

APPENDIX D-11

Avian Monitoring Results

Winter 2019/2020

THIS PAGE IS INTENTIONALLY BLANK

Winter Bird Survey 2019/20

Drumnahough Wind Farm





ISSUE FORM	
Project number	19123
Document number	6007
Document revision	A
Document title	Drumnahough Winter Bird Report (2019/20)
Document status	Final
Document prepared by	FMk (MWP 06-05-20) FMk (MWP 07-07-20)
Document checked by	MKe (MWP 02-06-20), JNM (22-05-20)



Table of Contents

1	Introduction	1
1.1	Project Background	1
1.2	Statement of Authority	1
1.3	Site Location	1
2	Methodology	2
2.1	Desktop Study	2
2.2	Identification of Target Species	2
2.3	Consultation	4
2.4	Field Surveys	4
2.4.1	Hinterland Survey	4
2.4.2	Vantage Point (VP) Surveys	4
2.4.3	Distribution and Abundance Surveys	8
3	Existing Environment	9
3.1	Site Description	9
4	Bird Survey Results	10
4.1	Introduction	10
4.2	Vantage Point Survey Results	10
4.2.1	Hinterland Survey	10
4.2.2	Target Species	10
4.2.3	Secondary Species	13
4.2.4	Non-target Species	14
4.3	Distribution and Abundance Survey Results	14
4.3.1	Transect and Point Count Surveys	14
4.4	Incidental records	15
5	References	16

Table of Tables

Table 1: Target species for which previous records exist in relevant hectad C00.....	3
Table 2: Drumnahough VP locations.....	5
Table 3: Monthly peak counts of all target species recorded during winter 2019/20 VP surveys.....	13
Table 4: Monthly peak counts of all secondary species recorded during winter 2019/20 VP surveys	14

Table of Figures

Figure 1. Site location and proposed wind farm layout.....	2
Figure 2. VP locations and development site boundary	6
Figure 3. Vantage Point location and corresponding viewsheds.....	7

List of Appendices

Appendix 1	Statement of Surveyor Competency and Expertise
Appendix 2	Survey Locations and Viewshed Maps
Appendix 3	Vantage Point Survey Summary
Appendix 4	Target/Secondary Species Observations
Appendix 5	Flight Paths and Activity Areas
Appendix 6	Non-Target Species of Conservation Concern Recorded during VP Surveys
Appendix 7	Transect Survey Summary
Appendix 8	Transect/Point Count Summary results
Appendix 9	List of all Species Recorded

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 winter winter season of 2019/20. 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

Malachy Walsh and Partners have completed two breeding bird surveys in 2018 and 2019 and a previous winter survey in 2018/19. The bird surveys were managed and co-ordinated by John N. Murphy. Field surveyors were; Shane Cully (BSc.), John Collins (BSc.) and Robert Vaughan. 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 central County Donegal, approximately 13km southwest of Letterkenny and 11km north-west of Stranorlar town. The site entrance is along a local road to the southeast of the site which can be accessed from local roads (see **Figure 1** below).

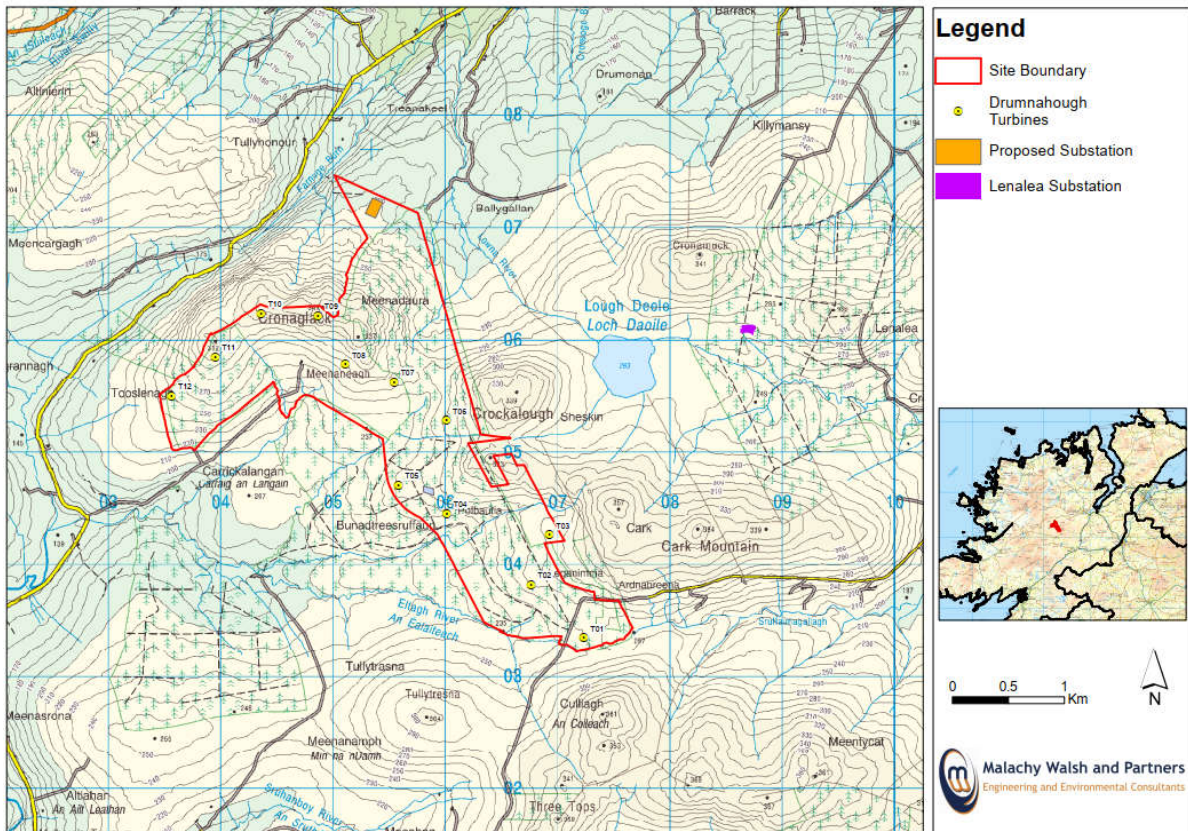


Figure 1. Site location and proposed wind farm layout

2 METHODOLOGY

2.1 DESKTOP STUDY

The results from desk-top study are presented in Breeding 2018 report (Doc. No. 19123-6004-B

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 (SNH, 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
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 windfarms. 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 site.

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

2.4.2.1 Selection of VP Locations

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 (October 2019 to March 2020, 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.

2.4.2.2 Selection of VP Locations

Vantage points are ideally located on elevated areas, or other areas, which provide clear views over the survey 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 survey 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 site and VP5 was included as it covers Lough Deelee, a habitat sometimes found to be used by birds of high conservation importance, including Red-throated diver and Whooper swan. Lough Deelee is the only significant body of standing water near 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

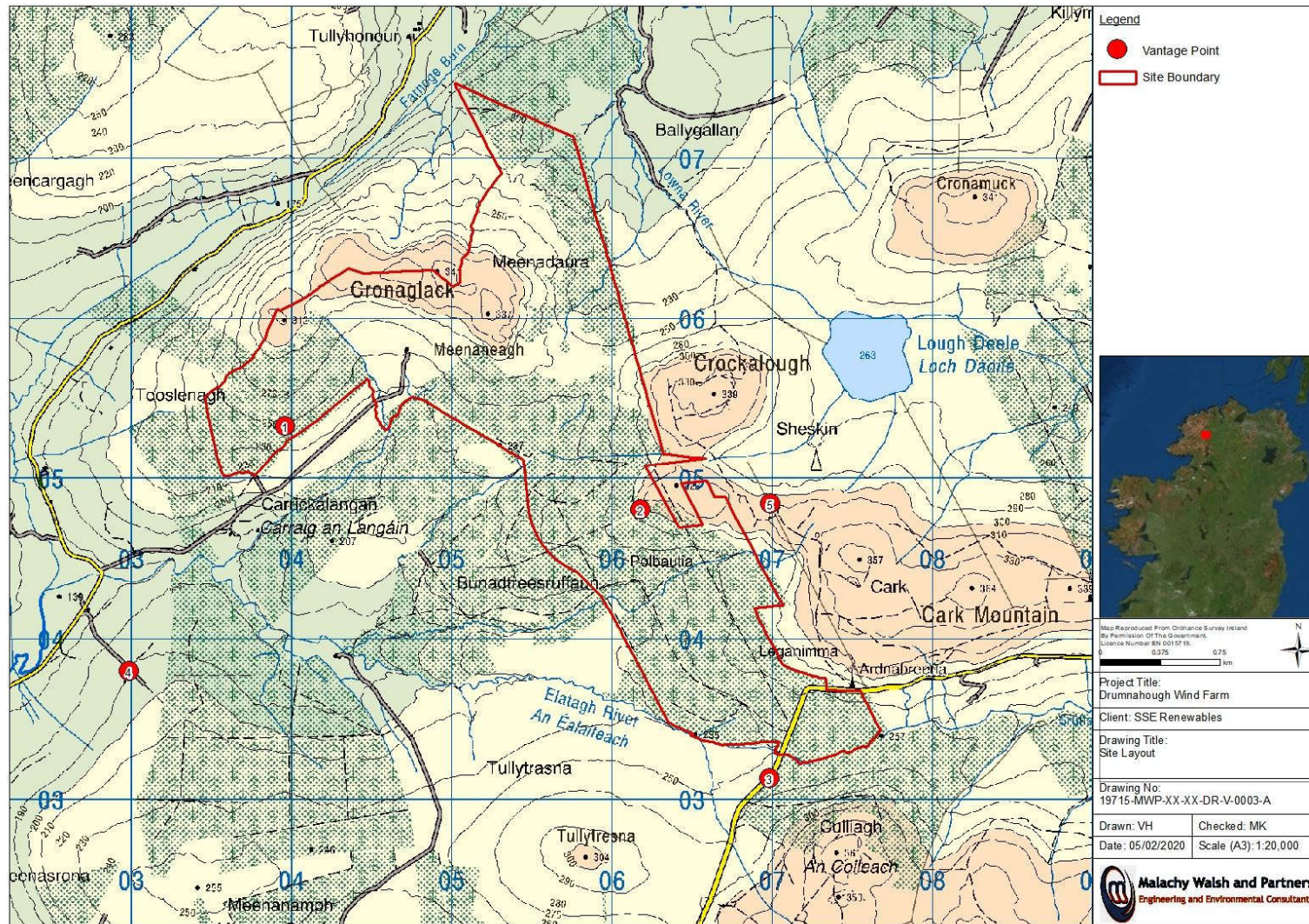


Figure 2. VP locations and development site boundary

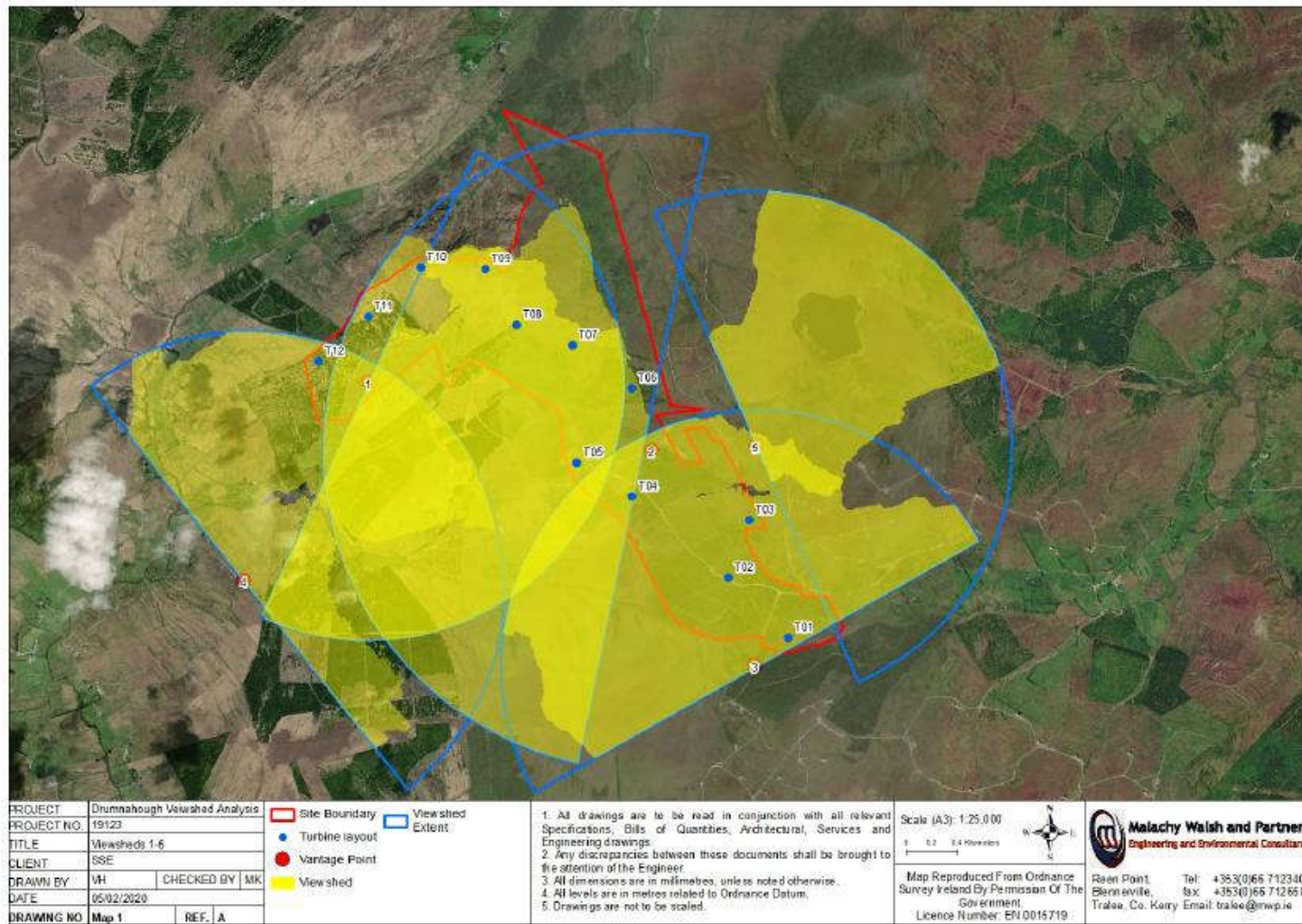


Figure 3. Vantage Point location and corresponding viewsheds

2.4.2.3 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° view with the exception of VP2 which extended to 2.5km. Each viewshed was then cropped to an 180° 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**.

2.4.2.4 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 species was recorded. Based on the precautionary principle flight 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, 50-100m, 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 are provided in **Appendix 5**.

2.4.2.5 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 three months between October 2019 and March 2020. 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**.

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

¹ <https://gis.epa.ie/EPAMaps/>

² <https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aac3c228>

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

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

4 BIRD SURVEY RESULTS

4.1 INTRODUCTION

The following nine target and secondary species were recorded during bird surveys carried out at the Drumnahough site during the winter 2019/20 (Annex I species; highlighted in bold):

- **Golden eagle**
- **Merlin**
- **Whooper swan**
- **Peregrine**
- Kestrel
- Sparrowhawk
- Buzzard
- Great black-backed gull
- Lesser black-backed gull

A comprehensive list of all bird species recorded within the study area over the course of the winter 2019/20 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 winter 2019/20 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 Eagle

Golden eagle (*Aquila chrysaetos*) was observed on one occasion throughout the winter survey period. The Golden eagle is Ireland's largest bird of prey and a red-listed species. These eagles were

formerly bred in Ireland and recently re-introduced into Donegal to Glenveagh National Park. Wandering birds from this re-introduction project have been observed in upland areas throughout Ireland. In January a juvenile was seen northeast of VP1 flying low ca. 10m and then was lost from sight behind a stand of conifer trees. After a short while the same bird appeared in the same general area circling and gained height slowly and remained in the same area before diving steeply and disappearing out of sight (possibly a 1st winter untagged juvenile).

4.2.2.2 *Merlin*

Merlin (*Falco columbarius*) was observed on one occasion throughout the winter survey period on the 8th January at VP3. A lone female was briefly observed northeast of VP3 hunting over 1st rotation forest. There was an abundance of Crossbill and Siskins which were high in the air before the surveyor spotted the Merlin hunting in the same area. Merlin is an amber-listed species in this country and is also an Annex I species of the Birds Directive.

4.2.2.3 *Whooper swan*

Whooper swan (*Cygnus cygnus*) activity was recorded in the months of October, December and January on 6 occasions; once at VP3 and five times at VP5. All sightings in October occurred on the 24th of the month. The first observation was at VP5; a small flock of 3 (2 adults and 1 juvenile) were observed northwest of the VP flying at heights of between 20-50m flying in an easterly direction towards Lough Deele. They circled the Lough and dropped to down low to land on the Lough. All three remained on the Lough until the end of the VP watch. The second observation took place during VP3; a flock of 10 Whooper swans were observed northwest of the VP flying in a northeast/easterly direction at heights greater than 150m before the surveyor lost sight. The final sighting was during VP5 later on in the day where a small flock of 3 (2 adults and 1 juvenile) were observed on Lough Deele to the northeast of the VP. They remained on the Lough for 8 minutes before flying off in a north-easterly direction where they flew close to telegraph/overhead electrical wires and suddenly changed direction to avoid them. They then flew in an easterly direction before going out of sight. Two sightings occurred in the month of December at VP5. The first observation took place on the 13th in which a small flock of 3 (2 adults and 1 juvenile) were seen east of the VP flying in a north-westerly direction towards Lough Deele. They appeared to go to land on the western side of the Lough but instead flew up the hill and headed off in a south-westerly direction. The final sighting in December occurred on the 16th of a small flock of 3 (2 adults and 1 juvenile) seen northeast of the VP on the western shore of Lough Deele close to the bank feeding throughout the survey period. The final two observations occurred on January 8th and 9th at VP5. Both sighting consisted of three birds feeding in the south-western part of Lough Deele for the duration of the VP watch. Whooper swan is a winter visitor throughout Ireland and is an Annex I species of the Birds Directive and amber-listed species in Ireland.

4.2.2.4 *Peregrine*

Peregrine (*Falco peregrinus*) was recorded on two occasions, once in the month of October and once in November. On the 22nd October an individual male was observed hunting just northwest of VP1 before being mobbed by two ravens at the edge of a thicket forest. The male flew quickly swooping left and right through tree tops between heights of 5-20m before heading off in a north-easterly direction and reaching heights between 20-50m. On the 14th November an individual adult female was observed southwest of VP3 flying in a north-easterly direction over grassland moorland and

over the top of the VP and out of sight. Peregrine Falcons are listed under Annex I of the Birds Directive and a green-listed species in Ireland.

4.2.2.5 Kestrel

Kestrel (*Falco tinnunculus*) was observed at VP1, VP2, VP3 and VP4 in the months of October, November, January, February and March. In total eight observations of Kestrels in flight were made, all observations pertained to single birds hunting and/or flying. The majority of the observations were of an individual female which occurred in the months of October, November, January and February. There was just one observation of an individual male in the month of March. Kestrel is an amber-listed species and a common localised breeder in this region of Donegal and is known to nest to the east of Lough Deele.

4.2.2.6 Sparrowhawk

Sparrowhawk (*Accipiter nisus*) was observed on four occasions, once in the month of November and three times in the month of January. On the 20th November a juvenile female was observed during the watch at VP2. She flew low in front of the VP heading south over clear fell and landed in branches before settling on a tree stump. Two observations at VP2 on the 9th and 10th of January were of an individual male seen southwest of the VP flying. The final observation in January occurred during the watch at VP4 on the 19th of a lone female flying in a northwest direction. Sparrowhawk is an amber-listed species in Ireland.

4.2.2.7 Buzzard

Buzzard (*Buteo buteo*) was observed at all VP locations excluding VP2 and recorded in the months of October, November, January and March. A total of 12 flight-lines of Buzzard were recorded over the survey period. The sightings pertained to 1 or 2 birds flying, circling or displaying. Buzzard is a green-listed species in Ireland and is known to nest in the area between VP1 and VP4.

4.2.2.8 Target Species Summary

The target species recorded during VP surveys in winter 2019/20 can be categorised as follows (Annex I species are highlighted in bold):

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

- Swans/wader/divers/gulls
 - **Whooper swan**

The following table (**Table 3**) presents monthly peak counts of all target species recorded during vantage point surveys over the winter 2019/20 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 (Colhoun and Cummins, 2013). Species which are considered to be of unfavourable conservation status 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 3: Monthly peak counts of all target species recorded during winter 2019/20 VP surveys

Common Name	Latin Name	Oct	Nov	Dec	Jan	Feb	Mar
Golden Eagle	<i>Aquila chrysaetos</i>	0	0	0	1	0	0
Merlin	<i>Falco columbarius</i>	0	0	0	1	0	0
Whooper Swan	<i>Circus cyaneus</i>	10	0	3	3	0	0
Kestrel	<i>Falco tinnunculus</i>	1	1	0	1	1	1
Sparrowhawk	<i>Accipiter nisus</i>	0	1	0	1	0	0
Peregrine	<i>Falco peregrinus</i>	1	1	0	0	0	0
Buzzard	<i>Buteo buteo</i>	1	1	0	1	0	2

4.2.3 Secondary Species

The following sub-sections summarise sightings of all secondary species recorded during vantage point surveys at the Drumnahough wind farm site during the winter 2019/20 period. Tabulated summaries of these secondary 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*) during the winter survey period, one in the month of February and two in the month of March. On the 17th of February two birds were observed to the southwest of VP4 flying in a northerly direction. On March 23rd during watch at VP5 two birds were observed northeast of VP5 at Lough Deele and flew off in a south-easterly direction. The final sighting was on March 24th during a watch at VP2, two birds were observed northwest of the VP flying in a westerly direction before veering in a north-westerly direction. 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 twice on the same date in the month of March at VP2 and VP5. Both sightings were of a pair flying either in a northerly or south-westerly direction over bog before going out of view. Lesser black-backed gull is an amber-listed species in Ireland.

4.2.3.3 Secondary Species VP Summary

The secondary species recorded during VP surveys in winter 2019/20 can be categorised as follows:

- Swans/wader/divers/gulls
 - Great black-backed gull
 - Lesser black-backed gull

The following table (**Table 4**) presents monthly peak counts of all secondary species recorded during vantage point surveys over the winter 2019/20 period. As above, species name are colour-coded to indicate conservation status (Colhoun and Cummins, 2013).

Table 4: Monthly peak counts of all secondary species recorded during winter 2019/20 VP surveys

Common Name	Latin Name	Oct	Nov	Dec	Jan	Feb	Mar
Great black-backed gull	<i>Larus marinus</i>	0	0	0	0	2	2
Lesser black-backed gull	<i>Larus fuscus</i>	0	0	0	0	0	2

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*) was the only non-target red-listed species which was recorded. Meadow pipit was recorded in every month apart from December with numbers peaking in November. The amber-listed non-target species recorded the most each month was Robin (*Erithacus rubecula*). Frequently recorded species included Goldcrest (*Regulus regulus*) and Stonechat (*Saxicola torquata*). Amber-listed species which were less frequently recorded included Linnet (*Carduelis cannabina*) and Mistle thrush (*Turdus viscivorus*).

Other than Buzzard and Peregrine 24 other green-listed species were recorded during the winter 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 winter visitors to Ireland.

A list of all species recorded during VP surveys is 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. Grey wagtail (*Motacilla cinerea*) and Meadow pipit (*Anthus pratensis*) were the only red-listed species recorded and were only observed in the month of March. Seven amber-listed species were recorded in total with Goldcrest (*Regulus regulus*) seen most frequently appearing in three months and Robin (*Erithacus rubecula*) in two months. The remaining amber-listed species consisted of Great black-backed gull (*Larus marinus*), Kestrel (*Falco tinnunculus*), Mistle thrush (*Turdus viscivorus*), Skylark (*Alauda arvensis*) and Eurasian teal (*Anas crecca*) which each only appearing in one of the three months. A total of 18 green-listed species were recorded with Coal tit (*Periparus ater*), Dunnock (*Prunella modularis*) and Raven (*Corvus corax*) being recorded most frequently and appeared each of the three months. Buzzard was recorded on one occasion in the month of March and Peregrine was recorded on one occasion during November; these two were the only birds of prey recorded.

Tabulated results of peak counts for all species recorded during 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 observations included:

- October at VP5 - one Mallard seen loafing on Lough Deelee for the duration of the VP survey.
- October at VP5 - Golden plover was heard calling in the valley to the northwest of the VP.
- November at VP3 - a Kestrel was seen just south of VP close to a substation and then flew north.
- December at VP1 - one female Kestrel flew in from rough ground whilst the surveyor was walking back to the car. The weather had been unsettled throughout the survey with heavy periods of rain; this female looked as if she was wet and appeared to struggle to get airborne and disappeared in to the woods.
- December VP3 - a male Sparrowhawk was seen hunting close to Cark Wind Farm entrance as the surveyor drove away.
- January at VP5 - the surveyor observed a plucked wing and tail feather of a passerine (most likely a Meadow pipit) by a fence line.
- February at VP1 - half way through the watch the surveyor saw a flock of Ravens gathering to the south of VP1 on the far side of a hill. They appeared to be feeding on something on the ground which was out of the surveyors view. The Ravens were joined by a small group of Hooded Crows and Magpies.
- February after VP5 - the surveyor flushed ca. 20 Golden Plover when driving on the main road on the site close to Turbine 18 of neighbouring Cark Wind Farm.
- March at VP1 - a young male Sparrowhawk was seen on the track when the surveyor was approaching the car after the watch.
- March at VP2 - when the surveyor was walking back to the car close to Turbine 18 of neighbouring Cark Wind Farm a pair of Red grouse were flushed and then flew north.
- March at VP2 - three pellets were found close to the VP2 possibly from a Long-eared Owl (*Asio otus*).
- March at VP4 - a Kestrel flew from trees at the start of the track, this occurred in the same location during a VP watch the previous week. The Kestrel was not seen again during survey and not possible to sex due to poor light conditions.
- March at VP3 - 27 Golden plover were seen southwest of the VP and flew southeast at a height of less than 50m.

5 REFERENCES

Balmer, D., Gillings, S., Caffrey, B., Swann, B., Downie, I., & Fuller, R. (2013). *Bird Atlas 2007-11: The Breeding and Wintering Birds of Britain and Ireland*. British Trust for Ornithology.

BirdWath Ireland (n.d). *Counter Manual, Guidelines for Irish Wetland Bird Survey Counters*. National Parks and Wildlife Service of the Department of the Environment, Heritage and Local Government.

Colhoun, K., & Cummins, S. (2013). Birds of Conservation Concern in Ireland 2014-2019. *Irish Birds*, 9, 523-544.

Scottish Natural Heritage (2017). Recommended Bird Survey Methods to Inform Impact Assessment on Onshore Wind Farms. Version 2.

Scottish Natural Heritage (2016). Assessing Connectivity with Special Protection Areas (SPAs). Version 3

THIS PAGE IS INTENTIONALLY BLANK

Appendix 1

Statement of Surveyor Competency and Expertise

The 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	John Collins (Ecologist, BSc.)
Field Surveyor	Robert Vaughan (Ornithologist, Sole Trader)
Reporting	Fiona McKenna (Ecologist, BSc.)
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

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

John Collins

John has a Degree in Freshwater and Marine Biology in 2018. His final year project was focused on the diet of breeding Raven on Loop head peninsula Co. Clare in which he gained extensive observational experience. In 2018 he carried ornithological surveys of rice paddies in Spain which contributed to his knowledge of species identification. John has been a volunteer with a local group in West Co. Clare and has been involved in Hen Harrier winter roost and summer breeding site surveys.

Role: Field surveyor

Robert Vaughan

Robert Vaughan has had a keen interest in Irish birds and their behaviours for the last 25 years and has been working as a bird surveyor on a full time basis for the last two years. Since 2015, Robert has undertaken breeding Buzzard, Sparrowhawk and Merlin surveys on a voluntary basis with the Irish Raptor Study Group (IRSG). He has a full years experience in surveying upland and coastal habitats and was a volunteer warden monitoring Kilcoole and Baltry Tern colonies. Robert has also contributed as an I-WeBS counter in several locations around Ireland.

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 Hefferman

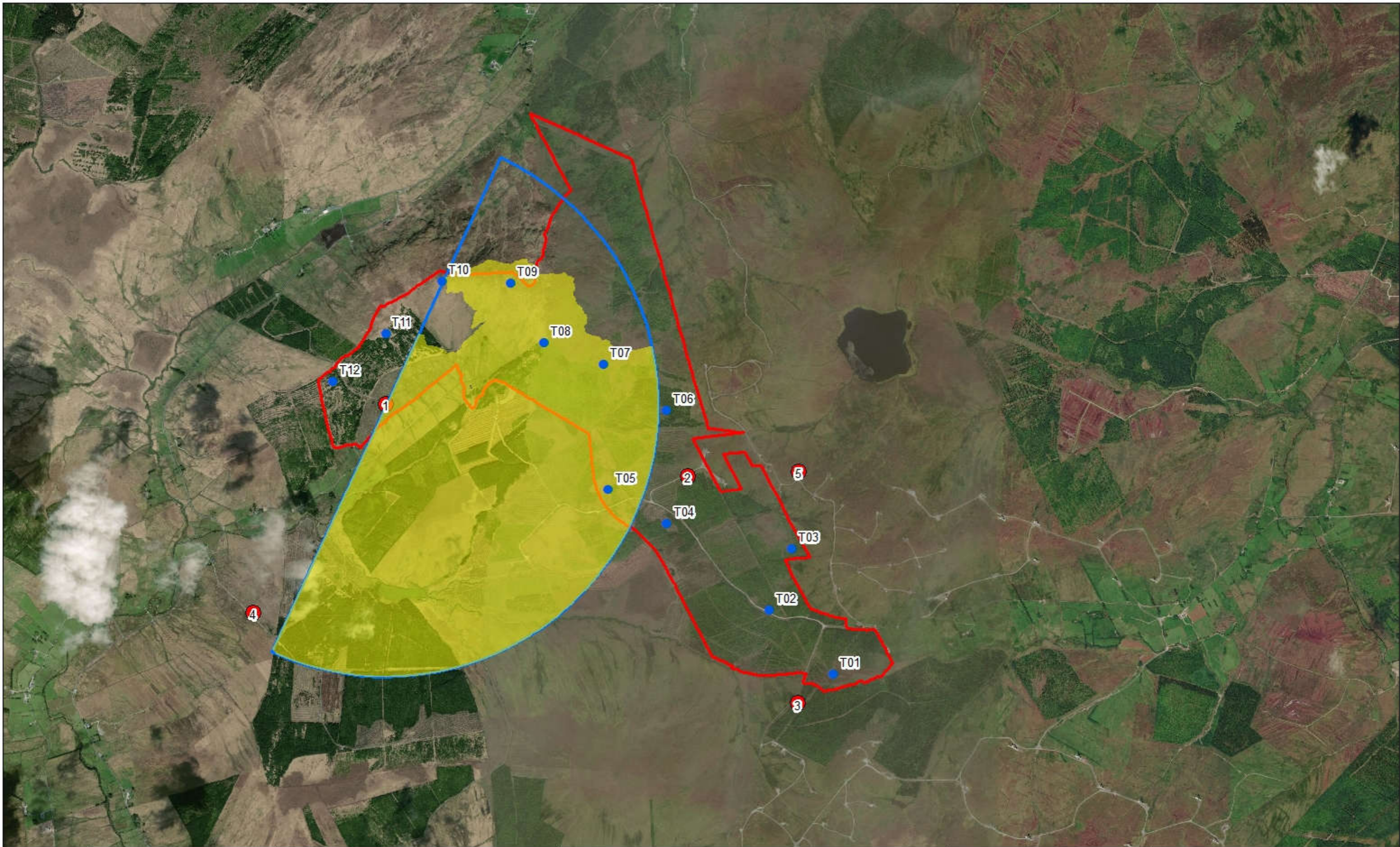
Valerie has worked as an environmental professional since graduating in 2015 and has been employed as an Environmental Scientist with Malachy Walsh and Partners since 2018. She has considerable experience in Solar Farm development and has had input in a variety of projects including solar farms, marine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

Role: Responsible for viewshed analysis and flight path mapping

Appendix 2

Survey Location 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

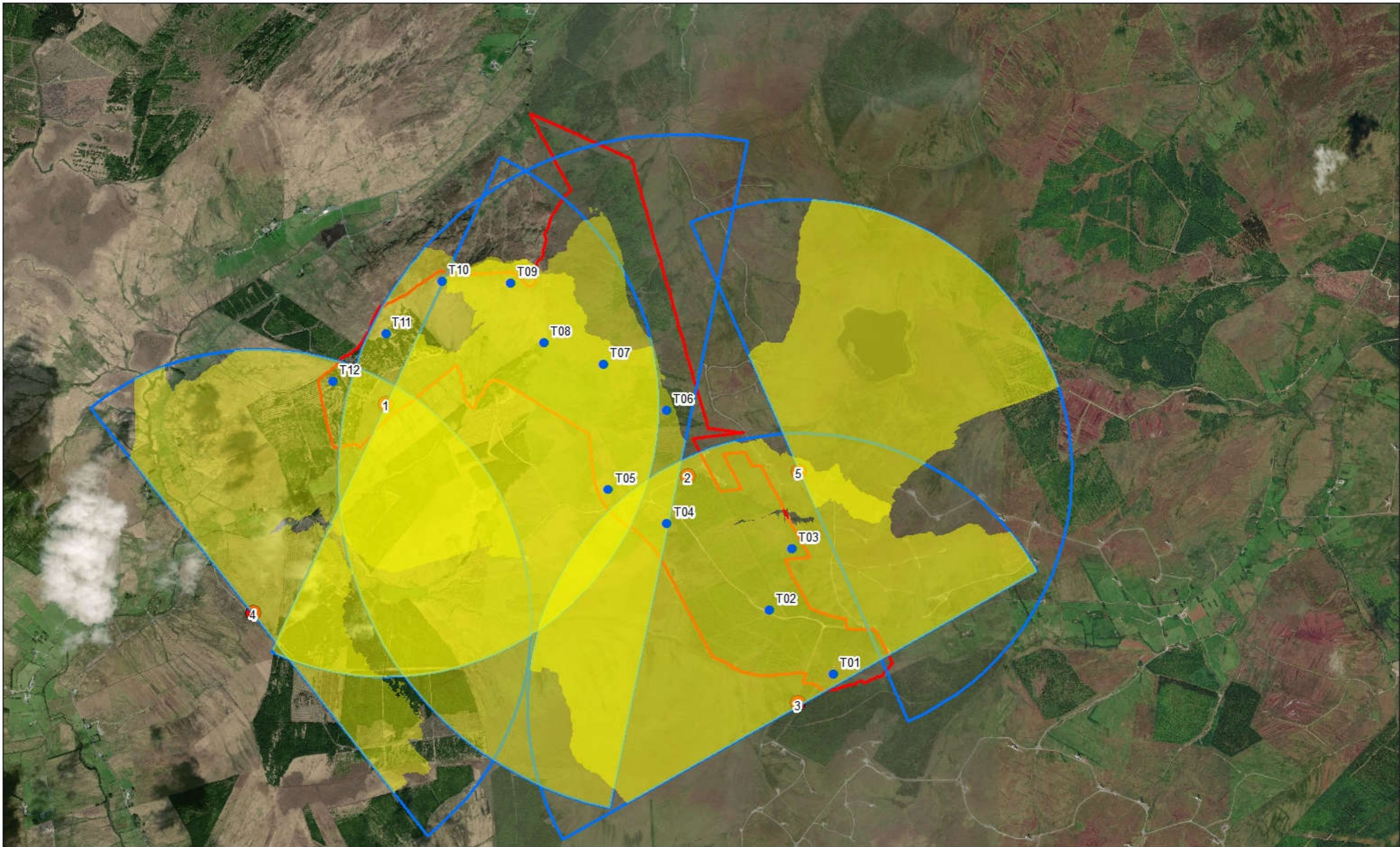
0 0.2 0.4 Kilometers

Map Reproduced From Ordnance Survey Ireland By Permission Of The Government.
Licence Number: EN 0015719



Malachy Walsh and Partners
Engineering and Environmental Consultants

Reen Point, Blennerville, Tralee, Co. Kerry
Tel: +353(0)66 7123404
fax: +353(0)66 7126586
Email: tralee@mwp.ie



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

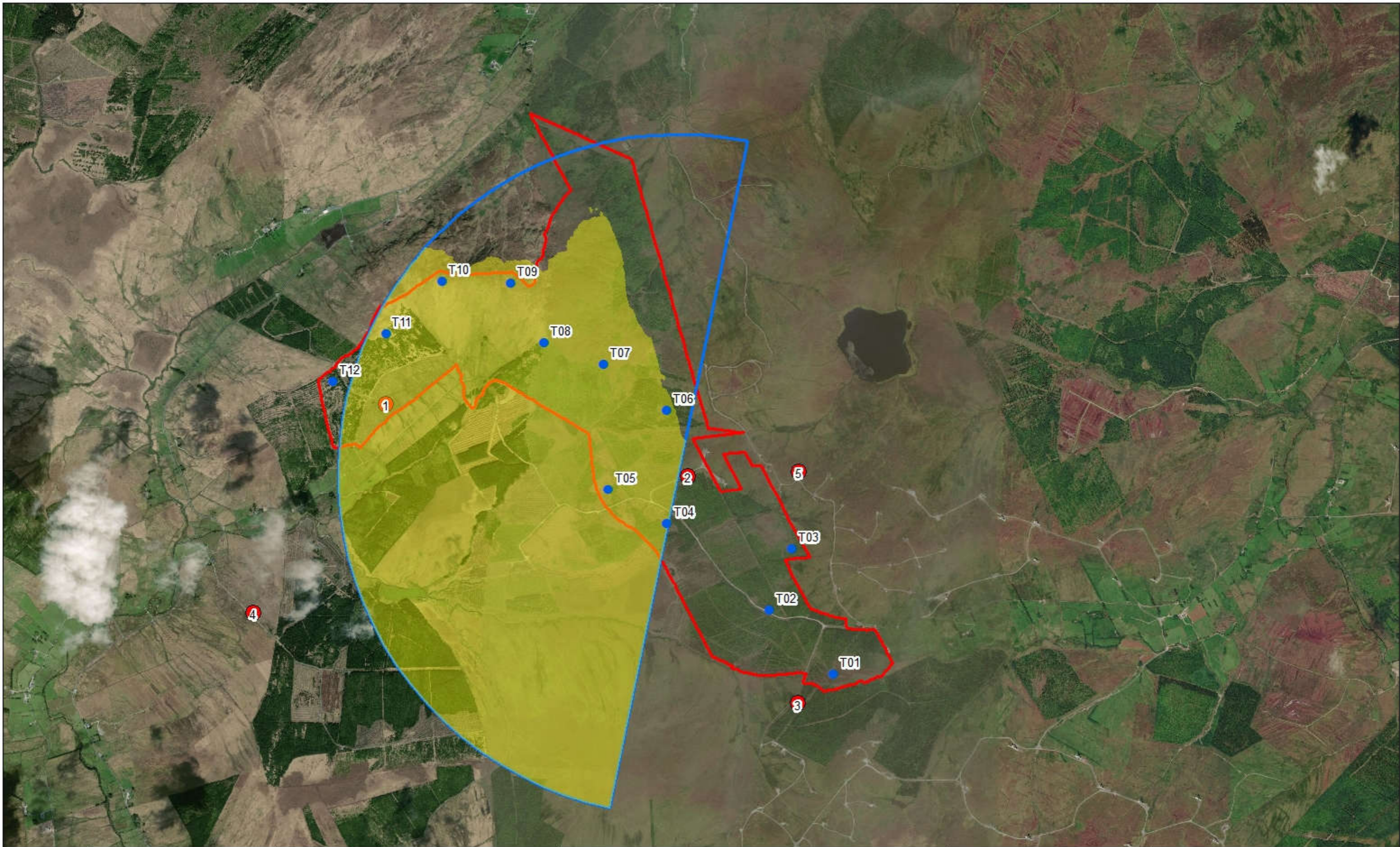
0 0.2 0.4 Kilometers

Map Reproduced From Ordnance Survey Ireland By Permission Of The Government.
Licence Number: EN 0015719




Malachy Walsh and Partners
 Engineering and Environmental Consultants

Reen Point, Blennerville, Tralee, Co. Kerry
 Tel: +353(0)66 7123404
 Fax: +353(0)66 7126586
 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.
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

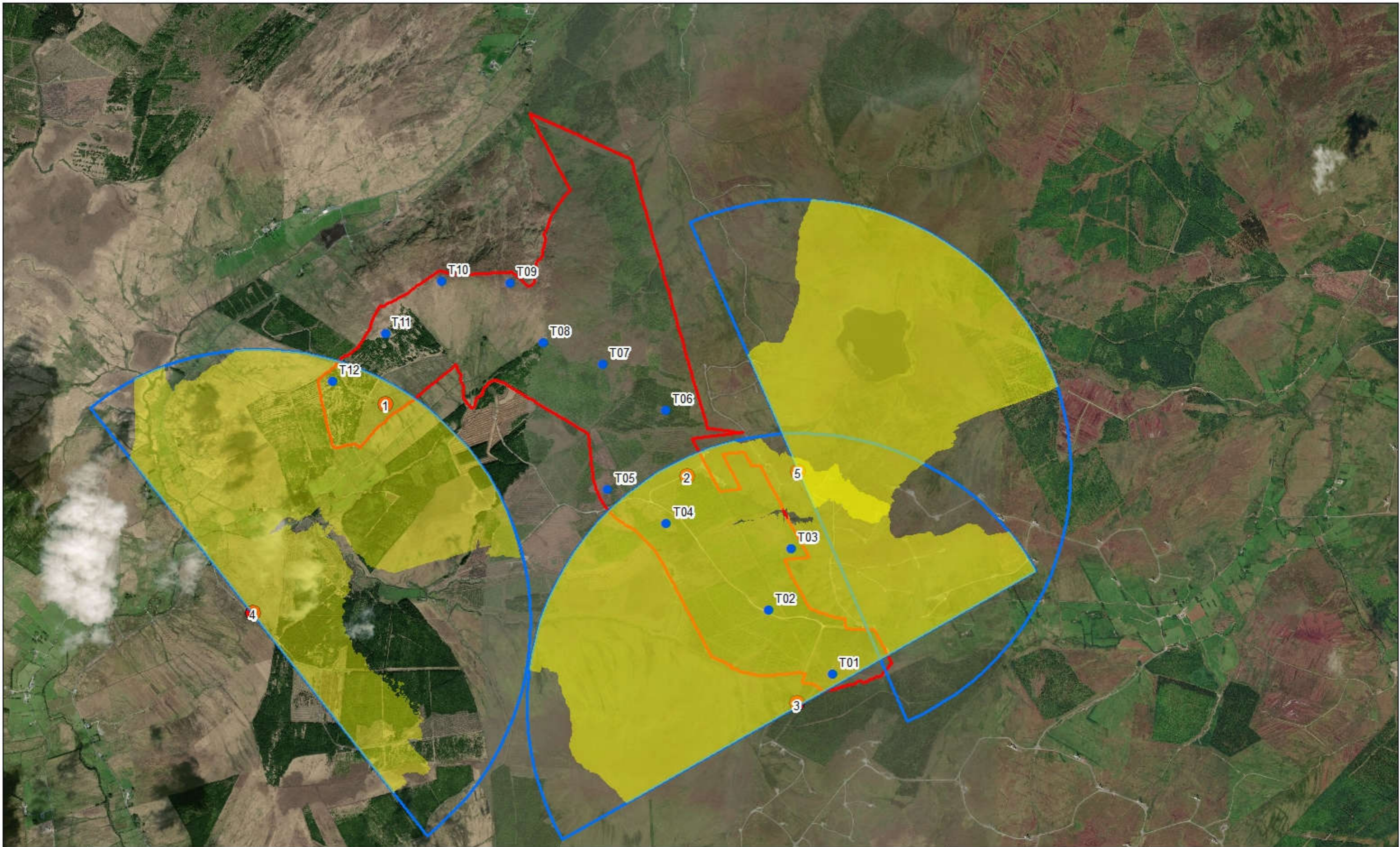
0 0.2 0.4 Kilometers

Map Reproduced From Ordnance Survey Ireland By Permission Of The Government.
Licence Number: EN 0015719




Malachy Walsh and Partners
 Engineering and Environmental Consultants

Reen Point, Blennerville, Tralee, Co. Kerry
 Tel: +353(0)66 7123404
 Fax: +353(0)66 7126586
 Email: tralee@mwp.ie



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

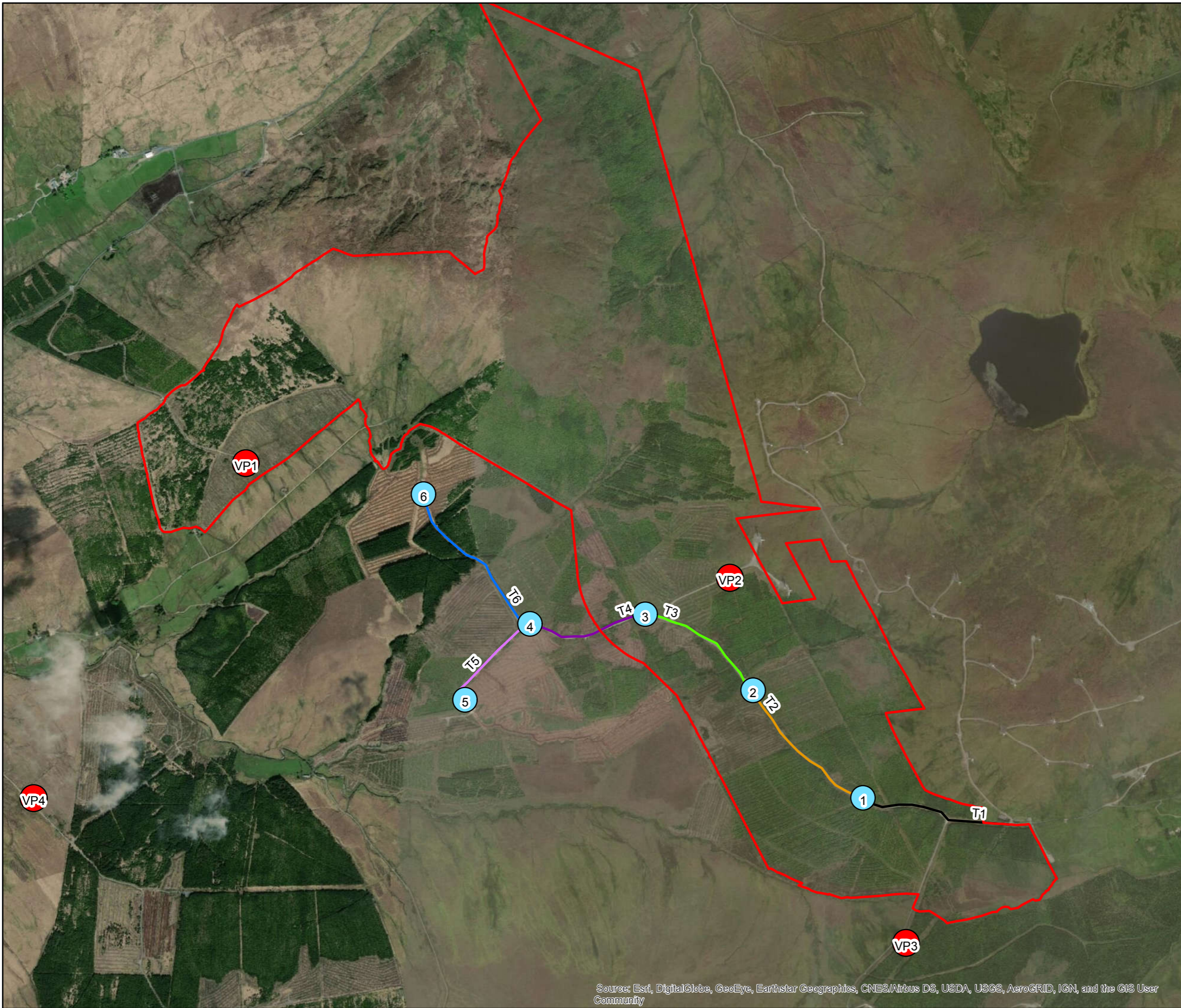
0 0.2 0.4 Kilometers

Map Reproduced From Ordnance Survey Ireland By Permission Of The Government.
Licence Number: EN 0015719



Malachy Walsh and Partners
 Engineering and Environmental Consultants

Reen Point, Tel: +353(0)66 7123404
 Blennerville, fax: +353(0)66 7126586
 Tralee, Co. Kerry Email: tralee@mwp.ie



Legend

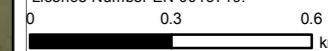
- VP Location
- Site Boundary
- Point Count B

Transect B

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



Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



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



Map Reproduced From Ordnance Survey Ireland
 By Permission Of The Government.
 Licence Number EN 0015719.

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

THIS PAGE IS INTENTIONALLY BLANK

Appendix 3

Vantage Point Survey Summary

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hrs)	Weather
1	22/10/2019	JC	11.00	14.00	3	Cloud cover 8/8. Light, intermittent rain and fog. Wind SW F3-4, temp 9-10°C. Visibility moderate-good.
1	22/10/2019	SC	14.45	17.45	3	Cloud cover 8/8. Mostly overcast. Wind S-SW F4-5. Temp 12-11°C, visibility good.
2	23/10/2019	JC	10.30	13.30	3	Continuous light to heavy rain. Cloud cover 8/8. Temp 8-10°C. Visibility poor-moderate.
2	24/10/2019	SC	15.15	18.15	3	Cloud cover 6/8. Cloudy with some sunshine and heavy showers. Wind N F0-2. Temp 7-6°C, visibility good.
3	23/10/2019	SC	10.45	13.45	3	Cloud cover 8/8, persistent rain throughout. Wind S F4-5, temp 10°C. Visibility moderate.
3	24/10/2019	JC	12.00	15.00	3	Cloud cover 6/8, dry. Wind NW F1-3, temp 7-9°C, visibility excellent-good.
4	22/10/2019	SC	11.00	14.00	3	Cloud cover 8/8, mostly overcast, some sunny spells. Wind SW F4-5, temp 12°C, visibility good.
4	22/10/2019	JC	14.25	17.25	3	Cloud cover 8/8, light intermittent rain and fog. Wind SW F3-4, temp 9-10°C, visibility moderate-good.
5	24/10/2019	SC	08.30	11.30	3	Cloud cover 4/8, intermittent sunshine and cloud. Wind NW F2-3, temp 6-7°C, visibility good.
5	24/10/2019	JC	15.15	18.15	3	Cloud cover 6/8, intermittent heavy rain, wind NW F3-4, temp 6°C, visibility poor-excellent.
1	19/11/2019	RV	08.20	11.20	3	Cloud cover 8/8 -1/8, misty rain and some showers, cleared up later. Wind SW F2-3, temp 4°C, visibility poor-moderate.
1	19/11/2019	RV	11.50	14.50	3	Cloud cover 4/8, drizzle until 12.30 giving way to largely clear skies and sunshine. Wind S F2, temp 5°C, visibility moderate-good.
2	18/11/2019	RV	12.20	15.20	3	Cloud cover 4/8, cold and damp but no rain. Wind SE F2, temp 2°C, visibility good.
2	20/11/2019	RV	12.15	15.15	3	Cloud cover 5/8, cold wind with some clear skies. As survey progressed became cloudy and dull with some rain at the end of the watch. Wind S-SE F5, temp 7°C, visibility good.
3	14/11/2019	RV	08.25	11.25	3	Cloud cover 4/8, strong wind and mostly dry with some light drizzle. Wind NE F4-5, temp 4-6°C, visibility good.
3	17/11/2019	RV	08.00	11.00	3	Cloud cover 6/8, overcast and windy with some light drizzle until 9.40, the clear and dry for the rest of the watch. Wind N F4-5, temp 5°C, visibility good.
4	16/11/2019	RV	09.30	12.30	3	Cloud cover 3/8, dry with a light breeze. Wind SW F1-2, temp 6°C, visibility good.

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hrs)	Weather
4	16/11/2019	RV	13.00	16.00	3	Cloud cover 6/8. Dry with a light breeze. Wind SW F2, temp 7oC, visibility good.
5	14/11/2019	RV	12.00	15.00	3	Some short showers with long periods of clear spells. Wind N F-5, temp 7oC, visibility good.
5	20/11/2019	RV	08.45	11.45	3	Cloud cover 7/8, overcast and windy but clear at times. Wind S-SE F4-5, temp 5oC, visibility good.
1	05/12/2019	RV	11.55	14.55	3	Cloud cover 8/8, overcast and dull with drizzle getting heavier throughout the survey. Wind W-SW F4-5, temp 9oC, visibility poor-moderate.
1	18/12/2019	RV	12.15	15.15	3	Cloud cover 8/8, string wind with light drizzle. Wind E/SE F5, temp 6oC, visibility moderate.
2	16/12/2019	RV	08.45	11.45	3	Cloud cover 6/8, windy but clear until the last hour when a heavy shower occurred. Wind SW F5, temp 4oC, visibility good-moderate.
2	17/12/2019	RV	08.45	11.45	3	Cloud cover 4/8, light breeze, dry and cold. Wind N-NW F2, temp 3oC, visibility good.
3	13/12/2019	RV	12.10	15.10	3	Cloud cover 7/8, dull, overcast with a slight breeze which slowly increased. Wind W F2-3, temp 9oC, visibility moderate-good.
3	20/12/2019	RV	08.40	11.40	3	Cloud cover 6/8, a few light drizzly showers but bright. Wind W F3, temp 8oC, visibility good.
4	05/12/2019	RV	08.25	11.25	3	Cloud cover 8/8, overcast and dull with light drizzle. Wind W-SW F4 and gusts of F5. Temp 8oC, visibility moderate.
4	18/12/2019	RV	08.45	11.45	3	Cloud cover 8/8, cold, breezy and heavy showers at time. Wind SW F3, temp 1oC, visibility moderate.
5	13/12/2019	RV	08.40	11.40	3	Cloud cover 6/8, overcast with some clear spells with brief but heavy showers. Wind N F2, temp 8oC, visibility moderate-good.
5	16/12/2019	RV	12.15	15.15	3	Cloud cover 5/5, strong wind but dry and clear until 14.45. Wind W F4-5, temp 4oC, visibility good until misty shower at 14.45.
1	06/01/2020	RV	12.25	15.25	3	Cloud cover 5/8, strong wind but dry with clear visibility changing rapidly to due to cloud. Wind W/SW F4, temp 9oC, visibility good.
1	19/01/2020	RV	13.25	16.25	3	Cloud cover 1/8, cold and clear with blue skies and light breeze. The wind speed and cloud cover increased in the last hour. Wind S F2-3, temp 3oC, visibility good.
2	09/01/2020	RV	12.30	15.30	3	Cloud cover 2/8, clear blue skies and light wind, cloud cover increased slowly. Wind S-SW F2, temp 3oC, visibility good.
2	10/01/2020	RV	09.30	12.30	3	Cloud cover 3/8, strong wind, cold, clear and bright. Wind S F5, temp 4oC, visibility good.
3	08/01/2020	RV	08.40	11.40	3	Cloud cover 4/4, two drizzly showers with fog which passed quickly. Windy but

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hrs)	Weather
						largely clear. Wind W F4-5, temp 2-3oC, visibility good.
3	10/01/2020	RV	13.00	16.00	3	Cloud cover 8/8, started dry but drizzle began at 13.30 and continued. Dull and overcast but visibility not affected. Wind S F4, temp 6oC, visibility good.
4	06/01/2020	RV	08.45	11.45	3	Cloud cover 6/8, light rain at the beginning, got heavier and then cleared at 09.30. The rest of watch dry but very windy. Wind SW F4-5, temp 8oC, visibility poor-good.
4	19/01/2020	RV	09.55	12.55	3	Cloud cover 1/8, cold, frosty with a light breeze and blue sky. Wind S F2-3, temp 1oC, visibility good.
5	08/01/2020	RV	12.10	15.10	3	Cloud cover 3/8, strong wind and some heavy but brief showers. Clear skies for most of the watch. Wind SW F4, temp 3oC, visibility good.
5	09/01/2020	RV	09.00	12.00	3	Cloud cover 1/8, cold crisp, no frost, calm breeze and very clear. Wind S F2-1, temp 2-3oC, visibility good.
1	17/02/2020	RV	11.30	14.30	3	Cloud cover 6/8, strong winds with gusts and some heavy hail showers. Wind W F5, temp 5oC, visibility good.
1	25/02/2020	RV	11.30	14.30	3	Cloud cover 8/8, heavy snow at times. Wind W F2, temp 1oC, visibility good-moderate.
2	20/02/2020	RV	11.15	14.15	3	Four snow flurries, each lasting 10 minutes, intermittent periods of poor visibility and clear blue skies. Wind W F4, temp 2oC, visibility good.
2	21/02/2020	RV	11.20	14.20	3	Cloud cover 8/8, constant heavy rain and low cloud. Wind W-SW F5, temp 6oC, visibility moderate.
3	13/02/2020	RV	08.25	11.25	3	Cloud cover 8/8, snow lying in sheltered areas. Cold with low cloud at times but improved. Wind NW F5, temp 3oC, visibility moderate.
3	19/02/2020	RV	07.45	10.45	3	Cloud cover 8/8, overcast with passing low cloud with some light drizzle showers. Wind S F4, temp 4oC, visibility good.
4	16/02/2020	RV	07.50	10.50	3	Cloud cover 6/8, strong gusty winds and some brief showers. Wind SW F6-F5, visibility good.
4	17/02/2020	RV	07.55	10.55	3	Cloud cover 6/8, strong winds and two light brief showers. Wind W F5, temp 4oC, visibility good.
5	20/02/2020	RV	07.45	10.45	3	Cloud cover 5/8, two snow flurries with long periods of blue skies in between. Wind W F4, temp 3oC, visibility good.
5	21/02/2020	RV	07.50	10.50	3	Cloud cover 8/8, constant but not very heavy rain with strong winds. Wind A-SW F5, temp 6oC, visibility moderate.
1	18/03/2020	RV	11.45	14.15	3	Cloud cover 5/8, blue skies for most of the survey with two 10 minute sleet/snow showers. Wind W F4, temp 7oC, visibility good.

Vantage Point Survey Summary

VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hrs)	Weather
1	25/03/2020	RV	10.45	13.45	3	Cloud cover 8/8, regular drizzle spells, cleared up from 11.30-12.45 and drizzled until the end of the survey. Wind NE F3, temp 8oC, visibility moderate and poor at times.
2	23/03/2020	RV	14.00	17.00	3	Cloud cover 7/8, strong breeze, overcast but bright and dry. Wind SW F4, temp 7oC, visibility good.
2	24/03/2020	RV	10.35	13.35	3	Cloud cover 6/8, windy, overcast with some patches of blue sky regularly and dry. Wind S F5, temp 10oC, visibility good.
3	17/03/2020	RV	10.20	13.20	3	Cloud cover 8/8, overcast, rain began at 10.40 but was not too heavy. Wind S-SW F3, temp 8oC, visibility moderate to good.
3	26/03/2020	RV	06.35	09.35	3	Cloud cover 6/8, dry, calm and overcast with patchy blue skies. Wind NE F3, temp 6oC, visibility good.
4	18/03/2020	RV	06.55	09.55	3	Cloud cover 7/8, overcast with patches of blue sky. A few light drizzly showers but mostly clear and bright. Wind W F4, temp 4oC, visibility good.
4	25/03/2020	RV	06.55	09.55	3	Cloud cover 8/8, dull and overcast with light drizzle. Passing misty fog reduced visibility. Wind W-NW F2, temp 8oC, visibility moderate and poor at times.
5	23/03/2020	RV	10.30	13.30	3	Cloud cover 7/8, overcast but bright, dry and breezy. Wind S F3, temp 7oC, visibility good.
5	24/03/2020	RV	07.05	10.05	3	Cloud cover 7/8, windy, overcast but bright and clear with light drizzle in the first 10 minutes of watch. Wind S F5, temp 6oC, visibility good.

THIS PAGE IS INTENTIONALLY BLANK

Appendix 4

Target/Secondary Species Observations

Drumnahough Winter 2019/20 Target Species

Golden eagle															
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
19/01/2020	1	Unknown	Juvenile	1	Heather moorland	1	14.33	Flying, circling	-	-	45	-	600	300	-

Merlin															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										0-20m	0-20m	20-50m	50 – 100m	100-150m	>150m
08/01/2020	3	Female	Unknown	1	1 st rotation forest	1	10.34	Flying	-	-	10	-	-	-	-

Whooper swan															
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
24/10/2019	5	Unknown Unknown	Adult Juvenile	1	Heather moorland, lake	2 1	10.45	Flying	20-50	-	20	10	-	-	-
24/10/2019	3	Unknown	Unknown	2	Grassland moorland, heather moorland	10	12.08	Flying	>150	-	-	-	-	-	100
24/10/2019	5	Unknown Unknown	Adult Juvenile	3	Lake, grassland moorland, thicket pole stage, 2 nd rotation forest	2 1	12.00	On ground, flying	20-100	-	480	60	120	-	-
13/12/2019	5	Unknown Unknown	Adult Juvenile	4	Heather moorland	3	10.28	Flying	-	-	-	45	-	-	-
16/12/2019	5	Unknown	Adult	5	Lake	3	12.15	On lake	-	-	-	-	-	-	-

Drumnahough Winter 2019/20 Target Species

		Unknown	Juvenile												
08/01/2020	5	Unknown Unknown	Adult Juvenile	6	Lake	3	12.10	Feeding on lake	-	3 hrs	-	-	-	-	-
09/01/2020	5	Unknown Unknown	Adult Juvenile	7	Lake	3	09.00	Feeding on lake	-	3 hrs	-	-	-	-	-

Peregrine															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					>150m
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	
22/10/2019	1	Male	Unknown	1	Thicket, 2 nd rotation forest, grassland moorland	1	13.15	Flying	5-50	-	15	10	-	-	-
14/11/2019	3	Female	Adult	2	Grassland moorland	1	10.18	Flying	-	-	-	15	-	-	-

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					>150m
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	
22/10/2019	1	Female	Adult	1	1 st & 2 nd rotation forest, rough grassland	1	15.35	Flying, hunting	0-150	-	115	250	200	200	-
24/10/2019	3	Female	Adult	2	Grassland moorland, riparian zone of stream	1	13.52	Hunting, flying	0-80	-	180	60	300	-	-
19/11/2019	1	Female	Adult	3	Clear fell, grassland moorland	1	10.07	Flying	-	-	15	-	-	-	-
19/11/2019	1	Female	Adult	4a 4b	Grassland moorland, clear fell	1	12.55 13.37	Hunting	- -	- -	105 -	45 90	570 -	- -	- -

Drumnahough Winter 2019/20 Target Species

				4c			13.54		-	-	-	-	205	-	-
20/11/2019	2	Female	Adult	5a 5b	Grassland moorland, clear fell	1	12.28 13.07	Hunting	-	-	-	45	45	-	-
09/01/2020	2	Female	Adult	6	Clear fell	1	14.56	Hunting	-	-	840	-	-	-	-
17/02/2020	4	Female	Unknown	7	Rough grassland	1	10.17	Flying, hunting	20-30	-	30	195	-	-	-
18/03/2020	4	Male	Adult	8	Bog, valley	1	07.21	Flying	-	-	30	15	-	-	-

Sparrowhawk															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					>150m
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	
20/11/2019	2	Female	Juvenile	1	Clear fell	1	13.50	Flying, perched	-	60	15	-	-	-	-
09/01/2020	2	Male	Adult	2	1 st rotation forest	1	15.10	Flying	-	-	-	30	-	-	-
10/01/2020	2	Male	Adult	3	1 st rotation forest	1	11.43	Flying	-	-	-	15	-	-	-
19/01/2020	4	Female	Adult	4	Rough grassland	1	10.39	Flying	-	-	45	-	-	-	-

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					>150m
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	
22/10/2019	1	Unknown	Unknown	1	Heather moorland	1	16.16	Flying, hunting	50-150	-	-	-	1200	240	-
14/11/2019	3	Unknown	Adult	2	Grassland moorland	1	10.06	Circling	-	-	-	15	-	-	-
16/11/2019	4	Unknown	Adult	3	Rough grassland, grassland moorland	1	11.32	Flying	-	375	60	-	-	-	-
16/11/2019	4	Unknown	Adult	4a 4b	Improved grassland	1	13.27	Flying	-	-	30	-	-	-	-
19/11/2019	1	Unknown	Adult	5	Rough grassland, thicket/pole stage	1	09.26	Flying, circling	-	-	-	45	-	-	-
19/11/2019	1	Unknown	Adult	6	Grassland	1	12.02	Flying	-	-	15	-	-	-	-

Drumnahough Winter 2019/20 Target Species

					<i>moorland, clear fell</i>										
20/11/2019	5	Unknown	Unknown	7	<i>Grassland moorland</i>	1	10.38	<i>Hunting</i>	-	-	-	180	-	-	-
19/01/2020	4	Unknown	Adult	8	<i>1st rotation forest, rough grassland</i>	1	12.50	<i>Circling, flying</i>	-	-	-	195	-	-	-
18/03/2020	4	Unknown	Unknown	9	<i>Forestry</i>	1	09.13	<i>Circling</i>	-	-	-	-	105	-	-
18/03/2020	1	Unknown	Adult	10a 10b 10c	<i>Bog, thicket/pole stage forest, clear fell</i>	2	13.18 13.26 13.37	<i>Circling, display, flying</i>	- - -	- - -	- - -	30	90 420 420	135 -	- - -
23/03/2020	5	Unknown	Unknown	11a 11b	<i>Bog, thicket/pole stage, 1st rotation forest</i>	2	10.30 11.33	<i>Circling</i>	- -	- -	- -	- -	1260 -	900 600	- 480
25/03/2020	1	Unknown	Adult	12	<i>Rough grassland</i>	1	11.28	<i>Flying, perched</i>	-	30	15	-	-	-	-

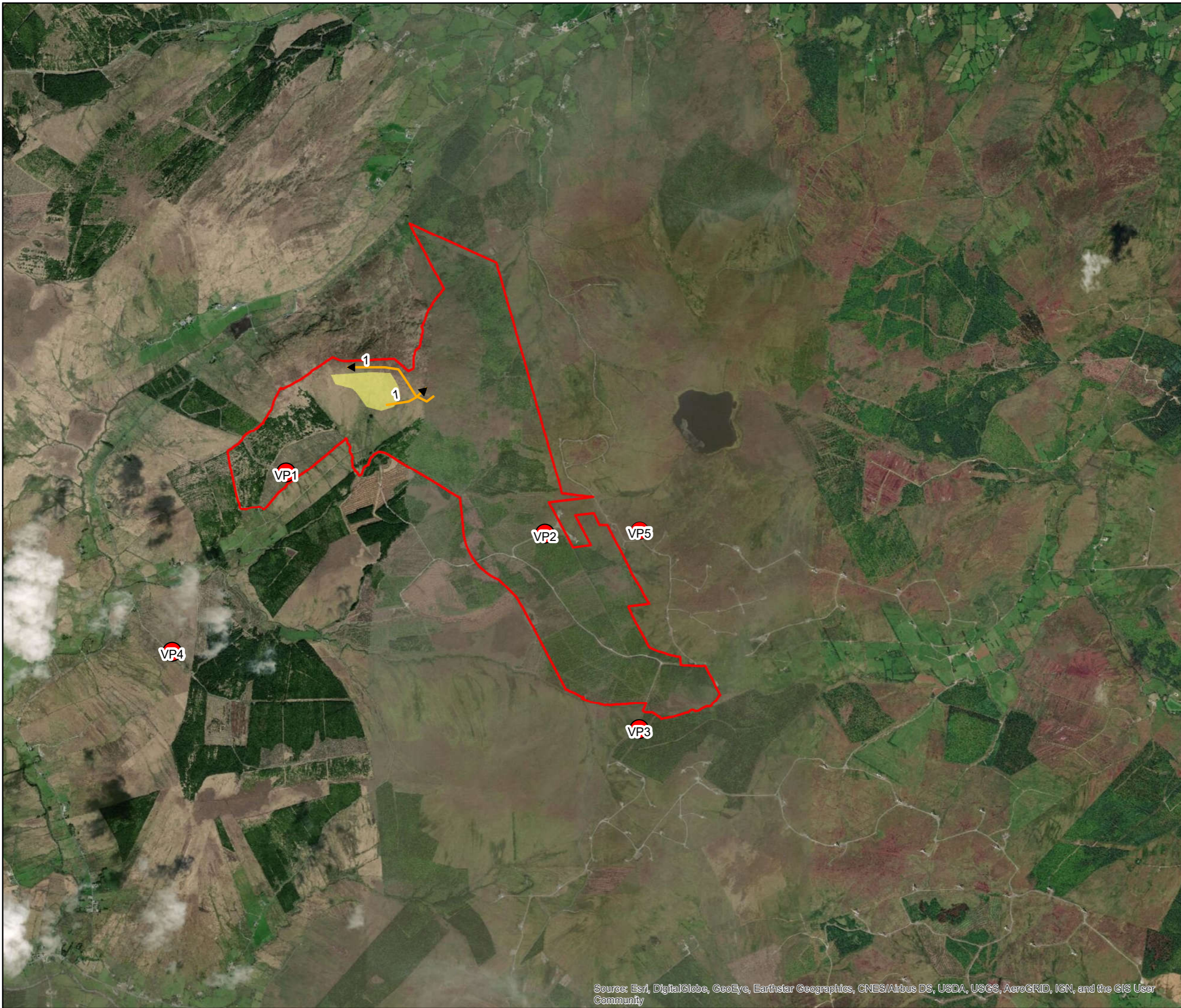
Great black-backed gull															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50 – 100m	100-150m	>150m
17/02/2020	4	Unknown	Adult	1	<i>Rough grassland</i>	2	09.36	<i>Flying</i>	-	-	-	45	-	-	-
23/03/2020	5	unknown	Adult	2	<i>Bog</i>	2	10.30	<i>Flying</i>	-	-	30	-	-	-	-
23/03/2020	2	unknown	Adult	3	<i>Bog</i>	2	14.19	<i>Flying</i>	-	-	30	15	-	-	-

Lesser 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
24/03/2020	5	Unknown	Adult	1	<i>Bog</i>	2	09.43	<i>Flying</i>	-	-	30	-	-	-	-
24/03/2020	2	Unknown	Adult	2	<i>Bog</i>	2	13.39	<i>Flying</i>	-	-	45	-	-	-	-

THIS PAGE IS INTENTIONALLY BLANK

Appendix 5

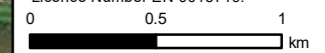
Flight Paths and Activity Areas



Legend

- VP Location
- Site Boundary
- Golden Eagle Activity
- Golden Eagle Flight Path**
- ➔ 1

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

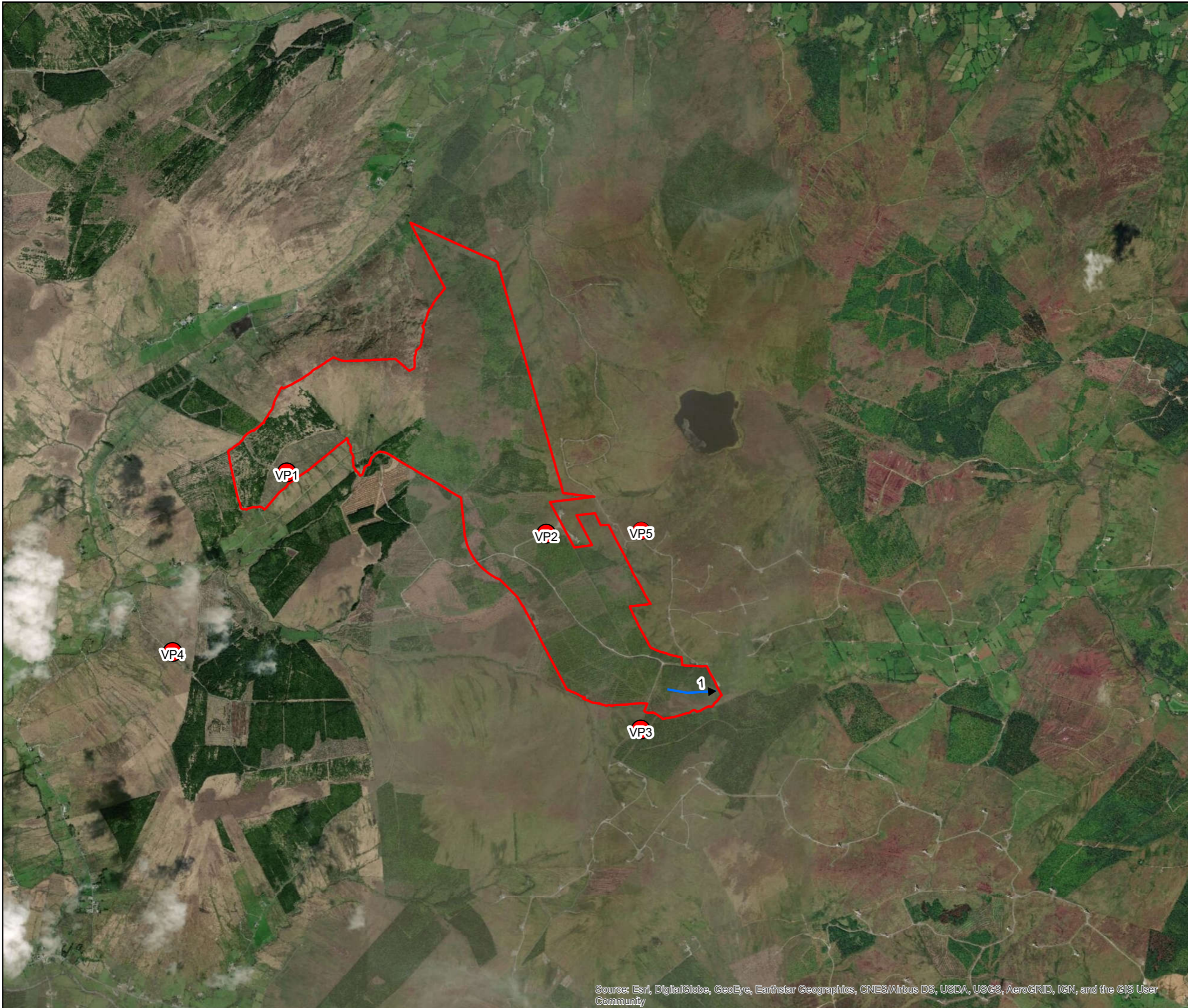
Client: SSE Renewables

Drawing Title:
Winter 2019: Golden Eagle

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000

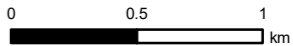




Legend

- VP Location
- Site Boundary
- Merlin Flight Path**
- 1

Map Reproduced From Ordnance Survey Ireland
 By Permission Of The Government.
 Licence Number EN 0015719.



Project Title:
 Drumnahough Wind Farm

Client: SSE Renewables

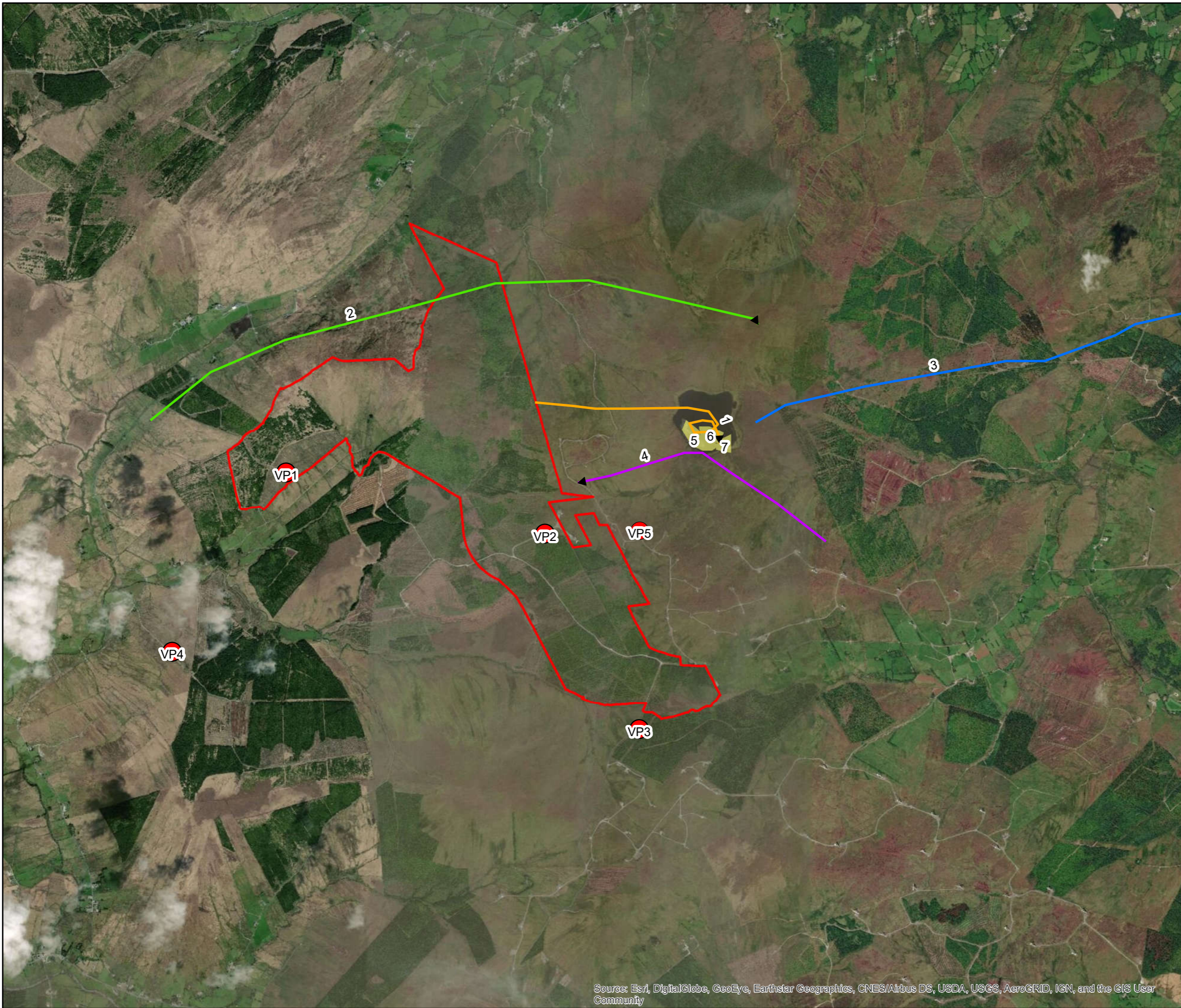
Drawing Title:
 Winter 2019: Merlin

Drawing No:
 19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000



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



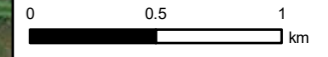
Legend

- VP Location
- Site Boundary
- Whooper Swan Activity

Whooper Swan Flight Path

- 1
- 2
- 3
- 4

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

Client: SSE Renewables
Drawing Title:
Winter 2019: Whooper Swan

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000



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



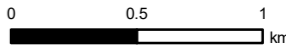
Legend

- VP Location
- Site Boundary

Peregrine Flight Path

- 1
- 2

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

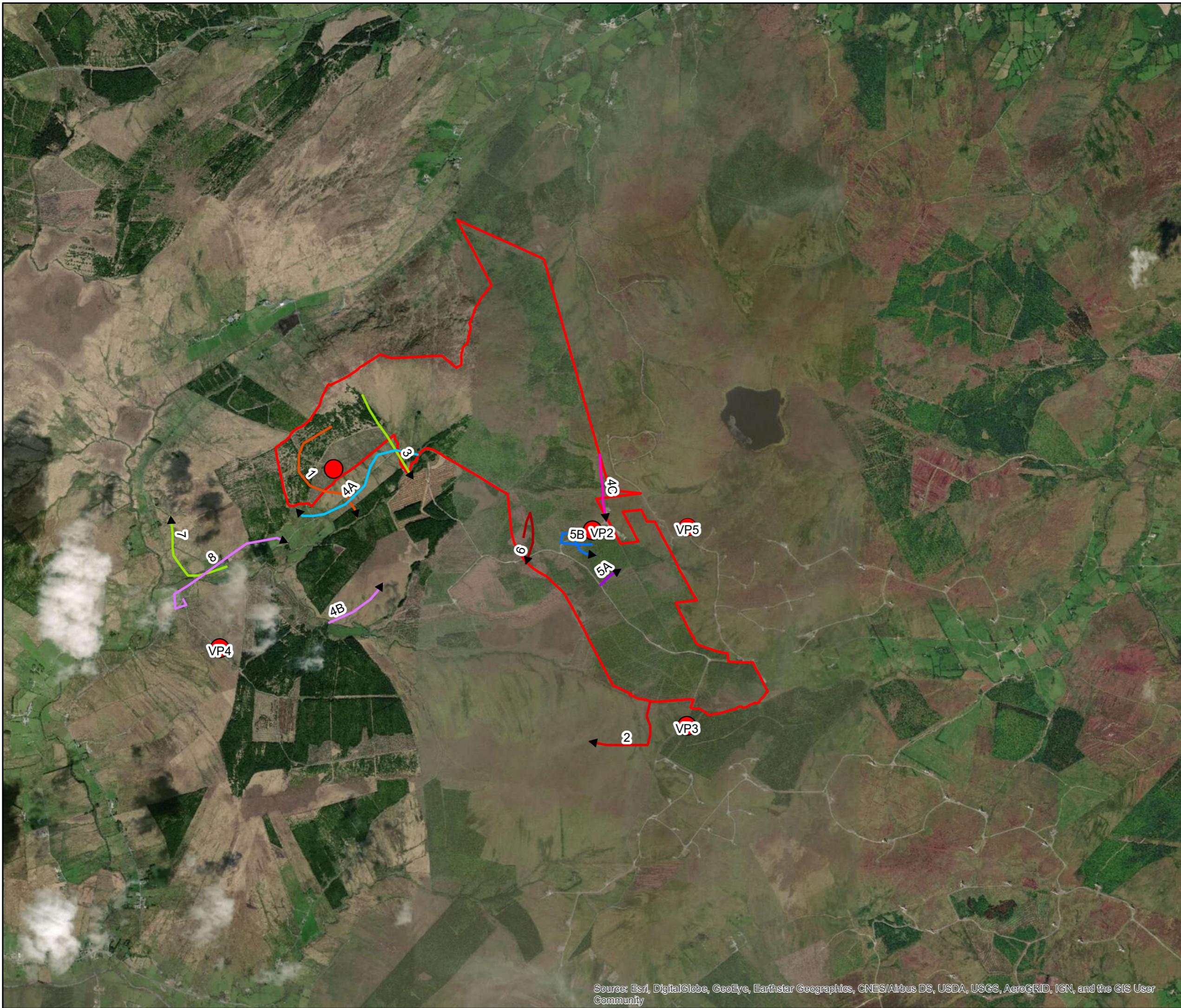
Drawing Title:
Winter 2019: Peregrine

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000



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



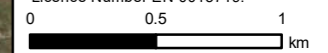
Legend

- VP Location
- Site Boundary

Kestrel Flight Path

- 1
- 2
- 3
- 4A
- 4B
- 4C
- 5A
- 5B
- 6
- 7
- 8

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

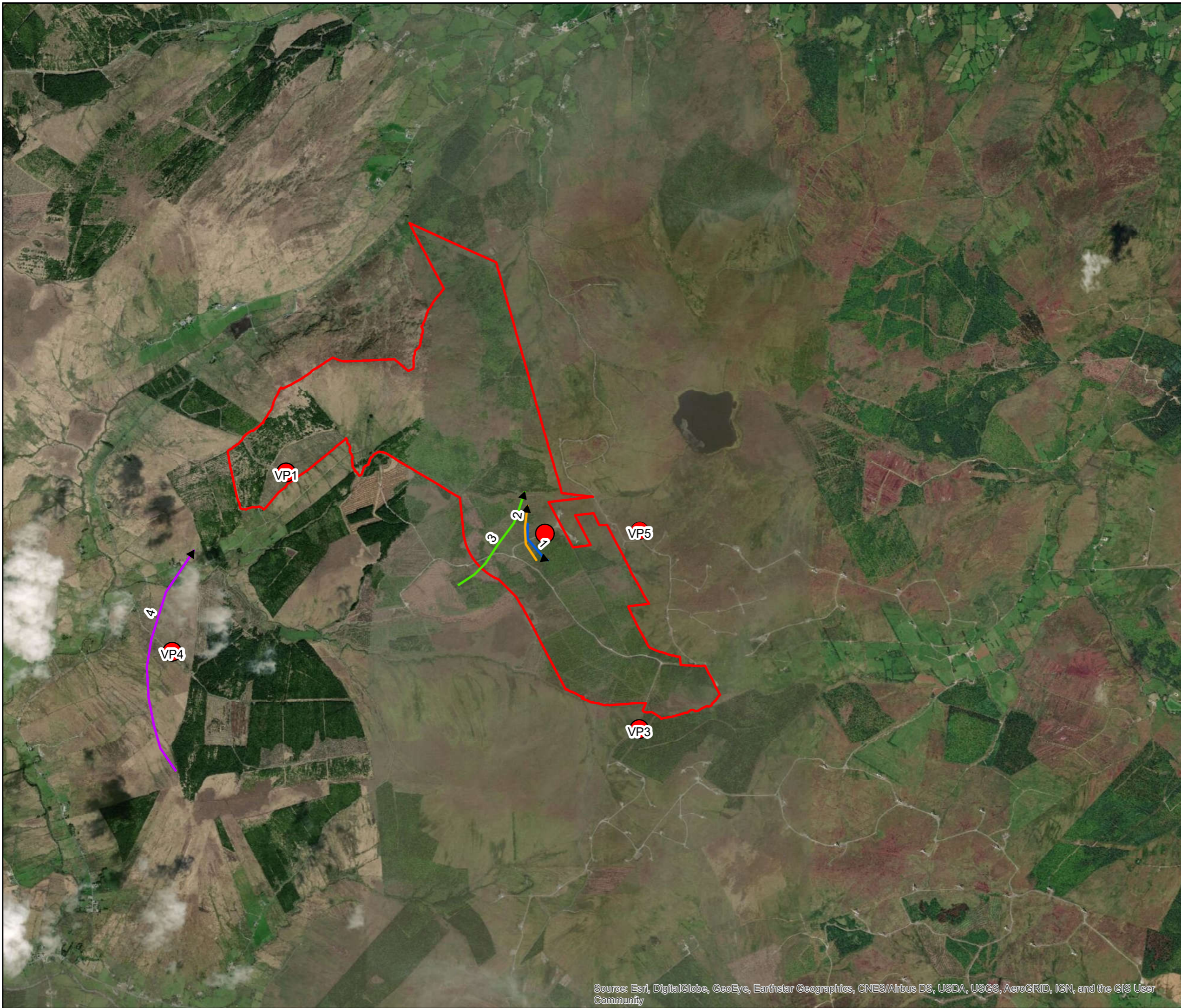
Drawing Title:
Winter 2019: Kestrel

Drawing No:
19123-MWP-

Drawn: VH Checked: FM

Date: 26/05/2020 Scale (A3): 1:15,000





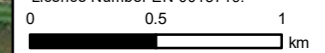
Legend

- VP Location
- Site Boundary

Sparrowhawk Flight Path

- 1
- 2
- 3
- 4

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

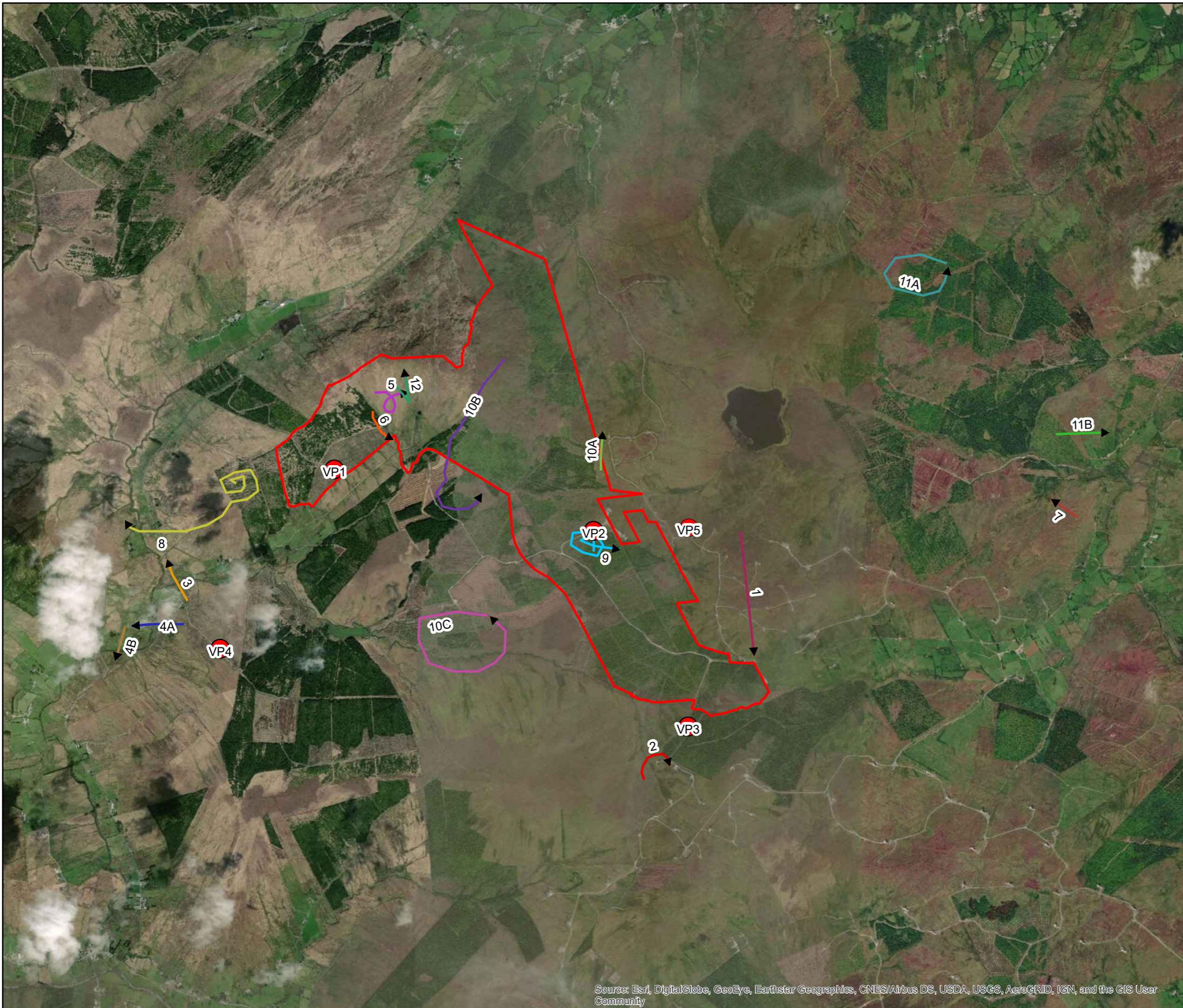
Client: SSE Renewables

Drawing Title:
Winter 2019: Sparrowhawk

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000





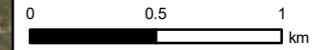
Legend

- Site Boundary
- VP Location

Buzzard Flight Path

- 1
- 2
- 3
- 4A
- 4B
- 5
- 6
- 7
- 8
- 9
- 10A
- 10B
- 10C
- 11A
- 11B
- 12

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

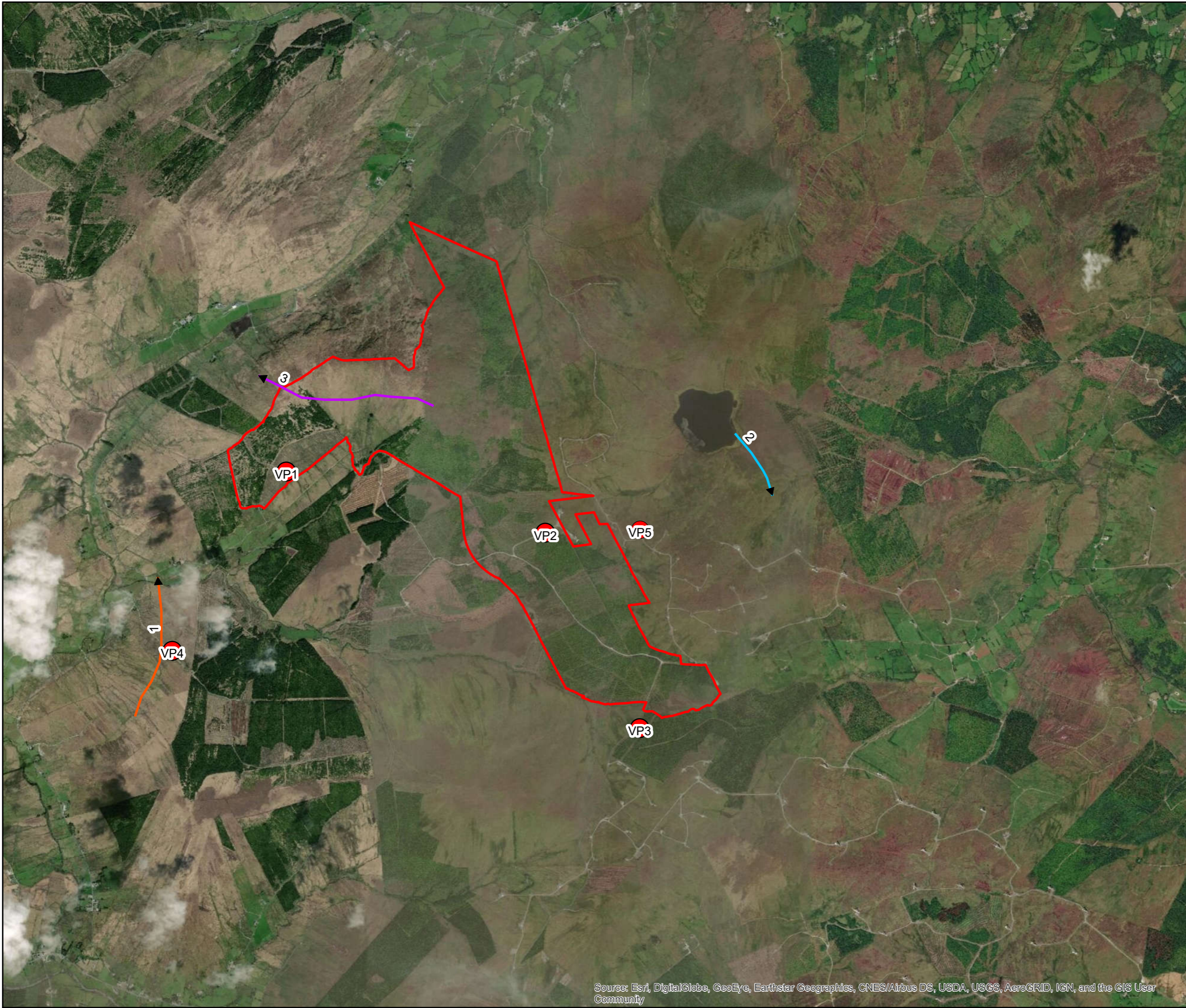
Drawing Title:
Winter 2019: Buzzard

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000



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



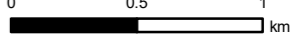
Legend

- VP Location
- Site Boundary

Great Black Backed Gull Flight Path

- 1
- 2
- 3

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

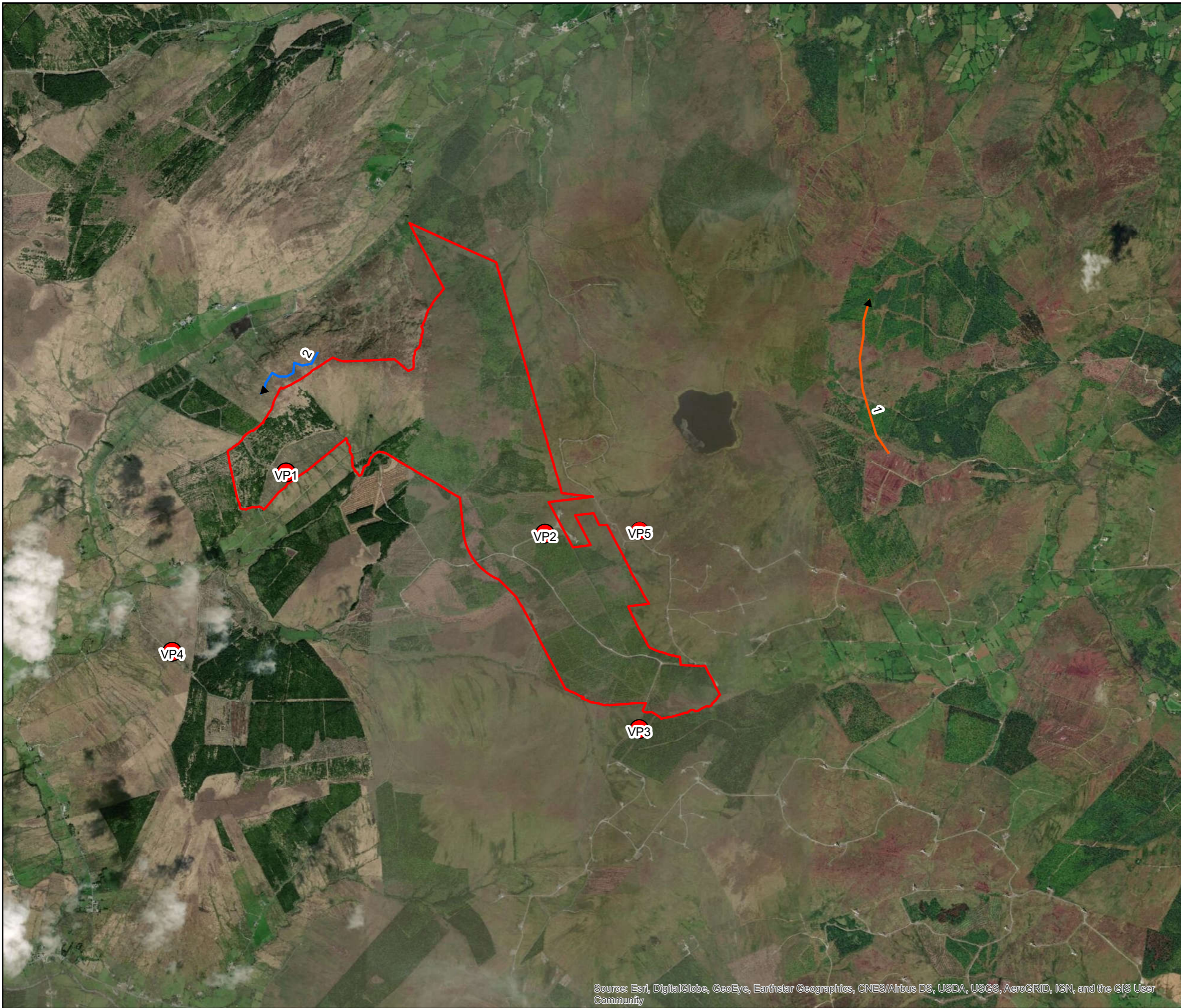
Drawing Title:
Winter 2019: Great Black Backed Gull

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000



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



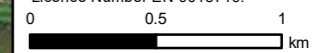
Legend

- VP Location
- Site Boundary

Lesser Black Backed Gull Flight Path

- 1
- 2

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
Licence Number EN 0015719.



Project Title:
Drumnahough Wind Farm

Client: SSE Renewables

Drawing Title:
Winter 2019: Lesser Black Backed Gull

Drawing No:
19123-MWP-

Drawn: VH	Checked: FM
Date: 26/05/2020	Scale (A3): 1:15,000



Appendix 6

Non-Target Species of Conservation Concern recorded during VP Surveys

The following table outlines monthly peak counts for all non-target species of conservation concern recorded during vantage point surveys at Drumnahough wind farm site during winter 2019/20.

Common Name	Latin Name	Oct	Nov	Dec	Jan	Feb	Mar
Meadow pipit	<i>Anthus pratensis</i>	1	6		2	2	2
Goldcrest	<i>Regulus regulus</i>	1	6	2	1		1
Linnet	<i>Carduelis cannabina</i>		1				
Mistle thrush	<i>Turdus viscivorus</i>					1	2
Robin	<i>Erithacus rubecula</i>	1	1	2	1	1	2
Stonechat	<i>Saxicola torquata</i>		2	2	1	2	2

Appendix 7

Transect Survey Summary

Transect Survey Summary

Transect	Date	Observer	Start Time	Finish Time	Weather
B	02/12/2019	RV	12.32	13.25	Overcast, windy and dry. Wind SW F3, temp 7oC, visibility good.
C	02/12/2019	RV	14.55	15.25	Overcast and windy. Wind SW F4, temp 6oC, visibility good.
B	10/01/2019	RV	08.30	9.20	Cold, windy but clear and dry. Wind S F5, temp 3oC, visibility good.
C	06/01/2019	RV	12.00	12.20	Breezy, bright and clear. Wind W/SE F4, temp 9oC, visibility good.
B	26/03/2019	RV	09.45	10.25	Dry and overcast but bright. Light NE breeze. Temp 8oC, visibility good.
C	25/03/2019	RV	10.10	10.40	Overcast with light drizzle. Wind W/NW breeze. Temp 8oC, visibility good.

Appendix 8

Transect/Point Counts Summary Results

The following table outlines peak counts of species recorded during the winter 2019/20 Transect routes B and C and Point count surveys at the Drumnaough wind farm site. A total of 27 species were recorded.

Common Name	Latin Name	Nov		Jan		Mar	
		B	C	B	C	B	C
Blackbird	<i>Turdus merula</i>					2	1
Buzzard	<i>Buteo buteo</i>					1	
Chaffinch	<i>Fringilla coelebs</i>	1				23	6
Coal tit	<i>Parus ater</i>		2	3	2	4	4
Crossbill	<i>Loxia curvirostra</i>			3		5	
Dunnock	<i>Prunella modularis</i>	1	1	1			1
Goldcrest	<i>Regulus regulus</i>	2	3	2	1	5	4
Great black-backed gull	<i>Larus marinus</i>					1	
Grey wagtail	<i>Motacilla cinerea</i>					1	
Hooded crow	<i>Corvus cornix</i>	1				2	
Kestrel	<i>Falco tinnunculus</i>	1					
Magpie	<i>Pica pica</i>					1	
Mallard	<i>Anas platyrhynchos</i>					2	
Meadow pipit	<i>Anthus pratensis</i>					12	4
Mistle thrush	<i>Turdus viscivorus</i>					2	1
Peregrine	<i>Falco peregrinus</i>	1					
Pied wagtail	<i>Motacilla alba</i>					1	
Raven	<i>Corvus corax</i>		2		1	1	2
Redpoll	<i>Carduelis cabaret</i>			1		2	2
Reed bunting	<i>Emberiza schoeniclus</i>		1				1
Robin	<i>Erithacus rubecula</i>	1				3	1
Siskin	<i>Carduelis spinus</i>			4		1	6
Skylark	<i>Alauda arvensis</i>					2	2
Song thrush	<i>Turdus philomelos</i>		2			1	1
Teal (Eurasian)	<i>Anas crecca</i>			3			
Woodpigeon	<i>Columba palumbus</i>	1				4	3
Wren	<i>Troglodytes troglodytes</i>	1	2			5	3

Appendix 9

List of all species recorded

The following table outlines all species recorded during the winter 2019/20 surveys at the Drumnahough wind farm site. A total of 41 species were recorded.

Common Name	Latin Name	Oct	Nov	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>						
Bullfinch	<i>Pyrrhula pyrrhula</i>						
Buzzard	<i>Buteo buteo</i>						
Chaffinch	<i>Fringilla coelebs</i>						
Coal tit	<i>Periparus ater</i>						
Crossbill	<i>Loxia curvirostra</i>						
Dunnock	<i>Prunella modularis</i>						
Fieldfare	<i>Turdus pilaris</i>						
Goldcrest	<i>Regulus regulus</i>						
Golden Eagle	<i>Aquila chrysaetos</i>						
Golden Plover	<i>Pluvialis apricaria</i>						
Goldfinch	<i>Carduelis carduelis</i>						
Great black-backed gull	<i>Larus marinus</i>						
Grey heron	<i>Ardea cinerea</i>						
Hooded crow	<i>Corvus cornix</i>						
Jackdaw	<i>Corvus monedula</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>						
Peregrine	<i>Falco peregrinus</i>						
Pied wagtail	<i>Motacilla alba</i>						
Raven	<i>Corvus corax</i>						
Red grouse	<i>Lagopus lagopus scotica</i>						
Redpoll	<i>Carduelis cabaret</i>						
Redwing	<i>Turdus iliacus</i>						
Reed bunting	<i>Emberiza schoeniclus</i>						
Robin	<i>Erithacus rubecula</i>						
Rook	<i>Corvus frugilegus</i>						
Siskin	<i>Carduelis spinus</i>						
Snow bunting	<i>Plectrophenax nivalis</i>						
Song thrush	<i>Turdus philomelos</i>						
Sparrowhawk	<i>Accipiter nisus</i>						
Stonechat	<i>Saxicola torquatus</i>						
Whooper swan	<i>Cygnus cygnus</i>						
Woodpigeon	<i>Columba palumbus</i>						
Wren	<i>Troglodytes troglodytes</i>						