PREESALL UNDERGROUND GAS STORAGE FACILITY, LANCASHIRE

Infrastructure Planning Commission (IPC) Application
Reference Number: EN030001

STATEMENT OF COMMON GROUND BETWEEN HYDER CONSULTING (UK) LIMITED (ON BEHALF OF HALITE ENERGY GROUP LIMITED) AND NATURAL ENGLAND ON THE TOPIC OF ECOLOGY AND HABITATS REGULATIONS ASSESSMENT

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1 INTRODUCTION

1.1.1 This is a Statement of Common Ground (SoCG) between Hyder Consulting (UK) Limited (Hyder) (on behalf of Halite Energy Group Limited) and Natural England on the topic of Ecology and Habitats Regulations Assessment (HRA).

1.1.2 Natural England is a non-departmental public body established under the Natural Environment and Rural Communities Act 2006. Natural England is the statutory advisor to Government on nature conservation in England and promotes the conservation of England’s wildlife and natural features.

1.1.3 Natural England is a statutory consultee in respect of:

- Plans or projects that are subject to the requirements of the Conservation of Habitats and Species Regulations 2010 (the “Habitats Regulations”) and may have a likely significant effect on European sites, and;
- Proposals likely to damage any of the flora, fauna or geological or physiographical features for which a Site of Special Scientific Interest (“SSSI”) has been notified under the Wildlife and Countryside Act 1981 (as amended) (the “1981 Act”).

1.1.4 This SoCG relates to agreement between Natural England and Hyder (on behalf of Halite Energy Group Limited) only in relation to those issues that affect designated sites (including European sites) and associated biodiversity issues. Natural England is content that the local biodiversity issues have been the subject of separate discussions between Hyder (on behalf of Halite Energy Group Limited) and the Local Planning Authority and other relevant local partners.

1.1.5 Ecology and the HRA has been the subject of discussions between Hyder (on behalf of Halite Energy Group Limited) and Natural England at the pre-Development Consent Order (DCO) Application stage, and also following the submission of the DCO Application. A telephone conversation was held with Natural England on 24 February 2012 to discuss the Ecology and HRA SoCG. The aim of this discussion was, where possible, to reach a common ground in relation to the following DCO Application Documents:

- Chapter 9: Ecology and Nature Conservation of Volume 1A of the Environmental Statement (ES) (DCO Application Document Reference 5.1)
- Appendices 9.1 to 9.19 of Volume 1B of the ES (DCO Application Document Reference 5.2)
- Figures 9.1 and 9.2 of Volume 2B of the ES (DCO Application Document Reference 5.4)
- Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC (DCO Application Document Reference 3.2)
- Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar (DCO Application Document Reference 3.3)
The Landscape and Ecological Management Strategy Plan (LEMSP), which is presented on Figure 14.10 of Volume 2B of the ES (DCO Application Document Reference 5.4) and within Appendix 14.11 of Volume 1B of the ES (DCO Application Document Reference 5.2)

1.1.6 A number of matters were raised by Natural England in relation to the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ (DCO Application Document Reference 3.3). Following further discussion, a document providing responses to these matters (hereinafter referred to as the ‘Responses to Natural England’) was provided to Natural England. Natural England has reviewed this information (presented within Appendix A of this SoCG), together with the above DCO Application Documents, to inform this SoCG.

1.1.7 Natural England’s “relevant representation” to the Examining Authority dated 10 February 2012, based on the submitted DCO Application Documents, identified terrestrial, marine and bird disturbance issues for further consideration. This SoCG also sets out the current position in relation to each of these issues.
2 ENVIRONMENTAL STATEMENT

2.1 Accepted Data

Assessment Methodology

2.1.1 The methodology sets out the approach to the Ecology and Nature Conservation assessment, and is presented within Section 9.3 of Volume 1A of the ES.

2.1.2 It is agreed the stated assessment methodology is appropriate.

Baseline Information

2.1.3 Sections 9.4 and 9.5 of Volume 1A of the ES present the existing and future baseline information, respectively, that has been considered in relation to the Ecology and Nature Conservation assessment.

2.1.4 It is agreed that the ES, as supplemented by the ‘Responses to Natural England’ (Appendix A of this SoCG), provides an appropriate baseline.

Potential Effects

2.1.5 Section 9.7 of Volume 1A of the ES presents the Potential Effects on Ecology and Nature Conservation as a result of the Project without consideration of the proposed mitigation and enhancement measures.

2.1.6 In the light of ‘Responses to Natural England’ provided to, and discussed with, Natural England (Appendix A of this SoCG), it is agreed that the potential effects have been correctly identified.

Mitigation and Enhancement Measures

2.1.7 Mitigation and enhancement measures are identified within Section 9.8 of Volume 1A of the ES. These cover mitigation for a wide range of potential impacts. Those relating to potential impacts on European site features are covered in Sections 3 and 4 of this SoCG.

2.1.8 Whilst Natural England is content that the local biodiversity issues has been the subject of separate discussions between Hyder (on behalf of Halite Energy Group Limited) and relevant local partners, Natural England did offer advice on key Biodiversity Action Plan (BAP) issues associated with proposed mitigation measures for designated sites.

2.1.9 Purple Ramping-Fumitory is a UK BAP species with a restricted distribution in the UK. It is agreed that measures set out within the ES for management of soils will not result in significant loss of a viable seed bank.

2.1.10 Natural England noted construction of the brine outfall pipeline and its subsequent long term presence upon the seabed poses a potential risk of physical disturbance and damage to local marine BAP habitats and fauna. It is agreed that this would be adequately mitigated by proposed conditions outlined
within Schedule 7 of the draft DCO Deemed Marine Licence (DCO Application Document Reference 6.1).

2.1.11 Natural England considers that potential long term impacts could result from changes to sediment dynamics and morphology of the surrounding seabed if the brine outfall pipeline is not fully buried and retained in situ. It is agreed that this will be adequately avoided through the proposed conditions outlined within Schedule 7 of the draft DCO Deemed Marine Licence (DCO Application Document Reference 6.1) to ensure that the brine outfall pipeline is fully buried and any backfill is flush with the seabed, and permanently so maintained.

2.1.12 Natural England considers there to be potential for damage to sensitive marine BAP habitats through abrasion and smothering. It is agreed that this would be adequately avoided through guaranteed delivery of the Construction and Environmental Management Plan (CEMP) through the DCO Requirements at Schedule 9 of the draft DCO (DCO Application Document Reference 6.1).

2.1.13 Natural England raised the point that paragraph 9.8.19 of the marine mitigation section of the Ecology and Nature Conservation ES Chapter does not mention water quality sampling. Hyder confirmed that water quality sampling would be undertaken in accordance with the provisions of the Environment Agency Discharge Consent. Natural England is satisfied with this approach.

2.1.14 It is agreed that the mitigation measures outlined in Section 9.8 of Volume 1A of the ES, as supplemented by the proposals set out here (and in the following sections), are appropriate and, subject to agreement of the detail of mitigation delivery in the LEMSP, adequate.

Residual Effects

2.1.15 Section 9.9 of Volume 1A of the ES presents the Residual Effects, i.e. with incorporation of the proposed mitigation and enhancement measures.

2.1.16 In the light of ‘Responses to Natural England’ provided to, and discussed with Natural England (Appendix A of this SoCG), it is agreed that the residual effects have been correctly identified. The findings of the assessment are therefore agreed.
3 INFORMATION TO SUPPORT A HABITATS REGULATIONS ASSESSMENT – MORECAMBE BAY SAC, LIVERPOOL BAY SPA, SHELL FLAT AND LUNE DEEP CSAC (DCO APPLICATION DOCUMENT REFERENCE 3.2)

3.1 Accepted Data

Scope of European Sites

3.1.1 Chapter 4 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’ sets out the European sites that were identified for inclusion within the assessment.

3.1.2 It is agreed the relevant European sites have been identified in relation to the potential impacts of the brine outfall pipeline and associated brine discharge.

Characteristics of the European Sites

3.1.3 The characteristics of the European sites are also presented within Chapter 4 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’.

3.1.4 It is agreed the qualifying features have been correctly identified.

Assessment Methodology

3.1.5 The methodology is presented within Chapter 5 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’.

3.1.6 The assessment methodology is considered appropriate and agreed.

Screening of Project Elements and Potential Significant Effects

3.1.7 Chapter 6 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’ sets out the screening of Project elements and potential significant effects.

3.1.8 The screening of Project elements and potential significant effects is agreed.

Assessment of No Significant Effects

3.1.9 The assessment of no significant effects is presented within Chapter 7 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’.
3.1.10 The assessment of the potential for elements of the Project, with the provision of the mitigation and monitoring outlined in Chapter 8 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’, to have no significant effects on the features of European sites is agreed.

Mitigation and Monitoring

3.1.11 Mitigation and monitoring is discussed within Chapter 8 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’.

Construction of the Brine Outfall Pipeline

3.1.12 Natural England considers there is potential for disturbance by construction boat traffic to Common Scoter and Red Throated Diver, qualifying species for Liverpool Bay SPA. It is agreed that this could be adequately avoided through management of vessel movements. This will be controlled through the proposed condition outlined within Schedule 7 of the draft DCO Deemed Marine Licence (DCO Application Document Reference 6.1) for delivery of an agreed Vessel Movement Plan to ensure the Project has no likely significant effect on European features.

3.1.13 Consistent with Schedule 7 of the draft DCO Deemed Marine Licence (DCO Application Document Reference 6.1), it is agreed that the Applicant and Natural England will continue to work together to finalise the precise wording of the Vessel Movement Plan six months before construction begins to allow for the most up to date information on the distribution of sea birds.

Hypersaline Brine Discharge

3.1.14 Discharge of hypersaline brine into the Irish Sea during cavern construction and maintenance is regulated under the Environment Agency’s 2007 Discharge Consent (CC/93/07). The EIA and HRA undertaken for the discharge consent concluded that there would not be a likely significant effect on offshore European sites or adversely affect the wider marine environment.

3.1.15 The original EIA and HRA assessments for the Environment Agency Discharge Consent did not consider impacts on the newly designated Shell Flats cSAC. In addition, a large rock armoured offshore sewage outfall has subsequently been constructed to the north of the proposed brine outfall with the potential for changes to hypersaline dispersion modelling. Halite Energy Group Limited has reviewed their modelling data and discussed with the Environment Agency and Natural England. It is agreed that the new rock armoured sewage outfall would not alter the dispersion modelling of the hypersaline plume and therefore that would not alter the conclusion of the HRA. It is agreed that the previous modelling is still sound and there is unlikely to be any significant effect on offshore European sites or adverse effect to the wider marine environment from the hypersaline brine discharge.

3.1.16 Natural England indicated that the point raised in relation to the ES Chapter in terms of the omission of water quality sampling (refer to Section 2.1.13 of this SoCG) also applies to Chapter 8 of the ‘Information to Support a Habitats
Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’. Natural England is satisfied with the response provided to this point.

3.1.17 It is agreed that the avoidance, mitigation and monitoring measures in the ‘Information to Support a Habitats Regulations Assessment - Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’ as supplemented by the monitoring proposals set out above, are appropriate and adequate.

In-combination Effects

3.1.18 Chapter 9 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’ presents the assessment of in-combination effects.

3.1.19 The assessment of in-combination effects is agreed.

Conclusion

3.1.20 The conclusions are summarised within Chapter 10 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SAC, Liverpool Bay SPA, Shell Flat and Lune Deep cSAC’.

3.1.21 The conclusion of no likely significant effects is agreed.
4 INFORMATION TO SUPPORT A HABITATS REGULATIONS ASSESSMENT – MORECAMBE BAY SPA AND RAMSAR (DCO APPLICATION DOCUMENT REFERENCE 3.3)

4.1 Accepted Data

Scope of European Sites

4.1.1 Chapter 4 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ sets out the European sites that were identified for inclusion within the assessment.

4.1.2 It is agreed that the relevant European sites have been identified in relation to the potential impacts of the Project.

Characteristics of the European Sites

4.1.3 The characteristics of the European sites are also presented within Chapter 4 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’.

4.1.4 The characteristics of the European sites are considered appropriate and agreed.

Assessment Methodology

4.1.5 The methodology is presented within Chapters 5 and 6 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’.

4.1.6 It is agreed that the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’, as supplemented by ‘Responses to Natural England’, Appendix A of this SoCG), provides an adequate methodology for the assessment of potential impacts.

Screening of Bird Species

4.1.7 Chapter 7 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ sets out the screening of bird species potentially exposed to impacts arising from the Project.

4.1.8 Natural England considered some key Ramsar species had been missed from the screening assessment – specifically black-tailed godwit and teal – both of which are designated features of the Wyre Estuary SSSI and form part of the qualifying internationally important wildfowl assemblage of the European site.

4.1.9 Black-tailed godwit and teal have been included within the mapped information provided to Natural England (‘Responses to Natural England’, Appendix A of this SoCG) on the location roosting and feeding areas used by the qualifying
With consideration of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ and the spatial information on bird species in the ‘Responses to Natural England’ (Appendix A of this SoCG) together, Natural England agrees that an adequate basis for screening birds potentially exposed to impacts arising from the Project has been provided.

Screening for Potentially Significant Effects

Chapter 8 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ sets out the screening for potentially significant effects.

Natural England was concerned that information on the spatial distribution of SPA and Ramsar bird species using the DCO Application site, and the adjacent farmland and designated sites, was insufficient to reliably identify all potential impacts arising from the Project.

Specifically, Natural England was concerned that insufficient evidence had been provided to confirm that no SPA and Ramsar qualifying bird species, other than pink-footed geese, are using land functionally linked to the European sites and therefore be potentially affected by the Project.

Natural England was also concerned that insufficient information had been provided to establish the scale and distribution of pink-footed geese using the DCO Application site and surrounding farmland outside the designated sites (functionally linked land).

Hyder has provided further mapped information on the spatial distribution of relevant SPA and Ramsar bird species (‘Responses to Natural England’, Appendix A of this SoCG) using the designated Wyre Estuary sites, the DCO Application site and adjacent farmland, including field usage by pink-footed geese. It clarifies which bird species using the designated estuary sites and functionally linked land for foraging and feeding are potentially affected by different elements of the Project. This has confirmed that apart from pink-footed geese, no other SPA and Ramsar qualifying bird species are making significant use of functionally linked land for feeding or roosting.

In addition to those potential impacts identified in the ‘Information to Support a Habitats Regulations Assessment - Morecambe Bay SPA and Ramsar’, the ‘Responses to Natural England’ (Appendix A of this SoCG) has confirmed that:

- Wellhead compounds 4 and 6 have the potential to disturb areas within the designated estuary used by several qualifying bird species for feeding or roosting (in addition to the two proposed river crossings and wellhead compounds 1, 5 and 7 adjacent to the estuary),
- The Booster Pump Station lies within 200 m of key feeding areas for some qualifying bird species.
- All wellhead compounds have the potential to disturb or displace pink-footed geese from core feeding areas
- Wellhead compounds 4 and 6 in addition have the potential to disturb a significant part of those mitigation areas proposed for enhanced management to improve their feeding potential for pink-footed geese.

4.1.17 With consideration of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ and the ‘Responses to Natural England’ (Appendix A of this SoCG) together, the screening for potentially significant effects is agreed.

**Assessment of Likely Significant Effects**

4.1.18 The assessment of likely significant effects is presented within Chapter 9 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’.

4.1.19 The assessment of the potential for elements of the Project, in the absence of mitigation, to have likely significant effects on the features of European sites is agreed.

**Mitigation Measures**

4.1.20 Mitigation measures are discussed within Chapter 11 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’.

**Avoidance of direct or Indirect Physical Damage to designated features**

4.1.21 Natural England considered that the proposed pipelines and cabling routes lying underneath the Wyre Estuary have the potential to affect European site features. Natural England therefore sought clarification of the approach to river crossings, including electrical crossings, under the Wyre Estuary.

4.1.22 Hyder has confirmed that for both the north and south river crossings, pipelines and cables will be installed using directional drilling to avoid disturbance of European site habitats.

4.1.23 It is agreed that the proposed methods of working (including directional drilling, and location of drilling sites and construction activities) will adequately avoid damage to designated habitats. It is agreed that DCO Requirements will need to stipulate these methods to ensure that the Project does not lead to likely significant effect on the European site features materialising. An appropriate DCO Requirement will be drafted.

**Avoidance of Bird Disturbance**

4.1.24 Information provided by Hyder (‘Responses to Natural England’, Appendix A of this SoCG) has clarified the extent to which elements of the Project will disturb qualifying bird species of the European sites when roosting and feeding.
Avoidance of disturbance from wellhead compounds

4.1.26 Hyder has confirmed (refer to Appendix A of this SoCG) that:

- All wellhead compounds (not just those identified in the ‘Information to Support a Habitats Regulations Assessment - Morecambe Bay SPA and Ramsar’) will be screened to reduce disturbance to roosting and feeding birds within the designated sites and pink-footed geese using functionally linked land.
- All wellhead compounds will be prepared and screened during the summer months (May to August) to avoid disturbance to wintering and passage birds.
- Drilling at each wellhead compound would occur sequentially to limit disturbance to one wellhead compound at any one time.

4.1.28 The information on field usage by pink-footed geese (‘Responses to Natural England’, Appendix A of this SoCG) has clarified the need for replacement foraging areas. It is agreed that disturbance of pink-footed geese using the DCO Application site and other farmland could be adequately mitigated by management of nearby farmland (within Halite Energy Group Limited’s control) to provide additional feeding habitat (when combined with the mitigation measures above).

Avoidance of disturbance from river crossings

4.1.29 Hyder clarified that for both river crossings, pipelines and cables will be installed during the summer months (May to August) when wintering birds are not present. Excavation and drilling will be confined to May to July when passage birds are not present. Natural England welcomes this approach.

Avoidance of disturbance from the booster pump station

4.1.30 The Booster Pump Station lies within 200m of key feeding and roosting areas for some qualifying bird species. Hyder has confirmed that screening will be erected during the summer months (May to August) before construction of the Booster Pump Station commences.

4.1.31 With consideration together of the ‘Information to Support a Habitats Regulations Assessment - Morecambe Bay SPA and Ramsar’ and the ‘Responses to Natural England’ (Appendix A of this SoCG), including additional mitigation measures, it is agreed that careful planning of the timing, phasing and screening of construction (as described above) together with the proposed management of nearby farmland (within Halite Energy Group Limited’s control) to provide additional feeding habitat for pink-footed geese, could provide adequate mitigation for disturbance of foraging pink-footed geese.

4.1.32 It is agreed that these avoidance and mitigation measures will need to be ensured through DCO Requirements and delivery of the LEMSP to ensure the Project has no likely significant effect on European features. Appropriate DCO Requirements will be drafted.
In-combination Effects

4.1.33 Chapter 10 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ presents the assessment of in-combination effects.

4.1.34 The assessment of in-combination effects is agreed.

Conclusion

4.1.35 The conclusions are summarised within Chapter 13 of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’.

4.1.36 It is agreed that the mitigation measures, as supplemented by the proposals set out above, are appropriate and adequate. With consideration of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ and the ‘Responses to Natural England’ (Appendix A of this SoCG) collectively, the conclusions of the assessment are agreed.

4.1.37 Subject to the finalisation of the LEMSP and the proposed DCO Requirements as described above to ensure delivery of agreed avoidance and mitigation measures, it is agreed that that there will be no likely significant effect upon on the ornithological interest features of the European sites. Natural England is therefore satisfied with the conclusions of the ‘Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ that no Appropriate Assessment is required.
5 LANDSCAPE AND ECOLOGICAL MANAGEMENT STRATEGY PLAN

5.1 Accepted Data

5.1.1 The LEMSP has been submitted as part of the DCO Application. The principles underlying the LEMSP have been agreed.

5.1.2 Since the DCO Application was submitted, further discussions with Natural England on the LEMSP have taken place. Following the conclusion of these discussions, a slightly modified LEMSP has been produced. This is presented in the SoCG between Hyder (on behalf of Halite Energy Group Limited) and Natural England on the topic of the Landscape and Ecological Management Strategy Plan.
6 DCO REQUIREMENTS

6.1.1 Natural England and Halite Energy Group Limited agree that in order to conclude no likely significant effect of the Project on the features of the European sites, it is necessary to ensure not only that proposed measures to avoid or mitigate impacts are appropriate in scale and nature, but also that their delivery can be guaranteed. Appropriate DCO Requirements, as described in this SoCG, will therefore be required to ensure that necessary mitigation is delivered. Natural England and Halite Energy Group Limited will jointly review the wording of the draft DCO Requirements to advise the Examining Authority of the adequacy of, or need for revision of, draft DCO Requirements in advance of the Issue Specific Hearing relating to the DCO fixed for 24 July 2012. Both parties have discussed and agreed the principle of such requirements.
7 DATA NOT ACCEPTED

7.1.1 There are no elements of the documents identified within Section 1.1.5 of this SoCG that are not agreed.
STATEMENT OF COMMON GROUND

This Statement of Common Ground on the topic of Ecology and Habitats Regulations Assessment has been prepared by Hyder Consulting (UK) Limited, on behalf of Halite Energy Group Limited, and agreed by Natural England.

Signed:  
David Hoare  
on behalf of Hyder Consulting (UK) Limited  
Date: 23 May 2012

Signed:  
Chris Edwards  
Land Use Principal Advisor  
on behalf of Natural England  
Date: 23 May 2012
Appendix A

Responses to Natural England
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1 Introduction

1.1.1 This information has been provided in response to matters raised by Natural England concerning a draft version of the shadow Habitats Regulations Assessment (HRA) report subsequently entitled 'Information to Support a Habitats Regulations Assessment – Morecambe Bay SPA and Ramsar’ and submitted as part of Halite Energy Group Limited’s (Halite) application for a Development Consent Order ("the Application") (Application Document Reference 3.3). It was agreed with Natural England that Halite could provide this further information following submission of the Application.

1.1.2 Following submission of the Application to the Infrastructure Planning Commission (IPC), dialogue has continued with Natural England. Information requested by Natural England is presented within this document.

1.1.3 The document should be read in conjunction with the shadow HRA (Application Document Reference 3.3). The section numbers and paragraph references referred to in this report relate to sections and paragraphs in the shadow HRA (hereafter referred to as the ‘main report’), unless otherwise stated.
2 Clarification Text for Section 3.2: Key Stages of the Project

2.1.1 It should be noted that the boats and vessel activities referred to in Paragraphs 3.2.12, 3.2.14, and 3.2.15 of the main report would occur within the Irish Sea and not within the Wyre Estuary. It is not anticipated that these activities would have any effect on Morecambe Bay Special Protection Area (SPA) and Ramsar (hereafter referred to as the ‘European site’) or its qualifying interest features. The boats would be located in the Irish Sea several kilometres from the European site.

2.1.2 As indicated in Paragraph 3.2.9 of the main report, the pipelines that cross beneath the River Wyre/Wyre Estuary for the north and south river crossings would be installed in the summer months (May to August) to ensure that there is no adverse effect on the birds for which the European site has been designated. Given that the works would take approximately four months to complete, it would not be possible to avoid undertaking works in August. However, the works that would cause greatest disturbance to birds, which include excavation and drilling, would take place in the period May to July when birds would have left for their breeding grounds. The potential disturbance in August would be more limited in nature since they would largely comprise the habitat reinstatement.

2.1.3 Screens would be used around particular elements of the Project, including the river crossings, wellhead compounds, and Booster Pump Station, as part of the design. These screens would have a variety of applications. They would be used to screen construction activities prior to the construction of permanent bunds and to provide both a noise and visual screen for both local residents and the bird species for which the European site has been designated. Screens would also be used, where appropriate, around areas closest to the estuary where site personnel would enter and exit plant and vehicles to reduce the visual impact on sensitive bird species.

3 Information for Section 3.3: Project Programme

3.1.1 Currently it is proposed to undertake and complete the following works in the summer months (May to August) to avoid adverse effects on wintering birds and birds on passage:

1. The north river crossing under the River Wyre/Wyre Estuary (where the brine pipeline and sea water pipe would be located)
2. The south river crossing under the River Wyre/Wyre Estuary (where the electrical cable would be located)
3. Preparation of all wellhead compounds and associated screens in advance of drilling (i.e. topsoil stripping and preparation of drilling platform)
4. Installation of the section of NTS Interconnector Pipeline that passes through the two Biological Heritage Sites (BHS) that are known to be of value to feeding pink-footed geese (known as Eagland Hill BHS and Pilling Moss: Head Dyke BHS)
5. Installation of the electrical cabling on the eastern side of the River Wyre/Wyre Estuary, close to Burrows Marsh

3.1.2 It should be noted that although it is not ideal for works to take place during August, since there is the potential to affect birds during the autumn passage period, it is considered preferable to commence those works likely to cause the most disturbance to birds in May, when birds will have left for their breeding grounds, rather than to commence them in April when birds could still be present. The drilling works associated with items 1 and 2 above would take place at a time when birds for which the European site is designated would not be present.

4 Clarification Text for Section 3.5: Waste Products

4.1.1 As indicated in Paragraph 3.5.8 of the main report, it is anticipated that topsoil rock and earth would be used to create bunds and for landscaping purposes. In addition, as noted in Paragraph 3.5.6, it is anticipated that these bunds would be supplemented with excess material generated during drilling. Thus, it is not anticipated that there would be a shortage of material to form the bunds.

4.1.2 The bunds have been provided to reduce the effects of the Project on the landscape and to provide a noise and visual screen during construction. It should be noted that their purpose is not to dispose of unwanted or excess material. Meetings have been held between Hyder’s landscape team, the RSPB, Environment Agency, Natural England, Lancashire County Council, Wyre Borough Council, Lancashire Wildlife Trust and tenant farmers to agree the height and formation of the bunds. They have been selected and agreed with the parties above to ensure they provide a visual screen for each element of the Project that they encompass. The bunds would be at least 2.3 m in height to screen the wellhead compounds; and would be higher adjacent to the Gas Compressor Compound. The height of the bunds has been lowered (as far as possible) to reduce landscape and visual impacts, without reducing their ability to adequately form noise and visual barriers.

5 Information for Section 4: Characteristics of the European Site

5.1.1 The European site is a large site that comprises six separate Sites of Special Scientific Interest (SSSI) as identified in Table 4.1 in the main report (See Table 4.1 located below Paragraph 4.5.6). The closest SSSI to the Project is the Wyre Estuary SSSI. As identified in Paragraph 5.2.4 of the main report, the citation for this SSSI was reviewed. The following information, included within the citation for the Wyre Estuary SSSI, has helped to inform the main report:

a. The Wyre Estuary SSSI is nationally important for wintering and on-passage black-tailed godwit and wintering turnstone
b. The Wyre is also a hard weather roost for teal. Large numbers of lapwing and golden plover roost on the site at low tide
c. The major high tide roost is at Arm Hill with smaller roosts at Stanah, Burrows Marsh, Barnaby’s Sands, and Knott End Skears. These roosts
(with the notable exception of Knott End Skears) are in close proximity to the Project (Note: Figure 3 in Annex B has been amended to show the approximate location of roost sites).

6 Clarification Text for Section 5.2: Collation of Baseline Information

6.1.1 As identified in Section 5.2 of the main report, the assessment has been based on data from a variety of sources, including data from Fylde Bird Club and a tenant farmer (See Paragraphs 5.2.3 and 5.2.5). Following submission of the main report, further information has been obtained from Fylde Bird Club, including maps illustrating the locations of main roosting and feeding areas used by the qualifying species of the European site (see Figures 5A to 5P in Annex B). Primary roosting and feeding areas are also identified in bold outline, where applicable. These are described in more detail for each species below.

7 Information for Section 7.3: Qualifying Features of Morecambe Bay SPA and Ramsar Site

7.1 Figures and Plans

7.1.1 Figures 5A to 5P in Annex B illustrate the location of the main roosts and feeding areas for bird species that are the qualifying interest features of the European site, including additional species requested by Natural England. Primary roosting and/or nesting sites are also outlined in bold. Only those species which have been recorded in significant numbers have been mapped. These plans are based on information collected during targeted surveys and on information supplied by Natural England, Fylde Bird Club, and a tenant farmer. This information has been overlaid on a plan that shows the different elements of the Project and their potential disturbance zones. Additional text to accompany the maps is described in Appendix A at the end of this document.

7.2 Note regarding Fleetwood Dock and Tiger’s Tail

7.2.1 Several of the species accounts that have been provided in the main report make reference to species present at Fleetwood Dock; however, the Dock itself is of limited value to wildfowl and waders. Indeed the majority of bird species recorded at Fleetwood Dock use the sandbank adjacent to the entrance of the Dock known locally as Tiger’s Tail. The location of Tiger’s Tail is shown on Figure 3, as amended and presented in Annex B.

7.3 Text for bird species described in Section 7.3

7.3.1 Additional text and tables of data have been provided for Section 7.3 as a result of the information provided by Fylde Bird Club. This is presented in Appendix A of this report.
7.4 Information for Section 7.4: Screening of Bird Species

7.4.1 Table 1 below lists the European site species, whether they are designated for their wintering and/or on passage population, and whether it has been determined from the Screening exercise described in Section 7.3 of the main report (as supplemented and clarified by Appendix A of this document) if they are present in significant numbers. The percentages of the Morecambe Bay population are also provided where significant numbers have been recorded.

<table>
<thead>
<tr>
<th>Species</th>
<th>Present within the European Site</th>
<th>Potential for Significant Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overwinter</td>
<td>On passage</td>
</tr>
<tr>
<td>Little tern</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Sandwich tern</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Herring gull</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Lesser black-backed gull</td>
<td>×</td>
<td>✓</td>
</tr>
<tr>
<td>Bar-tailed godwit</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>Golden plover</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>Curlew</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>winter: 3.7% ¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>autumn: 1.42%², 1.1%³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dunlin</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>Grey plover</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Knot</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>8.16%², 3.74%³, 1.19%⁴</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ 2003 survey data
² Fylde Bird Club data
³ WeBS data: Wyre Estuary (Arm Hill count zone 2005/2006 to 2009/2010)
⁴ 2008/2009 survey data
<table>
<thead>
<tr>
<th>Species</th>
<th>Present within the European Site</th>
<th>Potential for Significant Effects</th>
<th>Works on eastern side of River Wyre</th>
<th>Works on western side of River Wyre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overwinter</td>
<td>On passage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oystercatcher</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>winter: 7.99%(^5), 5.87%(^6), 1.16%(^7)</td>
<td>autumn: 7.1%(^1), 5.4%(^2)</td>
</tr>
<tr>
<td>Pink-footed geese</td>
<td>✔</td>
<td>❌</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Up to 161%(^3) (in functionally-linked land)</td>
<td>Up to 161%(^1) (in functionally-linked land)</td>
</tr>
<tr>
<td>Pintail</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Redshank</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>winter: 6.5%(^2)</td>
<td>spring: 13%(^2), 3.5%(^3)</td>
</tr>
<tr>
<td>Shelduck</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Turnstone</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>winter: 3.35%(^1)</td>
<td>spring: 1.17%(^2)</td>
</tr>
<tr>
<td>Great crested grebe</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Wigeon</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Goldeneye</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>up to 5.6%(^1)</td>
<td></td>
</tr>
<tr>
<td>Red-breasted merganser</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Lapwing</td>
<td>✔</td>
<td>❌</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7.28%(^1), 4.78%(^2), 2.12%(^3)</td>
<td>up to 4.58%(^1)</td>
</tr>
</tbody>
</table>

\(^5\) Fylde Bird Club data

\(^6\) WeBS data: Wyre Estuary (Arm Hill count zone 2005/2006 to 2009/2010)

\(^7\) 2008/2009 survey data
Table 1: Summary of European site bird species

<table>
<thead>
<tr>
<th>Species</th>
<th>Present within the European Site</th>
<th>Potential for Significant Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overwinter</td>
<td>On passage</td>
</tr>
<tr>
<td>Ringed plover</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanderling</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Cormorant</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Eider</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Waterfowl assemblage</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teal</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-tailed godwit</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.4.2 As identified in Section 7.3 of the main report, the European site is also of value for breeding populations of little tern, sandwich tern, herring gull and lesser black-backed gull. There are no known nest sites for these species in proximity to the Project and it was on this basis that effects on these species were screened out of the assessment (see paragraphs 7.3.1 to 7.3.22 of the main report for further details).

[^8]: Fylde Bird Club data
[^9]: WeBS data: Wyre Estuary (Arm Hill count zone 2005/2006 to 2009/2010)
[^10]: 2008/2009 survey data
8 Information for Section 8.1: Approach to Determining Significance on Qualifying Bird Species

8.1 Clarification text regarding the treatment of vehicle movements in the assessment

8.1.1 No vehicle movements would take place within the European site. The effects of emissions from vehicles during construction and operation are discussed in Paragraph 8.2.4 of the main report. The disturbance effects associated with these vehicles is considered as part of the effect of each individual element of the Project that has either been screened out of the assessment in Section 8.2 of the main report or screened into the assessment of effects on pink-footed geese in Section 9 of the main report.

8.2 Clarification text regarding species carried forward to the assessment in Section 8

8.2.1 The disturbance distance that has been used for all wader and wildfowl species described in Section 7.3 of the main report (with the exception of pink-footed geese) is 200 m. The disturbance distance used for pink-footed geese is 500 m. These distances have been based on literature published by Anon. (2009), Cutts & Allen (1999), Cutts et al. (2009), Liley et al. (2011), and Madsen (1985). It should be noted that these disturbance distances are based on the views of birds not being obscured. Madsen (1985) found that pink-footed geese would forage within 150 m of a windbreak that obscured the view of the geese from the source of disturbance, provided that their view in other directions was not obscured.

8.2.2 Following the screening of European site species on the presence or absence of significant numbers in Section 7.3 of the main report, it has also been possible to screen out selected species on the basis of the distance from the Project to their main feeding and/or roosting sites, and also those species which feed within a wide area within the River Wyre/Wyre Estuary, such that disturbance in one small area would not be considered to lead to a potentially significant effect on that European site species.

8.2.3 Those wintering and on passage species screened out on the basis of an absence of significant numbers in the vicinity of the Project include:

- Bar-tailed godwit
- Dunlin
- Eider
- Grey plover
- Golden plover
- Lesser black-backed gull
- Pintail
- Sanderling

8.2.4 Those species screened out on the basis of distance between the Project and the main feeding and roosting sites include wintering and on passage shelduck and wintering wigeon. Wintering great crested grebe and red-breasted merganser (on the eastern side of the estuary) were also screened out as they both forage over a wide area within the estuary, together with cormorant on passage.

8.3 Clarification Text and Information for Section 8.1.4: Determining Noise Thresholds for Wildfowl/Waders

8.3.1 The noise assessment of the Environmental Impact Assessment (EIA) for the Project (Application Document Reference 5.1) presents a worst-case scenario by assuming a high percentage of on-time for construction plant and a free-field for the propagation of noise across hard ground (See Document 5.1 of the DCO Application: Volume 1A of the ES, Chapter 12: Noise and Vibration, Paragraph 12.10.2). No mitigation has been assumed to be in place as part of the assessment presented in the EIA (See Document 5.1 of the DCO Application: Volume 1A of the ES, Chapter 12: Noise and Vibration, Paragraph 12.7.1). With mitigation it is assumed a 10 dB reduction can be achieved (See Document 5.1 of the DCO Application: Volume 1A of the ES, Chapter 12: Noise and Vibration, Paragraph 12.7.206). All noise levels in the EIA are predicted as $L_{Aeq}$ levels, in accordance with best practice guidance BS 5228. The BS 5228 database, on which noise levels for different items of plant are predicted, presents the data as a $L_{Aeq}$ at 10 m. This is used for consistency in assessments and as most plant will operate at a fairly continuous rate. It is not possible to predict $L_{Amax}$ levels not only because the BS 5228 database presents noise levels for items of plant as a $L_{Aeq}$ at 10 m, but also as construction noise levels are known to fluctuate with any variation in the level of activity or the items of plant being used simultaneously. It is therefore not possible to account for every peak in noise level in the assessment, hence the use of $L_{Aeq}$.

8.3.2 For the purposes of the main report, a worst-case scenario is also assumed through the use of the loudest predicted $L_{Aeq}$ for each element of the Project in the assessment, regardless as to whether that element is predicted to occur for a short period of time or throughout the construction period for that particular element. As described above, the noise levels presented are also based on the worst-case scenario of plant running for a high proportion of the time, with no mitigation, and on hard ground where sound carries further.

8.3.3 For most activities associated with each element of the Project, noise is predicted to be generated continuously, rather than as sudden, loud noise. However, it is acknowledged that activities involving piling (which includes coffer dam installation at the wellhead compounds and the drilling of the compounds and river crossings) could generate sudden loud noise which could have a maximum noise greater than the predicted $L_{Aeq}$. However, it was noted from noise monitoring undertaken on the eastern side of the River Wyre/Wyre Estuary that noise generated from the western side of the estuary already
exceeds 70 dB L\text{Amax}, and that the birds present continued to feed during periods of noise greater than 70 dB L\text{Amax} with no observed changes to their behaviour. Therefore, the birds foraging and roosting within the European site are not disturbed by noise levels greater than 70 dB L\text{Amax} at present. It is considered that the physical presence of the works and associated site personnel is more likely to disturb birds than noise levels, given the low-level of construction activity that currently takes place on the eastern side of the River Wyre/Wyre Estuary.

8.3.4 As described above, the noise levels on the eastern side of the River Wyre/Wyre Estuary are already considerably high, as a result of the noise generated by the landfill and ICI plant (See Document 5.1 of the DCO Application: Volume 1A of the ES, Chapter 12: Noise and Vibration, Paragraph 12.4.5). Maximum noise levels experienced at the Heads on the eastern side of the Wyre Estuary during monitoring undertaken in January 2011 were 78 L\text{Amax} in the day (between 07:00 and 23:00) and 69.9 L\text{Amax} at night (between 23:00 and 07:00). Maximum noise levels experienced at Arm Hill were 77.8 L\text{Amax} in the day (between 07:00 and 23:00) and 66.7 L\text{Amax} at night (between 23:00 and 07:00). As the source of the noise was reported to predominantly be generated from the western side of the Wyre Estuary (See Document 5.1 of the DCO Application: Volume 1A of the ES, Chapter 12: Noise and Vibration, Paragraph 12.4.5, and Document 5.2 of the DCO Application: Volume 2B of the ES, Technical Appendix 9.12: Breeding and Wintering Bird Surveys), maximum noise levels on the western side of the Wyre Estuary, close to the noise source, are therefore significantly greater than the readings obtained on the eastern side of the Wyre Estuary (and significantly greater than 70 dB (L\text{Amax})). It was noted during the bird monitoring exercise, noise from the western side of the Estuary (including hammering and bird scarers), generated noise louder than 70 dB (L\text{Amax}) on the eastern side of the Estuary and these noise levels did not result in disturbance to birds (Document 5.2 of the DCO Application: Volume 2B of the ES, Technical Appendix 9.12: Breeding and Wintering Bird Surveys, Annex D).

8.3.5 In addition, studies described by Cutts et al. (2008) reported that birds in the Humber Estuary were in general, observed to accept a wide range of steady state noise levels from 55 dB to 85 dB L\text{A}. Birds were also observed continuing to feed as normal during periods of constant piling when a piling rig was situated adjacent to the seawall at the Humber Estuary. When the rig was moved to the seaward side of the seawall, birds continued to feed at a distance of approximately 200 m from the piling activity.

9 Clarification Text and Information for Section 8.2: Elements of the Project Screened out of the Assessment

9.1.1 Note: Any corrections to text are presented in the body of the text below in bold.
Gas Storage Caverns

Construction of the Seawater Pump Station (Paragraphs 8.2.12 to 8.2.13)

9.1.2 Incorrect reference: Document 5.1 of the DCO Application: Volume 1A of the ES Chapter 12: Noise and Vibration, Table 12-47. Correct reference should be Table 12-21.

9.1.3 The sound level pressure (Lp) (expressed as $L_{Aeq}$, i.e. the loudest average noise level) generated during construction of the Seawater Pump Station and associated infrastructure is predicted to be 75.8 Lp at a distance of 50 m from the source of noise (i.e. during the building of compounds, access roads, temporary offices and utilities). With mitigation, this is predicted to reduce to 65.8 Lp at a distance of 50 m.

9.1.4 The Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS is located approximately 80 m south/south-west of the Seawater Pump Station and associated infrastructure. Only three species of the European site have been recorded in significant numbers at the Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS (on the basis of peak counts within the Fylde Bird Club data): feeding goldeneye, teal, and lapwing in winter. Fylde Bird Club has subsequently advised that the Nature Reserve is not considered to be a primary roosting or feeding area for any these species. They do acknowledge that goldeneye use the pools in the area, including the Nature Reserve; however, they consider that they are only present in small numbers and therefore no map was provided for this species. In addition, the records of lapwing at this location are considered unlikely to refer to the pools closest to the Seawater Pump Station, but more likely to be records from Fleetwood Marsh beyond the pools on the western side of the estuary (which is considered to be the main feeding areas for these species. See Figure 5L in Annex B). Lapwing at Fleetwood Marsh would more be located 360 m from the Seawater Pump Station. Teal are also recorded predominantly using Fleetwood Marsh, with only low numbers recorded on average at the Nature Reserve (See Figure 5O in Annex B).

9.1.5 Mitigated noise levels at the closest point of the Nature Reserve are predicted to be slightly less than 65.8 Lp at a distance of 80 m (to the boundary of the Nature Reserve). In addition to the screening proposed for the Seawater Pump Station, there is an existing road associated with the Fleetwood Harbour Village development (currently used by residents and construction traffic associated with the development), a belt of existing reed and scrub to the north and north-west of the Nature Reserve which also provides some additional screening from the Docks area, and screen planting for the Fleetwood Harbour Village development between their development and the Nature Reserve. With this screening, it is considered that the Nature Reserve would remain undisturbed by the construction of the Seawater Pump Station, and thus have no significant effects on bird species (in particular goldeneye) associated with the European site.
Electrical Infrastructure

Installation of the electrical cable on the western side of the River Wyre (Paragraphs 8.2.26 to 8.2.27)

9.1.6 Approximately 300 m of electrical cable would be laid on the western side of the River Wyre/Wyre Estuary in land that is within 200 m areas of mudflat and saltmarsh used by wintering and on passage curlew and redshank, and wintering lapwing and teal for feeding (as illustrated on Figures 5A, 5F, 5L and 5O, respectively in Annex B). These works would be screened by scrub vegetation on the river bank. The coast path on the top of the river banks located within this area is also in regular use and the species that use the mudflats and saltmarsh appear to be habituated to this disturbance.

9.1.7 Given that these species are habituated to disturbance on the river bank, the short-term nature of the works, and the fact that the works would be screened from the birds by existing scrub vegetation, it is considered that the installation of 300 m of electrical cable would not have a significant effect on these feeding species. The remainder of the cabling works would be further from the mudflats and saltmarsh and would also be screened from the River Wyre/Wyre Estuary by static caravans associated with the existing caravan park. It has been reported by surveyors that the birds in this area do take flight when disturbed by the jet skiers that make regular use of this part of the estuary. However, no works associated with the Project within the River Wyre/Wyre Estuary (i.e. south river crossing) would take place during the winter months. Overall, it is considered that the installation of the electrical cable on the western side of the River Wyre/Wyre Estuary would not have a significant effect on the species described above feeding on the saltmarsh and mudflats.

Other Associated Infrastructure: Construction

The works at Higher Lickow Farm to provide office accommodation (Paragraph 8.2.28)

9.1.8 Previously, in the main report it was stated that the fields adjacent to Higher Lickow Farm were too small to be used by pink-footed geese. However, data provided by Fylde Bird Club in 2011 has revealed that the fields to the north and west of the farm have been used by feeding geese. Whilst the majority of fields immediately adjoining Higher Lickow Farm have not been used by feeding pink-footed geese, and there is some element of screening of the buildings by surrounding broadleaved trees and hedgerows, it is now considered that should the refurbishment of Higher Lickow farmhouse, the demolition of the smaller barn and the demolition and rebuilding of the larger barn take place during the winter months, there is the potential for disturbance to any pink-footed geese feeding within adjacent fields. It is therefore considered that works at Higher Lickow Farm could have a significant effect on feeding pink-footed geese.

New access road from the A588 to Higher Lickow Farm: Construction and Operation (Paragraph 8.2.30)

9.1.9 Incorrect reference in the main report: Document 5.1 of the DCO Application: Volume 1A of the ES Chapter 12: Noise and Vibration, Table 12.4.7. Correct reference should be Table 12-25 and Paragraph 12.7.76.
9.1.10 Significant numbers of species associated with the European site (excluding pink-footed geese) have not been recorded using this area of the Project, and the road would be over 500 m from the boundary of the European site. Therefore, any birds using the European site would not be affected by its construction. However, data supplied by Fylde Bird Club in 2011 has revealed that pink-footed geese forage within fields that would be affected by the access road from the A588 to Higher Lickow Farm (See Figure 5E in Annex B). Therefore, should the access road be constructed during the winter months, there is the potential to disturb pink-footed geese feeding within these fields. It is therefore considered that construction of the new access road has the potential to result in significant effects on feeding pink-footed geese in winter.

9.1.11 It is considered that once the road is operational, the birds would become habituated to the disturbance caused by traffic during construction and operation, particularly since pink-footed geese have been recorded feeding within the fields close to Fleetwood Farm which are adjacent to the main ‘A’ road the A585 and the ‘B’ road the B5409. During construction, the number of vehicles using the access road would vary throughout Years 1 to 8, although it is predicted that the maximum number of vehicle movements would occur in 2014 (See Document 5.2 of the DCO Application: Volume 1B of the ES, Appendix 16.1, Paragraph 9.1.7). In terms of construction vehicle (HGV) traffic generations, it is estimated that 31 daily HGV movements (one-way) would be generated by the development site at Preesall during the period of maximum construction. This equates to forecast maximum hourly movements of 3 HGVs per hour associated with the Preesall site (See Document 5.2 of the DCO Application: Volume 1B of the ES, Appendix 16.1, Paragraph 9.1.9). By Year 8 there is predicted to be between 6 and 8 personnel present per shift at the operational facility (See Document 5.2 of the DCO Application: Volume 1B of the ES, Appendix 16.1, Paragraph 7.13.1). Consequently, once the access road is completed the traffic generated once the site is operational would not have a significant effect on feeding pink-footed geese or the other qualifying interest features of the European site.

9.1.12 Overall, it is considered that during the construction phase and construction and operation combined phase, vehicle movements on the new access road would have the potential to have a significant effect on feeding pink-footed geese in the winter.

Operation of the Booster Pump Station (Paragraphs 8.2.32 to 8.2.34)

9.1.13 The landscape planting and bunding mentioned in the main report provides a screen between the Booster Pump Station and the fields to the east that are used by feeding pink-footed geese. Landscape planting would also provide a noise and visual screen between the Booster Pump Station and the saltmarsh and mudflats to the south that are used by feeding teal, curlew, and redshank, and roosting oystercatcher, curlew, and redshank. The main feeding and roosting areas for curlew, redshank, and teal are located 200 m from southern boundary of the Booster Pump Station site (See Figures 5A, 5F and 5O, respectively in Annex B). The oystercatcher roost site is 64 m from the southern boundary (See Figure 5D in Annex B).
9.1.14 Despite the proximity to these species, and roosting oystercatcher in particular, noise modelling, undertaken as part of the impact assessment, indicates that noise levels associated with the operation of the facility would be below 40 dB (A) \( L_{Aeq} \) at the closest point of the European site. This noise would be continuous throughout its operation. Baseline levels at Arm Hill from noise monitoring (42.5 dB \( L_{A90} \)) indicate that the bird species present in this area already experience noise levels higher than predicted to occur from the operational facility (See Document 5.1 of the DCO Application: Volume 1A of the ES Chapter 12: Noise and Vibration, Table 12.10, and Figure 14.8 of Volume 2B of the ES). In addition, it is anticipated that only six to eight site personnel would be present at the Preesall site during the operation period, for security and maintenance (See Document 5.2 of the DCO Application: Volume 1B of the ES, Appendix 16.1, Paragraph 7.13.1). Visits to the Booster Pump Station would be infrequent and likely to involve a vehicle rather than walk across the site. The birds that roost and forage within the saltmarsh and mudflats and forage in fields close to the Booster Pump Station would be habituated to the effects of traffic-related disturbance associated with visits to the Wastewater Treatment Works, thus it is not anticipated that the additional traffic generated by occasional visits to the Booster Pump Station would have any effect on the birds using these habitats.

9.1.15 Given the low number of personnel and infrequency of visits to the Booster Pump Station during operation and the landscape planting and bunding screens provided, overall it is considered that the operation of the Booster Pump Station would have no significant effect on the European site or its qualifying interest features.

**Summary (Paragraph 8.2.39)**

9.1.16 Previously, the main report considered that the works at Higher Lickow Farm and the construction of the main access road linking Higher Lickow Farm and the main ‘A’ road (the A588) would not affect the European site or its qualifying interest features. However, data supplied subsequent to the submission of this report has revealed that these Project elements would affect fields that are used by feeding pink-footed geese; therefore, impacts associated with disturbance to feeding pink-footed geese as a result of the works at Higher Lickow Farm and the construction of the new access road will be considered further within this report.

10 Clarification Text and Information for Section 8.3: Elements of the Project which can be Screened out of the Assessment for Certain Qualifying Features of the European Site

**Paragraph 8.3.1**

10.1.1 It should be noted throughout Section 8.3 of the main report, and this report, that the functionally-linked land supports feeding pink-footed geese. It does not support a main roosting area for pink-footed geese.
Construction of the Wellhead Compounds 1, 5, and 7 (Text to follow Paragraphs 8.3.2)

10.1.2 The following text regarding the construction of wellhead compounds 1, 5 and 7 was absent from the main report, although it was described in Section 9.

10.1.3 The preparation of the wellhead compounds, to take place in advance of the drilling of the caverns (i.e. topsoil stripping, platform preparation), would be undertaken in the summer months (between May and August) and therefore it is considered that this element of the Project would have no significant on the roosting and feeding species using the habitats of the European site. There is however, the potential for the physical presence of the wellhead compounds to deter the use of the adjacent fields of the functionally-linked land by significant numbers of feeding pink-footed geese. Therefore, the construction of wellhead compounds 1, 5 and 7 will be carried forward in the detailed assessment in Section 9.

Construction of wellheads 2, 3, 4, and 6 within agricultural land adjacent to the European site (Paragraphs 8.3.3 to 8.3.7)

10.1.4 As stated in the main report wellheads 2, 3, 4 and 6 would be located within 250 m of the European site boundary, and as indicated by Paragraph 8.1.3 of the main report, the disturbance distance for the majority of the qualifying bird species is 200 m. In order to ensure that preparation of the wellhead compounds does not cause disturbance to roosting and foraging birds, all compounds will be prepared in the summer months (between May and August) and therefore it is considered that this element of the Project would have no significant effect on the roosting and feeding species using the habitats of the European site. There is, however, the potential for the physical presence of the wellhead compounds to deter the use of the adjacent fields of the functionally-linked land by significant numbers of feeding pink-footed geese. Therefore, the construction of wellhead compounds 2, 3, 4 and 6 has been carried forward in the detailed assessment in Section 9.

Drilling of the caverns under the European site and agricultural land adjacent to the European site, from wellheads (Paragraphs 8.3.8 to 8.3.10)

10.1.5 In order to determine (more specifically than in the main report) whether there is the potential for noise and visual disturbance associated with drilling the caverns to have a significant effect on the qualifying interest features of the European site, the distance between the wellhead compounds and the known main roosting and feeding areas for each species (excluding pink-footed geese) has been calculated. These distances have been presented in Table 2 for wellheads 1, 5 and 7 and Table 3 for wellheads 2, 3, 4 and 6. They are also shown on Figures 5A to 5P in Annex B. The disturbance distances for these species is considered to be 200 m (See Paragraph 8.1.3 in the main report). Consequently, where a roosting or feeding area is more than 200 m from the wellhead (or more than 500 m for roosting or feeding pink-footed geese) it is considered unlikely that the particular species would be affected by the drilling.
Those species within 200 m (and within 500 m for pink-footed geese) have been highlighted in bold in the tables below.
<table>
<thead>
<tr>
<th>Wellhead Compound</th>
<th>Curlew (wintering and on autumn passage)</th>
<th>Dunlin (wintering)</th>
<th>Knot (wintering)</th>
<th>Oystercatcher (wintering and on autumn passage)</th>
<th>Redshank (wintering and on spring &amp; autumn passage)</th>
<th>Turnstone (wintering and on spring &amp; autumn passage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;200 m to nearest feeding area (primary feeding area)</td>
<td>&lt;200 m to nearest feeding area</td>
<td>Over 1 km to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area (primary roosting site)</td>
<td>200 m to nearest feeding area</td>
</tr>
<tr>
<td></td>
<td>&gt;200 m to nearest roosting (primary) site</td>
<td>&gt;200 m to nearest roosting site</td>
<td>&lt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest roost</td>
</tr>
<tr>
<td>5</td>
<td>&lt;200 m to nearest feeding area (primary feeding area)</td>
<td>&gt;200 m to nearest feeding area</td>
<td>Over 1 km to nearest feeding area</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area (primary roosting site)</td>
<td>&gt;200 m to nearest feeding area</td>
</tr>
<tr>
<td></td>
<td>&lt;200 m to nearest roosting (primary) site</td>
<td>&gt;200 m to nearest roosting site</td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest roost</td>
</tr>
<tr>
<td>7</td>
<td>&lt;200 m to nearest feeding area (primary feeding area)</td>
<td>&gt;200 m to nearest feeding area</td>
<td>Over 1 km to nearest feeding area</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area (primary roosting site)</td>
<td>Over 1 km to nearest feeding area</td>
</tr>
<tr>
<td></td>
<td>&gt;200 m to nearest roosting (primary) site</td>
<td>&gt;200 m to nearest roosting site</td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest roost</td>
</tr>
<tr>
<td>Wellhead Compound</td>
<td>Lapwing (wintering)</td>
<td>Ringed plover (on spring &amp; autumn passage)</td>
<td>Teal (wintering)</td>
<td>Black-tailed godwit (wintering)</td>
<td>Pink-footed geese (wintering)</td>
<td></td>
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<td>-------------------</td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>&gt;200 m to nearest (primary) feeding area</td>
<td>&lt;200 m to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area</td>
<td>Over 1 km to primary feeding area</td>
<td>&lt;500 m to nearest feeding area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;200 m to nearest (primary) roosting site</td>
<td>&gt;200 m to nearest roosting area</td>
<td>&gt;200 m to nearest roost</td>
<td>&lt;200 m to nearest roost site</td>
<td>&gt;500 m to roosting area</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Over 1 km to nearest (primary) feeding area (Secondary feeding habitats closer but does not support significant numbers of birds)</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area</td>
<td>1 km to primary feeding area</td>
<td>&lt;500 m to nearest feeding area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&lt;200 m to the nearest roosting area</td>
<td>&gt;200 m to nearest roost</td>
<td>&lt;200 m to primary roosting site</td>
<td>440 m to roosting site</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>&gt;200 m to main feeding site (Secondary feeding habitats closer but does not support significant numbers of birds)</td>
<td>&gt;200 m to nearest feeding area</td>
<td>&lt;200 m to nearest feeding area</td>
<td>1 km to primary feeding area</td>
<td>&lt;500 m to nearest feeding area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 1 km to main feeding area</td>
<td>&gt;200 m to nearest roosting area</td>
<td>&gt;200 m to nearest roost</td>
<td>&gt;200 m to nearest (primary) roosting site</td>
<td>&gt;500 m to roosting area</td>
<td></td>
</tr>
<tr>
<td>Wellhead compound</td>
<td>Curlew (wintering and on autumn passage)</td>
<td>Knot (wintering)</td>
<td>Oystercatcher (wintering and on autumn passage)</td>
<td>Redshank (wintering and on spring &amp; autumn passage)</td>
<td>Turnstone (wintering and on spring &amp; autumn passage)</td>
<td></td>
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<td>-------------------</td>
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<td>-----------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&lt;200 m to main feeding area &gt;200 m to main roosting site</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&lt;200 m to main feeding area &gt;200 m to main roosting site</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>&lt;200 m to main feeding area &gt;200 m to main roosting site</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&gt;200 m to main feeding and roosting sites</td>
<td>&lt;200 m to main feeding area &gt;200 m to main roosting site</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td></td>
</tr>
<tr>
<td>Wellhead Compound</td>
<td>Lapwing (wintering)</td>
<td>Ringed plover (on spring &amp; autumn passage)</td>
<td>Teal (wintering)</td>
<td>Black-tailed godwit (wintering)</td>
<td>Pink-footed geese (wintering)</td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&lt;500 m to feeding areas &gt;500 m to roosting area</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&lt;500 m to feeding areas &gt;500 m to roosting area</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&lt;500 m to feeding areas &gt;500 m to roosting area</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&lt;200 m to feeding area &gt;200 m to roosting site</td>
<td>&gt;200 m to feeding and roosting sites</td>
<td>&lt;500 m to feeding areas &gt;500 m to roosting area</td>
<td></td>
</tr>
</tbody>
</table>
The information presented in Table 2 above reveals that drilling of caverns associated with wellhead compounds 1, 5 and 7 would have the potential to affect the following bird species:

**Wellhead Compound 1**
- Curlew: feeding (wintering & autumn passage)
- Dunlin: feeding (wintering)
- Oystercatcher: feeding and roosting (wintering & autumn passage)
- Knot: roosting (wintering)
- Redshank: feeding (wintering & spring & autumn passage)
- Turnstone: feeding (wintering & spring & autumn passage)
- Lapwing: roosting (wintering)
- Ringed plover: feeding (spring & autumn passage)
- Teal: feeding (wintering)
- Black-tailed godwit: roosting (wintering)
- Pink-footed geese: feeding (wintering)

**Wellhead Compound 5**
- Curlew: feeding and roosting (wintering & autumn passage)
- Redshank: feeding and roosting (wintering & spring & autumn passage)
- Ringed plover: roosting (spring & autumn passage)
- Teal: feeding (wintering)
- Black-tailed godwit: roosting (wintering)
- Pink-footed geese: feeding and roosting (wintering)

**Wellhead Compound 7**
- Curlew: feeding (wintering & autumn passage)
- Redshank: feeding (wintering & spring & autumn passage)
- Teal: feeding (wintering)
- Pink-footed geese: feeding (wintering)
10.1.7 Table 3 above illustrates that wellhead compounds 2 and 3 are sufficiently distant from all known roost sites and feeding areas that drilling at these wellhead compounds would have no significant effect on birds using the European site. (with the exception of pink-footed geese which are known to use the functionally-linked farmland). However, wellheads 4 and 6 are sufficiently close to roosting and/or feeding areas that are used by wintering and/or on passage curlew and redshank, and wintering teal.

10.1.8 Wellhead compounds 4 and 6 are within 200 m of saltmarsh used by feeding curlew, redshank and teal (See Potential Disturbance Zones shown on Figures 5A, 5F and 5O, respectively in Annex B). The area of feeding habitat for curlew and redshank which may be disturbed by the drilling within wellhead compounds 4 and 6 (i.e. within 200 m of these wellhead compounds) is very small compared to the size of the main feeding areas used by these species. Nevertheless, in order to avoid any adverse effects on feeding curlew, redshank and teal during the winter and passage periods, screening has been included as part of their design and would be installed around wellhead compounds 4 and 6 prior to their preparation and drilling to avoid the potential to cause visual disturbance to these feeding species.

10.1.9 Each wellhead would be drilled sequentially therefore disturbance would only derive from one wellhead at any one time. For example, whilst drilling takes place at wellhead compound 1, there would be no drilling works at the remaining 6 wellhead compounds. As stated in Paragraph 8.3.9 of the main report, all vehicle movements and movements of site personnel within the wellhead compounds would be screened and therefore the presence of site personnel (which is generally considered to be the greatest cause of disturbance to waders and wildfowl) would be screened from view. In addition, the access routes to each wellhead pad have been orientated so that the wellhead bunds would screen the routes from the saltmarsh and mudflats at the point where the vehicles are slowing down and/or stopping before entering the wellhead compound. The sections of access track that would be visible from the saltmarsh and mudflats would only be used by moving vehicles. Birds using the saltmarsh and mudflats would be habituated to vehicle movements associated with farm machinery, and are generally considered to habituate to vehicles and plant (Cutts & Allen (1999)); therefore, it is considered that vehicle movements along the access tracks would not significantly affect birds roosting and feeding on the saltmarsh and mudflats.

10.1.10 Although the drilling rig would be taller than the screening to be provided, the rig would appear static when viewed from beyond the wellhead area and not represent a source of visual disturbance that would affect roosting or feeding birds. Overall, although the drilling would take place within 200 m of areas known to be of value to roosting and feeding birds, it is considered that these works would not lead to visual disturbance, and therefore have no significant effect on birds using the habitats within the European site.

10.1.11 As stated in the main report the noise generated by the drilling would be less than 70 Lp at 50 m. All roosting and feeding areas used by the birds associated with the European site (with the exception of pink-footed geese) are located 50 m or more from the wellhead areas. For these elements, the installation of the
coffer dams that are sunk into the wellhead compounds is predicted to generate the loudest noise. However, these coffer dams would be sunk into the wellhead compound and therefore be visually screened by the bunding. The sinking of the drilling pad would also help to further reduce noise levels. Once initiated, the drilling and installation of coffer dams would be a continuous activity, and therefore it is anticipated that birds within the European site would habituate to the drilling and piling activity at the wellhead compounds. Two studies described by Cutts et al. (2008) have reported that birds in the Humber Estuary were in general, observed to accept a wide range of steady state noise levels from 55 dB to 85 dB. In addition, constant piling operations undertaken for the South Humber Power Station did not initiate any behavioural response in birds using the mudflats at low tide, when the piling rig was located on the landward side of the sea wall, and where construction activity moved to the seaward side of the seawall, birds only moved off a small distance (Cutts et al., 2008) before continuing to feed within 200 m of the active piling rig.

10.1.12 Therefore, it is considered that birds using the European site habitats would habituate to noise associated with the drilling and piling at the wellhead compounds closest to the European site boundary, and the screening of the wellhead compounds would ensure that the birds using the habitats of the European site would not be disturbed by the physical presence of plant and site personnel.

10.1.13 However, as described in the main report, the drilling of the wellhead compounds would, however, be located within or near to areas of the functionally-linked fields used by significant numbers of feeding pink-footed geese, and therefore, there is the potential for the drilling of all of the wellhead compounds to result in effects on wintering pink-footed geese whilst feeding in these fields. Therefore, the drilling of wellheads will be carried forward in the assessment (as per the main report).

Construction of the Booster Pump Station (Paragraphs 8.3.11 to 8.3.13)

10.1.14 The disturbance distances for the bird species associated with the saltmarsh and mudflats close to the Booster Pump Station is considered to be 200 m (see Paragraph 8.1.3 in the main report). The following feeding and roosting sites have been recorded within 200 m of the Booster Pump Station boundary (information has been collected from Figures 5A to 5P in Annex B):

- Curlew: roosting and feeding (wintering & autumn passage)
- Dunlin: feeding (wintering)
- Knot: primary roosting (wintering)
- Oystercatcher: roosting (wintering & autumn passage)
- Redshank: roosting and feeding (wintering & sprung & autumn passage)
- Red breasted merganser: feeding (wintering)
- Lapwing: roosting (wintering)
• Ringed plover: feeding (spring & autumn passage)
• Teal: feeding (wintering)
• Black-tailed godwit: roosting (wintering)
• Pink-footed geese (wintering)

10.1.15 Of these species, the roosting and/or feeding habitat which may be potentially affected (with the exception of oystercatcher and pink-footed geese) accounts for a very small proportion of the main roosting and feeding areas for these species (See Potential Disturbance Zones on Figures 5A, B, C, D, F, K, L, M, O, and P in Annex B). The Preesall Wastewater Treatment Works would also provide a noise and visual screen between the proposed Booster Pump Station and the known feeding and roosting sites to the west of the Preesall Wastewater Treatment Works. Nevertheless, as construction works associated with the Booster Pump Station may take place during the winter months and whilst birds are on passage, noise and visual screens would be provided as part of the Project design. These screens would be installed in advance of construction works to ensure that the construction activities associated with the Booster Pump Station do not cause visual disturbance to the birds that roost and forage in the saltmarsh that is beyond the arable field to the south of the Booster Pump Station. The screens would also reduce the noise levels. The maximum average noise generated by the construction of the Booster Pump Station and associated infrastructure, with mitigation (in the form of screening), is predicted to be 65.8 Lp at 50 m. The European site boundary is 80 m from the construction of this facility and is therefore predicted to be less than 61.7 Lp at 80 m (with screening mitigation).

10.1.16 With screening in place, it considered that the construction of the Booster Pump Station (and associated infrastructure) would not have a significant effect on the feeding and/or roosting birds using the edge of the River Wyre/Wyre Estuary at low and high tide. However, and as described within the main report, the Booster Pump Station is located adjacent to the functionally-linked fields used by significant numbers of pink-footed geese (See Figure 5E in Annex B). Therefore, potential significant effects on feeding pink-footed geese during the winter as a result of the construction of the Booster Pump Station have been carried forward in the assessment.

Construction of the Gas Compressor Compound (Paragraphs 8.3.15 to 8.3.17)

10.1.17 The maximum average unmitigated noise levels associated with the construction of the Gas Compressor Compound, Electrical Sub-station, and associated infrastructure would be 58 Lp at a distance of 390 m, which is the closest point to the European site. Given the distance from the Gas Compressor Compound to the European site, the distance to main roosting and feeding areas for the species associated with the European site beyond the European site boundary (See Figures 5A to 5P in Annex B), and the predicted unmitigated noise levels, it is considered that the construction of the Gas Compressor Compound would not affect species using the European site habitats (being significantly further than 200 m, which is the disturbance
distance for the waders recorded on the saltmarsh in these areas). However, as discussed in the main report, there is potential for the construction of this facility to affect feeding pink-footed geese which use the functionally-linked fields within and adjacent to the Gas Compressor Compound, and therefore this potential disturbance to feeding pink-footed geese will be carried forward in the assessment.

Installation of electrical cable across agricultural land on the eastern side of the River Wyre/Wyre Estuary (Paragraphs 8.3.18 to 8.3.21)

10.1.18 Subsequent to submission of the main report, the Project programme has been altered to avoid impacts on birds using Burrows Marsh, thus it is necessary to amend this paragraph as outlined below. This text therefore supersedes Paragraph 8.3.20 of the main report:

10.1.19 ‘The southern section of the cable installation runs parallel to Burrows Marsh and therefore has the potential to disturb or displace birds feeding and/or roosting along the edge of the River Wyre/Wyre Estuary and within the adjacent fields. However, the installation of cabling in this section, closest to the European site would be undertaken in the summer months (May to August, inclusive) and therefore would avoid disturbing birds which may be feeding or roosting within the European site habitats close to the installation works.’

Summary (Paragraphs 8.3.25)

10.1.20 Clarification text: ‘these Project elements may still give rise to effects on feeding pink-footed geese’.

10.2 Information: Section 8.4 Elements of the Project likely to give rise to Significant Effects and the Species that they are Likely to Affect

10.2.1 Through careful timing of works and through the use of appropriate screening it has been possible to screen out the potential for significant effects on the birds that roost and forage on habitats within the European site and also those that utilise habitats on the western side of the River Wyre/Wyre Estuary. However, as identified in the main report there are a number of elements of the Project that take place on the eastern side of the River Wyre/Wyre Estuary that would affect farmland that is used by significant numbers of feeding pink-footed geese during the winter. These elements of the Project are identified as bullet points in the main report; however, this should be updated to the following:

Gas Storage Caverns

- Preparation of all wellheads 1, 5, and 7 within agricultural land adjacent to the European site (within functionally-linked land used by significant numbers of pink-footed geese)
- Preparation of wellheads 2, 3, 4 and 6 within agricultural land adjacent to the European site in functionally-linked land (within functionally-linked land used by significant numbers of pink-footed geese)
- Drilling of the caverns from wellheads under the European site and agricultural land adjacent to the European site (within functionally-linked land used by significant numbers of pink-footed geese)
- Construction of the Booster Pump Station, Control Centre and De-brine Facility (and associated infrastructure) (within functionally-linked land used by significant numbers of pink-footed geese)

**Gas Processing**
- Construction of the Gas Compressor Compound and Electrical Sub-station (and associated infrastructure) (in functionally-linked land used by pink-footed geese)

**Electrical Infrastructure**
- Installation of sections of electrical cable across agricultural land on the eastern side of the River Wyre/Wyre Estuary, in functionally-linked land used by pink-footed geese

**NTS Interconnector Pipeline**
- Construction of sections of the gas pipeline (and associated infrastructure) across agricultural land to the east of the River Wyre/Wyre Estuary (in functionally-linked land used by pink-footed geese)

**Other Associated Infrastructure**
- Construction of new and upgraded internal access tracks and haul roads, within the Preesall site.
- Construction of the new access road linking the A588 to Higher Lickow Farm
- Refurbishment of Higher Lickow farmhouse, demolition of the smaller barn and demolition and rebuilding of the larger barn

10.2.2 It should be noted that under the sub-heading ‘electrical infrastructure’ (the second bullet point following Paragraph 8.4.1 in the main report) would appear to suggest that construction of the south river crossing would have the potential to affect pink-footed geese. It is planned to construct the crossing in the period May to August. Thus, it is not anticipated that construction could affect wintering pink-footed geese and as such this element of the Project can be screened out of the assessment.

10.2.3 The information provided by Fylde Bird Club in 2011 (See Figure 5E in Annex B) shows that the primary roosting site for pink-footed geese is located within the River Wyre/Wyre Estuary. This roost is more than 500 m from the majority of the elements of the Project that could generate noise and visual disturbance to pink-footed geese (500 m is the disturbance distance for geese as identified in Paragraph 8.1.3 in the main report). Wellhead 5 is within 500 m of the roost (440 m at its closest point). However, as noted in Paragraph 3.1.1 (above) wellhead compounds 1, 5 and 7 would be prepared in the summer months when pink-footed geese would not be present. In addition, as noted in Paragraphs 3.1.1 and 10.1.12 (above), the wellhead compound would be screened whilst drilling is undertaken, and therefore drilling works would not cause visual disturbance to roosting pink-footed geese, and noise levels would be sufficiently low not to cause disturbance to the geese at this distance (as
noted in Paragraph 10.1.14, above). It is therefore considered that effects on roosting pink-footed geese can be screened out of the assessment.

10.2.4 Fylde Bird Club also identified that pink-footed geese have been recorded feeding in the fields to the north and west of Higher Lickow Farm (See Figure 5E in Annex B). Thus, it is considered that noise and visual disturbance generated during the works at Higher Lickow Farm has the potential to affect feeding pink-footed geese. This element of the Project would only affect a small number of the fields that are used by pink-footed geese. Consequently, it is unlikely to have a significant effect on the geese. However, if works were to take place during the winter months in parallel with other elements of the Project there would be the potential for noise and visual disturbance to have a significant effect on feeding pink-footed geese.

10.2.5 Pink-footed geese have also been recorded feeding in the fields that would be affected by the new access road from the A588 (from information supplied by Fylde Bird Club). Consequently, there is the potential for noise and visual disturbance associated with this road to have a significant effect on feeding pink-footed geese.

10.3 Information: Section 8.5 Summary of Activities Screened into the Assessment

10.3.1 Table 8.1 in the main report identified the Project elements that have the potential to result in significant effects on the European Site and the species that would be affected. This table has been revised as outlined below in Table 4:
<table>
<thead>
<tr>
<th>Element of the Project</th>
<th>Work Activity and Timing</th>
<th>Potential Significant Effects</th>
<th>Sensitive Species/Species Assemblage/Habitats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas storage caverns</td>
<td>Preparation of all wellhead compounds within agricultural land adjacent to the European site. Wellheads prepared during the summer months (May to August). Screening would be provided.</td>
<td>Loss of feeding habitat on functionally-linked land.</td>
<td>Pink-footed geese (overwinter)</td>
</tr>
<tr>
<td></td>
<td><strong>Drilling of caverns under the European site and agricultural land adjacent to the European site</strong></td>
<td>Disturbance/displacement of feeding birds on functionally-linked land (including noise and visual disturbance from construction activities) during the winter.</td>
<td>Pink-footed geese (overwinter)</td>
</tr>
<tr>
<td>Gas processing</td>
<td>Construction of the Booster Pump Station, Control Centre and De-brine Facility (and associated infrastructure, including the pipelines between the seven wellheads) on the eastern side of the River Wyre/Wyre Estuary. Construction includes wintering and passage period in addition to summer, during Years 1 and 2. Major works associated with construction of these elements of the Project would occur during spring/summer. Minor works associated with construction of these elements of the Project would occur during the autumn and winter. Screening would be provided.</td>
<td>Minor works associated with construction of these elements of the Project could cause disturbance/displacement of feeding birds (including noise and visual disturbance) using functionally-linked land during the winter.</td>
<td>Pink-footed geese (overwinter)</td>
</tr>
<tr>
<td>Element of the Project</td>
<td>Work Activity and Timing</td>
<td>Potential Significant Effects</td>
<td>Sensitive Species/Species Assemblage/Habitats</td>
</tr>
<tr>
<td>-----------------------</td>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>Construction of the Gas Compressor Compound and Electrical Sub-station (and associated infrastructure) to the north-west of Higher Lickow Farm on the eastern side of the River Wyre/Wyre Estuary</strong>&lt;br&gt;Construction includes wintering and passage period in addition to summer, over a period of three years (Years 1 to 3).</td>
<td>Loss of feeding habitat within functionally-linked land. Disturbance/displacement of feeding birds (including noise and visual disturbance from construction activities) using functionally-linked land during winter.</td>
<td>Pink-footed geese (overwinter)</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical infrastructure</strong>&lt;br&gt;Installation of electrical cable across agricultural land on the eastern side of the River Wyre/Wyre Estuary&lt;br&gt;Construction close to Burrows Marsh would take place in the summer months (May to August) in Year 1 to avoid disturbance to birds using the European site. Works close to functionally-linked land will take place during the winter months in Years 1 and 2.</td>
<td>Temporary loss of feeding habitat for birds during the pipeline construction. Disturbance/displacement of feeding birds (including noise and visual disturbance from construction activities) using functionally-linked land during winter.</td>
<td>Pink-footed geese (overwinter)</td>
<td></td>
</tr>
<tr>
<td><strong>NTS Interconnector Pipeline</strong>&lt;br&gt;Construction and operation of the gas pipeline (and associated infrastructure) across agricultural land to the east of the River Wyre/Wyre Estuary&lt;br&gt;Construction includes wintering and passage period in addition to summer (through Pilling Moss: Eagland Hill BHS and Pilling Moss: Dyke Head BHS), but would be short-scale and transient, and</td>
<td>Temporary loss of feeding habitat on functionally-linked land during pipeline construction. Temporary disturbance/displacement of feeding birds (including noise and visual disturbance)</td>
<td>Pink-footed geese (overwinter)</td>
<td></td>
</tr>
<tr>
<td>Element of the Project</td>
<td>Work Activity and Timing</td>
<td>Potential Significant Effects</td>
<td>Sensitive Species/Species Assemblage/Habitats</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------</td>
<td>------------------------------</td>
<td>---------------------------------------------</td>
</tr>
</tbody>
</table>
| **Other associated infrastructure** | New and upgraded internal access tracks and haul roads, within the Preesall site | - Loss of feeding habitat for birds using functionally-linked land (temporary loss for haul roads, permanent loss for new access tracks).  
- Temporary disturbance/displacement of feeding birds (including noise and visual disturbance from construction activities) using functionally-linked land during the winter. | Pink-footed geese (overwinter) |
| | Works at Higher Lickow Farm | - Temporary disturbance/displacement of feeding birds (including noise and visual disturbance from construction activities) using functionally-linked land during the winter. | Pink-footed geese (overwinter) |
| | New access road from A588 to Higher Lickow Farm | - Loss of feeding/roosting habitat for birds using functionally-linked land (permanent loss for new access tracks). | Pink-footed geese (overwinter) |
Table 4: Activities associated with the Project, their potential significant effects, and European Site species/habitats likely to be affected

<table>
<thead>
<tr>
<th>Element of the Project</th>
<th>Work Activity and Timing</th>
<th>Potential Significant Effects</th>
<th>Sensitive Species/Species Assemblage/Habitats</th>
</tr>
</thead>
<tbody>
<tr>
<td>scale and transient, during Year 1. During the construction phase and the construction and operation combined phase, traffic would use the new access road (Years 2 to 8). During the operational phase, low volumes of traffic would use new access road (Years 9 to 40).</td>
<td>access road). Temporary disturbance/displacement of feeding birds (including noise and visual disturbance from construction activities) using functionally-linked land during the winter.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.4 Clarification Text and Information for Section 9.1: Assessment of Likely Changes and Significance

10.4.1 For clarification, all potential effects are considered on feeding pink-footed geese using the functionally-linked land. No effects are predicted on roosting pink-footed geese given the distance between all elements of the Project and the primary roosting area for this species (See Figure 5E in Annex B and Paragraph 10.2.3, above).

Habitat loss (Paragraphs 9.1.1 to 9.1.11)

10.4.2 Following information from Fylde Bird Club in 2011, it should be noted that only a very small proportion of the habitats crossed by the installation of the electrical cable in agricultural land have been observed to be used by feeding pink-footed geese (See Figure 5E in Annex B and also Figure 2: Masterplan within the main report). The vast majority of the cable would be installed in areas where feeding pink-footed geese have not been recorded.

10.4.3 Text has been provided (below) for the construction of the new access road from A588 to Higher Lickow Farm. This element was previously screened out of the assessment; however, as a result of further information from Fylde Bird Club in 2011 regarding the use of fields along the proposed access road with respect to feeding pink-footed geese, this element has now been screened into the assessment.

Construction of the new access road from the A588 to Higher Lickow Farm (to follow Paragraph 9.1.10)

10.4.4 The creation of the new access road would result in the loss of a small area of functionally-linked land used by pink-footed geese. This loss would be permanent from Year 1 of the Project. However, given the relatively small footprint of the access road, its position at the northern extreme of a large area used by pink-footed geese, its proximity to an existing road (See Figure 5E In Annex B), and the amount of alternative suitable habitat available to feeding and roosting pink-footed geese in the surrounding area, no significant effects (in terms of habitat loss) on feeding pink-footed geese are anticipated as a result of the construction of the new access road from A588 to Higher Lickow Farm.

Disturbance/Displacement of Qualifying Species (Paragraph 9.1.14)

10.4.5 Text has been provided in Paragraph 10.4.8 to 10.4.10 below for the works at Higher Lickow Farm and for the construction and operation of the new access road from A588 to Higher Lickow Farm. These elements were previously screened out of the assessment; however, as a result of further information from Fylde Bird Club in 2011 regarding the use by feeding pink-footed geese of previously unknown areas, these elements have now been screened in to the assessment.
Construction of all seven wellheads within agricultural land adjacent to the European site (Paragraph 9.1.15 to 9.1.16)

10.4.6 Since publication of the main report, Halite has confirmed that all wellhead compounds would be prepared and screened between the months of May and August. Therefore paragraphs 9.1.15 and 9.1.16 in the main report no longer apply, and construction of the wellhead compounds would not disturb wintering pink-footed geese.

Installation of electrical cable across agricultural land on the eastern side of the River Wyre/Wyre Estuary (Paragraphs 9.1.22 to 9.1.23)

10.4.7 Since publication of the main report, Halite has confirmed that the majority of the electrical cable will now be installed during summer months (May to August) and therefore would not disturb feeding pink-footed geese at this time. Information from Fylde Bird Club has also demonstrated that the majority of the cable does not pass through fields known to be used by feeding pink-footed geese (See Figure 5E in Annex B). As stated in the main report, given that small-scale machinery would be used to install the cable, the works would be temporary in nature (given that the fields would be reinstated on completion of the installation), they would also be transient (working progressively across the pipeline route), and the amount of alternative suitable habitat available to feeding and roosting pink-footed geese in the surrounding area, no significant effects are anticipated on these birds associated with the European site as a result of the installation of the electrical cable across agricultural land on the eastern side of the River Wyre/Wyre Estuary.

Works at Higher Lickow Farm (addition following Paragraph 9.1.25)

10.4.8 The refurbishment of Higher Lickow farmhouse, the demolition of the smaller barn and the demolition and rebuilding of the larger barn would take place near to fields known to support feeding pink-footed geese (See Figure 5E in Annex B). These works would take place over two years, including in the winter months. There would be some element of screening of the refurbishment works by existing hedgerows and trees surrounding the farm; however, it is considered that the noise and physical presence of machinery and site personnel (in particular), would disturb any pink-footed geese using the nearby fields. Particularly due to the proximity to the Gas Compressor Compound which would also be constructed during the same period. Therefore, it is considered that in-combination with the Gas Compressor Compound the works at Higher Lickow Farm could have significant effects on feeding pink-footed geese in winter.

Construction of the new access road from the A588 to Higher Lickow Farm (to follow Paragraph 9.1.25)

10.4.9 The construction of the new access road linking the A588 to Higher Lickow Farm would take place in fields known to support feeding pink-footed geese. Any disturbance is considered to be temporary as the geese are likely to habituate to the presence of vehicles once the road is complete.

10.4.10 The construction works in this area are likely to deter geese from the immediate vicinity. However, construction works would be transient as the road
construction progresses towards the Farm. It is also located at the northern extent of a large area known to be used by pink-footed geese and in close proximity to an existing road (See Figure 5E in Annex B); therefore, it is considered that the geese would continue to use the remaining fields during this period. Given the transient nature of the works, its location, and the amount of alternative suitable habitat available to feeding and roosting pink-footed geese in the surrounding area, no significant effects (in terms of disturbance) on feeding pink-footed geese are anticipated as a result of the construction of the new access toad from A588 to Higher Lickow Farm.

**Summary of Disturbance Effects (Paragraphs 9.1.26 to 9.1.27)**

10.4.11 In addition to those elements described in the main report that are considered likely to give rise to disturbance effects on feeding pink-footed geese using the functionally-linked land during the winter, the works at Higher Lickow Farm should be added to this list.

10.5 **Conclusion of Likely Significant Effects (Paragraphs 9.3.1 to 9.3.4)**

10.5.1 The works at Higher Lickow Farm should be added to the bullet points in Paragraph 9.3.2 of the main report.

11 **Information for Section 11: Mitigation Measures**

11.1.1 It should be noted that all mitigation measures described in Section 11 apply to feeding pink-footed geese during the winter period.

11.1.2 The main report considers the impacts of the mitigated Project together with the avoidance measures that are part of the embedded design. The avoidance measures that are relevant to the shadow HRA include:

- Timing works to avoid the times when birds are on passage or during the winter. Thus, the pipelines would be installed under the River Wyre/Wyre Estuary during the period May to August; all wellhead compounds would be prepared between the months of May and August, together with sections of the electrical cabling on the eastern side of the River Wyre/Wyre Estuary and the NTS Interconnector Pipeline.

- The Booster Pump Station and the wellhead compounds (and to a lesser extent, the Gas Compressor Compound) would also be screened to reduce the impact of noise and visual disturbance.

11.1.3 In addition, the noisiest activities associated with the Booster Pump Station would be undertaken during the summer months (where possible).

11.1.4 The only bird species that has been found to be present in significant numbers within the functionally-linked land is pink-footed goose, which they use for feeding in the winter, as identified in the summary Paragraph 8.3.25 of the main report. Consequently, the mitigation measures that have been included in the report solely address the need to mitigate for potentially significant impacts on feeding pink-footed geese during the winter period. These measures are
outlined in Section 11.2 of the main report and are included in the Landscape and Ecological Management Strategy Plan (LEMSP; See Document 5.4 of the DCO Application, Drawing Reference No. 14.10). The LEMSP would be produced and implemented in accordance with the Draft Development Consent Order.

11.1.5 Schedule 9, of the Draft Development Consent Order that was submitted with the application, identifies the requirements for the Order. Requirement 8 identifies that:

- (1) No stage of the authorised development shall commence until an ecological management scheme for that stage, reflecting the survey results and ecological mitigation and enhancement measures included in the environmental statement, and including details of working methods, means of mitigation and restoration, has been submitted to and approved by the relevant planning authority.
- (2) The ecological management scheme shall include an implementation timetable and have regard to the landscape and ecological management strategy plan; and must be carried out as approved.

11.1.6 Paragraph 11.1.2 of the main report stated that 3.86 ha of farmland that is currently suitable for, or used by feeding pink-footed geese would be permanently lost to the Project. However, this area has subsequently been recalculated to approximately 13.9 ha. The pink-footed geese also feed in areas of farmland across the area which is far greater than this predicted loss of feeding habitat (as illustrated by Figure 5E in Annex B the pink footed geese use approximately 1000 ha of farmland in the vicinity of the Project) and thus, this habitat loss would not have a significant effect on feeding pink-footed geese.

11.1.7 However, as construction activities would need to take place during the winter, it is considered that there is the potential for disturbance to, and displacement of, feeding pink-footed geese during the construction of the Project (Years 1 to 8; See Section 9.1 and 9.3 of the main report). Sources of disturbance are likely to rotate around the site as each element is completed, and following Year 3, drilling at each wellhead in turn would be the only construction activity that takes place over the winter months, completing by Year 8. Whilst this effect would be temporary and would be reversed once the Project is operational, this disturbance effect has the potential to last for 8 years and thus could have a significant effect on the wintering goose population, in the absence of mitigation. Consequently, mitigation measures are required to ensure that there would be no significant effect on feeding pink-footed geese. It should be noted that the presence of screening does reduce the extent of the zone of disturbance for all elements of the Project that have the potential to affect pink-footed geese. The screening protects the geese from sources of visual disturbance and provides a buffer between the geese and sources of noise disturbance. As noted within paragraph 8.2.1 above, geese will forage in land that is within 150 m of a windbreak, bank or similar feature that obscures their line of sight provided that their view is not obscured in other directions.

11.1.8 The mitigation measures require land to be managed to benefit pink-footed geese. The measures outlined in Section 11.2 of the HRA and in the LEMSP
are tried and tested, and both RSPB and the tenant farmer have reported that these measures have had a beneficial effect on the pink-footed geese that use the land in the locality.

11.1.9 As identified in Paragraph 11.2.7 of the main report, it was proposed to manage at least 16 ha of land to benefit pink-footed geese. This area has since increased and approximately 33 ha will be managed to benefit pink-footed geese over Years 1 to 8. Approximately 16 ha of stubble and plant material will be retained over winter and not be ploughed in directly after harvest. Approximately 17 ha of farmland will comprise a mixture of pasture, winter stubbles (with spilt grain and spoilt potatoes) and winter sown crops which would ensure that the farmland is managed to provide the mosaic of habitats required to support wintering pink-footed geese.

11.1.10 The purpose of the LEMSP (a requirement of the draft DCO) would be to ensure that sufficient suitable fields are in place in advance of works likely to cause disturbance/displacement to pink-footed geese and to provide compensation to tenant farmers, as necessary, to compensate for the loss of revenue associated with the loss of crops.

11.1.11 The LEMSP is a working document, and it is recognised that further detail is likely to be required, particularly with respect to firming-up the proposals, and those organisations and individuals listed in Paragraph 11.2.1 of the main report would be involved in future discussions to agree the detail of the plan. The LEMSP will be implemented through the Ecological Management Scheme that would be submitted to the Local Planning Authority for approval pursuant to Requirement 8 of the draft DCO.

12 Information for Section 13: Conclusion

12.1.1 Hyder’s ecologists have discussed the findings and content of the main report and this report with Natural England, in a meeting held on January 17th 2012 it was determined that Natural England concur with the following statements:

1. With the notable exception of pink-footed geese, the Project would have no significant effect on the bird species that are the qualifying interest features of the European site
2. With mitigation and the careful timing of works it would be possible to ensure no significant effects on the wintering population of pink-footed geese associated with the European site
3. The Project would have no significant effect on the conservation objectives of the European site
4. The Project would have no significant effect on the integrity of the European site

13 References


Annex A

Additional Text for Bird Species Described in Section 7.3
Note: percentages of the Morecambe Bay SPA or Ramsar population (as shown on the SPA or Ramsar citation) are shown in brackets within the summary tables below for each species.

**Wintering**

**Bar-tailed Godwit (Paragraphs 7.3.27 to 7.3.32 of main report)**

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count date in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2611</td>
<td>2164</td>
<td>10 (0.38%)</td>
<td>0 (0%)</td>
<td>33 (1.26%) eastern side of River Wyre/Wyre Estuary (2010) Small numbers western side of River Wyre/Wyre Estuary (less than 1%)</td>
<td>Yes, those using habitats on the eastern side of the estuary*</td>
</tr>
</tbody>
</table>

*However, new data has revealed that these bird species should have been screened out (see text below)*

13.1.1 Since the production of the main report, Fylde Bird Club has advised that bar-tailed godwit are now uncommon in the Wyre area, and the 33 birds recorded in 2010 (as listed in the main report) was an exceptional count. Typical counts observed in more recent years are zero to one. When present, bar-tailed godwit use the Arm Hill Sandbank and south side of Arm Hill Island to roost at peak tides, together with oystercatchers. They generally feed in Morecambe Bay, outside of the Wyre Estuary; however, they could potentially also use any sandy and muddy areas in the river to feed during low tide. Recent records suggest they infrequently occur in the Wyre Estuary and only in low numbers.

13.1.2 On the basis of the information provided by Fylde Bird Club (that bar-tailed godwits are uncommon in the Wyre and on average, only low numbers have been recorded), coupled with the low numbers of birds (peak count of 10 birds) recorded during the Wyre Estuary (Arm Hill) 5 year peak mean WeBS counts, and the absence of birds during the field surveys, it is considered that significant numbers of bar-tailed godwit are unlikely to be present in the vicinity of the Project. Therefore, this reassessment has determined that bar-tailed godwit will be screened out of the assessment and not considered further.
### Golden Plover (Paragraphs 7.3.33 to 7.3.36 of main report)

<table>
<thead>
<tr>
<th>Table 6: Golden plover count data provided in the main report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</td>
</tr>
<tr>
<td>4097</td>
</tr>
</tbody>
</table>

13.1.3 Fylde Bird Club confirmed that golden plover use fields adjacent to Brown’s Lane, near Height ‘o’ th Hill, to feed. Numbers recorded here are considered to be not significant during the winter period. Thus (and as also described in the main report), no significant effect on wintering golden plover are anticipated as a result of the Project.
### Table 7: Curlew count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Data collected 2003 in Project area</th>
<th>Fylde Bird Club Data peak count date in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>13620</td>
<td>11479</td>
<td>120 (0.89%)</td>
<td>Mean peak 48 (0.35%), peak count of 107 (0.78%) at low tide</td>
<td>500 (3.7%)</td>
<td>102 (0.75%) Arm Hill (2006) 50 (0.37%) Fleetwood Marsh, Fleetwood Dock and Fleetwood Marsh Nature Reserve / Fleetwood Marsh Industrial Land BHS on the western side of the River Wyre/Wyre Estuary (between 2006 and 2010). All low numbers.</td>
<td>Yes, those using habitats on the eastern side of the estuary</td>
</tr>
</tbody>
</table>

13.1.4 Fylde Bird Club confirmed that the areas of Fleetwood Marsh, Fleetwood Dock (Tiger’s Tail), Fleetwood Marsh Nature Reserve, and Fleetwood Lagoons are not significant roosting areas for curlew. The primary roost for curlew is Barnaby’s Sands (See Figure 5A in Annex B). There are also secondary roosts at Burrow’s Marsh and on fields east of the River Wyre/Wyre Estuary, on which they also feed (usually following periods of rain and during tides which entirely cover the marshes) (See Figure 5A in Annex B). However, these areas are not considered to support significant roosts. Curlew are known to feed on all muddy areas of the river and at their roosting sites. As reported previously, there is potential for significant effects on the wintering population of curlew associated with the European site that use the eastern side of the River Wyre/Wyre Estuary as a result of the Project.
### Dunlin (Paragraphs 7.3.45 to 7.3.51 of main report)

#### Table 8: Dunlin count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count date in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>52671</td>
<td>28228</td>
<td>257 (0.5%)</td>
<td>Low Tide Mean Peak Count 25 (0.05%) Low Tide Peak Count 125 (0.24%) High Tide Peak Count 0 (0%)</td>
<td>704* (1.33%) Arm Hill and Barnaby’s Sands (2003) 202 (0.38%) Fleetwood Docks (2004)</td>
<td>Yes, those using habitats on the eastern side of the estuary**</td>
</tr>
</tbody>
</table>

*This peak number appears to be an exceptional number for the area. All other counts provided by Fylde Bird Club for the eastern side of the River Wyre/Wyre Estuary were less than 1% of the SPA population.*

**However, further investigation has revealed that significant numbers of dunlin are unlikely to occur in the study area (see text below)*

13.1.5 Fylde Bird Club confirmed that the main roosting site for dunlin within the study area is the south side of Arm Hill Island/Barnaby’s Sand’s (See Figure 5B in Annex B), which is also reflected by the numbers presented in the main report, together with a transient roost at Tiger’s Tail (referred to as Fleetwood Dock in the main report). Dunlin feed predominantly on the Arm Hill Sandbank, Fleetwood Marsh, and near Stanah (See Figure 5B in Annex B), together with all areas of mud in the River Wyre/Wyre Estuary. Fylde Bird Club also confirmed that the areas of Fleetwood Dock itself, Fleetwood Marsh Nature Reserve and Fleetwood Lagoons do not support significant numbers of dunlin. Indeed, dunlin are rarely recorded in the Dock and Nature Reserve.

13.1.6 As described in the note above, numbers of dunlin that occur within the study area (with the exception of one count provided by Fylde Bird Club) are less than 1% of the SPA population in winter. Therefore, it is considered that dunlin are unlikely to be present in significant numbers and the Project would not have a significant effect on wintering dunlin.
Grey Plover (Paragraphs 7.3.52 to 7.3.54 of main report)

Table 9: Grey plover count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count in 2006 and 2010</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1813</td>
<td>991</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>6 (0.33%) on east side of River Wyre/Wyre Estuary</td>
<td>No</td>
</tr>
</tbody>
</table>

13.1.7 Fylde Bird Club confirmed that the data provided in main report remains valid. Very low numbers of grey plover occur within the River Wyre/Wyre Estuary study area. Therefore, no significant effects are anticipated on the grey plover population of the European site as a result of the Project.
Table 10: Knot count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>29426</td>
<td>44878</td>
<td>1101 (3.74%)</td>
<td>Low Tide Peak Count 260 (0.88%) High Tide Peak Count 350 (1.19%)</td>
<td>340 (1.15%) Arm Hill (2006) 2400 (8.16%) Barnaby’s Sands (2007) 85 (0.29%) Fleetwood Marsh (2010)</td>
<td>Yes, those using habitats on the eastern side of the estuary</td>
</tr>
</tbody>
</table>

13.1.8 Fylde Bird Club confirmed that the data provided in the main report remains valid. The primary roosting sites for knot include Arm Hill Sandbank, and the south side of Arm Hill Island at peak tides (See Figure 5C in Annex B). Knot occasionally use the sandbank at Tiger’s Tail as the tide rises; however, they are usually displaced by the tide within an hour. Fylde Bird Club reported that this species is not usually seen feeding in this part of the Wyre Estuary, although they will use Arm Hill sandbank and mud opposite Stanah on occasions (See Figure 5C in Annex B). They also confirmed that Fleetwood Dock, Fleetwood Marsh Nature Reserve, Fleetwood Marsh Industrial Land and Fleetwood Lagoons are not significant areas for knot. As previously described in the main report, there is the potential for significant effects on wintering knot associated with the European site which use the eastern side of the River Wyre/Wyre Estuary as a result of the Project.
Table 11: Oystercatcher count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>47572</td>
<td>53410</td>
<td>2792 (5.87%)</td>
<td>Low Tide Peak Count 310 (0.65%)  High Tide Peak Count 550 (1.16%)</td>
<td>3800 (7.99%) Arm Hill (2006) 2450 (5.15%) Barnaby’s Sands (2009)</td>
<td>Yes, those using habitats on the eastern side of the estuary</td>
</tr>
</tbody>
</table>

13.1.9 Fylde Bird Club concurred with the data in the main report and confirmed that Arm Hill Sandbank and Arm Hill Island (at high tide) are the primary roosting sites for oystercatcher, together with some overspill onto Barnaby’s Sands (See Figure 5D in Annex B). Occasionally, an intermediate roost site forms at Tiger’s Tail; however, as the tide rises, oystercatcher are displaced back to Arm Hill Sandbank. Large roost sites are formed at Arm Hill Sandbank at all times of day and states of tides, and therefore this area nearly always supports large numbers of oystercatcher. Fylde Bird Club also confirmed that Fleetwood Dock, Fleetwood Marsh Nature Reserve, Fleetwood Marsh Industrial Land and Fleetwood Lagoons are not significant areas for oystercatcher. They also confirmed that within the study area, oystercatcher feed on mussel beds just to the north of Arm Hill Sandbank, and opposite Stanah (See Figure 5D in Annex B), although they more often feed on mussel beds at the mouth of the River Wyre/Wyre Estuary and return to the Wyre area to roost.

13.1.10 As reported previously in the main report, there is the potential for significant effects on the wintering oystercatcher associated with the European site that use the eastern side of the River Wyre/Wyre Estuary as a result of the Project.
Table 12: Pink-footed geese count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2475</td>
<td>6258</td>
<td>1188 (48%)</td>
<td>Peak Count Low Tide 1800 (72.7%) Peak Count 2000 (80.8%) birds in functionally-linked land. Up to 4000 (161%) birds recorded by tenant farmer</td>
<td>1000 (40.4%) Arm Hill (2006) 10250 (414%) Barnaby’s Sands (2010) 800 (32.3%) Burrow’s Marsh (2007) 4000 (161%) Fleetwood Farm (2010) 2500* (101%) Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS (2009)</td>
<td>Yes, those using habitats on both sides of the estuary</td>
</tr>
</tbody>
</table>

* Note: this large count represents a peak count and is not typical of the counts for the Nature Reserve.

13.1.11 Figure 5E in Annex B illustrates that the majority of the fields where pink-footed geese have been recorded within functionally-linked farmland are to the east of the River Wyre/Wyre Estuary. The majority of the fields used by pink-footed geese that are closest to the European site are predominantly in arable production (either cropped with wheat, barley, or potatoes) with a small number of improved grassland fields (grazed pasture). Further inland from the estuary, the land used by pink-footed geese comprises arable fields and improved grassland. Anecdotal evidence supplied by a tenant farmer and recorded by
surveyors during the field surveys indicates that the geese are highly mobile within the functionally-linked land. They move between fields in response to cropping regimes and food availability, local weather conditions, and disturbance events (such as tractor movements, people entering the fields), and in response to recreational shooting. Fylde Bird Club also confirmed that pink-footed geese in the region have a strategy of using a field for approximately two weeks before moving onto another area. They rotate from field to field across the region during the winter, exploiting the best feeding areas in sequence. Therefore, whilst thousands of geese may be present on one field for several weeks, they may not be seen in that field again for a year or more. Thus, it is difficult to identify specific feeding areas for pink-footed geese. It is only possible to identify where the geese have been recorded in the past and those areas considered suitable to support the geese in the future (subject to suitable management).

13.1.12 The primary roost site for pink-footed geese (as confirmed by Fylde Bird Club) is the mud on the edge of the saltmarsh at Barnaby’s Sands (See Figure 5E in Annex B). During low tides at night the geese can use a wide area of exposed mud in the river, spreading south towards Stanah. With regard to feeding, Fylde Bird Club confirmed that pink-footed geese use almost any suitable field in the study area (See Figure 5E in Annex B). Fylde Bird Club stated that pink-footed geese do not use the Fleetwood Marsh Nature Reserve.

13.1.13 As identified within the main report, there is the potential for significant effects on the wintering pink-footed geese associated with the European site as a result of the Project.
Table 13: Pintail count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2804</td>
<td>2512</td>
<td>5 (0.18%)</td>
<td>0 (0%)</td>
<td>15 (0.53%) Arm Hill (2006)</td>
<td>No</td>
</tr>
</tbody>
</table>

13.1.14 Fylde Bird Club confirmed that only very small numbers of pintail have been recorded in the study area (as also indicated in the main report), and therefore no significant effects are anticipated on the wintering pintail population associated with the European site as a result of the Project.
Redshank (Paragraphs 7.3.83 to 7.3.90 of main report)

Table 14: Redshank count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>6336</td>
<td>7525</td>
<td>412 (6.5%)</td>
<td>Low Tide Peak Count 155 (2.45%) High Tide Peak Count 100 (1.56%)</td>
<td>400 (6.31%) Arm Hill Barnaby’s Sands and The Heads Also Fleetwood Marsh – 800 (12.6%), Fleetwood Dock (Tiger’s Tail) – 230 (3.6%), Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS – 1 (0.01%), and Fleetwood Farm – 30 (0.47%) (between the years 1998 and 2010) Peak Count 800 (12.6%) at Fleetwood Marsh (2010)</td>
<td>Yes, those using habitats on both sides of the estuary</td>
</tr>
</tbody>
</table>

13.1.15 Fylde Bird Club confirmed that the data provided in the main report remains valid. At high tide, the saltmarsh at Barnaby’s Sands is considered to be the primary roost site for redshank, as observed by Fylde Bird Club, followed by Arm Hill Island and Burrows Marsh (See Figure 5F in Annex B). An intermediate roost site also forms at Tiger’s Tail; however, as the tide rises the redshank are displaced. Redshank also form low tide roosts on Arm Hill Island, and on higher muds opposite Stanah and the centre of the river. Redshank feed within the areas of mud in the river, including the creeks of the saltmarshes (See Figure 5F in Annex B), although the shore of Arm Hill Sandbank and Fleetwood Marsh are potentially favoured areas, which concurs with the data in the main report. As previously reported in the main report, there is the potential for significant effects on the wintering population of redshank associated with the European site that use habitats on both sides of the River Wyre/Wyre Estuary as a result of the Project.
## Shelduck (Paragraphs 7.3.91 to 7.3.99 of main report)

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10).</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>6372</td>
<td>7097</td>
<td>151 (2.37%)</td>
<td>Low Tide Peak Count 70 (1.09%) High Tide Peak Count 125 (1.96%)</td>
<td>274 (4.3%) Barnaby’s Sands (2008) Fleetwood Dock, Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS and Fleetwood Lagoons all less than 20 birds (less than 0.3%) (between 2004 and 2010)</td>
<td>Yes, those using habitats on the eastern side of the estuary*</td>
</tr>
</tbody>
</table>

*However, following receipt of specific roosting and feeding locations from Fylde Bird Club, it is considered that wintering shelduck are located at sufficient distance that they would not be significantly affected by the Project (see text below)

13.1.16 In 2011, Fylde Bird Club advised that roosting sites for Shelduck within the study area cannot be determined, as this species is active during all states of the tide and therefore does not roost at high tide. During high tide, the largest aggregations of this species are at Barnaby’s Sands and Burrows Marsh. Whilst shelduck are reported to feed on all exposed mud, they especially favour an area west of the southern end of Burrows Marsh (See Figure 5G in Annex B). Between 50 and 60 birds have also been frequently recorded feeding on farmland to the east of the River Wyre/Wyre Estuary (See Figure 5G in Annex B). These
numbers are however, less than 1% of the SPA population and therefore the numbers of shelduck recorded in this area are not considered to be significant.

13.1.17 As illustrated on Figure 5G in Annex B, the areas of European site that are used by feeding shelduck are located more than 500 m from the sources of noise and visual disturbance associated with the Project. As indicated in Paragraph 8.1.3, this is further than the disturbance distance for shelduck (considered to be 200 m) and therefore it is considered that there would be no significant effect on the wintering population of shelduck associated with the European site as a result of the Project.
Turnstone (Paragraphs 7.3.100 to 7.3.105 of main report)

Table 16: Turnstone count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1583</td>
<td>946</td>
<td>8 (0.5%)</td>
<td>0 (0%)</td>
<td>53 (3.35%)</td>
<td>Yes, those using habitats on both sides of the estuary*</td>
</tr>
</tbody>
</table>

*However, further information from Fylde Bird Club revealed the 53 birds at Fleetwood Marsh was exceptional and therefore only turnstone using the eastern side are considered to be affected (see below).

13.1.18 In 2011, Fylde Bird Club confirmed that typically turnstones are not numerous within the study area. They are known to feed in areas to the north of Arm Hill Sandbank and also on Fleetwood Marsh. The numbers present in these areas are variable but usually occur in low numbers (See Figure 5H in Annex B for locations). They also occasionally roost on boats off Fleetwood Marsh and also on Barnaby’s Sands; again only in small numbers (see Figure 5H in Annex B). Fylde Bird Club indicated that the 53 birds observed at Fleetwood Marsh is considered to be exceptional, and Fleetwood Marsh Nature Reserve and Fleetwood Lagoons are not significant sites for this species. Nevertheless, on the basis of the data available (as there are several winter records greater than 1% of the European site), it is considered that there is the potential for significant effects on the wintering population of turnstone associated with the European site that use habitats on the eastern side of the River Wyre/Wyre Estuary (based on the numbers recorded) as a result of the Project.
Great crested grebe (Paragraphs 7.3.106 to 7.3.110 of main report)

Table 17: Great-crested grebe count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>217</td>
<td>113</td>
<td>2 (0.92%)</td>
<td>0 (0%)</td>
<td>6 (2.77%) Burrows Marsh (2010) 18 (8.29%) Fleetwood Lagoons (2004)</td>
<td>Yes, those using habitats on both sides of the estuary*</td>
</tr>
</tbody>
</table>

*However, following receipt of new information, it is considered that wintering great crested grebe would not be significantly affected since the majority of feeding habitat that supports this species would not be affected by the Project (see below).

13.1.19 Fylde Bird Club confirmed that great crested grebe feed anywhere along the River Wyre/Wyre Estuary and regularly between Arm Hill and Burrows Marsh (See Figure 5I in Annex B); although there are no known roosting sites for great crested grebe. It is considered that the Project would not have a significant effect on feeding great crested grebe in winter, since the majority of feeding habitat that supports this species would not be affected by the Project, as illustrated on Figure 5I in Annex B.
## Wigeon (Paragraphs 7.3.111 to 7.3.117 of main report)

Table 18: Wigeon count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>6133</td>
<td>8406</td>
<td>412 (6.7%)</td>
<td>Low Tide Peak Count 200 (3.26%) High Tide Peak Count 300 (4.89%)</td>
<td>650 (10.6%) Arm Hill Barnaby’s Sands (2005) 4000* (65.2%) Fleetwood Farm (2010) 2500* (40.8%) Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS (2009)*</td>
<td>Yes, those using habitats on both sides of the estuary**</td>
</tr>
</tbody>
</table>

*These records are errors. 2500 wigeon have not been recorded at Fleetwood Marsh Nature Reserve and 4000 were not recorded at Fleetwood Farm. The peak count at Fleetwood Marsh Nature Reserve is in fact 6 birds (less than 0.1% of the European site population based on the Ramsar citation). No birds have been recorded at Fleetwood Farm. Wigeon have been recorded in significant numbers at Fleetwood Marsh, with a peak count of 425 birds (6.9%), dating from 2007.

**However, following receipt of specific roosting and feeding locations, it is considered that wintering wigeon are located at sufficient distance that they would not be significantly affected by the Project (see text below)

13.1.20 Fylde Bird Club confirmed that wigeon feed on rising and falling tides in the shallows of saltmarsh and mudflats. As identified in the main report, the main feeding and roosting areas for this species are within the saltmarsh habitats of Fleetwood Marsh, Barnaby’s Sands, and Burrows Marsh (See Figure 5J in Annex B). They also use the mud areas in the middle of the river for roosting and feeding at low tide, particularly along the east of the channel (see Figure 5J in Annex B).
13.1.21 As identified in the Paragraph 8.1.3 in the main report, the distance at which wigeon could be affected by the Project is 200 m. Figure 5J in Annex B demonstrates that all known roosting and feeding areas are located at a distance greater than 200 m from the Project elements that could cause disturbance to birds. Thus, there would be no significant effect on wintering wigeon associated with the European site that use the River Wyre/Wyre Estuary as a result of the Project.
Goldeneye (Paragraphs 7.3.118 to 7.3.123 of main report)

<table>
<thead>
<tr>
<th>Table 19: Goldeneye count data provided in the main report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morecambe Bay Ramsar citation population estimate</strong> 5 year peak mean (1998/99 to 2002/03)</td>
</tr>
<tr>
<td>285</td>
</tr>
</tbody>
</table>

*Note: previously it was reported that four birds had been recorded on the eastern side of the estuary. This record relates to a record in late March which is outside the wintering period. The peak count is in fact two birds. Thus, it is considered that significant numbers of goldeneye do not use habitats on the eastern side of the River Wyre/Wyre Estuary over winter and they can be screened out of the assessment.

**However, data has shown that only significant numbers have been recorded on the western side of the River Wyre/Wyre Estuary (see text below).

13.1.22 Fylde Bird Club advised that only small numbers of goldeneye are seen at the pools listed within the main report (Fleetwood Lagoons, Fleetwood Marsh Nature Reserve, and the ICI Ponds), and that they are not seen on the River Wyre. However, the peak numbers of goldeneye recorded at these pools represents a significant percentage of the SPA population. Figure 3 In Annex B illustrates that the majority of the Project elements are located some distance from the ICI ponds, and thus would not affect goldeneye. However, the brine discharge pipeline would be located close to the ICI ponds and thus there is the potential for significant effects on the wintering goldeneye associated with the European site that use the habitats on the western side of the River Wyre/Wyre Estuary as a result of the Project.
Red-breasted merganser (Paragraphs 7.3.124 to 7.3.130 of main report)

Table 20: Red-breasted merganser count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>327</td>
<td>230</td>
<td>10 (3.06%)</td>
<td>Low Tide Peak Count 2 (0.61%) High Tide Peak Count 0 (0%)</td>
<td>11 (3.36%) eastern side of River Wyre/Wyre Estuary (2009) Fleetwood Docks – 15 (4.59%), Fleetwood Marsh and Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS – 1 (0.3%), with a peak count of 15 (4.59%) birds at Fleetwood Docks in 2007</td>
<td>Yes, those using habitats on both sides of the estuary*</td>
</tr>
</tbody>
</table>

*However, as described in the text below, the majority of the habitat that is used by feeding red-breasted merganser would remain unaffected by the Project.

13.1.23 Fylde Bird Club confirmed, as identified in the main report, there are no roosting sites for red-breasted merganser within the study area; however, they are known to feed anywhere along the river at high tide, and are regularly seen between Arm Hill and Burrows Marsh. They also feed at Fleetwood Docks (see Figure 5K in Annex B for feeding locations). The majority of the habitat that is used by feeding red-breasted merganser would remain unaffected by the Project. Whilst the Seawater Pump Station would be located at the Fleetwood Fish Dock, where significant numbers of wintering red-breasted merganser have been recorded, as the Fish Dock is already subject to levels of disturbance as a result of industrial activity, nearby housing and retail development, and it is in use as a marina, it is considered that these birds are already habituated to a high degree to
noise and visual disturbance associated with these activities. In addition, as the Seawater Pump Station would be located in the corner of the southern dock (leaving Wyre Dock to the north and closest to the estuary undisturbed by the Project), there would be further feeding areas remaining for this species at Wyre Dock and along the River Wyre/Wyre Estuary. Therefore, it is considered that the Project would have no significant effects on wintering red-breasted merganser which feed across the River Wyre/Wyre Estuary.
### Lapwing (Paragraphs 7.3.131 to 7.3.138 of main report)

#### Table 21: Lapwing count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count year recorded in brackets</th>
<th>Potential for significant effects on wintering birds based on the number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>16492</td>
<td>17109</td>
<td>788 (4.78%)</td>
<td>Low Tide Peak Count 350 (2.12%) High Tide Peak Count 250 (1.52%)</td>
<td>1200 (7.28%) Arm Hill and Barnaby’s Sands (2008) Peak count of 800 (4.85%) birds at the ICI Tanks (2007) Also recorded on Fleetwood Farm – 120 (0.73%) (2007), Fleetwood Marsh – 645 (3.91%) (2008), Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS – 400 (2.43%) (2005)</td>
<td>Yes, those using habitats on both sides of the estuary</td>
</tr>
</tbody>
</table>

13.1.24 Fylde Bird Club confirmed that the main high tide roosting sites for lapwing are at the ICI Tanks Fleetwood Lagoon (ex-industrial land west of Fleetwood Marsh and at Barnaby’s Sands and Burrows Marsh (See Figure 5L in Annex B)). The main low tide roosts are at Arm Hill Sandbanks and Stanah and other higher mud areas in the middle of the River Wyre/Wyre Estuary (See Figure 5L in Annex B). Lapwing feed on all mud areas in the River Wyre/Wyre Estuary. There are also secondary feeding grounds within fields to the east of the Estuary, and at Fleetwood Farm. These secondary feeding grounds do not regularly support significant numbers of this species.

13.1.25 As identified in the main report, there is the potential to have significant effects on the wintering lapwing associated with the European site that use both sides of the River Wyre/Wyre Estuary as a result of the Project.
ON PASSAGE

Ringed Plover (Paragraphs 7.3.142 to 7.3.148 of main report)

Table 22: Ringed plover count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate 5 year peak mean (1991/92 to 1995/96)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>693</td>
<td>13 (1.86%) spring 4 (0.58%) autumn</td>
<td>0 (0%)</td>
<td>14 (2%) spring (2007), 10 (1.4%) autumn (2006), eastern side of River Wyre/Wyre Estuary 7 (1%) Fleetwood Marsh autumn (2010)</td>
<td>Yes, spring and autumn migration on both sides of estuary*</td>
</tr>
</tbody>
</table>

*However, further information revealed that very few ringed plover have been recorded on the western side of the estuary, and therefore only birds on passage using the eastern side of the estuary have been considered.

13.1.26 Fylde Bird Club identified that the Wyre Estuary is no longer considered to be a significant site for ringed plover on passage. When present, this species roosts on the south side of Arm Hill Island, and feeds on the Arm Hill Sandbank and any muddy area in the River Wyre/Wyre Estuary (See Figure 5M in Annex B). However, most ringed plover in the River Wyre/Wyre Estuary are found further up river.

13.1.27 Whilst the peak numbers taken from the Fylde Bird Club records and peak mean counts from WeBS data (Wyre Estuary - Arm Hill) imply that the Wyre Estuary area is used by greater numbers in the spring passage period, Fylde Bird Club has advised that overall, ringed plover use the Wyre Estuary primarily during the autumn passage period (in low numbers) with smaller numbers in the spring period. It is also apparent that the seven birds recorded on Fleetwood Marsh in autumn 2010 was an unusual count and very few ringed plover on passage have been recorded using the habitats on the western side of the River Wyre/Wyre Estuary. Overall, there is the potential for significant effects on ringed plover associated with the European site that use the habitats on the eastern side of the River Wyre/Wyre Estuary, during both spring and autumn migration, as a result of the Project.
### Sanderling (Paragraphs 7.3.149 to 7.3.152 of main report)

#### Table 23: Sanderling count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay SPA citation population estimate May 1995</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2466</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (0.04%) Barnaby’s Sands autumn 2004 1 (0.04%) Fleetwood Docks spring 2004</td>
<td>No</td>
</tr>
</tbody>
</table>

#### 13.1.28
Fylde Bird Club confirmed that the data provided in the main report remains valid. Only occasional sanderling have been recorded on passage at Arm Hill Sandbank and on the south side Arm Hill Island at peak tide. In addition, it was confirmed that the single record of sanderling at Fleetwood Dock described in the main report refers to the sandbank at Tiger’s Tail. As described in the main report, no significant effects are anticipated on the sanderling population of the European site as a result of the Project.
**Cormorant (Paragraphs 7.3.153 to 7.3.159 of main report)**

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>967</td>
<td>4 (0.4%) spring 11 (1.14%) autumn</td>
<td>0 (0%)</td>
<td>20 (2.07%) Barnaby’s Sands autumn (2010) 8 (0.83%) Fleetwood Docks</td>
<td>Yes autumn migration on eastern side of River Wyre/Wyre Estuary*</td>
</tr>
</tbody>
</table>

*However, on receipt of further information it is considered that the Project would have no significant effect on feeding cormorant as they forage widely over the estuary (see text below).*

13.1.29 Fylde Bird Club identified that cormorant occur in the Wyre Estuary all year around; however, greater numbers have been recorded during autumn migration (August to late winter) rather than during the spring migration (as stated in the main report). The primary roost site is along the edge of Barnaby’s Sands, with secondary roosts at Fleetwood Docks during high tides and Arm Hill Sandbank at low and rising tide (See Figure 5N in Annex B). Only low numbers use the Docks, often less than 10 individuals and Fylde Bird Club does not consider the Docks to be a significant roost site. Cormorants feed throughout the River Wyre/Wyre Estuary, at Fleetwood Docks, and all ponds in the area.

13.1.30 Given that cormorants forage widely along the River Wyre/Wyre Estuary, and as shown by Figure 5N in Annex B, the primary and main roosting sites are sufficiently remote from the elements of the Project that could give rise to disturbance, it is considered that the Project would have no significant effect on feeding or roosting cormorants. Therefore, there would be no significant effect on the passage population of cormorant associated with the European site as a result of the Project.
## Shelduck (Paragraphs 7.3.160 to 7.3.165 of main report)

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>7032</td>
<td>60 (0.85%) spring 96 (1.37%) autumn</td>
<td>0 (0%)</td>
<td>172 (2.45%) Arm Hill autumn 2006. Also 542* (7.7%) recorded on Barnaby’s Sands autumn 2004 50 (0.71%) Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS spring 2007</td>
<td>Yes autumn migration on eastern side of River Wyre/Wyre Estuary**</td>
</tr>
</tbody>
</table>

*Note this figure was not present in the main report previously. It is a peak count and is not a typical count for Barnaby’s Sands.

**Following receipt of specific roosting and feeding locations, it is considered that passage shelduck are located at sufficient distance that they would not be significantly affected by the Project (see text below).

13.1.31 As described for wintering shelduck above, roosting sites within the study area for this species cannot be determined as this species is active during all states of the tide. According to Fylde Bird Club during high tides, the largest aggregations of this species are at Barnaby’s Sands and Burrows Marsh. Whilst shelduck are reported to feed on all exposed mud, they especially favour an area west of the southern end of Burrows Marsh (See Figure 5G in Annex B). Between 50 and 60 birds have also been frequently recorded feeding on farmland to the east of the River Wyre/Wyre Estuary (See Figure 5G in Annex B) during the passage period and overwinter. This number of birds represents less than 1% of the European site population based on the Ramsar citation and is therefore considered to be not significant.
13.1.32 As indicated previously in the text for wintering shelduck, given the distance between the Project and the habitats used by shelduck (See Figure 5G in Annex B), it is considered that there would be no significant effect on the passage population of shelduck associated with the European site as a result of the Project.
**Pintail (Paragraphs 7.3.166 to 7.3.170 of main report)**

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>3743</td>
<td>0 (0%) spring 4 (0.11%) autumn</td>
<td>0 (0%)</td>
<td>1 (0.03%) Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS in 2007</td>
<td>No</td>
</tr>
</tbody>
</table>

13.1.33 As described for wintering pintail above, Fylde Bird Club confirmed that only very small numbers of pintail have been recorded in the study area. Therefore, as identified in the main report, it is anticipated that there would be no significant effects on the pintail population on passage associated with the European site as a result of the Project.
### Eider (Paragraphs 7.3.171 to 7.3.175 of main report)

#### Table 27: Eider count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>5657</td>
<td>18 (0.32%) spring 4 (0.07%) autumn</td>
<td>0 (0%)</td>
<td>27 (0.48%) Arm Hill spring 2006</td>
<td>No</td>
</tr>
</tbody>
</table>

13.1.34 Fylde Bird Club confirmed that there is a regular high tide roost for this species at Barnaby’s Sands; however, as stated in the main report, the peak count of 27 individuals is only equivalent to 0.48% of the European site population. Therefore, no significant effects on the passage eider population associated with the European site are anticipated as a result of the Project.
### Oystercatcher (Paragraphs 7.3.176 to 7.3.182 of main report)

**Table 28: Oystercatcher count data provided in the main report**

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>66577</td>
<td>1930 (0.3%) spring 3595 (5.4%) autumn</td>
<td>4730 (7.1%) Barnaby’s Sands autumn 2006 21* (0.03%) Fleetwood Marsh Nature Reserve/Fleetwood Marsh Industrial Land BHS 2007*</td>
<td>Yes autumn migration eastern side of River Wyre/Wyre Estuary only</td>
</tr>
</tbody>
</table>

*It has subsequently been noted that this count of 21 birds was recorded in July 2007 and therefore not within the either spring or autumn passage period. Oystercatcher have not been recorded in significant numbers on the western side of the River Wyre/Wyre Estuary.*

13.1.35 As described for wintering oystercatcher above, Fylde Bird Club concurred with the data in the main report. Fylde Bird Club identified that Arm Hill Sandbank and Arm Hill Island (at high tide) are the primary roosting sites for oystercatcher, together with some overspill onto Barnaby’s Sands (See Figure 5D in Annex B). Large roost sites are formed at Arm Hill Sandbank at all times of day and states of tides, and therefore this area nearly always supports large numbers of oystercatcher. Fylde Bird Club confirmed that Fleetwood Dock, Fleetwood Marsh Nature Reserve, Fleetwood Marsh Industrial Land and Fleetwood Lagoons are not significant areas for oystercatcher. They also confirmed that within the study area, oystercatcher feed on mussel beds just to the north of Arm Hill Sandbank, and opposite Stanah (See Figure 5D in Annex B). This species often fly to the Wyre area to roost having been feeding off of Knott End, at the mouth of the River Wyre/Wyre Estuary.

13.1.36 As identified previously in the main report, there is the potential for significant effects on oystercatcher associated with the European site using habitats on the eastern side of the River Wyre/Wyre Estuary during autumn migration as a result of the Project.
Table 29: Grey plover count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected Autumn 2004 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1655</td>
<td>0 (0%) spring 1 (0.06%) autumn</td>
<td>0 (0%)</td>
<td>2 (0.12%) Arm Hill and Barnaby’s Sands autumn 2006 1 (0.06%) Fleetwood</td>
<td>No</td>
</tr>
</tbody>
</table>

13.1.37 As described for the wintering population of grey plover described above, Fylde Bird Club confirmed that only very low numbers of grey plover occur within the River Wyre/Wyre Estuary study area. Therefore, as identified in the main report, no significant effects are anticipated on the grey plover population of the European site during passage as a result of the Project.
Curlew (Paragraphs 7.3.188 to 7.3.194 of main report)

Table 30: Curlew count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>20018</td>
<td>15 (0.07%) spring 223 (1.1%) autumn</td>
<td>285 (1.42%) Arm Hill autumn 2006 with similar numbers also recorded at Barnaby’s Sands 19 (0.09%) Fleetwood Marsh autumn 2010</td>
<td>Yes autumn migration on eastern side of River Wyre/Wyre Estuary</td>
</tr>
</tbody>
</table>

13.1.38 As described for the wintering population of curlew above, Fylde Bird Club confirmed that the areas of Fleetwood Marsh, Fleetwood Dock (which refer to the sandbank of Tiger’s Tail), Fleetwood Marsh Nature Reserve, and Fleetwood Lagoons are not significant roosting areas for curlew. The primary roost for curlew is Barnaby’s Sands (See Figure 5A in Annex B), as described in the main report. There are also secondary roosts at Burrow’s Marsh and on fields east of the River Wyre/Wyre Estuary (on which they also feed) (See Figure 5A in Annex B). Curlew are known to feed on all muddy areas of the river and at their roosting sites. Peak counts of curlew occur in the autumn passage period and overwinter. They depart early in the spring.

13.1.39 As identified previously in the main report, there is the potential for significant effects on curlew associated with the European site using habitats on the eastern side of the River Wyre/Wyre Estuary during autumn migration as a result of the Project.
Table 31: Redshank count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>8816</td>
<td>309 (3.5%) spring 870 (9.87%) autumn</td>
<td>1150 (13%) Barnaby’s Sands autumn 2009 with relatively large flocks also recorded at Arm Hill 900 (10.2%) Fleetwood Marsh autumn 2009 480 (5.45%) Fleetwood Marsh spring 2008</td>
<td>Yes spring and autumn migration on both sides of River Wyre/Wyre Estuary</td>
</tr>
</tbody>
</table>

13.1.40 As described for wintering redshank above, Fylde Bird Club confirmed that at high tide, the saltmarsh at Barnaby’s Sands is considered to be the primary roost site for redshank, followed by Arm Hill Island and Burrows Marsh (See Figure 5F in Annex B). They also form low tide roosts on Arm Hill Island, and on higher muds opposite Stanah and the centre of the river. Redshank feed on all mud in the river, including the creeks of the saltmarshes (See Figure 5F in Annex B), although the shore of Arm Hill Sandbank and Fleetwood Marsh are potentially favoured areas, which concurs with the data in the main report.

13.1.41 As identified previously in the main report, there is the potential for significant effects on redshank associated with the European site using habitats on both sides of the River Wyre/Wyre Estuary during spring and autumn migration as a result of the Project.
### Table 32: Turnstone count data provided in the main report

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1371</td>
<td>16 (1.17%) spring 19 (1.39%) autumn</td>
<td>57 (4.16%) Barnaby’s Sands autumn 2005 Less than 10 (less than 1%)*</td>
<td>Yes spring and autumn migration on eastern side of River Wyre/Wyre Estuary</td>
</tr>
</tbody>
</table>

*This was reported incorrectly. 17 birds (1.24%) have been recorded at Fleetwood Marsh in spring 2007.*

13.1.42 As described for wintering turnstone above, Fylde Bird Club confirmed that turnstones are not numerous within the study area. They are known to feed in areas to the north of Arm Hill Sandbank and also on Fleetwood Marsh. The numbers present in these areas are variable but usually occur in low numbers (See Figure 5H in Annex B for locations). They also occasionally roost on boats off Fleetwood Marsh and also on Barnaby’s Sands; again only in small numbers (See Figure 5H in Annex B). The WeBS data and Bird Club data for turnstones on passage recorded low but significant numbers within the Arm Hill count zone and on Barnaby’s Sands. They do not appear to be present on the western side of the River Wyre/Wyre Estuary during the passage period, and the more recent Fylde Bird Club agrees with this conclusion.

13.1.43 As identified previously in the main report, there is the potential for significant effects on turnstone associated with the European site using habitats on the eastern side of the River Wyre/Wyre Estuary during both the spring and autumn migration period as a result of the Project.
Lesser black-backed gull (Paragraphs 7.3.207 to 7.3.212 of main report)

<table>
<thead>
<tr>
<th>Table 33: Lesser black-backed gull count data provided in the main report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</td>
</tr>
<tr>
<td>40393</td>
</tr>
</tbody>
</table>

*However, on receipt of further information, it is now considered that significant numbers of lesser black-backed gull do not occur in the vicinity of the Project (see text below).

13.1.44 Fylde Bird Club provided additional information on roosting and feeding sites for lesser black-backed gulls. The primary roosting site for this species is at the ICI Tanks Fleetwood Lagoon (ex-industrial land west of Fleetwood Marsh), with a secondary roost of smaller numbers on rooftops near to Fleetwood Docks. Secondary roosts at low tide include Tiger’s Tail, Arm Hill Sandbank, Stanah, and other higher mud areas of the River Wyre/Wyre Estuary. Fleetwood Marsh Nature Reserve is used by this species for bathing and drinking. Feeding sites for this species are the Landfill Site at Fleetwood, Fleetwood Docks, and all shallows in the river at low tide, and also fields in the area (especially during ploughing activities).

13.1.45 Whilst Fylde Bird Club has advised that the majority of roosting and feeding sites for lesser black-backed gull are on the western side of the River Wyre/Wyre Estuary, the counts provided have established that they are not present in significant numbers on this side of the estuary. In addition, whilst significant numbers have been recorded on the eastern side of the estuary, Fylde Bird Club has advised that this peak count of 2,000 birds at Barnaby’s Sands in spring 2008 was likely to have been derived from a count of all species using the river, saltmarsh, and the fields (likely to be ploughed at this time) from the Arm Hill area. This count was an exceptional number which was also used for the WeBS data for Wyre Estuary (Arm Hill) count. Peak counts in other years for the spring WeBS count were: 19, 4, 135, and 70. Fylde Bird Club does not consider that Barnaby’s Sands is a significant roosting area for this species. From this information, and the typical numbers and locations of lesser black-backed gulls in the area, it is considered that there would not be significant numbers present in the vicinity of the Project during either the spring or autumn passage period. It is therefore considered that there would be no significant effect on lesser black-backed gull associated with the European site using habitats on the eastern side of the River Wyre/Wyre Estuary during both the spring and autumn migration period as a result of the Project.
Additional Bird Species

13.1.46 Teal and black-tailed godwit have been considered as part of the assemblage qualification for the European site (See Paragraphs 7.3.213 to 7.3.218 of the main report). Within this text, it was identified from WeBS data for the Wyre Estuary (Arm Hill) count zone, that the part of the Wyre Estuary/River Wyre adjacent to the Project supports a significantly large proportion over-wintering birds from the European site and therefore, there is potential for significant effects on the overwintering bird assemblage qualification. Notwithstanding this, further information for these two specific species has been provided below, as requested by Natural England.

Teal

13.1.47 The Ramsar citation provides a population estimate for teal of 2,363 individuals, based on the 5 year peak mean (1998/99-2002/03). This represents an average of 1.2% of the GB population. More recent WeBS data for Morecambe Bay suggests that this population has almost doubled, with the most recent 5 year peak mean (2005/06-2009/10), indicating a recent population estimate of 4,202 birds.

13.1.48 WeBS data for the Wyre Estuary (Arm Hill) count zone provides a population estimate of 875 birds, based on the 5 year peak mean (2005/06-2009/10). This represents 37% of the European site population, based on the Ramsar citation. In addition, data received from Fylde Bird Club also indicates that aggregations of teal have been recorded at Barnaby’s Sands on the eastern side of the estuary (See Figure 5O in Annex B) with a peak count of 535 birds in January 2010 (equivalent to 22.6% of the population).

13.1.49 Teal were recorded throughout the winter months, at both low and high tide, during the wintering bird surveys (2008/09). A peak count of 360 birds was recorded at low tide, with a peak count of 260 birds recorded at high tide. A maximum count of 1,000 birds was also recorded during the 2003 wintering bird surveys. A peak count of 360 birds represents 15.2% of the European site population and a peak count of 1,000 birds is equivalent to 42.3% of the European site population, based on the Ramsar citation.

13.1.50 Information received from the Fylde Bird Club has confirmed that teal use Barnaby’s Sands to roost at high tide, Burrow’s Marsh when flooded, and the eastern edge of the main river channel at low tide (See Figure 5O in Annex B). Feeding areas include Arm Hill Sandbank, Fleetwood Marsh on the western side of the River Wyre/Wyre Estuary, and Barnaby’s Sand and Burrow’s Marsh on the eastern side of the River Wyre/Wyre Estuary (See Figure 5O in Annex B). The data received from Fylde Bird Club recorded a peak count of 500 birds at Fleetwood Marsh in 2008. Fylde Bird Club did not consider that Fleetwood Marsh Nature Reserve and the ICI tanks are significant roosting and feeding sites, although the data provided recorded a peak count of 69 birds at the Nature Reserve in 2007, and a peak count of 66 birds at the ICI tanks in 2007.
(greater than 1%). However, it was noted that all other records of teal provided from the Nature Reserve were of counts less than 19 (and therefore less than 1%). Taking the peak counts, the numbers of teal using the western side of the River Wyre/Wyre Estuary (Fleetwood Marsh) represents 21% of the European site population, based on the Ramsar citation.

Table 34: Teal summary count data

<table>
<thead>
<tr>
<th>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</th>
<th>Morecambe Bay WeBS data 5 year peak mean (2005/06-2009/10)</th>
<th>WeBS data Wyre Estuary (Arm Hill) count zone 5 year peak mean (2005/06-2009/10)</th>
<th>Data collected 2008/09 in Project area</th>
<th>Fylde Bird Club Data peak count</th>
<th>Potential for significant effects based on number of birds close to Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2363</td>
<td>4202</td>
<td>875 (33.2%)</td>
<td>360 (41.1%) low tide 260 (9.86%) high tide</td>
<td>500 (21.2%) Fleetwood Marsh (2008) 69 (2.92%) Fleetwood Marsh Nature Reserve (2007) 66 (2.79%) ICI Tanks (2007)</td>
<td>Yes on both the eastern and western side of the River Wyre/Wyre Estuary in winter</td>
</tr>
</tbody>
</table>

13.1.51 Given that more than 1% of the European site population is present in the vicinity of the Project, on both the western and eastern sides of the estuary; there is the potential for significant effects to arise as a result of the Project.

13.1.52 The potential for significant effects on the overwintering population of teal on the western and eastern sides of the estuary as a result of the Project, through displacement/disturbance of feeding or roosting birds, has therefore been considered in the assessment.

**Black-tailed godwit**

13.1.53 The Ramsar citation provides a population estimate for black-tailed godwit of 218 individuals, based on the 5 year peak mean (1998/99 to 2002/03). This represents an average of 1.4% of the GB population. More recent WeBS data for Morecambe Bay suggests that this population has increased more than fivefold, with the most recent 5 year peak mean (2005/06 to 2009/10) data indicating a population estimate of 1,216 birds.

13.1.54 WeBS data for the Wyre Estuary (Arm Hill) count zone provided a population estimate of 227 birds, based on the 5 year peak mean (2005/06-2009/10). This represents 104% of the European site population based on the Ramsar citation. In addition,
data received from Fylde Bird Club also indicates that main roosting sites are on the Arm Hill sandbank area, and also at Burrows Marsh (with a peak count of 370 birds in 2010) and Barnaby’s Sands (a peak count of 294 in 2010), all on the eastern side of the estuary (See Figure 5P in Annex B). Taking the peak count at Burrow’s Marsh, this is equivalent to 170% of the population. Information from Fylde Bird Club also confirmed that the main feeding area for black-tailed godwits is the mud area in the south of the study area opposite Stanah (See red hatched area bordered in bold on Figure 5P in Annex B); however, they will feed in any muddy low waters.

13.1.55 Black-tailed godwit were recorded throughout the winter months on the River Wyre/Wyre Estuary, at both low and high tide, during the wintering bird surveys (2008/09). A peak count of 60 birds was recorded at low tide and a peak count of 150 birds was recorded at high tide. A maximum count of 25 birds was also recorded during the 2003 wintering bird surveys. A peak count of 150 birds represents 68.8% of the European site population, based on the Ramsar citation.

13.1.56 In addition, information and data received from Fylde Bird Club indicates that flocks of black-tailed godwit have been recorded at Fleetwood Farm (with a peak count of 220 birds in 2010), which is a known feeding area (See Figure 5P in Annex B); Fleetwood Marsh, on the western side of the River Wyre/Wyre Estuary (with a peak count of 26 birds in 2010); and the sandbank area known as Tiger’s Tail at the entrance to Fleetwood Docks (with a peak count of 53 birds on 2007). These sites are all on the western side of the River Wyre/Wyre Estuary. Taking the peak count of 220 birds at Fleetwood Farm, this represents 101% of the European site population based on the Ramsar citation.

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<td>Morecambe Bay Ramsar citation population estimate 5 year peak mean (1998/99 to 2002/03)</td>
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13.1.57 Given that more than 1% of the European site population is present in the vicinity of the Project, on both the western and eastern sides of the estuary; there is the potential for significant effects to arise as a result of the Project.

13.1.58 The potential for significant effects on the overwintering population of black-tailed godwit on the western and eastern sides of the estuary as a result of the Project, through displacement/ disturbance of feeding or roosting birds, has therefore been considered in the assessment.
Annex B

Supporting Figures
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
1:25,000
DATUM
GRID

PRESSELL UNDERGROUND GAS STORAGE FACILITY

PINK-FOOTED GOOSE ROOSTING AND FORAGING AREAS

Primary Roosting Area
Primary Feeding Area
Potential Disturbance Zone (500m)

Hyder Consulting (UK) Limited
330 Firecrest Court
Centre Park
PREESALL
WA1 1RG
Tel: +44 (0)1925 572462
Fax: +44 (0)1925 800700

Plot Date: 24/Jan/2012 11:54:14 AM
File Location: K:\PROJECTS\WX40004-FLEETWOOD SOLUTION MINING-DirkHAMMAD2011-FOATAT REGULATIONS ASSESSMENT CAD DRAWINGS\STATEMENT-TO-INFORM-DRAWINGS\FIG5E-WX40004-UE31D-01-PINK-FG.DWG
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**Applying Licence**

PREESALL UNDERGROUND GAS STORAGE FACILITY

GREAT CRESTED GREBE ROOSTING AND FORAGING AREAS

---

**Notes**

- Application Boundary
- Feeding
- Potential Disturbance Zone

---

**Contact Information**

Hyder Consulting (UK) Limited
330 Firecrest Court
PREESALL
UNDERGROUND GAS STORAGE FACILITY
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Fax: +44 (0)1925 325462

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**Plot Date**

23/Jan/2012 4:35:56 PM

**File Location**

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### Notes

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<td>B</td>
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<td>D</td>
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### Diagram

- **PRELIMINARY NOT TO BE USED FOR CONSTRUCTION**
- Scale: 1:25,000
- **PRESALL UNDERGROUND GAS STORAGE FACILITY**

**WIGEON ROOSTING AND FORAGING AREAS**

**Halite energy group**

**Plot Date:** 23/Jan/2012 4:44:23 PM

**File Location:** K:\PROJECTS\WX40004-FLEETWOOD SOLUTION MINING\OUR DRAWINGS\2011 HABITAT REGULATIONS ASSESSMENT\CAD DRAWINGS\STATEMENT-TO-INFORM-DRAWINGS\FIG5J-WX40004-UE31D-01-WIGEON.DWG

**Fig 5J – WX40004 – 01**
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<td>BLACK-TAILED GODWIT ROOSTING AND FORAGING AREAS</td>
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### Notes
- Application Boundary
- Roosting
- Primary Roosting Area
- Feeding
- Primary Feeding Area
- Potential Disturbance Zone

### Legend
- Purple: Application Boundary
- Green: Roosting
- Yellow: Primary Roosting Area
- Red: Feeding
- Black: Primary Feeding Area
- Orange: Potential Disturbance Zone

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### Plot Details
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  - 20 George Street
  - WA1 6JG
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  - Fax: +44 (0)1925 800700

### Illustrations
- Fig 5P

### Scales
- 1:25,000

### Datums and Grids
- J.NORMAN
- GRID