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## 12 ARCHAEOLOGY AND CULTURAL HERITAGE

#### 12.1 Introduction

- 12.1.1 This Chapter of the EIA Report evaluates the effects of the Proposed Development on the archaeological and cultural heritage resource.
- 12.1.2 This Chapter of the EIA Report is supported by the following figures in Volume 4:
  - 12.1.1 Site Location and Study Areas;
  - 12.1.2 Heritage Assets within 1 km;
  - 12.1.3 Heritage Assets within CSA;
  - 12.1.4 1888 Ordnance Survey (OS) Map;
  - 12.1.5 1937 Ordnance Survey (OS) Map;
  - 12.3.1 Designated Heritage Assets within 5 km;
  - 12.4.1 Designated Heritage Assets within 15 km; and
  - 12.4.2 Cumulative Designated Assets within 15km.
- 12.1.3 This Chapter of the EIA is supported by the following Technical Appendix documents provided in Volume 4 Appendices:
  - 12.1 Torrance Wind Farm Extension II Archaeological Desk-Based Assessment (DBA);
  - 12.2 Sieving Exercise for Designated Assets between 5 and 15 km;
  - 12.3 Assessment of Indirect Effects within 5 km; and
  - 12.4 Assessment of Indirect Effects between 5 and 15 km.
- 12.1.4 This Chapter of the EIA Report also refers to the following visualisations and wirelines in Volume 3:
  - 6.16 Cumulative Baseline;
  - 6.17 Cumulative Baseline Detailed Study Area;
  - 6.27 Visualisations from Viewpoints 1 22; and
  - 6.49 6.54 Cultural Heritage Viewpoints.
- 12.1.5 This Chapter is structured as follows:
  - Legislation, policy and guidance;
  - Assessment methodology and significance criteria;
  - Scoping Responses and Consultation;
  - Baseline conditions;
  - Assessment of potential effects;
  - Assessment of cumulative effects;
  - Mitigation measures;
  - Residual effects; and
  - Summary.
- 12.1.6 The assessment was undertaken by David McCaughie and Kevin Claxton, Heritage Consultants at Arcus. The DBA has been technically reviewed by Charles Arthur, Senior Heritage Consultant at ERM, and the indirect assessments have been technically reviewed by Amy Farrington McCabe, Principal Heritage Consultant at Arcus and Member of the Chartered Institute for Archaeologists (CIfA).



# 12.2 Legislation, Policy and Guidance

12.2.1 A detailed review of the relevant heritage legislation and guidance is provided within the Archaeological Desk-Based Assessment (DBA) in Appendix 12.1. A summary of the relevant legislation and guidance used within the EIA Report are provided below. Further details of energy and planning policy is found in **Chapter 4: Policy Context** and in the Planning Statement that accompanies the application.

### Legislation

- 12.2.2 Heritage legislation of relevance includes:
  - The Historic Environment Scotland Act 2014<sup>1</sup>;
  - The Ancient Monuments and Archaeological Areas Act 1979<sup>2</sup>;
  - The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997<sup>3</sup>; and
  - The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended)<sup>4</sup> (the EIA Regulations).

# **Policy and Guidance**

- 12.2.3 In addition to the aforementioned legislation, the following is a summary of the key heritage policy and guidance:
  - Scotland's Fourth National Planning Framework (NPF4)<sup>5</sup>;
  - Scottish Planning Policy (Revised 2020)<sup>6</sup>: Valuing the Historic Environment, Paragraphs 135-151;
  - Scottish Natural Heritage (now known as NatureScot) and Historic Environment Scotland (HES) EIA Handbook<sup>7</sup>;
  - Historic Environment Policy for Scotland (HEPS)<sup>8</sup>;
  - Our Place in Time: The Historic Environment Strategy for Scotland<sup>9</sup>;
  - Planning Advice Note (PAN) PAN 2/2011: Planning and Archaeology<sup>10</sup>;

<sup>&</sup>lt;sup>1</sup> Scottish Government (2014). The Historic Environment Scotland Act [Online]. Available at: <a href="http://www.legislation.gov.uk/asp/2014/19/pdfs/asp">http://www.legislation.gov.uk/asp/2014/19/pdfs/asp</a> 20140019 en.pdf. Accessed on: 20/01/2023.

<sup>&</sup>lt;sup>2</sup> UK Government (1979). The Ancient Monuments and Archaeological Areas Act [Online]. Available at: <a href="https://www.legislation.gov.uk/ukpga/1979/46">https://www.legislation.gov.uk/ukpga/1979/46</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>3</sup> Scottish Government (1997). The Planning (Listed Buildings and Conservation Areas) (Scotland) Act [Online] Available at: <a href="https://www.legislation.gov.uk/ukpqa/1997/9/contents">https://www.legislation.gov.uk/ukpqa/1997/9/contents</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>4</sup> Scottish Government (2017). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <a href="http://www.legislation.gov.uk/ssi/2017/101/contents/made">http://www.legislation.gov.uk/ssi/2017/101/contents/made</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>5</sup> Scottish Government (2022). National Planning Framework 4. Available at: <u>Part 2 – National Planning Policy - National Planning Framework 4: revised draft - gov.scot (www.gov.scot)</u>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>6</sup> Scottish Government (2020). Scottish Planning Policy [Online] Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2020/12/scottish-planning-policy/documents/scottish-planning-policy/govscot%3Adocument/scottish-planning-policy.pdf. Accessed 20/01/2023.

<sup>&</sup>lt;sup>7</sup> Historic Environment Scotland (2018). Environment Impact Assessment Handbook. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>8</sup> Historic Environment Scotland (2019). Scottish Environment Policy for Scotland [Online]. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>9</sup> Scottish Government (2014). Our Place in Time: The Historic Environment Strategy for Scotland [Online] Available at: <a href="https://www.gov.scot/publications/place-time-historic-environment-strategy-scotland/">https://www.gov.scot/publications/place-time-historic-environment-strategy-scotland/</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>10</sup> The Scottish Government (2011). Planning Advice Note 2/2011 [Online]. Available at: <a href="https://www.gov.scot/publications/pan-2-2011-planning-archaeology/">https://www.gov.scot/publications/pan-2-2011-planning-archaeology/</a>. Accessed 20/01/2023.



- CIfA Standards and Guidance for Desk-Based Assessments<sup>11</sup>; and
- HES (2016) Managing Change in the Historic Environment Series, specifically 'Managing Change in the Historic Environment: Setting'<sup>12</sup>.

# 12.3 Assessment Methodology and Significance Criteria

#### **Scope of Assessment**

- 12.3.1 The assessment of potential cultural heritage effects relating to the Proposed Development is focused upon direct effects and changes to setting (indirect) effects.
- 12.3.2 A direct effect is an effect upon features of cultural heritage interest, where sites or potential sites / buried archaeology are in danger of being disturbed or destroyed. Physical effects are likely to occur during the construction and are permanent and irreversible.
- 12.3.3 An indirect effect is any change to the setting of a heritage asset that affects its cultural significance or the way in which it is valued by both specialists and the wider public.
- 12.3.4 The potential effects from the Proposed Development to cultural heritage assets are:
  - Temporary indirect effects arising from the construction phase, such as noise and higher vehicular and pedestrian activity, which may cause reduced access to and / or reduced appreciation of the historical environment;
  - Permanent direct effects due to land take by the foundations and access tracks; and
  - Permanent indirect effects, including changes to the settings of cultural heritage assets, which may affect cultural significance. These are largely visual effects and are likely to occur as a consequence of the height and breadth of the Proposed Development. This is especially likely to occur on cultural heritage assets located on high ground where their historical significance lies in the wider landscape setting including long-distance views to and from the asset.

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<sup>&</sup>lt;sup>11</sup> Chartered Institute for Archaeologists (2017). Standard and Guidance for Historic Environment Desk-Based Assessment. Available at: <a href="https://www.archaeologists.net/sites/default/files/CIfAS&GDBA\_2.pdf">https://www.archaeologists.net/sites/default/files/CIfAS&GDBA\_2.pdf</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>12</sup> Historic Environment Scotland (2020). Managing Change in the Historic Environment: Setting. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549</a>. Accessed 20/01/2023.



# **Elements Scoped Out of Assessment**

- 12.3.5 All non-designated heritage assets were scoped out of the indirect effects assessment as all non-designated assets are generally of low/negligible sensitivity and unlikely to result in a significant indirect effect in accordance with the EIA Regulations.
- 12.3.6 At Scoping, it was agreed with consultees that all designated assets within a 5 km radius of the Site would be assessed for indirect effects regardless of whether they were within the Zone of Theoretical Visibility (ZTV). Those designated assets within 5-15 km which did not lie within the ZTV were also scoped out. For the remaining heritage assets, a sieving exercise was undertaken to determine those heritage assets for which their cultural significance relies on long distance views and distant landscape context, and as such, may receive a change in setting as a result of the Proposed Development. Those heritage assets selected for inclusion are detailed in Section 12.5.10.

## **Study Areas**

12.3.7 To assess the potential for on-site archaeology, Study Areas were defined based upon the likelihood of potential significant effects upon archaeology and cultural heritage, as detailed in Appendix 12.1 and Table 12.1 below.

Table 12.1 Study Areas

Effect	Name	Range	Description
Direct (Known Archaeology)	Core Study Area (CSA)	The Site Boundary	Area within which the Proposed Development may have direct effects upon known and unknown archaeological remains.
Direct (Informing Archaeological Potential)	1 km Study Area	1 km from the Core Study Area	Area used to ensure a full understanding of the archaeological resource and the potential for unknown subsurface archaeology to survive within the CSA.
Indirect	5 km Study Area	5 km from the Core Study Area	Area that has the highest potential for the Proposed Development to cause changes to setting that affect cultural significance. All heritage assets within 5 km are included in the assessment regardless of whether they are in the ZTV or not.
Indirect	5-15 km study area	15 km from the Core Study Area.	With distance, the potential for changes to setting that affect the cultural significance generally lessons. A sieving exercise was undertaken, and following a review of the ZTV and the cultural significance of heritage assets only those assets within the 5-15 km Study Area which fell within the ZTV and where long distance views and distant landscape context contribute to their cultural significance were included for further assessment. The selection of designated heritage assets is detailed in Section 12.5.10.



Effect	Name	Range	Description
Cumulative	Cumulative Study Area	15 km from the Core Study Area.	An area in which a potential significant cumulative effect is considered likely for similar developments (consented or in planning) and for which, cultural heritage assets within this area lie within the ZTVs of more than one wind farm development.

# **Baseline Survey Methodology**

- 12.3.8 For direct effects, a DBA was undertaken using available documentary, cartographic and photographic evidence to inform the baseline of the Site. The DBA is provided in Appendix 12.1. The DBA has been based on readily available and relevant documentary sources. The following archives were consulted:
  - Databases of cultural heritage assets maintained by HES including designated heritage assets and Canmore database;
  - The North Lanarkshire, West Lothian and Stirling Council's Historic Environment Record (HER);
  - Aerial photography and lidar data, where available;
  - Cartographic evidence including historic maps;
  - Statistical Accounts of Scotland; and
  - National Archives of Scotland.
- 12.3.9 A site visit was undertaken 5<sup>th</sup> May 2022 to identify and (where possible) record any previously unrecorded cultural heritage features within the CSA. A general walkover of the area around the Proposed Development infrastructure and known archaeological sites was conducted, limited to accessible areas. Selected heritage assets within the 5 km Study Area and 5-15 km Study Area were visited to inform the indirect effects assessment.
- 12.3.10 To identify heritage assets that may receive an indirect effect upon their setting, an initial search area of 15 km from the turbine locations was used. All designated heritage assets within the 5 km Study Area have been assessed for indirect effects to their setting in Section 12.5.7. With distance, the potential for changes to setting that affect cultural significance generally lessens. A sieving exercise was undertaken for heritage assets between 5 and 15 km from the Proposed Development to select heritage assets that may receive a change in setting that affects their cultural significance. The final selection of heritage assets was based upon whether the heritage asset lies the ZTV or if their cultural significance relies on long distance views and distant landscape context. The selection of designated heritage assets between 5 and 15 km is detailed in Section 12.5.8.



# **Assessment Methodology**

12.3.11 The assessment of effects is based on the final design of the Proposed Development detailed in **Chapter 3: Description of Proposed Development**. The assessment considers the sensitivity of a cultural heritage feature and the magnitude of any potential change, to conclude whether the effect is significant. The assessment conclusions are informed by professional judgement.

# **Sensitivity**

12.3.12 The value of a heritage asset reflects the relative importance of an asset as reflected in the designation process<sup>13</sup>. As a starting point, the value of the cultural heritage assets/receptors has been initially equated with designation status, as shown in Table 12.2 below.

Table 12.2: Framework for Determining the Value (Sensitivity) of Heritage Assets as Equated with Designation Status

Sensitivity Receptor	Definition
Very High	Heritage Assets valued at an international level, including World Heritage Sites.
High	Heritage Assets valued at an international or national level. These may include Scheduled Monuments, Category A Listed Buildings, Registered Battlefields, Gardens and Designed Landscapes, and nationally important archaeological features and conservation areas (as defined in the Council's HER.
Medium	Heritage Assets valued at a regional level. These may include Category B and some Category C Listed Buildings as well as regionally important archaeological features and conservation areas.
Low	Heritage Assets valued at a local level. These may include Category C Listed Buildings, some conservation areas and non-designated assets of local value.
Negligible	Badly preserved and/or damaged or very common archaeological features and buildings of little or no value at local or any other scale.

- 12.3.13 As part of determining the value and sensitivity and in lines with the EIA Handbook<sup>14</sup>, the cultural significance of the heritage asset will be described as will the contribution made by setting.
- 12.3.14 Cultural significance is the aesthetic, historic, scientific, or social value for past, present, or future generation which can be embodied in a place itself, its fabric, setting, use, associations, meanings, records, related places and related objects<sup>15</sup>. Cultural significance stems from an understanding of the place. This

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 $<sup>^{13}</sup>$  Historic Environment Scotland (2019). Historic Environment Policy for Scotland. Available at:  $\frac{\text{https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7}$ . Accessed on  $\frac{20}{01/2023}$ .

<sup>&</sup>lt;sup>14</sup> Historic Environment Scotland (2018). Environment Impact Assessment Handbook. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>15</sup> Australia ICOMOS (2013). Burra Charter. Available at: <a href="http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf">http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf</a>. Accessed on 020/01/2023.



involves 'physical and material elements – how much of it has survived or how much of it has changed through time, as well as its wider context and setting'<sup>16</sup>.

- 12.3.15 Due to the unique qualities of each heritage asset, the sensitivity of a heritage asset's setting to change is variable and must be determined on a caseby-case basis for each receptor in lines with setting guidance<sup>17</sup> and the EIA Handbook<sup>18</sup> as per the following methodology:
  - Identification of heritage assets that might be affected by the Proposed Development to include a summary of their cultural significance;
  - Definition of the setting of the heritage assets and how this contributes to its cultural significance to determine its sensitivity to change; and
  - Assessment of the way in which the Proposed Development may change the setting and affect the cultural significance of the heritage asset (magnitude of change).

# **Magnitude of Change**

12.3.16 Magnitude is the measure of change to a heritage assets cultural significance as a result of the Proposed Development. In relation to cultural heritage, these changes are generally adverse and are classified, for both direct and indirect effects, as detailed in Table 12.3.

Table 12.3 Framework for Determining Magnitude of Change

Level of Magnitude	Description
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of its cultural significance, such that it may no longer be considered a heritage asset.  Substantial changes to the understanding, appreciation or experience of the heritage asset.
Medium	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is substantially altered.  Appreciable changes to the understanding, appreciation, or experience of the heritage asset.
Low	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is slightly altered.  Slight changes to the understanding, appreciation, or experience of the heritage asset.
Negligible / None	Changes to fabric or setting that leave significance unchanged or do not affect the understanding, appreciation, or experience of the heritage asset.

<sup>&</sup>lt;sup>16</sup> Historic Environment Scotland (2019). Historic Environment Policy for Scotland. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1bcfa7b1-28fb-4d4b-b1e6-aa2500f942e7</a>. Accessed on 20/01/2023.

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<sup>&</sup>lt;sup>17</sup> Historic Environment Scotland (2020). Managing Change in the Historic Environment: Setting. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>18</sup> Historic Environment Scotland (2018). Environment Impact Assessment Handbook. Available at: <a href="https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0">https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0</a>. Accessed 20/01/2023.



12.3.17 For purposes of assessing indirect effects resulting from a change to setting, distance to the Proposed Development is considered the initial determinant in the degree of magnitude of any change that might be caused. Simple intervisibility with the Proposed Development is not necessarily considered to be harmful, unless this affects the cultural significance of the heritage asset so as to diminish its understanding, appreciation or experience. Where considered appropriate, consideration has been given to the effect that the Proposed Development will have on the settings of historical assets in views towards and across the asset when moving through the landscape, as well as in views towards the Proposed Development from the asset.

# **Significance of Effect**

12.3.18 The significance of the potential effect is broadly determined by correlating the sensitivity of the asset against the magnitude of the expected change as detailed in Table 12.4, with the final statement on the significance of effect informed by professional judgement.

Table 12.4 Framework for Assessment of the Significance of Effects

Magnitude of Change	Sensitivity of Resource or Receptor					
	Very High	High	Medium	Low	Negligible	
High	Major	Major	Moderate	Moderate	Minor	
Medium	Major	Moderate	Moderate	Minor	Negligible	
Low	Moderate	Moderate	Minor	Negligible	Negligible	
Negligible	Minor	Minor	Negligible	Negligible	Negligible	

12.3.19 Moderate effects or greater are generally considered significant, in accordance with the EIA Regulations and are shaded light grey in the above table.

#### **Cumulative Effects**

- 12.3.20 A cumulative effect is considered to be an additional effect upon cultural significance arising from the Proposed Development in combination with other consented or potential developments likely to affect the cultural heritage environment.
- 12.3.21 Existing operational wind farms have been considered as part of the baseline as detailed in Table 12.5.

Table 12.5: Wind Farms Considered as Part of the Baseline

Wind Farms	Status of Wind Farm	Number of Turbines	Height to blade tip of Turbines (m)	Direction of Cumulative Site from the Proposed Development
Torrance I (EO1)	Operational	3	120	East
Torrance II (E02)	Operational	2	125	East
Southrigg 1 (E03)	Operational	1	125	East
Wester Hasockrigg (E04)	Operational	1	<i>78</i>	South West
West Benhar Wind Farm (E05)	Operational	8	150	South

Wind Farms	Status of Wind Farm	Number of Turbines	Height to blade tip of Turbines (m)	Direction of Cumulative Site from the Proposed Development
Drumduff Wind Farm (E06)	Operational	3	120	North
Burnhead Wind Farm (E07)	Operational	13	127	North
Nether Bracco Farm (E08)	Operational	1	100	North West
Black Law Wind Farm Extension Phase 1 (E09)	Operational	23	127	North
Black Law Wind Farm Extension Phase 2 (E10)	Operational	11	117	North
Tormywheel Wind Farm (E11)	Operational	15	111	North
Climpy Road (E12)	Operational	1	102	North
Greendykeside (E13)	Operational	2	100	North West
Easter Glentore Wind Turbine, The Shetland Centre (E14)	Operational	1	102	North West
Gardrum Farm (E15)	Operational	1	86	North
Gardrum Farm 2 (E16)	Operational	1	86	North
Whiterigg Wind Turbine (E17)	Operational	1	<i>77</i>	North
Polmont Golf Club (E18)	Operational	1	<i>77</i>	North
Pates Hill Wind Farm (E19)	Operational	7	107	South East
Upper Haywood Forth (E20)	Operational	1	67	North
Black Law Wind Farm (E21)	Operational	54	110	North
Damhead Farm (E22)	Operational	1	100	West
Pearie Law Wind Farm (E23)	Operational	6	125	South East
Harburnhead Wind Farm (E24)	Operational	22	125	South East
Muirhall Wind Farm (Stallashaw Moss) (E25)	Operational	6	125	South East
Muirhall Wind Farm Extension (E26)	Operational	2	145	South East
Muirhall Wind Farm South (E27)	Operational	3	146	South East
Braidenhill Farm (E28)	Operational	1	<i>77</i>	North West
Bellstane Farm (E29)	Operational	1	86	North West
AG Barr Factory wind turbine (E30)	Operational	1	70	North West
Rosti Turbine, Strutherhill (E31)	Operational	1	110	South West
Lochhead Farm (E32)	Operational	3	100	South West
Lochhead Farm Extension (E33)	Operational	2	100	South West
Marshill Farm 1 (E34)	Operational	1	119	South West



Wind Farms	Status of Wind Farm	Number of Turbines	Height to blade tip of Turbines (m)	Direction of Cumulative Site from the Proposed Development
Marshill Farm 2 (aka Netherburn West) (E35)	Operational	1	100	South West
Whitehill Farm, Stonehouse (E36)	Operational	1	77	South West
Tanhill Farm 1 (E37)	Operational	1	77	South West
Westtown Farm, Stonehouse (E38)	Operational	1	77	South West
Southfield Farm (E39)	Operational	1	67	South West
Auchnotroch Farm (E40)	Operational	1	84	South West
Lampits Farm (E41)	Operational	2	64	South East
Shotlinn Farm, Nr Chapelton (E42)	Operational	1	77	South West
Burnbrae Farm (E43)	Operational	1	66	South West
Haspielaw Farm (E44)	Operational	1	<i>78</i>	South West
Blantyre Muir Wind Farm (E45)	Operational	3	111	South West
Blantyre Muir Wind Farm Extension (E46)	Operational	3	115	South West
Kirkton Farm, Dunfermline (E47)	Operational	1	100	North East
Tulliallan Concrete Works (E48)	Operational	1	74	North East
Southrigg 2 (aka Rigg Wind Turbine) (C01)	Consented	1	149	East
Forrestfield Wind Farm (C02)	Consented	4	125	West
Drumelzie (C03)	Consented	1	126	North
Brownhill Farm (C04)	Consented	2	149	South
Easter Drumclair Wind Farm (C05)	Consented	2	150	North
Hartwood Wind Farm Resubmission (C06)	Consented	7	132	South West
Greengairs East Wind Farm (C07)	Consented	8	150	North West
Tormywheel Wind Farm Extension (C08)	Consented	3	126	South East
Heathland Wind Farm (C09)	Consented	14	180	South East
Longhill Burn Wind Farm (C10)	Consented	8	200	South East
Greengairs Wind Farm (C11)	Consented	9	125	North West
Albert Bartlett (C12)	Consented	1	126	North West
Watsonhead Farm (C13)	Consented	2	150	South West

Wind Farms	Status of Wind Farm	Number of Turbines	Height to blade tip of Turbines (m)	Direction of Cumulative Site from the Proposed Development
Greenwall Farm (C14)	Consented	1	<i>55</i>	South
South Lanarkshire Council Roads Depot (C15)	Consented	1	50	South West
Kittymuir Farm (C16)	Consented	2	<i>77</i>	South West
Lampits Farm 2 (C17)	Consented	1	64	South East
Low Blackwoodyards Farm (C18)	Consented	1	67	South West
Dewshill Wind Farm (A01)	Application	3	150	West
Marshill North Wind Turbine (A02)	Application	1	180	South West
Bughtknowes Farm (S01)	Scoping	1	127	South East

- 12.3.22 For the purposes of the assessment of cumulative effects, only wind farm developments (in planning or consented) within a 15 km Study Area are considered for the potential to create a significant effect. This is the range where significant effects are most likely to occur due to the distance between the assets and wind farms.
- 12.3.23 The potential for a significant cumulative effect is considered likely to occur only within the area where the ZTVs for each wind farm development would overlap, i.e., where each is theoretically simultaneously visible. The wind farms considered in the cumulative assessment are detailed in Table 12.6 and assessed in Section 12.7. Developments in Scoping have not been considered as there is limited information on the proposed layout of these wind farms at this stage.
- 12.3.24 Further detail on cumulative effects on Landscape can be found in Chapter 6: Landscape and Visual Impact Assessment (LVIA) of this EIA Report. Locations of sites considered as part of the LVIA cumulative assessment are shown in Figure 6.17 of Chapter 6.

Table 12.6: Wind Farms Considered for Cumulative Assessment

Wind Farms	Status of Wind Farm	Number of Turbines	Height to blade tip of Turbines (m)	Direction of Cumulative Site from the Proposed Development
Torrance I (EO1)	Operational	3	120	East
Torrance II (E02)	Operational	2	125	East
Southrigg 1 (E03)	Operational	1	125	East
West Benhar Wind Farm (E05)	Operational	8	150	South
Drumduff Wind Farm (E06)	Operational	3	120	North
Burnhead Wind Farm (E07)	Operational	13	127	North
Southrigg 2 (aka Rigg Wind Turbine) (C01)	Consented	1	149	East



Forrestfield Wind Farm (C02)	Consented	4	125	West
Drumelzie (C03)	Consented	1	126	North

## **Assessment Limitations**

- 12.3.25 This assessment comprises a desk-based review of information taken from the HES datasets and data from the HER, as well as a variety of secondary sources. Whilst this information is assumed to be accurate, it does not constitute a complete record of the historic environment and does not preclude the potential for hitherto unidentified archaeological remains or deposits to be encountered within the Site.
- 12.3.26 The setting site visits were undertaken from publicly accessible areas only, with limited access to private curtilage beyond the Site Boundary.

# 12.4 Scoping Responses and Consultation

12.4.1 Throughout the scoping exercises, and subsequently during the ongoing EIA process, relevant organisations were contacted with regards to the Proposed Development. Table 12.7 outlines the consultation responses received in relation to Archaeology and Cultural Heritage.

Table 12.7: Consultation Responses

Consultee	Details	Summary of Consultation Responses	Response to Consultee
Historic Environment Scotland (HES)	Scoping Response, 16/12/2020	In their response to the scoping report, HES indicated that any setting assessment should pay particular attention to impacts that could occur on the setting of Cairnpapple Hill, Prehistoric Ceremonial Complex (SM90053). HES also recommend that Zone of Theoretical Visibility (ZTV) analysis should be used to identify potential impacts on the setting of additional heritage assets. HES also recommend that impacts on the setting of heritage assets should be assessed using photomontage and wireframe visualisations where impacts are likely to be highest. Finally, HES also noted the potential for cumulative impacts on the setting of heritage assets caused by the proposed development in combination with other infrastructure including existing, proposed and consented wind farms in the surrounding area. HES therefore recommended that cumulative impacts were to be assessed and examined through the use of cumulative visualisations.	No response issued

Consultee	Details	Summary of Consultation	Response to		
Consuitee	Details	Responses	Consultee		
	Consultation over Design Change and concerns over indirect impacts to designated assets 18/05/2022	In their response to a letter requesting further consultation over a change in design, HES acknowledged the revised design, inclusive of 4 turbines with a maximum tip height of 200m. HES also broadly agreed with the assets selected as most at risk to indirect impacts from the Proposed Development within the 15 km Study Area, making note to ensure that Cultural Heritage ES Chapter included a robust rationale for any Listed Buildings scoped out of the final assessment for indirect effects. HES confirmed that they were content with the location and format of visualisations to support the assessment, noting that additional visualisations may be required by HES for any assets found to suffer significant effects from the Proposed Development. HES also confirmed that they were open to a meeting to discuss any issues should this be desirable.	No response issued as LVIA and heritage visualisations not yet received as of January 2023		
	Consultation over further design amendments and changes to ZTV and proposed visualisations 23/11/2022	In their response letter HES stating that SM2375 requires visualisations from the asset and that LVIA visualisations from nearby will not suffice.  HES also stated that wireframes from assets should be not more than 90 degrees in order to provide a realistic illustration of impacts on the setting of monuments.	No response issued.		
North Lanarkshire Archaeology	Dr Murray Cook Scoping Opinion, 28/11/2020	Dr Cook recommends that baseline studies are undertaken to inform the EIA process encompassing:  Desk-assessment and walkover survey to inform physical impact with a focus on clarifying the potential for currently unknown sites.  Visual impact assessment of neighbouring significant sits (in compliance with MHCE Setting from Historic Environment Scotland).  It is also noted in the response that the scope and approach to the above baseline studies should be agreed with this Archaeology Service through a	No response issued		

Consultee	Details	Summary of Consultation Responses	Response to Consultee
		Method Statement to ensure that we will be content with the information garnered by this exercise.	

#### 12.5 Baseline Conditions

# Core Study Area and 1 km Study Area Baseline

- 12.5.1 Full detail of the baseline conditions can be found within the DBA in Appendix 12.1, which includes a brief description of the wider study area's archaeological and historical sites within the context of the area's background history, presented by period. A summary of the baseline conditions is provided in the following subsections.
- 12.5.2 The CSA is adjacent to the existing Torrance Wind Farm and occupies undulating farmland and a commercial forestry area in the south, rising between approximately 175 to 200 m Above Ordnance Datum (AOD). The wider context of the CSA is in close proximity to the M8 motorway and adjacent to the Harthill services; beyond the immediate area include a series of residential areas including Blackridge, Harthill and Armadale. Information from the British Geological Surveys (BGS) mapping indicates the underlying superficial deposits comprise till of the Devensian period<sup>19</sup>. Isolated areas of peat are displayed on the mapping within the Site. Observations made during previous site walkovers suggest that anthropological influences, such as drainage ditches and agricultural practices, have degraded the peat mass to such an extent that it should be classified as acid grass land. This is supported by the Scottish Environment datasets that indicates no peat is present within the Site<sup>20</sup>.
  - 12.5.3 There are no designated assets within the CSA or 1 km Study Area. There are three non-designated assets within the CSA as shown on Figure 12.2 and in Table 12.8 below. These include two identified through Canmore archaeological records and one identified during the site walkover.

Table 12.8: Heritage Assets within the CSA

Referenc e	Asset Name	Description	Source	Period
124452	Netherto n 'Old Hall'	A single unroofed building annotated 'Ruin' is depicted on the 1st edition of the OS 6-inch map (Lanarkshire 1864, sheet ix), but it is not shown on the current edition of the OS 1:10000 map (1994).	Canmore	Post-Medieval
HA1	Heritage Asset 1	HA-1 was identified during the site walkover and consists of a series of dry-stone field boundary walls, aligned northeast to south-west across the central area of the CSA. The walls are heavily damaged by	Site walkover . Section 5.6.1 of DBA.	Post-Medieval

<sup>&</sup>lt;sup>19</sup> British Geological Survey (2022). Geology of Britain viewer. Available at: <a href="https://www.bgs.ac.uk/map-viewers/geology-of-britain-viewer/">https://www.bgs.ac.uk/map-viewers/geology-of-britain-viewer/</a>. Accessed 20/01/2023.

<sup>&</sup>lt;sup>20</sup> Scotland's Environment (2020) Carbon and Peat Map 2016. Available at: <a href="https://www.environment.gov.scot/">https://www.environment.gov.scot/</a>. Accessed 20/01/2023.



Referenc e	Asset Name	Description	Source	Period
		tree roots, vegetation overgrowth and probable stone robbing. These structure appears align with the location of 'Nethertown of', as depicted on Roy's map and represent Post-Medieval, likely 18 <sup>th</sup> to 19 <sup>th</sup> century field boundaries associated with this small settlement.		
HA-2	Heritage Asset 1	The site is bisected by a decommissioned section of the Monkland Railway Shotts Branch railway line (HA-2) with the colliery railway for Barblues Colliery Pit Number 10 connecting in the central part of the CSA. Barblues Colliery Pit Number 10 is recorded on the Second Edition OS and is located in the southwest corner of the CSA above Howe Burn. Dates to second half of the 19 <sup>th</sup> century.	OS 6" 1883- 1913 Map	Post-Medieval

- 12.5.4 The DBA records an additional 27 non-designated assets within the 1 km Study Area. The type and distribution of these assets predominantly reflects the agricultural and industrial nature of the region around the CSA from the post-medieval period onwards, in particular relating to coal-mining activity at the Benhar, Blairmuckil, and Netherton collieries. Netherton Colliery is located immediately north of the CSA. However, earthworks and features associated with colliery operations are present within the CSA and were recorded during a walkover survey of the site within the north-east corner of the Site (see Section 5.6.2 of DBA).
- 12.5.5 There is a low potential for assets pre-dating the post-medieval period to survive within the CSA. Should evidence be uncovered, it is likely to be limited to isolated findspots, partly owed to the destructive effect of modern commercial forestry on site, and the industrial nature of the CSA, evidenced by spoil heaps associated with Netherton Colliery.
  - 12.5.6 A detailed baseline interpretation and review of potential can be found within the Archaeological DBA in Appendix 12.1.

# Setting Study Areas and Selected Heritage Assets for Consideration of Changes to Setting

12.5.7 All designated assets within the 5 km Study Area are included for consideration of changes to setting, which includes 16 nationally designated heritage assets comprising two Scheduled Monuments and 14 Listed Buildings (including two Category A, six Category B, and six Category C).



- 12.5.8 A review was undertaken for all designated heritage assets between 5 and 15 km to identify assets for inclusion in the consideration of changes to setting. Within the 5-15 km Study Area, there are 654 designated assets, including: two World Heritage Sites; two Registered Battlefields; two Gardens and Designed Landscapes (GDLs); 77 Scheduled Monuments; 561 Listed Buildings (including 28 Category A, 282 Category B, and 251 Category C); and ten regionally designated Conservation Areas. The Zone of Theoretical Visibility of the turbines indicates that the greatest potential intervisibility between heritage assets and the Proposed Development is focused around the Site Boundary with the greatest potential for intervisibility generally within circa 5 km and extending to the-east and north-east, as shown in Appendix 12.2.
- 12.5.9 The final selection of heritage assets included in the assessment is based on the location within the ZTV or where views across an asset may include the Proposed Development with consideration for the contribution of long-distance views and distant landscape context to cultural significance. With 496 heritage assets scoped out of consideration, all remaining assets within the 15 km Study Area have been included for the setting appraisal. The final selection is detailed in Table 12.4.1 and includes 158 designated heritage assets comprising two World Heritage Sites, one Battlefield Site, one GDL, 33 Scheduled Monuments, 118 Listed Buildings (six Category A, 55 Category B, and 58 Category C), and three regionally designated Conservation Areas

#### 12.6 Assessment of Potential Effects

#### Potential Construction Effects: Direct Effects to known assets

- 12.6.1 Direct effects are only likely to occur as a result of construction within the footprint of the Proposed Development. These effects are restricted to ground disturbance associated with:
  - Turbine Construction and associated crane pads (core Infrastructure);
  - Electrical infrastructure, with new cable trenches designed to sit alongside access tracks;
  - Construction of site compound and substation (ancillary infrastructure);
  - Construction of compounds;
  - Cutting of new access tracks and/or land take associated with improvements to the existing tracks;
  - Construction of new recreational paths; and
  - Forestry felling.
- 12.6.2 As shown on Figure 12.2 and detailed in Table 12.8, there are three non-designated assets within the CSA. In addition, Netherton Colliery is located immediately north of the CSA. However, earthworks and features associated with colliery operations are present within the CSA and were recorded during a walkover survey of the site within the north-east corner of the Site. Table 12.9 below details the potential effects of the construction on these assets. Only assets with a potential for direct impacts have been included.



12.6.3 Any asset included within this table is sited within 50 m of construction activity listed above. This table subsequently provides information on any construction activities that will take place within 50 m of recorded assets (50m being the distancing for micro siting of turbines and associated infrastructure) and summarises the effect on that asset. Full details of each asset are provided within Appendix 12.1.

Table 12.9: Potential Effects of Construction on Heritage Assets

Reference	Name	Period	Direct Effect
HA-1	Heritage Asset 1	Post-Medieval	Turbine 2, the associated hardstanding, cable trenching, access tracks, recreational paths and forestry felling are located on and around sections of this asset. As a result, construction will likely destroy sections of Post-Medieval boundary walls where they cannot be avoided.
HA-2	Heritage Asset 2	Post-Medieval	Hardstanding and sections of cable trenching, access track/recreational paths associated with Turbine 3 are located on and around HA-2. Sections of cable trenching, access track and recreational paths associated with Turbine 4 are located on and around HA-2. As a result, construction will likely destroy sections of Post-Medieval railway track where it cannot be avoided.
Canmore ID 132393	Netherton Colliery	Post-Medieval	Turbine 1, the associated hardstanding and forestry felling is located on and around earthworks, spoil heaps and other features associated with Netherton Colliery. As a result, construction will likely destroy earthworks/features associated with this asset where it cannot be avoided.

12.6.4 The assets identified in Table 12.9 have the potential to be subject to direct effects through construction and have been identified as non-designated assets of local value. As a result of this value, even with the potential for total loss of the asset, the construction of the Proposed Development would result in a minor / negligible effect which would be not significant. Please note that, direct effects to assets HA-1, HA-2 and Canmore ID 132393 during construction would result in only the partial loss of these assets. A high proportion of these assets would survive untouched by the Proposed Development.



#### Potential Construction Effects: Direct Effects to unknown assets

- 12.6.5 The DBA has identified that there is a low potential for assets pre-dating the Medieval period to survive within the Site Boundary. Should evidence be uncovered, it is likely to be limited to isolated findspots. There is considered to be a low to medium potential for assets dating to the Medieval period, with any assets present on site likely to consist of individual metal, ceramic finds or features associated with later Medieval agriculture. The low potential for assets pre-dating the Post-Medieval period is due disturbance by modern commercial forestry, extraction / ground disturbance associated with colliery works and disturbance caused by Post-Medieval farming outwith areas of modern commercial forestry, namely around turbines 3 and 4, and associated infrastructure, there is a high potential for archaeological remains/finds to survive associated with the Post-Medieval and Modern periods. Where archaeology does survive it will likely take the form of Post-Medieval agricultural features and former field boundaries. Finds and structures associated with colliery works may also be present on site, there also remains the potential to identify additional shafts, metal finds and features associated with mining activity and the associated railway infrastructure.
- 12.6.6 Should any unknown subsurface archaeological deposits survive within the Proposed Development footprint, these have the potential to be damaged which could range from a negligible to high effect, which has the potential to be significant in the absence of an agreed mitigation strategy and delivery of said mitigation works. Mitigation is proposed in Section 12.8 to ensure preservation in situ or by record should any unknown archaeology be present.

#### **Potential Construction Effects: Indirect Effects**

12.6.7 Any indirect effects on heritage assets during the construction phase will generally be limited to construction infrastructure (e.g., visual impact from cranes). Any effects would be short-term and less than during the operational phase. As such, indirect construction effects are considered as part of the potential operational effects.

# **Potential Operations Effects: Direct Effects**

12.6.8 There are no anticipated direct effects during the operational phase of the Proposed Development in addition to those considered during construction.

# **Potential Operations Effects: Indirect Effects**

12.6.9 The assessment of indirect effects considers changes to setting to designated and regionally significant heritage assets within the CSA, 5 km Study Area, and selected designated assets beyond 5 km and within the 15 km Study Area. The final selection of heritage assets included in the assessment is based on the location within the ZTV or where views across an asset may include the Proposed Development with consideration for the contribution of long-distance views and distant landscape context to cultural significance. The selection criteria are presented in Appendix 12.2 with the full indirect assessment text presented in Appendices 12.3 and 12.4.



- 12.6.10 Within the 5 km Study Area there are 16 nationally designated heritage assets, comprising two Scheduled Monuments and 14 Listed Buildings. A Moderate effect has been identified for a single asset, which is significant in terms of the EIA Regulations. Minor effects that are not significant have been identified for five assets. The remaining ten assets are subject to negligible and/or no effects. The full assessment for changes in setting for assets within the 5 km Study Area is presented in Appendix 12.3 and supported by Figure 12.5, with a summary presented in Table 12.10 overleaf.
- 12.6.11 Significant effects are limited to the Category B Listed Building LB14553, located 1.2 km north of the Proposed Development, in the centre of Blackridge. Westcraigs (LB14553), known locally as the Craig Inn, comprises a three-storey former Georgian coaching inn, with single storey stables to the rear. The asset is currently in use as the Blackridge Community Museum. The setting of the asset is defined by its position within Blackridge on the A89 (formerly a coach road), with the former coaching inn occupying a prominent position adjacent the crossroads in the town centre. Key views are to the south, with the principal elevation looking towards the Proposed Development, with additional peripheral views to the east and west along the A89. Views south also encompass the Torrance and Torrance Wind Farm Phase 2 (as shown in the photomontage for LVIA VP 9 - Fig 6.35), and the introduction of new turbines represents an intensification of turbines to the south of Blackridge. The Proposed Development would introduce turbines of a greater height and is an appreciable change in the wider landscape, which could for some alter the appreciation or experience of the asset.
- 12.6.12 The remaining Listed Buildings are located within or around the settlements of Armadale, Blackridge Shotts and Whitburn. These designated assets do not have key views to the Proposed Development, or the Proposed Development is largely obscured by intervening structures, vegetation or topography. The Proposed Development also sits outside of the setting of these assets and share no historical association. As such there are no significant effects to these assets.
- 12.6.13 The two scheduled monuments (SM12222 and SM12223) represent Post-Medieval farmsteads located between 3 km and 4.7 km north of the Proposed Development. Both assets are set in the distant rural landscape, with the Proposed Development having no impact on their immediate rural setting. In addition, views towards the Proposed Development are partly screened by vegetation. As such there are no significant effects to these assets.

Table 12.10: Summary of Operation Effects on Heritage Assets within 5 km Study Area

Group	Asset Type	Reference	Grade	Asset Name	Sensitivity	Magnitude of Change	Significance of Effect
Woodend &	Scheduled Monument	SM11222	n/a	Woodend Farm, farmstead 1400m WSW of	High	Negligible	Minor
Craigmarry	Scheduled Monument	SM11223	n/a	Craigmarry, farmstead 720m WNW of	High	Negligible	Minor
Armadale	Listed Building	LB45571	С	Armadale, West Main Street, The Goth	Low	Negligible	Negligible
	Listed Building	LB48978	С	Armadale Primary and Nursery School and Former Infant School including Boundary Walls & Gatepiers	Low	Negligible	Negligible
Blackridge	Listed Building	LB14554	В	Old Bedlormio House	Medium	Low	Minor
	Listed Building	LB14553	В	'Westcraigs'	Medium	Medium	Moderate
	Listed Building	LB14552	С	Blackridge, 60 Main Street, Church of Christ (Former Free Church)	Low	Low	Negligible
Fortissat	Listed Building	LB14192	С	Fortissat House	Medium	No effect	No effect
Kirk of Shotts	Listed Building	LB18228	В	Kirk of Shotts and Graveyard	Medium	Negligible	Negligible
Shotts	Listed Building	LB50013	А	Centrelink 5 (former Cummins Engine Company Ltd), including Boiler House to NW & Entrance Gates	High	Negligible	Minor
	Listed Building	LB43491	В	Furnace Bank and Hot Blast Tower, Shotts Ironworks	Medium	Negligible	Negligible
	Listed Building	LB50146	В	84 Station Road, St Patrick's Roman Catholic Church and Presbytery	Medium	Negligible	Negligible
	Listed Building	LB47986	С	Stane, 19 Main Street including Boundary Wall	Medium	Negligible	Negligible
Whitburn	Listed Building	LB51254	А	Brucefield Church (Church of Scotland) with Courtyard & Church Halls (including former Church)	High	Negligible	Minor



Group	Asset Type	Reference	Grade	Asset Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB42184	В	Whitburn Parish Kirk (South Church) Manse Road	Medium	Negligible	Negligible
	Listed Building	LB14203	С	East Whitburn House	Medium	Negligible	Negligible



- 12.6.14 With 496 heritage assets scoped out of consideration, all remaining assets within the 15 km Study Area have been included for the setting appraisal. The final selection is detailed in Table 12.4.1 of Appendix 12.4 and includes 158 designated heritage assets comprising two World Heritage Sites, one Battlefield Site, one GDL, 33 Scheduled Monuments, 118 Listed Buildings (six Category A, 55 Category B, and 58 Category C), and three regionally designated Conservation Areas.
- 12.6.15 No significant effects were identified. Minor effects that are not significant have been identified for 41 heritage assets (including two World Heritage Sites, one Battlefield site, one Garden and Designed Landscape, 32 Scheduled Monuments, and five Listed Buildings). The remaining 117 assets are subject to negligible and/or no effects. The full assessment for changes in setting for assets within the 5-15 km Study Area is presented in Appendix 12.4 and supported by Figure 12.6, with a summary presented in Table 12.11 overleaf.
- 12.6.16 The Antonine World Heritage Site and Buffer (WH1.WHB1) is located c. 14.5 km north-east of the Proposed Development. The asset is positioned within the distant landscape with only glimpsed views towards the Proposed Development within a landscape dotted with turbines and other modern infrastructure. As such, the asset is not considered to be significantly affected by the Proposed Development.
- 12.6.17 The Battle of Linlithgow Bridge designated site (BTL25) is located 12 km north-east of the Proposed Development on the eastern periphery of Linlithgow. Linlithgow is located immediately north-east and east of the battlefield, while the wider landscape around the asset comprises Post-Medieval field systems, dotted with Post-Medieval and modern infrastructure, residential development and farmsteads. The Union Canal abuts the battlefield site to the south with Avon Aqueduct visible. The asset is positioned within the distant landscape with only glimpsed views towards the Proposed Development within a landscape dotted with turbines and other modern infrastructure. As such, the asset is not considered to be significantly affected by the Proposed Development.
- 12.6.18 Harburn House Garden and Designed Landscape (GDL00208) is located 13.8 km south-east of the Proposed Development. GL00208 records an early 19<sup>th</sup> century landscaped park located to the south of Livingston New Town, and southeast of West Calder. Harburn House was built in 1804AD on the site of a possible earlier castle. The majority of the parkland and three of the Listed Buildings are not within the ZTV, with only a portion of the eastern edge of the park likely to have any potential visibility of the turbines. The Proposed Development site is located in the distant landscape with assets contained withing the estate boundary sufficiently screened by plantation woodland. It is not considered likely that the Proposed Development would negatively impact the appreciation or experience of the GDL and associated assets, nor would the addition of new turbines alter the understanding or keys aspects of setting for the GDL and associated heritage assets, which is the association with the immediate rural landscape surrounding the estate.



- 12.6.19 The assessed Listed Buildings and Conservation Areas are located in and round the settlements of Linlithgow, Airdrie, Motherwell, Torphichen, Bathgate, Blackgate, West Calder and Addiewell, Caldercruix and Carluke. Outstanding assets are set within the rural landscape or on the periphery of small hamlets/villages. Consultation with HES (May 2022) identified a series of Listed Buildings that were of particular concern in relation to indirect effects from the Proposed Development. Of note are LB22125 (Bathgate Academy), LB7419 (Blackburn House), LB14215 (Harburn House), LB47975 (St Ignatius RC Church, Wishaw. These designated assets do not have key views to the Proposed Development or the Proposed Development is largely obscured by intervening structures, vegetation or topography. The Proposed Development also sits outside of the setting of these assets and share no historical association. As such there are no significant effects to these assets.
- 12.6.20 Consultation with HES (May 2022) identified a series of Scheduled Monuments that were of particular concern in relation to indirect effects from the Proposed Development. A key cluster of Scheduled Monuments lay around Torphichen, inclusive of Cairnpapple Hill (SM90053) and a series of prehistoric Forts, ritual and funerary monuments (SM6184, SM7571, SM11242, SM2283, SM2378). These assets are set in the distant rural landscape, c. 11km north-east of the Proposed Development, with the Proposed Development having no impact on their setting. LVIA Figure 6.52 shows the Proposed Development within a landscape of operational and consented windfarms taking in Tornywheel and consented extension, Clampy Road, Black Law, the consented Watsonhead Farm, Brownhill Farm, West Behnar and Hartwood Resubmission developments, and the operational Torrance, Southrigg 1 and Wester Hasockrigg developments. LVIA Viewpoint 21 taken from Cockleroy (Figure 6.47) further demonstrates this. As such, the introduction of new turbines at the Site will not impact the setting or effect the appreciation, understanding, or experience of the assets, resulting in a negligible change to their cultural significance.
- 12.6.21 Just beyond the 5km Study Area, west of the Proposed Development lays a cluster of scheduled monuments around Braco, inclusive of two prehistoric assets (SM4245, 9664) and a pair of Medieval farmsteads (SM9661, SM9665). The assessment for these assets has concluded that the Proposed Development sits outside of their immediate rural setting. Whilst within the ZTV of the Proposed Development Modern settlement and infrastructure has eroded this rural setting with the introduction of the A89 to the north (beyond which is the Hillend reservoir) and to the south by the modern road of the M18. The surrounding landscape is one of rolling hillsides with intermittent views of the surrounding landscape which also includes Roughrigg reservoir to the south-west and Lilly Loch to the north-west. Beyond Roughrigg, the modern town of Airdrie is present. Two quarries are also present within the landscape, with one located to the north-east and the other to the north-west. Modern features are also present within the landscape and include telephone lines; an industrial bing deposit immediately to the west; and the Black Hill Transmitter tower and associated buildings to the south. As such, the introduction of new turbines at the Proposed Development site will not impact the setting or effect the appreciation, understanding, or experience of the assets, resulting in a negligible change to their cultural significance.

Table 12.11: Summary of Operation Effects on Heritage Assets within 5-15 km Study Area

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
Antonine Wall	World Heritage Site	WH1	n/a	Antonine Wall World Heritage Site Boundary	Very High	Negligible	Minor
	World Heritage Site	WHB1	n/a	Antonine Wall World Heritage Site Buffer Zone	Very High	Negligible	Minor
	Scheduled Monument	SM3210	n/a	Antonine Wall, Inveravon, Roman camps 420m & 730m SE of	High	Negligible	Minor
	Scheduled Monument	SM3211	n/a	Antonine Wall, Nether Kinneil- Inveravon, rampart & ditch	High	Negligible	Minor
Battle of Linlithgow Bridge	Battlefield Site	BTL25	n/a	Battle of Linlithgow Bridge	High	Negligible	Minor
Harburn House	Gardens & Designed Landscapes	GDL00208	n/a	Harburn House	High	Negligible	Minor
	Listed Building	LB14216	В	Charles X Monument, Harburn Policies	Medium	Negligible	Negligible
Drumgelloch Conservation	Conservation Area	CA382	n/a	Drumgelloch	Medium	Negligible	Negligible
Area and Airdrie suburbs	Listed Building	LB20928	В	Arran drive, Commonhead, Street, Arranview including gatepiers	Medium	Negligible	Negligible
	Listed Building	LB20933	С	Motherwell Street, Rawyards House	Low	Negligible	Negligible
Livingston Village	Conservation Area	CA371	-	Livingston Village Conservation Area	Medium	Negligible	Negligible
	Listed Building	LB7405	С	Morven and Adjoining Heather Cottage 19 And 21 Main Street	Low	Negligible	Negligible



Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB7406	С	Almond Bank (J H Shields) With Sub Post Office, Main Street	Low	Negligible	Negligible
	Listed Building	LB7407	С	Bezu 11 Main Street	Low	Negligible	Negligible
	Listed Building	LB7408	С	Alderston Cottage or Bloom Cottage Nos 2, 7 And 9 Main Street	Low	Negligible	Negligible
	Listed Building	LB7411	С	5 Houses. Known as The Old School House and The Danders, 1 Main Street	Low	Negligible	Negligible
	Listed Building	LB7412	С	Bloom Cottage 3 And 5 Main Street	Low	Negligible	Negligible
	Listed Building	LB7422	С	Bloom Cottage No 1; The Shop;	Low	Negligible	Negligible
	Listed Building	LB7409	В	Livingston Village, Livingston Parish	Medium	Negligible	Negligible
	Listed Building	LB7410	В	Livingston Manse	Medium	Negligible	Negligible
	Listed Building	LB7413	В	Livingston Inn	Medium	Negligible	Negligible
	Listed Building	LB7414	В	Livingston Bridge, River Almond	Medium	Negligible	Negligible
Livingston Surrounding	Scheduled Monument	SM1207	n/a	Murieston Castle	High	Negligible	Minor
Rural Landscape	Listed Building	LB14134	В	Murieston House, Easter Murieston	Medium	Negligible	Negligible
	Listed Building	LB14160	В	Brucefield Farmhouse and Steading	Medium	Negligible	Negligible
	Listed Building	LB14162	В	Howden House	Medium	Negligible	Negligible

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB14221	В	Limefield House	Medium	Negligible	Negligible
	Listed Building	LB14224	В	Gavieside Farm-House	Medium	Negligible	Negligible
	Listed Building	LB18442	В	Westfield House	Medium	Negligible	Negligible
	Listed Building	LB18443	В	Alderston House, With Offices	Medium	Negligible	Negligible
	Listed Building	LB18444	В	Alderston Park, Doocot	Medium	Negligible	Negligible
	Listed Building	LB7417	В	Moss Houses	Medium	Negligible	Negligible
	Listed Building	LB7418	В	Newyearfield Farmhouse and Steading	Medium	Negligible	Negligible
	Listed Building	LB14135	С	Skivo Farm (Skivo Kennels)	Low	Negligible	Negligible
	Listed Building	LB14143	С	Newpark House	Low	Negligible	Negligible
	Listed Building	LB44584	С	Bellsquarry, 30 Calder Road with Boundary Walls	Low	Negligible	Negligible
Torphichen Conservation	Conservation Area	CA375	n/a	Torphichen	Medium	Negligible	Negligible
Area	Scheduled Monument	SM1903	n/a	Torphichen Preceptory, refuge stone at Torphichen Kirk	High	Negligible	Minor
	Scheduled Monument	SM90305	n/a	Torphichen Preceptory	High	Negligible	Minor
	Listed Building	LB14533	В	Torphichen Kirk	Medium	Negligible	Negligible



Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB14534	В	Gate-House Torphichen Kirkyard	Medium	Negligible	Negligible
	Listed Building	LB14540	В	'Viewforth' High Brae	Medium	Negligible	Negligible
	Listed Building	LB14541	В	Sundial	Medium	Negligible	Negligible
	Listed Building	LB14549	В	Doocot Wallhouse Policies	Medium	Negligible	Negligible
	Listed Building	LB19704	В	Wallhouse	Medium	Negligible	Negligible
	Listed Building	LB14539	С	Hill House, High Brae	Medium	Negligible	Negligible
	Listed Building	LB14542	С	Torphichen Free Church (Now Church Hall)	Medium	Negligible	Negligible
	Listed Building	LB14550	С	Cottages, Broomparkwell	Medium	Negligible	Negligible
	Listed Building	LB18189	С	Low Brae, Ivy Cottage	Medium	Negligible	Negligible
Torphichen Surrounding	Scheduled Monument	SM7280	n/a	Refuge Stone	High	Negligible	Minor
Environs	Scheduled Monument	SM1902	n/a	Craigmailing, cross slab	High	Negligible	Minor
	Listed Building	LB14550	С	Cottages, Broomparkwell	Medium	Negligible	Negligible
	Listed Building	LB14589	В	Cathlaw House	Medium	Negligible	Negligible
Avonhead Colliery	Scheduled Monument	SM9675	n/a	Avonhead Colliery	High	Negligible	Minor

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Scheduled Monument	SM9677	n/a	Avonhead Colliery, miners' row	High	Negligible	Minor
Bathgate and rural	Scheduled Monument	SM1904	n/a	Bathgate Castle	High	Negligible	Minor
environs	Scheduled Monument	SM5671	n/a	Kirkton, old parish church 400m ESE of Kirkton Mains, Bathgate	High	Negligible	Minor
	Listed Building	LB22125	А	Bathgate Academy	High	Negligible	Minor
	Listed Building	LB22128	В	George Street, St David's Church (Church of Scotland) With Bell Tower, Church Halls and Boundary Walls	Medium	Negligible	Negligible
	Listed Building	LB22129	В	Jarvey Street, High Church of Scotland with Graveyard, Boundary Walls, Railings and Gatepiers	Medium	Negligible	Negligible
	Listed Building	LB45918	В	24-34 (Even Nos) North Bridge Street, The Regal Community Theatre (Former Regal Cinema)	Medium	Negligible	Negligible
	Listed Building	LB22126	С	22 Livery Street Including Outbuildings to Rear	Low	Negligible	Negligible
	Listed Building	LB22127	С	9, 11 Mansefield Street	Low	Negligible	Negligible
	Listed Building	LB50544	С	Livery Street, Church of The Immaculate Conception (St Mary's) (Roman Catholic), Including Boundary Walls, Gatepiers and Railings	Low	Negligible	Negligible
	Listed Building	LB50608	С	Marjoribanks Street, Evangical Union Congregational / United Reformed Church Including	Low	Negligible	Negligible



Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
				Halls, Boundary Walls and Gatepiers			
	Listed Building	LB51105	С	19, 21 George Place, Pavilion Bingo (Former Pavilion Cinema)	Low	Negligible	Negligible
	Listed Building	LB6713	В	Easter Inch Farmhouse and Steading	Medium	Negligible	Negligible
Blackbraes	Scheduled Monument	SM4329	n/a	Blackbraes, coke ovens, Muiravonside	High	Negligible	Minor
Bracco Medieval	Scheduled Monument	SM9661	n/a	Mid Bracco, deserted farmstead	High	Negligible	Minor
Settlement	Scheduled Monument	SM9665	n/a	Drumfin, deserted settlement	High	Negligible	Minor
Cairnpapple Hill, prehistoric ceremonial complex	Scheduled Monument	SM90053	n/a	Cairnpapple Hill, prehistoric ceremonial complex	High	Negligible	Minor
Prehistoric Torphichen	Scheduled Monument	SM6184	n/a	Gala Braes, standing stone	High	Negligible	Minor
	Scheduled Monument	SM7571	n/a	Raven Craig, cairn	High	No effect	No effect
	Scheduled Monument	SM11242	n/a	Castlethorn, fort and standing stones 500m ESE of Torphichen Mains	High	Negligible	Minor
	Scheduled Monument	SM2283	n/a	Bowden Hillfort, Linlithgow	High	Negligible	Minor
	Scheduled Monument	SM2378	n/a	Cockleroy, fort	High	Negligible	Minor
	Scheduled Monument	SM6254	n/a	Five Sisters, shale bing SE of Mid Breich	High	Negligible	Minor

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
West Lothian Industrial sites	Scheduled Monument	SM11227	n/a	Woodmuir Farm, coke ovens and reservoir 600m SSE of	High	Negligible	Minor
Hilltop House	Scheduled Monument	SM11225	n/a	Hilltop House, coal pit 250m NNW of	High	Negligible	Minor
Lochend	Scheduled Monument	SM9680	n/a	Lochend Pit No. 5 and bing, 650m SW of Lochend	High	Negligible	Minor
Prehistoric Braco	Scheduled Monument	SM9664	n/a	Mid Bracco, hut circles 350m W of	High	Negligible	Minor
	Scheduled Monument	SM4245	n/a	Duntilland Hill, cairn	High	Negligible	Minor
Muckraw	Scheduled Monument	SM11224	n/a	Muckraw, building 200m ESE of	High	Negligible	Minor
Myrehead	Scheduled Monument	SM2570	n/a	Easter Manuel, cultivation terraces NNW of	High	Negligible	Minor
	Scheduled Monument	SM6484	n/a	Myrehead, enclosure 750m NE of	High	Negligible	Minor
Thieves Hill	Scheduled Monument	SM9666	n/a	Thieves Hill, deserted settlement 400m E of	High	Negligible	Minor
Union Canal	Scheduled Monument	SM8952	n/a	Union Canal, River Avon to Greenbank	High	Negligible	Minor
West Calder and	Scheduled Monument	SM7254	n/a	Old West Calder Church, West Calder	High	Negligible	Minor
Addiewell	Listed Building	LB14210	В	Wescat Calder 13-19 (Odd Nos) Main Street, Former West Calder Co-Op	Medium	Negligible	Negligible
	Listed Building	LB14211	В	West Calder East End, Library	Medium	Negligible	Negligible
	Listed Building	LB19677	В	West Calder Station, Including Cast-Iron Footbridge To E	Medium	Negligible	Negligible



Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB51118	С	43 Main Street, Railway Inn	Medium	Negligible	Negligible
	Listed Building	LB14225	С	Addiewell Farm	Medium	Negligible	Negligible
	Listed Building	LB14219	В	Hermand House	Medium	Negligible	Negligible
	Listed Building	LB14220	В	Hermand Coach-House and Stables	Medium	Negligible	Negligible
	Listed Building	LB14213	В	Harwood Farm-House	Medium	Negligible	Negligible
	Listed Building	LB14209	В	Loganlea House	Medium	Negligible	Negligible
	Listed Building	LB49089	В	Auchenhard House Including Summerhouse And Gatepiers	Medium	Negligible	Negligible
	Listed Building	LB49185	В	Auchenhard Farmhouse Including Boundary Wall and Gatepiers	Medium	Negligible	Negligible
West Harwood	Scheduled Monument	SM11210	n/a	West Harwood, burial mound 720m SSE of	High	Negligible	Minor
Linlithgow Bridge	Listed Building	LB15325	В	Cottages and Public House, Linlithgow Bridge	Medium	Negligible	Negligible
Auchterhead Muir	Listed Building	LB671	В	Auchterhead Muir, Covenanters Monument, Darmead-Lin	Medium	Negligible	Negligible
Blackburn	Listed Building	LB7419	А	Blackburn House	High	Negligible	Minor
	Listed Building	LB7420	В	Blackburn Village Bridge, River Almond	Medium	Negligible	Negligible
	Listed Building	LB14202	В	Blackburn Village, Bridge, River Almond	Medium	Negligible	Negligible

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB14203	С	East Whitburn House	Low	Negligible	Negligible
Caldercruix and environs	Listed Building	LB19254	С	Caldercruix, Main Street, Longriggend and Meadowfield Church Including Gatepiers And Boundary Wall	Low	Negligible	Negligible
	Listed Building	LB14206	С	Auchingray	Low	Negligible	Negligible
Carluke	Listed Building	LB726	А	High Mill Chapel Street	High	Negligible	Minor
	Listed Building	LB741	В	St Andrew's Parish Church, Mount Stewart Street	Medium	Negligible	Negligible
Fannyside	Listed Building	LB1073	В	Fannyside Mill	Medium	Negligible	Negligible
	Listed Building	LB1072	С	Fannyside Toll	Medium	Negligible	Negligible
Fauldhouse	Listed Building	LB18984	В	Fauldhouse, Crofthead Primary School, Sheephousehill	Medium	Negligible	Negligible
Gowanbank	Listed Building	LB14557	A	Gowan Bank Farmhouse, Steading and Cottage	High	Negligible	Minor
Manuel House	Listed Building	LB19392	В	Manuel House	Medium	Negligible	Negligible
Suburban Motherwell: Wishaw, Newmains, Bonkle, New Stevenston and Overtown	Listed Building	LB47975	A	Wishaw, Young Street, St Ignatius Roman Catholic Church Including Boundary Wall and Gate Pier	High	Negligible	Minor
	Listed Building	LB38236	В	Cambusnethan, Kirk Road, Former Parish Church Including Boundary Wall and Cemetery (Church Of Scotland)	Medium	Negligible	Negligible



Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
??	Listed Building	LB47346	В	Wishaw, 9-35 (Odd Nos) Banchory Road, The Coach House	Medium	Negligible	Negligible
	Listed Building	LB47504	В	Wishaw, Main Street, Wishaw Old Parish Church (Church of Scotland)	Medium	Negligible	Negligible
	Listed Building	LB47939	В	Wishaw, 47 Clelland Road, Including Boundary Wall	Medium	Negligible	Negligible
	Listed Building	LB47952	В	Wishaw, 155-175 (Odd Nos) Main Street And 1-11 (Odd Nos) Belhaven Terrace, Richmond Place	Medium	Negligible	Negligible
	Listed Building	LB47959	В	Wishaw, Main Street and Kenilworth Avenue Former Coltness Gatehouse	Medium	Negligible	Negligible
	Listed Building	LB38235	С	Cambusnethan, Kirk Road, Cambusnethan Old Parish Church (Church Of Scotland) Including Church Hall, Vestry And Session House, War Memorial, Boundary Wall, Gatepiers, Gates And Railings	Low	Negligible	Negligible
	Listed Building	LB45605	С	Wishaw, Belhaven Terrace, St Andrews Episcopal Church Including Boundary Wall	Low	Negligible	Negligible
	Listed Building	LB47935	С	Wishaw, Ballater Crescent, Marker Post	Low	Negligible	Negligible
	Listed Building	LB47937	С	Wishaw, 19-21 Campbell Street	Low	Negligible	Negligible
	Listed Building	LB47938	С	Wishaw, 43-45 Clelland Road Including Boundary Wall	Low	Negligible	Negligible

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB47943	С	Wishaw, 9 Glencairn Avenue, Craigneuk	low	Negligible	Negligible
	Listed Building	LB47944	С	Wishaw, Kenilworth Avenue, Reformed Presbyterian Church Including Boundary Wall and Railings	Low	Negligible	Negligible
	Listed Building	LB47945	С	Wishaw, 9 Kenilworth Avenue, Reformed Presbertyrian Church Manse	Low	Negligible	Negligible
	Listed Building	LB47946	С	Wishaw, 161 Kirk Road Including Boundary Wall	Low	Negligible	Negligible
	Listed Building	LB47947	С	Wishaw, 177 Kirk Road Including Boundary Wall	Low	Negligible	Negligible
	Listed Building	LB47948	С	Wishaw, 307 Kirk Road, Vine Cottage	Low	Negligible	Negligible
	Listed Building	LB47950	С	Wishaw 3-19 (Odd Nos) Main Street And 2 Caledonian Road	Low	Negligible	Negligible
	Listed Building	LB47951	С	Wishaw, 57-59 (Odd Nos) Main Street	Low	Negligible	Negligible
	Listed Building	LB47955	С	Wishaw, 26-30 (Even Nos) Main Street	Low	Negligible	Negligible
	Listed Building	LB47956	С	Wishaw, 32-38 (Even Nos) Main Street	Low	Negligible	Negligible
	Listed Building	LB47957	С	Wishaw, 40-50 (Even Nos) Main St	Low	Negligible	Negligible
	Listed Building	LB47958	С	Wishaw, 206-216 (Even Numbers) Main Street	Low	Negligible	Negligible
	Listed Building	LB47963	С	Wishaw, 147 Stewarton Street, Coltness Masonic Lodge	Low	Negligible	Negligible



Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB48015	С	Cambusnethan, Kirk Road, Cambusnethan North Parish Church Including Church Hall and Boundary Wall (Church Of Scotland Formerly Free Church)	Low	Negligible	Negligible
	Listed Building	LB49232	С	141-145 (Odd Nos) Main Street, YMCA Building	Low	Negligible	Negligible
	Listed Building	LB49604	С	Wishaw, 57 Kirk Road, Former Cinema	Low	Negligible	Negligible
	Listed Building	LB49605	С	Wishaw, 59-69 (Odd Nos) Kirk Road, Mecca Bingo (Formerly Green's Playhouse)	Low	Negligible	Negligible
	Listed Building	LB673	В	Newmains, Church Avenue, Coltness Memorial Church (Church of Scotland)	Medium	Negligible	Negligible
	Listed Building	LB47982	В	Newmains, Manse Road, Newmains Police Station Including Boundary Wall and Railings	Medium	Negligible	Negligible
	Listed Building	LB47981	С	Newmains, 144 And 144A Manse Road Including Gatepiers	Low	Negligible	Negligible
	Listed Building	LB47979	В	Bonkle, Church Road, Bonkle Parish Church (Church Of Scotland) Including Church Hall And Gatepiers	Medium	Negligible	Negligible
	Listed Building	LB14190	С	Murdostoun Castle, Lodge	Medium	Negligible	Negligible
	Listed Building	LB666	С	Bonkle, 3, 5 And 7 Allanton Road	Low	Negligible	Negligible
	Listed Building	LB667	С	Bonkle, 9 Allanton Road	Low	Negligible	Negligible

Group	Туре	HES Reference	Category	Name	Sensitivity	Magnitude of Change	Significance of Effect
	Listed Building	LB691	С	Bonkle, 2 Allanton Road	Low	Negligible	Negligible
	Listed Building	LB669	В	Bonkle, Murdostoun Road, Murdostoun Bridge	Medium	Negligible	Negligible
	Listed Building	LB47978	С	Bonkle, 251 Bonkle Road, Auchter House Including Gatepiers and Railings	Low	Negligible	Negligible
	Listed Building	LB47980	С	Bonkle, 1 Church Road	Low	Negligible	Negligible
	Listed Building	LB47977	С	Bonkle, Allanton Road, Woodypoint Estate, bridge	Low	Negligible	Negligible
	Listed Building	LB47984	С	Overtown, Main Street, Overtown Parish Church (Church of Scotland)	Low	Negligible	Negligible
	Listed Building	LB47985	С	Overtown, 148 Main Street, Overtown Parish Church Manse Including Boundary Wall	Low	Negligible	Negligible
	Listed Building	LB6664	В	1 And 2 Buchan Road, Carfin, Timber Bungalows	Medium	Negligible	Negligible



## **Potential Decommissioning Effects**

12.6.22 Decommissioning of the Proposed Development will involve similar processes to the construction effects but involve the dismantling and removal of the majority of the above ground infrastructure of the Proposed Development. As mitigation will have been undertaken at construction, no direct or indirect effects are likely from the decommissioning phase of the Proposed Development. Any effects arising from this phase are therefore considered to be not significant in terms of the EIA Regulations.

#### 12.7 Assessment of Cumulative Effects

- 12.7.1 A cumulative effect is considered to be an additional effect upon cultural heritage resources arising from the Proposed Development in combination with other consented or proposed developments likely to affect the cultural heritage environment.
- 12.7.2 A review of cumulative effect is embedded within Chapter 6 of this EIA Report. This review concluded significant visual effects out to 3.7km (moderate visual effects from Forrest Road to the west (VP 15) and moderate visual effects at western edge of Armadale (3.3km east)
- 12.7.3 Based on the assessment in Chapter 6 the following windfarms have been selected for consideration of cumulative effects:
  - Torrance I Wind Farm;
  - Torrance II Wind Farm;
  - Southrigg I turbine;
  - West Benhar Wind Farm;
  - Drumduff Wind Farm; and
  - Burnhead Wind Farm

Also considered in the cumulative assessment are three consented wind farm developments at:

- Southrigg II;
- Forrestfield; and
- Drumelzie.

### Torrance I and II Wind Farms, Southrigg I and Southrigg II

12.7.4 Torrance I is an operational three turbine wind farm with a tip height of 120, located approximately 500m north-east of the Proposed Development, adjacent to the operational Torrance II Wind Farm, Southrigg I turbine and consented Southrigg II turbine. Torrance II is a two turbine development with a tip height of 125 m. Southrigg I is a single turbine development with a tip height of 125 m, and Southrigg II is a planned single turbine with a tip height of 149 m. This group of turbines are aligned north to south and most evident in views from the west and east. The introduction of the Southrigg II turbine within the landscape, results in a slightly denser cluster of turbines to the east of the Proposed Development but one in which turbines are already present. Given the location of Southrigg II immediately east of Southrigg I the consented turbine would be evident from assets to the north and south around the settlements of Blackridge and Harthill where the Southrigg II Extension turbines will be an outlier within this north-south aligned string of turbines, although not particularly prominent within the overall cluster of turbines.



12.7.5 The introduction of the Proposed Development into this group of seven existing turbines would results in a new cluster of turbines west of the existing operational and consented turbines. The east-west alignment and greater blade tip height would make the Proposed Development more evident from assets to the north and south. As detailed in Table 12.10 a single Listed Building (LB14553), located at Blackridge, will undergo a moderate change to setting and as a result significant effects from the Proposed Development in isolation. The operational and consented turbines immediately adjacent to the Proposed Development would not increase the magnitude of change on this asset. As such, the Proposed Development would not create a cumulative effect beyond that assessed for the Proposed Development in isolation. Cumulative effects are assessed as negligible. This is not significant in terms of the EIA Regulations.

### **West Benhar Wind Farm**

- 12.7.6 West Benhar is an operational, eight turbine wind farm with a tip height of 150m, located approximately 3 km south of the Proposed Development, between Shotts and Fauldhouse. West Benhar is adjacent to the consented Brownhill Farm development, of two turbines with a tip height of 149m. This group of turbines sits between the Proposed Development to the north and the extensive cluster of turbines 5 km further south, this cluster being made up of the Black Law Wind Farm and its extension.
- 12.7.7 Key heritage assets in relation to West Benhar are located east, west and southwest and consist of Listed Buildings at Shotts, Fauldhouse and the outskirts of Motherwell. Views from these assets do not take in both the West Benhar Wind Farm and the Proposed Development. As such, the Proposed Development would not create a cumulative effect beyond that assessed for the Proposed Development in isolation. Cumulative effects are assessed as negligible. This is not significant in terms of the EIA Regulations.

### **Drumduff and Burnhead Wind Farms**

- 12.7.8 Drumduff is an operational, three turbine wind farm with a tip height of 120 m, located approximately 4.6 km north of the Proposed Development, north of Blackridge and west of Armadale. Drumdruff is adjacent to the operational Burnhead Wind Farm, which consists of 13 turbines with a tip height of 127 m and the consented Drumelzie development made up of a single turbine with a tip height of 126 m. This group of turbines sit in relative isolation to other Windfarms north of the Proposed Development.
- 12.7.9 Assets with a visibility of the Proposed Development and this group of turbines are most likely to be found to the north-west, north and north-east of the Proposed Development, located between Caldercruix and Armadale, with assets in and around Blackridge and Armadale in closest proximity to both.
- 12.7.10 As detailed in Table 12.10 a single Listed Building (LB14553), located at Blackridge, will undergo a moderate change to setting and as a result significant effects from the Proposed Development in isolation. The operational and consented turbines around Burnhead would not increase the magnitude of change to this asset. As such, the Proposed Development would not create a cumulative effect beyond that assessed for the Proposed Development in isolation. Cumulative effects are assessed as negligible. This is not significant in terms of the EIA Regulations.



12.7.11 In relation to other assets between Caldercruix and Armadale, key views from these assets do not take in both the Drumduff and Burnhead turbines and the Proposed Development. As such, the Proposed Development would not create a cumulative effect beyond that assessed for the Proposed Development in isolation. Cumulative effects are assessed as negligible. This is not significant in terms of the EIA Regulations.

#### **Forrestfield Wind Farm**

- 12.7.12 Forrestfield Wind Farm is a consented, four turbine wind farm with a tip height of 125 m, located approximately 3.5 km west of the Proposed Development. The Forrestfield Wind Farm would sit amongst a thin scattering of consented and operational turbines to the west of the Proposed Development.
- 12.7.13 Assets with a visibility of the Proposed Development and this group of turbines are most likely to be found to the north-west of the Proposed Development, located around Hillend Reservoir, to the east of Caldercruix. Key assets are the cluster of scheduled monuments 1.5 km west of the consented Forrestfield Wind Farm. The introduction of the Proposed Development into the landscape has the potential to create a denser cluster of turbines in views east from these assets. However, given that these assets are on the edge of the ZTV, with only glimpsed views of the Proposed Development it is considered the Proposed Development would not create a cumulative effect beyond that assessed for the Proposed Development in isolation. Cumulative effects are assessed as negligible. This is not significant in terms of the EIA Regulations.

## 12.8 Mitigation Measures

### **Construction: Direct effects**

- 12.8.1 The construction phase of the Proposed Development has the potential to directly affect known heritage assets identified within table 12.9 of this document. These assets include Post-Medieval field boundary walls in and around the location of Turbine 2 and its associated infrastructure, Post-Medieval railway remains in and around the location of Turbines 3 and 4 and their associated infrastructure, and features/deposits associated with Post-Medieval colliery works around the location of Turbine 1 and associated infrastructure.
- 12.8.2 The construction phase of the Proposed Development has the potential to directly affect previously unknown heritage assets around the locations of Turbines 3 and 4 and their associated infrastructure. Any archaeological remains are likely to be associated with Post-Medieval agricultural or industrial finds/features, but the potential for earlier archaeological remains cannot be completely excluded. Due to the impact of modern forestry and colliery works it is not expected that previously unknown below ground archaeological remains dating to earlier periods will survive in and around the location of Turbines 1 and 2. Post-Medieval and modern assets may however survive, inclusive of agricultural and industrial finds/features.



- 12.8.3 The following pre-construction phase mitigation measures are recommended in and around Turbine 1:
  - Erection of fencing around Netherton Old Hall (Canmore ID 124452) to prevent accidental damage during tree felling or turbine construction; and
  - A walkover survey within the footprint of the proposed tree felling, turbine foundation, hard standing pad, to be undertaken prior to the commencement of any felling or construction. A pre-construction survey of any assets within micro-siting distance (50m) should be carried out with further consultation with the archaeological advisor to the LPA required around the exact scope of these surveys. Should the survey identify such assets, consultation with archaeological advisor to the LPA should be undertaken to determine an appropriate and proportionate mitigation strategy.
- 12.8.4 The following construction phase mitigation measures are recommended in and around Turbine 1:
  - Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 1, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of pre-construction trial trenching, to further determine the archaeological potential of Turbine 1 or a watching brief during construction. Given the limited potential of Turbine 1 and its position within an area of modern commercial forestry, it is considered likely that a watching brief on infrastructure elements located outwith this forestry would constitute sufficient mitigation against direct effects. Infrastructure outside of the commercial forestry includes the southern section of hardstanding and the access track.
- 12.8.5 The following preconstruction phase mitigation measures are recommended in and around Turbine 2:
  - A walkover and photographic survey within the footprint of the proposed tree felling, turbine foundation, hard standing pad, to be undertaken prior to the commencement of any felling or construction. A pre-construction survey of any assets within micro-siting distance (50m) should be carried out with further consultation with the archaeological advisor to the LPA required around the exact scope of these surveys Should the survey identify such assets, consultation with archaeological advisor to the LPA should be undertaken to determine an appropriate and proportionate mitigation strategy.
- 12.8.6 The following construction phase mitigation measures are recommended in and around Turbine 2:
  - Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 2, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of pre-construction trial trenching, to further determine the archaeological potential of Turbine 2 or a watching brief during construction. Given the limited potential of Turbine 2 and its position wholly within an area of modern commercial forestry, it is considered likely that archaeological watching brief would be sufficient to mitigate direct effects of construction, with

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initial monitoring designed to determine the extent of disturbance caused by forestry plantation and the need for any ongoing archaeological monitoring.

- 12.8.7 The following mitigation measures are recommended in and around Turbine 3:
  - Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 3, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of pre-construction trial trenching, to further determine the archaeological potential of Turbine 3 or a watching brief during construction. Given that groundworks associated with Turbine 3 are located within open agricultural fields, it is likely that a limited programme of archaeological evaluation trenching will be requested ahead of construction, to assess the survival of subsurface remains associated with the 19<sup>th</sup> century railway identified in the DBA. The potential for other previously unknown archaeological remains will also be assessed.
- 12.8.8 The following mitigation measures are recommended in and around Turbine 4:
  - Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 4, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of pre-construction trial trenching, to further determine the archaeological potential of Turbine 4 or a watching brief during construction. Given that groundworks associated with Turbine 4 are located within open agricultural fields, it is likely that a limited programme of archaeological evaluation trenching will be requested ahead of construction, to assess the survival of subsurface remains associated with the 19<sup>th</sup> century railway identified in the DBA. The potential for other previously unknown archaeological remains will also be assessed.

## **Construction: Indirect effects**

12.8.9 Any indirect effects on heritage assets during the construction phase will generally be limited to construction infrastructure (e.g., visual impact from cranes). Any effects would be short-term and less than during the operational phase. As such, mitigation measures for indirect effects are considered within the discussion of operational mitigation below.

## **Operation**

12.8.10 Changes to setting have been identified for heritage assets within the 5 km Study Area, with moderate effects identified at the Category B Listed Building LB14553, located 1.2 km north of the Proposed Development, in the centre of Blackridge. All other effects within the 5km and 5-15 km Setting Study Areas were negligible or minor and not significant with full details in Technical Appendices 12.3 and 12.4.



- 12.8.11 Mitigating the effect of constructing a wind farm when there are significant effects identified upon cultural significance is not straightforward. The options for reducing visual effects are limited to redesigning the layout or in a relatively small number of cases, screening sensitive views.
- 12.8.12 In the case of the Proposed Development, the number of the turbines was reduced from the turbine Scoping layout, with turbines numbers reduced from ten turbines measuring 140 m to four measuring 200 m (maximum tip height). Due to the proximity of LB14552 to the Proposed Development and height of the turbines, there is no further mitigation that could reduce the effect of the Proposed Development. As a result, indirect visual effects upon this cultural heritage asset will continue throughout the operational phase of the Proposed Development..

### 12.9 Residual Effects

- 12.9.1 Residual effects from the Proposed Development are limited to assets directly impacted by construction. There will be no residual effects to assets outwith the Site following decommissioning.
- 12.9.2 The assets identified in Table 12.9 have the potential to be subject to direct effects through construction and have been identified as non-designated assets of local value. As a result of this value, even with the potential for total loss of the asset, the construction of the Proposed Development would result in a minor / negligible effect which would be not significant. Please note that, direct effects to assets HA-1, HA-2 and Canmore ID 132393 during construction would result in only the partial loss of these assets. A high proportion of these assets would survive untouched by the Proposed Development.
- 12.9.3 Mitigation through micro siting of infrastructure away from these assets, or through a programme of pre-construction recording, evaluation trenching or alternatively, watching brief during the construction phase would be sufficient to reduce construction impacts to negligible magnitude, resulting in a residual effect of negligible significance.
- 12.9.4 Full details of the proposed archaeological mitigation for direct effects are provided within Section 12.8 and table 12.12 below.



# 12.10 Summary

12.10.1 Table 12.12 provides a summary of the effects detailed within this chapter.

Table 12.12: Summary of Effects

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect			
Construction P	Construction Phase						
Known archaeological remains	Turbines 1, 2, 3 and 4 and their associated infrastructure are likely to direct impact on Post-Medieval assets associated with the following agricultural and industrial assets: HA-1 Post-Medieval field boundary walls. Located around Turbine 2. HA-2 Post-Medieval railway. Located around Turbines 3 and 4 Canmore ID 132393 Post-Medieval Netherton Colliery. Located around Turbine 1.	Not significant	<ul> <li>Turbine 1:</li> <li>Erection of fencing around Netherton Old Hall (Canmore ID 124452) to prevent accidental damage during tree felling or turbine construction; and</li> <li>A walkover survey within the footprint of the proposed tree felling, turbine foundation, hard standing pad, to be undertaken prior to the commencement of any felling or construction. A pre-construction survey of any assets within micro-siting distance (50m) should be carried out with further consultation with the archaeological advisor to the LPA required around the exact scope of these surveys Should the survey identify such assets, consultation with archaeological advisor to the LPA should be undertaken to determine an appropriate and proportionate mitigation strategy.</li> <li>Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 1, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of preconstruction trial trenching, to further determine the archaeological potential of Turbine 1 or a watching brief during construction. Given the limited potential of Turbine 1 and its position within an area of modern commercial forestry, it is considered likely that a watching brief on infrastructure elements located outwith this forestry would constitute sufficient mitigation against direct effects. Infrastructure outside of the commercial forestry includes the southern section of hardstanding and the access track.</li> <li>Turbine 2:</li> </ul>	Not significant			

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
			<ul> <li>A walkover and photographic survey within the footprint of the proposed tree felling, turbine foundation, hard standing pad, to be undertaken prior to the commencement of any felling or construction. A pre-construction survey of any assets within micrositing distance (50m) should be carried out with further consultation with the archaeological advisor to the LPA required around the exact scope of these surveys Should the survey identify such assets, consultation with archaeological advisor to the LPA should be undertaken to determine an appropriate and proportionate mitigation strategy.</li> <li>Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 2, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of preconstruction trial trenching, to further determine the archaeological potential of Turbine 2 or a watching brief during construction. Given the limited potential of Turbine 2 and its position wholly within an area of modern commercial forestry, it is considered likely that archaeological watching brief would be sufficient to mitigate direct effects of construction, with initial monitoring designed to determine the extent of disturbance caused by forestry plantation and the need for any ongoing archaeological monitoring.</li> </ul>	
			<ul> <li>Turbine 3:</li> <li>Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 3, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of preconstruction trial trenching, to further determine the archaeological potential of Turbine 3 or a watching brief during construction. Given that groundworks associated with Turbine 3 are located within open agricultural fields, it is likely that a limited programme of archaeological evaluation trenching will be requested ahead of construction, to assess the survival of subsurface remains associated with the 19th century railway identified in the DBA. The</li> </ul>	



Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
			potential for other previously unknown archaeological remains will also be assessed.  Turbine 4:  • Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 4, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of preconstruction trial trenching, to further determine the archaeological potential of Turbine 4 or a watching brief during construction. Given that groundworks associated with Turbine 4 are located within open agricultural fields, it is likely that a limited programme of archaeological evaluation trenching will be requested ahead of construction, to assess the survival of subsurface remains associated with the 19th century railway identified in the DBA. The potential for other previously unknown archaeological remains will also be assessed.	
Unknown (buried) archaeological remains	Archaeological potential for unknown remains to survive is very low in areas subject to forestry operations with high potential for Post-Medieval and Modern assets in areas outwith forestry	Not Significant	<ul> <li>Turbine 3:</li> <li>Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 3, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of preconstruction trial trenching, to further determine the archaeological potential of Turbine 3 or a watching brief during construction. Given that groundworks associated with Turbine 3 are located within open agricultural fields, it is likely that a limited programme of archaeological evaluation trenching will be requested ahead of construction, to assess the potential for previously unknown archaeological remains.</li> <li>Turbine 4:</li> <li>Consultation with the archaeological advisor to the LPA over the requirement for and scope of any additional archaeological works on groundworks associated with Turbine 4, namely construction of the turbine foundations, hardstanding, access tracks and cable trenches. Additional archaeological works may take the form of pre-</li> </ul>	Not Significant

Receptor	Potential Effect Significance o		Mitigation Proposed	Residual Effect			
			construction trial trenching, to further determine the archaeological potential of Turbine 4 or a watching brief during construction. Given that groundworks associated with Turbine 4 are located within open agricultural fields, it is likely that a limited programme of archaeological evaluation trenching will be requested ahead of construction, to assess the potential for previously unknown archaeological remains.				
Operational Pha	ase						
Designated Heritage Assets	Changes to setting that affect cultural significance have been identified for a single Listed Building as detailed in Table 12.10.	Significant	No mitigation is proposed other than that highlighted during the design process for significant effects.	Significant			
Decommissioni	ng Phase						
Restoration of existing site conditions (visual)	None	No effect	None	None – Existing setting will be restored			
Cumulative	Cumulative						
Torrance I (EO1)	No cumulative significant effects.	Not Significant	None	Not Significant			
Torrance II (E02)	No cumulative significant effects.	Not Significant	None	Not Significant			
Southrigg 1 (E03)	No cumulative significant effects.	Not Significant	None	Not Significant			
West Benhar Wind Farm (E05)	No cumulative significant effects.	Not Significant	None	Not Significant			
Drumduff Wind Farm (E06)	No cumulative significant effects.	Not Significant	None	Not Significant			



Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
Burnhead Wind Farm (E07)	No cumulative significant effects.	Not Significant	None	Not Significant
Southrigg 2 (aka Rigg Wind Turbine) (C01)	No cumulative significant effects.	Not Significant	None	Not Significant
Forrestfield Wind Farm (C02)	No cumulative significant effects.	Not Significant	None	Not Significant
Drumelzie (C03)	No cumulative significant effects.	Not Significant	None	Not Significant



## 12.11 Statement of Significance

- 12.11.1 Effects are considered to be significant for the purposes of the EIA Regulations where the effect is classified as being of 'major' or 'moderate' significance.
- 12.11.2 There are likely to be direct effects upon three undesignated assets through the excavation of turbine foundations and associated hardstanding, cable trenching, access tracks, recreational paths and forestry felling. Assets HA-1, a series of dry stone Post-Medieval boundary walls, HA-2, a section of Post-Medieval railway line and remains associated with Netherton Colliery, located immediately north of the Proposed Development site are likely to be disturbed by construction activities.
- 12.11.3 These effects are not considered to be significant, however as archaeology is a finite and irreplaceable resource, mitigation is recommended to ensure avoidance or preservation by record. Mitigation through micro siting of infrastructure away from these assets, or through a programme of preconstruction recording, evaluation trenching or alternatively, watching brief during the construction phase would be sufficient to reduce construction impacts to negligible magnitude, resulting in a residual effect of negligible significance.
- 12.11.4 Additionally, there is considered to be a high potential for further unrecorded Post-Medieval features within the CSA. The DBA records an additional 27 non-designated assets within the 1 km Study Area. The type and distribution of these assets predominantly reflects the agricultural and industrial nature of the region around the CSA from the Post-Medieval period onwards, in particular relating to coal-mining activity at the Benhar, Blairmuckil, and Netherton collieries. Netherton Colliery is located immediately north of the CSA. However, earthworks and features associated with colliery operations are present within the CSA, and were recorded during a walkover survey of the site within the northeast corner of the Site
- 12.11.5 There is considered to be a low potential for assets pre-dating the post-medieval period to survive within the CSA. Should evidence be uncovered, it is likely to be limited to isolated findspots, partly owed to the destructive effect of modern commercial forestry on site, and the industrial nature of the CSA, evidenced by spoil heaps associated with Netherton Colliery.
- 12.11.6 Due to the concentration of commercial forestry within the Site, the potential for previously unknown buried archaeological remains is restricted to areas of open field, specifically around Turbines 3 and 4.
- 12.11.7 There is considered to be one significant indirect (settings) effect.

  Significant effects are limited to the Category B Listed Building LB14553, located
  1.2 km north of the Proposed Development, in the centre of Blackridge, with no
  other significant effects likely upon Cultural Heritage receptors in the surrounding
  historic environment.
- 12.11.8 No additional significant cumulative indirect (setting effects) from the Proposed Development and other wind farm developments is likely so that any effect would result from the Proposed Development as assessed in isolation. All cumulative effects are considered to be not significant.