Hen Harrier Habitat Enhancement Plan

Proposed Meenbog Wind Farm, Co. Donegal

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1 INTRODUCTION

1.1 Background

The potential for effects on Hen Harrier has been fully assessed in Chapter 7 of the Meenbog Wind Farm EIAR. The EIAR assessment is informed by a comprehensive suite of bird surveys undertaken at the proposed development site between 2015 and 2017. Results from 2015-2017 are derived from a continuous two and a half years of surveying undertaken in strict accordance with SNH Guidance. No potentially significant effects have been identified with regard to Hen Harrier. No breeding or roosting sites were recorded within the study area between April 2015 and September 2017. The species was not recorded at the site during the core breeding period of mid-May to June as defined by Ruddock et.al (2015). Based on the core dataset there is no potential for significant displacement effect given that Hen Harrier were not dependent on the habitats within the study area.

The development site is located in a non-designated regionally important area for Hen Harrier (South Donegal 1) as identified by the NPWS. Hen Harrier has previously bred within the Meenbog site boundary. It is assumed, based on the precautionary principle, that there is potential for the species to reoccupy the area in the future. The potential for re-occupancy is directly correlated to Coillte's forestry management of the site. Forestry plantations in their initial years, prior to closed canopy, have potential to support breeding and foraging Hen Harrier. Therefore as forestry matures/is felled there is potential for ongoing loss/creation of supporting habitat for Hen Harrier.

In acknowledgement of the historic significance of the study area to hen harrier; this habitat enhancement strategy has been devised with the aim of creating suitable foraging and breeding habitat for the species outside a 2km buffer of the proposed development but within the non-designated South Donegal 1 area.

This strategy has the potential to have a positive impact on the species at the local level and ensures that the proposed development will not have any significant displacement effects on Hen Harrier should the species reoccupy the Meenbog site during the 30-year operational phase of the proposed development.

The plan follows an approach previously proposed on other proposed wind farm developments with input from the Department of Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service), which were subsequently approved by their respective Planning Authorities.

1.2 Proposed Development & Associated Assessment Limitations

The proposed development comprises the construction of a 19 turbine wind farm and all associated works. The proposed turbines will have a maximum blade tip height of up to 156.5 metres.

It is acknowledged that this enhancement plan may have to be amended subject to a successful grant of planning permission and prior to the commencement of development, to take account of any changes to the permitted development from the 19-turbine layout now proposed. The enhancement plan has been prepared assuming that the windfarm will be operational between 2020 and 2050 and that all 19 proposed turbines will be constructed in their proposed locations.

Should any decision of An Bord Pleanála to grant planning permission for the proposed wind farm or subsequent delays to the project's commissioning beyond the control of the applicant, alter any aspect of the proposed project that has contributed to the calculations and assumptions presented in this habitat enhancement plan, an updated plan will be prepared immediately prior to commencement.

1.3 Professional competency of authors

This plan has been prepared by McCarthy Keville O'Sullivan Ltd. with input from Mr Alex Ash, Pat Roberts, Brian Keville and Stephen Corrigan.

Alex is a Senior Ornithologist with McCarthy Keville O'Sullivan Ltd. with over 14 years of experience in the field of Ornithology. Alex holds a BSc (Hons) in Environmental Science. Prior to taking up his position with McCarthy Keville O'Sullivan in October 2016, Alex was heavily involved in the wind industry in Scotland having worked as a self-employed Ornithologist and also holding positions at Energised Environments Ltd. and WSP Environmental Ltd. Alex has also worked for several nature conservation organisations in the UK including Scottish Natural Heritage, the Royal Society for the Protection of Birds and The National Trust.

Mr Pat Roberts also assisted in drafting elements of this report. Pat Roberts is a Senior Ecologist and director of the Ecology team with McCarthy O'Sullivan Ltd. with over 12 years post graduate experience of providing ecological services in relation to a wide range of developments at the planning, construction and monitoring stages. Pat holds B.sc.(Hons) in Environmental Science. Pat has extensive experience as an ecological consultant on large scale industrial and civil engineering projects. He is highly experienced in the completion of ecological baseline surveys and impact assessment at the planning stage. He has worked closely with construction personnel at the set-up stage of numerous construction sites to implement and monitor any prescribed best practice measures. He is a full member of the Chartered Institute of Ecologists and Environmental Managers (CIEEM)

Mr. Brian Keville of McCarthy Keville O'Sullivan Ltd. has also contributed to the Hen Harrier habitat enhancement plan. Brian is the Environmental Director of planning and environmental consultants McCarthy Keville O'Sullivan Ltd. and has over 17 years professional consultancy experience in dealing with wind farm developments in Irish upland environments, and the planning, ecological and environmental issues arising therefrom.

Mr Stephen Corrigan, Assistant Ecologist with McCarthy Keville O'Sullivan Ltd. has also assisted this in the preparation of this Hen Harrier habitat enhancement plan. Stephen received an honours degree in Environmental Science from NUI Galway in 2016. Stephen has specialist knowledge in ornithological field surveys, database management, geographic information systems and data analysis.

2 METHODOLOGY AND ASSESSMENT OF BASELINE CONDITIONS

Based on the core survey results dataset (2015-2017), there is no potential for significant displacement with regard to Hen Harrier given that the species was not dependent on the habitats within the study area for foraging roosting or breeding. The assessment provided in the sections below is based on the precautionary assumption that Hen Harrier may reoccupy the Meenbog Site at some point during the 30 year operational phase of the proposed development.

2.1 Assessment of potential foraging habitat loss for Hen Harrier

It has been reported (Pearce-Higgins,2009) that, in a multi-site study at twelve wind farms in Britain, a reduction of 52.5% in Hen Harrier activity was recorded within a 500 metre buffer zone of operating wind turbines (albeit with very wide 95% confidence intervals of from -1.2% to 74.2%). This plan assumes that there will be total avoidance of a buffer zone with a 250 metre radius from any proposed wind turbine. The assumption of 100% avoidance within 250 metres of proposed wind turbines has been previously proposed in other recent planning permission applications for wind farm developments in the Republic of Ireland, following consultation with the National Parks and Wildlife Service, most notably on an application by DP Energy Ireland Ltd. for a proposed six-turbine wind farm in Buttevant, Co. Cork (Pl. Ref. No. 13/05885) and an application for a six-turbine extension to a previously permitted eight-turbine development by Esk Windfarm Ltd. on a site near Nad, Co. Cork (Pl .Ref. No. 14/05602). In both instances, the methodology for calculating potential foraging habitat loss on the basis of total avoidance of a buffer zone with a 250 metre radius of a wind turbine, was not accepted by the National Parks and Wildlife Service.

Recent work on the ranging behaviour of Hen Harriers breeding in Scotland (Arroyo *et al.*, 2014) has revealed that, while breeding male Hen Harriers travelled up to nine kilometres from nests on occasion, they had a home-range size that averaged only eight square kilometres (800 hectares). The average home-range size for females was 4.5 square kilometres (450 hectares) and it was found that males hunted mostly within two kilometres of the nest and females within one kilometre. Accordingly, an approach (again highly precautionary) has been adopted whereby foraging habitat loss due to turbine avoidance has been considered to have the potential to occur in a zone of two kilometres in radius from a nest or roost site. The use of a zone of this size assumes a home-range size of 12.56 square kilometres (1,256 hectares), significantly larger than the average home-ranges recorded by Arroyo *et al.*, although the whole of this area is unlikely to contain good potential Hen Harrier foraging habitat.

For the purposes of the foraging habitat area calculations, habitats within 250 metres of the proposed turbine bases that were not considered to have good potential as Hen Harrier foraging habitat were not considered. These mostly consisted of closed-canopy forestry that was going to remain closed for the 30-year operational phase of the proposed wind farm development. Habitats that were considered to have good potential as Hen Harrier foraging habitat are wet heath (HH3), upland blanket bog (PB2), cutover bog (PB4) wet grassland (GS4) and scrub (WS1). These habitats are at risk of being avoided as foraging habitat by Hen Harrier for the lifetime of the proposed development, where they are found within 250 metres of any of the proposed wind turbines.

Since pre-thicket forestry is considered to have potential as Hen Harrier foraging habitat and closed canopy forestry is considered poor harrier foraging habitat, the areas of good foraging potential forestry that may be less likely to be used by foraging Hen Harrier by virtue to their proximity to the turbines will vary over the years due to the maturation and cycling of forestry plantation blocks. It has been assumed that the wind farm will begin operation in 2020 and that the operational lifetime will be 30 years. It has further been assumed that subject to normal management practices, forestry plantations will be at the pre-thicket stage for the first 8 years after planting, that felling will occur after 45 years and that replanting will occur in the same year as felling.

For the purposes of calculating available foraging habitats, Coillte's forestry management plans for the commercially forested areas within the site were reviewed to establish planting years and felling years. In the absence of one or other of these dates, a 45-year forestry cycle was taken as the forest rotation duration from planting to felling.

For the purposes of calculating the foraging areas that may no longer be favoured by Hen Harrier as a result of the proposed wind farm development, it has been assumed, for the purposes of this assessment, that the wind farm will be constructed and operational before the end of 2020. Forestry and foraging area calculations have also accounted for a 30-year wind farm operational phase running from 2020 to 2050, after which turbines would be removed unless planning permission is granted to extend the life span of the wind farm.

2.2 Quantification of potential habitat loss for Hen Harrier

The areas of habitat within a 250 metre radius of the 19 proposed turbines are individually identified and classified as suitable or unsuitable as Hen Harrier foraging habitat in a tabulated format in Appendix 1 to this document. A radius of 250 metres from a turbine base equates to an area around each turbine of 19.62 hectares. The individual areas of habitats, including forestry compartments with different planting and felling years have been individually measured, for relevant turbines.

The potential Hen Harrier foraging habitat areas within a 250 metre radius of the 19 relevant turbines is summarised and totalled in Table 2.1 below. The 1st year of potential habitat within each buffer is provided and the total potential habitat from 2020-2050 is also provided. The average annual habitat has been calculated to facilitate the creation of a calendar of works for the Hen Harrier habitat enhancement programme.

Table 2.1 Hen Harrier foraging habitat areas around Meenbog turbines

Turbine	Habitat Area (ha) – 2020 Only	Habitat Area (ha)– 2020-2050	Average Annual Habitat Area *
T1	0	211.43	7.05
T2	0.78	230.79	7.69
T3	17.51	110.73	3.69
T4	13.71	216.16	7.21
T5	19.26	176.66	5.89
T6	18.62	304.99	10.17
T7	19.24	288.33	9.61
T8	7.58	121.91	4.06
T9	13.42	195.79	6.53
T10	0	52.57	1.75

Turbine	Habitat Area (ha) – 2020 Only	Habitat Area (ha)– 2020-2050	Average Annual Habitat Area *
T11	19.38	187.15	6.24
T12	8.73	168.44	5.61
T13	3.33	162.09	5.40
T14	0	166.81	5.56
T15	0	165.84	5.53
T16	9.61	116.53	3.88
T17	0	194.13	6.47
T18	4.38	214.93	7.16
T19	13.94	494.92	16.50
Total:	**169.49**	**3780.2**	**126**

***The modelled operating lifespan of the proposed wind farm is 30 years and the average annual habitat enhancement area requirements have been calculated using a 30 year average, to account for the forestry rotation cycles over the 2020-2050 period inclusive, and the fact the wind farm will not be commissioned by 1st January 2020, and therefore its 30-year operating lifespan will partially extend into 2050.**

The data presented in Tables 2.1 accounts for the area of suitable habitat present in 2020, individual calculations for each of the proposed operating years between 2020 and 2050 were prepared to quantify the potential suitable habitat throughout the lifetime of the proposed wind farm. Calculations for the years 2020 to 2050 are presented in Appendix 1 to this document.

Average annual suitable habitat areas have been calculated using a 30 year average, to account for the forestry rotation cycles over the 2020-2050 period inclusive. This provides for the fact the wind farm will not be commissioned by 1st January 2020, and therefore its 30-year operating lifespan will include some of 2020 and will extend into some of 2050. The habitat enhancement requirement for 2020 and 2050 and all intervening years has been quantified, to allow for flexibility in the commissioning date.

Table 2.2 (below) shows the total areas of potential Hen Harrier habitat that will lie within 250 metres of the proposed turbines and which may become less favoured and potentially avoided by Hen Harrier, throughout each year of the wind farm's operational phase.

Table 2.2 Total areas of potential Hen Harrier foraging habitat within 250m of turbines

Date	Meenbog (ha)
2020	169.49
2021	170.44
2022	199.22
2023	203.64
2024	222.51
2025	192.37
2026	181.53
2027	172.46
2028	172.32
2029	167.32
2030	146.88
2031	142.3
2032	142.3
2033	56.78
2034	52.36
2035	36.38
2036	36.38
2037	33.83

Date	Meenbog (ha)
2038	42.90
2039	55.60
2040	68.84
2041	68.84
2042	98.61
2043	98.61
2044	123.58
2045	125.93
2046	146.35
2047	146.35
2048	146.35
2049	138.06
2050	124.58
2020-2050 Average:	126

It can be seen from Table 2.4.3 that a minimum of 33.83 and a maximum of 222.51 hectares of potential Hen Harrier foraging habitat may be affected per annum during the lifetime of the proposed wind farm development, with an average annual figure of 126 hectares per annum.

2.3 Precedent for approach adopted in habitat enhancement plan

The approach of taking the average area over the lifetime of wind farm allows a fixed area to be proposed and actively managed for the benefit of Hen Harriers as a proposed habitat enhancement area. This approach of averaging the size of the suitable habitat area over the life of the wind farm follows a similar approach adopted in other recent wind farm planning permission applications.

In the first such application, planning permission was granted by Cork County Council (Pl. Ref. No. 13/05885) to DP Energy Ireland Ltd. for a proposed wind farm in Buttevant, Co. Cork.

In a more recent application, McCarthy Keville O'Sullivan Ltd. proposed a similar approach on behalf of Esk Windfarm Limited for a six-turbine wind farm development near Nad, Co. Cork. That application (Pl .Ref. No. 14/05602) was also granted planning permission by Cork County Council.

3 HABITAT ENHANCEMENT STRATEGY

3.1 Determination of Area (Ha) to be enhanced

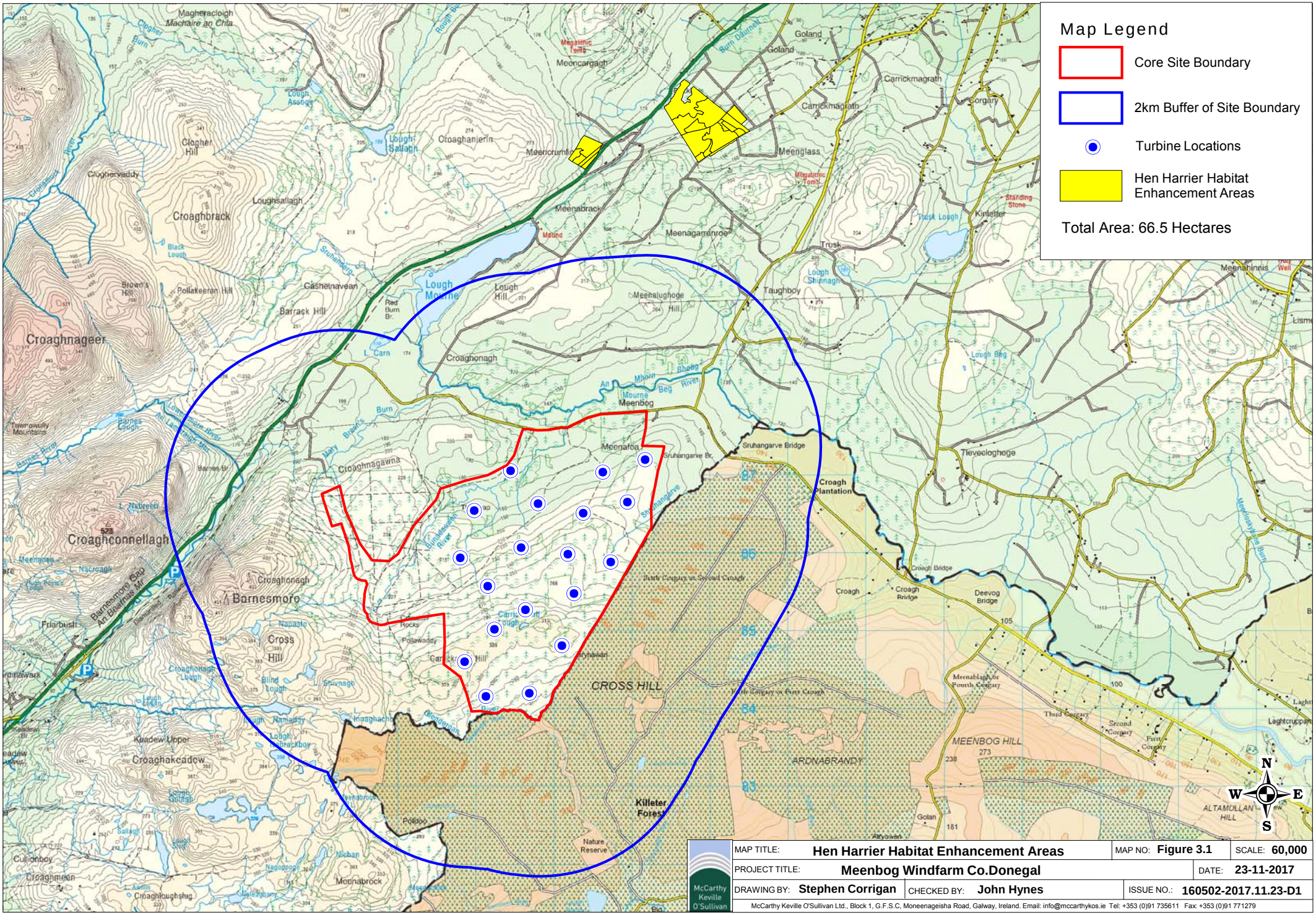
In acknowledgement of the historic significance of the windfarm site to hen harrier it is proposed to create enhanced habitat for hen harrier equivalent to 50% of the potential habitat loss within Meenbog if hen harrier were to reoccupy the windfarm site. 50% was chosen on the basis that following analysis of the 2015-2017 survey data set hen harrier are not dependant on the windfarm site for foraging or breeding purposes. Additionally, the non-designated area for hen harrier (South Donegal 1) identified by the NPWS was analysed for suitable hen harrier. Large areas of suitable habitat for breeding and foraging were identified both within and outside the non-designated area. Following this analysis if hen harrier were to reoccupy the Meenbog windfarm site habitat loss would be less than 1% and this would be of habitat which is less suitable for hen harrier. In consideration of the above information it is proposed to identify and create 66.5 hectares of enhanced habitat equivalent to 50% of the 126 hectares of potential hen harrier habitat. The proposed areas will be beyond the core foraging of hen harrier (2km) from the boundary of the windfarm site and within the confines of the non-designated South Donegal 1 area.

3.2 Determination of suitable Forestry Plots

The identification of suitable enhancement lands focused on areas that were planted between 2005 and 2012 with lower yield classes. The justification for the 2005-2012 planting years is as follows:

- If the planned felling year of an forestry area was already within the wind farm's 30 year lifetime (up to 2050), such areas were already going to be available to harriers for foraging during the life of the wind farm, and so cannot be proposed as enhancement areas, although it is noted that large areas will become available as a result of normal forestry rotation and management.
- For areas with a planned felling year between 2020 and 2050, the original planting year would have been between 1975 and 2005 (on a 45 year forestry rotation), and such areas could not be proposed as enhancement areas as they were already going to be felled within the wind farm's lifespan and would already have been available to harriers as foraging habitat.
- Forestry areas planted from 2005 onwards would not otherwise have been available to hen harrier
- Trees planted any time within ten years prior to wind farm construction (i.e. after 2010) would still be open canopy and are already available to harriers
- Therefore, forested areas planted between 2005 and 2010 are potentially suitable for first and second rotation habitat enhancement areas.

Two areas have been identified for short-rotation forestry management. The individual sizes and details of the proposed enhancement areas in the Meenbog area are outlined in Table 3.1 below and shown on Figure 3.1. The proposed forestry cycle for active management of hen harrier habitat enhancement areas during the wind farm operational phase is shown in Table 3.1



MAP TITLE: **Hen Harrier Habitat Enhancement Areas**		MAP NO: **Figure 3.1**	SCALE: **60,000**
PROJECT TITLE: **Meenbog Windfarm Co.Donegal**			DATE: **23-11-2017**
DRAWING BY: **Stephen Corrigan**	CHECKED BY: **John Hynes**	ISSUE NO.: **160502-2017.11.23-D1**	

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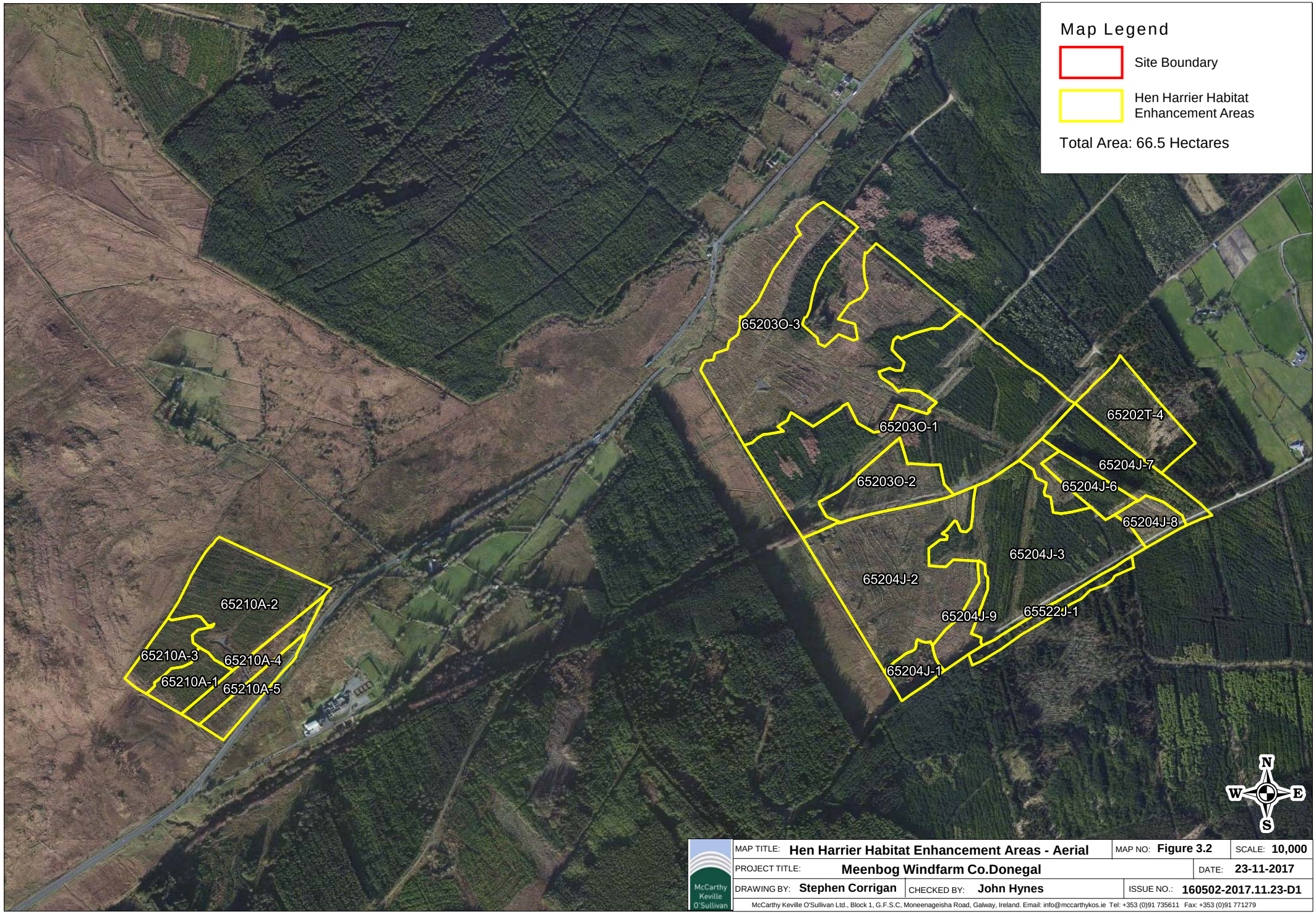

MAP TITLE: **Hen Harrier Habitat Enhancement Areas - Aerial**	MAP NO: **Figure 3.2**	SCALE: **10,000**
PROJECT TITLE: **Meenbog Windfarm Co.Donegal**		DATE: **23-11-2017**
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Table 3.1 Meenbog habitat enhancement areas

Suitable habitat enhancement areas					
Compart-ment	Plant Year	Fell Year	Yield Class	Proposed Management Method	Area (ha)
65210A-1	2006	2051	14	Short-rotation forestry	1.187
65210A-2	2006	2051	16	Short-rotation forestry	4.978
65210A-3	2008	2053	14	Short-rotation forestry	1.360
65210A-4				Adjacent land management	1.389
65210A-5				Adjacent land management	1.096
65203O-1	2001	2045	14	Short-rotation forestry	13.5
65203O-2	2009	2048	18	Short-rotation forestry	2.42
65203O-3	2009	2048	18	Short-rotation forestry	13.19
65204J-1	2000	2045		Short-rotation forestry	0.861
65204J-2	2010	2050	18	Short-rotation forestry	8.041
65204J-3	2001	2045	18	Short-rotation forestry	8.177
65204J-5	2010	2050	18	Short-rotation forestry	0.7767
65204J-6	2000	2045		Short-rotation forestry	1.135
65204L-7	2001	2045	12	Short-rotation forestry	2.760
65204L-8	2010	2050	18	Short-rotation forestry	0.8989
65204L-9	2010	2050	6	Short-rotation forestry	1.001
65202T-4	2004	2045	14	Short-rotation forestry	2.818
65522J-1	2016	2061		Short-rotation forestry	0.90
Total Meenbog Habitat Enhancement Area (2020-2030):					**66.5 ha**

Table 3.2 Proposed Forestry Cycle

		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	Post 2050
Meenbog																																						
Wind Farm>>>							Windfarm Operational (2020 - 2050)																																	
65210A-1	**1.187 Hectares**		Canopy Closed																																			
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (1.187 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (1.187 ha)															
65210A-2	**4.978 Hectares**		Canopy Closed																																			
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (4.978 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (4.978 ha)															
65210A-3	**1.360 Hectares**				Canopy Closed																																	
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (1.360 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (1.360 ha)															
65210A-4	**1.389 Hectares**	Encroachment by Neighbouring Conifers																																				
Proposed Management							Habitat Enhancement and Maintenance (1.389 ha)																																	
65210A-5	**1.096 Hectares**	Encroachment by Neighbouring Conifers																																				
Proposed Management							Habitat Enhancement and Maintenance (1.096 ha)																																	
652030-1	**13.50 Hectares**	Canopy Closed																																				
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (13.50 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (13.50 ha)															
652030-2	**2.420 Hectares**					Canopy Closed																																
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (2.420 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (2.420 ha)															
652030-3	**13.19 Hectares**					Canopy Closed																																
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (13.19 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (13.19 ha)															
65204J-1	**0.861 Hectares**	Canopy Closed																																				
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (0.861 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (0.861 ha)															

Table 3.2		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	Post 2050
65204J-2	8.041 Hectares						Canopy Closed																															
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (8.041 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (8.041 ha)														
65204J-3	8.117 Hectares	Canopy Closed																																				
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (8.117 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (8.117 ha)														
65204J-5	0.7767 Hectares						Canopy Closed																															
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (0.7767 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (0.7767 ha)														
65204J-6	1.135 Hectares	Canopy Closed																																				
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (1.135 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (1.135 ha)														
65204J-7	2.760 Hectares	Canopy Closed																																				
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (2.760 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (2.760 ha)														
65204J-8	0.8989 Hectares						Canopy Closed																															
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (0.8989 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (0.8989 ha)														
65204J-9	1.001 Hectares						Canopy Closed																															
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (1.001 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (1.001 ha)														
65202T-4	2.818 Hectares	Canopy Closed																																				
Proposed 1st Rotation							Pre-mature Felling, Replanting & Canopy Open (2.818 ha)																																	
Proposed 2nd Rotation																								Pre-mature Felling, Replanting & Canopy Open (2.818ha)														
6552J-1	0.90 Hectares												Canopy Closed																									
Proposed 1st Rotation													Pre-mature Felling, Replanting & Canopy Open (0.90 ha)																									
Proposed 2nd Rotation																														Pre-mature Felling, Replanting & Canopy Open (0.9ha)								
Wind Farm >>>							Windfarm Operational (2020 - 2050)																																	

3.3 Management Prescriptions

The following management prescriptions will be used to actively manage the proposed habitat enhancement area for the benefit of Hen Harrier. The measures ensure the proposed enhancement area is available to Hen Harrier over the lifetime of the proposed wind farm.

1. **Pre-mature felling of closed-canopy forestry**
   Felling closed-canopy forestry that otherwise would not have been available as foraging habitat to Hen Harrier will open up that area as suitable foraging habitat. Closed canopy forestry is of little use as foraging habitat given the inability of the harrier to hunt for prey on the ground beneath the closed canopy. Felling such closed-canopy areas before they otherwise would have been felled creates additional suitable foraging area for the benefit of hen harrier.

2. **Extended fallow periods**
   Once the pre-mature felling has taken place, the land will be left fallow and not replanted for two years. Under normal forestry rotation cycles, forested land is replanted within one year of felling. Forest Service felling licence requirements stipulate that the maximum period an area can be left fallow before planting is two years from the date of felling, and therefore it is intended to make maximum use of this provision and avail of the full two years, during which the land will remain available to foraging hen harrier.

3. **Planting varieties**
   A slow growing variety of tree, such as the north coastal variety of Lodgepole Pine (*Pinus Contorta)* will be selected for replanting in the habitat enhancement plan foraging areas. Such varieties are slower growing than the typical conifer species used in commercial forestry plantations. The intention of selecting the slower growing varieties is that the forest canopy remains open for longer than normal, and therefore remains a suitable foraging habitat for hen harrier. The canopies of conventional conifer species such as Sitka Spruce or Larch remain open and suitable for foraging hen harrier typically for a ten year period. The canopies of the slower growing varieties such as the north coastal variety of Lodgepole Pine remain open for up to fifteen years, which would extend the period that the areas remain suitable for foraging hen harrier.

4. **No fertiliser application**
   The replanted areas in the managed foraging areas will not receive any application of fertiliser. With the intention of fertiliser being to promote tree growth but the desire in this instance to slow growth and maintain an open tree canopy for as long as possible, fertiliser application would be counter-productive and will not be undertaken.

5. **Re-felling and re-planting**
   When the canopies of the areas selected for active management inevitably close, they will again be felled pre-maturely in order to keep them available and suitable for foraging Hen Harrier. Upon felling, they will again be left fallow for the full allowable two-year period before replanting. On this next rotation, a more conventional species of tree rather than the slower-growing varieties

can be selected for planting, given that their canopy will remain open for the remaining period of the operating life of the wind farm.

6. **Habitat enhancement and maintenance**
   Habitats that are currently suitable for Hen Harrier foraging within and immediately adjacent to the wind farm site are in some cases under threat and at risk of becoming unsuitable as foraging areas for Hen Harrier. This situation arises in particular where areas of Blanket Bog or Wet Heath are being encroached upon by self-seeding conifer trees. The self-seeding conifers originate as windblown seedlings from adjacent and nearby commercial conifer plantations. They gradually take hold on the adjacent and previously suitable foraging habitat, and if unmanaged, would eventually make these areas unsuitable for foraging Hen Harrier. Habitat enhancement and maintenance of such areas will involve the removal of self-seeding conifers, and removal off-site. It is envisaged that the areas identified for seedling removal will require maintenance twice during the life of the wind farm, once during the construction phase and once after approximately 12 years. The monitoring provided for in Point 6 above will monitor the level of encroachment by self-seeding conifers, and will bring the scheduled removal forward by a number of years as required.

The above management prescriptions will be employed on selected foraging habitat enhancement areas.

3.4 Monitoring

The proposed Hen Harrier foraging habitat enhancement areas will be the subject of ongoing monitoring during the operational phase of the wind farm to ensure they are offering effective suitable foraging habitat.

The ongoing monitoring will take place primarily during the summer breeding bird season when Hen Harrier activity is likely to be greatest, and foraging areas most in use. The monitoring will seek to identify whether Hen Harriers are actually foraging over the enhancement areas under active management, and will be conducted by way of fixed point vantage point surveys.

If repeated annual surveys establish that Hen Harrier are actively foraging over the foraging habitat enhancement areas, surveys may be suspended for a period of 2-3 years before recommencing. Particular emphasis and if necessary, a greater survey effort will be employed, during the surveys scheduled for around the time the canopies of the enhancement areas are nearing closure. This is intended to ensure that if Hen Harrier activity is found to reduce as the forest canopy approaches closure, pre-mature felling can be brought forward to again open up the area for the benefit of foraging Hen Harrier.

4 CONCLUSION

The impact assessment in Chapter 7 of the EIAR for the proposed Meenbog Wind farm has not identified any potential for significant effects with regard to Hen Harrier. No breeding or roosting sites were recorded within the study area between April 2015 and September 2017. The species was not recorded at the site during the core breeding period of mid-May to June as defined by Ruddock et.al (2015). Based on the core dataset there is no potential for significant displacement effect given that hen harrier were not dependent on the habitats within the study area for foraging, roosting or breeding.

In acknowledgement of the historic significance of the study area to hen harrier; this habitat enhancement strategy has been devised with the aim of creating suitable foraging and breeding habitat for the species outside a 2km buffer of the proposed development.

This enhancement plan has the potential to have a positive impact on the species at the local level and ensures that the proposed development will not have any significant displacement effects on Hen Harrier should the species reoccupy the Meenbog site during the 30-year operational phase of the proposed development.

References

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Appendix 1

Hen Harrier -
Year by year potential foraging area avoidance calculations

Meenbog Turbines

Turbine Number	Habitat	Habitat/Forestry Block	Area (Ha)	Forestry Y/N?	Planting Year	Felling Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	Totals
				Forestry Information			Foraging Habitat Areas																																	
T1																																						
	WD4	B1	0.35	Y	1975	2022			0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35																			
	WD4	B2	4.11	Y	1975	2022			4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11																			
	WD4	B3	2.80	Y	1975	2022			2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80																			
	WD4	B4	1.02	Y	1975	2022			1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02																			
	WD4	B5	0.87	Y	1975	2022			0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87																			
	WD4	B6	8.34	Y	1975	2022			8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34	8.34																			
	WD4	B7	1.00	Y	1975	2022			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00																			
	WD4	B8	0.41	Y	1975	2022			0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41																			
	WD4	B9	0.16	Y	1975	2022																																
	WD4	B10	0.29	Y	1975	2022			0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29																			
	Road	B11	0.05	N																																		
	WD4	B12	0.03	Y	1975	2022			0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03																			
	Road	B13	0.02	N																																		
	WD4	B14	0.17	Y	1975	2022																																
		Total Area:	**19.62**				**0.00**	**0.00**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**19.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	
							Mitigation Area Requirement (ha) - 2020-2050:																																		**211.43**
							Average Annual Mitigation Area Requirement*:																																		**7.05**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T2																																						
	WD4	B1	3.34	Y	1974	2021		3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34																			
	WD4	B2	0.51	Y	1974	2021		0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51																			
	WD4	B3	8.58	Y	1974	2022			8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58																			
	WD4	B4	6.39	Y	1973	2021		6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39	6.39																			
	HH3	B5	0.49	N			0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
	WD4	B6	0.26	N	1979	2021	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
	WD4	B7	0.02	Y	1972	2021		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02																			
	WD4	B8	0.03	Y	1975	2020	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03																			
		Total Area:	**19.62**				**0.78**	**11.04**	**19.62**	**19.62**	**19.62**	**19.62**	**19.62**	**19.62**	**19.62**	**19.62**	**19.62**	**19.58**	**9.33**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	
							Mitigation Area Requirement (ha) - 2020-2050:																																		**230.79**
							Average Annual Mitigation Area Requirement*:																																		**7.69**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T3																																						
	WD4	B1	0.01	Y	1973	2021		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01																			
	WD4	B2	0.16	Y	1973	2021		0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16																			
	WD4	B3	0.25	Y	1971	2014	0.25	0.25	0.25	0.25	0.25																											
	WD4	B4	10.62	Y	1975	2014	10.62	10.62	10.62	10.62	10.62																											
	WD4	B5	6.64	Y	No year	2014	6.64	6.64	6.64	6.64	6.64																											
	WD4	B6	0.33	Y	1976	2023				0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33																	
	WD4	B7	0.62	Y	1975	2023				0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62																	
	WD4	B8	0.75	Y	1975	2022			0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75																		
	WD4	B9	0.23	Y	1975	2022			0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23																			
		Total Area:	**19.62**				**17.51**	**17.68**	**18.66**	**19.62**	**19.62**	**2.11**	**2.11**	**2.11**	**2.11**	**2.11**	**2.11**	**2.11**	**1.94**	**0.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	
							Mitigation Area Requirement (ha) - 2020-2050:																																		**110.73**
							Average Annual Mitigation Area Requirement*:																																		**3.69**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T4																																						
	WD4	B1	2.06	Y	1972	2020	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06																			
	WD4	B2	1.17	Y	1974	2018	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17																					
	WD4	B3	1.45	Y	1972	2020	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45																			
	WD4	B4	3.34	Y	1972	2020	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34																			
	WD4	B5	5.34	Y	1972	2020	5.34	5.34	5.34	5.34	5.34	5.34	5.34	5.34	5.34	5.34	5.34																			
	WD4	B6	5.41	Y	1972	2024					5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41																
	WD4	B7	0.13	Y	1973	2021		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13																			
	WD4	B8	0.36	Y	1995*	2040*																																
	WD4	B9	0.01	Y	1973	2018	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01																						
	HH3	B10	0.34				0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
B10 taken out of B3		**Total Area:**	**19.61**				**13.71**	**13.84**	**13.84**	**13.84**	**19.25**	**19.25**	**19.25**	**19.25**	**19.25**	**18.08**	**18.08**	**5.88**	**5.75**	**5.75**	**5.75**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	**0.34**	
							Mitigation Area Requirement (ha) - 2020-2050:																																		**216.16**
							Average Annual Mitigation Area Requirement*:																																		**7.21**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T5/Review																																						
	WD4	B1	1.11	Y	1973	2016	1.11	1.11	1.11	1.11	1.11	1.11	1.11																								
	HH3	B2	0.56				0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
	WD4	B3	0.00	Y	1973	2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00																								
	WD4	B4	6.69	Y	1972	2016	6.69	6.69	6.69	6.69	6.69	6.69	6.69																								
	WD4	B5	3.32	Y	1972	2019	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32																					
	WD4	B6	3.75	Y		2014	3.75	3.75	3.75	3.75	3.75																											
	HH3	B7	0.20				0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	HH3	B8	0.22				0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
	HH3	B9	0.42				0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
	WD4	B10	2.98	Y	1974	2018	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98																						
Intersected Area with T6		B11	0.35	Y	1972	2019	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35																					
		Total Area:	**19.61**				**19.26**	**19.26**	**19.26**	**19.26**	**19.26**	**15.50**	**15.50**	**7.70**	**7.70**	**4.72**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	**1.39**	
							Mitigation Area Requirement (ha) - 2020-2050:																																		**176.66**
							Average Annual Mitigation Area Requirement*:																																		**5.89**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T6 REVIEW/Intersection with B11 from Turbine 5																																						
	WD4	B1	5.67	Y	1972	2019	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67																					
	WD4	B2	0.31	Y	1972	2019	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31																					
	WD4	B3	2.84	Y	1972	2019	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84																					
	WD4	B4	2.89	Y	1972	2019	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89																					
	Bare	B5	0.17	Y		2019	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17																					
	HH3	B6	0.60				0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60

	HH3	B7	4.30				4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	
	WD4	B8	0.08	Y	1974	2018	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08																							
	FL	B9	0.65																																			
	WD4	B10	0.374	Y	1974	2018	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37																							
	HH3	B11	0.797				0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	
	WD4	B12	0.390	Y	1972	2018	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39																							
	WD4	B13	0.203		1972	2019	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20																						
		Total Area:	19.27				18.62	18.62	18.62	18.62	18.62	18.62	18.62	18.62	18.62	17.77	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	
							Mitigation Area Requirement (ha) - 2020-2050:																															304.99
							Average Annual Mitigation Area Requirement*:																															10.17
							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T7																																						
	WD4	B1	0.28	Y	1971	2019	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28																						
	WD4	B2	1.62	Y	1971	2015	1.62	1.62	1.62	1.62	1.62	1.62																										
	HH3	B3	5.78				5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	
	WD4	B4	3.63	Y	1971	2015	3.63	3.63	3.63	3.63	3.63	3.63																										
	WD4	B5	0.37	Y	1971	2015	0.37	0.37	0.37	0.37	0.37	0.37																										
	WD4	B6	2.11	Y	1975	2015	2.11	2.11	2.11	2.11	2.11	2.11																										
	WD4	B7	0.63	Y	1975	2015	0.63	0.63	0.63	0.63	0.63	0.63																										
	WD4	B8	0.20	Y	1976	2015	0.20	0.20	0.20	0.20	0.20	0.20																										
	WD4	B9	0.06	Y	1971	2020	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06																					
	WD4	B10	0.283	Y	1976	2020	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28																					
	WD4	B11	4.285	Y	1971	2020	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29																					
	WD4	B12	0.376	Y	1972	2024					0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38																	
		Total Area:	19.62				19.24	19.24	19.24	19.24	19.62	19.62	11.06	11.06	11.06	11.06	10.79	6.16	6.16	6.16	6.16	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	
							Mitigation Area Requirement (ha) - 2020-2050:																															288.33
							Average Annual Mitigation Area Requirement*:																															9.61
							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T8																																						
	WD4	B1	1.21		1999	2044																									1.21	1.21	1.21	1.21	1.21	1.21	1.21	
	WD4	B2	0.32		1999	2046																											0.32	0.32	0.32	0.32	0.32	
	WD4	B3	1.03		2009	2052																																
	WD4	B4	0.42		2009	2046																											0.42	0.42	0.42	0.42	0.42	
	WD4	B5	0.05		2009	2046																											0.05	0.05	0.05	0.05	0.05	
	WD4	B6	2.99		1998	2046																											2.99	2.99	2.99	2.99	2.99	
	WD4	B7	0.86		1998	2046																											0.86	0.86	0.86	0.86	0.86	
	WD4	B8	0.94		2009	2046																											0.94	0.94	0.94	0.94	0.94	
	WD4	B9	0.07		2009	2046																											0.07	0.07	0.07	0.07	0.07	
	WD4	B10	0.56		1998	2052																																
	WD4	B11	1.15		2009	2052																																
	WD4	B12	0.13		1998	2014	0.13	0.13	0.13	0.13	0.13																											
	WD4	B13	0.49		2009	2014	0.49	0.49	0.49	0.49	0.49																											
	WD4	B14	1.66			2014	1.66	1.66	1.66	1.66	1.66																											
	WD4	B15	0.78		1972	2014	0.78	0.78	0.78	0.78	0.78																											
	WD4	B16	1.62		2009	2052																																
	WD4	B17	0.06			2046																											0.06	0.06	0.06	0.06	0.06	
	WD4	B18	0.18			2046																											0.18	0.18	0.18	0.18	0.18	
	HH3	B19	1.41				1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	
	Bare	B20	0.25			2052																																
	WD4	B21	0.36		1973	2052																																
	WD4	B22	1.26		1973	2016	1.26	1.26	1.26	1.26	1.26	1.26	1.26																									
	WD4	B23	0.083		1973	2014	0.08	0.08	0.08	0.08	0.08																											
	WD4	B24	1.358		1972	2019	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36																						
	WD4	B25	0.407		1972	2014	0.41	0.41	0.41	0.41	0.41																											
		Total Area:	19.67				7.58	7.58	7.58	7.58	7.58	4.03	4.03	2.77	2.77	2.77	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	2.62	2.62	8.52	8.52	8.52	8.52	8.52	
							Mitigation Area Requirement (ha) - 2020-2050:																															121.91
							Average Annual Mitigation Area Requirement*:																															4.06
							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T9																																						
	WD4	B1	2.75	Y	1976	2020	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75																					
	WD4	B2	0.18	Y	1958	2020	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18																					
	WD4	B3	2.04	Y	1959	2020	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04																					
	WD4	B4	2.25	Y	1997	2040																					2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	
	WD4	B5	3.67	Y	1996	2042																							3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	
	WD4	B6	0.62	Y	1971	2015	0.62	0.62	0.62	0.62	0.62	0.62																										
	WD4	B7	0.13	Y	1971	2015	0.13	0.13	0.13	0.13	0.13	0.13																										
	WD4	B8	0.75	Y	1971	2015	0.75	0.75	0.75	0.75	0.75	0.75																										
	WD4	B9	0.42	Y	1971	2015	0.42	0.42	0.42	0.42	0.42	0.42																										
	WD4	B10	0.19	Y	1971	2020	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19																					
	WD4	B11	6.34	Y	1971	2020	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34																					
	WD4	B12	0.28		*1971	*2020	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28																					
		Total Area:	19.62				13.42	13.42	13.42	13.42	13.42	13.42	11.50	11.50	11.50	11.50	11.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.25	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	
							Mitigation Area Requirement (ha) - 2020-2050:																															195.79
							Average Annual Mitigation Area Requirement*:																															6.53
							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T10																																						
		B1	1.36		1960	2052																																
		B2	0.81		2009	2052																																
		B3	0.81		1961	2052																																
		B4	0.45			2055																																
		B5	0.44		1955	2052																																
		B6	2.26		1998	2046																											2.26	2.26	2.26	2.26	2.26	
		B7	1.90		1998	2046																											1.90	1.90	1.90	1.90	1.90	
		B8	0.64		1960	2052																																
		B9	0.43		1960	Closed																																
		B10	4.34		2009	2052																																
		B11	3.90		1999	2044																									3.90	3.90	3.90	3.90	3.90	3.90	3.90	
		B12	0.89		1999	2046																											0.89	0.89	0.89	0.89	0.89	
		B13	1.39		2009	2052																																
		Total Area:	19.62				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.90	3.90	8.95	8.95	8.95	8.95	8.95	
							Mitigation Area Requirement (ha) - 2020-2050:																															52.57
							Average Annual Mitigation Area Requirement*:																															1.75

							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T11																																						
	WD4	B1	0.05		1998	2046																											0.05	0.05	0.05	0.05	0.05	
	WD4	B2	0.19		2012	2046																											0.19	0.19	0.19	0.19	0.19	
	WD4	B3	5.52		2012	2020	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52																					
	WD4	B4	1.53		1958	2014	1.53	1.53	1.53	1.53	1.53																											
	WD4	B5	5.99		1976	2020	5.99	5.99	5.99	5.99	5.99	5.99	5.99	5.99	5.99	5.99	5.99																					
	WD4	B6	0.59		1971	2019	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59																						
	WD4	B7	2.82		1971	2019	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82																						
	WD4	B8	2.92		1971	2015	2.92	2.92	2.92	2.92	2.92	2.92																										
		Total Area:	**19.62**				**19.38**	**19.38**	**19.38**	**19.38**	**19.38**	**17.85**	**14.93**	**14.93**	**14.93**	**14.93**	**11.52**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.24**	**0.24**	**0.24**	**0.24**	**0.24**	
																																					Mitigation Area Requirement (ha) - 2020-2050:	**187.15**
																																				Average Annual Mitigation Area Requirement*:	**6.24**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T12																																						
		B1	1.94		1998	2046																											1.94	1.94	1.94	1.94	1.94	
		B2	4.52		1996	2040																					4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	
		B3	0.21		2012	2040																					0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
		B4	0.99		2012	2020	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99																					
		B5	1.61		1998	2020	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61																					
		B6	0.97		2012	2020	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97																					
		B7	0.68		1996	2040																					0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	
		B8	2.67		2000	2044																									2.67	2.67	2.67	2.67	2.67	2.67	2.67	
		B9	0.41		2000	2020	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41																					
		B10	0.45		2012	2044																									0.45	0.45	0.45	0.45	0.45	0.45	0.45	
	Road	B11	0.42			2040																					0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	
	Road	B12	0.17			2020	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17																					
	Road	B13	0.16			2020	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16																					
	Road	B14	0.21		1972	2020	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21																					
		B15	2.73			2014	2.73	2.73	2.73	2.73	2.73																											
		B16	1.07			2014	1.07	1.07	1.07	1.07	1.07																											
		B17	0.14		1972	2017	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14																								
		B18	0.15			2020	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15																					
		B19	0.13		1972	2020	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13																					
		Total Area:	**19.62**				**8.73**	**8.73**	**8.73**	**8.73**	**8.73**	**4.93**	**4.93**	**4.93**	**4.79**	**4.79**	**4.79**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.83**	**5.83**	**5.83**	**5.83**	**8.95**	**8.95**	**10.88**	**10.88**	**10.88**	**10.88**	**10.88**	
																																					Mitigation Area Requirement (ha) - 2020-2050:	**168.44**
																																				Average Annual Mitigation Area Requirement*:	**5.61**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T13																																						
	WD4	B1	2.29	Y	1997	2044																									2.29	2.29	2.29	2.29	2.29	2.29	2.29	
	WD4	B2	1.32	Y	1998	2040																					1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	
	WD4	B3	1.70	Y	2000	2046																											1.7	1.7	1.7	1.7	1.7	
	WD4	B4	1.29	Y	1995	2044																									1.3	1.3	1.3	1.3	1.3	1.3	1.3	
	WD4	B5	1.78	Y	2000	2044																									1.78	1.78	1.78	1.78	1.78	1.78	1.78	
	WD4	B6	2.52	Y	1998	2020	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51																					
	WD4	B7	3.86	Y	1958	2040																					3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	3.86	
	WD4	B8	1.68	Y	1998	2046																											1.68	1.68	1.68	1.68	1.68	
	WD4	B9	2.00	Y		2045																											1.99	1.99	1.99	1.99	1.99	
	WD4	B10	0.36	Y	1958	2045																											0.36	0.36	0.36	0.36	0.36	0.36	
	WD4	B11	0.79	Y	1976	2020	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79																					
	WD4	B12	0.03	Y	1958	2020	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03																					
		Total Area:	**19.62**				**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**3.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.17**	**5.17**	**5.17**	**5.17**	**10.54**	**12.89**	**16.27**	**16.27**	**16.27**	**16.27**	**16.27**	
																																					Mitigation Area Requirement (ha) - 2020-2050:	**162.09**
																																				Average Annual Mitigation Area Requirement*:	**5.40**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T14																																						
	WD4	B1	16.05	Y	1997	2042																							16.05	16.05	16.05	16.05	16.05	16.05	16.05	16.05	16.05	
Looks like cleared river	WD4	B2	1.26	Y	1997	2038																			1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26			
	WD4	B3	0.24	Y	1997	2038																			0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24			
	WD4	B4	0.07	Y	1997	2042																							0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	
	WD4	B5	1.04	Y	1998	2046																											1.04	1.04	1.04	1.04	1.04	
	WD4	B6	0.37	Y	1955	2052																																
Might be open for 2020	WD4	B7	0.08	Y		2055																																
	WD4	B8	0.50	Y	1955	2052																																
		Total Area:	**19.62**				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.51**	**1.51**	**1.51**	**1.51**	**17.62**	**17.62**	**17.62**	**17.62**	**18.66**	**18.66**	**18.66**	**17.16**	**17.16**	
																																					Mitigation Area Requirement (ha) - 2020-2050:	**166.81**
																																				Average Annual Mitigation Area Requirement*:	**5.56**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T15																																						
	WD4	B1	1.14	Y	1995	2044																									1.14	1.14	1.14	1.14	1.14	1.14	1.14	
	WD4	B2	1.31	Y	2000	2046																											1.31	1.31	1.31	1.31	1.31	
	WD4	B3	0.82	Y	1994	2038																			0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82			
	WD4	B4	0.22	Y	1998	2046																											0.22	0.22	0.22	0.22	0.22	
	WD4	B5	8.02	Y	1997	2042																							8.02	8.02	8.02	8.02	8.02	8.02	8.02	8.02	8.02	
	WD4	B6	2.89	Y	1989	2035																2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89						
	WD4	B7	4.86	Y	1997	2044																									4.86	4.86	4.86	4.86	4.86	4.86	4.86	
	WD4	B8	0.35	Y	1998	2042																							0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	
		Total Area:	**19.62**				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.89**	**2.89**	**2.89**	**3.71**	**3.71**	**3.71**	**3.71**	**12.08**	**12.08**	**18.09**	**18.09**	**16.73**	**16.73**	**16.73**	**15.91**	**15.91**	
																																					Mitigation Area Requirement (ha) - 2020-2050:	**165.84**
																																				Average Annual Mitigation Area Requirement*:	**5.53**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T16																																						
	WD4	B1	0.02	Y	1982	2024					0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02																	
	WD4	B2	0.34	Y	1982	2024					0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34																	
	WD4	B3	8.04	Y	1982	2024					8.04	8.04	8.04	8.04	8.04	8.04	8.04	8.04	8.04	8.04	8.04																	
	PB2/HH3	B4	9.61				9.61																															
	WD4	B5	1.61	Y	1997	2042																							1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	
		Total Area:	**19.63**				**9.61**	**0.00**	**0.00**	**0.00**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**8.40**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.61**	**1.61**	**1.61**	**1.61**	**1.61**	**1.61**	**1.61**	**1.61**	**1.61**	
																																					Mitigation Area Requirement (ha) - 2020-2050:	**116.53**
																																				Average Annual Mitigation Area Requirement*:	**3.88**
							2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	
T17																																						

	WD4	B1	1.63	Y	1992	2039																				1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63		
	WD4	B2	0.54	Y	1993	2039																				0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54		
	WD4	B3	0.63	Y	1993	2039																				0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63		
	WD4	B4	2.21	Y	1992	2039																				2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21		
	WD4	B5	7.66	Y	1993	2039																				7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66		
	WD4	B6	4.17	Y	2000	2044																									4.17	4.17	4.17	4.17	4.17	4.17	4.17	
	WD4	B7	1.19	Y	2000	2044																									1.19	1.19	1.19	1.19	1.19	1.19	1.19	
	WD4	B8	1.08	Y	1982	2024					1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08																	
	WD4	B9	0.37	Y	1982	2024					0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37																	
	WD4	B10	0.11	Y	1982	2026							0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11															
Intersection area with Turbine 16 not counted	WD4	B1	0.02	Y	**1982	**2024																																
		Total Area:	19.60				0.00	0.00	0.00	0.00	1.46	1.46	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	0.11	0.11	0.00	0.00	12.67	12.67	12.67	12.67	12.67	18.03	18.03	18.03	18.03	18.03	18.03	5.36	
							Mitigation Area Requirement (ha) - 2020-2050:																															194.13
							Average Annual Mitigation Area Requirement*:																															6.47
							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T18																																						
	WD4	B1	0.79	Y	2007	2049																														0.79		
	WD4	B2	2.51	Y	2007	2023				2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51																		
	WD4	B3	0.09	Y	2006	2023				0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09																		
	WD4	B4	0.53	Y	2006	2023				0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53																		
	WD4	B5	0.21	Y	2006	2023				0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21																		
	WD4	B6	0.13	Y	2006	2023				0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13																		
	WD4	B7	4.27	Y	1998	2038																			4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27	4.27			
	WD4	B8	1.59	Y	1998	2046																											1.59	1.59	1.59	1.59	1.59	
	WD4	B9	1.89	Y	1998	2046																											1.89	1.89	1.89	1.89	1.89	
	WD4	B10	1.32	Y	1998	2038																			1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32			
	WD4	B11	0.56	Y	1998	2038																			0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56			
	WD4	B12	0.59	Y		2038																			0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59			
	WD4	B13	0.29	Y	1998	2046																											0.29	0.29	0.29	0.29	0.29	
	WD4	B14	0.01	Y	1959	2038																			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
	WD4	B15	1.89	Y	1959	2020	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89																					
	WD4	B16	0.45	Y	1959	2046																											0.45	0.45	0.45	0.45	0.45	
	WD4	B17	0.01	Y		2020	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01																					
	WD4	B18	0.55	Y	1959	2020	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55																					
	HH3	B19	1.62				1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	
	WD4	B20	0.31	y	1959	2020	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31																					
		Total Area:	19.61				4.38	4.38	4.38	7.85	7.85	7.85	7.85	7.85	7.85	7.85	7.85	5.09	5.09	5.09	1.62	1.62	1.62	1.62	8.37	8.37	8.37	8.37	8.37	8.37	8.37	8.37	12.60	12.60	12.60	6.64	5.85	
							Mitigation Area Requirement (ha) - 2020-2050:																															214.93
							Average Annual Mitigation Area Requirement*:																															7.16
							2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
T19																																						
	HH3	B1	1.20				1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
	WD4	B2	2.44	Y	1982	2026							2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44															
	WD4	B3	0.03	Y	1993	2039																				0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
	WD4	B4	3.20	Y	1982	2024					3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20																	
	WD4	B5	0.03	Y	1982	2024					0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03																	
	PB2/HH3	B6	12.74				12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	12.74	
		Total Area:	19.64				13.94	13.94	13.94	13.94	17.17	17.17	19.61	19.61	19.61	19.61	19.61	19.61	19.61	19.61	19.61	16.39	16.39	13.94	13.94	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.94	
							Mitigation Area Requirement (ha) - 2020-2050:																															494.92
							Average Annual Mitigation Area Requirement*:																															16.50
				Annual Totals:			169.50	170.44	199.22	203.64	222.51	192.37	181.53	172.46	172.32	167.32	146.88	142.30	142.30	56.78	52.36	36.38	36.38	33.83	42.90	55.60	68.84	68.84	98.61	98.61	123.58	125.93	146.35	146.35	146.35	138.06	124.58	

* Planting and/or felling year unavailable for forestry sub-compartment. Year(s) estimated based on aerial photography and comparison with adjacent similar sub-compartments

** Total area less than 19.64ha due to overlap with adjacent 250m turbine buffer