

APPENDIX D-8

Avian Monitoring Results

Summer 2018

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Breeding Bird Survey, 2018

Drumnahough Wind Farm





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1 INTRODUCTION

1.1 PROJECT BACKGROUND

Consent is being sought by Drumnahough Designated Activity Company (Drumnahough DAC) (the applicant), a co-development company between *SSE Renewables Ireland Limited* and *Cuideachta Ghníomhaíochta Ainmnithe (Coillte CGA)*, from An Bord Pleanála (the competent authority) for development of a 12 No. turbine wind farm at Drumnahough, south-west of Letterkenny.

This report, which pertains to the Drumnahough site, presents the findings of bird surveys conducted at Drumnahough during the breeding bird season of 2018. The report has been informed by both desk-top and field studies. Relevant mapping, including the study area and site boundary were provided by SSE.

1.2 STATEMENT OF AUTHORITY

The breeding 2018 surveys were managed and co-ordinated by John N. Murphy. Field surveyors were; John N. Murphy, Shane Cully (BSc.) and Brian Porter (Dip.). This report has been prepared by Fiona McKenna (BSc.), an ecologist with Malachy Walsh and Partners, with the assistance of John N. Murphy who is the Project Ornithologist and Monica Kane (BSc. MSc.) who is the Project Manager.

The reliability of the survey work is dependent on the observers used to collect the underlying information. Using appropriately skilled and experienced observers is therefore essential. Individual surveyor profiles outlining surveyor competencies, expertise and previous experience are included in **Appendix 1**.

1.3 SITE LOCATION

The study area is located in the southwest County Donegal, approximately 13km southwest of Letterkenny and 11km northwest of Stranorlar town. The site entrance is along a local road to the south-east of the site which can be accessed from the N13 (see **Figure 1** below).

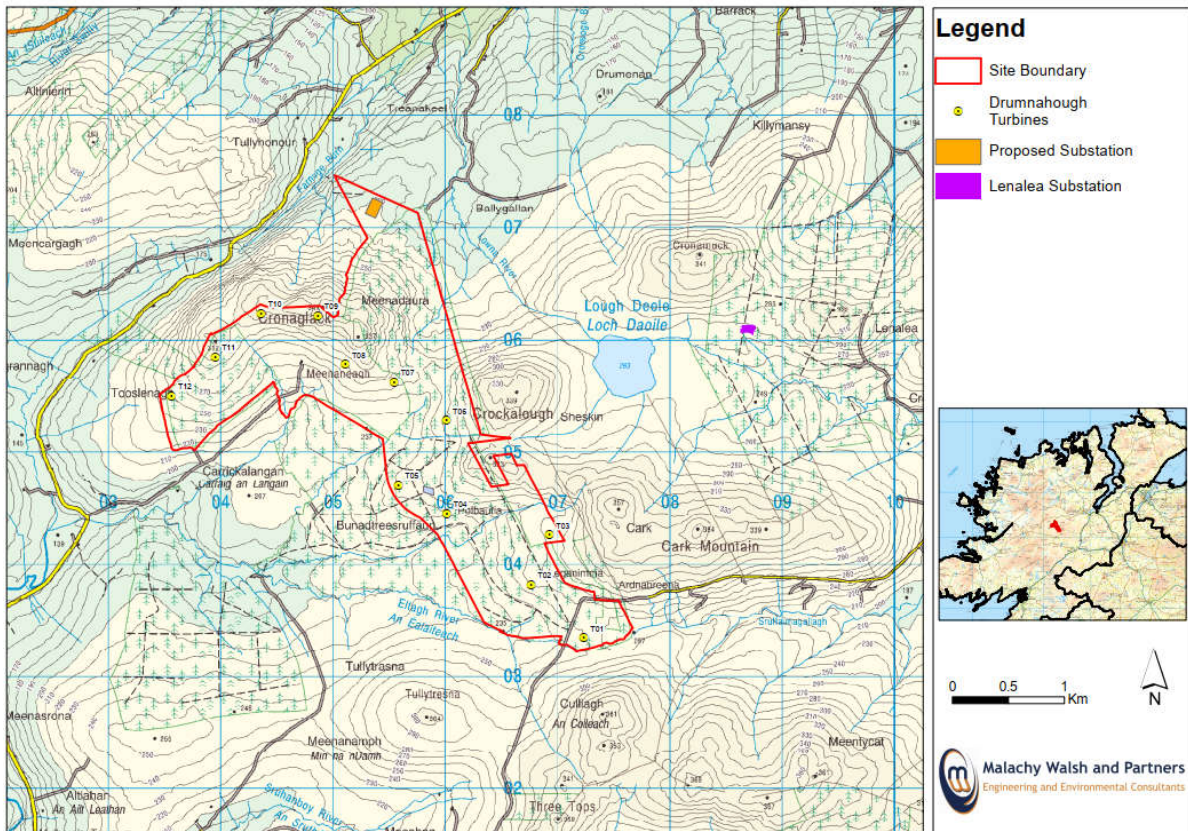


Figure 1. Site location with site boundary

2 METHODOLOGY

2.1 DESK-STUDY

A desk-top study was carried out prior to the commencement of bird survey-work. This provided the opportunity to gain an understanding of bird populations using the area through an investigation of the habitats present and previous species records. Available ornithological data was reviewed including:

- Review of on-line sources: National Parks and Wildlife Service (NPWS), National Biodiversity Data Centre (NBDC).
- Review of Bird Atlases: (Sharrock, 1976; Lack, 1986; Gibbons et al., 1993; Balmer et al., 2013).
- Review of Birds of Conservation Concern in Ireland (BoCCI) 2014-2019 (Colhoun & Cummins, 2013)
- General ornithological information (www.birdwatchireland.ie)
- Fehily Timoney & Company (2008). Environmental Impact Statement Report for Drumnahough Wind Farm

2.2 IDENTIFICATION OF TARGET SPECIES

The results of the desk-top study and reconnaissance surveys were used to identify those bird species which were considered likely to occur. The reconnaissance survey consisted of the initial field visit undertaken by the Project Ornithologist to review the landscape and habitats in the area in the context of its potential ornithological importance and to inform the identification of target species, which influenced survey design.

Target species are typically those species which are afforded a higher level of legislative protection or which are considered to be more sensitive to potential impacts from wind farm developments by virtue of their behaviour (Scottish Natural Heritage, 2017). Target species should be restricted to those likely to be affected by wind farms (SNH, 2017).

With regards to drawing up the target species list for Drumnahough, the SNH (2017) guidance was referred to. This guidance outlines three important sources of potential target species. Additionally, Species of Conservation Interest (SCI species) for Special Protected Areas (SPAs) located within a 20km radius of the site were considered using guidelines provided by Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016) to assess the core foraging distances of bird species and the connectivity distances of each species in relation to the SPA. The target species list was drawn from:

- Annex I of the Birds Directive
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within 20km radius of site
- Species protected under the fourth schedule of the Wildlife Acts 1976-2012 (buzzards, eagles, falcons, harriers, hawks, kites, osprey, owls)
- Red-listed birds of Conservation Concern (Colhoun and Cummins, 2013)

The following table (**Table 1**) outlines those species for which past records exist within the hectad C00 identified during the desk-top study (**Section 2.1** above) and which meet one or more of the target species selection criteria as outlined above. The conservation status/level of protection afforded to each species is also included.

Table 1: Target species for which previous records exist in relevant hectad C00

Target Species	Conservation/Protection Status
Hen harrier (<i>Circus cyaneus</i>)	BoCCI Amber-listed/ Annex I EU Birds Directive/Fourth schedule of the Wildlife Acts 1976-2012
Sparrowhawk (<i>Accipiter nisus</i>)	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Common buzzard (<i>Buteo buteo</i>)	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Kestrel (<i>Falco tinnunculus</i>)	BoCCI Amber-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Merlin (<i>Falco columbarius</i>)	BoCCI Amber-listed/ Annex I EU Birds Directive
Red grouse (<i>Lagopus lagopus hibernicus</i>)	BoCCI Red-listed/ Annex II & Annex III EU Birds Directive
Common Pheasant (<i>Phasianus colchicus</i>)	BoCCI Green-listed/ Annex II & Annex III EU Birds Directive
Common snipe (<i>Gallinago gallinago</i>)	BoCCI Amber-listed/ Annex II & Annex III EU Birds Directive
Woodcock (<i>Scolopax rusticola</i>)	BoCCI Amber-listed/ Annex II & Annex III EU Birds Directive
Rock dove (<i>Columba livia</i>)	BoCCI Green-listed/Annex II and III EU Birds Directive

Target Species	Conservation/Protection Status
Northern lapwing (<i>Vanellus vanellus</i>)	BoCCI Red-listed/ Annex II EU Birds Directive
Eurasian curlew (<i>Numenius arquata</i>)	BoCCI Red-listed/ Annex II EU Birds Directive
Twite(<i>Carduelis flavirostris</i>)	BoCCI Red-listed

Wind-farm sensitive species meeting the criteria outlined above which were not identified as previously occurring within the general area during the desk-top study such as Golden eagle (*Aquila chrysaetos*) were also included as target species, where recorded.

As outlined above and set out in SNH (2017), target species typically comprise those species which are afforded a higher level of legislative protection and should be restricted to those likely to be affected by wind farms. Therefore, only red-listed species have been included as target species, unless the species meets one of the other target species selection criteria e.g. Annex I, outlined above. However, to ensure other species which may be sensitive to wind farms were not missed during surveys all other species of gull, wader, duck, goose, swan, cormorant and heron were included as secondary target species. According to SNH (2017), it is generally considered that passerine species are not significantly impacted by wind farms. While they were not, therefore, included as either (primary) target or secondary target species their presence was recorded in order to provide a complete picture of bird usage of the study area.

2.3 CONSULTATION

There was no formal or informal consultation prior to or during this survey period.

2.4 FIELD SURVEYS

Initial walkovers of the site were carried out to enable the identification of suitable survey locations.

Field surveys were undertaken to gather detailed information on bird distribution and flight activity in order to predict the potential effects of a wind farm proposal on birds. The field surveys comprised two main elements: vantage point (VP) watches and targeted distribution and abundance surveys which comprised of transects and point count surveys.

2.4.1 Hinterland Survey

A hinterland survey was undertaken within 5km radius of the site boundary to determine the suitability of the surrounding habitats for target species with particular focus on birds of prey and whether large assemblages of birds (e.g. wildfowl, waders) occurred regularly in the locality.

2.4.2 Vantage Point (VP) Surveys

Overview Vantage point surveys were carried out with regard to 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2017).

Vantage point (VP) surveys were carried out by suitably qualified personnel over a six-month period (April to September 2018, inclusive). The overall aim of these surveys was to quantify the level of flight activity and its distribution over the flight activity survey area and to determine bird usage of the site.

2.4.2.1 Selection of VP Locations

Vantage points are ideally located on elevated areas, or other areas, which provide clear views over the study area. Achieving maximum visibility over as much of the site as possible is important for these surveys.

According to SNH (2017) vantage point viewsheds should extend to 2km. VP2 extends to 2.5km, the full extent which can be readily viewed using a telescope. In order to minimise observer effect on bird behaviour VPs should ideally be located outside the survey area but should be located as close as possible. SNH (2017) stipulates that where VPs are located within the study area they should not be used simultaneously with other VPs which overlook them to minimise potential observer effect on birds.

Five vantage point locations were surveyed over the summer 2018 season (see **Figure 2**). VP1 to VP4 were selected for coverage of the wind farm site and VP5 was included as it covers Lough Deele, a habitat sometimes found to be used by birds of high conservation importance, including Whooper swan. Lough Deele is the only significant body of standing water in proximity to the site. The location of each VP using Irish Transverse Mercator (ITM) grid co-ordinates are provided in **Table 2** below. **Figure 3** shows all VP locations and the corresponding viewshed for each. All other maps showing the locations of each VP and the viewsheds from each VP showing the extent of the study area and site coverage are provided in **Appendix 2**. Full details on individual VP surveys including survey dates, times and weather conditions can be found in **Appendix 3**.

Table 2: Drumnahough VP locations

VP No.	ITM Grid Co-ordinates
1	203954.903 - 405333.016
2	206174.435 - 404808.899
3	206981.679 - 403134.8
4	202981.519 - 403798.994
5	606985.000-904823.800

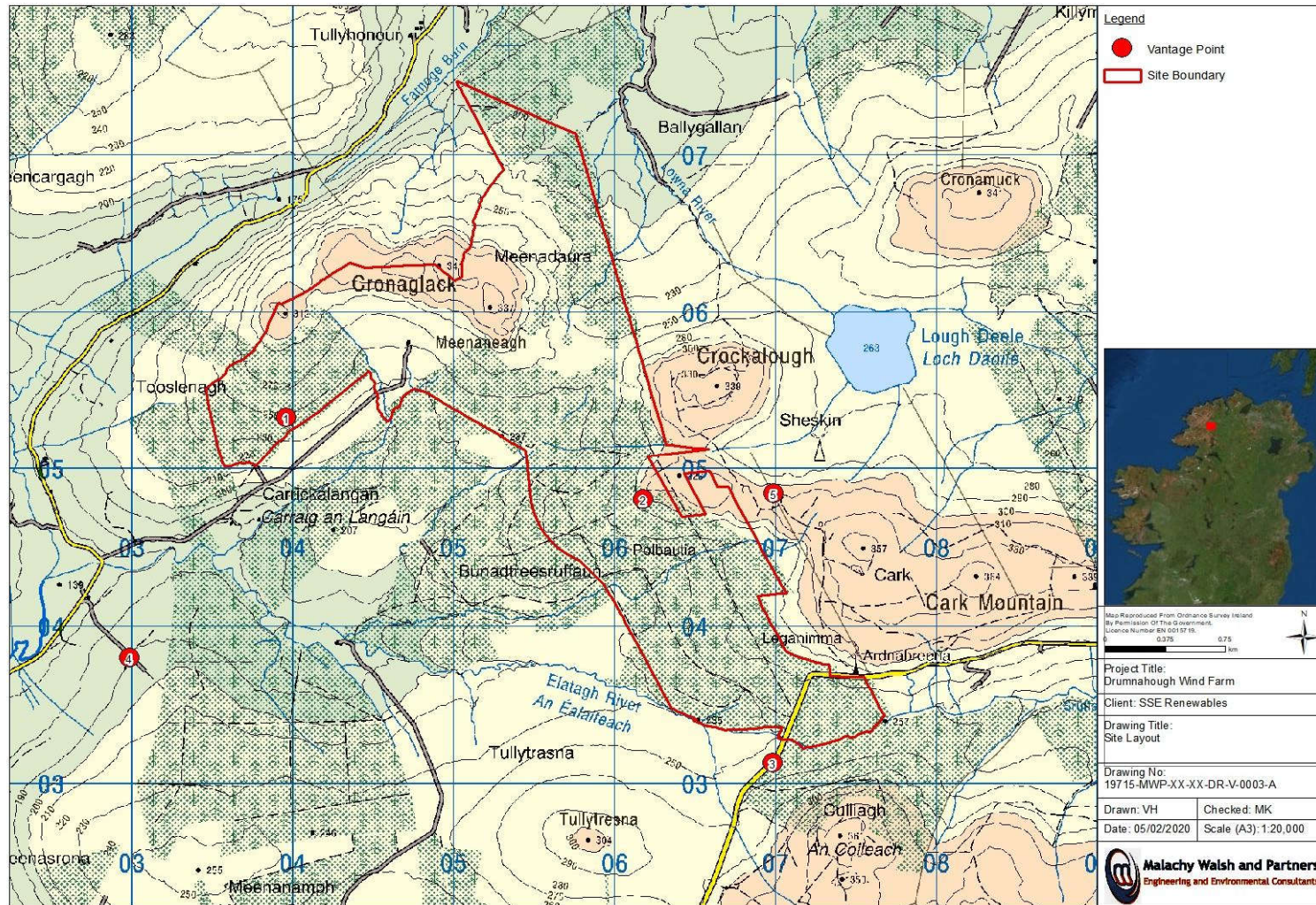


Figure 2. VP locations and development site boundary

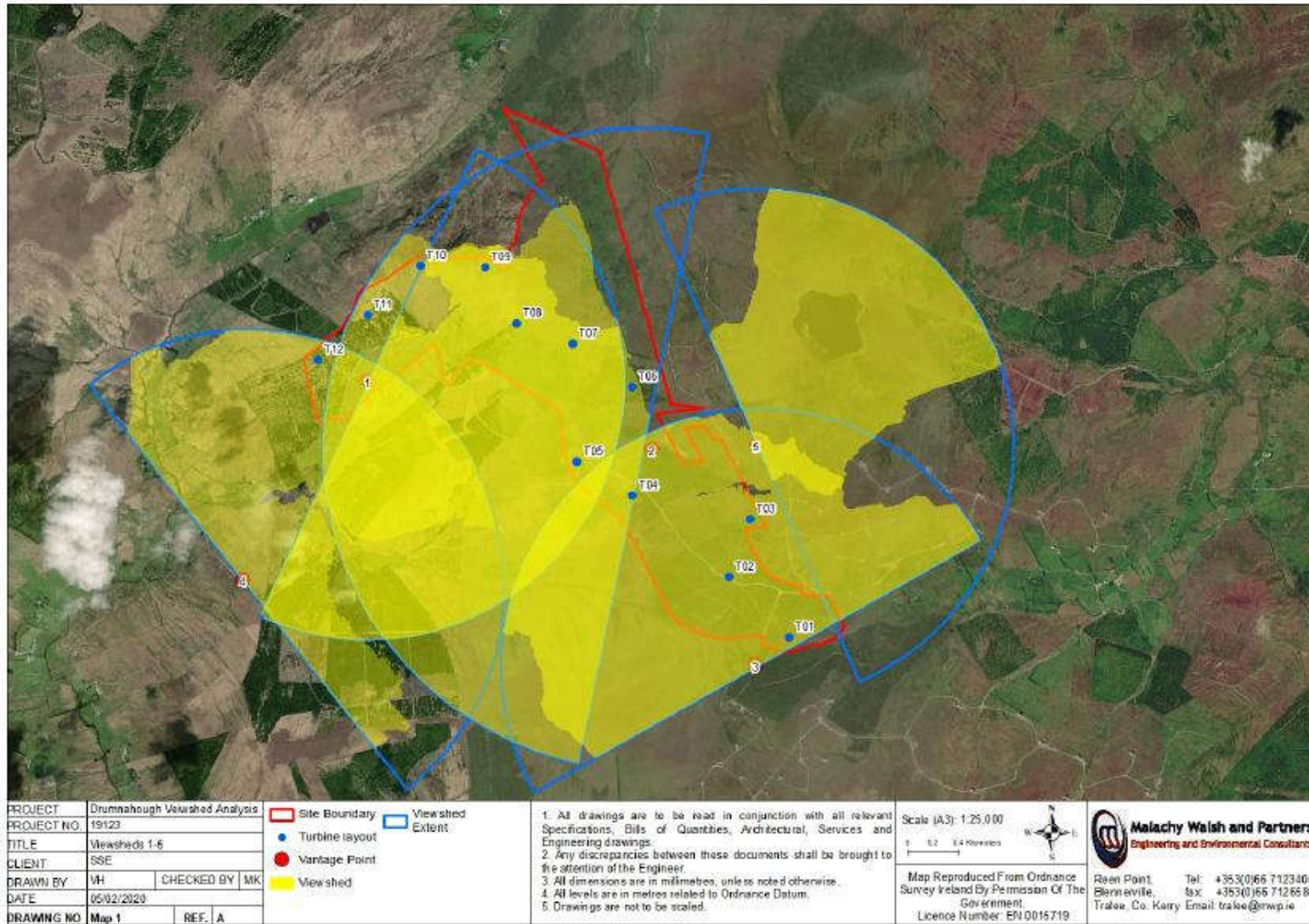


Figure 3. Vantage Point location and corresponding viewsheds

2.4.2.2 Viewshed Analysis of VP Locations

Viewshed analysis was undertaken for each VP location to determine visual coverage of the survey area. Viewsheds were set to observer height of 2m showing a view of everything over 25m height. Viewsheds encompassed a 2km radius with 360^o view with the exception of VP2 which extended to 2.5km. Each viewshed was then cropped to an 180^o arc showing the relevant direction of view. Figures showing the viewsheds from each VP in order to show the extent of site coverage are provided in **Figure 3** above and **Appendix 2**.

2.4.2.3 Flight Data Recording

A total of 5 vantage points were surveyed and each one was watched for a total of six hours per month. This resulted in a total of 30 survey hours per month and 180 survey hours in total over the entire season. The watches were divided into three hour periods for each individual watch. Further detailed vantage point survey information can be found in **Appendix 3**.

During VP surveys the flight behaviour of target and secondary target species was recorded. Behaviour of secondary species was also recorded; however, recording of secondary species was subsidiary to recording of target species (SNH, 2017). At the time of each species observation the following information was recorded:

- The time that the bird was detected;
- The flight duration(seconds) within various flight height categories (0-20m, 20-50m, 50-100, 100-150m and >150);
- Sex and age of the bird(s) (adult/juvenile), where possible to determine;
- Type of activity/behaviour such as hunting, flying, displaying etc;
- Estimation of actual flight height;
- Habitat(s) where the bird was observed;
- Weather conditions at time of sighting including wind speed, direction, degree of visibility.

Once an initial sighting was made, each target or secondary species was observed until lost from view. Flight paths were recorded as observed, including where birds travelled or were observed outside of the flight activity survey area; such that all flight activity within the broader landscape was encompassed.

Details on flight behaviour for each individual target/secondary species observed, including a unique map identifier code which corresponds to a mapped flight path, are provided in tabulated format in **Appendix 4**. All flight paths and activity areas are provided in **Appendix 5**.

2.4.2.4 Recording of Non-target Species

During the VP surveys, non-target species were also recorded. Monthly peak counts of all non-target species of conservation concern recorded during VP surveys are provided in **Appendix 6**.

2.4.3 Distribution and Abundance Surveys

2.4.3.1 Transect Surveys

A transect survey is a survey along a defined route within the study area. The overall aim of the transect surveys was to assess general bird distribution throughout the site and gather data on bird

usage of the site. Transect surveys were completed in two months between April and September 2018. All bird species seen or heard, typically within 100m of the transect route, were recorded, although the topography of the landscape often allowed for detection of birds at greater distances. The transect routes were selected to provide representative coverage of all habitats, both open and closed, occurring within the site e.g. clearfell forestry, young/mature forestry, scrub etc. The transect routes (B & C) followed an existing forestry access track which runs through the site.

2.4.3.2 Point Count Surveys

Birds were also surveyed using point count methodologies. Point counts were conducted during the same month the transect surveys took place and along the same routes as Transect B and Transect C. During each individual Transect Survey, six point count locations along Transect B and 3 point count locations along Transect C were surveyed. Point count locations were sited at approximately 0.5km intervals along the overall length of the designated transect route. All birds seen or heard during this period were recorded.

A map showing the transect survey routes and point count locations within the Drumnahough site is included in **Appendix 2**. Details on each survey carried out including survey date, time and weather conditions can be found in **Appendix 7**. Tabulated results of peak counts for all species recorded during monthly transect and point count surveys are provided in **Appendix 8**.

2.4.3.3 Incidental records

Incidental records of birds relate to birds recorded either during or outside of the formal survey periods in which the surveyor took note of when on site. All records are presented in **Section 4.4**

3 EXISTING ENVIRONMENT

3.1 SITE DESCRIPTION

The Drumnahough project site lies within rural upland setting of central Donegal, approximately 13km southwest of Letterkenny and 11km Northwest of Stranorlar and 10km north of Ballybofey. The wind farm development site encompasses the townlands of Cark to the south, Meenadaura to the east, Treankeel to the north and Carrickalangan to the west.

The dominant habitat type throughout the overall site is mature non-native conifer forestry occurring in mosaic with areas of second rotation forestry and clearfell. Areas of heath and blanket bog occur in the north-western corner and eastern section of the site and the mainland-use extending away from the area comprises peatlands, improved agricultural farmland, wind farms and commercial forestry. Internal forestry access roads are located throughout the site. According to the CORINE (Co-ORdinated INformation on the Environment) data series (last updated 2018), land cover on the site comprises of 'Transitional woodland scrub (324)', 'coniferous forests (312)' and 'peat bogs (412)' in the surrounding area¹. Bedrock throughout the subject site and surrounding area is classified as 'Termon Formations' which is described as 'Banded semi-pelitic & psammitic schist'². A review of the Teagasc map viewer determined that soil composition throughout the wind farm site

¹<https://gis.epa.ie/EPAMaps/>

²<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>

comprises 'peat'³. Site investigations undertaken for the project indicate average peat depths of 1.82m within the footprint of the study area.

The study area is primarily drained by the River Finn catchment to the south ultimately draining to the River Foyle and Lough Foyle estuary, which lies between Counties Donegal and Derry to the east-northeast of the site. Lough Deele lies just over 1km east of the wind farm site boundary and is drained by the Swilly catchment. The permitted Lenalea substation and proposed Option B for grid connection for Drumnahough Wind Farm lie within the Deele catchment, which drains to the Deele River, which in turn drains to the River Foyle and Lough Foyle estuary. The wind farm site supports a number of headwater streams that feed the rivers to the lower parts of these catchments.

3.2 DESK-STUDY RESULTS

3.2.1 Previous Species Records

The entire study area lies within the 10km hectad C00. For this area, the NBDC on-line mapping tool was used to generate an excel file of all bird species for which past records exist⁴. This list was then checked for species which are either of conservation concern⁵ and/or are afforded a higher level of legislative protection in an Irish or European context i.e. under the Wildlife Acts or the EU Birds Directive. The resulting species list was then checked against the 'Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland' (Balmer et al., 2013) to determine their breeding and wintering status within the area. The Bird Atlas (2007-2011) is the most recent and comprehensive work on the distributions of breeding and wintering bird populations in Ireland.

The following table (**Table 3**) outlines all species which have been previously recorded in the relevant hectad C00 and which are either of conservation concern and/or are afforded a higher level of legislative protection in an Irish or European context, including their wintering and breeding status.

Table 3: Bird Atlas (2007-2011) status of species previously recorded in the 10km hectad C00

Species Name	Common	Winter Atlas '07-11	Breeding Atlas '07-11	Conservation/Protection Status
Grey heron		Present	Absent	BoCCI Green-listed/Fourth schedule of the Wildlife Acts 1976-2012
Mallard		Present	Present	BoCCI Green-listed/Annex II & Annex III EU Birds Directive
Hen harrier		Present	Absent	BoCCI Amber-listed/ Annex I EU Birds Directive
Eurasian Sparrowhawk		Absent	Probable	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Common Buzzard		Present	Possible	BoCCI Green-listed/Fourth schedule of the Wildlife Acts 1976-2012
Common Kestrel		Present	Absent	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012

³<http://gis.teagasc.ie/soils/map.php>

⁴Source:<https://maps.biodiversityireland.ie/Map>

⁵ Birds of Conservation Concern in Ireland (BoCCI) 2014-2019 (Colhoun & Cummins, 2013)

Species Name	Common	Winter Atlas '07-11	Breeding Atlas '07-11	Conservation/Protection Status
Merlin		Absent	Confirmed	BoCCI Amber-listed/ Annex I EU Birds Directive
Red grouse		Present	Possible	BoCCI Red-listed/ Annex II & Annex III EU Birds Directive
Common Pheasant		Present	Absent	BoCCI Amber-listed/ Annex II & Annex III EU Birds Directive
Common Snipe		Present	Absent	BoCCI Amber-listed/ Annex II & Annex III EU Birds Directive
Eurasian Woodcock		Present	Confirmed	BoCCI Amber-listed/ Annex II & Annex III EU Birds Directive
Rock pigeon/dove		Present	Absent	BoCCI Green-listed/Annex II and III EU Birds Directive
Common Wood pigeon		Present	Probable	BoCCI Green-listed/Annex II EU Birds Directive
Common Cuckoo		Absent	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Skylark		Present	Probable	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Barn swallow		Absent	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
House martin		Present	Absent	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Meadow pipit		Present	Confirmed	BoCCI Red-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Grey wagtail		Present	Confirmed	BoCCI Red-listed/ Fourth schedule of the Wildlife Acts 1976-2012
White wagtail		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
White-throated Dipper		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Winter Wren		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Dunnock		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
European robin		Present	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Stonechat		Absent	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Northern Wheatear		Absent	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Common Blackbird		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Fieldfare		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012

Species Name	Common	Winter Atlas '07-11	Breeding Atlas '07-11	Conservation/Protection Status
Song thrush		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Mistle thrush		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Willow warbler		Absent	Probable	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Goldcrest		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Spotted flycatcher		Absent	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Long-tailed tit		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Coal tit		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Blue tit		Present	Probable	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Great tit		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Eurasian Treecreeper		Present	Absent	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Magpie		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Eurasian Jackdaw		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Rook		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Common Raven		Present	Probable	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Common Starling		Present	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
House sparrow		Present	Confirmed	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Chaffinch		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
European Greenfinch		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
European Goldfinch		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Eurasian Siskin		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Common Linnet		Absent	Probable	BoCCI Amber-listed/Fourth schedule of the Wildlife Acts 1976-2012
Common Bullfinch		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012

Species Name	Common	Winter Atlas '07-11	Breeding Atlas '07-11	Conservation/Protection Status
Reed bunting		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Hooded crow		Present	Confirmed	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Lesser redpoll		Present	Possible	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012

Other species which are not listed in the table above but have been included in older Bird Atlas datasets are outlined in the following table (**Table 4**). The breeding and/or wintering status of each species and conservation/protection status is outlined along with the relevant dataset from which the record has been obtained on-line⁶.

Table 4: Bird Atlas (1968 – 1972) status of other species previously recorded in the 10km hectadC00

Species	Status	Dataset	Conservation/Protection Status
Northern Lapwing	Probable	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Red-listed/ Annex II EU Birds Directive/Fourth schedule of the Wildlife Acts 1976-2012
Sand martin	Confirmed	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Amber-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Sedge warbler	Confirmed	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Common Chiffchaff	Probable	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Green-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Twite	Probable	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Red-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Whinchat	Possible	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Amber-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Yellowhammer	Confirmed	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Red-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Corn crake	Confirmed	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Red-listed/ Annex I EU Birds Directive/Fourth schedule of the Wildlife Acts 1976-2012
Common Sandpiper	Probable	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Amber-listed/ Fourth schedule of the Wildlife Acts 1976-2012
Eurasian Curlew	Probable	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	BoCCI Red-listed/ Annex II EU Birds Directive/Fourth schedule of the Wildlife Acts 1976-2012

3.2.2 Previous surveys in the area

Fehily Timoney & Company carried out bird surveys between 2006 and 2008 as part of the Environmental Impact Statement for Airtcity published in 2008. The most notable species recorded are listed below:

⁶Source: <https://maps.biodiversityireland.ie/Map>

- Golden plover

Golden Plover were recorded recurrently at some locations during the survey, mainly in the winter-spring period. In 2007 flocks of 40-50 birds and 90 were observed south of the site. Similar numbers occurred in 2008. It was difficult to determine whether they were residents or migrants over wintering. A pair of birds were flushed in 2006 and thought to be a breeding pair, however throughout the survey period there was no evidence of breeding Golden Plover at the study area or in the wider locality.

- Greenland white-fronted Goose

This species was only observed on one date in April 2008 in which four flocks flew in close succession. Flock numbers ranged 80-100 and all birds were seen flying in the same direction (south/southwest - north/northwest) most likely on north-ward migration.

- Hen harrier

Hen harrier sightings were infrequent but they were seen consistently throughout the survey years 2006-2008. In 2006 recorded in April during VP watch, in 2007 recorded in May during Walkover Survey also in December during VP watch and 2008 in February during VP watch.

- Merlin

There were a few sightings during the survey period to suggest there was a possible breeding pair in the area although no nest was located upon investigation.

- Peregrine

Peregrine was only seen rarely during the survey period. It was determined that the site itself lacked potential breeding sites for this species.

- Red grouse

Grouse were flush on a few occasions during walk over surveys and heard calling, it was suggested that due to the variable heather cover in the area it is likely this species was localised and sparsely distributed.

- Snipe

Snipe were widespread areas of wet bog and flushes and a number of breeding territories were located.

- Whooper swan

A total of 18 Whooper swans were recorded on Lough Deele (east of the site) from winter to spring 2006-2007. It was determined there was regular occurrence at Lough Deele on autumn and spring passage and periodically during the winter, however no flight paths were recorded to or from Lough Deele.

3.2.3 Special Protection Areas (SPAs)

The European Union Directive on the Conservation of Wild Birds, known as the Birds Directive (Directive 2009/147/EC) requires Member States to designate legally protected areas for the conservation of endangered or migratory species of birds, as listed on Annex I of the Directive. These areas are called Special Protection Areas (SPAs) and since 1994 all SPAs form part of the Natura 2000

network of protected sites. The EU Birds Directive is implemented in Irish law under the European Communities (Birds and Natural Habitats) Regulations 2011.

An on-line search for Special Protection Areas (SPAs) within the greater surrounding area was conducted to help identify potential 'connectivity' between the site and SPAs and assess whether pathways exist through which the proposal could impact on qualifying interest species, as recommended in the guidance document 'Assessing Connectivity with Special Protection Areas (SPAs)' (SNH, 2016). Within this guidance document core foraging ranges from nest-sites and roost-sites are published for both the breeding and winter seasons for those bird species which are frequently encountered when considering wind farm development proposals. SNH recommends that typically the core foraging range should be used when determining whether there is connectivity between the proposal and qualifying interest species (SNH, 2016). Overall, core foraging ranges during the breeding season range from 0.5km to 10km for species such as Hen harrier, Goshawk, Merlin, Peregrine, Golden plover, Dunlin and Curlew, with maximum recorded distances of up to 18km recorded for Goshawk and Peregrine (SNH, 2016).

An on-line search for SPAs within a 20km radius of the site was conducted. The on-line search determined that there are three SPAs within a 20km radius of the study area; Derryveagh and Glendowan Mountains SPA (004039) located 6.1km north of the site, Lough Swilly SPA (004075) located 14.2km northeast of the site and Lough Nillan bog SPA (004110) located 19.7km to the southwest of the site **See Figure 4** below. **Table 5** below outlines the species of conservation interest (SCI) within the three SPA sites within 20km of Drumnahough site.

Table 5: Designated site with Species of Conservation Interest (SCI)

Designated Site	Species of conservation interest
Derryveagh and Glendowan Mountains SPA (004039)	<ul style="list-style-type: none"> • Red-throated diver (<i>Gavia stellata</i>) [A001] • Merlin (<i>Falco columbarius</i>) [A098] • Peregrine (<i>Falco peregrinus</i>) [A103] • Golden plover (<i>Pluvialis apricaria</i>) [A140] • Dunlin (<i>Calidris alpina schinzii</i>) [A466]
Lough Swilly SPA (004075)	<ul style="list-style-type: none"> • Great crested grebe (<i>Podiceps cristatus</i>) [A005] • Grey heron (<i>Ardea cinerea</i>) [A028] • Whooper swan (<i>Cygnus cygnus</i>) [A038] • Greylag goose (<i>Anser anser</i>) [A043] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Wigeon (<i>Anas penelope</i>) [A050] • Teal (<i>Anas crecca</i>) [A052] • Mallard (<i>Anas platyrhynchos</i>) [A053] • Shoveler (<i>Anas clypeata</i>) [A056] • Scaup (<i>Aythya marila</i>) [A062] • Goldeneye (<i>Bucephala clangula</i>) [A067] • Red-breasted merganser (<i>Mergus serrator</i>) [A069] • Coot (<i>Fulica atra</i>) [A125] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Knot (<i>Calidris canutus</i>) [A143] • Dunlin (<i>Calidris alpina</i>) [A149] • Curlew (<i>Numenius arquata</i>) [A160] • Redshank (<i>Tringa totanus</i>) [A162] • Greenshank (<i>Tringa nebularia</i>) [A164] • Black-headed gull (<i>Chroicocephalus ridibundus</i>) [A179] • Common gull (<i>Larus canus</i>) [A182] • Sandwich tern (<i>Sterna sandvicensis</i>) [A191] • Common tern (<i>Sterna hirundo</i>) [A193] • Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>) [A395] • Wetland and Waterbirds [A999]
Lough Nillan bog SPA (004110)	<ul style="list-style-type: none"> • Merlin (<i>Falco columbarius</i>) [A098] • Golden plover (<i>Pluvialis apricaria</i>) [A140] • Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>) [A395] • Dunlin (<i>Calidris alpina schinzii</i>) [A466]

3.2.3.1 Derryveagh and Glendowan Mountains SPA (004039)

Red-throated diver, Golden plover, Peregrine falcon all have core foraging distances within range of the site (SNH, 2016). Therefore there is potential connectivity for these three species and is unlikely for Dunlin and Merlin.

3.2.3.2 Lough Swilly SPA (004075)

This SPA is located 14.2km to the northeast of the site. Of all the SCI, the Greylag goose has the greatest foraging distance at 15-20km. Their preferred habitat is estuarine mudflats and salt marshes in which they feed on the roots of rushes and sedges⁷. The study area does not provide this foraging habitat for the Greylag goose, therefore connectivity for this species and the others listed for the SPA and the site is unlikely.

⁷ <https://birdwatchireland.ie/birds/greylag-geose/>

3.2.3.3 *Nillan bog SPA (004110)*

This SPA is located 19.7km to the southwest of the site and is a greater distance from the site than any of the foraging ranges of the species listed; therefore connectivity for these four species is and the site is unlikely.

3.2.4 Ramsar Sites/Important Bird and Biodiversity Areas

The Convention on Wetlands, also known as the Ramsar Convention, is an intergovernmental treaty which aims to conserve and protect wetlands and their resources around the world⁸. The desk-top review concluded that there are two Ramsar sites within 20km of the site boundary: Meenachullion Bog located approximately 12km west of the site and Lough Barra Bog located approximately 13km northwest of the site (see **Figure 4** below).

The Important Bird and Biodiversity Areas (IBAs) Programme, overseen by Birdlife International, aims to identify, conserve and protect those areas throughout the world considered to be of the greatest significance to bird populations⁹. The desk-top review concluded that there are two IBA sites within 20km of the site boundary: Lough Swilly including Blanket Nook and Inch Lake¹⁰ approximately 14.2km to the north east of the site and Lough Nillan bog¹¹ approximately 19.7km south-west of the site (see **Figure 4** below).

3.2.5 I-WeBS Sites within 20km of Site

I-WeBS (Irish Wetland Bird Survey) is a joint project between BirdWatch Ireland and National Parks and Wildlife (NPWS) in which specific wetland sites are surveyed (BirdWatch Ireland, 2019). In order to count the wetland birds a use a 'look-see' method is used in which all birds present within a pre-defined area are counted. The aim of these surveys to monitor non-breeding birds in Ireland and contribute to population counts and is also important to help assess the quality of these wetland areas (BirdWatch Ireland, 2019). The bird groups to be counted for I-WeBS consist of; swans and geese, ducks, divers, waders and gulls, counts are made once per month from September to March annually (BirdWatch Ireland, 2019)¹². There are four I-WeBS¹³ sites within 20km of the study area (see **Table 6** below).

⁸ <http://www.ramsar.org/>

⁹ <http://www.birdlife.org/worldwide/programmes/important-bird-and-biodiversity-areas-ibas>

¹⁰ <http://datazone.birdlife.org/site/factsheet/547>

¹¹ <http://datazone.birdlife.org/site/factsheet/659>

¹² <https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/>.

¹³ <https://bwi.maps.arcgis.com/apps/View/index.html?appid=1043ba01fcb74c78bc75e306eda48d3a>

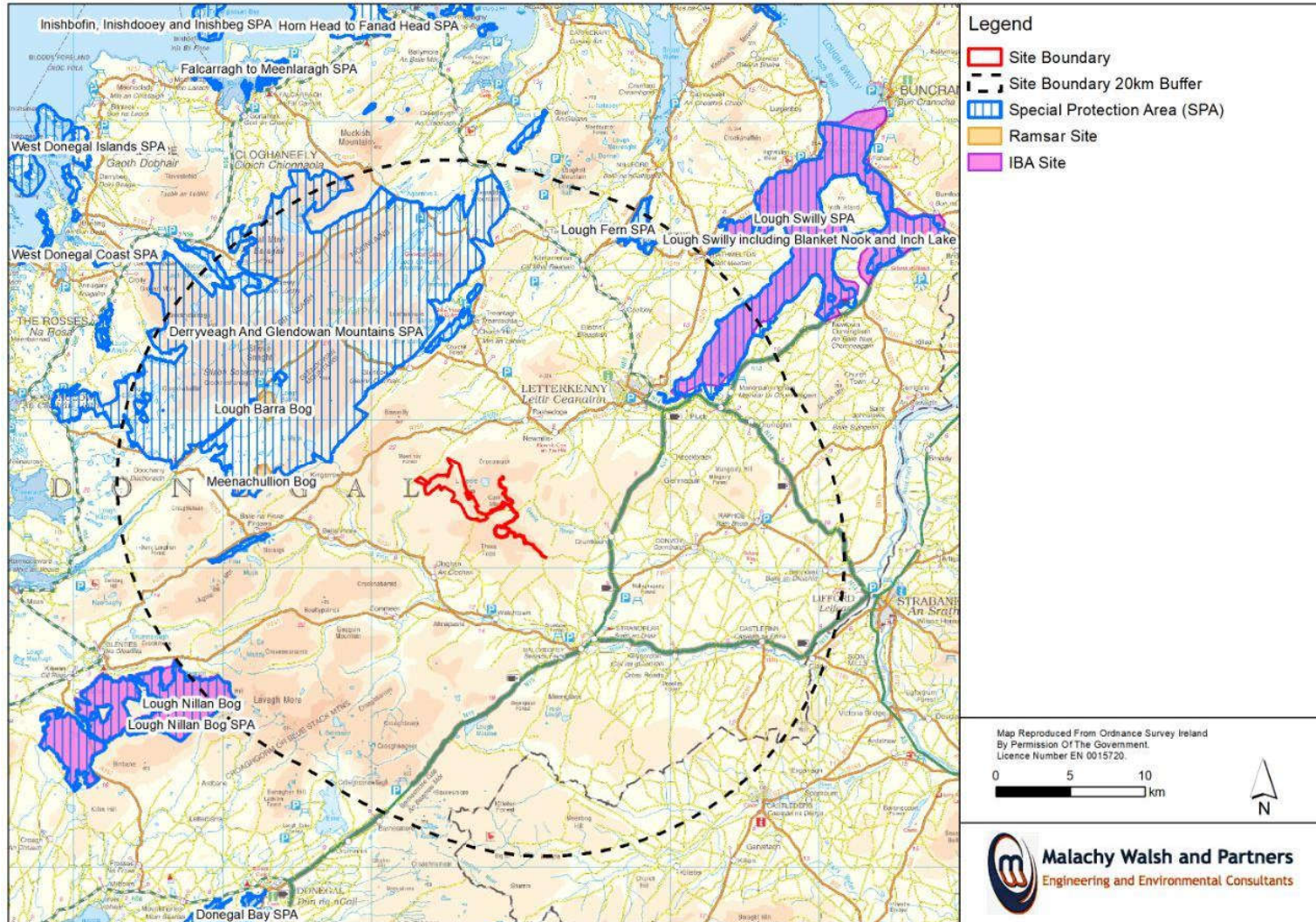


Figure 4. SPA, Ramsar and Important Biodiversity Areas (IBAs) within 20km

Table 6: I-WeBS sites within 20km of Drumnahough Site

I-WeBS Site	Proximity to site
<p><u>Site: Gartan Lough (Site code – 0AS10)</u></p> <p>Sub-site: Gartan Lough</p>	<p>Located 8km north of the site.</p>
<p><u>Site: Loughs Akibbon&Nacally (Site code – 0A003)</u></p> <p>Sub-site: Loughs Akibbon&Nacally</p>	<p>Located 10km north of the site. Tufted Duck is the only species listed for the Loughs Akibbon&Nacally I-WEBS site.</p>
<p><u>Site: Lough Swilly (Site code – 0A486)</u></p> <p>Sub-site: Lough Swilly Estuary</p> <p><u>Site: Lough Swilly (Site code – 0A494)</u></p> <p>Sub-site: Big Isle</p>	<p>Located 14km north east of the site</p> <p>Located 17km north east of the site</p> <p>Lough Swilly I-WEBS site has an extensive list (95) of species which includes national and international counts ranging from 2006/07 to 2015/16. A full list of these species can be found:</p> <p>https://f1.caspio.com/dp/f4db3000060acbd80db9403f857c</p>

4 BIRD SURVEY RESULTS

4.1 INTRODUCTION

The following target and secondary target species were recorded during bird surveys carried out at the Drumnahough site during the summer 2018 period (Annex I species are highlighted in bold):

- **Golden plover**
- **Merlin**
- **Peregrine**
- Kestrel
- Snipe
- Sparrowhawk
- Buzzard
- Great black-backed gull
- Lesser black-backed gull
- Teal
- Grey heron
- Mallard

A comprehensive list of all bird species recorded within the study area over the course of the breeding 2018 surveys is provided in **Appendix 9**.

4.2 VANTAGE POINT SURVEY RESULTS

4.2.1 Hinterland Survey

The surrounding hinterland comprises of expanses of peatland habitats (intact and cutaway blanket bog, heath, fen), forestry blocks with agricultural land on the lowlands and river valleys. It was considered that the surrounding areas supported suitable breeding and foraging habitat for target species including birds of prey. No regularly occurring large assemblages of target species were observed.

4.2.2 Target Species

The following sub-sections summarise sightings of all target species recorded during vantage point surveys at Drumnahough during the breeding 2018 period. Tabulated summaries of these target species observations, including flight information, are available in **Appendix 4**. Flight line mapping and activity areas for each target species are available in **Appendix 5**. Annex I species are highlighted in bold in the following sections.

4.2.2.1 *Golden plover*

There were five sightings of **Golden Plover** (*Pluvialis apricaria*) during the breeding season, four occurring in the month of April and one in the month of September. The first sightings were 10th and 11th of April at VP2. The first flock consisted of 12 birds was observed flying east over 1st and 2nd rotation forest and clear fell. The second flock consisted of 35 birds also flying east over 1st rotation forest and heather moorland. Later in the month on 25th April two observations occurred, at VP5 the first sighting was of a single bird north of the VP flying over grassland moorland and crossed the southern part of Lough Deele before veering off south. The second observation also occurred at VP5,

a large flock of 55 birds were seen north-east of the VP flying in a south-westerly direction before landing on a on a grassy flush. It is likely these were the remainder of wintering Golden Plover passing through the area on route to their breeding grounds in Iceland or northern Europe. The final sighting was at VP5 on 13th September, a pair was spotted just north of Lough Deele heading in a southerly direction over the Lough and heather moorland before being lost to sight. Flight heights ranged between 0 and >200m. Golden plover are listed under Annex I of the Birds Directive and are red-listed in Ireland.

4.2.2.2 Merlin

Merlin (*Falco columbarius*) activity was recorded six times in total, once on 10th April and five times on 18th July exclusively during VP2. Due to the numerous observations occurring exclusively during VP2 watch it was suspected there may be a possible Merlin nest in the area. Adults were observed bringing food back and forth intermittently to an area of young spruce on a couple of occasions during the breeding season. Two young chicks subsequently hatched. The observation in April consisted of a male flying low over 1st and 2nd rotation forest and clear fell. The observation which occurred on 18th July was of two adults and the two recently fledged chicks were noted sitting around dead spruce trees and below to the north-west of VP2. These birds were observed coming and going from this area throughout the VP watch periods on this date. During a VP Survey carried out in the adjacent site Lenalea on 17th July a juvenile bird was noted flying in a westerly direction towards Drumnahough. This could also have been a third young bird from this same nest or of another nest in this region. Flight heights ranged between 10-50m. Merlin is an amber-listed species in this country and are is also an Annex I species in the Birds Directive.

4.2.2.3 Peregrine

Peregrine (*Falco peregrinus*) was recorded once in the month of August at VP5. This adult was seen north east of VP5 flying in a south-westerly direction before landing on a post on the shore of Lough Deele. This individual was preening and remained at this area for almost an hour. Peregrine falcons are listed under Annex I of the Birds Directive and a green-listed species in Ireland.

4.2.2.4 Kestrel

Kestrel (*Falco tinnunculus*) was observed at all VP locations except VP5 in the months of April, June, July, August and September. In total six observations of kestrels in flight were made. A total of three flight paths occurred within the site boundary and three outside. All observations pertained to single birds hunting, flying or perched and flight heights ranged between 20-100m. Kestrel is an amber-listed species and common localised breeder in this region of Donegal.

4.2.2.5 Snipe

Snipe (*Gallinago gallinago*) was recorded once in the month of May and on five occasions in the month of June and at all VP location except for VP2. On 24th May an individual was heard chipping north-east of VP5 before being seen flying in a north-easterly direction over grassland moorland and along a drain/stream to the edge of Lough Deele. The majority of the Snipe observations in June were of vocalisation from the birds to the west of the site. Only one observation occurred from within the site boundary. Snipe are listed under Annex II of the Birds Directive an amber-listed species in Ireland.

4.2.2.6 Sparrowhawk

Sparrowhawk (*Accipiter nisus*) was observed at all VP locations except for VP5 in the months of May, June, July, and September. A total of 7 in flight observations of Sparrowhawks were made, with the majority of the activity outside of the site boundary. A total of three flight paths were recorded within the site boundary and flight heights ranged from 3-10m. All records comprised sightings of single birds. Sparrowhawk is an amber-listed species in Ireland.

4.2.2.7 Buzzard

Buzzard (*Buteo buteo*), which is a green-listed species in Ireland, was recorded regularly and at all VP locations except for VP5. A total of fifteen buzzard observations were recorded over the survey period, the majority of which were located around the western portion of the site. A total of six flights occurred within the site boundary and flight heights ranged between 20-200m. The majority of sightings were of 1-2 birds flying, hunting and circling.

4.2.2.8 Target Species Summary

The target species recorded during VP surveys in summer 2018 can be categorised as follows (Annex I species are highlighted in bold):

- Raptors
 - **Merlin**
 - **Peregrine**
 - Kestrel
 - Sparrowhawk
 - Buzzard

- Swans/wader/divers/gulls
 - **Golden plover**
 - Snipe

The following table (**Table7**) shows monthly peak counts of all target species recorded during vantage point surveys over the 2018 breeding bird period. Species names are colour-coded to indicate conservation status as determined in the most recent assessment of all regularly occurring birds in Ireland (Colhoun and Cummins, 2013). Species highlighted in red represent species that are 'red-listed' (considered to be of high conservation concern); species highlighted in orange represent species that are 'amber-listed' (considered to be of lesser conservation concern but still with an unfavourable conservation status). Remaining species, which are 'green-listed', are considered to have a favourable conservation status. Species which are considered to be particularly threatened in a European context and are listed on Annex I of the EU Birds Directive (Directive 2009/147/EC) are highlighted in bold in the table below.

Table 7: Monthly peak counts of all target species recorded during breeding 2018 VP surveys

Common Name	Latin Name	April	May	June	July	Aug	Sept
Golden plover	<i>Pluvialis apricaria</i>	35	0	0	0	0	0
Merlin	<i>Falco columbarius</i>	1	0	0	4	0	0

Common Name	Latin Name	April	May	June	July	Aug	Sept
Peregrine	<i>Falco peregrinus</i>	0	0	0	0	1	0
Kestrel	<i>Falco tinnunculus</i>	1	0	1	1	1	1
Snipe	<i>Gallinago gallinago</i>	0	1	3	0	0	0
Sparrowhawk	<i>Accipiter nisus</i>	0	1	1	1	0	1
Buzzard	<i>Buteo buteo</i>	1	0	1	1	2	2

4.2.3 Secondary Target Species

The following sub-sections summarise sightings of all secondary target species recorded during vantage point surveys at Drumnahough during the 2018 breeding bird period. Tabulated summaries of these secondary target species observations, including flight information, are available in **Appendix 4**. Flight line mapping for each target species is available in **Appendix 5**.

4.2.3.1 Great black-backed gull

There were three sightings of Great black-backed gull (*Larus marinus*) occurring in May, July and August at VP1 and VP4. All observation consisted of 1 single bird either flying or circling to the west of the site. Great black-backed gull is an amber-listed species in Ireland.

4.2.3.2 Lesser black-backed gull

Lesser black-backed gull (*Larus fuscus*) was recorded on four occasions at VP5 in the month of April, once in May at VP4 and three times in June (once at VP2 and twice at VP5). On 25th April all sightings were birds on the shore of Lough Deele to the north-east of VP5. On 24th May, three birds were seen west of the site headed in a south-easterly direction at heights greater than 150m over rough grassland and thicket. On 18th June two observations occurred at VP5, the first sighting was an individual just north-east of Lough Deele flying south-east over grassland moorland. The second sighting that day was of an individual flying in a south-westerly direction from the eastern shore of Lough Deele. The final observation took place on 28th June; an individual was spotted south of VP2 heading in a north-easterly direction over grassland moorland and 1st rotation forest at heights between 40-150m. Lesser black-backed gull is an amber-listed species in Ireland.

4.2.3.3 Teal

Teal (*Anas crecca*) activity was recorded on one occasion in the month of May at VP5. An individual was seen north of VP flying west to east across the southern shore of Lough Deele. Teal are an amber-listed species in Ireland.

4.2.3.4 Grey heron

Grey heron (*Anas crecca*) activity was recorded on two occasions at VP5 only, once in the month of April and once in the month of May. Both observations pertain to a single bird flying. On 25th April an individual was observed northeast of the VP5 circling over thicket and heading off in southerly direction. On the 24th May a Grey heron flew in from north-east of VP5 and landed on the eastern edge of Lough Deele and out of sight. Grey heron is a green-listed species in Ireland.

4.2.3.5 Mallard

Mallard (*Anas platyrhynchos*) activity was recorded on one occasion in the month of May at VP5. An adult female flew in from the north-west of VP5 along the edge of Lough Deele before veering round

to head in south-westerly direction towards the VP along a drain/stream and landed in a pool of water and went out of sight. Mallard are a green-listed species in Ireland.

4.2.3.6 Secondary Target Species VP Summary

The secondary species recorded during VP surveys in summer 2018 can be categorised as follows:

- Gulls
 - Great black-backed gull
 - Lesser black-backed gull

- Ducks/Waders
 - Teal
 - Grey heron
 - Mallard

The following table (**Table 8**) shows monthly peak counts of all secondary target species recorded during vantage point surveys over the 2018 breeding bird period. As above, species name are colour-coded to indicate conservation status (Colhoun and Cummins, 2013).

Table 8: Monthly peak counts of all secondary target species recorded during breeding 2018 VP surveys

Common Name	Latin Name	April	May	June	July	Aug	Sept
Great black-backed gull	<i>Larus marinus</i>	0	1	0	1	1	0
Lesser black-backed gull	<i>Larus fuscus</i>	3	3	1	0	0	0
Teal	<i>Anas crecca</i>	2	1	0	0	7	0
Grey heron	<i>Ardea cinerea</i>	1	1	1	0	0	0
Mallard	<i>Anas platyrhynchos</i>	1	1	7	9	28	10

4.2.4 Non-target Species

During the VP surveys, non-target species were also recorded. Monthly peak counts of all non-target species recorded during VP surveys are provided in **Appendix 6**.

Meadow pipit (*Anthus pratensis*) and Grey Wagtail (*Motacilla cinerea*) were the only non-target red-listed species which were recorded. Meadow pipit was recorded in every month throughout the site with numbers peaking in August and September. Grey Wagtail was only recorded in the month of May. Amber-listed non-target species recorded in every month included Goldcrest (*Regulus regulus*), Linnet (*Carduelis cannabina*), Robin (*Erithacus rubecula*) and Starling (*Sturnus vulgaris*). Amber-listed species which were frequently recorded included Swallow (*Hirundo rustica*), Skylark (*Alauda arvensis*) and Mistle thrush (*Turdus viscivorus*). Other less frequently recorded species included Sand martin (*Riparia riparia*), Stonechat (*Saxicola torquata*) and Swift (*Apus apus*).

Other than Buzzard, Peregrine, Grey heron and Mallard 24 other green-listed species were recorded during the summer vantage point surveys. The majority of these species are common and widespread and occur in a wide variety of habitat-types, many of which are found within the survey

area. Most of these species are present throughout the year while some are summer visitors to Ireland.

All species recorded during VP surveys are provided in **Appendix 9**.

4.3 DISTRIBUTION AND ABUNDANCE SURVEY RESULTS

4.3.1 Transect and Point Count Surveys

A total of 27 species were recorded during the Transect and Point count surveys. Meadow pipit was the only red-listed species record in May and July. Six amber-listed species were recorded in total with Robin being recorded most frequently in both months and all transect and point count locations. The remaining amber-listed species consisted of; Goldcrest, Grasshopper warbler (*Locustella naevia*), Mistle thrush, Skylark (*Alauda arvensis*) and Sparrowhawk all of which were only observed in the month of May, no amber-listed species were recorded in the month of July apart from Robin. A total of 20 green-listed species were recorded with Chaffinch (*Fringilla coelebs*), Coal tit (*Periparus ater*) and Wren (*Troglodytes troglodytes*) being the most frequently recorded species in both months and at all transects and point count locations.

Survey summary details are provided in **Appendix 7** and tabulated results of peak counts for all species recorded during monthly transect and point count surveys are provided in **Appendix 8**.

4.4 INCIDENTAL RECORDS

Incidental records of birds relate to birds recorded either during or outside of the formal survey periods and can be summarised as follows:

- On 27th at VP2 June a Buzzard was heard mewing but was not seen.
- On 19th July at VP1 a buzzard was heard calling but was not seen.

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Appendix 1

Statement of Surveyor Competency and Expertise

The summer 2018 field surveys were undertaken by the following competent personnel.

Team Role	Name and Qualifications
Project Manager	Monica Kane (Senior Ecologist, MSc. BSc.)
Project Ornithologist/Survey Team Lead/ Report Input	John Murphy (Senior Ornithologist, Dip.)
Field Surveyor	Shane Cully (Ecologist, BSc. Wildlife Biology)
Field Surveyor	Brian Porter (Ornithologist)
Reporting	Fiona McKenna (Ecologist, BSc. Wildlife Biology)
GIS Mapping & Data	Jeremy King (GIS Technician, Dip. PGDip.)
GIS Mapping & Data	Valerie Heffernan (Environmental Scientist, MSc. BSc.)

Monica Kane

Monica Kane manages the Environmental Section of Malachy Walsh and Partners where her role involves managing the day to day running of the section and the Environmental Team. She is an Environmental and Ecological Consultant with over 15 years consultancy experience. She has been responsible for EIA and planning application project management, Appropriate Assessments, Ecological Impact Assessments, auditing and constraints studies. She undertook and managed the environmental inputs into the Cluddaun Wind Farm, a Strategic Infrastructure Development, as well as the Boggeragh Wind Park, Knockranny Wind Farm and Clydaghroe Wind Farm EIS. As part of her involvement in the EU stoRE Project she was the principal author of EC guidelines for PHES and Natura 2000 sites. She was an expert witness for the Oral Hearing on the Kenmare Water Supply Scheme for Kerry County Council and Cluddaun Wind Farm.

Role: Project Manager, liaising with client, review of all reports

John Murphy

John Murphy is a senior ornithologist with Malachy Walsh and Partners and is the Project Ornithologist. He is very experienced having worked in the field of ornithology and ecology since 1982 and has extensive knowledge of the Irish landscape with regard to bird populations. He collaborates regularly with NPWS on different projects throughout the country. John is one of the country's foremost ornithologists and is a licensed bird ringer. He has always had an interest in wildlife photography and his work has been published in many magazines and books. As a 'Heritage in the Schools Specialist', he has travelled the country lecturing in schools and colleges, and to various clubs and organizations. He was the Biodiversity Officer with Clare County Council and has been working as part of the MWP Ecology team on a variety of projects nationwide since 2010. He spends as much time in the field as possible as a bird observer.

Role: Project ornithologist, lead surveyor responsible for all field activity, report input

Brian Porter

Brian Porter has a Diploma in Field Ecology and is an experienced ornithologist and bird surveyor. He has been involved in hen harrier surveys throughout the country for both private contractors and major wind farm developers with experience in Collision Risk Modelling and was an extensive

contributor to National Hen Harrier Surveys conducted in 1998/2000, 2005, 2010 and 2015. He has experience in a suite of bird survey methods for wind farms, cable route and power line developments including vantage point surveys, breeding wader surveys, red grouse, merlin, barn owl and wildfowl surveys and has been involved in the Countryside Bird Survey for BirdWatch Ireland since 1998.

Role: Field surveyor

Shane Cully

Shane has a Degree in Wildlife Biology and has over 6 years general birding experience. He has experience of Vantage Point Surveys, Transect surveys, Merlin/Golden Plover walkover surveys, Nightjar/Woodcock Surveys, Red Grouse Surveys and Hen Harrier Roost Surveys. He has previously been involved in the Corncrake Conservation Project with Birdwatch Ireland where he undertook dedicated night-time surveys, on a nightly basis during peak season, and dealt directly with landowners with regards to participation in the Corncrake Grant scheme. He has also worked with Birdwatch Ireland on the Results Based Agri-Environment Payments Scheme (RBAPS) in the Shannon Callows. This work included surveying of breeding waders, monitoring of whinchat and signing farmers/landowners up to the scheme.

Role: Field surveyor

Fiona McKenna

Fiona McKenna is a Graduate field ecologist who has been working with Malachy Walsh and Partners for the past two years on a part-time and full-time basis. She qualified with a degree in Wildlife Biology from Tralee IT in 2019. Over the last two years she has contributed and helped complete numerous reports for bird survey work and is experienced in the collation of data and in field ecology survey techniques.

Role: Report author

Jeremy King

Jeremy is the lead GIS technician in Malachy Walsh and Partners. He assists the environmental team in completing EIAR's, wind farm feasibility studies and planning applications and also works closely with the wind farm civil design team. He also works on LVIA, photomontages and shadow flicker assessments with the EIA team. Jeremy assists in the final reporting for all bird survey projects through the production of mapping and other drawings, as well as any other GIS requirements which arise throughout the life of the project.

Role: Responsible for mapping, GIS project and report inputs

Valerie Heffernan

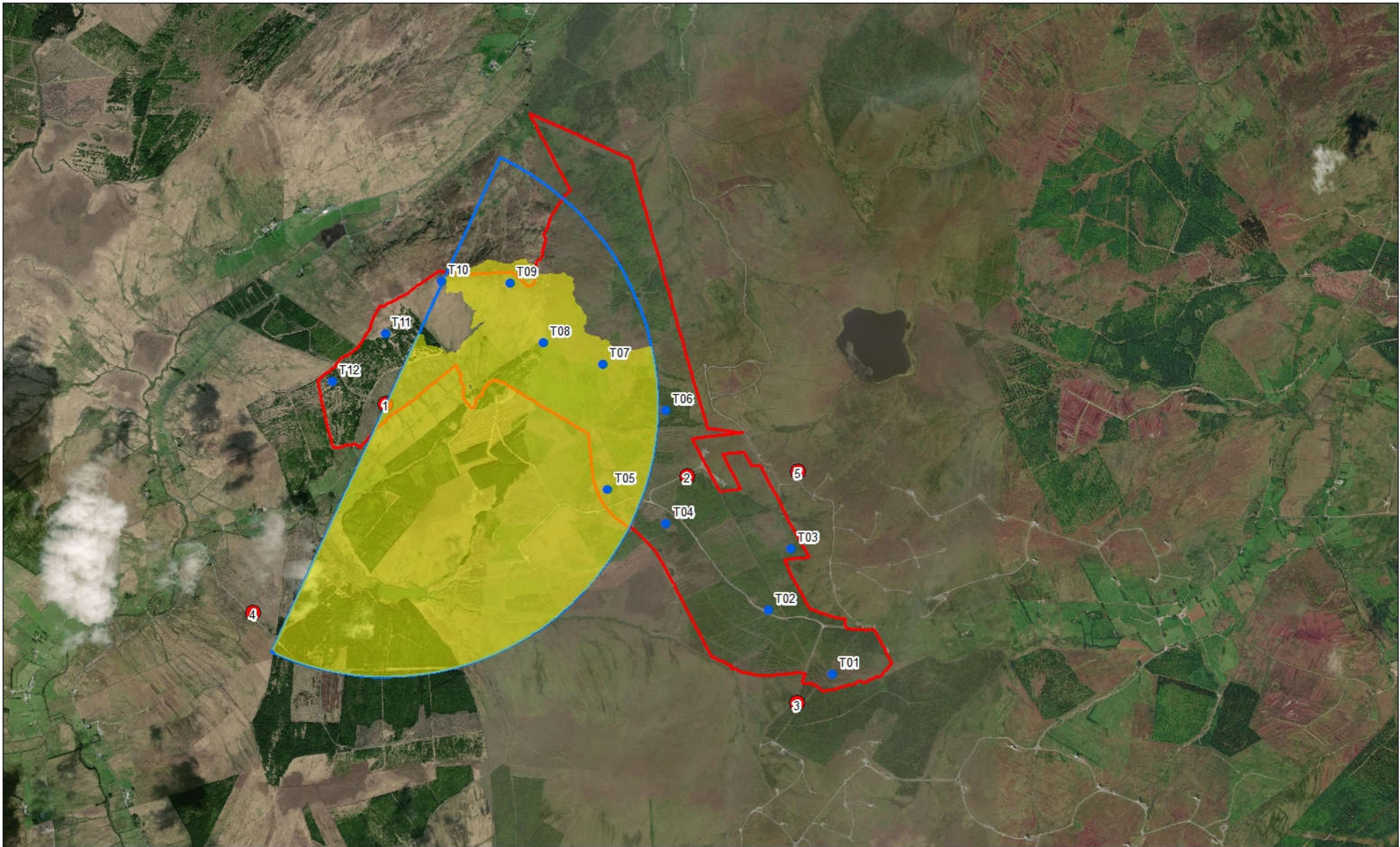
Valerie has worked as an environmental professional since graduating in 2015 and has been employed as an Environmental Scientist with Malachy Walsh and Partners since 2018. She has considerable experience in Solar Farm development and has had input in a variety of projects including solar farms, marine and wind energy developments. She is experienced in GIS, planning and environmental report input.

Role: Responsible for viewshed analysis and flight path mapping

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Appendix 2

Survey Locations and Viewshed Maps



PROJECT	Drumhough Veiwshed Analysis		
PROJECT NO.	19123		
TITLE	Viewsheds 1		
CLIENT	SSE		
DRAWN BY	VH	CHECKED BY	MK
DATE	05/02/2020		
DRAWING NO	Map 1	REF.	A

- ▭ Site Boundary
- ▭ Viewshed Extent
- Turbine layout
- Vantage Point
- View shed

1. All drawings are to be read in conjunction with all relevant Specifications, Bills of Quantities, Architectural, Services and Engineering drawings.
2. Any discrepancies between these documents shall be brought to the attention of the Engineer.
3. All dimensions are in millimetres, unless noted otherwise.
4. All levels are in metres related to Ordnance Datum.
5. Drawings are not to be scaled.

Scale (A3): 1:25,000

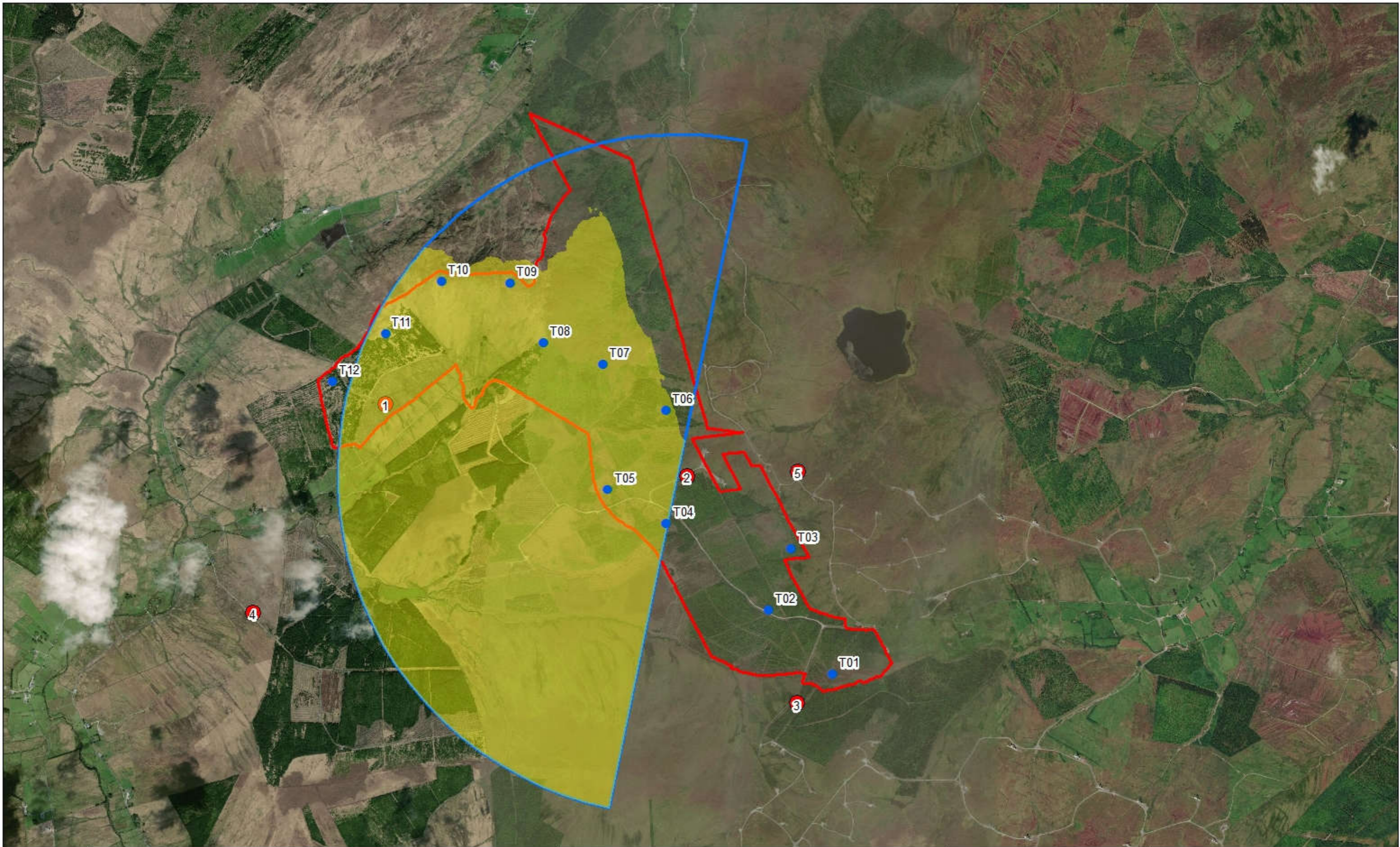
0 0.2 0.4 Kilometers

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Engineering and Environmental Consultants

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Email: tralee@mwp.ie



PROJECT	Drumhough Veiwshed Analysis		
PROJECT NO.	19123		
TITLE	Viewsheds 2		
CLIENT	SSE		
DRAWN BY	VH	CHECKED BY	MK
DATE	05/02/2020		
DRAWING NO	Map 1	REF.	A

▭ Site Boundary ▭ Viewshed Extent
● Turbine layout
● Vantage Point
▭ View shed

1. All drawings are to be read in conjunction with all relevant Specifications, Bills of Quantities, Architectural, Services and Engineering drawings.
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3. All dimensions are in millimetres, unless noted otherwise.
4. All levels are in metres related to Ordnance Datum.
5. Drawings are not to be scaled.

Scale (A3): 1:25,000

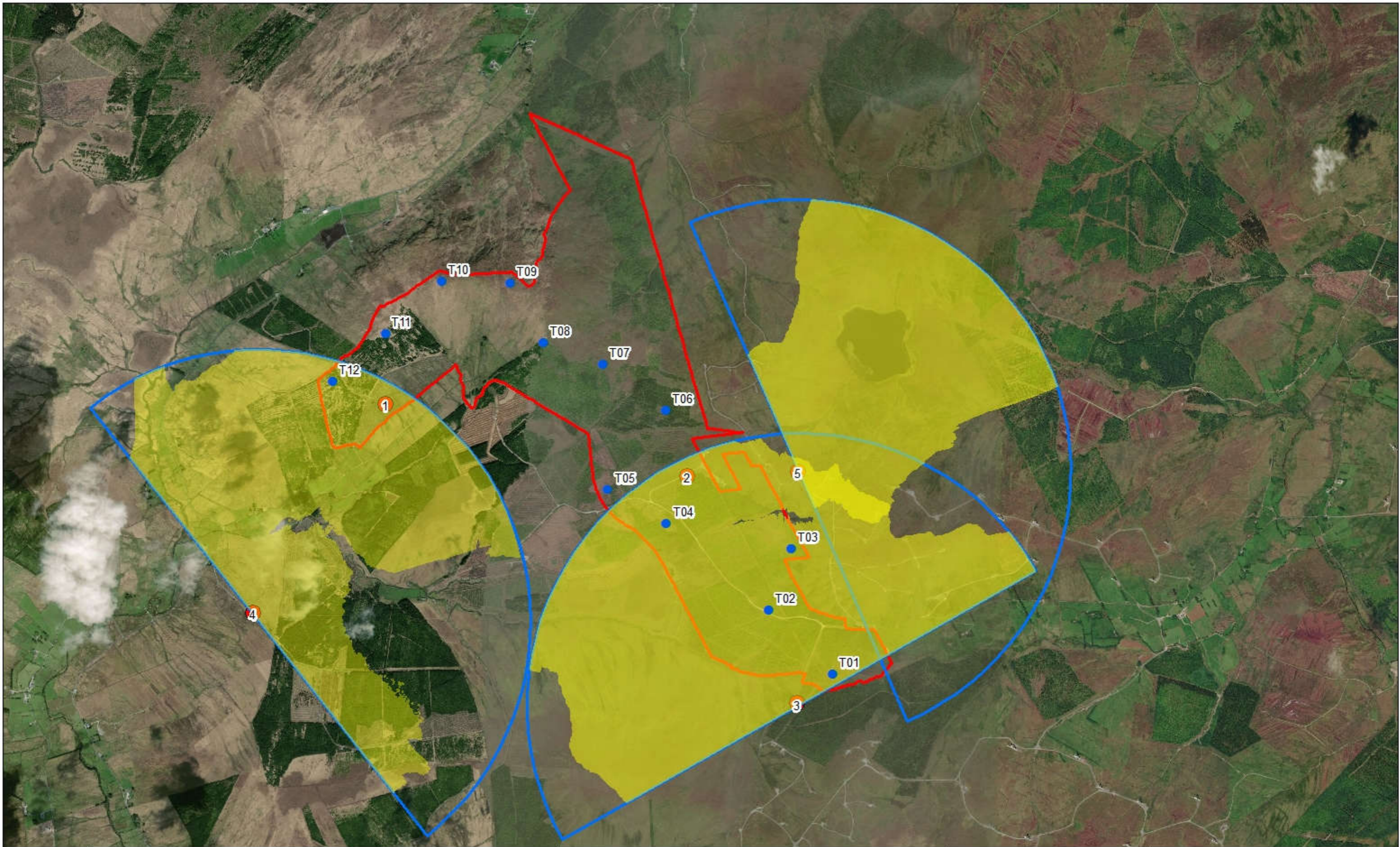
0 0.2 0.4 Kilometers

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PROJECT	Drumhough Veiwshed Analysis		
PROJECT NO.	19123		
TITLE	Viewsheds 3-5		
CLIENT	SSE		
DRAWN BY	VH	CHECKED BY	MK
DATE	05/02/2020		
DRAWING NO	Map 1	REF.	A

▭ Site Boundary ▭ Viewshed Extent
● Turbine layout
● Vantage Point
▭ View shed


1. All drawings are to be read in conjunction with all relevant Specifications, Bills of Quantities, Architectural, Services and Engineering drawings.
2. Any discrepancies between these documents shall be brought to the attention of the Engineer.
3. All dimensions are in millimetres, unless noted otherwise.
4. All levels are in metres related to Ordnance Datum.
5. Drawings are not to be scaled.

Scale (A3): 1:25,000

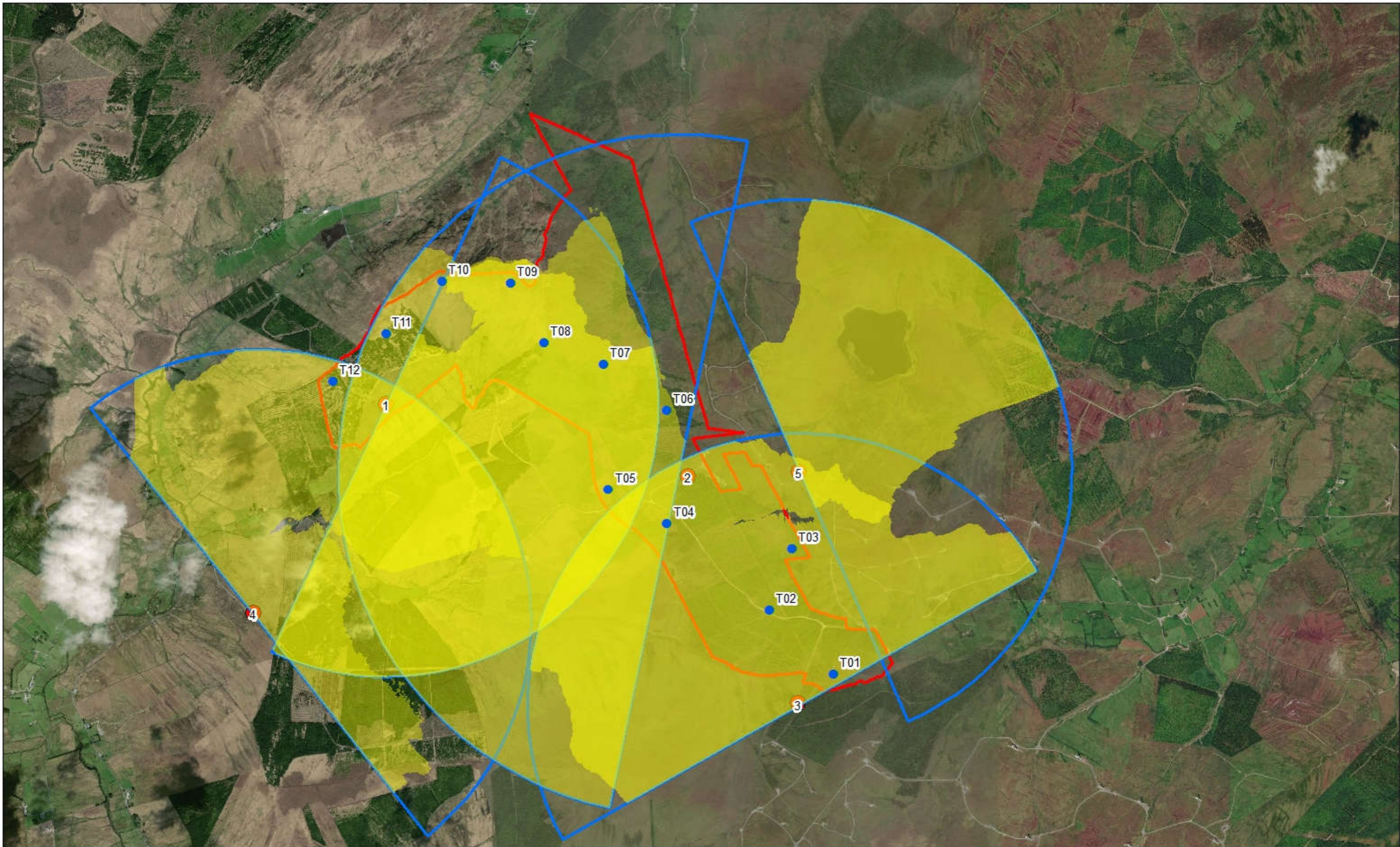
0 0.2 0.4 Kilometers

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PROJECT	Drumhough Veiwshed Analysis		
PROJECT NO.	19123		
TITLE	Viewsheds 1-5		
CLIENT	SSE		
DRAWN BY	VH	CHECKED BY	MK
DATE	05/02/2020		
DRAWING NO	Map 1	REF.	A

▭ Site Boundary ▭ Viewshed Extent
● Turbine layout
● Vantage Point
▭ View shed


1. All drawings are to be read in conjunction with all relevant Specifications, Bills of Quantities, Architectural, Services and Engineering drawings.
2. Any discrepancies between these documents shall be brought to the attention of the Engineer.
3. All dimensions are in millimetres, unless noted otherwise.
4. All levels are in metres related to Ordnance Datum.
5. Drawings are not to be scaled.

Scale (A3): 1:25,000

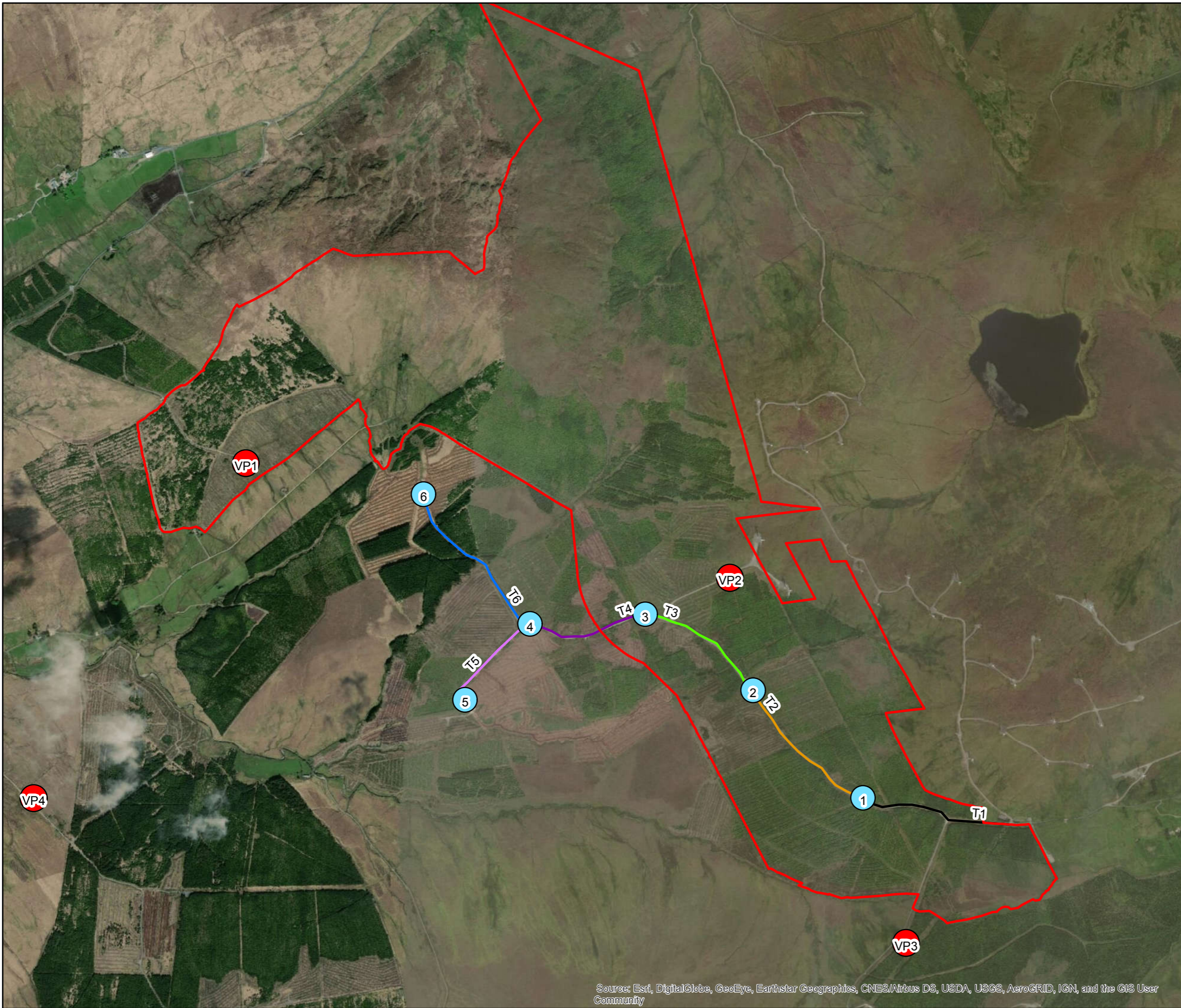
0 0.2 0.4 Kilometers

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Legend

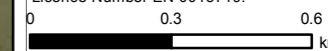
- VP Location
- Site Boundary
- Point Count B

Transect B

- T1
- T2
- T3
- T4
- T5
- T6



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Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
Transect B

Drawing No:
19123-MWP-

Drawn: VH

Checked: FM

Date: 09/12/2019

Scale (A3): 1:15,000





Legend

- VP Location
- Site Boundary
- Point Count C

Transect C

- T1
- T2
- T3



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0 0.375 0.75 km

Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Transect C

Drawing No:
 19123-MWP-

Drawn: VH	Checked: FM
Date: 09/12/2019	Scale (A3): 1:15,000



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Appendix 3

Vantage Point Survey Summary

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	12/04/2018	JNM	12.00	15.00	3	Cloud cover 7/8, a still calm day with low cloud cover, dry with no rain. Wind E and slack, temp 8oC, visibility ok.
1	20/04/2018	JNM	08.00	11.00	3	Cloud cover 8/8, a damp morning with low mist. Wind NE, calm, temp 8-11oC, visibility fair.
2	10/04/2018	JNM	14.30	17.30	3	Cloud cover 8/8, damp misty wet day with. Wind N F3-5, temp 6-8oC, visibility fair.
2	11/04/2018	JNM	12.00	15.00	3	Cloud cover 8/8, a still calm day with low mist. Wind NE and slack, temp 8-11oC, and visibility fair.
3	10/04/2018	JNM	08.30	11.30	3	Cloud cover 8/8, a damp misty wet morning with low cloud cover. Wind N F3-5, temp 6-8oC, visibility fair.
3	11/04/2018	JNM	15.30	18.30	3	Cloud cover 8/8, calm still day with low mist and rain. Wind NE and slack, temp 8-11oC, visibility fair.
4	11/04/2018	JNM	08.00	11.00	3	A dry morning with low cloud cover. Wind S F2/3, temp 12oC, visibility ok.
4	19/04/2018	JNM	08.30	11.30	3	A pleasant dry sunny morning. Wind S F2-4, temp 12-20oC, visibility good.
5	25/04/2018	BP	10.45	13.45	3	Cloud cover 7/8-4/8-8/8, occasionally short hail showers. Wind SW F5-7, temp 7-4oC, visibility good.
5	25/04/2018	BP	14.15	17.15	3	Cloud cover 7/8-4/8-8/8, 98% dry with one heavy shower, Wind S/SW F5 occasionally F7, temp 4-7oC, visibility good.
1	22/05/2018	BP	16.10	19.10	3	Cloud cover 6/8 – 3/8 - 6/8, dry. Wind E F2, temp 16-13oC, visibility very good.
1	24/05/2018	BP	10.35	13.35	3	Cloud cover 1/8 – 2/8 – 5/8, dry. Wind S/SE to W F1-2-0, temp 18-22oC, visibility very good.
2	23/05/2018	BP	07.10	10.10	3	Cloud cover 1/8, wind S F2-1, temp 11-14oC, visibility very good with light haze.
2	23/05/2018	BP	10.40	13.40	3	Cloud cover 1/8, dry, temp 15-17oC, visibility very good.
3	23/05/2018	BP	14.30	17.30	3	Cloud cover 2/8 -3/8 – 1/8, hardly stayed the same cloud cover for the three hours. Wind SE F2, temp 20-19oC, visibility very good, some heat shimmer.
3	25/05/2018	BP	07.00	10.00	3	Cloud cover 8/8, dry, low cloud. Wind N-NE F2-3, temp 13-15oC,

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
						visibility very good.
4	24/05/2018	BP	07.05	10.05	3	0/8 cloud cover, dry. Wind S/SE F1-0, temp 12-17oC, visibility good very hazy.
4	24/05/2018	BP	14.25	17.25	3	Cloud cover 7/8, dry. Wind N/NE F2-0, temp 21-18oC, visibility very good.
5	24/05/2018	SC	11.00	14.00	3	Cloud cover 3/8, sunny, clear blue skies, occasionally cloud. Wind S-SW F1-2, temp 18-21oC, visibility good.
5	25/05/2018	SC	08.00	11.00	3	Cloud cover 8/8, windy, overcast with some low cloud/fog. Wind N F5-6, temp 12-16oC, visibility moderate.
1	27/06/2018	SC	19.10	22.10	3	Cloud cover 0/8, clear blue skies, sunshine. Wind N/NE F1-2, temp 25-21oC, visibility good.
1	28/06/2018	SC	15.00	18.00	3	Cloud cover 1/8, clear blue skies, sunshine and very warm. Wind NE F4-5, gusts of 6, temp 25-26oC, visibility good.
2	27/06/2018	SC	14.50	17.50	3	Cloud cover 1/8, very warm clear blue skies, sunshine. Wind N/NE-E/NE F1-2, temp 25-26oC, visibility good.
2	28/06/2018	SC	19.30	22.30	3	Cloud cover 1/8, clear blue skies sunshine. Wind NE F2-3, temp 20-22oC, visibility good.
3	25/06/2018	SC	16.00	19.00	3	Cloud cover 2/8, very warm, clear blues skies, sunshine. Wind NE-N/NE F3-4, temp 20-21oC, visibility good.
3	26/06/2018	SC	18.50	21.50	3	Cloud cover 0/8, clear blue skies, sunshine. Wind NE F3-4, temp 19-22oC, visibility good.
4	25/06/2018	SC	19.30	22.30	3	Cloud cover 5/8, sunshine with some cloud. Wind N/NE F3-4, temp 16-20oC, visibility good.
4	26/06/2018	SC	14.43	17.43	3	Cloud cover 1/8, clear blue skies, sunny. Wind SE F1-2, temp 23-25oC, visibility good.
5	18/06/2018	BP	13.30	16.30	3	Cloud cover 8/8-7/8, dry. Wind SW F4-5, temp 13-14oC, visibility very good.
5	18/06/2018	BP	18.10	21.10	3	Cloud cover 4/8-7/8, 98% dry. Wind SW F5-4, temp 14-12oC, visibility very good.
1	19/07/2018	BP	07.00	10.00	3	Cloud cover 8/8 – 7/8, 98% dry with single misty shower. Wind SW, temp 10-13oC, visibility very good.
1	19/07/2018	BP	10.30	13.30	3	Cloud cover 7/8, dry, south west wind f2, temp 14-16oC, visibility very good.

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
2	18/07/2018	BP	07.05	10.05	3	Cloud cover 8/8, dry. Wind W F0-1, temp 12-16oC, visibility very good.
2	18/07/2018	BP	10.35	13.35	3	Cloud cover 7/8 to 8/8, mostly dry with very occasional light showers. Wind W/NW F1-2, temp 16-17oC, visibility very good.
3	18/07/2018	BP	14.15	17.15	3	Cloud cover 7/8 occasional 6/8, dry. Wind W-NW F1-2, temp 17-18oC, visibility very good.
3	20/07/2018	BP	07.30	10.30	3	Early hill mist clearing. Wind W-NW F2, temp 14-18oC, visibility good to very good.
4	17/07/2018	BP	17.00	20.00	3	Cloud cover 8/8, dry mostly with single shower. Wind W/SW-NE, F10-1, temp 16-14oC, visibility very good.
4	19/07/2018	BP	14.15	17.15	3	Cloud cover 6/8 – 5/8 – 7/8, dry. Wind SW F2-3, temp 17-18oC, visibility very good.
5	19/07/2018	JNM	08.00	11.00	3	Cloud cover 6/8, a dry dull morning with slack winds. Wind S-SW F1-2, temp 13-17oC, visibility ok.
5	19/07/2018	JNM	13.30	16.30	3	Cloud cover 6/8, dull day. Wind S-SW F1-2, temp 13-17oC, visibility ok.
1	22/08/2018	BP	08.20	11.20	3	Cloud cover 8/8-7/8, dry. Wind NW F1-2, temp 11-14oC, visibility very good.
1	22/08/2018	BP	11.50	14.50	3	Cloud cover 8/8, 98% dry, occasional light showers. Wind W/NW F2-3, temp 13-14oC, visibility very good.
2	21/08/2018	BP	08.15	11.15	3	Cloud cover 8/8 occasional 7/8, light drizzle and mist lifting early to dry. Wind S F0-2, occasionally F3, temp 13-15oC, visibility moderate to very good.
2	21/08/2018	BP	11.45	14.45	3	Cloud cover 8/8-7/8, occasional light drizzle. Wind S/SW F2-3, and gusty. Temp 15-18oC, visibility good to very good.
3	21/08/2018	BP	15.30	18.30	3	Cloud cover 8/8-7/8, dry. Wind S/SW F3-4, temp 19-18oC, visibility very good.
3	24/08/2018	BP	08.15	11.15	3	Cloud cover 6/8-8/8, dry then few showers. Wind W-W/NW F2-3, temp 9-11oC, visibility very good.
4	22/08/2018	BP	15.30	18.30	3	Cloud cover 8/8-7/8, dry. Wind W/NW F3-2, temp 14-13oC, visibility very good.
4	25/08/2018	BP	10.10	13.10	3	Cloud cover 2/8-5/8, dry. Wind W/NE F2, temp 12-13oC, visibility very good.

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
5	20/08/2018	BP	15.50	18.50	6	Cloud cover 8/8, dry with occasionally light drizzle. Wind F1-3-1, temp 15-14oC, visibility good or moderate.
5	24/08/2018	BP	11.45	14.45	3	Cloud cover 8/8-6/8, showers, Wind NW F3-4, temp 11-12, visibility very good.
1	19/09/2018	JNM	15.00	18.00	3	Very wet and stormy morning with gale force winds. Wind SW-W F5-7 gale force, temp 12oC, visibility ok.
1	20/09/2018	JNM	14.30	17.30	3	A bright still day, a sunny morning, dull afternoon with light showers. Wind W and slack, temp 8-12oC, visibility good.
2	18/09/2018	JNM	10.40	13.40	3	A dull misty wet morning with wind picking up at midday and clearing at 11.30. Wind W calm and then F5/6, temp 12-13oC, visibility fair.
2	20/09/2018	JNM	07.30	10.30	3	A bright still morning, wind W and slack, temp 8-12oC, visibility fair.
3	17/09/2018	JNM	14.30	17.30	3	Cloud cover 8/8, a dull day, Wind S F3-5, temp 15-16oC, visibility fair.
3	18/09/2018	JNM	07.30	10.30	3	Cloud cover 8/8, a damp misty wet morning. Wind still/calm, temp 12-13oC, visibility bad.
4	18/09/2018	JNM	14.30	17.30	3	Cloud cover 7/8, the afternoon had sunny periods with some heavy showers. Wind W F5/6, temp 12-13oC, visibility ok.
4	19/09/2018	JNM	07.30	10.30	3	Cloud cover 6/8, a wet stormy morning clearing to sunny periods. Wind SW-W gale force F5/7, temp 12oC, visibility ok.
5	13/09/2018	BP	07.10	10.10	3	Cloud cover 8/8, occasionally shower. Wind SW-W/SW-SW, F3 and gusty in showers, F2 later. Temp 10oC, visibility good and moderate in showers.
5	13/09/2018	BP	10.40	13.40	3	Cloud cover 8/8, showers. Wind W/SW F3-4, temp 9-10oC, visibility good but moderate in showers and occasionally very good.

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Appendix 4

Target/Secondary Species Observations

Drumnahough Breeding 2018 Target Species

Golden plover (VP1-4)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100- 150m	>150m
10/04/2018	2	Unknown	Unknown	1	1 st /2 nd rotation forest, clear fell	12	15.50	Flying	200-300	-	-	-	-	-	60
11/04/2018	2	Unknown	Unknown	2	1 st rotation forest, heather moorland	35	13.41	Flying	200	-	-	-	-	-	120

Golden plover (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100- 150m	>150m
25/04/2018	5	Unknown	Unknown	1	Grassland moorland	1	11.15	Flying	-	-	-	21	43	114	-
25/04/2018	5	Unknown	Adults	2	Grassland moorland	55	16.25	Flying	-	-	15	7	-	-	-
13/09/2018	5	Unknown	Unknown	3	Heather moorland, lake	2	08.40	Flying	-	-	-	14	68	-	-

Merlin															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100- 150m	>150m
10/04/2018	2	Male	Adult	1	1 st and 2 nd rotation forest, clear fell	1	15.50	Flying	10-20	-	60	-	-	-	-
18/07/2018	2	Male	Adult	2	2 nd rotation	3	08.11	Flying	-	-	37	-	-	-	-

Drumnahough Breeding 2018 Target Species

		Unknown	Juvenile		forest, thicket										
18/07/2018	2	Male	Adult	3	2 nd rotation forest	1	08.25	Flying, perching	-	-	27	-	-	-	-
18/07/2018	2	Male	Adult	4	2 nd rotation forest	3	08.54	Flying, perching	-	-	29	-	-	-	-
18/07/2018	2	Male Male Female	Adult Juvenile Juvenile	5	2 nd rotation forest	4	10.37	Flying, perching	-	-	35	-	-	-	-
18/07/2018	2	Unknown	Juveniles	6	2 nd rotation forest, thicket	2	10.46	Flying, perching, mobbing	-	-	36	-	-	-	-

Peregrine (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
24/08/2018	5	Unknown	Adult	1	Grassland moorland, lake	1	13.59	Flying, perching	46 mins	-	34	-	-	-	-

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
25/06/2018	4	Male	Adult	1	Grassland moorland	1	21.16	Perching	-	2760	-	-	-	-	-
26/06/2018	4	Unknown	Adult	2	Grassland moorland, 1 st rotation forestry	1	16.04	Flying, hunting	20-80	-	10	140	220	-	-
18/07/2018	2	Unknown	Juvenile	3	2 nd rotation forest	1	08.57	Flying, perching	-	-	5	-	-	-	-
21/08/2018	3	Unknown	Juvenile	4	Rough grassland, thicket	1	18.10	Hunting	-	-	44	113	25	-	-
22/08/2018	1	Unknown	Juvenile	5a 5b	Clear fell, rough grassland, 2 nd rotation forest	1	12.42 14.31	Hunting, flying	- -	- -	64 61	125 -	18 -	- -	- -

Drumnahough Breeding 2018 Target Species

19/09/2018	4	Unknown	Unknown	6	Improved grassland, rough grassland	1	09.10	Flying	40	-	-	60	-	-	-
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Snipe (VP1-4)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
25/06/2018	3	Unknown	Adult	1	Grassland moorland	1	18.00	Calling	-	10	-	-	-	-	-
25/06/2018	4	Unknown	Adult	2	Grassland moorland	3	19.30	Chipping, flying	-	-	5	-	-	-	-
26/06/2018	4	Unknown	Adult	3	Grassland moorland	1	15.26	Flying	4	-	10	-	-	-	-
26/06/2018	3	Unknown	Adult	4	Grassland moorland	1	20.36	Calling	-	15	-	-	-	-	-
27/06/2018	1	Unknown	Adult	5	Grassland moorland	1	21.30	Calling	-	-	-	-	-	-	-

Snipe (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-50m	50 – 100m	>100m	>200m	
24/05/2018	5	Unknown	Adult	1	Grassland moorland	1	11.57	Flying	2-3	-	20	-	-	-	

Drumnahough Breeding 2018 Target Species

Sparrowhawk															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
23/05/2018	2	Male	Adult	1	Thicket, 2 nd rotation forest	1	13.07	Flying, hunting	-	-	45	-	-	-	-
25/06/2018	4	female	Adult	2	grassland moorland, 1 st rotation forestry	1	19.30	Flying	7-10	-	10	-	-	-	-
26/06/2018	4	Unknown	Adult	3	1 st rotation forest, grassland moorland	1	16.26	Flying	7-8	-	10	-	-	-	-
17/07/2018	4	Female	Adult	4	Rough grassland, thicket	1	18.28	Flying	-	-	34	-	-	-	-
18/07/2018	2	Female	1mm	5	2 nd rotation forest	1	10.42	Flying, perching	-	-	9	-	-	-	-
20/07/2018	3	Female	Adult	6	Thicket	1	10.11	Hunting	-	-	21	18	7	-	-
20/09/2018	1	Unknown	Unknown	7	Rough grassland	1	16.55	Hunting, flying	3-4	-	60	-	-	-	-

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
12/04/2018	1	Unknown	Adult	1	Scrub, clear fell, 1 st rotation, 2 nd rotation forest	1	14.20	Soaring, circling	25-30	-	-	900	-	-	-
19/04/2018	4	Unknown	Unknown	2	Improved grassland, rough grassland, scrub, clear fell, 1 st /2 nd rotation forest	1	9.45	Soaring, circling	100	-	-	-	-	600	-
20/04/2018	1	Unknown	Unknown	3	Improved grassland, rough	1	10.00-13.00	Soaring, circling	200	-	-	-	-	-	-

Drumnahough Breeding 2018 Target Species

					<i>grassland, scrub, clear fell, 1st/2nd rotation forest</i>											
26/06/2018	4	Unknown	Adult	4	<i>1st rotation forest, grassland moorland</i>	1	17.02	<i>Circling, flying</i>	20-200	-	-	20	20	60	-	
28/06/2018	1	Unknown	Adult	5	<i>Grassland</i>	1	16.22	<i>Mewing</i>	-	-	-	-	-	-	-	
28/06/2018	2	Unknown	Adult	6	<i>1st rotation forestry, grassland moorland</i>	1	21.58	<i>Flying</i>	30-40	-	-	60	-	-	-	
18/07/2018	2	Unknown	Adult	7	<i>Grassland moorland, 2nd rotation forest</i>	1	11.37	<i>Flying</i>	-	-	58	-	-	-	-	
19/07/2018	4	Unknown	Unknown	8	<i>Rough grassland, grassland moorland</i>	1	16.43	<i>Hunting</i>	-	-	-	-	26	18	-	
20/07/2018	3	Unknown	1mm	9	<i>Rough grassland</i>	1	09.27	<i>Flying</i>	-	-	66	12	-	-	-	
21/08/2018	2	Unknown	Unknown	10a 10b	<i>Rough grassland</i>	2	13.57 14.43	<i>Hunting, soaring</i>	- -	- -	- 1	- 2	19 62	208 -	136 -	
22/08/2018	1	Unknown	Unknown	11	<i>Thicket, rough grassland</i>	1	10.48	<i>Flying, perching</i>	-	-	22	-	-	-	-	
22/08/2018	4	Unknown	Unknown	12	<i>Rough grassland, grassland moorland, thicket</i>	1	18.26	<i>Flying</i>	-	-	-	111	28	-	-	
25/08/2018	4	Unknown	Unknown	13a 13b	<i>Grassland moorland, thicket</i>	2	10.27 12.41	<i>Hunting, mobbing</i>	- -	- -	38 -	95 -	- -	- 54	- 224	
18/09/2018	4	Unknown	Unknown	14	<i>Rough grassland, improved grassland, 1st rotation forest</i>	1	15.00	<i>Soaring</i>	60-80	-	-	-	60	-	-	
19/09/2018	4	Unknown	Unknown	15	<i>1st rotation forest, improved grassland, scrub</i>	2	08.00	<i>Soaring, circling</i>	100-120	-	-	-	-	180	-	

Drumnaough Breeding 2018 Target Species

Great Black-backed gull															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
22/05/2018	1	Unknown	Adult	1	Thicket, grassland moorland, rough grassland	1	17.02	Flying, circling	-	-	248	-	-	-	-
19/07/2018	4	Unknown	Sub adult	2	Thicket, rough grassland	1	14.34	Flying	-	-	-	16	74	-	-
22/08/2018	1	Unknown	Adult	3	Thicket, 2 nd rotation forest, rough grassland, improved grassland	1	12.17	Flying	-	-	30	205	35	-	-

Lesser Black-backed gull (VP1-4)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
24/05/2018	4	Unknown	Sub adult	1	Rough grassland, thicket	3	08.18	Flying	-	-	-	-	-	124	329
28/06/2018	2	Unknown	Adult	2	Grassland moorland, 1 st rotation forest	1	21.10	Flying	40-150	-	-	30	90	120	-

Lesser Black-backed gull (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
25/04/2018	5	Unknown	Adults	1	Grassland, lake	3	11.04	Flying	-	-	44	-	-	-	-

Drumnahough Breeding 2018 Target Species

25/04/2018	5	Unknown	Adults	2a 2b 2c	Lake	3	14.21	Flying	-	-	58	-	-	-	-
									-	-	27	-	-	-	-
									-	-	20	74	58	-	-
18/06/2018	5	Unknown	Adult	3	Grassland moorland	1	14.06	Flying	-	-	58	-	-	-	-
18/06/2018	5	Unknown	Adult	4	Grassland moorland, lake	1	18.14	Flying, on ground	-	-	21	47	-	-	-

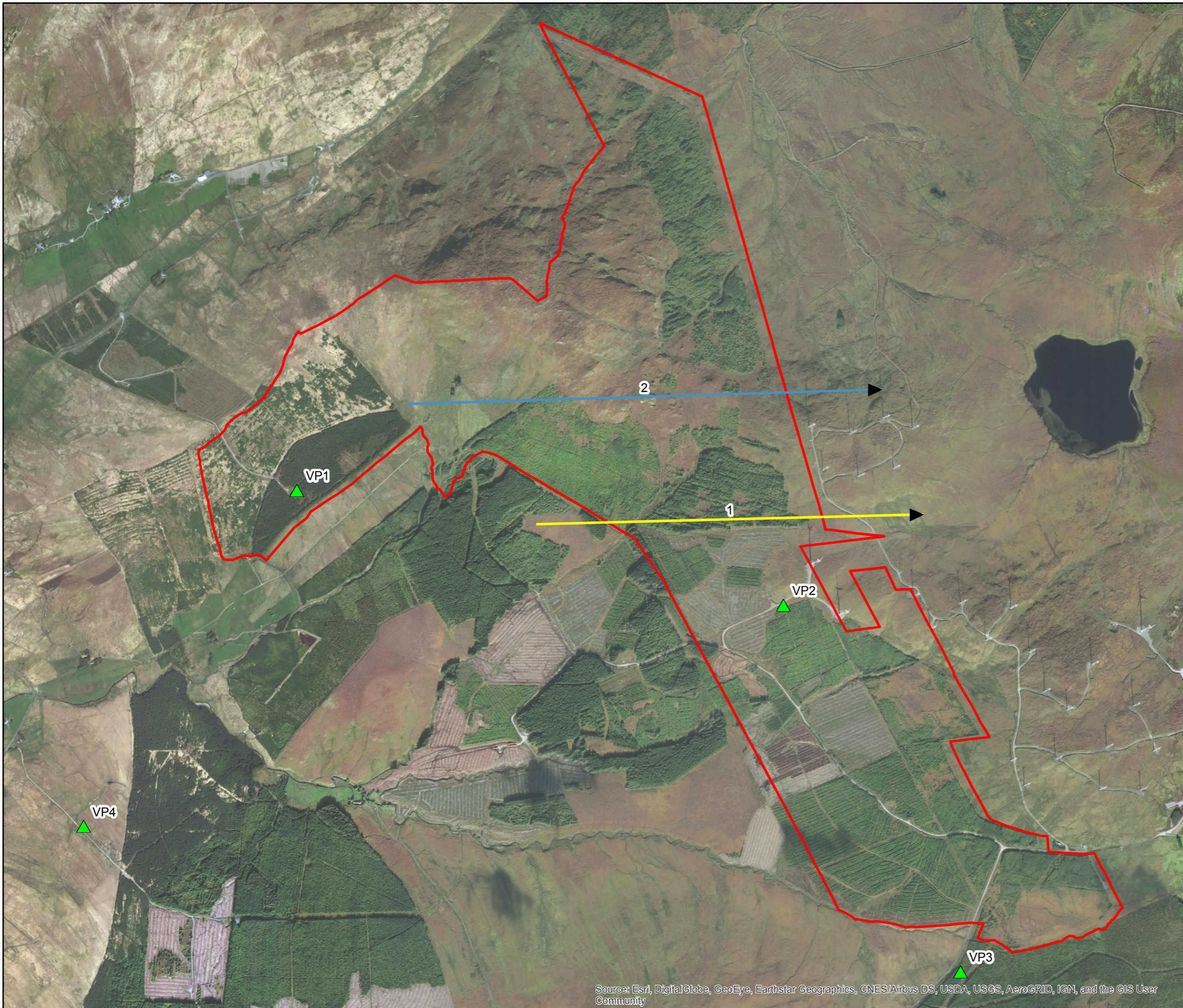
Grey heron (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
25/04/2018	5	Unknown	Adult	1	Thicket, grassland moorland, rough grassland	1	15.33	Circling	-	-	-	-	52	180	-
24/05/2018	5	Unknown	Adult	2	Grassland moorland, lake	1	12.43	Flying, on ground	1-2	-	20	-	-	-	-

Mallard (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
25/05/2018	5	Female	Adult	1	Lake, grassland moorland	1	10.15	Flying	-	-	30	-	-	-	-

Eurasian teal (VP5)															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
24/05/2018	5	Unknown	Adult	1	Lake	1	12.58	Flying	1	-	10	-	-	-	-

Appendix 5

Flight Paths and Activity Areas



- Legend**
- ▲ VP Location
 - Flight Path
 - ← 1
 - ← 2
 - Site Boundary

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0 0.3 0.6 km

Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Summer 2018
 Golden Plover Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0007-B

Drawn: JK	Checked: FMcK
Date: 20-06-2019	Scale (A3): 1:16,000



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Vantage Points
- Golden Plover Flight Path**
- ▶ 1
- ▶ 2
- ▶ 3
- Site Boundary

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0 0.45 0.9 km

Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

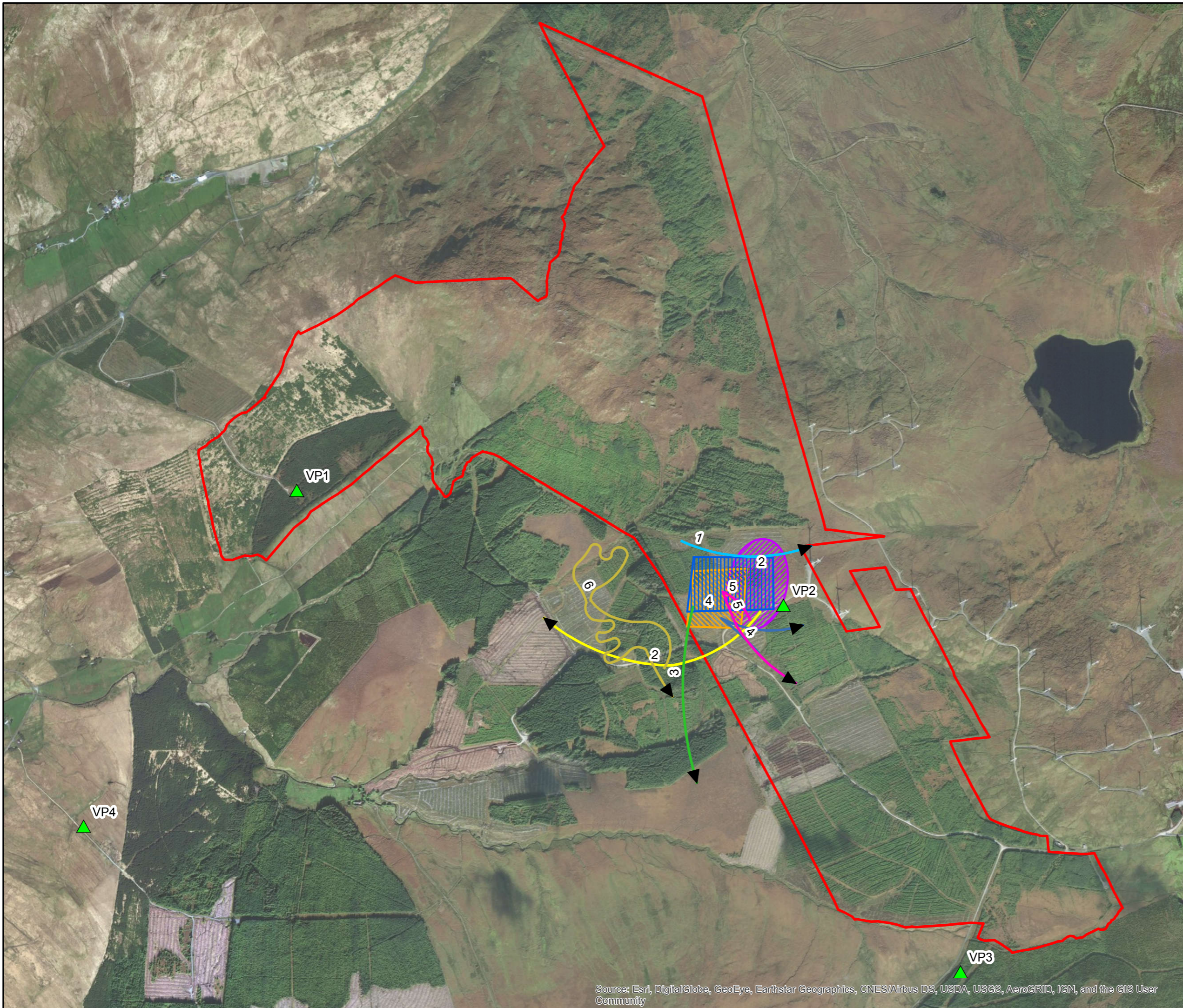
Drawing Title:
 Summer 2018
 Golden Plover Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0011-B

Drawn: VH	Checked: FMcK
Date: 06-02-2020	Scale (A3): 1:23,188

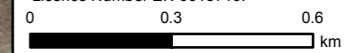
Malachy Walsh and Partners
 Engineering and Environmental Consultants

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Legend**
- ▲ VP Location
 - Flight Path**
 - ← 1
 - ← 2
 - ← 3
 - ← 4
 - ← 5
 - ← 6
 - Area of Activity**
 - ▨ 2
 - ▨ 4
 - ▨ 5
 - ▭ Site Boundary

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Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
Summer 2018
Merlin Flight Paths

Drawing No:
19123-MWP-XX-XX-DR-V-0004-B

Drawn: JK **Checked:** FMcK

Date: 20-06-2019 **Scale (A3):** 1:16,000

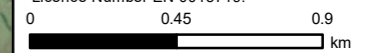




Legend

- Vantage Points
- ▶ Peregrine Flight Path
- Site Boundary

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Project Title:
 Drumnahough Wind Farm

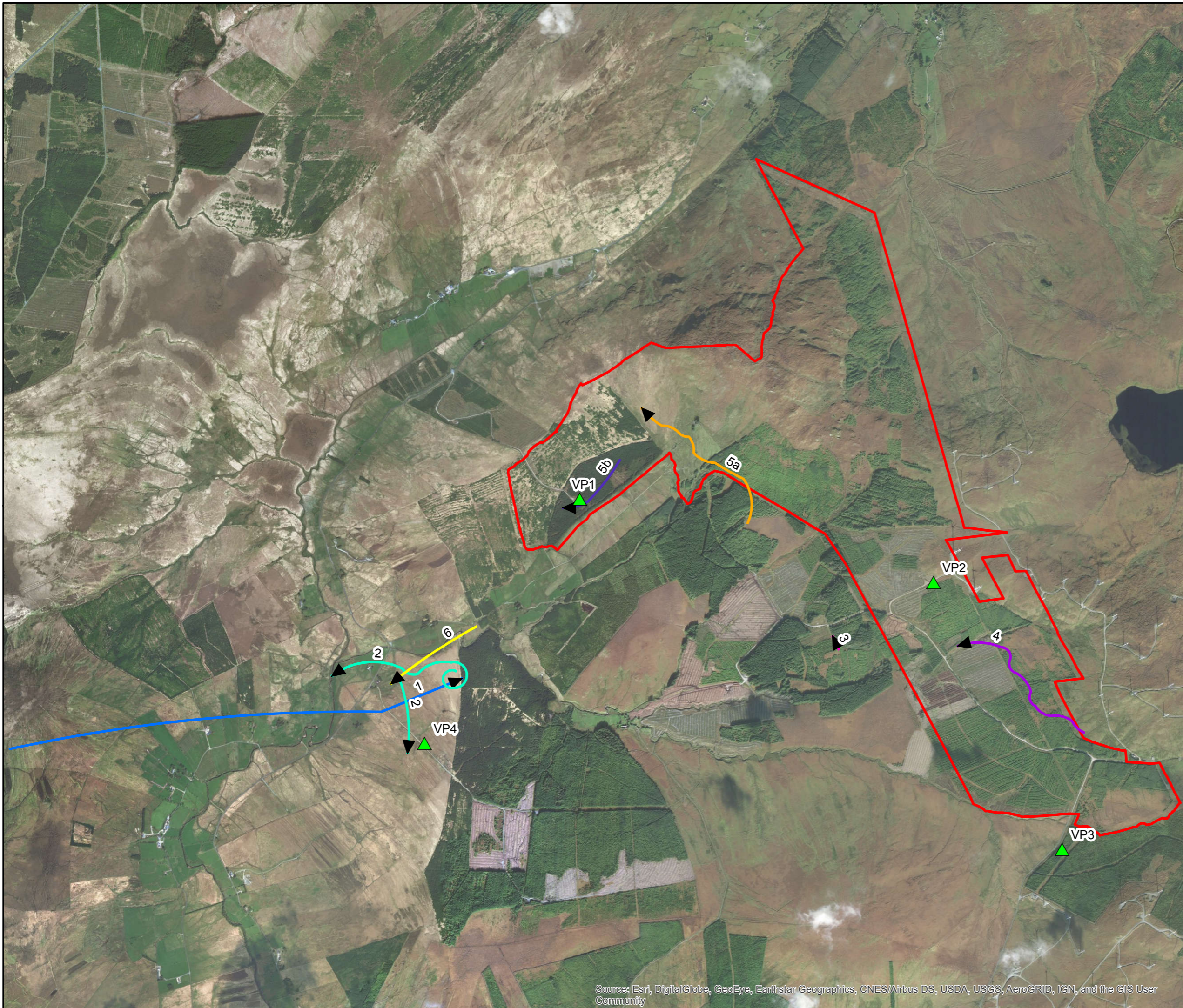
Client: SSE Renewables

Drawing Title:
 Summer 2018
 Peregrine Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0011-B

Drawn: VH	Checked: FMcK
Date: 06-02-2020	Scale (A3): 1:23,188





Legend

- ▲ VP Location
- Flight Path**
- ← 1
- ← 2
- ← 3
- ← 4
- ← 5a
- ← 5b
- ← 6
- Site Boundary

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0 0.425 0.85 km

Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

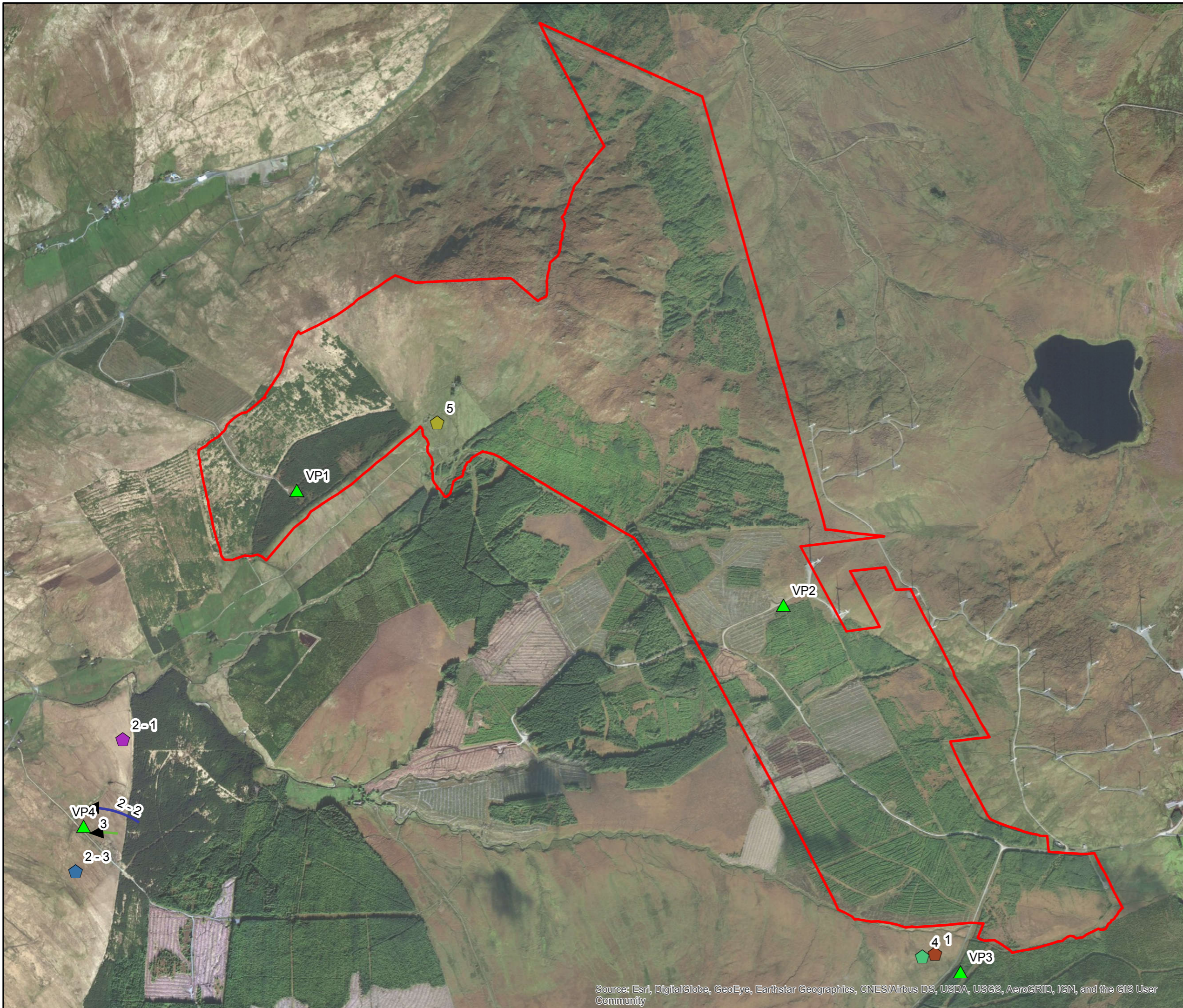
Drawing Title:
 Summer 2018
 Kestrel Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0009-B

Drawn: JK	Checked: FMcK
Date: 20-06-2019	Scale (A3): 1:22,000

Malachy Walsh and Partners
 Engineering and Environmental Consultants

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- ▲ VP Location
- Point of Activity**
- ▭ 1
- ▭ 2 - 1
- ▭ 2 - 3
- ▭ 4
- ▭ 5
- Flight Path**
- ← 2 - 2
- ← 3
- Site Boundary

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0 0.3 0.6 km



Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Summer 2018
 Snipe Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0005-B

Drawn: JK **Checked:** FMcK

Date: 20-06-2019 **Scale (A3):** 1:16,000

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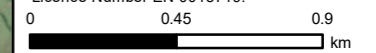
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Vantage Points
- ▶ Snipe Flight Path
- Site Boundary

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Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

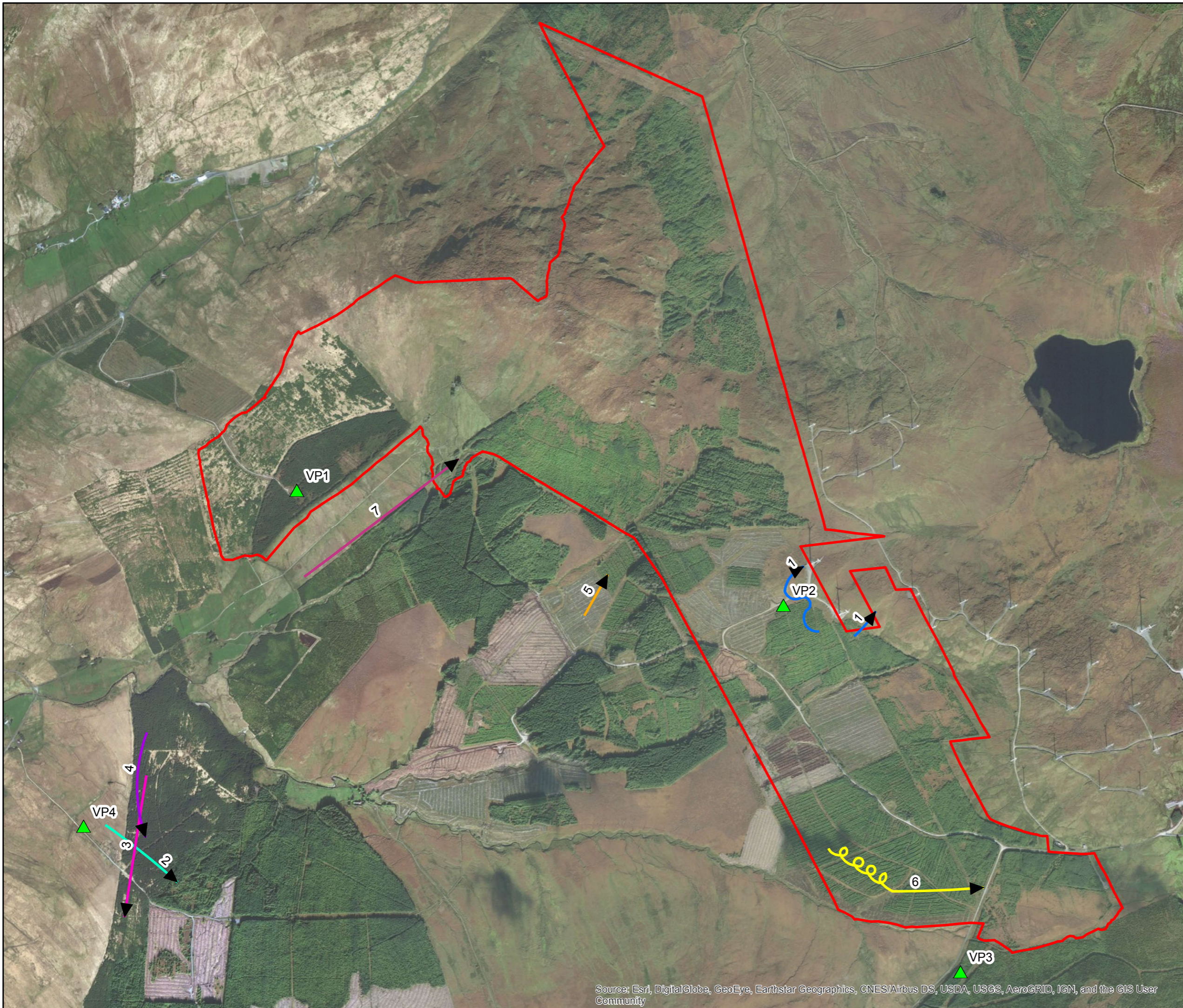
Drawing Title:
Summer 2018
Snipe Flight Paths

Drawing No:
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Drawn: VH Checked: FMcK

Date: 06-02-2020 Scale (A3): 1:23,188





Legend

- ▲ VP Location
- Flight Path**
- ← 1
- ← 2
- ← 3
- ← 4
- ← 5
- ← 6
- ← 7
- Site Boundary

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0 0.3 0.6 km

Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Summer 2018
 Sparrowhawk Flight Paths

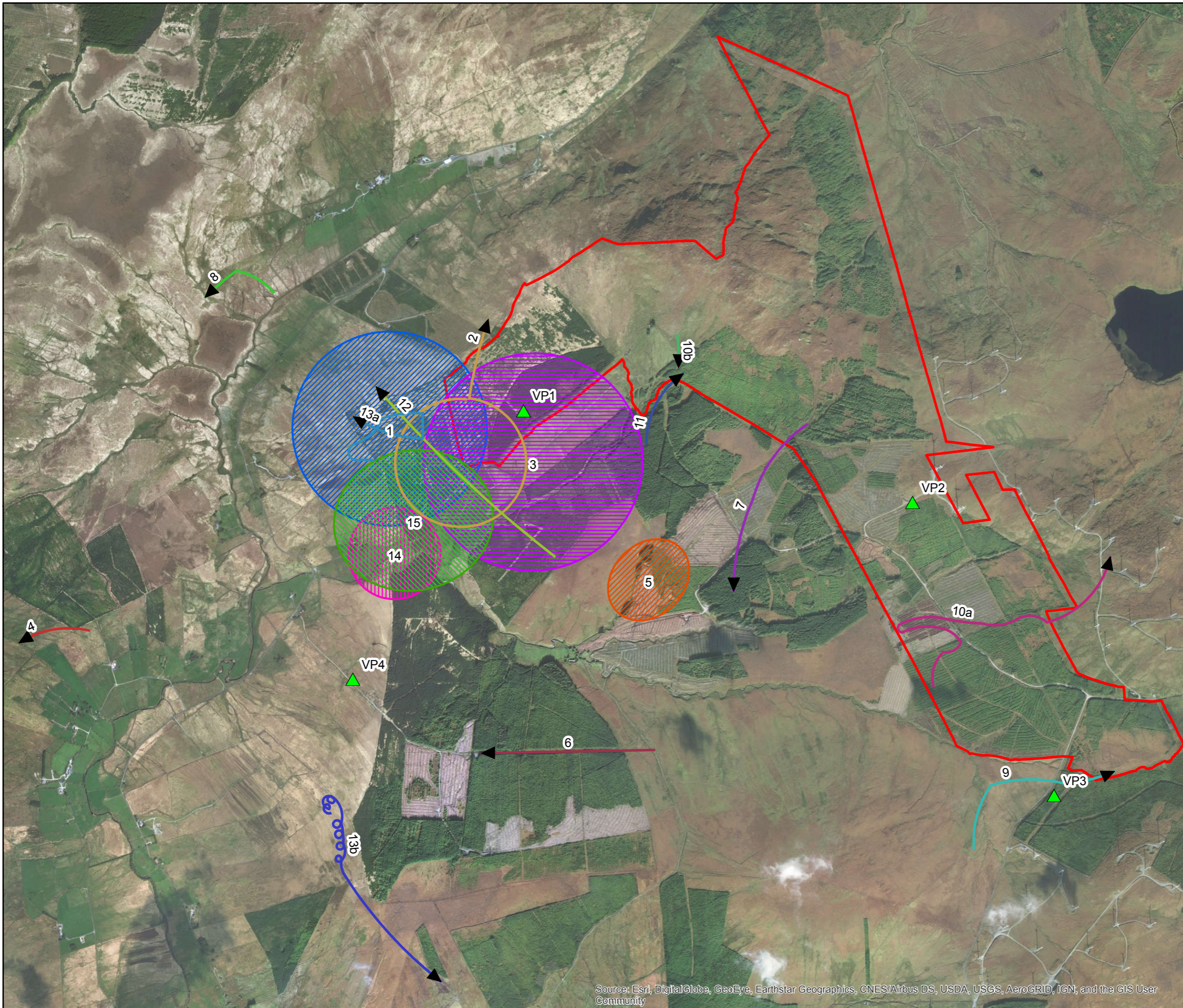
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Drawn: JK **Checked:** FMcK

Date: 20-06-2019 **Scale (A3):** 1:16,000

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- ▲ VP Location

Flight Paths

- ← 2
- ← 4
- ← 6
- ← 7
- ← 8
- ← 9
- ← 10a
- ← 10b
- ← 11
- ← 12
- ← 13a
- ← 13b

Area of Activity

- 1 (Blue diagonal hatching)
- 14 (Pink vertical hatching)
- 15 (Green diagonal hatching)
- 3 (Purple horizontal hatching)
- 5 (Orange diagonal hatching)
- Site Boundary (Red outline)

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0 0.375 0.75 km



Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Summer 2018
 Buzzard Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0006-B

Drawn: JK **Checked:** FMcK

Date: 20-06-2019 **Scale (A3):** 1:20,000

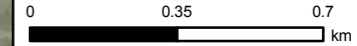
Malachy Walsh and Partners
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Legend**
- ▲ VP Location
 - Flight Path
 - ← 1
 - ← 2
 - ← 3
 - Site Boundary

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Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
Summer 2018
Great Black Backed Gull Flight Paths

Drawing No:
19123-MWP-XX-XX-DR-V-0011-B

Drawn: JK Checked: FMcK

Date: 20-06-2019 Scale (A3): 1:18,000





- Legend**
- ▲ VP Location
 - Flight Path
 - ← 1
 - ← 2
 - Site Boundary

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0 0.35 0.7 km

Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

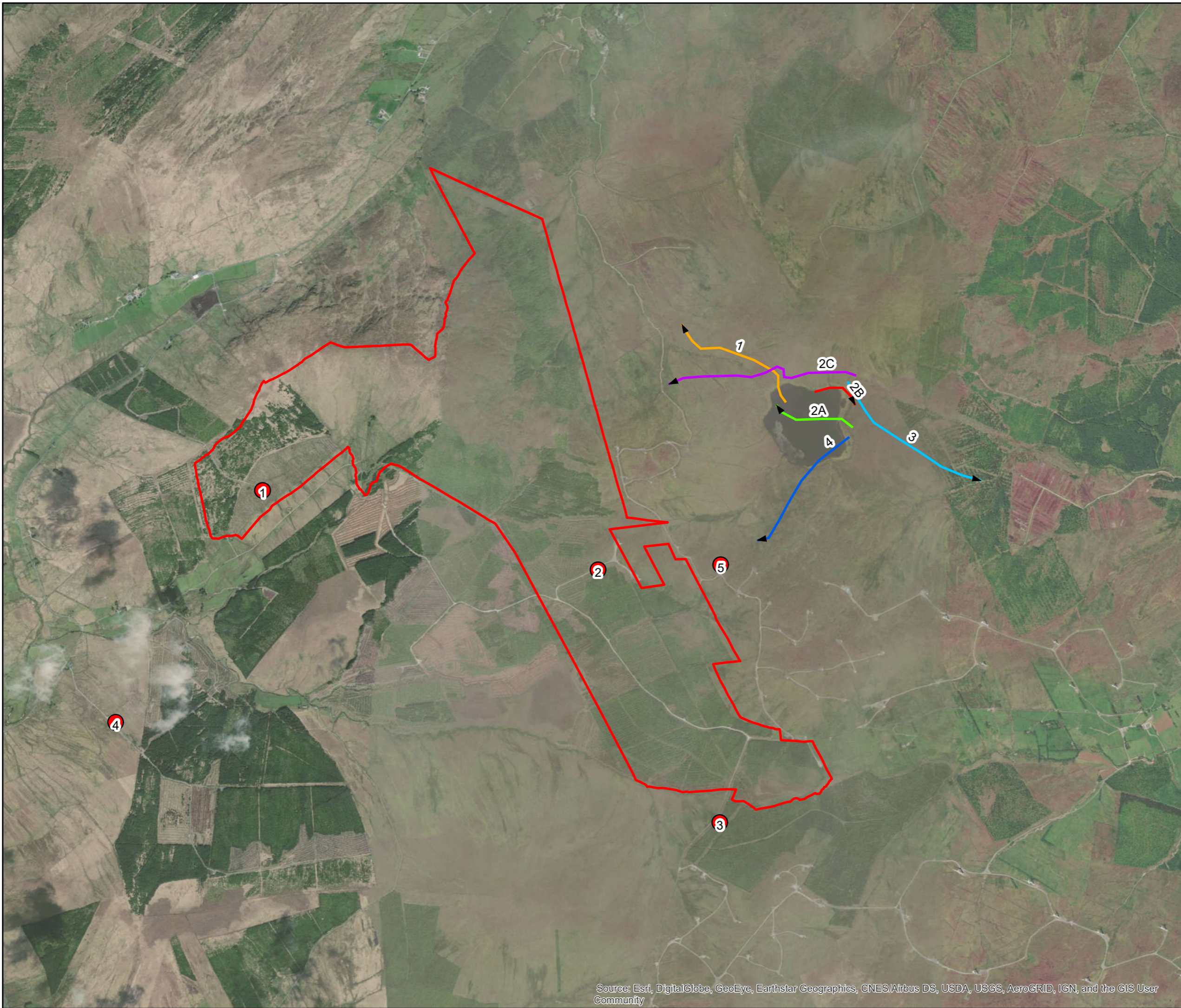
Drawing Title:
 Summer 2018
 Lesser Black Backed Gull Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0010-B

Drawn: JK	Checked: FMcK
Date: 20-06-2019	Scale (A3): 1:18,000



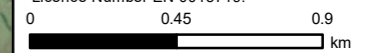
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Vantage Points
- Lesser Black Backed Gull Flight Path**
- 1
- 2A
- 2B
- 2C
- 3
- 4
- Site Boundary

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Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

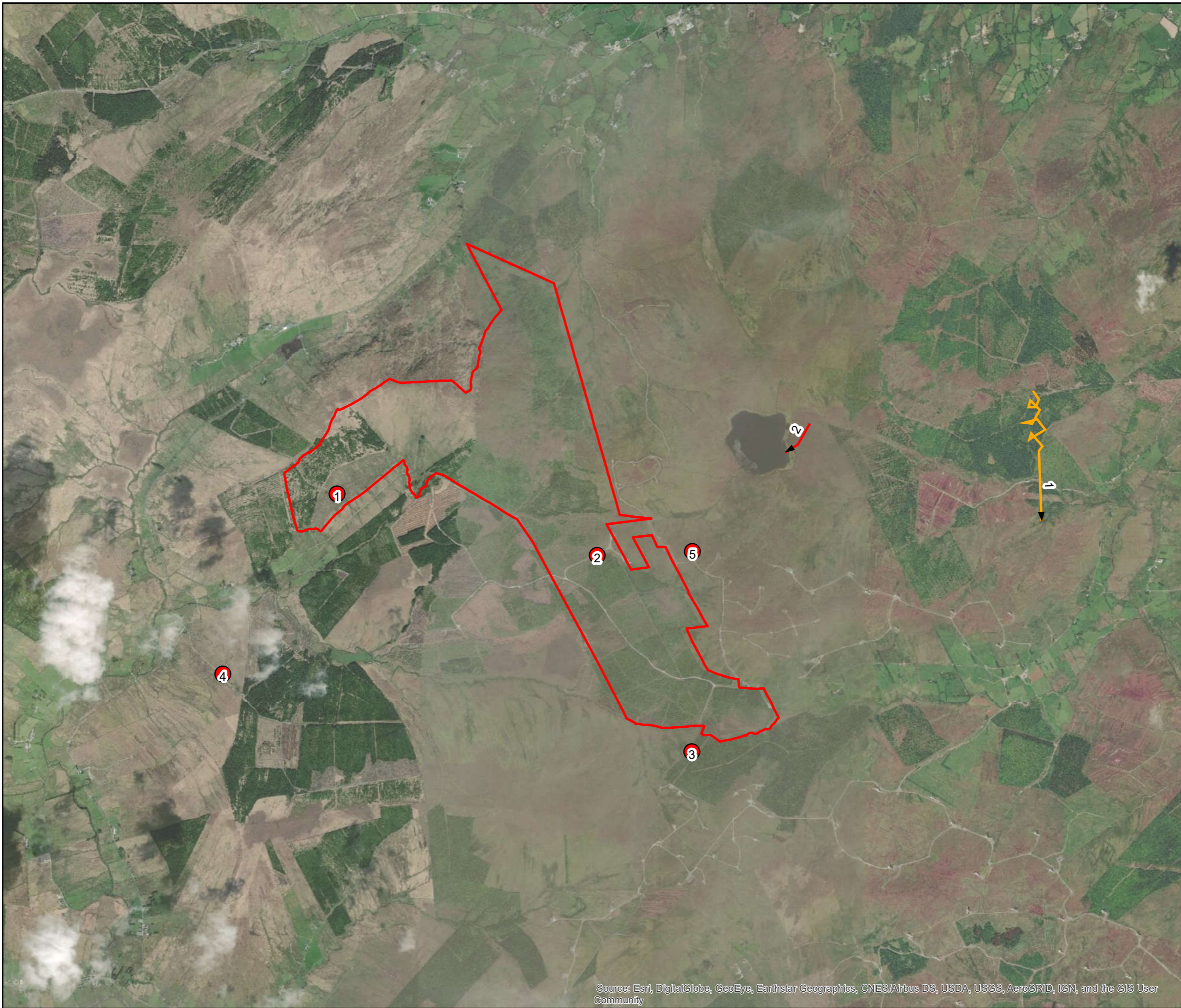
Drawing Title:
Summer 2018
Lesser Black Backed Gull Flight Paths

Drawing No:
19123-MWP-XX-XX-DR-V-0011-B

Drawn: VH Checked: FMcK

Date: 06-02-2020 Scale (A3): 1:23,188

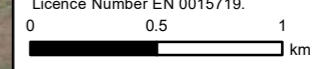




Legend

- Vantage Points
- Grey Heron Flight Path**
- ▶ 1
- ▶ 2
- Site Boundary

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Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Summer 2018
 Grey Heron Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0011-B

Drawn: VH	Checked: FMcK
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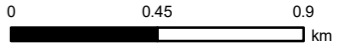
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Vantage Points
- ▶ Mallard Flight Path
- Site Boundary

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Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
 Summer 2018
 Mallard Flight Paths

Drawing No:
 19123-MWP-XX-XX-DR-V-0011-B

Drawn: VH	Checked: FMcK
Date: 06-02-2020	Scale (A3): 1:23,188



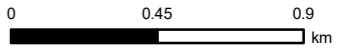
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Vantage Points
- ▶ Teal Flight Path
- Site Boundary

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Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
Summer 2018
Teal Flight Paths

Drawing No:
19123-MWP-XX-XX-DR-V-0011-B

Drawn: VH	Checked: FMcK
Date: 06-02-2020	Scale (A3): 1:23,188



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Appendix 6

Non-Target Species of Conservation Concern recorded during VP Surveys

Non-Target species peak counts, breeding season 2018:

Common Name	Latin Name	April	May	June	July	Aug	Sept
Meadow pipit	<i>Anthus pratensis</i>	5	3	12	20	22	30
Grey wagtail	<i>Motacilla cinerea</i>		1				
Common Sandpiper	<i>Actitis hypoleucos</i>				1		
Goldcrest	<i>Regulus regulus</i>	5	3	2	4	2	3
Linnet	<i>Carduelis cannabina</i>	2	2	6	14	4	24
Mistle thrush	<i>Turdus viscivorus</i>	4	2	7	4	24	
Robin	<i>Erithacus rubecula</i>	5	3	3	4	1	2
Sand martin	<i>Riparia riparia</i>			1	1		
Skylark	<i>Alauda arvensis</i>	4	4	4	1	1	
Starling	<i>Sturnus vulgaris</i>	30	3	30	18	27	15
Stonechat	<i>Saxicola torquata</i>	2		1			1
Swallow	<i>Hirundo rustica</i>		3	4	8	1	1
Swift	<i>Apus apus</i>				1		

Appendix 7

Transect Survey Summary

Transect Survey Summary

Transect	Date	Observer	Start Time	Finish Time	Weather
B	24/05/2018	SC	14.12	16.00	Cloud cover 6/8, mostly cloudy with some sun shine. Wind NE F1-2, temp 21-18oC and visibility good.
C	25/05/2018	SC	12.05	13.01	Cloud cover 3/8, mostly sunshine with some cloud. Wind N F5, temp 14-17oC and visibility good.
B	19/07/2019	JNM	11.05	12.45	-
C	19/07/2018	JNM	17.00	18.00	Dull day, wind SW-W, temp 13-17

Appendix 8

Transect/Point Counts Summary Results

The following table outlines peak counts of species recorded during the Breeding 2018 season for Transect routes B and C and Point count surveys at Drumnahough.

Common Name	Latin Name	May		July	
		B	C	B	C
Blackbird	<i>Turdus merula</i>	2	1		1
Blackcap	<i>Sylvia atricapilla</i>				1
Blue tit	<i>Cyanistes caeruleus</i>	1			
Chaffinch	<i>Fringilla coelebs</i>	9	15	4	2
Coal tit	<i>Periparus ater</i>	1	3	2	2
Crossbill	<i>Loxia curvirostra</i>			1	6
Dunnock	<i>Prunella modularis</i>	1	1		1
Goldcrest	<i>Regulus regulus</i>	2	3		
Goldfinch	<i>Carduelis carduelis</i>		1		
Grasshopper warbler	<i>Locustella naevia</i>	2			
Great tit	<i>Parus major</i>				1
Grey heron	<i>Ardea cinerea</i>	1			
Hooded crow	<i>Corvus cornix</i>	2	1		2
Magpie	<i>Pica pica</i>		1		
Meadow pipit	<i>Anthus pratensis</i>	5	3	4	
Mistle thrush	<i>Turdus viscivorus</i>	1			
Pied wagtail	<i>Motacilla alba</i>	1	1		
Raven	<i>Corvus corax</i>		1		1
Redpoll	<i>Carduelis cabaret</i>	1	3	1	
Robin	<i>Erithacus rubecula</i>	5	3	1	1
Siskin	<i>Carduelis spinus</i>	1		3	
Sskylark	<i>Alauda arvensis</i>		1		
Song thrush	<i>Turdus philomelos</i>	1		1	
Sparrowhawk	<i>Accipter nisus</i>		1		
Willow warbler	<i>Phylloscopus trochilus</i>	6	3	2	2
Woodpigeon	<i>Columba palumbus</i>	1		2	3
Wren	<i>Troglodytes troglodytes</i>	2	2	1	2

Appendix 9

List of all species recorded

The following table outlines all species recorded during the summer 2018 surveys at Drumnaugh. A total of 49 species were recorded.

Common Name	Latin Name	April	May	June	July	Aug	Sept
Blackbird	<i>Turdus merula</i>						
Blackcap	<i>Sylvia atricapilla</i>						
Blue tit	<i>Cyanistes caeruleus</i>						
Buzzard	<i>Buteo buteo</i>						
Chaffinch	<i>Fringilla coelebs</i>						
Coal tit	<i>Periparus ater</i>						
Common sandpiper	<i>Actitis hypoleucos</i>						
Crossbill	<i>Loxia curvirostra</i>						
Cuckoo	<i>Cuculus canorus</i>						
Duncock	<i>Prunella modularis</i>						
Goldcrest	<i>Regulus regulus</i>						
Golden plover	<i>Pluvialis apricaria</i>						
Goldfinch	<i>Carduelis carduelis</i>						
Great black-backed gull	<i>Larus marinus</i>						
Great tit	<i>Parus major</i>						
Grey heron	<i>Ardea cinerea</i>						
Grey wagtail	<i>Motacilla cinerea</i>						
Hooded crow	<i>Corvus cornix</i>						
Jackdaw	<i>Corvus monedula</i>						
Jay	<i>Garrulus glandarius</i>						
Kestrel	<i>Falco tinnunculus</i>						
Lesser black-backed gull	<i>Larus fuscus</i>						
Linnet	<i>Carduelis cannabina</i>						
Magpie	<i>Pica pica</i>						
Mallard	<i>Anas platyrhynchos</i>						
Meadow pipit	<i>Anthus pratensis</i>						
Merlin	<i>Falco columbarius</i>						
Mistle thrush	<i>Turdus viscivorus</i>						
Pheasant	<i>Phasianus colchicus</i>						
Peregrine	<i>Falco peregrinus</i>						
Pied wagtail	<i>Motacilla alba</i>						
Raven	<i>Corvus corax</i>						
Redpoll	<i>Carduelis cabaret</i>						
Reed Bunting	<i>Emberiza schoeniclus</i>						
Robin	<i>Erithacus rubecula</i>						
Sand martin	<i>Riparia riparia</i>						
Siskin	<i>Carduelis spinus</i>						
Skylark	<i>Alauda arvensis</i>						
Snipe	<i>Gallinago gallinago</i>						
Song thrush	<i>Turdus philomelos</i>						
Sparrowhawk	<i>Accipiter nisus</i>						

Common Name	Latin Name	April	May	June	July	Aug	Sept
Starling	<i>Sturnus vulgaris</i>						
Stonechat	<i>Saxicola torquatus</i>						
Swallow	<i>Hirundo rustica</i>						
Swift	<i>Apus apus</i>						
Teal (Eurasian)	<i>Anas crecca</i>						
Willow warbler	<i>Phylloscopus trochilus</i>						
Woodpigeon	<i>Columba palumbus</i>						
Wren	<i>Troglodytes troglodytes</i>						