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The Secretary,
An Bord Pleanála,
64 Marlborough Street,
Dublin 1,
D01V902.

18th October 2021

By Hand

Description of Development:	**Substitute Consent application in relation to the Derrybrien Wind Farm Project located at Coppanagh, Slieveanore, Loughatorick North, Boleyneendorrish, Kilbeg, Toormacnevin, Funshadaun, Derrybrien North, Derrybrien South, Bohaboy, Derrybrien West, Derrybrien East, Derreennamucka, County Galway.**
Applicant:	**Gort Windfarms Limited**
ABP Case Number	**ABP-308019-20**

A Chara,

We refer to your 8 No. items of correspondence issued on 27th September 2021 and the accompanying submissions / observations circulated by An Bord Pleanála ('the Board') in relation to the above application.

In order to assist the Board in its determination on this matter, we wish to submit - on behalf of Gort Windfarms Limited ("the Applicant"), a considered response to items raised therein. In the interests of clarity, it is confirmed that this single response captures the Applicant's response in relation to all submissions circulated.

A PDF copy of this document is provided in the enclosed CD.

1 Preamble to this Submission

In providing this response, it is not the intention of the Applicant to repeat previously submitted information. Therefore we respectfully request that the Board has regard to this response in addition to the original submission of 20th August 2020, the submissions of 4th December 2020, 20th May 2021 and 9th August 2021.

The substantive issue before the Board at this time is whether 'exceptional circumstances' apply which enable An Bord Pleanála to grant substitute consent for the subject development. In response to a request from the Board (made following the enactment of the Planning and Development and Residential Tenancies Act 2020 and the Planning and Development (Amendment) (No. 2) Regulations 2020 which both came into effect on the 19th December 2020) the Applicant made a submission on this additional matter on 20th May 2021. Subsequently (July 2021) the Board requested that the Applicant provide additional public notices inviting additional submissions. Notwithstanding commentary in a number of submissions in relation to the requirement for those notices and the timing of same, the Applicant notes that this legislation came into effect during the application process and the decision to seek those notices in August 2021, was a matter for the Board. As such, points raised in the submissions about the timing of that process during the Summer period have not been dealt with here.

A number of the submissions include assessments and correspondence from other parties. A technical assessment report (Arcadis, July 2021) provided by third parties includes commentary in relation to the adequacy of the environmental assessment accompanying the application. Notwithstanding the arrival of this assessment late in the application process, the Applicant has endeavoured to provide responses to that document, insofar as individual contributors to the rEIAR and rNIS have determined that additional information or clarity may assist the Board in their final determination of this application. Similarly, commentary from the Irish Environmental Network (IEN) - attached to the submission of Mr. Byrne and An Claíomh Glas, has been addressed as appropriate. We trust this approach is helpful to the Board in their determination of this matter.

2 Responses to General Themes

2.1 Exceptional Circumstances

Summary of Commentary - *Submissions state that exceptional circumstances do not exist in this case. A number of submissions (Mr. Gallagher, Mr Mahony, Mr Collins, Friends of the Derrybrien Environment (FoDE), Mr. O'Byrne and An Claíomh Glas, IEN) set out specific commentary in relation to criteria set out under the Planning Acts in relation to such circumstances. A number of submissions (Mr. O'Hara, An Taisce) criticise the consideration of this issue at this stage of the process. It is stated that the application should not have been accepted because the requirement to determine a case for exceptional circumstances had not been dealt with. It is also submitted (Mr. O'Byrne and An Claíomh Glas, IEN) that the Board should refer this matter to the High Court for adjudication.*

Response - The Applicant confirms that the detailed submission of 20th May 2021, sets out the basis on which the Derrybrien Wind Farm Project meets the criteria of the factors set out under Section 177D(2) of the Planning and Development Act, 2000 (as amended) ("the Act"). In response to specific commentary, which set out submissions in relation to those criteria, it is further submitted that:

- Notwithstanding assertions to the contrary, regularisation of the development concerned – by way of a grant of Substitute Consent, would be in full compliance with the purpose and objectives of the Environmental Impact Assessment Directive and the Habitats Directive, as it facilitates a full and final assessment of all the development that has taken place within the broad scope of the 'Derrybrien Wind Farm Project'. Notwithstanding the passage of time since the development was completed, as confirmed by the relevant experts in the remedial Environmental Impact Assessment Report (rEIAR) and remedial Natura Impact Statement (rNIS), it has been possible to complete these assessments in full compliance with the Directives and to conclude on the nature, extent and significance of any impacts arising.

  This is a key consideration in respect of criteria (a) and (c) listed in Section 177D(2) of the Act and the determination that exceptional circumstances prevail in this case.

- The Applicant reiterates that it always acted in good faith acting upon valid planning permissions – all of which were granted in full compliance with the relevant national laws. Numerous submissions incorrectly refer to unauthorised development on this site. The Applicant wishes to reiterate, per earlier submissions, that there has never been a finding of unauthorised development in relation to this development nor has an enforcement notice issued from Galway County Council in respect of it. Furthermore - as clearly stated in our submission of 20th May 2021, an application for an injunction pursuant to Section 160 of the Act brought by the Derrybrien Development Cooperative Society, was refused by both the High Court and Supreme Court. Repeated assertions of unauthorised development are therefore inaccurate. Any assertion that the Applicant has acted inappropriately is strongly refuted, and without merit.

  These are key considerations in respect of criteria (b) and (f) listed in Section 177D(2) of the Act and the determination that exceptional circumstances prevail in this case.

- Having regard to the technical responses set out herein, we submit that the Applicant has provided the Board with sufficiently detailed and robust information to support reasoned conclusions in relation to the actual or likely significant effects on the environment or adverse effects on the integrity of a European site, resulting from the carrying out or continuation of the development. Based on the information provided, the Board can complete its assessment and conclude that - having regard to the effects that have occurred; the absence of significant effects that are anticipated to occur from the continuation of the development; the absence of adverse effects on the integrity of any European site once mitigation measures are incorporated; and the absence of significant or adverse effects requiring remediation; substitute consent can be granted.

  This is a key consideration in respect of criteria (d) and (e) under Section 177D(2) of the Act and the determination that exceptional circumstances prevail in this case.

Having regard to these points, and those previously made, we respectfully ask the Board to determine exceptional circumstances do exist and move to make a determination in relation to the valid application for Substitute Consent as submitted.

In relation to the timing of this process where the issue of 'exceptional circumstances' is considered, it is noted that the relevant legislation is the Planning and Development and Residential Tenancies Act 2020 and the Planning and Development (Amendment) (No. 2) Regulations 2020, which both came into effect on the 19th December 2020 - after this application was made (August 2020). As already noted above, it is understood that the commencement of these provisions informed the Board's decision to seek information in relation to exceptional circumstances, while the application process was underway.

2.2 The Substitute Consent Application

Summary of Commentary - *Submissions (Mr. Gallagher, Mr. Mahony, Mr. Byrne and An Claíomh Glas) refer to the previous legal cases and the CJEU judgements against the State with reference to Derrybrien. References are made (Mr. Collins, FoDE) to the historical planning assessments on this site. Reference is made to planning compliance with assertions that there is unauthorised development on the site (Mr. Collins, FoDE, An Taisce). Reference is made (Mr. Byrne and An Claíomh Glas) to 'project splitting' in the context of the original planning applications and permissions granted for the extension of durations, relating to phases of development.*

Response - We refer the Board to the commentary set out in the Substitute Consent application and previous correspondence in relation to the planning history and compliance status of the development. As stated in Section 2.1 above, repeated assertions of unauthorised development are inaccurate.

In relation to project splitting, the Applicant confirms that the application before the Board covers the entire lifecycle of the project - from construction to decommissioning phases as set out in rEIAR, Chapter 1. The Applicant submits that this level of assessment was necessary to ensure that the rEIAR and rNIS supported a thorough evaluation and assessment of the project during all phases - thereby ensuring there is no separate consideration of any element of the development that could be construed to be 'project splitting'.

Summary of Commentary - *The Substitute Consent process is criticised (Mr. Collins. FoDE) as a new form of 'retention planning'. Submissions (Mr. Collins, FoDE, Mr. O'Hara) are critical of the application process and the requirement on third parties to consider submissions within statutory timeframes. Statements are made in relation to access to documents during the public consultation period (Mr. Collins, FoDE, Derrybrien Bog Cooperative (DB Co-Op), Mr. O'Hara, An Taisce, Mr. Byrne and An Claíomh Glas, IEN) and inadequate notification of parties (An Taisce, IEN). The duration of the Substitute Consent process (DB Co-op) is criticised.*

Response - The Applicant cannot comment on the adequacy of the procedures established by the statutory framework and associated timeframes, but submits that it has engaged fully with the application process and taken all reasonable steps - e.g. use of a project website, appointment of a Community Liaison Officer, etc. and the advertisement of the application to ensure information is accessible and available to members of the public.

The Applicant notes the submissions made by some third parties regarding the availability of documents during the public consultation period and the notification of a prescribed body. The Applicant does not consider that there has been any breach of the public consultation requirements contained in the Act or the Planning and Development Regulations, 2001 (as amended) ("the Regulations") and notes that the observers were in a position to make comments on the application. However, the Applicant is willing to take any steps that the Board may consider necessary to ensure that due process is followed. In relation to the duration of the application process, the Applicant notes the statutory nature of the process and will welcome the Board's determination on this application in due course.

Summary of Commentary - *Submissions (Mr. Collins, FoDE) query the description of development contained in the original public notice. Submissions (Mr. Collins, FoDE, DB Co-Op, Mr. O'Hara) refer to the additional notices erected at the site not specifically referring to a submission relating to 'exceptional circumstances'. It is stated (Mr. Collins, FoDE) that the original 17 No. site notices were removed contrary to the requirements of the Act. Submissions refer to the lack of engagement and consultation with the local community and prescribed bodies (Mr Collins, FoDE, DB Co-Op, Mr. O'Hara, An Taisce, Mr Byrne and An An Claíomh Glas). Reference is made (Mr. Collins, FoDE, Mr. O'Hara) is made to the Applicant's 'refusal' to engage with local stakeholders. It is stated (Mr. Byrne and An Claíomh Glas) that the application process is compromised and the application inadequate. Statements are made in relation to access to documents during the public consultation period (Mr. Collins, FoDE, DB Co-Op, Mr. O'Hara, An Taisce, Mr. Byrne and An Claíomh Glas, IEN) and inadequate notification of parties (An Taisce, IEN).*

Response - In relation to the adequacy of public notices we respectfully refer the Board to the Applicant's response of 4th December 2020 and reiterate the statement that the notices are compliant. In relation to the content of the additional notices erected in August 2021, the Applicant further confirms that those notices comply with the requirements set out under the Act. The Applicant can confirm that the original 17 No. site notices were not removed. In erecting the additional notices (August 2021) it was confirmed that the original A4 notices were in place and a single A3 perspex frame was erected at each of the same locations, into which the original and additional notices were placed to ensure they continued to remain in place and legible for the duration of the application.

In relation to consultation and engagement, the Applicant respectfully refers the Board to the submission of 4th December 2020; and the details set out in Para. 2.4 of the Planning Report and rEIAR Section 1.9 which set out the various means by which the general public were engaged throughout the history of the development of the Project. The Applicant does not

accept the assertion that it refused to engage with any local stakeholders and we refer to the continued availability of a nominated contact person – the Community Liaison Officer, from the period before the application was made and throughout this process.

As remarked on previously, the Applicant notes the submissions made by some third parties regarding the availability of documents during the public consultation period and the notification of a prescribed body. The Applicant does not consider that there has been any breach of the public consultation requirements contained in the Act or the Regulations and notes that the observers were in a position to make comments on the application. However, the Applicant is willing to take any steps that the Board may consider necessary to ensure that due process is followed.

Summary of Commentary - *Submissions (Mr. Collins, FoDE) refer to the right of the applicant to include the felling of trees within the application. Submissions query the 'right' of the applicant to seek permission until 2040 (Mr. Collins, FoDE, An Taisce). Submissions (Mr. O'Hara, Mr. Collins, FoDE) make reference to waste – specifically querying if the Applicant is withholding an application for a waste licence at this time.*

Response - In relation to the felling of trees, the Applicant respectfully refers the Board to the submission of 4th December 2020 - specifically page 6 of that submission. In relation to the operation of the wind farm until 2040, the Applicant confirms that Gort Windfarms Limited has sufficient interest in the site to apply for consent and in the event of a grant of consent, to enable the development to operate until 2040. In relation to waste, in the submission of 4th December 2020, the Applicant included reference to a waste licence on public notices as it is their intention to ensure all appropriate licences required under the Waste Legislation are put in place – and that this may include a waste licence. Any such consent will be sought at the appropriate time – likely after a decision by the Board on this application.

2.3 Interactions with Turbary Activity

Summary of Commentary - *Submissions refer (Mr. Mahony, Mr. Gallagher, Mr. Collins, FoDE, DB Co-op) to the erection of warning signs on the Derrybrien site, and state that the rights of turbury rights holders have been affected.*

Response – The Applicant refers the Board to the rEIAR and also the detailed response provided herein in relation to overall site stability and the assessment of same. It is acknowledged that warning signs have been erected on the site to raise the awareness of third parties about risks associated with the mechanical harvesting of peat. The purpose of this signage is to inform turbary rights holders of the risks associated with peat harvesting and to direct them to Gort Windfarms Limited should additional information be required. There has not been any unlawful interference by the Applicant with any rights which may be asserted by turbary rights holders, in respect of their entitlement to engage in the harvesting of peat. Further, it is respectfully submitted that this is a matter of private law and is not something relevant to the determination by the Board of the application for substitute consent.

3 Response to Technical Submission

As stated above, the report entitled *'Technical Assessment of Derrybrien Windfarm and Ancillary Works'* dated July 2021 (referred to herein as '*the Arcadis report*'), submitted by a number of third parties, has been reviewed. The relevant experts involved in the preparation of the rEIAR, rNIS and application documentation have identified subject areas where additional information or clarity may assist the Board in their determination on this matter.

It is noted that the Arcadis report considered the assessment submitted to the Board was – broadly speaking, adequate in respect of the majority of environmental topics - namely Population and Human Health; Noise and Vibration, Shadow Flicker, Landscape and Visual, Air and Climate, and Material Assets. No comment on the review of those sections is considered necessary. Having regard to the comments set out in relation to Traffic and Transport and Cultural Heritage, the Applicant also does not propose to offer additional commentary here and is happy to refer the Board to the robust assessment submitted.

Responses then are limited to the following areas:

- Biodiversity – terrestrial ecology – see Section 3.1,
- Biodiversity - aquatic ecology and fisheries – see Section 3.2,
- Soils, Land and Geology – see Section 3.3
- Hydrology and Hydrogeology – see Section 3.4,
- Major Accidents and Disasters – see Section 3.5.

Under each heading detailed responses to the queries or points raised are set out. The key conclusion to this review is that the Applicant acknowledges points made, trusts that the expert response provided is informative and is satisfied to confirm to the Board that the assessments undertaken for the rEIAR and rNIS were robust and the conclusions set out in those documents remain accurate.

3.1 Biodiversity – terrestrial ecology

3.1.1 Birds

Summary of Commentary - Survey Methodologies, Vantage points and target species
The Arcadis report queries the bird survey methodology with reference to a standardised minimum number of hours, duration and period of surveys, number of vantage points and target species other than Hen Harrier and Merlin. Reference was also made to the requirement for full winter and summer breeding, surveys, methodologies used and the use of specific guidance (Brown and Shepherd for breeding waders, SNH Guidance).

Response - The bird surveys undertaken were in line with best practice guidance and methodology using standardised survey periods and were conducted from strategically placed vantage points. Although targeted at the Special Conservation Interests of

the Slieve Aughty Mountains SPA, that is the Hen Harrier and Merlin the surveys also recorded all other raptor species. This is set out further below.

Bird surveys were conducted using a standardised number of hours as clearly set out in the rEIAR Section 7.2.6.2.1 Breeding Bird Surveys, Para. no. 5, pg.7-19 which states that "Six hours of observations were made from each vantage point in each month of survey" (in line with SNH Guidance). Similarly, in the rEIAR Section 7.2.6.2.2 Winter Bird Surveys Winter 2019-20: the survey commenced in October 2019 and continued to March 2020 and included vantage point watches within the wind farm (6 hrs from each VP per month). During this period searches for night roosting hen harriers in the hinterland area (following the method of the Irish Hen Harrier Winter Survey, O'Donoghue 2019) were also conducted as stated in the rEIAR.

Two bird survey vantage points (VP) were selected which were strategically located to provide views covering the site and the hinterland area around the wind farm to a distance of approximately 5 km from the wind farm boundary.

With regard to target species, as the site is a designated SPA for Hen Harrier and Merlin these were identified as the main target species of interest being the Special Conservation Interests of the Slieve Aughty Mountains SPA. However, during vantage point watches all other raptor species were recorded as set out in the rEIAR in Table 7.9 (see section 7.3.5.3.3 Other breeding bird species recorded within wind farm area) the breeding status of all species is given e.g. this notes for Sparrowhawk 'Breeding confirmed, regularly seen and heard', and for Kestrel 'Non-breeding - occasionally seen hunting'.

The level of survey for breeding and wintering birds (other than Hen Harrier & Merlin) is considered adequate as clear-felled conifer plantation (the principal habitat on site) would not be expected to support any other species of high conservation importance. It is noted that the Brown and Shepperd method for breeding waders (used mainly for open moorland) is not suitable for the majority of the Derrybrien site as the clear-fell terrain would be treacherous to walk across. Nevertheless, good baseline data was recorded for breeding and wintering birds during the VP watches and general time spent on site – as set out in the rEIAR Section 7.2.6.2.1 Breeding bird surveys, Section 7.3.5.3.3 "Other breeding bird species recorded within wind farm site" and Section 7.3.5.3.4 "Winter bird species recorded within wind farm project area". In addition, as one of the constant vantage points was located in the area of open bog in the eastern part of site, displaying waders (if present) were readily heard (as was the case with breeding Snipe and migratory Golden Plover - see rEIAR Table 7.9 page 7-64). Section 7.2.6.2.2 of the rEIAR refers to the method used for

the wintering bird surveys, again following the standard method of the Irish Hen Harrier Winter Survey, (O'Donoghue 2019).

On the basis of this information, the Applicant submits that the methodology applied was appropriate and robust.

Summary of Commentary - Decline in the Hen Harrier numbers in the Slieve Aughty Mountains SPA

The Arcadis Report refers to the decline that has occurred in the Hen Harrier population in the Slieve Aughty Mountains since the first National Hen Harrier Survey in 1998-2000 and claims that this decline has not been adequately assessed in the rEIAR. Disturbance and lack of mitigation is also referred to as is the assessment of displacement of hen harriers near turbines and nest disturbance. Given that the decline in Hen Harrier population is worsening additional mitigation should be provided with continued monitoring.

Response - The decline in Hen Harrier numbers has been specifically discussed in detail in the rEIAR in Section 7.3.5.3. under Hen Harrier, sub-heading "Factors potentially affecting Hen Harrier breeding population within the Slieve Aughty Mountains".

Additionally, in the rEIAR, the Hen Harrier population assessment for the entire SPA is based on data available from the National Hen Harrier Surveys up to 2015, with data for the specific Derrybrien study area presented up to 2018. The 75% population decline figure for SPA from 2005 up to 2019 is based on work by the Hen Harrier Project which shows that the decline for the entire SPA as discussed in the 2015 National Survey (Ruddock et al. 2016) has continued. The overall decline has been discussed in the rEIAR with the latest Hen Harrier population data reinforcing the discussion set out. It does not alter the assessment carried out, or conclusions reached in the rEIAR with respect to this species.

In the rEIAR the specific reference to disturbance to Hen Harrier and Snipe is in relation to the construction period of the wind farm. No mitigation for disturbance was included in the original EIS and hence was not referred to in the current rEIAR – which could clearly only comment on measures that were historically employed – of which there were none.

Further, the following is cited in the "Hen Harrier Programme, Hen Harrier Monitoring 2020" Report, under Slieve Aughty Mountains SPA (page 2):

> *"A number of potential pressures were noted in the SPA . These include forestry operations and recreational and vehicle traffic on access roads and tracks near nest sites. Turf cutting and pine marten were noted regularly near nest sites."*

As already noted, all of these issues are discussed in the rEIAR.

The monitoring data provided in the rEIAR clearly shows that Hen Harriers have not been displaced from the wind farm site due to the presence of turbines (see Section 7.4.2.3.2 Birds, sub-heading Potential displacement impact). Monitoring data has also clearly shown

that nesting at the traditional site within 1-2 km from the wind farm has not been affected by the presence of the wind farm. (see Section 7.4.2.3.2 Birds, sub-heading Impact on reproductive output in relation to wind turbine proximity).

Mitigation for hen harrier, including continued monitoring, is provided in rEIAR (see Section 7.6.1.2 Birds).

In conclusion then, the commentary provided in the Arcadis Report does not alter the assessment carried out, or conclusions reached in the rEIAR with respect to this species.

Summary of Commentary - Details for Merlin are not provided.
The Arcadis report states there is a lack of detail with respect to Merlin

Response - With regard to Merlin, the rEIAR Section 7.3.5.3.2 refers to the Status of Breeding Merlin in the wind farm project area:

> "*There were no sightings of merlin within the wind farm project area during the various breeding bird surveys between 2006 and 2018. A single sighting was made in the hinterland area several kilometers from the wind farm on 10th May 2011 during a search for hen harrier territories which probably indicated local breeding.*"

This confirms that the survey did look for, and only observed Merlin once in the area during the period 2006 - 2018.

Summary of Commentary - Bird collision risk
The Arcadis report notes that in the absence of mitigation, the risk of collision with the overhead line is considered a potential negative impact which could be of significance. It is stated that "it can be demonstrated that hen harriers are at low risk of collision with wind turbines as a result of their typically low flight height" but it is not explicit in this section that there is no predicted impact from collision.

Response - In the rEIAR page 7-133, the final paragraph clearly identifies the overhead line, in absence of mitigation, as a collision risk to harriers. The predicted impact from collision with turbines and the overhead line have been addressed in Section 7.4.2.3.2.

The commentary indicating this risk was not assessed is therefore incorrect.

Summary of Commentary - Bird Assessment Methodology and assessment with focus on Hen Harrier and Merlin but to a lesser extent on other species.
The Arcadis Report notes that, although the CIEEM guidelines are cited within the assessment section, the actual assessment does not appear to have been carried out to a geographic level as per these guidelines. The focus on Hen Harrier and Merlin is welcomed but the assessment on other species less focused. In addition, although habitat loss regarding the removal of the

conifer plantation is considered a positive impact of long-term duration resulting in a significant positive effect the impact on some species in the short term for the negative impact (tree breeding species for example) isn't assessed. It states that, although loss of Snipe nests were considered significant these were not considered further in terms of residual effects or mitigation. It states with respect to the peat slide which occurred, that the positive impact and absence of significant effect in the long term from habitat loss and significant positive effect of long-term duration considered due to habitat regeneration, does not include an assessment of tree nesting birds or ground nesting birds due to the smothering of wet grassland. It states the impacts on bird species associated with a perceived increased ease of access to the wind farm site as a result of its construction in terms of a negative in-combination effect when considered with turbary and peat extraction activities within the SPA has not been assessed. It refers to the focus on the Hen Harrier with respect to collisions and no reference to other species.

Response - As set out in the rEIAR birds were assessed based on their conservation status and relative to their occurrence in the project area which is in line with CIEEM guidance. The assessment methodology used for birds in the rEIAR strictly follows the standard EPA Guidance (2017).

The focus placed on Hen Harrier and Merlin is due to the fact that these are the Special Conservation Interests of the SPA. However, breeding birds other than Hen Harrier are addressed in the rEIAR in Sections 7.3.5.3.2 and 7.3.5.3.3 and wintering birds are addressed in Section 7.3.5.3.4. Regarding Merlin we refer to Section 7.3.5.3.2 "Status of merlin in wind farm project area", which highlights the difficulty in surveys for Merlin (with ref. to Lusby et al. 2011).

Impact on birds of tree breeding species, such as conifer forest, is assessed in the rEIAR Section 7.4.2.1.2 Birds under "Mortality of individual birds".

Snipe were not mentioned further, as potential loss of a nest was only considered to be at the Construction stage of the project (see rEIAR Section 7.4.21.2 Birds under "Mortality of individual birds"). It is considered in the rEIAR that disturbance from activities during the decommissioning phase will not have a significant effect on breeding and/or wintering birds, including Hen Harrier.

Regarding the impact of the peat slide on tree nesting birds and ground nesting birds it should be noted that there were no tree nesting bird species of conservation importance using the conifer plantation in the peat slide area. The closed canopy forest is of low value to birds. The wet grassland used for agriculture that was impacted by the peat slide is also considered to be of low value to nesting birds. As the slide resulted in a more open habitat that was quickly vegetated, this provided useful habitat for ground nesting birds such as Meadow Pipit (Red

listed) and Skylark (Amber listed), both principal prey items for Hen Harrier (see Section 7.4.2.2.2 and specifically sub-heading 'Habitat regeneration').

With regard to increased ease of access to the site turbary activities predated the wind farm site development hence access to working turbary areas was already in place prior to the Derrybrien wind farm development and turbary was actively being managed by turbary rights owners. No new access to turbary areas were provided by the wind farm development.

In conclusion then, the commentary provided in the Arcadis Report does not alter the assessment carried out, or conclusions reached in the rEIAR.

Summary of Commentary - Cumulative Impacts on Birds

The Arcadis Report states that the cumulative effect on birds refers in the relevant section (7.5.1.2) back to a previous discussed section which only references Hen Harrier saying the previous cumulative effects would persist, but the previous sections assessed no cumulative effects, with the exception of moderate significant effect for Hen Harrier. It states there is a focus on the Hen Harrier with respect to collisions with the OHL and no reference to other species is made.

Response - The rEIAR (Section 7.5.1.2 Cumulative Effects, Birds) discusses and assesses other identified activities / projects under 5 no. sub-headings. It is confirmed that these were also considered in the EIAR (Section 7.5.2.2) on "Cumulative impacts which are likely to occur".

Focus was placed on the Hen Harrier as it is the principal SCI for the SPA and potentially sensitive to collision due to its flight behaviour (in contrast to Merlin, a falcon which invariably flies close to ground level).

In conclusion then, the commentary provided in the Arcadis Report does not alter the cumulative impacts assessment carried out, or conclusions reached in the rEIAR.

Summary of Commentary - Bird Monitoring

The Arcadis Report acknowledges that monitoring of Hen Harrier will continue at 3 year intervals and flight diverters will be erected on the OHL but states that no other bird monitoring is proposed. It states that Merlin are also underreported.

Response - All bird species are recorded during the standard Vantage Point watches and not just the Hen Harrier species as stated in the rEIAR Section 7.2.6.2.1 Breeding bird surveys. Two Vantage Points are considered adequate at this site for purpose of long-term monitoring programme. It is noted that future monitoring would also include monitoring for occupied territories in the hinterland to a distance of approximately 5 km of the wind farm. This proposed programme is in line with the monitoring that has been ongoing since 2004 and will add to the long-term baseline data set. It is noted that as the programme has used the

same methodology throughout, scientifically valid comparisons can be made from year to year.

It is noted that while Merlin is a difficult species to survey, it is considered genuinely rare in the Slieve Aughty Mountains (see NPWS Site Synopsis) and is not necessarily under-recorded. As stated above, during VP watches all birds present on site are recorded including Merlin.

In conclusion then, the commentary provided in the Arcadis Report does not alter the assessment carried out, or conclusions reached in the rEIAR.

Summary of Commentary - Further intervention of positive management required
The Arcadis Report recommends that further interventions of positive management for Hen Harrier and Merlin should be produced to link in with the overall habitat management plan.

Response - It is noted that the continued maintenance of the wind farm project areas as open terrain is in effect positive management for a range of bird species from Hen Harrier to Red Grouse to Meadow Pipit (see rEIAR Section 7.4.2.3.2 sub-heading "Development of habitats in felled areas"). Also, the area of open bog in the eastern section of the site will be maintained as such for the lifetime of the project.

In conclusion, arising from the assessment no further measures are recommended.

3.1.2 Bats

Summary of Commentary - Mitigation for the loss of coniferous forest roost habitat and number of bat boxes proposed
The Arcadis Report states that no mitigation has been proposed for bats for the loss of coniferous forest as a roost and/or foraging resource and that compensation should be provided. Although two bat boxes for the potential loss of bridge roosting habitat are provided this does not seem sufficient and a minimum of three bat boxes should be provided.

Response - The overall resource of coniferous plantation remains extensive. It is likely to have developed opportunities for roosting bats since the wind farm became operational, and the provision of further bat boxes would not appear to be particularly merited on ecological grounds. There is no guidance on the number of bat boxes that should be used to replace roosts in

bridges. Based on expert opinion a minimum of two boxes is recommended based on the size of the bridges and watercourse, species present and locally available roosting resources.

In conclusion, arising from the assessment and conclusions reached no further mitigation measures are recommended.

Summary of Commentary - Lack of assessment of roosting resource loss within felled conifer plantations and baseline data
The Arcadis Report states that there is a lack of assessment of roosting resource loss within felled conifer plantation and that the assessment cannot be justified given the lack of baseline information and valuation of these receptors.

Response - Impact assessment of the reduction in commercial plantation and roosting resource loss is provided in the rEIAR Section 7.4.2.1.3.

No baseline information was collected pre-construction as at the time of construction, which was completed in the early 2000s the industry had no applicable guidance. It is not possible to collect data retrospectively. It therefore follows that assessments have been made using professional judgement based on desk study data for the wider area, relative bat species abundance in Ireland and an assessment of the value of habitats for bats. Information is provided in the rEIAR (Section 7.4.2.1.3).

On the basis of this information, the Applicant submits that the methodology applied was appropriate and robust.

Summary of Commentary - Use of Specific Guidance in assessment of loss of conifer roost
The Arcadis Report references the use of "Henry Andrews Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals, 2018 (Ref 38)" and "Garry Mortimer Foraging, roosting and survival of Natterers bat in a commercial coniferous plantation (2016) (Ref 39)" stating these should be applied to the assessment of roost potential for both the original construction phase tree felling and the additional loss of 25ha (EIAR Section 7.4.2.2.3.)

Response - The Brown Long-eared Bat is the only other species included in "Henry Andrews Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals, 2018" as roosting in coniferous plantation (Nathusius' pipistrelle is included only where close to still water, there was no significant body of still water on site pre-construction).

An impact assessment of the loss of habitats related to the peat slide is provided for Brown Long-eared Bats in the rEIAR - albeit this does not directly refer to

roosting. This assessment concludes no significant effects (where a temporary negative impact for Natterer's bat is concluded).

Summary of Commentary - Timing of Bat activity surveys, survey commencement times and nature of transects used.
The Arcadis Report refers to the bat activity survey undertaken on 5 November 2011 (Section 7.2.6.3.1) which occurred during the hibernation season as being invalid for baseline purposes. Additionally, whilst it is noted that surveys started at sunset, as recommended in BCT (2012) guidance", the BCT guidance states a start 15 minutes before sunset which should have been followed. Arcadis also state that driven transects undertaken as part of the survey should not be used as an alternative to walked transects.

Response - The data from the survey work in 2011 were not relied upon in the assessment set out in the rEIAR. The work is reported as it formed part of the overall bat survey work completed at the site, and two bats were noted during it. Bat Activity Surveys were also undertaken in 2016 and 2019 from April to October (the typical period in which surveys are completed) and formed the basis of the assessment in the rEIAR.

The minor departure from guidance is noted. The transect work (in its entirety) recorded very few bats, and the departure is not considered material to the assessment. Neither driven nor walked transects are considered a requirement under current guidance, which reflects current thinking about their typical importance in informing assessment work at wind farms.

The authors of the bat section of the chapter (BSG Ecology) wrote Chapter 10 of the 2012 BCT's bat survey guidance and were on the editorial board for SNH et al. (2019) guidance, both of which are regularly referred to in Ireland and became the industry standard in the UK. Their professional opinion is that survey work is adapted in accordance with the characteristics of the site to enable the survey team to sample it proportionately and assess impacts. The site is large and relatively featureless, and a series of driven transects with stopping points allowed far more ground to be covered than would have been possible with a proportionate walked transect survey programme.

It should also be noted that driven transect surveys undertaken in 2016 were part of a wider scope of works that included static bat detector survey and a search, using specially trained dogs, for bat corpses (accompanied by a scavenger removal study). The assessment relied principally on static bat detector data to characterise the bat community and assess impacts; static detectors record from single locations over considerable time periods and are therefore a

far more useful way of characterising bat communities than snapshots obtained during transect work. This is now reflected in guidance.

The survey method applied was therefore appropriate and robust.

Summary of Commentary - Duration of static surveys
The Arcadis Report references the static surveys that were undertaken in 2016 from April to August, and in 2019 from August to October set out in the rEIAR. The report claims that these were not conducted in accordance with the methodology set out in the SNH guidance which requires "the minimum level of pre-application survey required using static detectors is 10 nights in each of: spring (April-May), summer (June-mid-August) and autumn (mid-August-October)".

Response- A minimum of ten nights of data was collected in spring and summer 2016, and in autumn 2019 as clearly set out in the rEIAR, refer to Sections 7.3.6.3.3 and 7.3.6.3.4. The survey method applied was therefore appropriate and robust.

Summary of Commentary - No Roost surveys cited or reported on
The Arcadis Report states that no roost surveys are cited nor reported on. These should have been carried out for the trees that were removed from site.

Response - No survey was completed pre-construction. Felling connected with the construction of the wind farm was completed in the early 2000s. As noted previously, a full review of historical surveys has been presented, including where surveys were not carried out – such as in this instance. This does not however, undermine the assessment as set out in the rEIAR.

Summary of Commentary - Potential under recording of brown Long eared bats
Arcadis raise the issue of potential under recording of Brown Long-eared bats in the 2016 data as these often do not echolocate or echolocate at a volume that can be recorded and so are often underrepresented in survey data. This should be acknowledged.

Response - Long-eared Bat sp. (assumed to be Brown Long-eared Bs) were recorded during surveys. Impacts on Brown Long-eared Bats have been considered within Sections 7.4.2.1.3 and 7.4.2.3.3 of the rEIAR. The technical point is noted. It is highly relevant that all relevant guidance considers the Brown Long-eared Bat to be very unlikely to be killed at wind farms due to its ecology and there is a lack of empirical data at the European level to suggest fatality occurs with regularity.

Summary of Commentary - Large differences in bat survey results between 2016 and 2019
The Arcadis Report states that there were large differences in bat survey results between 2016 and 2019 as the surveys were not replicated temporally/seasonally it is not possible to know

what caused these differences. It states that, for the most part, the value of the site is assessed as being at site or local level, the justification for which is the wide availability of similar habitat in the surrounding area.

Response - There was no requirement in the wind farm planning consent for bat monitoring to be completed. However, the Applicant considered it pertinent to collect some bat survey data in Spring and Summer 2016 to inform management of the wind farm. Following review of this data, it was considered appropriate to collect Autumn data in 2019 to help identify whether bat activity or species diversity was different in the autumn (as dispersal from maternity roosts occurs at this time). Methods of data collection were adjusted in line with guidance at the time of collection.

As data was analysed in the same way in each of 2016 and 2019 the relative activity (number of bat passes per hour [P/h]) is comparable. There were variations in species activity in different seasons (which would be true of data collected in the same year), and Nathusius' pipistrelle was recorded for the first time in Autumn 2019. The data provided is considered suitable to inform the assessment of impacts of wind farm operation on bats.

No baseline information was collected pre-construction. Assessments are made using professional judgement based on desk study data for the wider area, relative bat species abundance in Ireland and an assessment of the value of habitats for bats. This information is provided in the rEIAR (Section 7.3.6.4). Post construction surveys provide information on species diversity and relative activity at the site following construction.

On the basis of this information, the Applicant submits that the methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Potential undervaluing of bats

The Arcadis Report states that bats may have been undervalued. It states that greater detail as to the justification of the value of the individuals and assemblage would be welcome. Is further states that a structured assessment methodology would be welcome such as Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010) Valuing bats in ecological impact assessment, noting in Practice, No 70, Institute of Ecology and Environmental Management would have been helpful for the bat assessment.

Response - As noted previously, and in the rEIAR no baseline information was collected pre-construction. Assessments were made using professional judgement based on desk study data for the wider area, relative bat species abundance in Ireland and an assessment of the value of habitats for bats. This information is provided in the rEIAR Section 7.3.6.4 Relative abundance of each bat species in Ireland. This is the approach recommended in SNH et al. 2019 (which is derived from Wray et al., 2010). The value of habitats and the bridges at the site (and in the peat slide area) to each bat species is provided, informed by relative abundance. Impacts on bat

populations are therefore presented in geographical context as recommended in CIEEM (2018), the assessment method followed in this report.

For operational impacts vulnerability of bats to collision with wind turbines is also a consideration, see the rEIAR 7.3.6.4 Evaluation of vulnerability of baseline bat assemblage.

It is noted that Wray et al. (2010) is a numerical framework that was written for valuing UK bat populations. There is no suggestion in the paper that it should be applied to Ireland.

On the basis of this information, the Applicant submits that the methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Potential impact on foraging by bats by the peat plume at Lough Cutra not assessed
The Arcadis Report refers to peat entering the upper reaches of the Owendalulleegh River and flowing along its length to Lough Cutra (approximately 22 km downstream). It states that, at the time of the event a visible plume was observed at the confluence of the Owendalulleegh River with Lough Cutra SAC. It states that this s was assessed as having no impact on bats - however, the potential impact on foraging is not assessed.

Response - It is incorrect to state that these impacts were not assessed. Section 7.4.2.2.3 of the rEIAR assesses the impacts caused by the peat slide (including pollution and habitat loss) for Lough Cutra SAC and each bat species. Value of habitats within the project area for each bat species is provided in the rEIAR Section 7.3.6.4.

Summary of Commentary - Effects on bat species from damage to 3 bridges, arising from direct mortality from tree and bridge roost loss and structure of assessments
The Arcadis report stated that the rEIAR refers to damage to three bridges considered to have potential for roosting for Daubentons and Brown long-eared bats, common and soprano pipistrelles. However, no effects were predicted on other bats. It states that there was also no assessment of direct mortality from tree or bridge roosting loss. The report states that It would be helpful to have some structure for assessment, for example "Valuing Bats in Ecological Impact Assessment Stephanie Wray CEnv FIEEM, David Wells CEnv MIEEM, Emma Long MIEEM and Tony Mitchell Jones MIEEM".

Response - It is incorrect to state that these impacts were not assessed. The rEIAR (Section 7.4.2.1.3) provides a detailed assessment of the impacts of the reduction in commercial plantation and the loss of potential roost features in bridges. This includes an assessment on

the Lesser horseshoe bat, whiskered bat, Daubenton's bat, Brown long-eared bat, Natterer's bat, Nathusius' pipistrelle, Common and soprano pipistrelle and Leisler's bat.

Wray et al. (2010) is a numerical framework that was written for valuing UK bat populations, there is no suggestion in the paper that it should be applied to Ireland.

Summary of Commentary - Under representation of monitoring as recommended in Guidelines

The Arcadis Report states - in relation to cadaver searches reported in the rEIAR "Searches were conducted on two consecutive mornings at 6 turbine locations (T11, T17, T18, T21, T27, and T71) on 31 August and 1 September 2016 to give an indication of bat mortality. During the survey the dogs were followed by the handler, who provided constant instruction. The dogs can effectively survey to 5 m either side of them when walking a transect" that this would seem to be an under representation of monitoring compared to recommendations in Guidelines for Consideration of Bats in Wind Farm Projects.

Response - The Arcadis report indicates that fatality monitoring completed in 2016 is less than that recommended in Guidelines for Consideration of Bats in Wind Farm Projects (first produced in 2008 and updated in 2014). These guidelines were not formally adopted in Ireland and no monitoring for bats was conditioned as part of the planning permission for the wind farm. The purpose of the fatality monitoring in 2016 was to confirm whether bat fatalities were occurring at Derrybrien Wind Farm so that an appropriate monitoring programme could be designed, impacts assessed, and mitigation provided. As a bat fatality was confirmed, the monitoring succeeded in achieving its aim.

Summary of Commentary - Assessment of Nathusius' pipistrelle impact

The Arcadis report submits that for Nathusius', given the indicative size of the population in Ireland, a precautionary assessment is that the effect of mortality is likely to have a long term negative significant effect at the county level. However, the site was previously considered to be of negligible value to this IEF. These two statements do not seem congruous.

Response - Nathusius pipistrelle has been recorded on two occasions. Nathusius' pipistrelle is a migratory species with a very large European population that ranges widely seasonally. Animals appear to occasionally pass through the airspace above the site. The population using the county during passage periods (which is when they have been recorded) is likely to be relatively small, so a collision would be significant in the context of this population. The value of the site to the species is negligible. There is no incongruity.

Summary of Commentary - Cumulative Effect on bats

The Arcadis Report states in relation to bats that no effects from turbary, collision, or coniferous habitat loss, the damage and repair to three bridges is considered to be a permanent negative

significant effect at the site level for common pipistrelle, soprano pipistrelle, Natterer's bats and Daubenton's bats - but that no cumulative effects are predicted.

Response - Cumulative effects for bats are assessed in the rEIAR in the following sections:

- Section 7.5.1.3.1 Turbary activity,
- Section 7.5.1.3.2 Wind Farms in Slieve Aughty Mountains,
- Section 7.5.1.3.3 Adjacent coniferous forestry plantations and
- Section 7.5.1.3.4 Works to Beagh Bridge.

Clearly cumulative effects have therefore been assessed.

Summary of Commentary - Apparent conflict between non significance of larger habitat removal and minor negative due to localised disturbance

The Arcadis Report states that the assessment of minor negative effect due to localised disturbance on bats, does not seem in proportion to the assessments of no significant effect on bats due to much larger areas of habitat removal and disturbance due to the construction and peat slide.

Response - On the record there was a typographical error in the rEIAR - In Section 7.4.3.2.3 The assessment of minor negative effect due to localised disturbance on bats should have included 'at the site level' after minor negative effect to make it clear that the minor negative effect was not considered to be significant. This does not however, undermine the assessment as set out in the rEIAR.

Summary of Commentary - Suggested bat mitigation and monitoring

The Arcadis Report refers to the erection of two bat boxes at each of the three damaged bridges but says there is no mention of potential loss of tree roosts. With regard to proposed bat monitoring Arcadis note that a curtailment scheme will be implemented to stop turbines when temperatures are above 11 degrees and wind speed is below 5m/s between dusk and dawn each night. Carcass searches will be undertaken for 3 years in spring, summer and autumn. No other bat monitoring is proposed. Arcadis suggest that a suite of statics throughout the year to monitor how the operation of the wind farm affects bats would be helpful. It would also be helpful to monitor the success of additional roosting provision. It states that bat monitoring using a suite of static detectors should be undertaken throughout the season to monitor the effect of the wind farm on bat foraging.

Response -The overall resource of coniferous plantation remains extensive. It is likely to have developed opportunities for roosting bats since the wind farm became operational, and the

provision of further bat boxes would not appear to be particularly merited on ecological grounds.

The rEIAR Section 7.6.1.3 Bats describes a full suite of monitoring. Collection of bat activity, fatality and site-specific weather data in each of the three seasons. A proportion (32 of the 70 turbines) will be subject to monitoring using specially trained search dogs.

A full suite of monitoring using Static Acoustic Detectors and specially trained dogs has been recommended for a 3 year period in the rEIAR Section 7.6.1.3. and is currently being undertaken as part of the project to monitor the effects of the mitigation strategy which involves the blanket curtailment of all turbines under certain weather conditions in line with industry standard guidance SNH et al. (2019).

On the basis of this information, the Applicant submits that the methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Legislative References

The Arcadis Report notes that Chapter 7 of the rEIAR provides a list of the legislation and other statutory policies and guidance relevant to Biodiversity in section 7.2.2 and 7.2.3. It states that the legislation provided is largely comprehensive, but the following should be included:

- *The Flora (Protection) Order 2015 S.I. 356 (Ref 20)*
- *Project Ireland 2040 National Planning Framework (February 2018) (Ref 21)*
- *Galway County Heritage and Biodiversity Plan 2017-2022 (Ref 22)*
- *Relevant policies in Actions for Biodiversity 2011-2016, Ireland's 2nd National Biodiversity Plan produced by the Department of Arts, Heritage and the Gaeltacht in 2011 (now the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) (Ref 23).*

Response – The Flora (Protection) Order 2015 S.I. 356 is listed in Section 7.2.2 Legislation and Policies as is the most recent National Biodiversity Action Plan 2017-2021. The 2011 – 2016 version referenced above in the Arcadis report is out of date.

Although the Galway County Heritage and Biodiversity Plan 2017-2022 was not listed as a policy document as it does not relate to wind energy development specifically, the Natural Heritage and Biodiversity Policies and Objectives within the Galway County Development Plan 2015 – 2021 (Galway County Council, 2015) and associated environmental reports listed in Section

7.2.2 of the rEIAR which are directly relevant to wind energy development and EIA were taken into consideration in the assessment.

Summary of Commentary - Reference to Guidance documents
The Arcadis report refers to a list of guidance documents that could have been added or updated.

Response - All of the guidance documents referenced in the Arcadis report - except for one, are listed in Section 7.2.3 and are referenced multiple times throughout the rEIAR. A number of the guidance documents listed by Arcadis are incorrect or out of date. The guidance document not referenced is - *Guidance on Ecological Survey and Assessment in the UK During the COVID-19 Outbreak Version 4 (CIEEM 2021).* These guidelines would have made no difference to the approach taken to the assessment. Also, to note CIEEM produced these guidelines for the Republic of Ireland also.

Summary of Commentary - Survey Approach for large mammals
The Arcadis report queries the approach taken to surveying of large mammals and queries the guidance used for the otter surveys.

Response - Although no baseline information was collected for mammals pre-construction, the approach taken to the survey and assessment of large mammals in the rEIAR is in line with CIEEM guidance. Section 7.3.7.2 of the rEIAR discusses the suitability of habitats within and surrounding the project for a range of mammals. The decision to not undertake dedicated large mammal surveys during the operational phase of the project - other than for otter, was based on existing records of protected species for the study area and an assessment of habitat suitability.

The otter surveys undertaken in 2018 followed appropriate guidance- *National Roads Authority (2006b) Guidelines for the Treatment of Otters prior to the Construction of National Roads Schemes* and successfully recorded signs of otter on those watercourses surveyed, see rEIAR Section 7.3.7.1. The survey undertaken in 2003 was undertaken following the peat slide and the objective would have been to determine the presence of otter on the Owendalulleegh River, which was confirmed during the survey refer to the rEIAR, Section 7.3.7.1.

On the basis of this information, the Applicant submits that the methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Limitations related to baseline quality
The Arcadis Report states that "It would be expected that clear limitations would be presented per receptor with deviations from best practice guidance accompanied by detailed additional

survey and its correspondence with best practice guidance and/or precautionary assessment procedures where this baseline data could not meet the required quality".

Response – Section 7.2 Methodology of the rEIAR provides a detailed approach in the following subsections, Section 7.2.6 Field Surveys' 7.2.7 Assessment Methodology and 7.2.8 Difficulties Encountered where limitations have been clearly stated and how these have been addressed in the assessment.

The Applicant is satisfied that the data used in the assessment are robust.

Summary of Commentary - Assessment of Amphibians and Lizzards
The Arcadis Report notes that amphibians and lizard are mentioned in the assessment under other fauna section 7.3.8, but no surveys are cited, there is an acknowledgement of a likely negative effect on amphibians, and a likely positive effect on common lizard. It states that these species should be appropriately scoped in, evaluated and assessed.

Response – The impact of the project on Common frog (*Rana temporaria*), smooth newt (*Triturus vulgaris*) and the common lizard (*Lacerta vivipara*) has been assessed in Section 7.3.8 Other fauna and is based on the nature of the habitats present at various stages of the development and the nature of the development. The project has not had nor is likely to have a significant effect on any amphibian or reptile species.

On the basis of this information, the Applicant submits that the assessment methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Compensation for Loss of Habitat
The Arcadis report states that compensation for loss of habitat for red squirrel, pine marten, badger and nesting birds should be considered.

Response - Overall, given the large expanses of coniferous plantation forestry in the areas surrounding the wind farm and in the wider Slieve Aughty Mountains, the impacts on red squirrel, pine marten and badger resulting from a loss of this habitat is likely to have had no significant effect on the local populations of these species (Refer to Section

7.4.2.1.4 subsection Other large mammal) and did not warrant consideration of planting of alternative coniferous plantation forestry.

Also, to note replanting of open peatland habitats on the wind farm site to replace low value conifer plantation forestry would have reduced the significant value of the site for foraging hen harrier, one of the key target species described in the rEIAR and rNIS.

The Applicant therefore submits that there is no basis to conclude that compensation for loss of habitat for these species is justified.

Summary of Commentary - Clarity as to whether botanical surveys carried out comprise a "detailed botanical survey"
The Arcadis Report states that Section 7.2.6 outlines the Field Survey methodology, while numerous habitat surveys are stated as having been undertaken between 2004 and 2018 following Smith et al. 2011 "Detailed botanical and habitat descriptions were prepared for areas of ecological interest within the project area" it is not clear if this constituted a detailed botanical survey.

Response - Botanical surveys carried out comprised a detailed botanical survey in accordance with the reference materials used refer to Section 7.2.6.1. It is therefore submitted that the surveys were detailed botanical surveys.

Summary of Commentary - Habitat in the global context is not considered
With reference to Habitat evaluations within the site the Arcadis Report states: In general, these habitats seem to be valued at a local level as there is "plenty of this habitat around" however the global context and future restoration potential of the blanket bog and cutover bog has not been considered.

Response - Prior to construction of the wind farm, the site had already been subjected to a programme of drainage to facilitate forestry (in the 1960s and 1970s) and turbary. The majority (27 km out of 39 km) of drainage channels on site were in place prior to the wind farm development.

The habitat within the site was conifer plantation and was correctly evaluated as such and in the local context. It would be incorrect to assess this habitat in a global context. The blanket bog

referenced in the rEIAR is outside of the development boundary and was referenced due to its proximity to the wind farm site boundary.

The cut-over bog habitat present on the site is under turbary rights and there is no plan for restoration of this habitat therefore it was not considered in the evaluation of the habitat.

The assertion made in respect of the assessment is therefore not accepted.

Summary of Commentary- Assessment of drainage impact on cutover bog and peat slide
With regard to cutover bog the Arcadis Report states: However, these localised drainage effects are considered to have had a minor negative long-term impact (no significant effect) on the cutover bog, given the subsequent peat slide and mid-term drainage effects this would seem to be under assessed. Also, no consideration given to the potential future baseline should restoration be undertaken.

Response - Refer to Section 7.4.2.1.1 and Section 7.4.2.2.1 for assessment of impacts on cut-over bog. The cut-over bog habitat present on the site is under turbary rights and there is no plan for restoration of this habitat therefore it was not considered in the evaluation of the habitat.

Summary of Commentary- Hardstanding Habitat Loss
Reference is made to the lack of assessment of hardstanding habitat loss "Habitat loss under hardstanding does not seem to have been assessed although Table 7.18 does present the habitat loss totalling 15.54ha".

Response - The rEIAR Table 7.18 from the Biodiversity Chapter referenced and copied into the Arcadis report clearly states the type and area (ha) of habitat loss under the heading hardstanding. In the rEIAR, Section 7.4.2 sets out the impacts which have occurred. Sub section 7.4.2.1 relates to the construction impacts that occurred circa June 2003 to March 2006 and impacts on terrestrial habitats are set out under subsection 7.4.2.1.1 Terrestrial Habitats - '*The construction of access roads and hardstanding lead to permanent habitat loss of felled conifer forestry habitat. Direct habitat loss (turbine bases, hardstands, roads and the substation) affected an area of approximately 13.6 ha of conifer forestry habitat and approximately 0.7 ha of cutover bog (see the rEIAR Table 7.18).' rEIAR Page 98 Chpt 7.*

On the basis of this information, the Applicant submits that the assessment provided is complete.

Summary of Commentary – Underassessment of impacts on wet grassland
The Arcadis Report states - with respect to impacts, that these seem under assessed, all impacts are not significant whether because of low value (such as conifer plantation) and/or

because the habitats are widespread. It states that while this is likely to be the case for the conifer plantation it would seem to be an under assessment for wet grassland.

Response - The assessment of the impact of the peat slide on wet grassland has taken into consideration the low value of this habitat (used for agriculture) and represented a relatively small area of wet grassland that is common throughout the wider landscape (Refer to Section 7.4.2.2.1.). It is not accepted that this represents an underassessment.

Summary of Commentary- Lack of assessment of vehicle movements or ease of access.
The Arcadis Report states that no indirect effects are predicted from drainage. However, there is no assessment of vehicle movement, potential pollution via deposition, the effects that increasing the ease of access via access routes may cause such as degradation and disturbance due to recreation, increased hunting and or turbary.

Response - It is not correct that such activities have not been assessed. Operational effects on habitats are addressed in Sections 7.4.2.3.1 and 7.4.3.1.1. See also 7.4.2.3.2 relating to maintenance and impact on birds.

Summary of Commentary – Offsite felling impact
The Arcadis Report states that the effect of the felling to increase the wind farm's efficiency does not seem to have been fully assessed.

Response - This impact has been fully assessed in Section 7.4.2.3.1 "*Offsite phased tree felling (approximately 46.2 ha in total) was undertaken by Coillte under felling licence (Ref FL 18197) immediately to the west of the wind farm site in 2016, 2017 and 2018 to optimise productivity of the wind farm. It is noted that these areas had been scheduled for felling as part of Coillte's routine tree felling programme and that the felled areas are being replanted. The habitat is of low ecological value and represents a modified habitat under forestry management. It is concluded that the felling and replanting of conifer plantation adjacent to the wind farm resulted in a neutral impact on terrestrial habitats (no significant effects).*"

Summary of Commentary – Monitoring Plan
The Arcadis Report states that there is little mitigation or monitoring proposed.

Response - The rEIAR Section 7.2.6.1 lists all of the habitat monitoring that has been undertaken on the project since 2004 and as recently as 2018. There is no requirement for further monitoring of habitats which are regenerating naturally. The removal of self-sown conifer

trees from peatland areas within the wind farm site and along the OHL corridor for the life-time of the project will help maintain these open high value habitats.

3.2 Biodiversity - Aquatic Ecology and Fisheries

Summary of Commentary – The Arcadis Report queried a number of issues which relate mainly to assessment under the Water Framework Directive, importance of eel species, use of relevant guidance documents, assessments related to absence of fish species, adequacy of data to undertake assessments, non-referencing of key papers, assessment of brook lamprey, National /Regional Importance of WFD sites, suspended solid impacts on macroinvertebrates, water quality and fish, Decommissioning impacts and the effectiveness of mitigation measures..

Response - These issues have been considered and the following provides relevant clarification:

- WFD Status assessments of rivers and lakes are carried out by the EPA and other statutory authorities at designated Surveillance and Operational Monitoring sites throughout the country identified as suitable for the assessment purposes. They are principally on 3rd Order rivers and higher. Such sites are included within the Owendalulleegh River Catchment and the WFD status classification of streams and rivers and lakes within the study was extensively referenced and used in the assessment, mainly in relation to the biological water quality assessments of watercourses using the EPA Q-value system and supplemented with field surveys and additional data collection. It also included EPA water chemistry data for the lower Owendalulleegh River, supporting chemistry data for Lough Cutra, and macrophyte data for Lough Cutra which were combined to assess the WFD status of that water body. The Water Framework Directive status of surface water bodies has therefore been adequately assessed in the rEIAR.

- With respect to High Quality Status sites the Owendallulleegh catchment holds a sizeable proportion of the highest status Q-value sites in the country and hence would be regarded as of National importance noting that the most recent Q-value assessments undertaken by the EPA indicate an increase in the number of High Status (Q5) sites nationally (from 20 to 40) (EPA, 2021) Water Quality in 2020 – An Indicators Report [1].

- Regarding eels, their importance as a component of the fish stocks, the impact of the peat slide on them and their likely rate of recovery have all been dealt with in the rEIAR. see Section 8.2.6.3 and Tables 8.19 and 8.20, also pages 8-82 and 8-95. The rEIAR also clearly highlights the critically endangered status of the species (Section 8.2.7, par 2, page 8-60). With regard to the [1]Eel Regulations these are principally designed to direct the management of the eel stocks within EU member states with the aim of halting the decline in the stocks and to take measures that would

[1]https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/water-quality-in-2020.php).

reverse that decline. Specifically referring to its provisions would not have added to the assessment or its outcome in the rEIAR.

- With regard to the use of relevant Guidelines, the EPA Guidelines used predate the CIEEM Guidelines by just two years and cover a very similar set of headings as the CIEEM Guidelines. An advantage of the EPA Guidelines, which were used extensively in the assessment, is that they include a very detailed section on determining significance of effects and for describing effects. Additionally, NRA 2003 Guidelines (with slight modifications) were used as a guide in the context of ranking the importance of sites, whereas, the evaluation of receptors was based primarily on their ecology, their known distribution in Ireland in relation to habitats and water quality, their relative rarity and their status under EU and Irish legislation. The manner in which the NRA guidelines were employed is given in detail in Section 8.2.7 'Ecological and Freshwater Value', Page 8-60). Use of the CIEEM Guidelines would not have changed the outcome of the assessment in the rEIAR and the assessment is unchanged.

- The statement related to recorded absence of fish species is only partially correct. Some very small streams that were surveyed more than once had fish present in at least one of the surveys (e.g. Site O2 and O3) and others (e.g. O5A) had fish but in low densities. The rEIAR (see Page 8-95) indicates a possible reason for the absence of fish in two of the streams (O4 and O5) due to the presence of downstream barriers. The relevance of the Waldron et. al., 2009 paper referenced in the Arcadis Report is questionable as it makes no mention of the ecological or water quality significance of these increased dissolved or particulate carbon fluxes and there is no reference in the paper to fish or fish habitats.

- With regard to the adequacy of assessment data, as stated in the rEIAR Section 8.1.4, EPA Q-value data was used extensively and was crucial due to its extended time scale and wide coverage as it comprises a high quality dataset, including from surveys undertaken immediately after the peat slide, as well as all those before and since. An adequate dataset to make the assessment was therefore provided by the combined EPA data and additional detailed site surveys (macroinvertebrates, fish and water chemistry) as set out in the rEIAR and IFI Fisheries survey data.

- With regard to the non-referencing of particular published material, the papers of Kurz and Costello (1999) and Kelly and King (2001) were not referred to in the assessment as neither paper mentions the occurrence of lampreys in the Owendalulleegh River or Lough Cutra. The Byrne *et al.* paper, also from 2001, deals exclusively with the distribution and biology of the species in the Lough Corrib. References in Lindsay and Bragg(2005) to brook lamprey occurrence in Lough Cutra and the Owendalulleegh are not substantiated by data from the authors themselves or any other source. Brook lamprey, their Annex II status, their current Red Book risk level in Ireland and their occurrence in watercourses draining the Derrybrien Wind Farm are

comprehensively addressed in the rEIAR. Quoting any of the references listed above would not have added to or altered any of the conclusions drawn in the rEIAR.

- Further, with respect to the low numbers of lamprey given in the rEIAR these reflect the suboptimal habitats for lamprey ammocoete within most of the main channel and tributaries (see rEIAR Section 8.2.7 page 8-60) in contrast to the habitat requirement set out in Kurz & Costello (1999) and also the natural variation in species abundance as shown by Byrne et al. (2001) in the Corrib Catchment (lamprey were encountered in only 15% of sites). The paucity of suitable habitats in the Owendalulleegh is considered one of the main reasons for the lower numbers of lampreys encountered in that and all the other river sites surveyed. The low numbers cannot be compared to trout and eel numbers as trout have different habitat preferences than lamprey (except for spawning) and eel have a completely different life cycle. This fact was observed during Inland Fisheries Ireland (IFI) electrofishing surveys in a similar type river system (the River Bandon and in many of its tributaries in a 2019 survey), (see IFI Factsheet 2019/03 obtainable at: (http://wfdfish.ie/index.php/south-western-river-basin-district-river-surveys-2019/). The assessment is therefore robust and remains unchanged.

- With regard to impact of suspended solids on macroinvertebrates and water quality due to construction phase activities, a comprehensive assessment is provided in the rEIAR (Pages Section 8.3.2.1, Pages 8-69 and 8-72), covering both the impact of the construction phase in general and that of the peat slide. Projections were based on a very conservative baseline status (rEIAR Table 8.24 where all sites were given High Status) and includes predicted impacts, recovery periods based on the EPA 2017 Guidance criteria and actual water quality data (rEIAR Table 8.10) at some of the same sites recorded between 2011 and 2019. The data also shows clearly (Table 8.10) the inter-annual variation in water quality which occurs due primarily to the small size of stream channels, usually 1st or 2nd order streams, which have far less buffering capacity than the larger order channels and therefore are more susceptible to impact. It is also important to note that many sites can be influenced by other activities in their catchments other than the presence of the wind farm e.g. forestry and turbary. It is noteworthy, that water quality at most of the sites that were predicted to have Bad Status in the impacted side stream, SC7(b)/(d) (see rEIAR), due to the peat slide (i.e. Q1-2 in Sites O4, O5, O6 and O6A - Table 8.24 of the rEIAR), regained High Status (Q4-5) or was bordering on it (Q4 (4-5) as shown in Table 8.10 on at least one sampling run between 2011 and 2019. The impact of suspended solids is therefore robust and the assessment remains unchanged.

- In relation to the comment relating to the level of impact on fish, evidence that the impact on fish during the construction phase (apart from the impact of the peat slide) is believed to have been be at worst slight, negative and temporary is amply provided in the rEIAR (Section 8.3.2.1, Pages 8-70 and 8-71).

- The assessment of the peat slide (as opposed to the general construction phase) set out in the rEIAR Section 8.3.2.2 under the headings: Impact on Fish (Page 8-82), Off-site Peat Slide Works Oct 2003-end of 2005 (Page 8-92) and Recovery of Fish Population (Pages 8.92 to 8.96) can be described as precautionary and provides details setting out several different impact scenarios depending on the fish species and the impacted waters in question. Moreover, based on the literature cited that reported on catastrophic fish kills in other jurisdictions, (see Fish Recovery Section 8.3.2.2,Pages 8-92 to 8-93) it can be concluded that a similar or marginally more conservative time- scale for recovery was adopted, which is precautionary also. There is no change in the conclusions of the rEIAR.

- In terms of decommissioning, the approach taken in the rEIAR was to address what could reasonably be expected to be the most likely effects of decommissioning on the receiving waters rather than anticipate a repeat of a catastrophic event like the 2003 peat slide

- With regard to the comment on mitigation, the proposed mitigation measures presented in the rEIAR Sections 8.5.1 and 8.5.2 are based on detailed knowledge of the ground conditions, slope, and layout of the wind farm site and overhead line route and sub-station site. They include measures that are tried and tested in similar sites, the appointment of a Pollution Control Officer to oversee their effectiveness and prior consultation with IFI on the most appropriate river crossing methodology required has been recommended.

Having regard to the Arcadis Report and commentary specifically relating to biodiversity with respect to aquatic ecology and fisheries, the Applicant notes the incorrect assertions and conclusions set out in that report and confirms that, the assessment methodology applied was appropriate and robust, and the conclusions reached reasonable.

3.3 Soils, Land and Geology

Given the highly technical nature of this topic a detailed response has been prepared by AGL Consulting Ltd. AGL are specialist geotechnical engineers who have had detailed knowledge of the development site and have provided expert inputs into the rEIAR.

The Applicant submits that the information provided here is of significant assistance to the Board in clarifying many of the points raised in the Arcadis Report and supporting the experts conclusion that – notwithstanding the statements made therein, the methodology used in the rEIAR is robust and the conclusions set out are both reasonable and complete.

14 page memo prepared by AGL Consulting, Geotechnical Engineers (pages individually numbered 1 to 14)

Memorandum

To: Michael Brides, ESB Engineering & Major Projects

From: Conor O'Donnell

Re: **Derrybrien WF rEIAR) – Response to Sections of the Arcadis Technical Assessment Report related to Ch.10 of the rEIAR (Soils, Geology & Land)**

Date: 15/10/2021 **Ref:** 11-147D-M001

1.0 INTRODUCTION

AGL Consulting were requested by the Applicant to review and comment on Sections 5.11 and Appendix C of the Arcadis report which relate to the assessment of impacts on Soils, Land and Geology in Ch.10 of the rEIAR and the associated Appendices.

2.0 COMPLIANCE WITH EU ENVIRONMENTAL LEGISLATION

Section 2.1 of the Arcadis report states that the primary objective of the assessment that they carried out on the rEIAR for the Derrybrien Wind Farm and Ancillary Works was to determine if the process undertaken for the rEIAR was thorough, complete and in line with EU Environmental Legislation. It also states that a key objective was to assess whether the process that was undertaken fairly assessed the key impacts over time.

This is not consistent with the Section 5.11 or Appendix C of the Arcadis report. Section 5.11 and Appendix C are focussed on peat stability across the site, particularly the impacts of forestry, drainage and rainfall on the stability and integrity of the peat and not on the due process and appropriate assessment of impacts and mitigation measures specifically related to the wind farm and ancillary works in Ch.10 and in the associated appendices of the rEIAR.

While peat stability is a significant issue for the Derrybrien Wind farm (and has been given robust treatment in the rEIAR), the primary purpose of Chapter 10 of the rEIAR is to describe and assess all impacts and mitigation measures ***related to the wind farm development and ancillary works*** and their likely significant effects on the receiving soils geology and land over the full life span of the project from a baseline condition prior to construction through to residual effects after decommissioning, as outlined in Section 4.0 of the Arcadis report.

The assessment is not limited to impacts that effect peat stability, but includes all relevant direct, indirect, cumulative and residual impacts that could have significant effects on soils, geology and land. Specific to the rEIAR process, an appropriate assessment must also be carried out of impacts that have occurred to date, that are still occurring and that are likely to occur over the remaining operational life of the wind farm and on decommissioning.

In contrast to this, Section 5.11 of the Arcadis report does not assess the comprehensive description and assessment of impacts for all of the site activities related to the wind farm

project and ancillary works and their likely significant effects over the full life span of the project in Ch.10 of the rEIAR and in the Geotechnical Stability Reports in Appendices B and C, which represent an appropriate level of due process that is fully compliant with all of the relevant Irish and EU Legislation.

The Arcadis report also does not take into account the extensive geotechnical risk mitigation measures that were implemented during the second phase of construction and over the operational phase of the project to mitigate the risk of peat instability and successfully complete the construction of the project and operate the wind farm without any further incidents of peat instability, as outlined in Section 10.5 of the rEIAR and in the Geotechnical Stability Report in Appendix B of Ch.10.

Section 2.1 in Appendix C of the Arcadis report states that the nature of guidance for the impact assessment in Ch. 10 of the rEIAR is not clear and Section 2.2 of Appendix C goes on to quote out-of-context references to various guidelines referenced in the rEIAR.

Section 10.1.5 of the rEIAR (Methodology (p10-19)) clearly states that the methodology that was used to assess the impact of the various project activities on the receiving soils, geology and land is based on the recommendations in the **2017 Draft EPA Guidelines on Information to be Contained in Environmental Impact Assessment Reports**, which has been specifically prepared to facilitate compliance with current EU Directives.

Section 10.1.5 of the rEIAR goes on to state that the 2017 Scottish Best Practice Guidelines for Peat Landslide Hazard and Risk Assessments has been used to assess the *Probability of Occurrence* or likelihood of a peat failure, which is only one of the many characteristics that were used in the rEIAR to assess the significance of effects of peat stability impacts, albeit an important one.

Section 5.11.1 of the Arcadis report does not acknowledge that the 2017 EPA Guidelines gives the appropriate context for assessing the compliance of Ch10 of the rEIAR with the relevant EU Environmental Legislation, along with specific criteria that applies to the rEIAR process, as set out in Section 10.1.5 of Ch.10 in the rEIAR. Instead, the assessment in the Arcadis report is incorrectly based on the 2017 Scottish Best Practice Guidelines, which give no guidance on carrying out appropriate environmental risk assessments for the soils and geology chapter of an EIAR or rEIAR for a wind farm project in compliance with relevant EU legislation.

Therefore, Section 5.11 of the Arcadis report does not present an appropriate assessment of the compliance of Ch.10 of the rEIAR with the relevant EU Environmental Legislation.

3.0 BASELINE INFORMATION, SUPPLEMENTAL SURVEYS AND GEOTECHNICAL INVESTIGATIONS

Section 5.11.2 of the Arcadis report states that the information that was used to develop the baseline conditions on the wind farm site "*cannot be an accurate picture of the prevailing baseline conditions in 1998*".

Section 10.1.6.1 of the rEIAR (Difficulties Encountered) identifies the difficulties that were encountered with the limited information that was available on ground and groundwater conditions prior to the peat slide in October 2003. With the obvious exception of the slide area and the small areas where works had been completed on the site, the information obtained during the second phase of construction after the peat slide has been considered representative

of the baseline conditions on the site in the rEIAR. In our opinion, this is a reasonable assumption that makes appropriate use of the best available information.

Section 5.11.2 of the Arcadis report also states that the geotechnical investigations and site surveys carried out after the peat slide in 2003-2005 were limited by the fact that they pre-dated the 2017 (2nd Edition) Scottish Best Practice Guidelines and that the information gathered "*misses key elements of what should have underpinned the baseline survey*".

AGL do not agree that the geotechnical investigations and site surveys that were carried out on the site by AGL Consulting, ESBI, and AGEC after the 2003 peat slide are deficient in any way that prevents a robust assessment being carried out of baseline conditions and peat stability on the wind farm site in accordance with current industry best practice guidelines.

The 2017 Scottish Best Practice Guidelines are not prescriptive on the scope and content of investigations. Section 4.4.2 of the guidelines "*provides guidance on the general principles behind planning a ground investigation in support of a [peat stability risk assessment], and then summarises a range of intrusive and non-intrusive approaches to characterising ground conditions*". Ultimately it states that the objective of the ground conditions assessment is to obtain sufficient and reliable information on site conditions, hydrology, and the depth, strength and characteristics of the peat to enable stability analyses to be undertaken and to support the peat stability risk assessment.

Section 10.5 of therEIAR and AGL Report No. 11-147-R01, which is in Appendix D of the Geotechnical Stability Report in Appendix B of Ch.10 of the rEIAR, provide a detailed record of the comprehensive surveys and geotechnical investigations that were carried out across the site to mitigate and manage the risk of peat instability during the second phase of construction after the peat slide. The investigations involved extensive desk studies, walkover surveys, mapping of site conditions, peat depth probing, gouge auger sampling, slope angle surveying, and in-situ vane shear testing with a range of small medium and large vanes to characterise the depth, characteristics and strength of the peat, as well as any other site characteristics that could lead to an elevated risk of peat instability (e.g. topography/drainage/land use), which is all consistent with the recommendations in the 2017 Scottish Best Practice Guidelines. The level of investigation that was carried out on the site far exceeds that which would normally be carried out for a wind farm development of this scale on an upland blanket bog. The Arcadis report does not fully consider all of this information in its assessment.

Section 6.1.4 of Appendix C of the Arcadis report makes a number of statements about the unsuitability of vane shear testing to characterise the shear strength of the peat. We disagree with this conclusion. All of the stability analyses that were carried out to validate the capacity and stability of the floating roads and peat repository sites for the Derrybrien Wind farm were carried out using peat strengths recorded with the **Geonor H-10** penetration vane which has a 65 x 130mm vane that is considered an industry standard for high quality in-situ vane shear tests. A thorough evaluation process was used to ensure that the vane gave representative strengths in the peat, which included a full-scale load test on a test section of floating road to compare the results of the Geonor H-10 and the larger ESBI vane (see AGL Report No. 03-104-R06 in Appendix VI of AGL Report No. 11-147-R01 in Appendix B of Ch.10 in the rEIAR). Furthermore, full scale serviceability and proof load tests were subsequently carried out on all the floating roads on the site to validate the design, capacity, stability and performance of the roads.

This combination of walkover surveys, investigations, and stability analyses by experienced geotechnical engineers, combined with appropriate mitigation measures on construction activities ensured that the construction of the wind farm could be completed without any further incidents of peat instability, even in areas of the site that have been classified as medium or high risk in the baseline peat stability risk assessment in Ch.10 of the rEIAR.

Section 5.11.2 of the Arcadis report states that no further surveys informed by the Scottish Guidelines were carried out after construction of the wind farm was completed, and that as a result the 2020 rEIAR is "*inevitably constrained by the survey methods employed immediately after the 2003 peatslide*".

We disagree with this statement. The purpose of Ch.10 of the rEIAR is to assess impacts related to the wind farm and ancillary works and their effects on soils, geology and land and not just to assess peat stability on the site. Sections 10.2.2.2 and 10.2.3.2 of the rEIAR present summaries of the geotechnical investigations that were carried out between 2003 and 2020 for the Grid Connection route and for the Peat Slide and Associated Works, respectively. Furthermore, the following sections of the Geotechnical Stability Report for the Wind farm Site in Appendix B of the rEIAR present a comprehensive summary and assessment of the testing, monitoring and survey works that were carried out over the operational phase of the wind farm between 2005 and 2020, the results of which were incorporated into Ch. 10 of the rEIAR:

- Section 4.3.3 – regular periodic walkover surveys and inspections by experienced senior geotechnical engineers from ESBI and AGL Consulting to inspect for evidence of peat instability, including full-time supervision of the upgrade to the floating roads in 2014;
- Section 4.3.4 – full scale proof load testing on the floating roads in 2011 and again in 2014 after sections of the roads were upgraded to validate the design, capacity, stability and performance of the roads;
- Section 5.2.1 – Surveying of monitoring points on the peat within the slide area between 2005 and 2017, which showed no significant downslope movement of the disturbed peat within the slide area;
- Section 5.2.2 – Electronic records of peat movement at 4 No. characteristic turbine locations between 2005 and 2012, which showed no adverse movement of the intact peat;
- Section 5.2.2 – Electronic records of groundwater levels at the same 4 No. characteristic turbine locations between 2005 and 2012;
- Section 5.3 – Full scale proof load testing of all of the floating roads across the site by AGL again in 2018 to further validate the geotechnical design, stability, capacity and expected long term improvement in the performance of the roads under the maximum design mobile crane load;
- Section 5.4 – Comprehensive walkover surveys and inspections that were carried out in 2018 by experienced senior geotechnical engineers from AGL familiar with the site to inspect for evidence of peat instability at the peat repositories, borrow pits and in areas where local peat instability was noted during construction.

In our considered and experienced opinion, these tests, surveys, inspections and monitoring records represent a comprehensive assessment of *the ongoing effects of the wind farm and*

ancillary works on peat stability over the operational phase of the wind farm, which is a primary purpose of the rEIAR (i.e. not just to assess peat stability on the site).

Essentially, rather than relying on the uncertainty of qualitative peat stability risk assessments based on a number of potential contributary factors (even to best practice guidelines), the approach that was adopted was to successfully design out the risk of peat instability by comprehensive geotechnical investigations and stability analyses; validate the designs by full scale proof testing on site; and then observe, monitor and test the performance of the wind farm and associated works post-construction to confirm that the geotechnical performance of the site was in line with expectations based on the original ground conditions assessment, and that there were no further significant adverse effects on peat stability related to the wind farm and ancillary works.

Section 5.11.3 of the Arcadis report also refers to potential long-term adverse effects of site drainage and rainfall on the stability of the peat on the wind farm site after construction, in particular highlighting the potential destabilising effects of "intense convective storms".

It is our considered opinion that the effects of rainfall and drainage on peat stability have been comprehensively assessed in the rEIAR and that our assumptions and conclusions have been robustly tested and validated by the extreme short-duration storm events that occurred in June 2012, December 2015 and February 2020, when approximately 60mm of rain fell in the area over a period of 24 hrs, and by the heavy long-duration winter rainfall events in 2009, 2014, 2015, and 2020, which were the largest long-term events in the 40 year monitoring history for the area but did not result in any adverse effects on drainage or peat stability on the wind farm site [ref. Ch.11 – Hydrology and Hydrogeology, p11-62 (Para 2) and p11-90 (para 2)].

4.0 TENSION CRACKS ALONG FORESTRY PLOUGH LINES

Section 5.11.2 of the Arcadis Report highlights as a "*key*" issue that Lyndsay & Bragg, in their 2005 report on the 2003 peat slide, identified that the area of forested peatland on the wind farm site was "*riven with cracks*" that had formed along forestry plough lines, and that these cracks "*had clearly played a major role in expanding the scale of the peat slide*".

Sections 5.11.2 & 5.11.3 of the Arcadis report go on to state that these cracks represent "*linear features associated with zones often possessing zero cohesion"* that influence the stability of the peat "*to a considerable degree*" and "*dominated substantial parts of the site"* with "*extensive cracking within the forested peatlands*".

These statements would indicate that extensive areas of blanket bog in the previously forested areas that covered up to 75% of the wind farm site prior to construction, are split into strips of peat divided by open tension cracks along forestry plough lines that Lindsay and Bragg state "*are commonly up to 15cm wide and extend to a depth of 70cm*" (L&B 2005 p19).

This is not representative of the conditions that have been observed on the site by experienced geotechnical engineers from AGL and AGEC during the comprehensive and extensive investigations and walkover surveys that were carried out across the site over an extended period of time during construction, and over the operational period of the wind farm post-construction. It is also not supported by the evidence in the Lyndsay & Bragg or Arcadis reports.

Figure No.1 below, which is from Plate 3.5 in the Lyndsay & Bragg report, shows an image of the blanket bog on the site after the trees were felled that is more consistent with our observations of the general condition of the peat in the forested areas. The rows of trees are separated by shallow furrows rather than deep "plough lines", and the surface of the blanket bog is intact with no evidence of deep open tension cracks.

Figure No.1 – Plate 3.5 of the Lyndsay & Bragg report showing an area where forestry has been felled to make way for construction work on the Derrybrien Wind farm site.

Section 6.1.4.2 of Appendix C of the Arcadis report refers to Plates 3.1 and 3.2 of the Lyndsay & Bragg report as illustrating how "*intense and deep*" the cracking and fissuring along forestry plough lines can be "*beneath any forestry plantation on peat*". However, the photographs that the report refers to were taken on a site *in the north of Scotland*, so they are not considered representative of the conditions on the Derrybrien Wind farm site.

Furthermore, the types of cracking that Lyndsey and Bragg are referring to relate to mature tree growth in 20-30 year old forestry stands whereas the peat slide on the Derrybrien windfarm occurred in an area that was sparsely forested with very little mature tree growth. In fact, the lateral extent on the east side of the peat slide was along the boundary with stands of older more mature forestry, which appeared to restrict further progression of the slide rather than "expanding the scale of the peat slide", as stated in Section 5.11.2 of the Arcadis report.

Therefore, the role of forestry plough lines in the assessment of peat stability on the Derrybrien Wind Farm site is not considered a key contributary factor for peat instability in the rEIAR. Rather, it has been assessed in combination with other risk factors related to peat strength, hydrology, groundwater, topography and land use, to identify areas that are pre-disposed to a peat slide, which is consistent with current best practice guidelines.

Appendix C of the Arcadis report makes a number of statements saying that no surveys were carried out for the rEIAR to assess the possible extent of tension cracks along forestry furrows (e.g. Section 5.2.2 p17/18), and that the ground investigations were carried out in areas of intact peat that are not representative of the conditions where there are tension cracks along the forestry furrows, other than "*perhaps the occasional fortuitous capture of a fissure during shear vane testing giving rise to anomalous results*" (e.g. Section 5.3.2 p21, paras 3 & 4 & Section 5.5.1 p27, 1st para).

We do not agree with these statements. Most of the peat probing, gouge auger core sampling and in-situ vane shear testing that was carried out in the forested areas of the site for the second phase of construction on the windfarm was carried out in the forestry furrows to avoid potential obstructions from the tree roots. Similarly, during walkover surveys the geotechnical engineers also typically walked along the forestry furrows because the trees and tree roots between the furrows are obvious obstructions and tripping hazards. If there were open tension cracks along the furrows these would have been identified on the site, even if they were covered by a layer of pine needles, as suggested by Lyndsay and Bragg. However, no open tension cracks were identified in the peat along the forestry furrows during these comprehensive surveys and investigations.

The AGEC report in Appendix A of the rEIAR (Final Report on Derrybrien Windfarm Post-Landslide Site Appraisal) also includes several Geotechnical Mapping Sheets which record tension cracks in the peat where they occurred around the turbine foundations. However, these cracks occurred as a result of ground movements in the peat resulting from the excavations for the turbine foundations and not because of shrinkage cracks along the forestry furrows.

Sections 5.11.2 & 5.11.3 of the Arcadis report states that the assessment process in the rEIAR is blind to extensive cracking within the forested peatlands, and that it is not mentioned or recognised in the assessment of the baseline conditions on the site or in any of the peat stability risk assessments, including the stability assessment for 2020.

We disagree with these statements. In the peat stability risk assessment in Appendix B of the Geotechnical Stability Report for the wind farm site (AGL Report No.11-147-R04) in Appendix B of the rEIAR, AGL have included an assessment of forestry drainage, tree growth and tension cracks as possibly contributory risk factors to peat instability *insofar as they were considered applicable and representative for the conditions on site*. These factors were assessed in combination with other known risk factors related to peat & subsoil characteristics, topography, infinite slope stability analyses, hydrology and hydrogeology and site characteristics, to identify areas of the site where there are a combination of factors that would make the area pre-disposed to peat failure, such where the slide occurred, which is consistent with the current Scottish Best Practice Guidelines.

On p10-146 of Ch.10 it is acknowledged that damage to the integrity of the upper fibrous layer of the intact peat in the slide area where the forestry drains and furrows were cut into the slope was one of several significant compounding factors that contributed to the peat slide occurring in that area of the wind farm.

Furthermore, as already discussed, the effects of the wind farm on peat stability in the forested areas has been robustly assessed in the rEIAR and indeed verified through a combination of comprehensive geotechnical investigations, site surveys, stability analyses, testing and post-construction observations which would supersede the findings and conclusions in the 2005 Lyndsay & Bragg report.

5.0 ASSESSMENT METHODOLOGY

Section 5.11.3 of the Arcadis reports states that the methodology for the peat stability risk assessment (PSRA) is not clearly explained in the rEIAR, particularly

- the categorisation of site factors in the hazard ranking system used to assess the likelihood of a peat slide in the baseline PSRA; and
- the basis for the subsequent re-assessment of the likelihood at different stages during the second phase of construction and over the operational phase of the project, as illustrated on Figures 10-34, 10-35 & Figure 10-36 in Ch. 10 of the rEIAR.

In our opinion these issues have been adequately explained in Ch.10 of the rEIAR and related appendices.

Firstly, the PSRA needs to be distinguished from the EIA process. The PSRA is an ***engineering risk assessment*** that has been carried out in accordance with the current industry best practice guidelines to assess the risk of a peat slide on the wind farm site based on the interpreted likelihood and potential *overall* impact of a peat slide (i.e. not just limited to the environmental impact on soils, geology and land). As such, it is included as an appendix to Ch.10 of the rEIAR, which is standard practice [i.e. in AGL Report No. 11-147-R04 in Appendix B of the rEIAR)].

The interpreted likelihood of a peat slide from the PSRA is then used as an input parameter in the ***environmental impact assessment*** in Ch. 10 to assess the impact of site activities *related to the wind farm development* and the significance of their effects on the stability of the peat. This is clearly explained in Section 10.1.5 of the rEIAR and illustrated on Figure 10-2.

The baseline PSRA represents a characterisation of the risk of peat instability on the site *prior to the implementation of appropriate design and construction mitigation measures for the wind farm development*. The methodology for the PSRA is described in Section 1.3 of AGL Report 11-147-R04 in Appendix B of Ch.10 of the rEIAR. This includes an explanation for the characterisation of the site factors that were used in the hazard ranking system to assess the likelihood of a peat slide (Section 1.3.1.1). The baseline PSRA is presented in Section 2.5 of the report and the corresponding worksheets that summarise the site characteristics, hazard rankings and interpreted hazard likelihood for a peat slide are presented in Appendix B of the report, along with the corresponding Figures and Tables that summarise relevant information and criteria used in the assessment.

The change in the likelihood of a peat slide over the project life cycle is explained in Section 10.2.4.4 of the rEIAR and illustrated on Figures 10-34, 10-35 & Figure 10-36. The corresponding assessment of the effect of the wind farm site activities on peat stability is summarised in Tables 10-8 to 10-11 and Sections 10.3.2 of the rEIAR, and described in detail in AGL Report No. 11-147-R04 in Appendix B.

There are a few key principles that need to be considered in understanding these figures and tables, as stated in Section 10.2.4.4 of the rEIAR:

- The assessment only applies to activities *specifically related to the wind farm development*, which change in character and impact over the life of the project;
- The highest risk of peat instability was during the construction of the wind farm and ancillary works, when there was the greatest intensity of activity on the site and loading

on the peat , i.e. for the construction of the floating roads, turbine foundations and crane hardstandings, and in the material deposition and sidecast areas, particularly during the 1st phase of construction prior to the peat slide in October 2003;

- Section 5.11.3 of the Arcadis report states that the interpreted reduction in likelihood of peat failure shown on Figures 10-34, 10-35 and 10-36 of the rEIAR "*is based almost entirely on the single mitigating measure of peatland drainage*". This is not correct. Section 10.2.4.4 of the rEIAR clearly explains that, in addition to the drainage improvements, the reduction in likelihood is based on a combination of:
    - The comprehensive additional geotechnical investigations, stability analyses, testing, monitoring and observations on the site, including the full-scale serviceability and proof load testing of the floating roads under the design crane load;
    - The implementation of effective design and construction risk mitigation measures including alternative methods of spoil management, as illustrated also in Table 10-8 of the rEIAR (assessment of Stability Impacts – Construction Stage 2003-2006);
    - An improvement in site conditions primarily related to the increase in the strength of the peat under the floating roads and peat repository sites over time as the peat compressed under the sustained surcharge loads,
    - The reduced level of wind farm activities on the site during the operation and maintenance phase of the wind farm and during decommissioning.

As a result of these changes, the likelihood of a peat slide occurring on the wind farm site for the low level of residual site activities related to the wind farm and ancillary works over the remaining operational life of the wind farm and during decommissioning is very low to negligible, as summarised in Tables 10-10 and 10-11 and in Section 10.3.2.3 of the rEIAR (Impacts which are likely to occur).

At this stage all the floating roads have been proof tested under the maximum design loads of the mobile cranes that will be used for the maintenance and decommissioning of the turbines and substation. Maintenance works on the floating roads will be limited to localised repairs, resurfacing and infilling of potholes. Works on the drainage will be limited to maintenance of the existing network and capacity. Scheduled tree topping and localised maintenance and repair works on the existing network of drains, cables and ducting on the peat will be done using low ground bearing pressure machines suitable for working on the peat.

Essentially, the risk of peat instability over the remaining operational life of the wind farm has been designed out by comprehensive geotechnical investigations and stability analyses which have been validated by full scale proof testing, monitoring and observations on site.

6.0 RESIDUAL RISK AFTER DECOMMISSIONING

Section 5.11.5 of the Arcadis report states that no explanation has been provided for our interpretation in Section 10.6.1.2 that the positive effect of the improved site drainage on peat stability will reduce from Medium at the end of decommissioning, to Medium to Low or Low in the long term.

In Section 10.6.1.2 of the rEIAR it is stated that this is on the basis that the long-term efficiency of the drains is likely to reduce as they become clogged by vegetation over time, which will result in a partial gradual restoration of groundwater levels on the site.

We do not state that "*all drains will inevitably infill with time*" as stated in the Arcadis report. Much of the drainage on the site will remain effective even without maintenance. Furthermore, we do not consider that the reduction of the efficiency of the drains over time will result in a net adverse effect on the stability of the peat because:

- fundamentally, there will be no site activities related to the wind farm on the site after decommissioning to trigger a peat slide.
- the increase in strength that has occurred in the peat under the floating roads, peat repository sites and in areas where the groundwater level has been lowered by site drainage is a permanent change that will not reverse when groundwater levels are restored;
- peatlands are dynamic natural environments. If groundwater levels on the site are allowed to gradually restore as drains reduce in efficiency over time (which is recommended), then the peatland vegetation and natural drainage on the site will be given the opportunity to re-generate and adapt in response to the changes in groundwater levels maintaining the integrity of the blanket bog;

We would also disagree with the statement in Section 5.11.5 of the Arcadis report that the floating roads will "*represent lines of weakness long after the wind farm is decommissioned*". The peat under the floating roads has gained significantly in strength as it compressed under the weight of the roads, which will not reverse if water levels are permitted to rise on the site. Furthermore, the turbine foundations and crane hardstandings that will also be left in place along the roads after decommissioning are supported on the glacial till and rock below the peat. Therefore, they will act as buttresses or shear keys to support the peat on the slopes, which will have a positive effect on peat stability, as summarised in Table 10-35 of the rEIAR.

7.0 PEAT STABILITY FOR MECHANICAL PEAT EXTRACTION IN TURBARY AREAS

Section 5.11.4 of the Arcadis report identifies an apparent inconsistency in Ch.10 of the rEIAR where it states that hazard signs placed by the Developer at the entrance to the turbary area to inform the turbary plot owners of the risk of peat instability related to peat cutting activities "*heightens concerns about site stability, despite continued assurances from the developer (and repeated in the rEIAR) that mitigation measures have rendered the site safe*".

There is no inconsistency in the rEIAR in this assessment.

As discussed previously, the assessment of stability impacts for the wind farm development specifically relates to *the wind farm activities* for which the likelihood of a peat slide has been significantly reduced by all the geotechnical investigations, stability analyses, mitigation, testing, monitoring and site observations to date. At this stage of the wind farm life cycle the likelihood of a peat slide related to the wind farm has also been significantly diminished by the improvements in site conditions, particularly increases in peat strength, and by the low level of activities that are likely to occur over the remaining operational life of the wind farm and during decommissioning, which will be concentrated on the site infrastructure that has been designed and tested for the maximum design live load surcharge.

In contrast, the activities related to the mechanical peat extraction in the turbary area are not related to the wind farm project and are carried out on the peat slopes between the site access tracks used for the operation and maintenance of the wind farm. Therefore, the effects of the

mechanical peat extraction on the stability of the peat in the turbary area has necessarily been assessed separately as a cumulative impact in Section 10.4.5 of the rEIAR.

Section 5.11.5 of the Arcadis reports states that "*The likely basis of concern and the reason for the Hazard sign almost certainly originate from a series of factors which could have been anticipated by the Developer had they undertaken adequate survey and had they taken account of the issues highlighted by Lindsay and Bragg (2005)*", which "*are explored in more detail in Appendix C*" of the Arcadis report.

This statement is incorrect. The concerns were raised as a result of the due process that was followed to assess the impacts of site activities related to mechanical peat extraction in the turbary area and their effects on the stability of the peat as cumulative impacts in Section 10.4.5 of the rEIAR. This assessment included a robust peat stability risk assessment to assess the likelihood of a peat slide in each turbary plot to current industry best practice guidelines based on a combination of known risk factors relating to the characteristics of the peat, topography, hydrology and factor of safety calculations, as well as other known contributary risk factors including mechanical peat extraction and evidence of existing peat instability related to peat extraction in the area. The impact of forestry has been considered insofar as it is relevant and in combination with the other risk factors. However, the issues highlighted by Lindsay and Bragg and Arcadis are not as relevant in this case because the majority of the turbary area was not forested. A copy of the PSRA (AGL Report No. 11-147-R06) is included in Appendix E of the rEIAR.

There has been a notable increase in the level of mechanical peat extraction in the area since about 2012 when a local contractor was retained to cut turf using a combination of a large peat hopper and hydraulic excavator, as described in Section 10.4.5 of the rEIAR. Mechanical peat extraction of this scale is a known hazard that increases the likelihood of peat instability.

An analogy of "noise effects" is presented on page 10-278 of the rEIAR to illustrate how the effects of peat extraction in the turbary area on peat stability are independent of and unrelated to the effects of the wind farm site activities over the remaining operational life and during decommissioning of the windfarm. They also do not amplify the effects of stability impacts related to the operation and maintenance of the wind farm.

The Applicant has committed to implementing a number of mitigation measures to raise awareness of the risk of peat instability as a result of mechanical peat extraction in the turbary area, including erecting warning signs, communication with the turbary plot owners, periodic inspections by the wind farm site manager, and some remedial drainage and monitoring works in areas where peat failures have occurred recently as a result of the peat extraction, as described on p10-277 of the rEIAR.

8.0 APPENDIX C OF ARCADIS REPORT

Appendix C of the Arcadis report presents a "supplementary critique" of Ch.10 of the rEIAR. Rather than providing a section-by-section response to each of the points raised, which will repeat many of the points that have already been addressed, we offer the following general comments and responses to the content and findings in the appendix:

- Similar to Section 5.11.1 of the Arcadis report, Appendix C of their report does not assess the compliance of Ch.10 of the rEIAR with the relevant EU Environmental Legislation in the context of the stated methodology in Section 10.1.5 of the rEIAR.

Appendix C does not consider the comprehensive description and assessment of impacts for all site activities related to the wind farm project and ancillary works and their likely significant effects on soils, geology and land over the full life span of the project in Ch.10 of the rEIAR. Instead, Appendix C is primarily focussed on the peat stability risk assessment and compliance with the 2017 Scottish Best Practice Guidelines, which give no guidance on compliance with the relevant EU legislation.

- Appendix C makes numerous incorrect or out-of-context assertions that the assessment of peat stability for the Derrybrien Wind Farm site in Ch.10 of the rEIAR and associated appendices does not comply with the 2017 Scottish Best Practice Guidelines. For example:
    - Section 5.2.2 of Appendix C states that "*the rEIAR does not offer a geomorphological map of the specified by the Scottish Best Practice Guidelines*". The Scottish Best Practice Guidelines do not *specify* prescriptive requirements. They give recommendations and guidelines that are ultimately the responsibility of the developer and their specialist subconsultants to consider. Notwithstanding this, it is our experienced opinion that the maps of peat depth, LiDAR topographical survey contours, slope angles, Factor of Safety calculations, site drainage and hydrology plans and aerial photographs that have been included in Ch.10 and Appendix B of the rEIAR, all with the site layout plan superimposed on them, represent a comprehensive and sophisticated level of interpretive mapping of representative site features that is consistent with the recommendations of the 2017 Scottish Guidelines and would enable a qualified expert to make an appropriate assessment of factors that can effect peat stability on the site.
    - Section 5.3.2 (p21 5th Para) and Section 6.1.4.2 (p38-41) of Appendix C in the Arcadis report state that shear strengths recorded in the peat by in-situ shear vanes are not representative, that they were mainly recorded with the small Geonor H-60 25mm hand vane, and that they fail to meet the guidance by the 2017 Scottish Guidelines. As we have stated previously, we would not agree with these statements, i.e.:
        - the detailed geotechnical assessments that were carried out on the site after the peat slide were carried out using peat strengths recorded with the **Geonor H-10** penetration vane which has a 65 x 130mm vane that is considered an industry standard for high quality in-situ vane shear tests (see AGL Report No. 11-147-R04 in Appendix B of Ch.10).
        - A thorough evaluation process was also used to ensure that the vane gave representative strengths in the peat, which included a full-scale load test on a test section of floating road to compare the results of the Geonor H-10 and the larger ESBI vane.
        - Full scale serviceability and proof load tests were subsequently carried out on all the floating roads to validate the results of the vane shear testing and the design, stability and performance of the roads.
    - Many of the conclusions in Appendix C relate to statements made in the Arcadis report that extensive areas of the previously forested sections of the wind farm site are covered by tension cracks along forestry plough lines based on the Lyndsay and Bragg 2005 report (e.g. Section 5.2.2, p16-18). As stated previously, these statements are not representative of the conditions that have

been observed and recorded on the site by the authors of Ch.10 of the rEIAR. The findings of Lyndsay and Bragg have also been superceded by the extensive surveys, geotechnical investigations, stability analyses, testing, monitoring and observations that have been carried out on the site since the peat slide in 2003, which are presented in the rEIAR.

- Section 6 of Appendix C (Hazard and Risk Assessment) of the Arcadis report does not consider the methodology that was used for the peat stability risk assessments in the rEIAR, which is clearly set out in Section 1.3 of the Geotechnical Stability Report for the Wind Farm site (AGL Report No. 11-147-R04) in Appendix B of Ch.10 of the rEIAR. Instead Section 6 of Appendix C includes various references to other sections and tables in the rEIAR that are taken out of context.
- Section 7.1.2.1 of Appendix C (Scope of rEIAS mitigation measures) does not consider the extensive mitigation measures that are outlined in Section 10.5 of the rEIAR which were implemented to successfully manage the risk of peat instability during the 2nd phase of construction and over the operational phase of the windfarm between 2005 and 2020.

- Although Appendix C of the Arcadis report raises a number of issues on the methodology and information that has been used in Ch.10 of the rEIAR to assess peat stability on the wind farm site it should actually be apparent to the reader that the methodology that was used in the rEIAR does follow the phased assessment procedure recommended in the 2017 Scottish Best Practice Guidelines, i.e.
  - Scoping to identify the study area
  - Desk study
  - Site Reconnaissance
  - Ground Conditions Assessment
  - Ground Investigation
  - Hazard Ranking Assessment (Factor based Approach) – Likelihood of a Peat Slide
  - Slope Stability Analyses
  - Assessment of Adverse Consequences (Impacts)
- Furthermore, when the results of the baseline peat stability risk assessment from Ch.10 of the rEIAR (Figure 10-34) are superimposed on the results of the assessment that was carried out in Section 6.2.2 of Appendix C of the Arcadis report (Figure 10), which used an approach that the report states "*more closely reflects the guidance provided*", the Arcadis report acknowledges that "*there is good correspondence across all those T-cells identified in the rEIAS*" (App.C, p54, 2nd para). In other words, the results are similar, which further substantiates our conclusion that the issues that have been raised in Appendix C of the Arcadis report in relation to the peat stability risk assessments for the wind farm site in Ch.10 of the rEIAR are unfounded.

In conclusion, in response to the issues raised in Appendix C of the Arcadis report it is our opinion that:

- The peat stability hazard and risk assessments for the wind farm and ancillary works in Ch.10 of the rEIAR and associated appendices have been carried out in compliance with the 2017 Scottish Best Practice Guidelines;
- The assessments were carried out by competent senior geotechnical experts with extensive experience in geotechnical risk assessment and risk management for wind

farm developments on upland blanket bogs, and with intimate knowledge of the conditions on the Derrybrien Wind Farm site having been involved in the project since the construction stage in 2003;

- Sufficient high-quality information is available on the character, strength and depth of peat across the project area, as well as the topography, hydrology, land use and site conditions to enable a robust assessment to be made of the ground conditions and peat stability in the area in accordance with the 2017 Scottish Best Practice Guidelines;
- The Arcadis report does not identify any information, site conditions or other contributory factors that have not already been considered in the peat stability risk assessments that have been carried out for the rEIAR;

Therefore, the results of the peat stability risk assessments presented in Ch.10 of the rEIAR are considered to be valid and representative of the risk of peat instability in the project area for all phases of the project.

Document Approval Form			
Document No:	11-147D-M001	**Description:**	Technical Review of Arcadis Report
Revision No:		**Date:**	**Notes**
0		15/10/2021	FINAL
Made by:	Conor O' Donnell	15/10/2021	

3.4 Hydrology and Hydrogeology

Summary of Commentary - *The Arcadis Report states that the 'Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Projects' (SGG-2017), sets out a range of factors that should form part of any risk assessment. The report highlights a number of items in relation to hydrology, in particular its influence on the peat body. The report asserts that the rEIAR cannot be said to have followed the SGG-2017 guidance which the rEIAR itself claims to be doing.*

Response - In relation to compliance with legislation and best practice, the Applicant does not accept the assertions made and respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above) to address this commentary.

Summary of Commentary - *The Arcadis Report acknowledges that baseline information gathered through field and desk study data is generally appropriate. However, exceptions are highlighted in the absence of mapping of ploughing furrows, peat cracks and possible sub-surface piping associated with the forested ground on site.*

Response - In relation to compliance with legislation and best practice, the Applicant does not accept the assertions made and respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above) to address this commentary.

Summary of Commentary - *The Arcadis Report asserts that the relevant rEIAR Chapter does not provide any details with regard to stakeholder engagement. It particularly notes points raised by the submission of the South Galway Flood Relief Committee including concerns that flood peaks and the frequency of flooding events are increasing and impacting on residential areas downstream in the catchment.*

Response - In relation to responding to stakeholder engagement, the Applicant respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above).

In relation to concerns raised by the Submission, the Applicant respectfully refers to our communication of 4th December 2020 – specifically Section 2.9 of that letter. The townlands of Dereen and Beagh were specifically identified by the Submission as two downstream areas within 20 km of the wind farm at significant risk of flooding. Beagh is more than 20km downstream (following the course of the Owendalulleegh River) and is addressed by the rEIAR as an area subject to significant flooding historically. The flood risk assessment in Appendix A of Chapter 11 of the rEIAR considers this location in assessing the impact of the wind farm on downstream flood risk. Dereen, 16km downstream of the wind farm, is part of a wide floodplain section of the Owendalulleegh composed of generally marshy land and there are few if any houses in the area. The South Galway (Gort Lowlands) Flood Relief Scheme does not identify Dereen as an area requiring protection, and it is not subject to karst flooding.

It should be noted that as part of the Flood Relief Scheme's Feasibility Study (February 2021) hydrological assessments were undertaken to determine if improved land use management and attenuation works in the Slieve Aughty uplands area would benefit flood relief in the Gort Lowlands area. The assessment concluded that any feasible and cost-effective works in the uplands area would have very minor benefits to the lowlands area. Even significant permanent reductions in runoff from the mountains would not alter the fact that extreme flooding would occur in the lowlands during a current or future 1% Annual Exceedance Probability (AEP) and would not negate the requirement for flood alleviation works in the Gort lowlands. The runoff from Derrybrien Wind Farm would not have any discernable effect on this.

Summary of Commentary - *The Arcadis Report asserts that the justification of only minor and localised effects from leaving drainage in-situ and unmaintained is not considered to reflect the potential implications on the peat-hydrology and land stability regimes, asserting that the magnitude of effects may be understated.*

Response -In relation to this effect of decommissioning, the Applicant does not accept the assertions made and respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above), to address this commentary.

Summary of Commentary - *The Arcadis Report asserts that there is an apparent conflict in mitigation approach between operation and post-decommissioning.*

Response -In relation to the effect of proposed mitigation measures, the Applicant respectfully refers the Board to Sections 11.3.2.3.2 and 11.5.2.3 of the rEIAR for the reasoning behind the Operation and Maintenance stage mitigation approach. All drainage installed and managed as part of the Wind Farm Project is for the purpose of protecting its infrastructure. Following decommissioning, active management of drains is not deemed to be necessary. Regarding the decision to allow drains on site to fill in slowly over time rather than undergo more active intervention the Applicant respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above). Based on the detailed assessment provided, it is concluded that the wind farm drainage network should be allowed to passively reduce in efficiency gradually over time to allow the natural vegetation to re-establish on the site in equilibrium with any changes that occur in water levels, thus ensuring minimal impact on the local hydrological regime. The commentary provided in the Arcadis Report does not alter the assessment carried out, or conclusions reached in the rEIAR.

Summary of Commentary - *The Arcadis Report asserts that Landslide risk has not been adequately assessed and will impact peat-hydrology and the land drainage regime.*

Response - In relation to recommendations for further mitigation measures, the Applicant does not accept the assertion made and respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above), to address this

commentary. In conclusion then, the commentary provided in the Arcadis Report does not alter the assessment carried out, or conclusions reached in the rEIAR.

Summary of Commentary - *The Arcadis Report recommends that a record of stakeholder engagement should be provided and responses to the issues raised by the South Galway Flood Relief Committee should be provided.*

Response - In relation to this additional information, the Applicant respectfully refer the Board to the relevant responses set out in the AGL Consulting Ltd Report included in Section 3.3 (above) to address this commentary. In relation to concerns raised by the South Galway Flood Relief Committee, the Applicant respectfully refer to ours of 4th December 2020 – specifically Section 2.9 of that letter.

3.5 Major Accidents and Disasters

Summary of Commentary - Baseline Information:

The Arcadis Report states that the baseline lacks a detailed review of the baseline conditions of the peat at the site prior to the land slide.

Response - The receiving environment is provided in Chapter 16 , Section 16.4 and describes the setting of Derrybrien in Section 16.3.2 Environment and 16.4.3 Natural Hazards. Baseline conditions of the site in terms of soils and geology are also provided in Chapter 10 Soils and Geology of the rEIAR in Section 10.2 Baseline Environment which chapter is referred to in Chapter 16.

In addition, the AGL Consulting Response Report to the Arcadis comments (see Section 3.3 of this response document) sets out the baseline in Section 3.0: Baseline Information, Supplemental Surveys and Geotechnical Investigations undertaken and relied on in the rEIAR. In particular reference is made to Section 10.1.6.1 of the rEIAR (Difficulties Encountered) which identifies the difficulties that were encountered with the limited information that was available on ground and groundwater conditions prior to the peat slide in October 2003. With the obvious exception of the slide area and the areas where works had been completed on the site, the information obtained during the second phase of construction after the peat slide has been considered representative of the baseline conditions on the site in the rEIAR, a reasonable assumption that makes appropriate use of the best available information.

On the basis of this information, it is not accepted that information in relation to baseline conditions prior to the slide event are lacking.

Summary of Commentary - Appropriateness of Assessment Methodology and Significance Criteria
The Arcadis Report commented on the assessment methodology and significance criteria used in the assessment.

Response - The Guidance followed in preparing the assessment is provided in rEIAR Chapter 16, Section 16.2.2. with a detailed risk based assessment methodology described in Section 16.2.3, 16.2.4 and 16.2.5 and with likelihood and consequences set out in Figure 16-1: Emergency Risk Rating Matrix. Detailed risk assessments for the construction, operational and decommissioning phases are set out in Section 16.5 which sets out the risk and impact in accordance with the detailed risk based assessment methodology and Section 16.6 Cumulative impacts.

On the basis of this information, the Applicant submits that the assessment methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Response to Stakeholder concerns
The Arcadis Report states that recently the developer has placed a hazard sign at the entrance to the turbary stating that there is a risk of instability if peat cutting activities are undertaken. This prevents the local residents from obtaining a fuel supply for use next winter but has also heightened concerns about site stability, despite continued assurances from the developer (and repeated in the rEIAS) that mitigation measures have rendered the site safe. See Section 5.11.4 and Appendix C for details.

Response – We refer the Board to the statement set out in Section 2.3 above in response of interactions with turbary activities.

With regard to site stability and turbary activity this issue has been addressed in Section 7.0: Peat Stability For Mechanical Peat Extraction In Turbary Areas of the AGL Consulting Response Report to the Arcadis comments (See Section 3.3 of this response document).

Summary of Commentary - Effects of Decommissioning
The Arcadis Report states that in Chapter 10 of the report it states that the drainage structures would not be maintained following decommissioning and would likely become obstructed by debris. It is incongruous to state on one hand state that maintenance of a robust drainage system is vital for site stability but that following decommissioning maintenance will stop and permit the drainage system to fail having undertaken no mitigating management to stabilise such a future scenario.

Response - With regard to site drainage and the long term stability of the site this issue has been addressed in Section 6.0: Residual Risk After Decommissioning of the AGL Consulting Response Report to the Arcadis comments (See Section 3.3 of this response document).

On the basis of this information it is not accepted that there is any conflict between the measures described in the rEIAR.

Summary of Commentary - Effectiveness of Proposed Mitigation Measures
The Arcadis Report states that during operation no further mitigation measures are proposed and it is stated that it is anticipated that the likelihood of a peat slide will continue to reduce due to the drainage improvement and sustained loading of the peat from the constructed infrastructure and resulting increase in peat strength. It states that this does not take into account the projected impacts of climate change that may lead to peat slides resulting from periods of drought and/or heavy rainfall.

Response - Section 3.0 Baseline Information, Supplemental Surveys And Geotechnical Investigations of the AGL Consulting Response Report to the Arcadis comments (See Section 3.3 of this response document). considers the effects of rainfall and drainage on peat stability. It concludes that these have been comprehensively assessed in the rEIAR. It further concludes that the assumptions and conclusions have been robustly tested and validated by the extreme short-duration storm events that occurred in June 2012, December 2015 and February 2020, when approximately 60mm of rain fell in the area over a period of 24 hrs, and by the heavy long-duration winter rainfall events in 2009, 2014, 2015, and 2020, which were the largest long-term events in the 40 year monitoring history in the area but did not result in any adverse effects on drainage or peat stability on the wind farm site [ref. Ch.11 – Hydrology and Hydrogeology, p11-62 (Para 2) and p11-90 (para 2)].

On the basis of this information, the Applicant submits that the assessment methodology applied was appropriate and robust, and the conclusions reached reasonable.

Summary of Commentary - Recommendations for Further Mitigation Measures
The Arcadis Report states that - given the repeated evidence of slope failure both on the site itself, in the surrounding landscape, and across Ireland as a whole, some form of suitable restoration intervention will be required on the Derrybrien site prior to completion of decommissioning to ensure long-term stability of the area (See Section 5.11). It states that either a long-term maintenance plan following decommissioning should be implemented or works to restore the peat to a point where long-term maintenance is not required should be considered.

Response - The AGL Consulting Response Report to the Arcadis comments, Section 6: Residual Risk After Decommissioning (See Section 3.3of this response document) sets out the residual risks post decommissioning and indicates the stability of the site post decommissioning. This arises principally - as stated, from the fact that there will be no site activities related to the wind farm on the site after decommissioning to trigger a peat slide, the increase in strength that has occurred in the peat under the floating roads, peat repository sites and in areas where the groundwater level has been lowered by site drainage is a permanent change that will not reverse when groundwater levels are restored and the peatland vegetation and natural drainage on the

site will be given the opportunity to re-generate and adapt in response to the changes in groundwater levels maintaining the integrity of the blanket bog.

On the basis of this information, it is submitted that no long-term maintenance plan would therefore be required.

Summary of Commentary - Reasonableness of Conclusions and Need for Possible Remedial Works

The Arcadis Report states that the assessment concluded that conditions on the windfarm site were suitable for the project with appropriate design and mitigation measures for working in peat based on The Landslide Susceptibility Map. The report also concludes that wind farm activities for the decommissioning phase are not expected to result in any further peat slides. This is attributed to the current improved site conditions that will remain for the operation phase (until 2040) and it is stated that the likelihood of a peat slide will continue to reduce due to the drainage improvement and sustained loading of the peat from the constructed infrastructure and resulting increase in peat strength. The likelihood of a peat slide during decommissioning is considered to be very unlikely in the assessment. Without sufficient evidence to substantiate this claim, this conclusion is unreasonable. See Section 5.12 for details.

Response - With regards to Section 5.17.9 of the Arcadis report and its comment that the "*assessment concluded that conditions on the windfarm site were suitable for the project with appropriate design and mitigation measures for working in peat based on The Landslide Susceptibility Map"* this does not accurately reflect the full assessment methodology. The Landslide Susceptibility Map was considered as part of the assessment. However for the purposes of peat stability risk assessment landslide susceptibility mapping is not considered in practice as a primary tool for assessment of the likelihood of peat instability. The full assessment methodology adopted is outlined in Section 16.2 of Chapter 16 which in turn relies on Chapter 10 and its Appendices to determine the likelihood of a peat slide occurring at the various stages of the project.

With regards to the likelihood of a peat slide during decommissioning this has been addressed in AGL Report No. 11-147-R04, Appendix B to Chapter 10 of the rEIAR, and the assessment of Stability Impacts in Section 10.3.2.3.2 of Chapter 10 of the rEIAR. Furthermore, commentary with respect to Residual Risk after Decommissioning is provided by AGL in Section 6: Residual Risk After Decommissioning (See Section 3.3 of this response document).

4 Other Matters

It is noted that 1 No. third party (Mr. Collins) has again requested an Oral Hearing on this matter. Per our submission to the Board of 4th December 2020 the Applicant respectfully submits that it is not necessary to convene an Oral Hearing to enable the Board to reach a decision on this matter.

5 Concluding Remarks

We appreciate the Board's consideration of this submission and trust that it addresses points raised.

We look forward to acknowledgement of this submission and receipt of your decision in due course.

Is mise le meas,

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