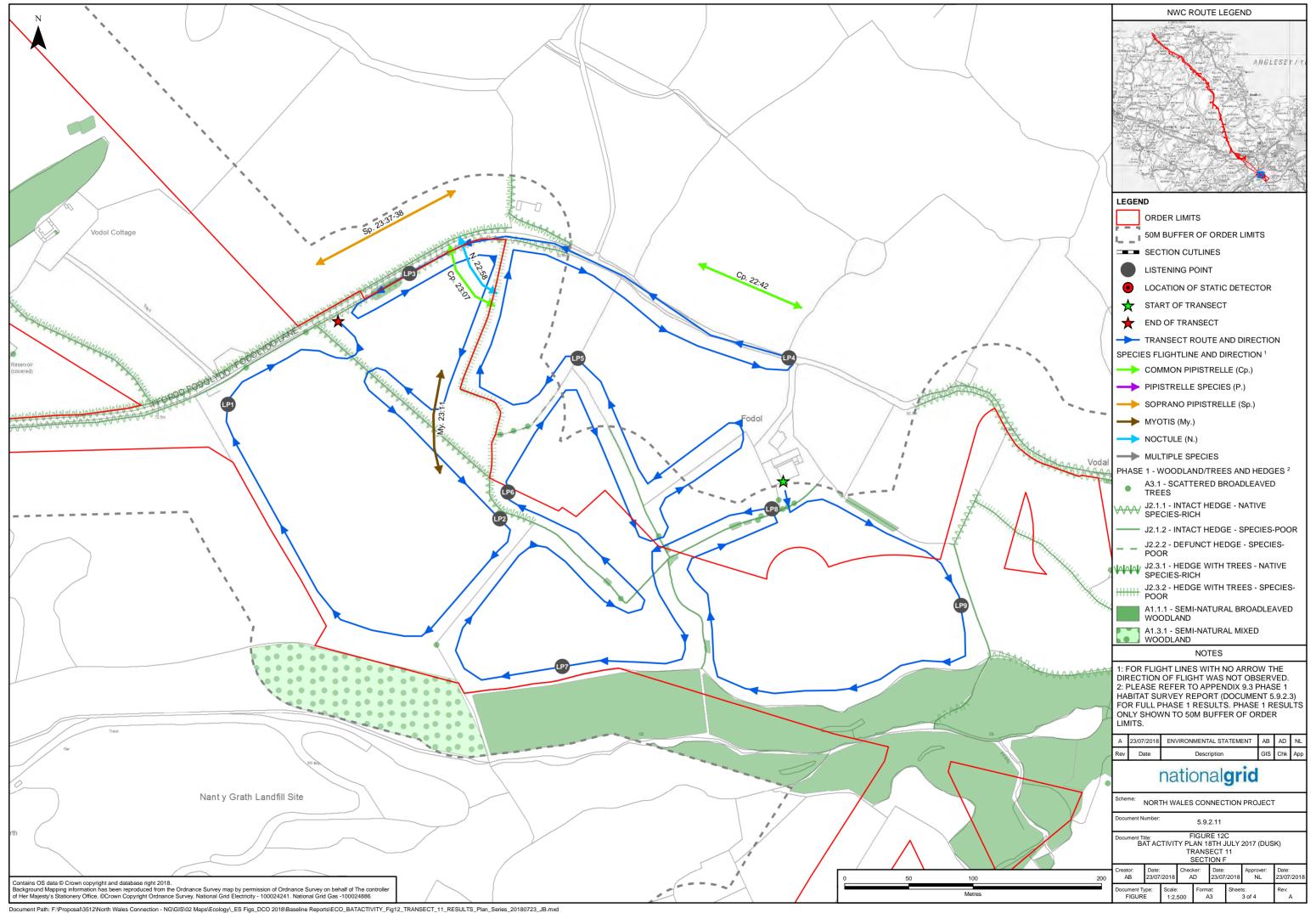


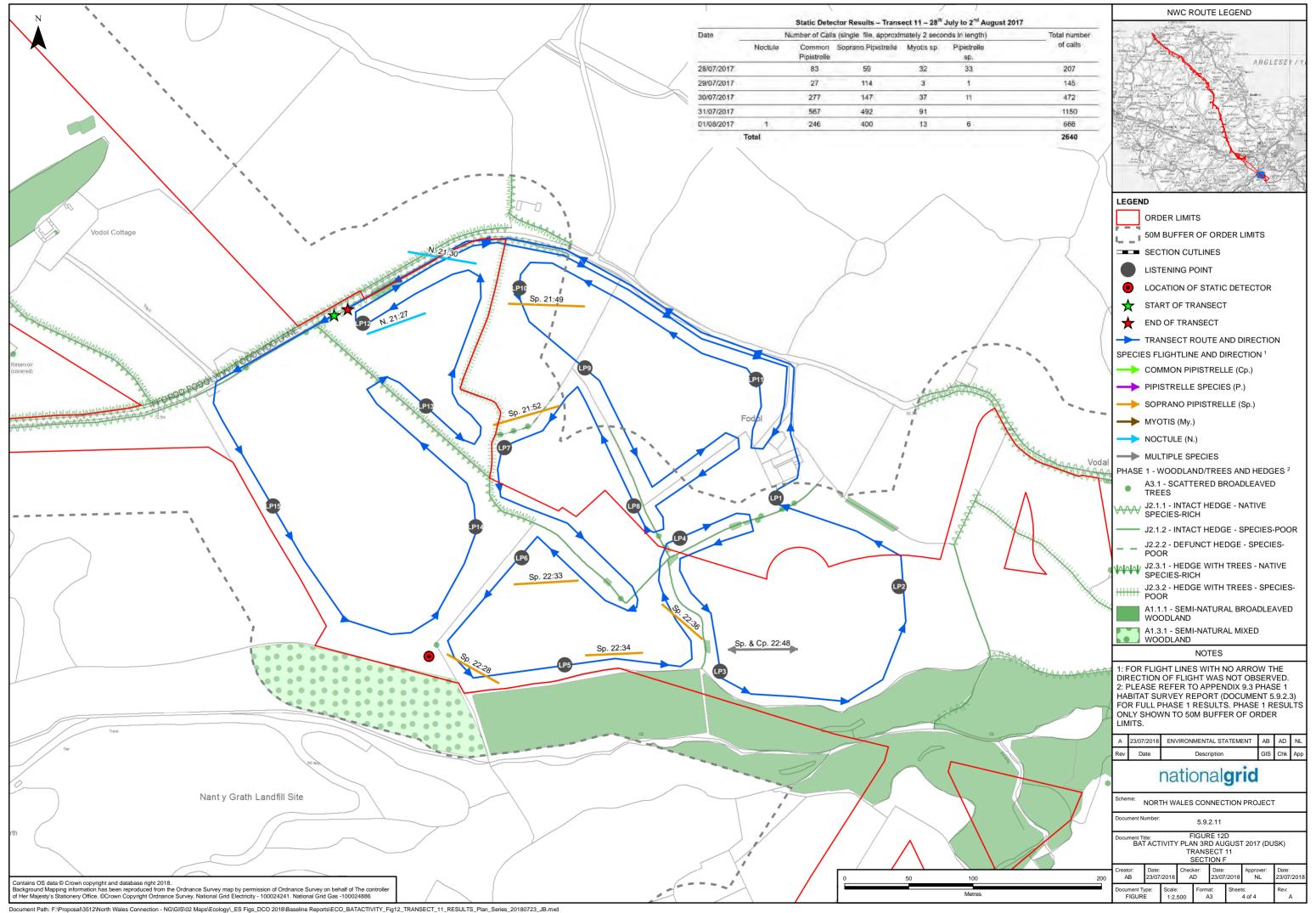












Appendix A: Cofnod Desk Study Data

Appendix contains confidential information. This Appendix is only available on request to those who have a legitimate need to view the Information

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Appendix B: Static Detector Weather Conditions

Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions
Transect	02 June 2016	15 °C – 8 °C, 0.0 mm rain, 2 km/h
2	03 June 2016	17 °C – 5 °C, 0.0 mm rain, 2 km/h
	04 June 2016	19 °C – 11 °C, 0.0 mm rain, 6 km/h
	05 June 2016	26 °C – 12 °C, 6.3 mm rain, 0 km
	06 June 2016	23 °C – 11 °C, 6.3 mm rain, 0 km/h
	07 June 2016	18 °C – 13 °C, 3.0 mm rain, 2 km/h
	31 August 2016	18 °C – 13 °C, 9.0 mm rain, 3 km/h
	01 September 2016	18 °C – 9 °C, 0.5 mm rain, 3 km/h
	02 September 2016	18 °C – 14 °C, 2 mm rain, 5 km/h
	03 September 2016	17 °C – 13 °C, 44.5 mm rain, 4 km/h
	04 September 2016	18 °C – 14 °C, 1.5 mm rain, 3 km/h
	05 September 2016	22 °C – 13 °C, 3.3 mm rain, 2 km/h
	06 September 2016	22 °C – 17 °C, 0.0 mm rain, 3 km/h
	27 September 2016	17 °C - 13 °C, 0.8 mm rain, 4 km/h
	28 September 2016	18 °C - 14 °C, 1.3 mm rain, 6 km/h
	29 September 2016	16 °C - 11 °C, 3.6 mm rain, 6 km/h
	30 September 2016	14 °C - 9 °C, 0.5 mm rain, 2 km/h
	01 October 2016	12 °C - 8 °C, 14.7 mm rain, 0 km/h
	02 October 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h
	03 October 2016	19 °C - 7 °C, 0.0 mm rain, 1 km/h
	04 October 2016	17 °C - 7 °C, 0.0 mm rain, 2 km/h
	05 October 2016	17 °C - 10 °C, 0.0 mm rain, 3 km/h
	31 May 2017	20 °C - 5 °C, 0.8 mm rain, 1 km/h

Table B.1:	Table B.1: Static Detector Weather Conditions	
Transect Number	Date	Weather Conditions
	01 June 2017	19 °C - 14 °C, 1.3 mm rain, 4 km/h
	02 June 2017	18 °C - 9 °C, 8.4 mm rain, 2 km/h
	03 June 2017	17 °C - 7 °C, 0.0 mm rain, 4 km/h
	04 June 2017	16 °C - 10 °C, 0.0 mm rain, 5 km/h
Transect	23 May 2016	16 °C – 6 °C, 0.0 mm rain, 1 km/h
3	24 May 2016	17 °C – 3 °C, 0.0 mm rain, 2 km/h
	25 May 2016	12 °C - 8 °C, 0.0 mm rain, 2 km/h
	26 May 2016	15 °C – 8 °C, 0.3 mm rain, 1 km/h
	27 May 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h
	28 May 2016	19 °C – 9 °C, 0.5 mm rain, 1 km/h
	29 May 2016	18 °C - 7 °C, 0.0 mm rain, 1 km/h
	30 May 2016	17 °C - 6 °C, 0.0 mm rain, 1 km/h
	31 May 2016	19 °C - 10 °C, 0.0 mm rain, 2 km/h
	21 July 2016	21 °C - 12 °C, 3.0 mm rain, 0 km/h
	22 July 2016	20 °C - 12 °C, 0.0 mm rain, 1 km/h
	23 July 2016	20 °C - 11 °C, 0.0 mm rain, 2 km/h
	24 July 2016	18 °C - 15 °C, 3.3 mm rain, 2 km/h
	25 July 2016	18 °C – 13 °C, 0.0 mm rain, 3 km/h
	26 July 2016	18 °C - 13 °C, 1.3 mm rain, 4 km/h
	21 September 2016	19 °C - 7 °C, 0.5 mm rain, 2 km/h
	22 September 2016	16 °C - 8 °C, 3.0 mm rain, 2 km/h
	23 September 2016	18 °C - 8 °C, 0.3 mm rain, 3 km/h
	24 September 2016	20 °C - 14 °C, 7.9 mm rain, 6 km/h
	25 September 2016	16 °C - 10 °C, 3.0 mm rain, 4 km/h
	26 September 2016	17 °C - 10 °C, 8.6 mm rain, 1 km/h
	27 September 2016	17 °C - 13 °C, 0.8 mm rain, 4km/h
	31 May 2017	20 °C - 5 °C, 0.8mm rain, 1 km/h

Table B.1:	Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions	
	01 June 2017	19 °C - 14 °C, 1.3 mm rain, 4 km/h	
	02 June 2017	18 °C - 9 °C, 8.4 mm rain, 2 km/h	
	03 June 2017	17 °C - 7 °C, 0.0 mm rain, 4 km/h	
	04 June 2017	16 °C - 10 °C, 0.0 mm rain, 5 km/h	
Transect	24 May 2016	17 °C – 3 °C, 0.0 mm rain, 2 km/h	
4	25 May 2016	12 °C - 8 °C, 0.0 mm rain, 2 km/h	
	26 May 2016	15 °C – 8 °C, 0.3 mm rain, 1 km/h	
	27 May 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h	
	28 May 2016	19 °C – 9 °C, 0.5 mm rain, 1 km/h	
	29 May 2016	18 °C - 7 °C, 0.0 mm rain, 1 km/h	
	20 July 2016	21 °C - 15 °C, 13.0 mm rain, 2 km/h	
	21 July 2016	21 °C - 12 °C, 3.0 mm rain, 0 km/h	
	22 July 2016	20 °C - 12 °C, 0.0 mm rain, 1 km/h	
	23 July 2016	20 °C - 11 °C, 0.0 mm rain, 2 km/h	
	24 July 2016	18 °C - 15 °C, 3.3 mm rain, 2 km/h	
	25 July 2016	18 °C – 13 °C, 0.0 mm rain, 3 km/h	
	26 July 2016	18 °C - 13 °C, 13.0 mm rain, 4 km/h	
	24 August 2016	19 °C - 13 °C, 0.0 mm rain, 0 km/h	
	25 August 2016	18 °C - 14 °C, 0.0 mm rain, 0 km/h	
	26 August 2016	19 °C - 12 °C, 0.0 mm rain, 3 km/h	
	27 August 2016	21 °C - 10 °C, 3.3 mm rain, 1 km/h	
	28 August 2016	19 °C - 12 °C, 19.8 mm rain, 1 km/h	
	29 August 2016	21 °C - 8 °C, 0.0 mm rain, 2 km/h	
	30 August 2016	19 °C - 15 °C, 0.0 mm rain, 3 km/h	
	31 August 2016	18 °C - 13 °C, 8.6 mm rain, 3 km/h	
	20 September 2016	17 °C – 8 °C, 0.0 mm rain, 0 km/h	
	21 September 2016	19 °C - 7 °C, 0.5 mm rain, 2 km/h	

Table B.1:	Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions	
	22 September 2016	16 °C - 8 °C, 3.0 mm rain, 2 km/h	
	23 September 2016	18 °C - 8 °C, 0.3 mm rain, 3 km/h	
	24 September 2016	20 °C - 14 °C, 7.9 mm rain, 6 km/h	
	25 September 2016	16 °C - 10 °C, 3.0 mm rain, 4 km/h	
	26 September 2016	17 °C - 10 °C, 8.6 mm rain, 1 km/h	
	27 September 2016	17 °C - 13 °C, 0.8 mm rain, 4 km/h	
	12 October 2016	14 °C - 10 °C, 0.0 mm rain, 1 km/h	
	13 October 2016	13 °C - 8 °C, 0.0 mm rain, 1 km/h	
	14 October 2016	15 °C - 5 °C, 0.0 mm rain, 1 km/h	
	15 October 2016	15 °C – 6 °C, 1.5 mm rain, 1 km/h	
	16 October 2016	15 °C - 8 °C, 2.3 mm rain, 3 km/h	
	17 October 2016	14 °C – 10 °C, 5.1 mm rain, 4 km/h	
	22 June 2017	18 °C - 14 °C, 0.8 mm rain, 2 km/h	
	23 June 2017	16 °C – 13 °C, 8.1 mm rain, 5 km/h	
	24 June 2017	19 °C - 12 °C, 0.0 mm rain, 4 km/h	
	25 June 2017	19 °C - 11 °C, 0.8 mm rain, 1 km/h	
	26 June 2017	17 °C - 10 °C, 1.3 mm rain, 0 km/h	
	27 June 2017	20 °C - 13 °C, 8.4 mm rain, 1 km/h	
	28 June 2017	15 °C - 11 °C, 4.1 mm rain, 1 km/h	
Transect	23 May 2016	16 °C - 6 °C, 0.0 mm rain, 1 km/h	
5	24 May 2016	17 °C – 3 °C, 0.0 mm rain, 2 km/h	
	25 May 2016	12 °C - 8 °C, 0.0 mm rain, 2 km/h	
	26 May 2016	15 °C – 8 °C, 0.3 mm rain, 1 km/h	
	27 May 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h	
	28 May 2016	19 °C – 9 °C, 0.5 mm rain, 1 km/h	
	29 May 2016	18 °C - 7 °C, 0.0 mm rain, 1 km/h	
	30 May 2016	17 °C - 6 °C, 0.0 mm rain, 1 km/h	

Table B.1:	Table B.1: Static Detector Weather Conditions	
Transect Number	Date	Weather Conditions
	31 May 2016	19 °C - 10 °C, 0.0 mm rain, 2 km/h
	19 July 2016	33 °C - 13 °C, 0.00 mm rain, 0 km/h
	20 July 2016	21 °C - 15 °C, 13.0 mm rain, 2 km/h
	21 July 2016	21 °C - 12 °C, 3.0 mm rain, 0 km/h
	22 July 2016	20 °C - 12 °C, 0.0 mm rain, 1 km/h
	23 July 2016	20 °C - 11 °C, 0.0 mm rain, 2 km/h
	24 July 2016	18 °C - 15 °C, 3.3 mm rain, 2 km/h
	22 August 2016	17 °C - 14 °C, 10.7 mm rain, 4 km/h
	23 August 2016	23 °C - 15 °C, 1.3 mm rain, 1 km/h
	24 August 2016	19 °C - 13 °C, 0.0 mm rain, 0 km/h
	25 August 2016	18 °C - 14 °C, 0.0 mm rain, 0 km/h
	26 August 2016	19 °C - 12 °C, 0.0 mm rain, 3 km/h
	27 August 2016	21 °C - 10 °C, 3.3 mm rain, 1 km/h
	28 August 2016	19 °C - 12 °C, 19.8 mm rain, 1 km/h
	29 August 2016	21 °C - 8 °C, 0.0 mm rain, 2 km/h
	07 September 2016	22 °C - 18 °C, 0.0 mm rain, 0 km/h
	08 September 2016	20 °C - 14 °C, 4.6 mm rain, 4 km/h
	09 September 2016	19 °C - 14 °C, 8.4 mm rain, 5 km/h
	10 September 2016	18 °C - 9 °C, 0.0 mm rain, 1 km/h
	11 September 2016	19 °C - 11 °C, 0.3 mm rain, 3 km/h
	12 September 2016	22 °C - 16 °C, 0.0 mm rain, 6 km/h
	13 September 2016	21 °C - 16 °C, 2.5 mm rain, 1 km/h
	14 September 2016	24 °C - 16 °C, 0.0 mm rain, 1 km/h
	12 October 2016	14 °C - 10 °C, 0.0 mm rain, 1 km/h
	13 October 2016	13 °C - 8 °C, 0.0 mm rain, 1 km/h
	14 October 2016	15 °C - 5 °C, 0.0 mm rain, 1 km/h
	15 October 2016	15 °C – 6 °C, 1.5 mm rain, 1 km/h

Table B.1:	Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions	
	16 October 2016	15 °C - 8 °C, 2.3 mm rain, 3 km/h	
	17 October 2016	14 °C – 10 °C, 5.1 mm rain, 4 km/h	
	31 May 2017	20 °C - 5 °C, 0.8 mm rain, 1 km/h	
	01 June 2017	19 °C - 14 °C, 1.3 mm rain, 4 km/h	
	02 June 2017	18 °C - 9 °C, 8.4 mm rain, 2 km/h	
	03 June 2017	17 °C - 7 °C, 0.0 mm rain, 4 km/h	
	04 June 2017	16 °C - 10 °C, 0.0 mm rain, 5 km/h	
	05 June 2017	14 °C - 12 °C, 44.7 mm rain, 3 km/h	
	06 June 2017	16 °C - 9 °C, 7.6 mm rain, 6 km/h	
Transect	23 May 2016	16 °C - 6 °C, 0.2 mm rain, 14 km/h	
6	24 May 2016	15 °C – 9 °C, 0.0 mm rain, 20 km/h	
	25 May 2016	12 °C - 8 °C, 0.0 mm rain, 2 km/h	
	26 May 2016	15 °C – 8 °C, 0.3 mm rain, 1 km/h	
	27 May 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h	
	28 May 2016	19 °C – 9 °C, 0.5 mm rain, 1 km/h	
	29 May 2016	18 °C - 7 °C, 0.0 mm rain, 1 km/h	
	30 May 2016	17 °C - 6 °C, 0.0 mm rain, 1 km/h	
	31 May 2016	19 °C - 10 °C, 0.0 mm rain, 2 km/h	
	29 September 2016	17 °C - 12 °C, 3.0 mm rain, 32 km/h	
	30 September 2016	15 °C - 12 °C, 0.0 mm rain, 16 km/h	
	01 October 2016	13 °C - 9 °C, 37.0 mm rain, 12 km/h	
	02 October 2016	16 °C - 7 °C, 2.0 mm rain, 16 km/h	
	03 October 2016	17 °C - 9 °C, 0.0 mm rain, 16 km/h	
	04 October 2016	19 °C - 9 °C, 0.0 mm rain, 9 km/h	
	18 October 2016	13 °C - 10 °C, 1.0 mm rain, 25 km/h	
	19 October 2016	14 °C - 9 °C, 0.0 mm rain, 16 km/h	
	20 October 2016	14 °C - 6 °C, 0.0 mm rain, 9 km/h	

Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions
	21 October 2016	14 °C – 5 °C, 0.0 mm rain, 3 km/h
	22 October 2016	14 °C - 6 °C, 0.0 mm rain, 9 km/h
	23 October 2016	12 °C - 4 °C, 0.0 mm rain, 13 km/h
	24 October 2016	13 °C - 8 °C, 0.0 mm rain, 20 km/h
	10 April 2017	14 °C - 2 °C, 1.0 mm rain, 17 km/h
	11 April 2017	10 °C - 7 °C, 15.0 mm rain, 12 km/h
	12 April 2017	11 °C - 7 °C, 4.0 mm rain, 20 km/h
	13 April 2017	13 °C - 4 °C, 0.0 mm rain, 9 km/h
	14 April 2017	14 °C - 8 °C, 0.0 mm rain, 16 km/h
	15 April 2017	10 °C - 4 °C, 3.0 mm rain, 17 km/h
	16 April 2017	9 °C - 4 °C, 2.0 mm rain, 8 km/h
Transect	23 May 2016	16 °C - 6 °C, 0.0 mm rain, 1 km/h
7	24 May 2016	17 °C – 3 °C, 0.0 mm rain, 2 km/h
	25 May 2016	12 °C - 8 °C, 0.0 mm rain, 2 km/h
	26 May 2016	15 °C – 8 °C, 0.3 mm rain, 1 km/h
	27 May 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h
	28 May 2016	19 °C – 9 °C, 0.5 mm rain, 1 km/h
	29 May 2016	18 °C - 7 °C, 0.0 mm rain, 1 km/h
	30 May 2016	17 °C - 6 °C, 0.0 mm rain, 1 km/h
	31 May 2016	19 °C - 10 °C, 0.0 mm rain, 2 km/h
	19 July 2016	33 °C - 13 °C, 0.00 mm rain, 0 km/h
	20 July 2016	21 °C - 15 °C, 13.0 mm rain, 2 km/h
	21 July 2016	21 °C - 12 °C, 3.0 mm rain, 0 km/h
	22 July 2016	20 °C - 12 °C, 0.0 mm rain, 1 km/h
	23 July 2016	20 °C - 11 °C, 0.0 mm rain, 2 km/h
	24 July 2016	18 °C - 15 °C, 3.3 mm rain, 2 km/h
	25 July 2016	18 °C - 13 °C, 0.0 mm rain, 3 km/h

Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions
	26 July 2016	18 °C - 13 °C, 1.3 mm rain, 4 km/h
	27 July 2016	18 °C - 12 °C, 6.3 mm rain, 1 km/h
	28 July 2016	20 °C - 12 °C, 5.8 mm rain, 3 km/h
	29 July 2016	20 °C - 10 °C, 1.3 mm rain, 1 km/h
	30 July 2016	18 °C - 10 °C, 1.3 mm rain, 2 km/h
	31 July 2016	17 °C - 12 °C, 0.0 mm rain, 1 km/h
	01 August 2016	19 °C - 11 °C, 0.0 mm rain, 1 km/h
	02 August 2016	21 °C - 14 °C, 0.0 mm rain, 2 km/h
	03 August 2016	19 °C - 15 °C, 0.3 mm rain, 8 km/h
	04 August 2016	19 °C - 10 °C, 0.5 mm rain, 4 km/h
	05 August 2016	20 °C - 8 °C, 0.0 mm rain, 2 km/h
	06 August 2016	21 °C - 12 °C, 0.3 mm rain, 4 km/h
	07 August 2016	20 °C - 14 °C, 0.0 mm rain, 7 km/h
	21 September 2016	19 °C - 7 °C, 0.5 mm rain, 2 km/h
	22 September 2016	16 °C - 8 °C, 3.0 mm rain, 2 km/h
	23 September 2016	18 °C - 8 °C, 0.3 mm rain, 3 km/h
	24 September 2016	20 °C - 14 °C, 7.9 mm rain, 6 km/h
	25 September 2016	16 °C - 10 °C, 3.0 mm rain, 4 km/h
	26 September 2016	17 °C - 10 °C, 8.6 mm rain, 1 km/h
	11 April 2017	12 °C - 2 °C, 0.0 mm rain, 5 km/h
	12 April 2017	13 °C - 6 °C, 1.0 mm rain, 5 km/h
	13 April 2017	10 °C - 6 °C, 0.0 mm rain, 3 km/h
	14 April 2017	12 °C - 1 °C, 8.6 mm rain, 5 km/h
Transect	23 May 2016	16 °C – 6 °C, 0.0 mm rain, 1 km/h
8	24 May 2016	17 °C – 3 °C, 0.0 mm rain, 2 km/h
	25 May 2016	12 °C - 8 °C, 0.0 mm rain, 2 km/h
	26 May 2016	15 °C – 8 °C, 0.3 mm rain, 1 km/h

Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions
	27 May 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h
	28 May 2016	19 °C – 9 °C, 0.5 mm rain, 1 km/h
	29 May 2016	18 °C - 7 °C, 0.0 mm rain, 1 km/h
	30 May 2016	17 °C - 6 °C, 0.0 mm rain, 1 km/h
	31 May 2016	19 °C - 10 °C, 0.0 mm rain, 2 km/h
	23 August 2016	23 °C - 15 °C, 1.3 mm rain, 1 km/h
	24 August 2016	19 °C - 13 °C, 0.0 mm rain, 0 km/h
	25 August 2016	18 °C - 14 °C, 0.0 mm rain, 0 km/h
	26 August 2016	19 °C - 12 °C, 0.0 mm rain, 3 km/h
	27 August 2016	21 °C - 10 °C, 3.3 mm rain, 1 km/h
	28 August 2016	19 °C - 12 °C, 19.8 mm rain, 1 km/h
	29 August 2016	21 °C - 8 °C, 0.0 mm rain, 2 km/h
	30 August 2016	19 °C - 15 °C, 0.0 mm rain, 3 km/h
	31 August 2016	18 °C - 13 °C, 8.6 mm rain, 3 km/h
	1 September 2016	18 °C – 9 °C, 0.5 mm rain, 3 km/h
	2 September 2016	18 °C – 14 °C, 2 mm rain, 5 km/h
	3 September 2016	17 °C – 13 °C, 44.5 mm rain, 4 km/h
	4 September 2016	18 °C – 14 °C, 1.5 mm rain, 3 km/h
	5 September 2016	22 °C – 13 °C, 3.3 mm rain, 2 km/h
	6 September 2016	22 °C – 17 °C, 0.0 mm rain, 3 km/h
	7 September 2016	22 °C - 18 °C, 0.0 mm rain, 0 km/h
	8 September 2016	20 °C - 14 °C, 4.6 mm rain, 4 km/h
	27 September 2016	17 °C - 13 °C, 0.8 mm rain, 4 km/h
	28 September 2016	18 °C - 14 °C, 1.3 mm rain, 6 km/h
	29 September 2016	16 °C - 11 °C, 3.6 mm rain, 6 km/h
	30 September 2016	14 °C - 9 °C, 0.5 mm rain, 2 km/h
	1 October 2016	12 °C - 8 °C, 14.7 mm rain, 0 km/h

Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions
	2 October 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h
	3 October 2016	19 °C - 7 °C, 0.0 mm rain, 1 km/h
	4 October 2016	17 °C - 7 °C, 0.0 mm rain, 2 km/h
	5 October 2016	17 °C - 10 °C, 0.0 mm rain, 3 km/h
	6 October 2016	15 °C - 8 °C, 0.0mm rain, 9 km/h
	7 October 2016	16 °C - 9° C, 0.2 mm rain, 9 km/h
	11 October 2016	14 °C - 3 °C, 0.5 mm rain, 1 km/h
	12 October 2016	14 °C - 10 °C, 0.0 mm rain, 1 km/h
	13 October 2016	13 °C - 8 °C, 0.0 mm rain, 1 km/h
	14 October 2016	15 °C - 5 °C, 0.0 mm rain, 1 km/h
	15 October 2016	15 °C – 6 °C, 1.5 mm rain, 1 km/h
	16 October 2016	15 °C - 8 °C, 2.3 mm rain, 3 km/h
	17 October 2016	14 °C – 10 °C, 5.1 mm rain, 4 km/h
	18 October 2016	13 °C - 10 °C, 1.0 mm rain, 25 km/h
	19 October 2016	14 °C - 9 °C, 0.0 mm rain, 16 km/h
	20 October 2016	14 °C - 6 °C, 0.0 mm rain, 9 km/h
	21 October 2016	14 °C – 5 °C, 0.0 mm rain, 3 km/h
	1 June 2017	19 °C - 14 °C, 1.3 mm rain, 4 km/h
	2 June 2017	18 °C - 9 °C, 8.4 mm rain, 2 km/h
	3 June 2017	17 °C - 7 °C, 0.0 mm rain, 4 km/h
	4 June 2017	16 °C - 10 °C, 0.0 mm rain, 5 km/h
	5 June 2017	14 °C - 12 °C, 44.7 mm rain, 3 km/h
	6 June 2017	16 °C - 9 °C, 7.6 mm rain, 6 km/h
	19 June 2017	23 °C - 10 °C, 0.0 mm rain, 0 km/h
	20 June 2017	20 °C - 13 °C, 0.0 mm rain, 0 km/h
	21 June 2017	27 °C - 15 °C, 0.3 mm rain, 1 km/h
	22 June 2017	18 °C - 14 °C, 0.8 mm rain, 2 km/h

Table B.1:	Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions	
	23 June 2017	16 °C - 13 °C, 8.1 mm rain, 5 km/h	
	24 June 2017	19 °C - 12 °C, 0.0 mm rain, 4 km/h	
	25 June 2017	19 °C - 11 °C, 0.8 mm rain, 1 km/h	
	26 June 2017	17 °C - 10 °C, 1.3 mm rain, 0 km/h	
	27 June 2017	20 °C - 13 °C, 8.4 mm rain, 1 km/h	
Transect	27 July 2016	18 °C - 12 °C, 6.3 mm rain, 1 km/h	
9	28 July 2016	20 °C - 12 °C, 5.8 mm rain, 3 km/h	
	29 July 2016	20 °C - 10 °C, 1.3 mm rain, 1 km/h	
	30 July 2016	18 °C - 10 °C, 1.3 mm rain, 2 km/h	
	31 July 2016	17 °C - 12 °C, 0.0 mm rain, 1 km/h	
	01 August 2016	19 °C - 11 °C, 0.0 mm rain, 1 km/h	
	02 August 2016	21 °C - 14 °C, 0.0 mm rain, 2 km/h	
	03 August 2016	19 °C - 15 °C, 0.3 mm rain, 8 km/h	
	04 August 2016	19 °C - 10 °C, 0.5 mm rain, 4 km/h	
	05 August 2016	20 °C - 8 °C, 0.0 mm rain, 2 km/h	
	06 August 2016	21 °C - 12 °C, 0.3 mm rain, 4 km/h	
	07 August 2016	20 °C - 14 °C, 0.0 mm rain, 7 km/h	
	08 August 2016	18 °C - 13 °C, 0.0 mm rain, 5 km/h	
	09 August 2016	16 °C - 9 °C, 0.0 mm rain, 2 km/h	
	10 August 2016	16 °C - 11 °C, 1.8 mm rain, 2 km/h	
	21 September 2016	19 °C - 7 °C, 0.5 mm rain, 2 km/h	
	22 September 2016	16 °C - 8 °C, 3.0 mm rain, 2 km/h	
	23 September 2016	18 °C - 8 °C, 0.3 mm rain, 3 km/h	
	24 September 2016	20 °C - 14 °C, 7.9 mm rain, 6 km/h	
	25 September 2016	16 °C - 10 °C, 3.0 mm rain, 4 km/h	
	26 September 2016	17 °C - 10 °C, 8.6 mm rain, 1 km/h	
	27 September 2016	17 °C - 13 °C, 0.8 mm rain, 4 km/h	

Table B.1: Static Detector Weather Conditions		
Transect Number	Date	Weather Conditions
	28 September 2016	18 °C - 14 °C, 1.3 mm rain, 6 km/h
	29 September 2016	16 °C - 11 °C, 3.6 mm rain, 6 km/h
	30 September 2016	14 °C - 9 °C, 0.5 mm rain, 2 km/h
	01 October 2016	12 °C - 8 °C, 14.7 mm rain, 0 km/h
	02 October 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h
	03 October 2016	19 °C - 7 °C, 0.0 mm rain, 1 km/h
	04 October 2016	17 °C - 7 °C, 0.0 mm rain, 2 km/h
	11 October 2016	14 °C - 3 °C, 0.5 mm rain, 1 km/h
	12 October 2016	14 °C - 10 °C, 0.0 mm rain, 1 km/h
	13 October 2016	13 °C - 8 °C, 0.0 mm rain, 1 km/h
	14 October 2016	15 °C - 5 °C, 0.0 mm rain, 1 km/h
	15 October 2016	15 °C – 6 °C, 1.5 mm rain, 1 km/h
	16 October 2016	15 °C - 8 °C, 2.3 mm rain, 3 km/h
	17 October 2016	14 °C – 10 °C, 5.1 mm rain, 4 km/h
	18 October 2016	13 °C - 8 °C, 3.8 mm rain, 5 km/h
	19 October 2016	13 °C - 7 °C, 0.3 mm rain, 0 km/h
	20 October 2016	13 °C - 4 °C, 0.3 mm rain, 0 km/h
	06 June 2017	16 °C - 9 °C, 7.6 mm rain, 6 km/h
	07 June 2017	15 °C - 11 °C, 6.3 mm rain, 6 km/h
	08 June 2017	16 °C - 13 °C, 20.3 mm rain, 6 km/h
	09 June 2017	18 °C - 12 °C, 0.3 mm rain, 5 km/h
	10 June 2017	17 °C - 12 °C, 16.8 mm rain, 6 km/h
	11 June 2017	17 °C - 12 °C, 0.8 mm rain, 9 km/h
	12 June 2017	17 °C - 12 °C, 0.0 mm rain, 7 km/h
	13 June 2017	18 °C - 12 °C, 0.0 mm rain, 4 km/h
	14 June 2017	22 °C - 11 °C, 0.0 mm rain, 2 km/h
	15 June 2017	18 °C - 12 °C, 2.3 mm rain, 6 km/h

Table B.1: Static Detector Weather Conditions			
Transect Number	Date	Weather Conditions	
	27 June 2017	20 °C - 13 °C, 8.4 mm rain, 1 km/h	
	28 June 2017	15 °C - 11 °C, 4.1 mm rain, 1 km/h	
	29 June 2017	13 °C - 11 °C, 4.8 mm rain, 1 km/h	
	30 June 2017	14 °C - 11 °C, 4.6 mm rain, 1 km/h	
	1 July 2017	17 °C - 10 °C, 0.8 mm rain, 3 km/h	
	2 July 2017	18 °C - 9 °C, 0.0 mm rain, 3 km/h	
	3 July 2017	19 °C - 13 °C, 0.3 mm rain, 1 km/h	
Transect	21 July 2016	16 °C - 12 °C, 18.3 mm rain, 1 km/h	
10	22 July 2016	18 °C - 8 °C, 0.5 mm rain, 0 km/h	
	23 July 2016	20 °C - 11 °C, 0.0 mm rain, 2 km/h	
	24 July 2016	18 °C - 15 °C, 3.3 mm rain, 2 km/h	
	25 July 2016	18 °C - 13 °C, 0.0 mm rain, 3 km/h	
	26 July 2016	18 °C - 13 °C, 1.3 mm rain, 4 km/h	
	27 July 2016	18 °C - 12 °C, 6.3 mm rain, 1 km/h	
	28 July 2016	20 °C -12 °C, 5.8 mm rain, 3 km/h	
	29 July 2016	20 °C - 10 °C, 1.3 mm rain, 1 km/h	
	30 July 2016	18 °C - 10 °C, 1.3 mm rain, 2 km/h	
	31 July 2016	17 °C - 12 °C, 0.0 mm rain, 1 km/h	
	20 September 2016	17 °C - 8 °C, 0.0 mm rain, 0 km/h	
	21 September 2016	19 °C - 7 °C, 0.5 mm rain, 2 km/h	
	22 September 2016	16 °C - 8 °C, 3.0 mm rain, 2 km/h	
	23 September 2016	18 °C - 8 °C, 0.3 mm rain, 3 km/h	
	24 September 2016	20 °C - 14 °C, 7.9 mm rain, 6 km/h	
	25 September 2016	16 °C - 10 °C, 3.0 mm rain, 4 km/h	
	26 September 2016	17 °C - 10 °C, 8.6 mm rain, 1 km/h	
	27 September 2016	17 °C - 13 °C, 0.8 mm rain, 4 km/h	
	28 September 2016	18 °C - 14 °C, 1.3 mm rain, 6 km/h	

Table B.1: Static Detector Weather Conditions			
Transect Number	Date	Weather Conditions	
	29 September 2016	16 °C - 11 °C, 3.6 mm rain, 6 km/h	
	30 September 2016	14 °C - 9 °C, 0.5 mm rain, 2 km/h	
	01 October 2016	12 °C - 8 °C, 14.7 mm rain, 0 km/h	
	02 October 2016	18 °C - 4 °C, 0.3 mm rain, 1 km/h	
	03 October 2016	19 °C - 7 °C, 0.0 mm rain, 1 km/h	
	04 October 2016	17 °C - 7 °C, 0.0 mm rain, 2 km/h	
	11 October 2016	14 °C - 3 °C, 0.5 mm rain, 1 km/h	
	12 October 2016	14 °C - 10 °C, 0.0 mm rain, 1 km/h	
	13 October 2016	13 °C - 8 °C, 0.0 mm rain, 1 km/h	
	14 October 2016	15 °C - 5 °C, 0.0 mm rain, 1 km/h	
	15 October 2016	15 °C – 6 °C, 1.5 mm rain, 1 km/h	
	16 October 2016	15 °C - 8 °C, 2.3 mm rain, 3 km/h	
	17 October 2016	14 °C – 10 °C, 5.1 mm rain, 4 km/h	
	18 October 2016	13 °C - 8 °C, 3.8 mm rain, 5 km/h	
	19 October 2016	13 °C - 7 °C, 0.3 mm rain, 0 km/h	
	20 October 2016	13 °C - 4 °C, 0.3 mm rain, 0 km/h	
	6 June 2017	16 °C - 9 °C, 7.6 mm rain, 6 km/h	
	7 June 2017	15 °C - 11 °C, 6.3 mm rain, 6 km/h	
	8 June 2017	16 °C - 13 °C, 20.3 mm rain, 6 km/h	
	9 June 2017	18 °C - 12 °C, 0.3 mm rain, 5 km/h	
	10 June 2017	17 °C - 12 °C, 16.8 mm rain, 6 km/h	
	11 June 2017	17 °C - 12 °C, 0.8 mm rain, 9 km/h	
	12 June 2017	17 °C - 12 °C, 0.0 mm rain, 7 km/h	
	13 June 2017	18 °C - 12 °C, 0.0 mm rain, 4 km/h	
	14 June 2017	22 °C - 11 °C, 0.0 mm rain, 2 km/h	
	15 June 2017	18 °C - 12 °C, 2.3 mm rain, 6 km/h	
	28 June 2017	15 °C - 11 °C, 4.1 mm rain, 1 km/h	

Table B.1: Static Detector Weather Conditions			
Transect Number	Date	Weather Conditions	
	29 June 2017	13 °C - 11 °C, 4.8 mm rain, 1 km/h	
	30 June 2017	14 °C - 11 °C, 4.6 mm rain, 1 km/h	
	01 July 2017	17 °C - 10 °C, 0.8 mm rain, 3 km/h	
	02 July 2017	18 °C - 9 °C, 0.0 mm rain, 3 km/h	
	03 July 2017	19 °C - 13 °C, 0.3 mm rain, 1 km/h	
	04 July 2017	18 °C - 13 °C, 2.3 mm rain, 3 km/h	
	05 July 2017	18 °C - 15 °C, 0.0 mm rain, 0 km/h	
	06 July 2017	23 °C - 13 °C, 0.0 mm rain, 1 km/h	
Transect	08 June 2017	16 °C - 13 °C, 20.3 mm rain, 6 km/h	
11	09 June 2017	18 °C - 12 °C, 0.3 mm rain, 5 km/h	
	10 June 2017	17 °C - 12 °C, 16.8 mm rain, 6 km/h	
	11 June 2017	17 °C - 12 °C, 0.8 mm rain, 9 km/h	
	12 June 2017	17 °C - 12 °C, 0.0 mm rain, 7 km/h	
	13 June 2017	18 °C - 12 °C, 0.0 mm rain, 4 km/h	
	14 June 2017	22 °C - 11 °C, 0.0 mm rain, 2 km/h	
	15 June 2017	18 °C - 12 °C, 2.3 mm rain, 6 km/h	
	30 June 2017	14 °C - 11 °C, 4.6 mm rain, 1 km/h	
	01 July 2017	17 °C - 10 °C, 0.8 mm rain, 3 km/h	
	02 July 2017	18 °C - 9 °C, 0.0 mm rain, 3 km/h	
	03 July 2017	19 °C - 13 °C, 0.3 mm rain, 1 km/h	
	04 July 2017	18 °C - 13 °C, 2.3 mm rain, 3 km/h	
	29 July 2017	15 °C - 12 °C, 1.0 mm rain, 16 km/h	
	30 July 2017	16 °C - 12 °C, 3.8 mm rain, 18 km/h	
	31 July 2017	17 °C - 12 °C, 6.1 mm rain, 32 km/h	
	01 August 2017	18 °C - 13 °C, 3.8 mm rain, 30 km/h	
	02 August 2017	19 °C - 13 °C, 4.0 mm rain, 24 km/h	