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11 Landscape and Visual

11.1 Executive Summary

1. The route of the proposed overhead line and siting of the proposed substation was selected based on the results of a number of alternatives studies which examined the environmental, technical and economic constraints present between various route corridors, line route options, and design details. Landscape and visual impacts were two primary environmental constraints that influenced the selection of the preferred site, route corridor, the line route, and the components of the proposed Tyrone – Cavan Interconnector. Detailed routeing of the line has sought to achieve the best fit with the landscape using landform and vegetation whilst recognising the technical constraints of the construction and operation of an overhead line.
2. After construction, the towers and overhead lines will remain as significant visual elements in the landscape. Over time any vegetation cut back will re-grow and any new replacement planting will become established. Mitigation measures will reduce some visual impacts of the proposed substation and will see the embankments, earth bunds and entrance road heavily planted with predominantly native woodland. Over time, as the mitigation landscape matures, views of the substation will be filtered and assimilated back into the local landscape setting.
3. The landscape assessment indicates that there will be significant adverse impacts upon the landscape of some parts of the study area. There will also be significant adverse effects on the visual amenity afforded from many locations from within the immediate area adjacent to the line route. However, it is considered that the landscape and visual resource of the wider study area will not deteriorate to a significant degree and the overall impact upon landscape and visual amenity in general is therefore restricted to those receptors/areas within close proximity to the towers and overhead line.
4. Since the publication of the Consolidated ES Addendum, further landscape and visual assessment has been undertaken to reflect the new developments in the study area.

This includes new residential properties, agricultural sheds, wind turbines and other changes. Data on new developments was collected and used during site surveys to update the landscape and visual cumulative impacts assessment, the viewpoint assessment and impacts to residential properties.

5. It will be found that there are additional landscape and visual cumulative impacts due to new wind turbines in the study area. There are an additional 31 properties that will experience significant residual adverse effects due to the proposed Tyrone – Cavan Interconnector. Additionally, the review of the 36 assessed viewpoints within the study area (determined as being representative of the study area) has determined that there is no significant change to the assessment as previously presented in the Consolidated ES and Addendum.
6. The Statement of Case outlines the context of the proposed Tyrone–Cavan Interconnector in terms of planning and policy. It has been determined in the Statement of Case that Tyrone–Cavan Interconnector will have landscape and visual impacts, but in accordance with policy (i.e. SPPS, PSU 8 and PSU 11) it has been designed to minimise landscape and visual effect through line route selection, avoiding areas of sensitivity, ecological, natural and built heritage (such as designated sites, scheduled monuments, etc). The Statement of Case further states the proposed Tyrone-Cavan Interconnector is compliant with the requirements of policy.

11.2 About the Authors

7. The Landscape and Visual assessment of the proposed project was undertaken by an AECOM specialist, Karen Clifford. She is a qualified Landscape Architect with over 20 years of experience in the landscape profession having gained a Bachelor of Arts with honours degree in Landscape Architecture from Leeds Metropolitan University (1994) and a Graduate Diploma of Landscape Architecture at Leeds Metropolitan University in 1997. She is a Chartered Landscape Architect and member of the Landscape Institute.
8. Ms. Clifford has practised both in the private and public sectors, with over 10 years' service in local authorities. She joined AECOM in 2006 and has undertaken landscape and visual impact assessment and landscape mitigation design for a number of major

infrastructure projects, power generation and transmission and renewable energy developments in the UK, Ireland and overseas. Her recent project work includes technical review for a portfolio of wind farms, EIA and mitigation design for linear infrastructure including highways and overhead transmission lines.

9. At the Public Inquiry, Ms. Clifford will be assisted by Mr Joerg Schulze. He is a Senior Landscape Architect with over 13 years' professional experience working for clients in the private and public sector. He has extensive experience in preparing and managing landscape and visual impact assessments (LVIA) and masterplanning for major infrastructural developments as part of the EIA process and according to international best practice guidelines.

11.3 Policy and Guidance Informing Assessment

10. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 417 – 418, and 427) and the Statement of Case that has been prepared for the proposed Tyrone – Cavan Interconnector.
11. The landscape and visual assessment has been undertaken with regard to the guidance contained within the following documents:
 - Guidelines for Landscape and Visual Impact Assessment (GLVIA) 2nd Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2002; and,
 - Landscape Character Assessment, Guidance for Scotland and England, Scottish Natural Heritage & The Countryside Agency, 2002.
12. It should be noted that the release date for Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd Edition, was April 2013. Landscape Institute guidance on transition to using GLVIA3 reads 'An assessment started using GLVIA2 should be completed using that edition.' GLVIA2 has therefore been used, as this assessment started before the release of GLVIA3. The DOE and Northern Ireland Landscape Institute branch (LINI) were consulted on the scope and methodology of the Consolidated ES and are satisfied with this approach.

13. Furthermore, the Landscape Institute released the following guidance ahead of the publication of the third edition of the GLVIA3 in April 2013 *“GLVIA3 will replace the current second edition (GLVIA2; the Blue Book). In general terms the approach and methodologies in the new edition are the same. The main difference is that GLVIA3 places greater emphasis on professional judgement and less emphasis on a formulaic approach.”* It is considered that the use of the 2nd edition guidelines (which are guidelines only and not mandatory requirements) has resulted in a robust assessment and no update is required in-line with the 3rd edition guidelines. –
14. In the absence of specific Northern Irish guidance on landscape and visual assessment, the guidance referenced here is best practice and applicable to Northern Ireland.
15. The GLVIA acknowledges the relationship between the perception of landscape character and the experience of visual receptors which include residents, visitors, people in their workplace, users of recreational facilities, people travelling through an area and other groups of viewers.
16. The principles of LVIA involve an appreciation of the existing landscape and its visual form, analysis of its condition and an assessment of its sensitivity to change, a thorough understanding of the development proposals, the magnitude of change that will result from the construction and operation of the proposals and the potential to mitigate impacts. There are three key stages to the assessment:
 - Recording and analysis of the character, condition, value and sensitivity to change of the existing landscape and visual receptors;
 - An assessment of the magnitude of change likely to result from the development; and,
 - An assessment of the significance of impacts based on a combination of sensitivity of receptors and magnitude of change (including an assessment of mitigation and residual impacts).
17. The following national and regional level publications, assessments and guidance has been used to establish the broad planning and landscape context within which the existing development area is located:
 - The Register of Parks, Gardens and Demesnes of Special Historic Interest, Northern Ireland. (DOE Jan) 2007; and

- Northern Ireland Biodiversity Strategy (August 2002 and updates).

18. Information was also gathered from the following sources:

- Northern Ireland Landscape Character Assessment (DOE, 2000);
- 1:50,000 scale Ordnance Survey of Northern Ireland Discovery Series, sheet 19;
- 1:50,000 scale Ordnance Survey of Northern Ireland Discovery Series, sheet 28;
- 1:1250 scale Ordnance Survey of Northern Ireland;
- Use was made of LIDAR and aerial photographs of the study area provided by the applicant; and
- Site surveys.

11.4 Summary of Documents

19. This technical report summarises and incorporates by reference the content of the documents submitted in support of the planning applications for the proposed Tyrone – Cavan Interconnector in respect of landscape and visual impacts.

20. For clarity the relevant documents are summarised below:

- Consolidated ES (2013) Volume 2 Chapter 13 Landscape and Visual (Pages 415 – 525)
- Consolidated ES Addendum (2015) Volume 4 Landscape and Visual Figures:
 - Figure 13.1 – Landscape Designations;
 - Figure 13.2 – Landscape Character Areas;
 - Figure 13.3 – Zone of Theoretical Visibility – Overall Study Area;
 - Figure 13.4a – Zone of Theoretical Visibility– Sheets 1 to 4;
 - Figure 13.5 – Cumulative Zone of Theoretical Visibility;
 - Figure 13.6 a to d – Viewpoint Location Plan;
 - Figure 13.7 – Individual Properties Assessment (Sheets 1 to 20);
 - Figure 13.8 a to mm – Viewpoints 1 to 34;

- Consolidated ES Addendum (2013) Volume 2 – Chapter 1 (Pages 1 to 10), Chapter 5 (Pages 50 to 69), Chapter 6 (Pages 80 to 86);
- Consolidated ES Addendum (2013) Volume 4 Figures:
 - Figure 1.2 Additional Visual Receptor Locations (Sheets 1 to 21);
 - Figure 1.3a Viewpoint Location Plan for Revised Photomontages;
 - Figure 1.3b VP30 Photomontage with Wireframe;
 - Figure 1.3c VP32 Photomontage with Wireframe;
 - Figure 1.3d VP33 Photomontage with Wireframe;
 - Figure 1.3e VP34 Photomontage with Wireframe;
 - Figure 5.1 Other Projects Cumulatively Assessed (Sheets 1 to 4);
 - Figure 5.2 Omagh – Tamnamore Cumulative ZTV;
 - Figure 5.3 North – South Interconnector Cumulative ZTV.

21. This technical report must therefore be read in conjunction with the Consolidated ES and its Addendum, and not as a standalone document.
22. In a general sense all EIA documentation is interrelated and, particularly with respect to the interaction of impacts, all the EIA documents are relevant. For clarity the documents the authors consider to be the key documents are summarised above. The reader should form his or her own view on what documents within the EIA and its Addendum are relevant, and key, to the topic under consideration.
23. In the interest of readability the documents named above are not reproduced in full in this technical report.

11.5 Further Environmental Information for the Purposes of the Inquiry

24. Since the publication of the Consolidated ES and its Addendum, the following environmental information has become available, and is presented to the inquiry for the purposes of the inquiry. Accordingly, and by virtue of Regulation 23(6) of the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2015 the requirements of paragraphs (4) and (5) of the said Regulation 23 do not apply.

- The Northern Ireland Landscape Character Assessment 2000 (NILCA) document mentioned under Section 11.3 is now complemented by the ‘Northern Ireland Regional Landscape Character Assessment (NIRLCA), Department of Agriculture, Environment and Rural Affairs, 2015’.

The Northern Ireland Landscape Character Assessment 2000 (NILCA) includes descriptions for 130 landscape character areas, as well as principles for management and accommodating new development in each. However, there has been a substantial phase of building and other development in both urban and rural areas of Northern Ireland since its publication, which has affected the character of many landscapes. The purpose of the NIRLCA is not to replace, but to complement, the earlier NILCA 2000, though further work to update and eventually replace the NILCA 2000 is anticipated.

The NIRLCA has been reviewed in relation to the proposed Tyrone – Cavan Interconnector. The proposed Tyrone-Cavan Interconnector is located within LCA 13 – Southern Drumlins and Orchards. The character assessment acknowledges the potential for change resulting from the introduction of additional overhead line infrastructure such as the “*north-south interconnector upgrade*”. Recent baseline conditions and conclusions made in the assessment impacts on landscape character have been reviewed, and it is confirmed that they are not significantly different as stated in the Consolidated ES Addendum, summarised in Section 11.10 and 11.11.

11.6 Scope of Assessment

25. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 416 - 417).
26. The assessments of landscape and visual impacts are separate but related procedures. The assessment considers the temporary impacts associated with the construction of the substation and overhead line as well as the permanent effects on existing landscape and visual resources.

11.7 Consultation Responses

27. The pre submission consultation for the assessment is presented in detail in the Consolidated ES Chapter 6 Scoping and Consultation (pages 151 - 156).
28. As part of the EIA scoping process the opinions of consultees (NIEA and DOE Landscape Architects) and other bodies were sought on the approach and scope of the landscape and visual assessment for the Proposed Development.
29. In addition, consultation occurred with local councils, landowners, and other stakeholders.

11.8 Methodology and Surveys

30. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 416 - 428).
31. The landscape and visual assessment has been undertaken in general accordance with the guidance contained within the following documents.
 - Guidelines for Landscape and Visual Impact Assessment (GLVIA) 2nd Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2002;
 - Landscape Character Assessment, Guidance for Scotland and England, Scottish Natural Heritage & The Countryside Agency, 2002.
32. This approach was confirmed by DOE Landscape Architects as the agreed method of approach for the assessment. Adherence to GLVIA 2nd Edition has continued for reasons of consistency between all reports.
33. For a full description of landscape assessment methods refer to Section 13.3 of the ES.
34. Effects predicted to be Moderate or higher are considered to be Significant for the purposes of the Environmental Impact Assessment Regulations
35. The baseline context of the development area is described in terms of:
 - **Landscape Planning Policy Context** set out in national, regional and local policy;

- **Landscape Character** which encompasses topography, water features, vegetation, public footpaths, the built environment and the existing character, quality and value of the landscape in which the proposals are sited; and
 - **Visual Context** which is determined with reference to potential visual receptors and their sensitivity.
36. Desktop research was undertaken to establish the broad planning and landscape context within which the existing development area is located.
37. As part of the visual assessment, a Zone of Theoretical Visibility (ZTV) has been produced. The ZTV illustrates the areas, based on elevation and the height of the towers, where the overhead line will be visible from. It indicates that the scheme will theoretically be visible across most areas within 2-3km of the overhead line route, however, beyond 4-5km theoretical visibility will become more fragmented and dispersed.
38. Visibility will be restricted by a combination of roadside vegetation and woodlands throughout the study area. Buildings, landform and local variations in topography will also limit visibility of the overhead line. Actual visibility of the scheme will therefore be less than that illustrated by the ZTV.
39. Site survey and field assessments were undertaken in the summers and winters of 2004, 2005, 2006, 2007, 2008 and the first quarter of 2009. Subsequent visits were undertaken between 2009 and 2012, and subsequently to October 2016 to inform the assessment undertaken.

11.9 Assessment Overview

40. This is a summary of the information contained in the Consolidated ES Chapter 13 and Consolidated ES Addendum Chapter 1.
41. The proposed overhead line and substation will be located within an area of Northern Ireland that is primarily agricultural, consisting of low rolling hills, shallow valleys and structured fields, which often have overgrown hedgerows and many mature trees. The rural hinterland close to the main settlement of Armagh area is populated with many scattered farms, dwellings and small commercial buildings. A few small villages are

located along secondary and minor roads and around local educational or commercial centres. There are some valued and higher quality landscapes within the study area including a number of Registered Historic Parks, Gardens and Demesnes.

42. The route of the proposed overhead line was selected based on the results of a number of alternatives studies which examined the environmental, technical and economic constraints present between various route corridors, line route options, and design details. Landscape and visual impacts were two primary environmental constraints that influenced the selection of the preferred route corridor, the line route, and the components of the now proposed Tyrone – Cavan Interconnector.
43. Detailed routeing of the line has sought to achieve the best fit with the landscape using landform and vegetation whilst recognising the technical constraints of the construction and operation of an overhead line.
44. The identification of a “preferred route corridor,” the selection of a proposed overhead line route, and component selection has been the principal means by which the expected permanent and operational impacts of the overhead line have been mitigated. Integral elements of the design of the proposed Tyrone – Cavan Interconnector have been:
 - avoidance of those landscapes, views or vistas considered to be particularly valuable or sensitive to the development of overhead lines;
 - reduction of potential adverse impacts such as breaking the skyline through making the best use of local landform and vegetation to provide a backdrop against which visible sections of the proposed overhead line will be viewed; and,
 - reduction of potential adverse impacts through the type of technology, tower design and line routeing.
45. An overhead line of the size and nature of the proposed Tyrone – Cavan Interconnector will inevitably have landscape and visual impacts. However significant efforts have been taken in both the design and routeing process to minimise these impacts as much as possible. Based on the alternative options considered therefore, the proposed Tyrone – Cavan Interconnector will result in the least impacts to the landscape and visual resource of the study area, for an infrastructure project of this nature.

11.10 Baseline Conditions

11.10.1 Baseline Landscape Situation

46. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 428 - 438).
47. The study area lies primarily within County Armagh and includes the eastern fringe of Armagh City. A portion of the study area north of the Blackwater River is within County Tyrone. The linear corridor runs west from the proposed substation at Turleenan before turning south, to the east of Moy, passing through generally open, rural countryside to the east of Keady, prior to connecting to the southern corridor at the border with the Republic of Ireland. It avoids hilltops with prominent skylines and takes as direct a route as possible, limiting the length of overhead line required and reducing the requirement for larger angle towers.
48. The rural hinterland close to the main settlement of Armagh area is populated with many scattered farms, dwellings and small commercial buildings. Small villages are located along secondary and minor roads and around local educational or commercial centres. The land within the study area is primarily agricultural, consisting of low rolling hills, shallow valleys and structured fields, which often have overgrown hedgerows and many mature trees. Orchards are a prominent feature in the north of the study area.

11.10.2 Landscape Designations / Landscape Character

49. There are no national or international landscape designations within the 5km study area to either side of the proposed alignment. AONBs are avoided.
50. The following former Green Belts around Dungannon and Armagh are designated in the South Tyrone Area Plan 2010 and the Armagh Area Plan 2004.
 - Armagh City Former Green Belt; and,
 - Dungannon Former Green Belt.
51. Planning Policy Statement 21 – Sustainable Development in the Countryside (DOE, 2010) takes precedence of these former Green Belts and contains a number of landscape and visual policies. The purpose of these policies is to protect areas of the

countryside from development pressure, maintain their rural character and protect the visual amenity of areas of landscape value. The sensitivity to change of the former Green Belts therefore is guided by the sensitivity of the Landscape Character Areas and urban fringes that they occupy.

52. There are a number of **Registered Historic Parks, Gardens and Demesnes** occurring within the study area, which are listed in The Register of Parks, Gardens and Demesnes of Special Historic Interest, Northern Ireland. These comprise of:
- The Argory;
 - The Manor House, Benburb;
 - Armagh Palace; and,
 - Tynan Abbey.
53. The study area is covered by the Northern Ireland Landscape Character Assessment (2000). The Landscape Character Areas (LCAs) within the study area lie within the region described as the Central Lowlands.
54. The countryside was analysed by evaluating each area of distinctive landscape character and identifying the main physical and human influences on the landscape and its existing condition and quality. Following on from this, collective conclusions were formed about the quality of the landscape and its sensitivity to change.
55. The overhead line lies across the following boundaries of two Landscape Character Areas (LCAs):
- LCA 47 Loughgall Orchard Belt; and,
 - LCA 66 Armagh Drumlins.
56. The wider study area falls within four additional Landscape Character Areas (LCAs) as follows:
- LCA 45 Dungannon Drumlins and Hills;
 - LCA 64 Lough Neagh Peatlands;
 - LCA 68 Carrigatuke Hills; and,
 - LCA 46 Blackwater Valley.

57. The overhead line as it approaches the border with the Republic of Ireland falls within close proximity to the following two Landscape Character Areas (LCAs):
- LCA 6 Mullyash Uplands; and
 - LCA 2 Blackwater Valley and Drumlin Farmland.
58. The scale of the overall landscape within the study area is small to medium and the landscape character of all eight character areas within the study area is valued by local residents, landowners and passers-by. The landscape features within both the Loughgall Orchard Belt and the Armagh Drumlins LCAs through which the proposed overhead line and substation will be situated are also widely valued.
59. The following features or elements of the landscape in the study area within the LCA are sensitive to change as defined in the Northern Ireland Landscape Character Assessment (2000):
- Agricultural fields - due to loss of agricultural fields to housing;
 - Rural character - due to loss of rural character for example as a result of increased ribbon development and poor siting of new buildings;
 - Traditional hedge enclosures - due to loss of traditional hedge enclosures to the introduction of inappropriate materials such as fences and railings; and
 - Roadside vegetation - due to loss of roadside hedges and trees as a result of road widening schemes and improvement of sight-lines at junctions.

11.10.3 Baseline Visual Situation

60. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 438 – 441).

Settlements

61. Armagh City (5.3km east of the line) is the largest settlement within the study area with Dungannon (5.7km), a similar sized settlement lying on the edge of the study area to the north – west. Moy (1.3km), Blackwatertown (1km), Benburb (1.6km), Killylea (2km), Milford (2.9km), Middletown (4.4km), Keady (4.6km) and Derrynoose (1.7km) are other key settlements in the study area.

62. Throughout the study area there are single and small clusters of residential properties and farm buildings. Where the proposed overhead line passes in close proximity to, or where there will potentially be uninterrupted views of, the proposed Tyrone – Cavan Interconnector the potential visual impact has been assessed.

Individual Properties

63. The study area of the proposed overhead line route includes a large number of individual properties, both houses and farmsteads. Individual properties tend to be concentrated along the edges of roads, however, there are still a large number of properties scattered more widely across the landscape, typically with residential dwellings and many farmhouses situated atop drumlins, accessed by private tracks. Properties vary in size from single storey to two or three storeys.
64. Properties that lie within 500m of the overhead line route are more likely to have clear views of the proposals. For this reason particular attention has been paid to these individual properties, which are described more fully in Vol 2, Chapter 13, Section 13.6.22 Individual Properties Assessment of the Consolidated ES Addendum.

Roads

65. The community is well served by a good transport network including A and B class roads, as follows; M1, N2, A28, A3, A29, A45, B115, B106, B3, R214, B34, B517, B45, B128, B28, B130, B210, B361, B32, R184 and R181.

Paths

66. There are several recreational paths, cycle ways and local walks in the study area, as follows; National Cycle route 91; National Cycle Route 95; Regional Cycle.

Viewpoint Locations

67. The assessment of impacts from key viewpoints within the study area is an essential component of the landscape and visual assessment. Thirty four viewpoints have been identified for inclusion in the assessment.
68. Viewpoints 1-34 are representative of existing and potential views that may be obtained by a range of different receptors along the route of the overhead line and provide information on general visual amenity within the study area. The viewpoints are from

fixed locations and provide an indication of the potential impacts from the viewpoint and immediate surrounding area.

11.11 Assessment of Impacts Without Proposed Mitigation

11.11.1 Physical Landscape effects

69. The physical effects of the proposed Tyrone – Cavan Interconnector are restricted to the area of the site where existing elements of the landscape may be changed. An assessment of physical effects has been carried out for each of the following sections of overhead line route:
- Substation and Towers 1-8;
 - Towers 9-19;
 - Towers 20-30;
 - Towers 31-40;
 - Towers 41-51;
 - Towers 52-61;
 - Towers 62-71;
 - Towers 72-81;
 - Towers 82-92; and,
 - Towers 93-102.
70. The area of the affected vegetation can be seen in Figure 5.8 of the Consolidated ES Volume 2 and is described in further detail in Chapter 10 (Ecology).
71. For the construction and operation of the substation there will be the removal of land currently in agricultural use and the removal of natural landscape elements such as landform, hedgerows and trees.
72. The overhead line will also result in the removal of hedgerows and trees.
73. Significant adverse effects are predicted for the Substation and Towers 1-8, along with Towers 93-102 at construction and Year 1 Operation.
74. With mitigation, by Year 15 there will be no significant adverse physical effects.

11.11.2 Landscape Character effects

75. The assessment found there will be Significant adverse effects arising from the substation and overhead line in LCA 66 Loughgall Orchard Belt. The substation will have a noticeable effect in the localised area. The overhead line will introduce a noticeable linear feature which will cross the landscape resulting in Significant adverse effects within the landscape character of the area.
76. In LCA 66 Armagh Drumlins, The small scale pasture fields and undulations in topography and occasional open views across landscape from higher points will increase the influence of this development. Significant adverse effects will arise within a limited area close to the overhead line within this LCA.

11.11.3 Visual Effects

77. The visual assessment considered the effects of the substation and overhead line from thirty four viewpoints identified as being representative of the study area. The 34 viewpoints were shown in Volume 4 of the Consolidated ES. The location of the viewpoints is shown in Figure 13.6 and the viewpoints are shown in Figure 13.8.
78. In the Consolidated ES Addendum, Viewpoints 30, 32, 33 and 34 were updated and the revised photomontages were shown in Volume 4. The location of the viewpoints was shown on Figure 1.3a to e.
79. The assessment concluded that there will be Significant adverse impacts upon 22 viewpoints.
80. The visual assessment considered the effects of the substation and overhead line from the following settlements: Armagh City, Dungannon, Moy, Blackwatertown, Benburb, Killylea, Milford, Middletown, Keady and Derrynoose. The assessment concluded that there will be Significant adverse impacts upon 5 settlements as follows:
- Moy;
 - Blackwatertown;
 - Benburb;
 - Killylea; and,

- Derrynoose.
81. The visual assessment considered the effects of the substation and overhead line from the transport corridors, including the M1, A road and key B roads. There are also several recreational paths, cycle ways and local walks in the study area, as follows; The Ulster Way/National Cycle Route 91; National Cycle Route 95; Regional Cycle Route 11; and River Blackwater Canoe Trail. The assessment concluded that there will be no Significant impacts upon transport corridors and paths.
82. Extensive field study of the characteristics of the landscape has shown that due to the scale and topography of the drumlin landscape type that dominates the route, properties that lie within 500m of the overhead line route are more likely to have clear views of the proposals. For this reason particular attention has been paid to properties within 500m of the proposals.
83. A total of 438 properties were assessed that lie within 500m of the proposed overhead line route.
84. Overall, in summer 15 years after first energisation ('opening' of the project), 322 individual properties will experience Significant adverse effects:
- 18 properties that experience a major adverse impact;
 - 199 properties that experience a moderate - major adverse impact;
 - 105 properties that experience a moderate adverse impact.
85. These properties are assessed in the Chapter 11 of the Consolidated ES and Chapter 1 of the Consolidated ES Addendum and the location can be seen on Figure 1.2, Volume 3 of the Consolidated ES Addendum.
86. The substation has more opportunities for landscape mitigation and the 9 properties that lie within 500m of the substation are situated to the west of the proposed site. The topography is such that some views into the site will be screened by the intervening hillside which makes up the western and southern slopes of the proposed site area. Views may be available of the tops of buildings and tall structures associated with the substation site from some individual property receptors. There are some receptors likely to have Significant substation visual impacts at construction. For some properties, the

impacts will reduce to Not Significant (in summer) 15 years after energisation, once planting has matured.

11.12 Proposed Mitigation

87. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 448 - 452).

11.12.1 General landscape mitigation

88. The CEMP is the practical means by which the contractor will implement the environmental commitments made in the Consolidated ES and Addendum and will cover the construction of the proposed Tyrone – Cavan Interconnector and subsequent reinstatement of the site, where proposed.

11.12.2 Substation

89. Selection of the most environmentally, technically and economically preferable site and technology for the proposed substation was a priority. The proposed site has been carefully chosen to limit its impact on the landscape and views. The existing drumlin landform screens much of the site from the north and west. The site is more open to the south in the valley of the River Blackwater. Views of the substation will be restricted to a limited number of passers-by and residential receptors. Part of the substation is constructed using (GIS) Gas Insulated Switchgear technology which can be contained within an enclosed Industrial type unit/building which minimises the substation footprint and visual impact compared to the standard AIS switchgear.

90. Planting proposals are set out in Figure 5.7, which is contained with the planning drawings. The planting proposals are also illustrated in viewpoint photomontages 1-5 at Year 1 and Year 15.

91. The proposed earth bunds and extensive planting proposals play an important role in limiting the visual impact of the substation.

92. The proposed planting will include blocks of woodland and selected tree planting, at the site entrance, along the approach road and surrounding the substation that will, in time,

screen views for receptors and travellers and integrate the site into the local landscape character.

11.12.3 Overhead line

93. The alternatives studies and routeing with consideration of Holford Rules have been the main form of mitigating the permanent and operational effects of the proposed overhead line.
94. A combination of these alternative studies conducted led to the selection of different technology and tower structure for this project than what has commonly been used in Northern Ireland or throughout the UK for transmission overhead lines at this voltage. The proposed technology is a 400kV single circuit which utilises a shorter tower structure and a reduced wirescape (by 50%) compared to the traditional 275 kV Double Circuit line.
95. In addition, a joint study was commissioned and consulted upon by the applicant and EirGrid which led to the selection of a new CIVI tower structure on the basis that it utilises less steel than traditional towers, appears more transparent and therefore blends in better to the residing landscape.
96. During construction earthworks associated with the erection of towers and foundation construction will be limited to specific areas around the base of each tower. These areas will be reinstated and vegetation replaced, however, vegetation may take several growing seasons before being completely restored.
97. Temporary access tracks and track-ways will be reinstated following construction of the line. The assessment of impacts associated with temporary earthworks and tracks is included in the assessment of overall impacts of the overhead line in the operational phase.
98. Routeing of the overhead line and towers has taken advantage of, and responds to, opportunities for screening provided by landform and existing vegetation.
99. Topography has also been utilised as a form of mitigation. Careful siting of towers helps to prevent skylining (breaking the sky line) by avoiding prominent hilltops and ridges that can make towers and their associated lines appear to dominate the landscape. In line

routeing, the Applicant has avoided skylining where at all possible. In an undulating drumlin landscape populated with rural dwellings and farms, however, this is not always achievable due to the constant changes in landform.

100. The overhead line has been routed within the preferred route corridor, recognising the need to avoid visual impacts on the locations and aspects of individual dwellings, settlement, public amenities and housing developments. In all situations, where practical, the line route has been kept the maximum distance possible from individual dwellings in order to avoiding intruding on the amenity of public and private views.
101. Existing vegetation found within the study area also will play a key role in reducing the impact of towers and overhead lines. It was a deliberate policy to attempt to retain wherever possible existing vegetation. A 20m way leave underneath the overhead line route will be required. In addition, during operation, all vegetation within the 30m buffer zone will be retained wherever possible to a maximum height of 2m. Selective pruning, rather than removal of vegetation, will be carried out to avoid introducing unnaturally straight lines of vegetation loss in the landscape.

11.13 Residual Impacts With Proposed Mitigation

102. This is a summary of the information contained in the Consolidated ES, Chapter 13 – Landscape and Visual (pages 452 - 524).
103. The following tables provide a summary of residual landscape impacts and their significance for the following receptor types after 15 years of operation:
 - Physical Landscape Effects
 - Designated Landscapes
 - Viewpoints

Landscape Type	Sensitivity	CONSTRUCTION		OPERATION (Year 1)		OPERATION (Year 15)		Significance
		Magnitude of Change	Impact	Magnitude of Change	Impact	Magnitude of Change	Impact	
Physical Landscape Effects								
Substation and Towers 1-8	Medium	Medium	Moderate Adverse	Medium	Moderate Adverse	Low	Minor Adverse	Not Significant
Towers 9-19	Medium	Low - Medium	Minor - Moderate Adverse	Low - Medium	Minor - Moderate Adverse	Low	Minor Adverse	Not significant
Towers 20-30	Medium	Low - Medium	Minor - Moderate Adverse	Low - Medium	Minor - Moderate Adverse	Low	Minor Adverse	Not significant
Towers 31-40	Medium - High	Low	Minor - Moderate Adverse	Low	Minor - Moderate Adverse	Negligible	Minor Adverse	Not significant
Towers 41-51	High	Low	Moderate Adverse	Low	Moderate Adverse	Negligible	Minor Adverse	Not Significant
Towers 52-61	Medium - High	Low	Minor - Moderate Adverse	Low	Minor - Moderate Adverse	Low - Negligible	Minor Adverse	Not Significant
Towers 62-71	Medium - High	Low	Minor - Moderate Adverse	Low	Minor - Moderate Adverse	Low - Negligible	Minor Adverse	Not Significant
Towers 72-81	Medium - High	Low - Negligible	Minor Adverse	Low - Negligible	Minor Adverse	Negligible	Negligible	Not Significant
Towers 82-92	Medium	Low - Negligible	Minor - Negligible Adverse	Low - Negligible	Minor - Negligible Adverse	Negligible	Minor Adverse	Not Significant
Towers 93-102	High	Low	Moderate Adverse	Low	Moderate Adverse	Negligible	Minor Adverse	Not Significant
Designated Landscapes								
Armagh City Former Green Belt	High	Negligible	Minor Adverse	Negligible	Minor Adverse	Negligible	Minor Adverse	Not Significant
Dungannon Green Former Belt	Medium - High	Low - Negligible	Minor Adverse	Low - Negligible	Minor Adverse	Low - Negligible	Minor Adverse	Not Significant
The Argory	Medium	Low - Medium	Minor - Moderate Adverse	Low - Medium	Minor - Moderate Adverse	Low - Medium	Minor - Moderate Adverse	Not Significant
The Manor House, Benburb	High	Low - Medium	Moderate Adverse	Low - Medium	Moderate Adverse	Low - Medium	Moderate Adverse	Significant
Armagh Palace	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
Tynan Abbey	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant

Landscape Type	Sensitivity	CONSTRUCTION		OPERATION (Year 1)		OPERATION (Year 15)		Significance
		Magnitude of Change	Impact	Magnitude of Change	Impact	Magnitude of Change	Impact	
Northern Ireland Landscape Character Areas								
LCA 47 Loughgall Orchard Belt	Medium	High	Moderate - Major Adverse	Medium - High	Moderate Adverse	Medium - High	Moderate Adverse	Significant
LCA 66 Armagh Drumlins	High	Medium - High	Moderate - Major Adverse	Medium - High	Moderate - Major Adverse	Medium - High	Moderate - Major Adverse	Significant
LCA 45 Dungannon Drumlins and Hills	Medium	Low	Minor Adverse	Low	Minor Adverse	Low	Minor Adverse	Not Significant
LCA 64 Lough Neagh Peatlands	Medium	Low - Negligible	Negligible - Minor Adverse	Low - Negligible	Negligible - Minor Adverse	Low - Negligible	Negligible - Minor Adverse	Not Significant
LCA 68 Carrigatuke Hills	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
LCA 46 Blackwater Valley	High	Negligible	Minor Adverse	Negligible	Minor Adverse	Negligible	Minor Adverse	Not Significant
Republic of Ireland Landscape Character Areas								
LCA 6 Mullyash Uplands	High	Medium	Moderate Adverse	Medium	Moderate Adverse	Medium	Moderate Adverse	Significant
LCA 2 Blackwater Valley and Drumlin Farmland	High	Negligible	Minor Adverse	Negligible	Minor Adverse	Negligible	Minor Adverse	Not Significant

104. Residual visual impacts will be experienced by the following number of individual properties after 15 years of energisation:

- 19 properties that experience a major adverse impact;
- 201 properties that experience a moderate - major adverse impact;
- 103 properties that experience a moderate adverse impact;
- 31 properties that experience a minor - moderate adverse impact;
- 64 properties that experience a minor adverse impact; and,
- 9 properties that experience no effect.

105. These properties are assessed in the Chapter 11 of the Consolidated ES and Chapter 1 of the Consolidated ES Addendum and the location can be seen on Figure 1.2, Volume 3 of the Consolidated ES Addendum.

106. The following tables provide a summary of residual visual impacts and their significance for the following receptor types after 15 years of operation:

- Settlements
- Transport Corridors and Paths
- Viewpoints

Receptor Type	Sensitivity	CONSTRUCTION		OPERATION (Year 1)		OPERATION (Year 15)		Significance
		Magnitude of Change	of Impact	Magnitude of Change	Impact	Magnitude of Change	Impact	
Settlements								
Armagh City	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
Dungannon	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
Moy	High	Low-Medium	Moderate	Low-Medium	Moderate	Low-Medium	Moderate	Significant
Blackwatertown	High	Low-Medium	Moderate	Low-Medium	Moderate	Low-Medium	Moderate	Significant
Benburb	High	Medium-High	Moderate Major	Medium	Moderate	Medium	Moderate	Significant
Killylea	High	Low-Medium	Moderate	Low-Medium	Moderate	Low-Medium	Moderate	Significant
Milford	Medium	Low-Medium	Minor Moderate	Low-Medium	Minor Moderate	Low-Medium	Minor Moderate	Not Significant
Middletown	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
Keady	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
Derrynoose	High	High	Major	Medium-High	Moderate Major	Medium-High	Moderate Major	Significant

Receptor Type	Sensitivity	CONSTRUCTION		OPERATION (Year 1)		OPERATION (Year 15)		Significance
		Magnitude of Change	Impact	Magnitude of Change	Impact	Magnitude of Change	Impact	
Transport Corridors and Paths								
M1	Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
N2	Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
A28	Low	Low	Negligible	Low	Negligible	Low	Negligible	Not Significant
A3	Low	Medium	Minor	Medium	Minor	Medium	Minor	Not Significant
A29	Low	Low	Negligible	Low	Negligible	Low	Negligible	Not Significant
A45	Low	No Change	No Impact	No Change	No Impact	No Change	No Impact	Not Significant
B115	Medium	Low-Medium	Minor - Moderate	Low-Medium	Minor - Moderate	Low-Medium	Minor - Moderate	Not Significant
B106	Medium	Medium	Moderate Adverse	Medium	Medium	Moderate Adverse	Minor - Moderate	Not Significant
B3/R214	Medium	Low-Medium	Minor - Moderate	Low-Medium	Minor - Moderate	Low-Medium	Minor - Moderate	Not Significant
B34	Medium	No Change	No Impact	No Change	No Impact	No Change	No Impact	Not Significant
B517	Medium	No Change	No Impact	No Change	No Impact	No Change	No Impact	Not Significant
B45	Medium	No Change	No Impact	No Change	No Impact	No Change	No Impact	Not Significant
B128	Medium	Low	Minor Adverse	Low	Minor Adverse	Low	Minor Adverse	Not Significant

Receptor Type	Sensitivity	CONSTRUCTION		OPERATION (Year 1)		OPERATION (Year 15)		Significance	
		Magnitude of Change	Impact	Magnitude of Change	Impact	Magnitude of Change	Impact		
B28	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
B130	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
B210	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
B361	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
B32/R181	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
R184	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
National The Ulster Way/Cycle Route 91	Medium	Low-Medium	Minor Moderate	Low-Medium	Minor Moderate	Low-Medium	Minor Moderate	Not Significant	
National Cycle Route 95	Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
Regional Cycle Route 11	Low	Medium-Low	Negligible Minor	Low	Negligible	Low-Negligible	Negligible	Not Significant	
River Blackwater Canoe Trail	Medium	Medium	Moderate	Medium-Low	Minor Moderate	Low	Minor	Not Significant	
The Monaghan Way	Medium	Medium-Low	Minor Moderate	Medium-Low	Minor Moderate	Medium-Low	Minor Moderate	Not Significant	
The Beetlers Trail	Medium	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant	
Viewpoints									
01	Clonteevy Bridge over River Rhone on Trewmount Road (B106)	Medium	High	Moderate Major	High	Moderate Major	High	Moderate Major	Significant
02	Derrygally Way to east of Turleenan Substation	Medium	High	Moderate Major	High	Moderate Major	High	Moderate Major	Significant
03	Derrygally Way to south of Turleenan Substation	Medium	High	Moderate Major	High	Moderate Major	High	Moderate Major	Significant
04	Trewmount Road (B106) near site access road	Medium	High	Moderate Major	Medium - High	Moderate	Medium - High	Moderate	Significant
05	Bonds Bridge over River Blackwater near the Argory	Medium	Low - Medium	Minor Moderate	Low - Medium	Minor Moderate	Low - Medium	Minor Moderate	Not Significant
06	Moy Road (A29) crossing	Medium	Medium - High	Moderate	Medium	Moderate	Medium	Moderate	Significant
07	Culkeeran Road	Medium	Medium - High	Moderate	Medium	Moderate	Medium	Moderate	Significant
08	Gorestown Road	Medium	Medium - High	Moderate	Medium	Moderate	Medium	Moderate	Significant
09	Benburb Road	Medium	High	Moderate Major	High	Moderate Major	High	Moderate Major	Significant
10	Benburb Road south of Ninewell Bridge	Medium	High	Moderate Major	High	Moderate Major	High	Moderate Major	Significant
11	Clonfeacle Road (B128) crossing	Medium	Medium	Moderate	Low - Medium	Minor Moderate	Low - Medium	Minor Moderate	Not Significant
12	Benburb Priory	High	Medium	Moderate	Medium	Moderate	Medium	Moderate	Significant
13	Artasooly Road looking towards Blackwater River Crossing	Medium	Medium	Moderate	Low - Medium	Minor Moderate	Low - Medium	Minor Moderate	Not Significant
14	Artasooly Road at Tullymore Bridge	Medium	Medium	Moderate	Medium	Moderate	Medium	Moderate	Significant
15	Artasooly Road and Maydown Road junction at Artasooly	High	Low	Moderate	Low - Negligible	Minor Moderate	Low - Negligible	Minor Moderate	Not Significant
16	Battleford Road (B115) crossing	High	High	Major	High	Major	High	Major	Significant
17	Killylea Road (A28) crossing	Medium	Medium	Moderate	Low - Medium	Minor Moderate	Low - Medium	Minor Moderate	Not Significant
18	Killylea settlement (Fellows Grange Court)	High	Low - Medium	Moderate	Low - Medium	Moderate	Low - Medium	Moderate	Significant
19	Navan Fort	High	Negligible	Minor	Negligible	Minor	Negligible	Minor	Not Significant
20	Monaghan Road (A3) east of Norton's Cross Roads	Medium	High	Moderate Major	Medium - High	Moderate	Medium - High	Moderate	Significant
21	Monaghan Road (A3) crossing	Medium	High	Moderate Major	Medium - High	Moderate	Medium - High	Moderate	Significant
22	Maddan Road south of Norton's Cross Roads	Medium	Medium - High	Moderate	Medium	Moderate	Medium	Moderate	Significant
23	Cavanagarvan Road and Sheetrim Road Junction	Medium	Medium	Moderate	Low - Medium	Minor Moderate	Low - Medium	Minor Moderate	Not Significant

Receptor Type	Sensitivity	CONSTRUCTION		OPERATION (Year 1)		OPERATION (Year 15)		Significance
		Magnitude of Change	Impact	Magnitude of Change	Impact	Magnitude of Change	Impact	
24 Drumhillery Road crossing	Medium	Medium - High	Moderate	Medium	Moderate	Medium	Moderate	Significant
25 Lagan Road west of Keady	High	Low	Moderate	Low - Negligible	Minor Moderate	Low - Negligible	Minor Moderate	Not Significant
26 Fergort (B3) Road crossing	Medium	Medium - High	Moderate	Medium - High	Moderate	Medium - High	Moderate	Significant
27 East of Derrynoose	High	High	Major	Medium - High	Moderate Major	Medium - High	Moderate Major	Significant
28 Derrynoose Road at Curragh Lane looking north	Medium	Medium - High	Moderate	Medium - High	Moderate	Medium - High	Moderate	Significant
29 Derrynoose Road at Curragh Lane looking south	Medium	Medium - High	Moderate	Medium - High	Moderate	Medium - High	Moderate	Significant
30 Crossbane Road (NIE)	Medium	Low - Negligible	Negligible Minor	Low - Negligible	Negligible Minor	Low - Negligible	Negligible Minor	Not Significant
31 Crosssaghy Road	Medium	Medium - High	Moderate	Medium - High	Moderate	Medium - High	Moderate	Significant
32 Castleshane Brae	Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Not Significant
33 Tully buck	High	No change	No Impact	No change	No Impact	No change	No Impact	N/A
34 Mullyash Mountain	High	Negligible	Minor	Negligible	Minor	Negligible	Minor	Not Significant

11.14 Cumulative Impacts

107. This is a summary of information that is contained Chapter 5 of the Consolidated ES Addendum (pages 60 - 75). A further assessment of cumulative effects is outlined in the Joint Environmental Report for the proposed Interconnector project (i.e. the project in Northern Ireland and Ireland). This is contained in Volume 3 Appendix 2.1 of the Consolidated ES Addendum.
108. A cumulative impact assessment has been undertaken of the proposed Tyrone - Cavan Interconnector and the other identified developments, both individually and cumulatively (i.e. all projects assessed together).
109. Cumulative impacts considered where the presence of other developments within the study area may have an impact on the perception of the landscape character of that area, or on views from sensitive receptors.
110. In accordance with Consolidated Addendum Volume 2, Page 56, Table 5.2 Determining Significance of Cumulative Effects, cumulative effects are predicted to be Imperceptible and therefore not significant, apart from the specific landscape and visual effects set out below which are considered to be Significant adverse

- Impacts between Tyrone - Cavan Interconnector and Tamnamore to Omagh 110 kV network reinforcement project on LCA 47: Loughgall Orchard Belt;
- Impacts between Tyrone - Cavan Interconnector and North-South 400 kV Interconnection Development 400 kV overhead line on LCA 66: Armagh Drumlins, LCA 6: Mullyash Uplands, Viewpoint 30, Viewpoint 34;
- Impacts between Tyrone - Cavan Interconnector and North-South 400 kV Interconnection Development 400 kV overhead line on Individual Dwellings J48, J51, J51+, J59, J60 and J61;
- Impacts between Tyrone - Cavan Interconnector and O/2013/0464/F Wind turbine on residential receptor E20; and,
- Impacts between Tyrone - Cavan Interconnector and O/2013/0157/F Wind turbine on residential receptors J14, J16, J22 and J18.

11.15 Transboundary Impacts

111. This is a summary of information that is contained Chapter 6 of the Consolidated ES Addendum (pages 83 - 85). A further assessment of transboundary effects is outlined in the Joint Environmental Report for the proposed Interconnector project. This is contained in Volume 3 Appendix 2.1 of the Consolidated ES Addendum.
112. Landscape Character areas within the Republic of Ireland that lie within 5km of the proposed Tyrone – Cavan Interconnector, have the potential to experience landscape character effects as a result of the proposed Tyrone – Cavan Interconnector.
113. The transboundary LCAs are Blackwater Valley and Drumlin Farmland LCA and the Mullyash Uplands LCA and landscape character effects have been assessed for these LCAs within this chapter as presented in detail in this chapter and summarised below:
- LCA 6: Mullyash Uplands - Landscape character impacts of the proposed overhead line and towers will be Moderate Adverse during construction, in the winter year of commissioning and in summer 15 years after commissioning.
 - LCA 2: Blackwater Valley and Drumlin Farmland - Landscape character impacts of the proposed overhead line and towers will be Minor Adverse during

construction, in the winter year of commissioning and in summer 15 years after commissioning.

114. Receptors that are considered transboundary receptors are as presented in detail in this chapter and summarised below:

Viewpoints

- Viewpoint 31: Crossaghy Road - Visual impacts of the proposed overhead line and towers will be Moderate Adverse during construction, in the winter year of commissioning and in summer 15 years after commissioning.
- Viewpoint 32: Minor road north-east of Castleshane - Visual impacts of the proposed overhead line and towers will be Negligible during construction, in the winter year of commissioning and in summer 15 years after commissioning.
- Viewpoint 33: Scenic view from Tullybuck (Clontibret) - No Impact has been assessed during construction, in the winter year of commissioning and in summer.
- Viewpoint 34: Mullyash Mountain - Visual impacts of the proposed overhead line and towers will be Minor Adverse during construction, in the winter year of commissioning and in summer 15 years after commissioning.

Settlements

115. There are no settlements within the Republic of Ireland that lie within the 5km study area of the proposed Tyrone – Cavan Interconnector.

Individual Properties

116. Four property receptors within the Republic of Ireland that lie within the 500m study area of the proposed Tyrone – Cavan Interconnector have the potential to experience visual effects and the assessment of these receptors therefore represents the transboundary assessment of individual properties.

Transport Corridors and Paths

117. The Monaghan Way, R214, N2 and R184 are all situated in the Republic of Ireland and within 5km of the proposed Tyrone – Cavan Interconnector. It has been assessed that there will be no significant transboundary effects as a result of proposed Tyrone – Cavan Interconnector.

11.16 Response to Third Party and Statutory Consultee Submissions

118. Between 2009 and 2012, there were approximately 6,000 third party submissions made in relation to the proposed Tyrone – Cavan Interconnector. These were reviewed and taken into account in the writing of the Consolidated ES. Following the publication of that document in 2013, from May 2013 to May 2015, approximately 2,957 third party submissions were made - of which approximately 716 related to landscape and visual issues. All submissions that were made and have been taken into account in the writing of the Consolidated ES Addendum.
119. Between May 2015 and November 2016, there have been approximately 594 third party submissions and of these approximately 247 submissions made reference to landscape and visual issues. The general issues raised by objectors relate to the visual impact of the proposed Tyrone - Cavan Interconnector on their property and in the area generally and on the impacts to the landscape. The submissions did not raise any material considerations or any issues that were not dealt within the Consolidated ES and Addendum. The issues raised by the submissions are examined, analysed and evaluated in Chapter 13 of the Consolidated ES (Volume 2).
120. Objection Letter Number 2980 (Ms Louise Silvey) raised a specific issue and stated that number 118 Battleford Road is not assessed as a visual receptor in the Consolidated ES Addendum. The potential impacts from the proposed Tyrone – Cavan Interconnector on both Landscape Character and Visual amenity have been fully described within Chapter 13 of the Consolidated ES Addendum. Number 118 Battleford Road is assessed within Chapter 13 and shown on Figure 13.7 (map 9 of 20) labelled as "E33".
121. In the letters received since May 2015, no statutory consultee has identified any issues with landscape and visual.

11.17 Events since the Addendum

122. Since the publication of the Consolidated ES and its Addendum, the following environmental information has become available, and is presented to the inquiry for the purposes of the inquiry. Accordingly, and by virtue of Regulation 23(6) of the Planning

(Environmental Impact Assessment) Regulations (Northern Ireland) 2015 the requirements of paragraphs (4) and (5) of the said Regulation 23 do not apply.

123. No consultation responses have been received regarding landscape and visual effects since the submission of the last addendum.
124. Relevant policy or guidance changes have been listed in Section 11.5 of this report.
125. As outlined in the Statement of Case and in Construction Technical Report (No. 4), alternative access is required to Tower 40 because of the construction of a chicken shed. Two alternative access tracks are described and assessed in the Construction Technical Report (No. 4). An assessment in terms of Landscape and Visual for the alternative access tracks is included in that Technical Report.
126. Confirmatory aerial surveys of the entire proposed Tyrone – Cavan Interconnector (proposed substation area and 500m either side of the overhead line centreline, which includes the proposed access tracks) were undertaken in October 2016. This photography was reviewed in terms of the landscape baseline conditions and nothing of note was detected.

11.17.1 Updated Cumulative Impact Assessment

127. Since the publication of the Consolidated ES Addendum, reviews have been undertaken of other proposed developments in the study area of the proposed Tyrone – Cavan Interconnector. Any newly proposed developments in the study area have been reviewed for their potential for cumulative effects. Appendix 1 of this Technical Report provides an updated assessment of the landscape and visual cumulative assessment with other projects. There are twelve assessed other developments in the study area. These include the Tamnamore to Omagh overhead line and the North – South 400kV Interconnection development and other wind turbine and poultry shed developments. Some of the other developments have been previously assessed in the Consolidated ES Addendum (Chapter 5), however it was necessary to review that assessment in the context of other planned developments in the study area.
128. The findings of the updated assessment are the Tamnamore to Omagh 110kV and Wind Turbine Application O/2012/0183/F will result in moderate cumulative effects to the landscape character area. In terms of the viewpoints assessed in the Consolidated ES,

the proposed Tyrone – Cavan Interconnector and the other developments will result in moderate adverse cumulative effect experienced from viewpoints 6, 16, 20, 27 and 2, five out of the 34 viewpoints assessed.

129. There are a number of residential properties that will experience adverse cumulative effects as a result the proposed Tyrone – Cavan Interconnector and other developments. These properties are shown on Figure 1.2 of the Consolidated ES Addendum and are:

- Receptors E20, E21, E23, E24 and E25: Moderate Adverse cumulative effect with Wind Turbine Application O/2013/0464/F;
- Receptors F31+: Moderate Adverse cumulative effect with Wind Turbine Application O/2013/0397/F;
- Receptors G33, G33a and G42+: Moderate Adverse cumulative effect with Wind Turbine Application O/2013/0259/F;
- Receptors I26, 126a and I27: Moderate Adverse cumulative effect with Wind turbine Application O/2014/0096/F;
- Receptor J7: Moderate – Major Adverse effect cumulative effect with Wind turbine application O/2013/0157/F;
- Receptors J14 and J16: Major Adverse cumulative effect with Wind turbine application O/2013/0157/F;
- Receptors J13, J15, J22, J23, J25, J25+, J26: Moderate Adverse cumulative effect with Wind turbine application O/2013/0157/F;
- Receptors J22, J25+, J26 and J33a, J33b: Moderate Adverse cumulative effect with Wind turbine application O/2014/0096/F;
- Receptor J22: Moderate – Major Adverse effect with Wind turbine applications O/2014/0096/F, O2012/0183/F, O/2013/0157/F, O/2013/0273/F and O211/0067.
- Receptor J25, J33a and J33b were all assessed as being receptors of Moderate Adverse effects from the cumulative effect of Wind Turbine Application O/2013/0273/F.
- When the North-South 400kV Interconnection Development was assessed in conjunction with the proposed Tyrone – Cavan Interconnector, Receptor J48 was

assessed as receiving Moderate – Major Adverse effects whilst Receptor J51, J51+, J60 and J61 were all assessed as being receptors of Major Adverse effects.

11.17.2 Updated Viewpoint/Baseline Assessment

130. This report provides an update to 2016 of the visual baseline of the Study Area recorded in the Consolidated Environmental Statement and its Addendum. The assessment of the visual baseline included 34 viewpoint locations representative of visual receptors who experience visual amenity.
131. The purpose of this report is to record any obvious visual change to the baseline at each of the 34 representative viewpoint locations, and to consider whether any observed change may consequently affect the sensitivity of the identified receptors to the type of development proposed.
132. The 34 viewpoints were shown in Volume 4 of the Consolidated ES. The location of the viewpoints is shown in Figure 13.6 and the viewpoints are shown in Figure 13.8.
133. In the Consolidated ES Addendum, Viewpoints 30, 32, 33 and 34 were updated and the revised photomontages were shown in Volume 4. The location of the viewpoints was shown on Figure 1.3a to e. The location and number of viewpoints was agreed with the (then) Department of the Environment as part of the EIA scoping process.
134. The site survey was undertaken between 24th and 28th of October 2016 by Chartered Landscape Architects. There was no obvious visual change within the 90° horizontal field of view observed from 20 of the 34 representative viewpoints assessed in the 2013 Consolidated ES and 2013 Consolidated ES Addendum. Viewpoints 1-6, 8, 13, 15, 12 and 18 change changed as new developments such as residential properties, agricultural sheds and wind turbines have been constructed in that area. Viewpoints 9, 19, 27 and 28 have not changes in terms of the view shown in Figure 13.8 in the Consolidated ES but there developments outside of that view.
135. The changes have been assessed and as a result of screening by intervening vegetation, nature of the development or a combination of distance and / or extent within the view, none of these developments will affect the sensitivity of the visual receptors at these locations. The review of the viewpoints has determined that the viewpoints as

being representative of the study area have not changed in terms of sensitivity and therefore the assessment within the Consolidated ES and addendum remains valid.

11.17.3 Updated Residential Assessment

136. Since the publication of the Consolidated ES Addendum, an additional assessment has been undertaken of identified new residential properties. A total of 33 new properties were identified, these are described in detail in Appendix 3 of this Technical Report and shown on the included figures. Of the 33 properties, 25 will experience significant residual adverse effects. In addition to the 33 properties, a further 22 potential properties were identified from the "Pointer" database. This is a database run by Ordnance Survey of Northern Ireland and Royal Mail to identify postal addresses. The database can be inaccurate for new properties as it can take time for the database to be updated. Of the 22 identified Pointer addresses, 11 Pointer receptors will experience significant residual adverse effects. In total an additional 36 residential receptors were identified as having significant residual adverse effects.

11.18 Summary and Conclusions

137. Considering the size and nature of the proposed Tyrone – Cavan Interconnector, significant efforts have been taken in both the design and routing process to minimise landscape and visual impacts as much as possible. Based on the alternative options considered therefore, the proposed Tyrone – Cavan Interconnector will result in the least impacts to the landscape and visual resource of the study area, for an infrastructure project of this nature.
138. The route of the proposed overhead line and siting of the proposed substation was selected based on the results of a number of alternatives studies which examined the environmental, technical and economic constraints present between various route corridors, line route options, and technical design details. Landscape and visual impacts were two primary environmental constraints that influenced the selection of the preferred site, route corridor, the line route, and the components of the now proposed Tyrone – Cavan Interconnector.

139. Detailed routeing of the line has sought to achieve the best fit with the landscape using landform and vegetation whilst recognising the technical constraints of the construction and operation of an overhead line.
140. After construction, the towers and overhead lines will remain as significant visual elements in the landscape. Existing lines/poles along with the proposed overhead line route will, nevertheless, combine to reduce the quality of the existing landscape.
141. Over time any vegetation cut back will re-grow and any new replacement planting will become established. Mitigation measures will reduce visual impacts of the proposed substation and will see the embankments, earth bunds and entrance road heavily planted with predominantly native woodland. Over time, as the mitigation landscape matures, views of the substation will be filtered and assimilated back into the local landscape setting.
142. The landscape assessment indicates that there will be significant adverse impacts upon the landscape of some parts of the study area. There will also be significant adverse effects on the visual amenity afforded from many locations from within the immediate area adjacent to the line route. However, it is considered that the landscape and visual resource of the wider study area will not deteriorate to a significant degree and the overall impact upon landscape and visual amenity in general is therefore restricted to those receptors/areas within close proximity to the towers and overhead line.
143. An in-built and robust degree of mitigation of the landscape and visual impacts of proposed Tyrone – Cavan Interconnector has been achieved through the process of consideration of alternatives, route selection and tower type. Adherence to the Holford Rules and other line routing environmental guidance has influenced the development of the proposal. The process of Landscape and Visual Impact Assessment has found that there will be significant adverse impacts upon the landscape of some parts of the study area; these impacts are not designated landscapes. There will also be significant adverse effects on the visual amenity afforded from many locations from within the immediate area adjacent to the line route. However, it is considered that the landscape and visual resource of the wider study area will not deteriorate to a significant degree and the overall impact upon landscape and visual amenity in general is therefore restricted to those receptors within close proximity to the towers and overhead line.

144. Since the publication of the Consolidated ES Addendum, further landscape and visual assessment has been undertaken to reflect the new developments in the study area. This includes new residential properties, agricultural sheds, wind turbines and other changes. Data on new developments was collected and used during site surveys to update the landscape and visual cumulative impacts assessment, the viewpoint assessment and impacts to residential properties.
145. It will found that there are additional landscape and visual cumulative impacts due to new wind turbines in the study area. There are an additional 31 properties that will experience significant residual adverse effects due to the proposed Tyrone – Cavan Interconnector. Additionally, the review of the 36 assessed viewpoints within the study area (determined as being representative of the study area) has determined that there is no significant change to the assessment as previously presented in the Consolidated ES and Addendum.
146. The Statement of Case outlines the context of the proposed Tyrone–Cavan Interconnector in terms of planning and policy. It is has been determined in the Statement of Case that Tyrone–Cavan Interconnector will have landscape and visual impacts, but in accordance with policy (i.e. SPPS, PSU 8 and PSU 11) it has been designed to minimise landscape and visual effect through line route selection, avoiding areas of sensitivity, ecological, natural and built heritage (such as designated sites, scheduled monuments, etc). The Statement of Case further states the proposed Tyrone-Cavan Interconnector is compliant with the requirements of policy.