

LANDSCAPE & VISUAL IMPACT ASSESSMENT – ADDITIONAL INFORMATION, MARCH 2023

1. Introduction

1. This report provides an update to the Landscape and Visual Impact Assessment (LVIA) set out in Chapter 6 of the Environmental Impact Assessment Report. Specifically, it provides an update in relation to the following matters:
 - Updated Cumulative Assessment
 - Updated Impact Assessment Concerning Changes to Aviation Lighting
 - Additional Cumulative Residential Property Photomontages
 - Additional Viewpoint Assessment Judgement of Effects
2. The first three of these matters respond to direct requests by the Reporters for this information during the Pre-Examination meeting. The fourth item responds to a matter raised by South Ayrshire Council's external landscape advisor in their November 2021 review of the LVIA material.
3. The report is accompanied by the following Appendices:
 - **Appendix 1 - Additional Information – Joint Cumulative Update**
 - **Appendix 2 - Updated Aviation Lighting Report**
 - **Appendix 3 - Visible Aviation Lighting plan (updates that previously included as LVIA Figure 6.12)**
 - **Appendix 4 - Turbine Lighting Intensity plan**
 - **Appendix 5 – Updated Night-time Photomontages**
 - **Appendix 6 - Residential Property Cumulative Photomontages**
4. The report has been prepared by Chartered Landscape Architects at Pegasus Group. Pegasus did not prepare the original LVIA material, but have sought to follow the same methodology and approach as the LVIA for consistency purposes.

2. Updated Cumulative Assessment

5. The LVIA included a Cumulative Impact Assessment. This focused on a 20km detailed study area, plus selected other schemes which NatureScot had requested be considered. The cumulative assessment was based on the position at the time the LVIA was prepared in autumn 2020. This position has now changed and the updated cumulative situation in the vicinity of the site was set out on a new plan prepared in advance of the Inquiry included with the 'Additional Information – Joint Cumulative Update' which has been prepared by Optimised Environments Limited on behalf of the respective Applicants for Craiginmoddie, Carrick and Knockcronal Wind Farms. This is included at **Appendix 1**.
6. The 'Additional Information – Joint Cumulative Update' also included new Cumulative Zone of Theoretical Visibility (ZTV) Plans and 360 degree Cumulative Wirelines, which have been prepared to inform the Public Inquiry. The Cumulative Wirelines illustrate

the view from eight locations which it was considered were an appropriate selection to consider the potential cumulative effects. Several of these locations replicate locations which were included as LVIA Viewpoints in the Craiginmoddie EIAR and are discussed further below.

7. The key changes to the cumulative situation of relevance are as follows:

Planning Applications now submitted:

- Carrick
- Knockcronal
- Scienteuch
- Knockkippen
- Polquhairn Variation

Application now consented:

- North Kyle

8. The previous cumulative assessment considered a series of four scenarios:

- Scenario 1 (current baseline): Craiginmoddie and operational wind farms – set out within the main assessment in the chapter;
- Scenario 2 (future baseline): Craiginmoddie and operational and consented wind farms;
- Scenario 3: Craiginmoddie + Clauchrie and operational and consented wind farms; and
- Scenario 4: Craiginmoddie + Carrick and operational and consented wind farms.

9. The following updates are therefore now applicable to each scenario:

- Scenario 1 (current baseline): no change
- Scenario 2 (future baseline): no change
- Scenario 3: also now includes Carrick, Knockcronal, Scienteuch, Knockkippen and Polquhairn Variation
- Scenario 4: no longer applicable

10. The following section therefore sets out the revised version of Scenario 3 to account for the additional schemes. Cumulative Zone of Theoretical Visibility (ZTV) Plans relevant to the additional schemes now applicable to Scenario 3 were provided within the 'Additional Information – Joint Cumulative Update'. Each of the additional schemes were also illustrated, where visible, in the eight 360 degree Cumulative Wirelines also included in the submission.

Cumulative Effects on Landscape Character

SA17c: Foothills with Forest and Wind Farm

11. This LCT covers the landscape in which the Craiginmoddie site is located. It is already the host landscape of several operational wind farms to the west, including Hadyard Hill, Tralorg and Assel Valley. Both the proposed Carrick and Knockcronal schemes would also be located in this LCT. The other additional application schemes at

Scienteuch, Knockkippen and Polquhairn Variation would all lie outside the LCT, further to the north.

12. It was previously identified that the addition of Clauchie would not change the assessment for this LCT when compared with the findings of the main LVIA assessment. The addition of the proposed Carrick and Knockcronal schemes would however be a notable further addition of wind energy to the LCT. If those two schemes were in the baseline the Craiginmoddie scheme would then occupy a gap between those two schemes and the already operational schemes. The Craiginmoddie scheme would therefore serve to consolidate existing effects of wind energy on the LCT.
13. A Major/Moderate effect was identified on a small part of SA17c. This was noted to extend across the site itself and to the edge of the LCT to the south where the wind turbines would be the primary characterising influence. To the east and north, these large scale effects would extend up to around 1 km where the ZTVs indicate that undulating terrain and forestry break up and limit areas where the Proposed Development may be seen and experienced. To the north, large scale effects on character would extend slightly further where they would have a notable characterising influence across more open areas extending to the edge of the LCT. This would however be moderated somewhat by the existing influence of Hadyard Hill turbines in this area. To the west, large scale effects would not extend beyond the site itself and would rapidly diminish as Hadyard Hill becomes the main characterising influence.
14. With Carrick and Knockcronal already in the baseline these effects would be reduced to some degree as wind would already be an existing characteristic of the landscape to the east of the site.

SA13: Intimate Pastoral Valleys

15. This LCT covers the landscape along the Stinchar valley to the south of the site, and also a small pocket of the landscape to the north-east, covering the valley of the Water of Girvan to the south of Straiton. No wind energy development is operational or proposed within the LCT, but wind energy is visible from parts of the LCT. LVIA Viewpoints 1, 5 and 10 are located in the LCT. Should the Carrick and Knockcronal schemes already be in the baseline there would be an increased visibility of wind energy from the LCT prior to the introduction of the Craiginmoddie scheme, with the effects remaining as previously reported.

SA12: Middle Dale

16. This LCT covers the landscape to the north of the site along the valley of the Water of Girvan. Again, no wind energy development is operational or proposed within the LCT, but wind energy is visible from parts of the LCT. LVIA Viewpoints 3, 4 and 6 are located in the LCT. With Carrick and Knockcronal already in the baseline there would be a greater visibility of wind energy from the LCT, particularly towards its eastern extent. Craiginmoddie would be seen between these schemes and the other operational schemes, consolidating existing impacts, with the effects remaining as previously reported.

SA21: Rugged Uplands, Lochs and Forests

17. This LCT covers the landscape to the south-east of the site, much of which is covered by Carrick Forest. No wind energy is located within the LCT, but distant views towards
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existing schemes are available from more elevated locations where surrounding forestry is not present. LVIA Viewpoints 9 and 12 are located in the LCT. The Carrick scheme in particular would extend much closer to the LCT than existing wind energy development and its presence in the baseline would serve to limit the effect of the addition of Craiginmoddie to some degree. The effects would however remain as previously reported.

SA17d: Maybole Foothills

18. This LCT covers a tract of the landscape over 5km to the north of the site centred on Maybole. The consented Kirk Hill wind farm lies within this LCT, along with the under construction Chapelton Farm turbines and the three operational single turbines at North Threave, Downhill Farm and Leffinwyne Farm. LVIA Viewpoints 8 and 11 are located in the LCT. With Carrick and Knockcronal already in the baseline there would be an increased visibility of wind energy in longer distance views looking southwards from the LCT. Craiginmoddie would be seen between these schemes and the operational Hadyard Hill scheme, consolidating existing impacts from the same tract of landscape. In addition, the proposed schemes at Scienteuch and Knockkippen would lie to the south-east of the LCT in the neighbouring LCT 17b Foothills with Forest. These schemes would be visible to a limited degree, particularly towards the eastern extent of the LCT, however glimpsed views of wind energy in this direction, in particular the Desalloch scheme, are already available from parts of the LCT. Overall, the effects would remain as previously reported.

Cumulative Visual Effects

19. The previous assessment considered two types of cumulative visual effect:
 - Combined views which 'occur where the observer is able to see two or more developments from one viewpoint'. Combined visibility may either be in combination (where several developments are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various developments); and
 - Sequential views which 'occur when the observer has to move to another viewpoint to see different developments.'

Visual Receptor Groups

20. The following visual receptor groups were considered in the previous assessment:
 - Stinchar Valley (northeast of Barr)
 - Dailly
 - Barr Trails
 - Girvan Valley (northeast of Dailly)
 - Girvan Valley (southwest of Dailly)
 - Stinchar Valley (southwest of Barr)
 - Straiton
 - Maybole
 - Key Routes – (Glasgow – Stranraer Railway, A77, NCN Route 7)
21. As with the consideration of character effects, the following section considers the revised version of Scenario 3 to account for the additional schemes now applicable, in particular Carrick and Knockcronal.

Stinchar Valley (northeast of Barr)

22. The Stinchar Valley (northeast of Barr) receptor group was noted by the LVIA to extend northeast of Barr, encompassing users of minor roads and dispersed settlement within the upper Stinchar Valley, primarily located within the valley bottom and extending up northern valley slopes, situated between 1.5 – 4.5 km from the Proposed Development.
23. There would be some potential for combined views of both Carrick and Knockcronal alongside Craiginmoddie from this area. However, Carrick and Knockcronal would only be partially visible with intervening topography providing notable screening of the majority of the turbines from much of the area. Craiginmoddie would be the more visible of the schemes from this area and should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out previously, notwithstanding that periodic views of wind energy would be further increased within the baseline.

Dailly

24. The Dailly receptor group was noted by the LVIA to encompass the settlement of Dailly (4.3 km from the Proposed Development at the closest edge) and users of immediately surrounding roads, paths and public spaces within the Girvan Valley, extending up to approximately 1.5 km from the settlement.
25. There would be some potential for combined views of Carrick alongside Craiginmoddie from this area (as was illustrated in the cumulative wireline for LVIA VP3), with the Knockcronal turbines being screened by topography and not visible. Where visible together the Carrick turbines would be seen behind the Craiginmoddie turbines but with intervening topography providing notable screening of the majority of the Carrick turbines from much of the area. Should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out previously, notwithstanding that views of wind energy would be further increased within the baseline.

Barr Trails

26. This group of woodland walks is located within forestry to the east of Barr (around 3.6 km south of the site). It comprises Core Paths SA52 and SA54 along with other trails that link to these; there are also a number of locally marked viewpoints.
 27. Views of the Proposed Development from this group would be largely screened by the landform of local hills and the forestry here. Some views towards the site are possible towards the eastern end, between Larg Hill and Balloch Hill, although these are limited to brief glimpses where recent felling has opened gaps between trees. Here the turbines would be in open view across the Stinchar Valley, at a similar elevation, and some of the site tracks and keyholing around turbines is likely to be visible. More open views looking west, away from the site, are possible from the western end of the group, particularly from Core Path SA52, where existing turbines are openly visible at Hadyard Hill and Assel Valley.
 28. There would be some potential for combined views of Carrick alongside Craiginmoddie from this area, with the Knockcronal turbines being screened by topography and not visible. Where visible together the Carrick turbines would be seen slightly further away than the Craiginmoddie turbines but with intervening topography
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providing notable screening of the majority of the Carrick turbines from much of the area. Should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out previously, notwithstanding that views of wind energy would be slightly further increased within the baseline.

Girvan Valley (northeast of Dailly)

29. The Girvan Valley (northeast of Dailly) receptor group lies around 4.3 km northwest of the site. The group extends northeast from the Dailly receptor group, encompassing settlement and users of roads, paths and public spaces within the Girvan Valley as far as Kirkmichael.
30. Visibility of the Proposed Development would be very intermittent and often limited to blade tips only within the valley bottom (as illustrated by LVIA viewpoint 4), and southern valley sides. This area includes the B741, various minor roads, Core Paths and fairly widespread dispersed rural settlement. Further north, in areas surrounding Crosshill and Kirkmichael, visibility would be more widespread and the proposed turbines would be more openly visible although would appear relatively distant (as illustrated by LVIA viewpoint 6). However, within the two settlements themselves views would be relatively limited due to some localised topographic containment and buildings and vegetation within the villages combining to prevent outward views except from peripheral areas.
31. From part of this area, to the north-east of Dailly, there would be no views of either Carrick or Knockcronal, with Carrick becoming visible towards Crosshill (as illustrated by the cumulative wireline for LVIA viewpoint 6) and then Knockcronal also becoming visible towards Kirkmichael (as shown in 'Additional Information – Joint Cumulative Update' wireline 5). Should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out previously, notwithstanding that views of wind energy would be further increased within the baseline across part of this area.

Girvan Valley (southwest of Dailly)

32. The Girvan Valley (southwest of Dailly) receptor group lies around 4.6 km northwest of the site. The group extends southeast from the Dailly receptor group, encompassing settlement, and users of roads, paths and public spaces within the lower Girvan Valley to the outskirts of Girvan. Much of the route would have no visibility of either Carrick or Knockcronal, with Carrick being glimpsed only from more elevated locations. Should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out previously, notwithstanding that views of wind energy would be slightly further increased within the baseline.

Stinchar Valley (southwest of Barr)

33. The Stinchar Valley (southwest of Barr) receptor group lies around 5.4 km southwest of the site. The group encompasses the Stinchar Valley between Barr and the A714, including users of the B734 and dispersed settlement along it. There would be some potential for combined views of Carrick alongside Craiginmoddie from this area, with the Knockcronal turbines being screened by topography and not visible. Where visible together the Carrick turbines would be seen slightly further away than the Craiginmoddie turbines but with intervening topography providing notable screening of the majority of the Carrick turbines from much of the area. Should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out
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previously, notwithstanding that views of wind energy would be slightly further increased within the baseline.

Straiton

34. The Straiton receptor group lies around 6.9 km northeast of the site. The group encompasses the settlement of Starinton and users of roads, paths and public spaces in the surrounding areas of the upper Girvan Valley. Due to its low lying location, much of Straiton would have no visibility of the Proposed Development. There would be some limited blade tip visibility from the B741 on the northern edge of the village, increasing as it rises over hills to the east, and there would also be views from a short section of Core Path D6 in this area, albeit intermittently screened by vegetation running alongside, before it moves into forestry further north. Views of Carrick and in particular Knockcronal are likely to be greater, but there would be no change to the effects set out previously, notwithstanding that views of wind energy would be slightly further increased within the baseline.
35. Near to Straiton is the Blair monument, as illustrated by LVIA viewpoint 7 and 'Additional Information – Joint Cumulative Update' wireline 4. From here both the Carrick and Knockcronal turbines would be seen slightly closer to the viewpoint than Craiginmoddie, appearing as a single cluster to the left of the Craiginmoddie scheme in the view. Should Carrick and Knockcronal also be in the baseline there would be a reduction in the effects set out previously, as views of wind energy would be noticeably increased within the baseline. The scale of effect of Craiginmoddie in the context of Carrick and Knockcronal being in the baseline would reduce from medium to small. It is acknowledged that feedback was received from South Ayrshire Council's external landscape advisor in their November 2021 review of the LVIA material that the viewpoint assessment should consider the overall level of effects, not just the scale of effect, which is only one element of the judgement of magnitude. This matter is therefore addressed in Section 5 of this Report.

Maybole

36. The Maybole receptor group lies around 9.5 km north of the site. The group encompasses the settlement of Maybole and users of roads, paths and public spaces in the immediate vicinity and extending southeast towards Crosshill and the Girvan Valley (northeast of Dailly) receptor group. Views from Maybole are illustrated by LVIA viewpoint 11 and 'Additional Information – Joint Cumulative Update' wireline 6.
37. From here both the Carrick and Knockcronal turbines would be seen at a similar distance to the viewpoint as Craiginmoddie, appearing to the left of the Craiginmoddie scheme in the view. Only the blade tips of the Knockcronal turbines would be visible however due to intervening topography. Should Carrick and Knockcronal also be in the baseline there would be a reduction in the effects set out previously, as views of wind energy would be increased within the baseline. The scale of effect of Craiginmoddie in the context of Carrick and Knockcronal being in the baseline would be reduced, but would remain small. The matter of the overall level of effect on the viewpoint is addressed in Section 5 of this Report.

Key Routes – (Glasgow – Stranraer Railway, A77, NCN Route 7)

38. The Glasgow – Stranraer Railway (4.9 km northwest) extends southwest from Ayr to Maybole where it turns south before joining the Girvan Valley and continuing along the northern valley sides to Girvan. From here, it turns south and follows the A714 to the

edge of the detailed study area and beyond. Both the Carrick and Knockcronal turbines may be seen to a limited degree from the route, but any views would be minor and there would be no change to the effects set out previously.

39. The A77 (9.6 km northwest) extends southwest from Ayr, passing through Maybole, to Turnberry where it turns south and follows the coast to Girvan and beyond, out of the study area. There may be the potential for glimpses of the Carrick and Knockcronal turbines from the route, but any views would be minor and there would be no change to the effects set out previously.
40. NCN Route 7 (0.1 km east) is a long distance cycle route that extends from Sunderland to Inverness. Within the detailed study area it follows a north-south route, largely following minor roads, from Ayr to Glentworth and passing along the eastern edge of the site. There would be potential for view of the Carrick turbines in the opposite direction to Craiginmoddie as the route passes over Doughty Hill where open views of turbines at close proximity would occur over an approximately 3 km section of the route. South of the site the route drops into the upper Stinchar Valley, passing through South Balloch where only glimpses of the Carrick turbines would be available, before the route rises up towards the Nick of the Balloch, northeast of Glengap Hill, where there would be no views of either Carrick or Knockcronal. North of the site, the route passes into forestry then drops down into the Girvan Valley where there would be limited potential visibility of the Carrick turbines until it reaches the B741 just south of Crosshill. Between here and Maybole, visibility of both the Carrick and Knockcronal turbines would be more widespread but intermittently screened by roadside vegetation, other intervening woodland and vegetation and undulating terrain. North of Maybole, the route passes up over the Brown Carrick Hills where there would be intermittent views of the Carrick and Knockcronal turbines seen as a very distant feature on a distant skyline. For the section of the route which passes between the Craiginmoddie and Carrick schemes there would be a slight increase in effect if Carrick were already in the baseline, as views of turbines would now be in opposite directions from the route. This section was already identified to experience a significant visual effect from the Craiginmoddie turbines, so this would not represent a new significant effect on an additional section of the route. Elsewhere, there would be no change to the previous assessment should the Carrick and Knockcronal turbines be already present in the baseline.

Cumulative Effects on Designated Areas

Local Landscape Areas

41. The following Local Landscape Areas were considered in the previous assessment:
 - Stinchar Valley LLA
 - Water of Girvan Valley LLA
 - High Carrick Hills LLA
42. The following section considers these areas in relation to the revised version of Scenario 3, to account for the additional schemes now applicable, in particular Carrick and Knockcronal.

Stinchar Valley LLA

43. The boundary of this LLA broadly corresponds with that of the larger unit of the SA13: Intimate Pastoral Valleys LCT. It widens beyond the LCT in the upper Stinchar Valley, encompassing some of the hilltops flanking the valley sides. On the southern side this includes Balloch Hill and the forest containing the Barr Trails, extending into the SA21:

Rugged Uplands, Lochs & Forest LCT, while on the northern side it includes Milton Hill and Daljedburgh Hill, up to the southern boundary of the site. To the southwest, the LLA is more constrained than the LCT in parts, narrowing along the Duisk Valley, but widening out near the coast to also encompass one unit of the SA14: Upland Glen LCT and part of the SA22: Glenapp Coastal Farmland & the Policies LCT. LVIA Viewpoints 1, 5 and 10 are located within this LLA.

44. The Carrick and Knockcronal schemes would be visible from parts of the LLA, in particular the area to the southwest of Barr, giving rise to an increased presence of wind energy visible from parts of the LLA. However, Should Carrick and Knockcronal also be in the baseline there would be no change to the effects set out previously, notwithstanding that views of wind energy would be further increased within the baseline.

Water of Girvan Valley LLA

45. The boundary of this LLA corresponds with that of the SA12: Middle Dale LCT, incorporating the north western half of the smaller unit of SA13: Intimate Pastoral Valleys at the far eastern end. Its northern and southern boundaries also extend slightly into the SA17c: Foothills with Forest and Wind Farm and SA17d: Maybole Foothills LCTs. LVIA Viewpoints 2, 3, 4, 6 and 7 are located within this LLA.
46. The Carrick and Knockcronal schemes would be visible from the LLA, in particular its north western extent. If these schemes were already part of the baseline, the effects arising on this part of the LLA from the addition of Craiginmoddie would reduce to negligible, given the existing influence of the Carrick and Knockcronal schemes. Elsewhere in the LLA the effects would remain as previously identified.

High Carrick Hills LLA

47. The boundary of this LLA corresponds with that of the SA21: Rugged Uplands, Lochs & Forest LCT, encompassing some very limited sections of the SA13: Intimate Pastoral Valleys and SA17c: Foothills with Forest and Wind Farm at their eastern extremities. LVIA Viewpoints 9 and 12 are located within this LLA.
48. It was previously identified in the original cumulative assessment of the application stage schemes that the Clauchrie scheme would be located closer to this LLA and would have more notable characterising effects than Craiginmoddie. The Carrick and Knockcronal schemes would both also lie closer to the LLA than Craiginmoddie and with those schemes already in the baseline there would be a slight reduction in effects arising as the LLA would already experience views of wind energy in closer proximity. The effects would however remain as set out previously.

Summary

49. The LVIA cumulative assessment concluded that all landscape and visual receptors in all scenarios would either be the same as for Craiginmoddie alone or would be slightly reduced due to the existing presence of other wind farms. In light of this updated assessment, it is noted that this conclusion would generally remain applicable, with both Carrick and Knockcronal serving to consolidate the presence of wind energy within the local landscape. However, for the section of NCN Route 7 which passes between the Craiginmoddie and Carrick schemes there would be a slight increase in effect if Carrick were already in the baseline, as views of turbines would now be in

opposite directions from the route. This section was already identified to experience a significant visual effect from the Craiginmoddie turbines however, so this would not represent a new significant effect on an additional section of the route.

3. Updated Impact Assessment Concerning Changes to Aviation Lighting

Introduction

50. The Additional Information submitted in October 2021 ("October 2021 AI") provided details of a revised aviation lighting strategy comprising of 9 visible red and 12 infrared hub mounted obstruction lights. It was also noted that mitigation included with the proposed lighting scheme is for the 2000 candela lights to be dimmed to 10% of their peak intensity when a visibility sensor at the wind farm records the meteorological visibility as exceeding 5km.
51. Since that time, further consideration has been given to the aviation lighting strategy and an updated position has now been agreed with the CAA for the following scheme:
 - **medium intensity steady red (2000 candela) lights on the nacelles of turbines T01, T03, T05, T07, T08, T10, T12 and T13 [8no. lights in total];**
 - **a second 2000 candela light on the nacelles of the above turbines to act as alternates in the event of a failure of the main light;**
 - **the lights on these turbines to be capable of being dimmed to 10% of peak intensity when the lowest visibility as measured at suitable points around the wind farm by visibility measuring devices exceeds 5km;**
 - **infra-red lights to MoD specification installed on the nacelles of turbines T01, T02, T03, T05, T06, T07, T08, T09, T10, T11, T12, and T13; and**
 - **Intermediate level 32 candela lights are not required to be fitted on the turbine towers.**
52. The October 2021 AI included at its Appendix 2.4 an Aviation Lighting Report, which included details of the likely visibility and intensity of the lighting at each of the 16 LVIA Viewpoints. This Aviation Lighting Report has now been updated in relation to the revised lighting scheme and is included as **Appendix 2**.
53. The LVIA included a Visible Aviation Lighting plan at Figure 6.12. This has now been updated to reflect the revised aviation lighting strategy and is included at **Appendix 3**. In turn, a new Turbine Lighting Intensity plan has also been prepared in relation to the revised aviation lighting strategy, illustrating the information set out in the Aviation Lighting Report regarding the variation in intensity of the lighting at different vertical angles. This is included at **Appendix 4**. The LVIA also included night-time visualisations for Viewpoints 3 – Dailly, 9 – Cornish Hill and 10 - B734 near Cairnwhin. Updated versions of the pages which illustrated the aviation lighting strategy for Craiginmoddie at these three viewpoints have now been produced and are included at **Appendix 5**.
54. A summary is also set out in Table 1 below of the number of potential turbine lights that would be visible at each of the LVIA Assessment Viewpoints and the microlumens of

the turbine lights, allowing for the distance and vertical angle. Further details are provided in the updated Aviation Lighting Report.

Table 1: Summary of Aviation Lighting at LVIA Viewpoints

VP	Location	Distance / Direction	Number of Lit Turbines Visible (bare-earth)	Range of Vertical Angles between visible aviation lights and viewpoint	Microlumens (2000 cd light) allowing for distance and vertical angle	Microlumens (200 cd light) allowing for distance and vertical angle
1	South Balloch	3.1 km SE	3	-3.9 to -5.1	9	0.9
2	Hadyard Hill	3.6 km W	8	-1.3 to -2.5	28.2	2.8
3	Dailly	4.4 km NW	6	-3.7 to -5.6	5.5	0.5
4	B741 near Ruglen	4.6km N	0	<i>n/a (lighting obscured by landform)</i>	<i>n/a (lighting obscured by landform)</i>	<i>n/a (lighting obscured by landform)</i>
5	Barr	4.6km SW	7	-3.0 to -4.1	7.7	0.8
6	Crosshill	6.9km N	5	-2.9 to -3.3	4.3	0.4
7	Colonel Hunter Blair Monument,	7.6km NE	5	-0.8 to -1.0	17.2	1.7
8	North Threave	8.2km NW	8	-1.7 to -2.2	6.3	0.6
9	Cornish Hill	9.1 km SE	8	0.0 to -0.2	26.5	2.7
10	B734 near Cairnwhin	8.9 km SW	4	-1.7 to -2.2	4.3	0.4
11	Maybole War Memorial	9.9 km N	7	-1.8 to -2.0	4.2	0.4
12	Shalloch on Minnoch	11.3 km SE	8	-1.3 to -1.6	17.2	1.7
13	A77 north of Girvan	11.3 km W	0	<i>n/a (lighting obscured by landform)</i>	<i>n/a (lighting obscured by landform)</i>	<i>n/a (lighting obscured by landform)</i>
14	Byne Hill	13.2 km SW	7	-0.9 to -1.2	5.2	0.5
15	Merrick	16.8 km SE	8	1.1 to 1.3	8.5	0.8
16	Cairnsmore of Carsphairn	26.5 km E	8	0.5 to 0.7	3.5	0.4

Effects on Landscape Character

55. It is acknowledged that the assessment of the effects of aviation lighting does not yet have an agreed methodology. With regard to effects on landscape character the LVIA previously set out the potential for Moderate, Adverse effects within the host SA17c: Foothills with Forest and Wind Farm LCT, which were identified to be Not Significant.

56. The current position of all three Applicants involved in the Inquiry is that the assessment of aviation lighting should not contemplate effects on landscape character. At night, the key characteristics of a landscape are less readily appreciated, and visible aviation lighting will only affect visual characteristics that can be appreciated at night, as well as the perceptions arising from those, such as the typical levels of darkness in the character area, and skylines. Changes to this limited subset of characteristics are unlikely to result in significant effects on landscape character because insufficient features in the landscape can be discerned.

Effects on Visual Amenity

57. Effects on visual receptors in areas of dispersed settlement within the upper Stinchar Valley were noted in the LVIA to experience moderate effects which would be Significant. Specifically, this related to the area in the vicinity of Milton Bridge and extending to North and South Balloch where there is no street lighting and the baseline night-time environment tends to be very dark.
58. The October 2021 AI noted that in light of the revised aviation lighting strategy there would be a reduction in the effects. In turn, these effects would be further reduced following the recent update to the aviation lighting strategy which has resulted in only 8no. lit turbines, rather than 9no. as was previously considered.
59. LVIA Viewpoint 1 illustrates the view from South Balloch in this part of the upper Stinchar Valley. The wireline provided in the LVIA illustrated that the aviation lights on the hubs of six of the Craiginmoddie turbines would be theoretically visible from this location (T4, T5, T6, T8, T9 and T10). As a result of the revised aviation lighting strategy only three of these turbines would now be lit (T5, T8 and T10).
60. In turn, the Turbine Lighting Intensity plan illustrates that the lighting in this area would be seen at a reduced intensity due to its lower lying elevation when compared with the site.
61. As a result, it is considered that the effect of the revised aviation lighting strategy on the upper Stinchar Valley would be reduced and whilst it would remain moderate it would no longer be significant.
62. No significant night-time effects on visual amenity are therefore identified as a result of the revised aviation lighting strategy.

Cumulative Effects

63. Both the Carrick and Knockcronal schemes would also include some degree of aviation lighting. A revised aviation lighting strategy has been agreed for Knockcronal as follows:
- *medium intensity, steady red (2000 candela), lights on the nacelles of turbines, T01, T04, T06, and T09 [4no. lights in total];*
 - *a second 2000 candela light on the nacelles of the above turbines to act as alternates in the event of a failure of the main light;*

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- *the lights on these turbines to be capable of being deemed to 10% of peak intensity, when the lowest visibility is measured at suitable points around the wind farm by visibility measuring devices exceeds 5 km;*
 - *intermediate level 32 candela lights are not required to be fitted on the turbine towers.*
64. The Carrick scheme would also now have one less aviation light following the deletion of turbine 10 from its layout. It is understood that all remaining 12 turbines are currently proposed to be lit.
65. Should Carrick and Knockcronal also be in the baseline there would be existing turbine aviation lighting present in some views from parts the landscape in and around the Craiginmoddie. However, it is not considered that there would be any change to the assessment of cumulative night-time effects previously set out for Craiginmoddie.

4. Additional Cumulative Residential Property Photomontages

66. During the Pre-Examination meeting it was requested by the Reporters that the applicants for the three schemes were to provide cumulative photomontages for a series of residential properties in the vicinity of the three sites. The properties were as follows: Corphin, Delamford Cottage and Farm, Dobbingstone Farm, Knochrochar Farm, Doughty Farm, Glenalla, Tairlaw Toll Cottage, Tairlaw Toll House, Knockskae, Tallaminnoch, Craigard and Glenlinn.
67. It was agreed between the three applicants that the production of these cumulative photomontages would be divided up between them and the images for the following 5no. properties would be prepared by the Craiginmoddie applicant:
- Corphin
 - Delamford Cottage
 - Delamford Farm
 - Dobbingstone Farm
 - Knochrochar Farm
68. Access to visit the properties to collect the photography necessary to prepare the cumulative photomontages was sought in a letter issued to each property, dated 2nd February 2023. Responses allowing visits to the properties were received from the residents of Corphin, Dobbingstone Farm and Knochrochar Farm, with the photography being collected on 20th February 2023. Photography was also collected from the nearest publicly accessible location to Delamford Cottage and Delamford Farm, the residents of which had not responded to allow access to the properties themselves.
69. The cumulative photomontages for the 5no. properties are included in **Appendix 6** to this Additional Information submission.
70. Each of the 5no. properties had been considered in the Residential Visual Amenity Assessment included at Appendix 6.7 of the LVIA and were all identified to experience a significant visual effect. It was set out however that in no case would the effects be of such nature and / or magnitude that they affected the living conditions at any of the properties to the point they would become an unattractive place to live, when judged objectively in the public interest. Having reviewed the cumulative
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photomontages, it is noted that any additional views of either the Carrick or Knockronal turbines would be highly limited and there would be no change to the previous conclusions.

5. Additional Viewpoint Assessment Judgement of Effects

71. It is acknowledged that the Viewpoint Assessment provided in Appendix 6.4 of the LVIA does not follow the approach of setting out judgements of sensitivity, magnitude and then level of effect. Instead, it only goes as far as setting out the scale of the change (one of the components of magnitude), with the judgements regarding the level of effects being addressed elsewhere in the discussion of visual receptors groups in the main LVIA Chapter of the EIAR. It is noted that this approach was criticised by the Council's external landscape advisor in their November 2021 review of the LVIA material. The following section therefore includes a tabular assessment of the effects at each viewpoint which includes this additional information, following an overview of the methodology applicable to the assessment.
72. Appendix 6.1 of the LVIA set out the LVIA Methodology, including the terminology used to describe sensitivity, magnitude and level of effect. Sensitivity of visual receptors was noted to be derived through a consideration of both susceptibility and value and set out using a scale of High – Medium - Low. For consistency, this same approach is replicated in this assessment work. It is noted that the Council's external landscape advisor commented that it was important that a full range of factors that should be considered in making judgements on value, as advocated in GLVIA3, and therefore for example the location of some of the viewpoints within the Merrick Wild Land Area (WLA) and the Galloway Dark Sky Park should have an increased value accordingly. It can be confirmed that this assessment has been cognisant of the full range of factors that should be considered in making judgements on value, including where viewpoints are located within the Merrick Wild Land Area (WLA) or the Galloway Dark Sky Park.
73. Magnitude of impact on visual receptors was noted to be derived through a consideration of the size or scale of effect, the geographic extent of the area or receptor that is influenced and its duration. It was set out on a scale of Substantial – Moderate – Slight – Negligible. For consistency this same approach is replicated in this assessment work.
74. Level of effect was noted to be derived through a consideration of the Sensitivity and the Magnitude. It was set out on a scale of Major – Moderate – Minor – Negligible. Significant effects were noted to be those which were Major, Major/Moderate or potentially Moderate. For consistency this same approach is replicated in this assessment work.
75. The additional analysis of the level of effect at the LVIA Viewpoints is set out in Table 2 below.

Table 2: Viewpoint Assessment

VP	Location	Distance/ Direction	Sensitivity	Magnitude	Level of Effect
1	South Balloch	3.1 km SE	High	Substantial	Major (significant)
2	Hadyard Hill	3.6 km W	High	Moderate	Moderate (not significant)
3	Dailly	4.4 km NW	High	Substantial/ Moderate	Major/ Moderate (significant)
4	B741 near Ruglen	4.6km N	High	Slight/ negligible	Minor (not significant)
5	Barr	4.6km SW	High	Moderate	Moderate (not significant)
6	Crosshill	6.9km N	High	Moderate	Moderate (not significant)
7	Colonel Hunter Blair Monument,	7.6km NE	High	Moderate	Moderate (not significant)
8	North Threave	8.2km NW	High	Moderate/ slight	Moderate (not significant)
9	Cornish Hill	9.1 km SE	High	Moderate/ slight	Moderate (not significant)
10	B734 near Cairnwhin	8.9 km SW	High	slight	Moderate (not significant)
11	Maybole War Memorial	9.9 km N	High	slight	Moderate (not significant)
12	Shalloch on Minnoch	11.3 km SE	High	slight	Moderate (not significant)
13	A77 north of Girvan	11.3 km W	High	negligible	Minor/ negligible (not significant)
14	Byne Hill	13.2 km SW	High	negligible	Minor/ negligible (not significant)
15	Merrick	16.8 km SE	High	negligible	Minor/ negligible (not significant)
16	Cairnsmore of Carsphairn	26.5 km E	High	negligible	Minor/ negligible (not significant)

76. The LVIA previously concluded that Significant visual effects would be limited and confined to receptors in relatively close proximity to the Proposed Development where there would be open views. These were noted to be:
- Major/Moderate within the Stinchar Valley (northeast of Barr) receptor group;
 - Major/Moderate within the Dailly receptor group;
 - Major effects would also occur on the short 3 km section of NCN Route 7 as it passes along the eastern Site boundary although, more widely, effects on this route would be no more than Moderate and Not Significant.
77. All other visual receptors within the study area were noted to experience Moderate effects or less which would be Not Significant.
78. The viewpoint assessment work set out in Table 2 reflects these conclusions, with the two viewpoints where significant effects would arise occurring in the Stinchar Valley (northeast of Barr) receptor group – VP1 South Balloch, and the Dailly receptor group – VP3 Dailly.

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79. Where effects are moderate and identified to be not significant this generally reflects the location of the Proposed Development in a landscape which already accommodates wind energy development, in particular the Hadyard Hill scheme which would be seen adjacent to the Proposed Development in the same area of upland, as illustrated in particular with regard to VP2 Hadyard Hill. The Craiginmoddie turbines would also be seen set back into the upland and thereby well separated from the more sensitive lower lying surrounding landscapes, as illustrated regard to VP6 Crosshill. In other instances, the turbines would be seen within a wide, large scale, open panorama, such as VP7 Colonel Hunter Blair Monument, VP8 North Threave and VP9 Cornish Hill.