

# 19 Summary

## Introduction

19.1 Chapters 8 to 18 of the ES report the findings of the assessments of the predicted effects of Solwaybank Wind Farm on a topic-by-topic basis. The significance of these effects has been assessed using criteria defined in the topic chapters. Where possible, the significance of effects has been categorised as major, moderate, minor or negligible. In accordance with the EIA Regulations, effects assessed as being of ‘major’ or ‘moderate’ significance are considered to be significant effects. For some of the assessments, effects are either considered to be significant or not significant in accordance with the EIA Regulations. In line with Planning Circular 3/2011<sup>1</sup>, and other relevant EIA guidance, the ES has focussed particularly on significant effects and the measures proposed to mitigate them.

19.2 Table 19.1 below summarises the predicted significant effects of Solwaybank Wind Farm prior to, and following, the implementation of committed mitigation measures. Summaries of all effects (significant and non-significant) can be found at the end of each assessment chapter.

## Summary of Significant Effects

19.3 Prior to the assessment being undertaken, where possible, potential effects associated with the wind farm have been avoided or minimised through iterations to the design of the wind farm. Landscape was a key consideration in the Design Strategy; therefore, a number of measures to reduce landscape and visual effects are embedded into the design. Site restoration and replanting associated with construction of the wind farm will also reduce some of the associated landscape and visual effects.

19.4 Design iterations to the track and infrastructure layout were also made to minimise the number of watercourse crossings, to avoid areas of archaeological potential, potential fragmentation of higher quality blanket bog habitats and impacts on protected species and to take account of noise constraints.

19.5 Prior to committed mitigation, significant effects are predicted in relation to:

- Landscape and Visual Amenity;
- Ecology;
- Cultural Heritage and Archaeology;
- Geology, Hydrology and Hydrogeology;
- Access, Traffic and Transport.

19.6 No significant effects are predicted in relation to:

- Ornithology;
- Noise;
- Electromagnetic Interference and Aviation;

- Socio- Economics;
- Other Issues - Health & Safety, Air & Climate and Shadow Flicker.

19.7 Only effects which are considered to be significant prior to mitigation are presented in the summary of effects table below (Table 19.1). All other effects are considered to be non-significant prior to mitigation and are therefore not presented.

19.8 Table 19.1 also summarises the proposed mitigation measures. Further information on the detail of these measures is provided in Chapters 8 to 18. As shown in Table 19.1, a number of the predicted significant effects are no longer significant following mitigation.

**Table 19.1: Summary of Likely Significant Effects**

Likely Significant Effect	Mitigation Proposed (Where Applicable)	Means of Implementation (Where Applicable)	Significance of Residual Effect
<b>Landscape and Visual</b>			
<b>Landscape and Visual Effects during Construction</b>			
Site (Major)	Site Restoration.	Construction in accordance with an agreed Construction Method Statement (CMS) which will also include requirements for reinstatement and restoration. Felling and replanting will be undertaken in accordance with the agreed Forest Design Plan.	Negligible
<b>Effects on Landscape Character during Operation</b>			
Site (Major)			Major
Foothills Landscape Character Type (LCT). (Moderate locally for Annandale Unit, Minor for LCT as a whole)			Moderate locally for Annandale Unit, Minor for LCT as a whole
<b>Visual Effects on Viewpoints</b>			
Viewpoint 2: Collin Burn; Viewpoint 3: B7068 west of Fallford; (Major)			Major
Viewpoint 1: High Stenries; Viewpoint 4: Milltown; Viewpoint 5: B725 between Middlebie and Waterbeck; Viewpoint 8:Malcolm			Moderate

<sup>1</sup> Scottish Government (2011) *Planning Circular 3/2011: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011.*

Likely Significant Effect	Mitigation Proposed (Where Applicable)	Means of Implementation (Where Applicable)	Significance of Residual Effect
Monument, Langholm; Viewpoint 9: Burnswark (Moderate)			
<b>Visual Effects on Routes during Operation</b>			
B7068 (Major close to the site, Minor further away)			Major, close to the site only, Minor further away.
Minor roads around the site (Moderate)			Moderate
<b>Cumulative Effects on Landscape Character</b>			
Site (Moderate)			Moderate
Foothills LCT, (Moderate locally for Annandale Unit, Minor for LCT as a whole)			Moderate locally for Annandale Unit, Minor for LCT as a whole
<b>Cumulative Visual Effects on Routes during Operation</b>			
B7068 (Moderate)			Moderate
<b>Ecology</b>			
<b>Construction</b>			
Loss of blanket bog, modified bog, marshy grassland, and wet heath habitats (Major to Moderate)	Creation of new upland habitats within previously afforested areas. Improved management of existing bog, grassland and heath habitat on site.	Implementation of a HMP which includes suitable plans for forest re-design.	Minor or less
Disturbance of badger through construction activities and short term loss of habitat (Moderate)	Pre-construction checks for setts. Felling within 20 m of setts under the terms of a licence including supervised, directional felling using appropriately sensitive methods. Re-planting of the woodland areas with increased broad-leaved woodland and open space.	An SNH licence to disturb badger may be required to ensure implementation of mitigation for all setts within 20 m of felling works. Implementation of a suitable HMP which includes increased open areas and broad-leaved planting.	Minor
Disturbance of red squirrel through construction activities and short term loss of habitat (Moderate)	Pre-construction checks and suitable protection of any identified dreys. Installation of nest boxes in retained forest at two locations. Replanting of mixed coniferous woodland and small seeded broad-leaves with higher suitability for	Employment of an Ecological Clerk of Works (ECOW) during the felling and construction phase as required. Implementation of a suitable HMP which includes increased mixed coniferous woodland planting.	Minor

Likely Significant Effect	Mitigation Proposed (Where Applicable)	Means of Implementation (Where Applicable)	Significance of Residual Effect
	red squirrel. Squirrel monitoring and potential implementation of a grey squirrel control plan.		
<b>Cultural Heritage and Archaeology</b>			
<b>Construction</b>			
Disturbance to, and loss of, hitherto unidentified buried archaeological remains due to ground disturbing excavation (Moderate)	Archaeological monitoring in sensitive areas and follow up mitigation if important discoveries are made.	Implementation of a Watching Brief.	Minor
<b>Geology, Hydrology and Hydrogeology</b>			
<b>Construction</b>			
Sedimentation of surface water bodies and associated private water supplies from construction activities (Moderate)	Use of comprehensive sustainable drainage systems (SUDS)(see Chapter 12: Geology, Hydrology and Hydrogeology for further details).	Coverage within the CMS and through training/induction of appropriate site personnel.	Minor
Pollution of receptors (River Sark, River Esk, Kirtle Water and associated private water supplies, and Liddlesdale Bedrock) from fuel/oil spill (Moderate)	Use of a range of pollution prevention measures (see Chapter 12 for further details).	Coverage within the CMS and through training/induction of appropriate site personnel. Development of a maintenance programme pre-construction.	Minor
Changes in natural drainage patterns for four receptors (River Sark, River Esk, Kirtle Water and Liddlesdale Bedrock) (Moderate)	Phased construction of drainage systems to ensure risk is minimised at the end of each working day. Appropriate use of SUDs. No direct discharge of drainage water into natural watercourses.	Specification in the CMS and detailed design.  Use of forward planning and weather forecasts to highlight high risk periods.	Minor
Runoff event/sedimentation (blocked culverts leading to localised flooding) (Moderate)	Design of water crossings to standard CIRIA and SEPA guidance. Operational programme of maintenance to inspect culverts for blockages.	Specification in the CMS and detailed design.	Minor

Likely Significant Effect	Mitigation Proposed (Where Applicable)	Means of Implementation (Where Applicable)	Significance of Residual Effect
<b>Access, Traffic and Transport</b>			
<b>Construction</b>			
Increase in HGV traffic volumes causing delays on the B7068 (Lockerbie), B7068 (Lockerbie to site), B722 (A74 to B7068) (Moderate)	Measures to minimise congestion and disruption, including identification of public roads not to be used by construction traffic, management of timing and frequency of vehicle movements to avoid local events and proposals to enter into consultation with the Timber Transport Group and other large generators of traffic on the B7068 re. scheduling of vehicle movements.	Traffic Management Plan and Construction Code.	Minor
Increase in general traffic causing delays on the B7068 (Lockerbie to site) and on the B722 (A74 to B7068) (Moderate)	As above.	As above.	Minor
The physical effects (wear and tear) of additional HGV traffic within the study area (B7068 and B722) (Moderate)	A pre-construction road survey and infrastructure works to make good damage attributable to Solwaybank Wind Farm construction.	As above.	Negligible
<b>Cumulative Effects During Construction</b>			
Increase in general traffic causing delays on the B7068 (Lockerbie to site) (Major)	Measures to minimise congestion and disruption, including identification of public roads not to be used by construction traffic, management of timing and frequency of vehicle movements to avoid local events and proposals to enter into consultation with the Timber Transport Group and other large generators of traffic on the B7068 re. scheduling of vehicle	Traffic Management Plan and Construction Code.	Moderate

Likely Significant Effect	Mitigation Proposed (Where Applicable)	Means of Implementation (Where Applicable)	Significance of Residual Effect
	movements.		
Increase in general traffic causing delays on the B722 (A74 to B7068) (Moderate)	Moderate	As above.	Minor
Increase in HGV traffic causing delays on the B722 (A74 to B7068) (Moderate)	As above.	As above.	Minor
Increase in HGV traffic causing delays on the B7068 (Lockerbie) and B7068 (Lockerbie to site) (Major)	As above.	As above.	Moderate
The physical effects (wear and tear) of additional HGV traffic within the study area (B7068 and B722) (Moderate)	A pre-construction road survey and infrastructure works to make good damage attributable to Solwaybank Wind Farm construction.	As above.	Negligible

### Summary of Significant Residual Effects

19.9 Following committed mitigation, significant effects are predicted in relation to:

- Landscape and Visual Amenity; and
- Access, Traffic and Transport.

#### Landscape and Visual

19.10 The landscape and visual assessment identified significant residual effects on the landscape of the site, the Foothills Landscape Character Type (LCT), within which the site is located (local significant effect), and for seven viewpoints (five with a 'moderate' level of significance' and two with a 'major' level of significance). Significant sequential effects are also predicted for two routes including the B7068 road and the minor roads around the site. Cumulative effects with other wind farm developments are predicted for the site, the Foothills LCT and the B7068 road. Further mitigation of these effects is not possible due to the inherent nature of wind farm developments.

### Traffic, Transport and Access

The traffic, transport and access assessment identified significant residual effects due to an increase in traffic on the B7068 to the west of the site if the defined cumulative scenario were to occur. There are two developments which appear to have the potential to use the same access routes as Solwaybank Wind Farm at the same time: the Ewe Hill Wind Farm (6 consented turbines) and the associated Ewe Hill and

Newfield Wind Farm Overhead Line. If construction of these developments all occurred at the same time then there would be a 'moderate' level of significance on the B7068. However, given the initial phase of the Ewe Hill Wind Farm has already received planning consent and the Ewe Hill and Newfield Wind Farm Overhead Line has been in the planning process for some months, it is likely that these developments will begin construction prior to the construction of Solwaybank Wind Farm therefore, the risk of a moderate effect arising is considered to be low.