Lancashire County Council

Consultees

Phone: 01772 538810
Fax:
Email: DevCon@lancashire.gov.uk
Your ref:
Our ref: LCC/2014/0101 JMH
Date: 13 June 2018

Dear Sir/Madam,

PLANNING APPLICATION LCC/2014/0101 – PROPOSED EXPLORATION WELLSITE ON LAND ADJACENT TO ROSEACRE WOOD, ROSEACRE ROAD, ELSWICK NEAR PRESTON

I refer to the above planning application on which you have previously been consulted. As you will be aware the application was refused by the County Council and a public inquiry to consider the appeal by Cuadrilla Elswick Ltd was held in 2016.

Following the appeal, the Secretary of State determined that he was minded to allow the appeal but that the public inquiry should be reopened to allow further evidence on highway matters to be submitted and to address the Inspector's concerns in that regard.

The reopened public inquiry took place in April 2018. However, given the elapse of time since the original planning application, Cuadrilla have prepared an update to the original Environmental Statement covering the following matters:-

- Air Quality
- Archaeology and Cultural Heritage
- Green House Gas emissions
- Community and Socio Economic impacts
- Ecology
- Hydrology and Ground Gases
- Induced Seismicity
- Landscape and Visual Amenity
- Water Resources
- Public Health
- Cumulative and In-Combination effects

Transport is not specifically covered within the Supplementary Environmental Statement as these issues were covered in the Revised Traffic Proposals which were consulted upon prior to the start of the re-opened public inquiry.

The updated Environmental Statement can be viewed on the County Council's website using the following link **http://planningregister.lancashire.gov.uk/**

I would be grateful if any comments that you might have to make could be sent to the County Council at the above address within 21days of the date of this letter. Any comments received will be made available to the Secretary of State when he finally determines this appeal having received the Inspector's report to the reopened public inquiry.

If you have any questions regarding this letter, please contact Jonathan Haine.

Yours faithfully

Jonathan Haine

Jonathan Haine
Principal Planning Officer

Cuadrilla Elswick Ltd

Temporary Shale Gas Exploration
Roseacre Wood, Lancashire

Supplementary Environmental Report

March 2018

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Appendices

1 Introduction

1. This report has been written in support of the ongoing planning appeal ref. APP/Q2371/W/15/3134385 submitted by Cuadrilla Elswick Limited ("Cuadrilla") in respect of proposed temporary shale gas exploration works at Roseacre Wood in Lancashire.

2. As confirmed in his decision letter of 6 October 2016, the Secretary of State (SoS) is minded to grant this appeal subject to the re-opening of the inquiry to hear further evidence on highway safety. That inquiry is due to take place in April 2018, after which Inspector Mel Middleton will prepare an addendum inspector's report for the SoS on highway safety. It is then expected that the SoS will make his final decision on this appeal at some stage thereafter.

3. This Supplementary Environmental Report has been prepared to provide an update to the SoS on whether there have been any relevant non-highway safety related changes to policy, guidance and legislation and any other material changes that have arisen since the SoS's decision letter was issued. This report will not form part of the evidence base for the inquiry, which will solely consider highway safety, and will be the subject of separate public consultation.

4. Any plan contained within this Supplementary Environmental Report is provided for illustration purposes only and does not seek to amend those that have already been submitted for approval as part of the appeal process.

5. Except as set out below in this report, all other matters remain unchanged from the position as at the date of the SoS's decision letter.

2 Indicative Programme

1. Cuadrilla remains committed to ensuring that all drilling and hydraulic fracturing operations will be completed within a period of 30 months from the date of commencement of the drilling of the first well, and that site restoration will be completed within 75 months from commencement of development. A condition to secure this commitment was set out in draft condition 2 appended to the SoS's decision letter.

2. The original design for the site access road and light use areas of the well pad assumed these areas were built by topsoil strip, laying and compacting stone to provide a sub-base and finally laying tarmac. As other drilling/fracturing sites have used aluminium plates or high-density polyethylene (HDPE) trackway or similar, this is now proposed at Roseacre Wood. By reducing the permanent works through the use of aluminium plates or HDPE trackway or similar where appropriate, Heavy Goods Vehicles (HGV) movements will be reduced. Reducing the vehicle movements for construction of the Site access road will also reduce vehicle movements for site restoration and reduce the construction and site restoration durations.

3. Assuming the use of these techniques, and based on experience of the actual length of the site construction and the drilling of wells 1 and 2 at the Preston New Road exploration site, it is anticipated that the site construction and drilling phase for wells 1 and 2 for the Roseacre Wood site will last approximately 7 and 12 months respectively, however 2 months of these phases overlap with each other so the total consecutive length of time is actually 17 months. Furthermore it is estimated that, as at Preston New Road, subsequent phases for operations will be as below. Please note these are indicative timings and that some phases overlap so timings are not all consecutive:

Site Phase	**Duration**
Drilling of wells 3 and 4	6 months (3 months for each well)
Hydraulic Fracturing for four wells	8 months (2 months for each well)
Initial Flow Test for four wells	8 months (although the environmental permit allows 12 months for the site)
Installation of Extended Flow Test Pipeline	7 months
Extended Flow Test	33.5 months
Well Plugging & Restoration	4.5 months

4. For the avoidance of doubt the construction period for the Roseacre Wood site is now 2 months longer than the 5 months stated in the recent Traffic Addendum. This is because the construction phase now includes 2 additional months which were originally classified as the start of the drilling phase (for conductor installation). In reality these 2 months actually overlap between the 2 phases, as they did at our Preston New Road site-during June and July 2017, with simultaneous finalisation of site construction and the conductor installation.

5. At the previous planning inquiry in 2016, it was estimated that construction of the Roseacre Wood site would take 2 months[1]. This has now been revised to 7 months following the experience at Preston New Road. The drilling of wells 1 and 2 was originally estimated to take 8 months at the previous inquiry but this has been revised to 12 months. Finally the restoration of the site was originally estimated to take 2 months[2] and this has been revised to 4.5 months.

[1] CUA/INQ/024 estimated 3 months for construction and the indicative programme in Figure 2 of Mr Smith's proof cited 5 months, though the main position at the previous inquiry, as set out in the Transport Proof of Mr Ojeil submitted on behalf of Cuadrilla, was considered to be 2 months.

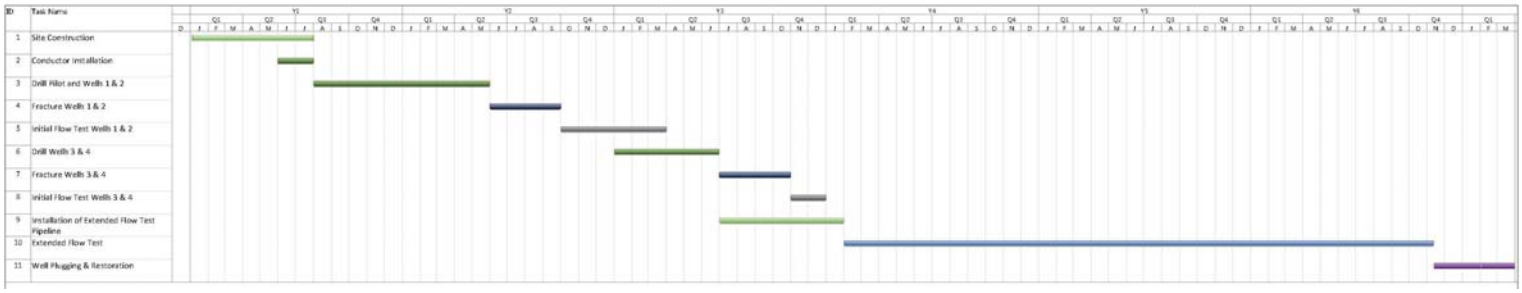
[2] The indicative programme in Figure 2 of Mr Smith's proof cited 12 months for restoration, though the main position at the previous inquiry, as set out in the Mr Ojeil's Transport Proof, was considered to be 2 months.

6. Note that, irrespective of the phase of operation, the imposition of a cap on HGV movements of 50 movements (25 HGVs in and 25 HGVs out) per day ensures that in environmental terms the duration of any particular phase and the total number of HGV movements, within the life of the planning permission, would not affect the significance of the environmental effects. In addition the revised indicative programme complies with the proposed planning condition that all operations are completed within a period of 75 months from commencement of development.

7. An indicative programme for Roseacre Wood is provided in Figure 1.1 below.

8. There may be up to a maximum of a 2 year overlap of exploration operational activities between the two projects. Different activities will be synchronised at each site to reduce the risk of any cumulative effects. This is consistent with the position as at the date of the SoS decision letter.

Figure 1.1: Indicative Programme for Roseacre Wood



3 Summary of Updates

1. Table 1.1 provides an overview of the new information presented in this report.

Table 1.1: Summary of Updates

Topic	Updated information presented	Implications for Roseacre Wood appeal
Air Quality	Consideration of new guidance issued by Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) and new baseline data.	No material change.
Archaeology and Cultural Heritage	Consideration of new guidance and new baseline data.	No material change.
Greenhouse Gas Emissions	Consideration of new 2017 Institute of Environmental Management and Assessment (IEMA) guidelines and new baseline data.	No material change.
Community and Socio-Economic	Consideration of new baseline data.	No material change.
Ecology	Consideration of new guidance issued by Chartered Institute of Ecology and Environmental Management (CIEEM) and new baseline data.	No material change.
Hydrology and Ground Gases	Consideration of new regulatory requirements and new baseline data.	No material change.
Induced Seismicity	New BGS records reviewed to update understanding of underlying geology.	No material change.
Landscape and Visual Amenity	Consideration of new guidance issued by Landscape Institute (LI) and baseline conditions verified.	No material change.
Transport	A revised HGV Route Strategy.	Material change, presented in the Traffic Addendum.
Water Resources	Consideration of new regulatory	No material change.

Topic	Updated information presented	Implications for Roseacre Wood appeal
	legislation and guidance and new baseline data.	
Public Health	Consideration of new baseline data.	No material change.
Overview of Cumulative and In Combination Effects	Consideration of new cumulative developments within 1km of the Site.	No material change.

4 Planning Conditions

1. A draft list of conditions for the Project was included at Appendix C of the SoS's decision letter.

2. No amendments to those draft conditions are required as a result of the changes identified in this report.

3. As mentioned in Section 9, an additional Invasive Species Management Plan will be required for any works in close proximity to the stand of *Rhododendron ponticum* (Rhododendron) identified in Roseacre Wood.

5 Air Quality

5.1 New Guidance and Methodology

Construction Phase

1. An updated version (V1.1) of the 2014 Institute of Air Quality Management (IAQM) '*Guidance on the assessment of dust from demolition and construction*' was issued in 2016. The updated version only included amendments to Table 3 of the guidance which is used to determine the sensitivity of the area to human health impacts. This amendment does not impact on the construction phase results of the 2014 ES Chapter, and therefore the construction phase assessment has not been updated.

Operational Phase

Road Traffic

2. Cuadrilla have committed to restricting HGV movements to and from the Site to a maximum of 50 two-way HGVs per day (25 each-way) and this has been considered in relation to air quality in the Traffic Addendum. Whilst these traffic movements have not been specifically considered within this report, nitrogen oxides (NO_x) and

particulate matter (PM_{10} and $PM_{2.5}$) emissions have been considered within the re-assessment presented within this report, to enable the consideration of cumulative impacts of different emission sources relating to the Project. Since the previous assessments there have been a number of changes to the tools used within traffic modelling which have also been considered.

Generators and Site Equipment

3. It is understood source parameters used in the dispersion modelling (e.g. location, height, exit velocity etc.) provided by Cuadrilla remain valid and these data have not been reviewed as part of this update. However, the assessment utilised Stage III emission requirements for Non-Road Mobile Machinery (NRMM) for particulate matter (PM) and it is noted that since then, Stage IV emission requirements have been phased in (2013 to 2014) which has tighter limits for emissions of PM. It is also noted that Regulation (EU) 2016/1628 includes Stage V emissions standards, however these will phase in from 2018 for approval of new engine types and in 2019 for all sales. For a conservative assessment Stage IV emission standards are treated as the current standards for the purposes of the Project.

Flaring of Gases

4. Cuadrilla has confirmed that source parameters (e.g. location, height, exit velocity etc.) remain valid.

New Guidance

5. There have been a number of changes (e.g. new guidance, updated dispersion modelling software, etc.) which have the potential to affect elements of the methodology used to assess the operational phase air quality (and the results), as detailed below:

    - A newer version of the ADMS 5 (v5.2.1.0) dispersion model has been released;
    - The Local Air Quality Management Technical Guidance (Defra, 2009) ('LAQM TG.09') has now been replaced by a 2016 update ('LAQM TG.16';
    - New guidance has been issued by IAQM and Environmental Protection UK (EPUK) (2017 'EPUK-IAQM guidance'). The 2017 guidance is intended for the same purpose as the 2010 guidance but has been fully revised and contains amended criteria which can be used to determine the significance of effects; and
    - The Environment Agency H1 guidance used in the 2014 ES has now been withdrawn. Defra and the Environment Agency published guidance in 2016 ('Air emission risk assessment for your environmental permit') which is broadly similar to the H1 guidance.

6. In addition, following a review of the NO_x emission rate for flaring used in the 2014 ES assessment, it was not possible to identify the data source. Therefore, the NO_x emission rates has been re-calculated, based on a worst-case scenario of flare equipment operating at the emission limits with the maximum expected exhaust gas

flow. The NO_x emission rate calculated was comparable to the 2014 ES value and has been used in the updated assessment.

7. In order to confirm whether the changes above alter the conclusion of the air quality assessment, an updated quantitative assessment of operational phase impacts has been undertaken. The results are discussed in Section 6.3 and detailed within Appendix 6.1.

5.2 New Baseline

8. The Defra LAQM background mapping data was revised in 2016 and 2017 based on a reference year of 2013 and 2015, respectively, and more recent local air quality monitoring data are now available. In addition, Air Quality Consultants Ltd (AQC) have undertaken a study[3] which provides calibration factors of the predicted concentrations within the background maps.

9. New baseline air quality data was obtained in December 2017 of current maps using publically available electronic maps. According to the Defra website, there remain no Air Quality Management Areas (AQMAs) within the vicinity of the Site. The closest AQMA to the Site is in Broughton, which is approximately 8.3km southeast of the Site.

10. Local monitoring data within approximately 5km of the Site was also obtained.

11. Based on available data, it is not considered that the current baseline differs significantly from the baseline considered in the 2014 ES.

5.3 New Assessment

Construction Phase

12. The amended IAQM (v1.1) guidance does not alter the sensitivity of human receptors in the Study Area and with no significant change to the baseline conditions. Moreover, the receptors surrounding the Site remain unchanged and the nature of the construction activities remains valid, with the exception of a longer duration over which heavy duty vehicles may be used to bring goods to and from the Site. Therefore, the assessment of dust and particulate matter during construction activities as presented in Section 6.7 of the 2014 ES remains valid.

Operational Phase

Road Traffic

13. The potential for significant impacts on local air quality in relation to road traffic has been considered separately and evidence will be submitted to the April 2018 inquiry on this. However, emissions from vehicles related to the Project have been included within the re-assessment presented below to consider the potential for cumulative impacts of different emission sources relating to the Project.

[3] Air Quality Consultants (2017) Calibrating Defra's Background NO_x Maps against 2016 Measurements.

Flaring and Generators – Updated Dispersion Modelling Results

14. The main potential impact of the Project is considered to be emissions from the proposed enclosed ground flares and the generator engines on the sensitive receptors in the area surrounding the Site. The results of the modelling exercise for flaring and generators (and including road traffic emissions to consider overall cumulative concentrations) are presented in Appendix 6.1.

15. A comparison of the revised assessment results with the relevant Air Quality Standards (AQS) objectives and latest guidance, has found that there will be **no significant impacts** under a conservative operating scenario for the Project. Therefore the conclusions of the 2014 ES and additional assessments from the Regulation 22 requests, of no significant impacts on local air quality, are considered to remain valid.

Fugitive Emissions

16. No changes were found that would affect the 2014 ES assessment of fugitive emissions and the 2014 ES results were considered to remain of **negligible significance**.

Radon Gas Exposure

17. The proposed operating hours and emissions parameters of the proposed flares and generators have not changed in a way that radon gas exposure is likely to have changed since the 2014 ES radon gas exposure assessment was undertaken. The results of the 2014 ES, that the effective dose of radiation as a result of the proposed operations to the local resident family being '**not significant**', are therefore considered to remain valid.

5.4 Conclusions

18. The re-assessment has concluded that the residual air quality effects of the Project are of **negligible significance** under a conservative operating scenario.

19. This is consistent with the position as at the date of the SoS's decision letter.

6 Archaeology and Cultural Heritage

6.1 New Guidance

1. New policy and guidance pertinent to the assessment of archaeology and cultural heritage have been issued. This includes:

    - Policy ENV5 (Historic Environment) of the Submission Fylde Local Plan (to 2032); and.
    - Chartered Institute for Archaeologists Standard and Guidance for Historic Environment Desk-Based Assessment, 2017.

6.2 New Baseline

2. New baseline data was collected including a Historic Environment Record (HER) search and review of Light Detection and Ranging (LiDAR) data.

6.2.1 HER Review

3. There remain no designated heritage assets within the 1km Study Area.

4. There are 19 non-designated heritage assets now listed within the HER.

5. There are 73 designated heritage assets within 5km of the Site, all of which are listed buildings (including Dovecote at Great Ecclestone which is also a scheduled monument).

6. Within the 5km Study Area there are two Conservation Areas. These are the Thistleton Conservation Area located 3.6km to the northwest and Kirkham Conservation Area location 4km to the southwest.

6.2.2 LiDAR Review

7. A review of the available LiDAR data shows there are features within the Site boundary which correspond to former field boundaries. The field boundaries in the north and east of the Site correspond to those shown on the Tithe Map, dated 1839. A linear feature running across the Site orientated east-west is likely to be a footpath. No additional archaeological features were identified.

6.3 Conclusions

8. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the resulting residual effects of the Project are **not significant**. This is consistent with the position as at the date of the SoS's decision letter.

7 Greenhouse Gas Emissions

7.1 New Guidance

1. In May 2017, IEMA published a document entitled *Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance* which aims to assist Environmental Impact Assessment (EIA) practitioners with addressing Green House Gas (GHG) emissions assessment and mitigation in EIA.

2. The 2014 ES chapter GHG assessment is considered to accord with the requirements of relevant guidance and good practice including IEMA's 2017 guidance on GHG Assessment in EIA. The IEMA Working Group which developed this guidance was led by Arup, the author of the 2014 ES.

3. Updates to GHG conversions factors published following the 2014 ES are considered unlikely to significantly change the predicted net GHG emissions from the Project (upper range of 124,369 tCO_2e).

4. Changes between the applied 2012 / 2013 Defra factors and the most recent 2017 factors are generally minor and downward (i.e. a small reduction in GHG emissions intensity) and a result of the UK's continuing decarbonisation progress.

5. It is therefore considered that updating the 2014 GHG assessment with the 2017 Defra conversion factors would not result in significant changes to the 2014 ES GHG results.

7.2 New Baseline

6. It is considered appropriate to use an updated baseline provided by the UK's Third Carbon Budget 2018-2022 (2,554 $MtCO_2e$) and projected UK EU ETS allowance for 2018 (approximately 206 $MtCO_2e$, assuming an annual reduction in allowance of 1.74% as assumed in the 2014 assessment).

7.3 Assessment Scope

7. The GHG assessment does not include emissions from the combustion of the extracted shale gas through the Extended Flow Test (EFT) phase by end users, whether electricity-generating power stations or domestic heating. This matter was the subject of legal challenge in the High Court and Court of Appeal, *Frackman v Secretary of State for Communities and Local Government* 2018 EWCA Civ.

8. The Court of Appeal held that there was no requirement to assess for the purposes of the EIA Regulations any GHG emissions from the ultimate end use of the gas produced in the EFT phase. This was because there was no evidence of any likely material increase in GHG from the burning of shale gas in the EFT phase. There was no evidence that the gas produced would raise the total consumption of gas by increasing gas usage.

9. Therefore the approach that was taken in the 2014 ES is entirely correct and there is no material change in this regard.

10. Emissions from logistics, including all HGV movements, are estimated to account for only 1.1 % of overall Project emissions and as such do not contribute a significant environmental impact. In addition, given the minimal GHG contribution of Project HGV movements, it is assessed that any small variation in the actual HGV numbers relative to forecast the number necessary to implement the permission would not alter the assessment of no significant environmental impact.

7.4 New Assessment

11. As presented in Section 2, it is anticipated that the site construction and drilling phase for wells 1 and 2 for Roseacre Wood site will last approximately 7 and 12 months respectively, however 2 months of these phases overlap with each other so the total consecutive length of time is actually 17 months. This will not give rise to the need

for additional materials on site which the 2014 ES calculated to be the largest source of GHG emissions from this phase. The overall programme for drilling and fracking remains within 30 months. The timeframe extension may however result in moderate additional use of site plant than was assumed in the 2014 ES. GHG emissions of 80 $tCO2_e$ were calculated from this site plant which equates to just 0.06% of total project GHG emissions. Increasing site plant use from a 2 month to 7 month period would therefore add, at worst, only 0.16% of GHG emissions to the project and would not alter the assessment of no significant environmental impact.

12. The 2014 ES chapter states the upper range of predicted net GHG emissions from the Project (124,369 tonnes tCO_2e) is equivalent to 0.002% of the UK's Second Carbon Budget covering the period 2013 to 2017 (2,782 $MtCO_2e$) and as such is the Project's contribution to national GHG emissions is considered **negligible**.

13. Compared to the UK's Third Carbon Budget 2018-2022 allowance of 2,554 $MtCO_2e$, the difference equates to 0.005%. The difference between these figures could be due to certain GHG emissions from the Project being contextualised under the UK's own Carbon Budget allowance and other GHG emissions contextualised under the UK's EU ETS carbon allowances such as emissions from flaring.

7.5 Conclusions

14. Project GHG emissions remain a **negligible** proportion of respective UK carbon allowance.

15. This is consistent with the position as at the date of the SoS's decision letter.

8 Community and Socio-economic

8.1 New Baseline

1. Update baseline information has been collected. This has included:

    - New data on the population statistics of Newton and Treales ward;
    - Wealth including earnings, employment, unemployment and deprivation;
    - Industrial structure of Fylde;
    - Housing statistics of Fylde; and
    - Crime levels for Fylde borough.

2. Whilst some of the data has changed since the compilation of the 2014 ES, the updated baseline data has not changed significantly enough to alter the outcome of the assessment and as such is deemed to remain valid.

8.2 Conclusions

3. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the resulting residual effects of the Project are **not**

significant. This is consistent with the position as at the date of the SoS's decision letter.

9 Ecology

9.1 New Guidance

1. The Chartered Institute of Ecology and Environmental Management (CIEEM) issued updated guidance for the purposes of producing Ecological Impact Assessments in 2016.

9.2 New Baseline

2. Updated baseline ecological surveys were carried out for the Project in 2017. These included an Ecological Site Walkover including:

    - Hedgerow survey;
    - Invasive Species Survey;
    - Badger Survey;
    - Bat Activity Survey;
    - Water Vole Survey;
    - Nesting Bird Survey; and
    - Great Crested Newt survey.

3. All surveys were updated using the most recent survey guidelines. Details of the survey methodology and results can be found in Appendix 10.1 and 10.2 respectively.

4. Due to the findings of the previous Breeding Bird Survey, and the consistency of the habitat types identified in 2014 and again in 2017, an updated Breeding Bird Survey (which seeks to identify what species of birds might breed onsite) was judged not to be required. However, whilst on site a Nesting Bird Survey was undertaken to ascertain suitable habitat with on-site nesting potential.

9.3 New Assessment

5. The 2017 ecology survey results were comparable with those undertaken in 2013 and 2014. The only additional finding was the identification of a single area of *Rhododendron ponticum* (Rhododendron) in Roseacre Wood, within 10m of the proposed access route in to the Site.

6. As illustrated in Appendix 10.2, the 2017 Great Crested Newt surveys recorded identical population size classes in Waterbodies 6 and 8. No Great Crested Newts were recorded in Waterbody 11 or any of the other waterbodies surveyed.

9.4 New Mitigation Measures

7. An additional Invasive Species Management Plan will be required for any works in close proximity to the stand of *Rhododendron ponticum* (Rhododendron) identified in Roseacre Wood.

9.5 Conclusions

8. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the residual effects of the Project are **not significant**. This is consistent with the position as at the date of the SoS's decision letter.

10 Hydrology and Ground Gases

10.1 New Guidance

1. Most of the original documentation published in 2013 by the Department of Energy and Climate Change (DECC) and the Environment Agency (EA) has now been superseded and merged into a single document *Onshore oil and gas exploration in the UK: regulation and best practice*[4] (DECC, 2015) supported by additional guidance introduced in June 2017[5] by the Department for Business, Energy and Industrial Strategy (BEIS). Current regulations include:

General regulation and guidelines for onshore gas exploration:

- DECC *Onshore oil and gas exploration in the UK: regulation and best practice*, December 2015.
- DBEIS *Hydraulic Fracturing Consent – Guidance on application for hydraulic fracturing consent (HFC) under section 4A of the Petroleum Act 1998 (inserted by section 50 of the Infrastructure Act 2015)*, February 2017.

Regulation related to the wellbore:

- UKOOG (UK Onshore Oil & Gas) UK Onshore *Shale Gas Well Guidelines, exploration and Appraisal phase Issue 4*, December 2016[6]
- Oil and Gas UK Well *Life Cycle Integrity Guidelines, Issue 3, March 2016*[7].
- *Oil and Gas UK Guidelines for the Abandonment of Wells, Issue 5, July 2015.*
- *Oil and gas UK Guidelines on qualification of materials for the abandonment of wells, Issue 2*, October 2015[8].

[4] Department of Energy and Climate Change (DECC). 2015. Onshore oil and gas exploration in the UK: regulation and best practice

[5] Department for Business, Energy and Industrial Strategy (BEIS). 2017. Hydraulic Fracturing Consent Guidance on application for hydraulic fracturing consent (HFC) under section 4A of the Petroleum Act 1998 (inserted by Section 50 of the Infrastructure Act 2015)

[6] http://www.ukoog.org.uk/onshore-extraction/industry-guidelines

[7] Oil and Gas UK. 2016. Well Life Cycle Integrity Guidelines, Issue 3, March 2016 (OP119) (https://oilandgasuk.co.uk/product/well-life-cycle-integrity-guidelines-issue-3-march-2016/)

Regulation relating to groundwater protection:

- Environment Agency, *The Environment Agency's approach to groundwater protection March 2017.*
- *Infrastructure Act 2015.*

10.2 New Baseline

2. The updated EA document '*The Environment Agency's approach to groundwater protection* (EA, 2017)' refers to the *Infrastructure Act 2015*[6] stressing the importance of measuring methane emissions for 12 months prior to hydraulic fracturing.

3. The monitoring of dissolved methane in groundwater commenced on site on 13th October 2016. Since this date a groundwater sample for dissolved methane has been collected and analysed by an external laboratory each month (the analysis also includes a test for carbon dioxide and other hydrocarbons C_3-C_6). At the time of writing, 11 months of monitoring has been completed with the most recent sample taken on 30th August 2017.

4. In addition to this, hydraulic fracturing is prohibited in protected groundwater source areas. According to the current classification of aquifers in the Fylde area there are no protected groundwater source areas.

5. The monitoring scope and reporting procedures will be agreed with the regulators and presented in advance in the Environmental Management and Monitoring Plan (EMMP). Cuadrilla will liaise with the EA to discuss the EMMP in the context of recent regulatory updates.

10.3 Conclusions

6. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the resulting residual effects of the Project are **not significant**. This is consistent with the position as at the date of the SoS's decision letter.

11 Induced Seismicity

11.1 New Baseline

1. The monitoring of background seismicity in the Lancashire area has involved installation of a network of seismic stations in the vicinity of the Project. Real time seismic data are being collected from the array of stations to help characterise current levels of seismic activity.

2. This will help to quantify the incidence and scale of human induced seismicity in the event of shale gas exploration and production. The proximity to Blackpool and

[8] Guidelines of the qualification of materials for the abandonment of wells, Issue 2, October 2015 (https://oilandgasuk.co.uk/product/op071/)

Preston means that this area of Lancashire has naturally very noisy background seismicity.

11.2 Conclusions

3. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the resulting residual effects of the Project are **not significant**. This is consistent with the position as at the date of the SoS's decision letter.

12 Landscape and Visual Amenity

12.1 New Guidance

1. The Landscape Institute (LI) released a Technical Guidance Note, Visual Representation Of Development Proposals, on the 31 March 2017. The guidance is intended to enable an appropriate choice of technique when seeking visual representations of developments.

12.2 New Baseline

2. A search was carried out for planning applications on the Fylde Borough Council and Lancashire County Council planning portals for any applications received from 01/01/2014 – 22/08/2017. Seven small scale, domestic planning applications were identified within a 1km radius of the Site (e.g. building extensions and erection of stables) however, it is considered none are likely to materially change the outcomes of the landscape and visual assessment.

3. In addition all viewpoints adopted during the 2015 Landscape and Visual Impact Assessment (LVIA) ES Addendum have been revisited to assess any changes in landscape character. Appendix 13.1 lists the visual receptors, their location and distance from the Site, a short description, viewpoint sensitivity and any change from that recorded in 2015.

4. The findings of the revised visual baseline indicate that the visual baseline has not changed significantly since the production of the 2015 LVIA ES Addendum.

12.3 Conclusions

5. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the resulting residual effects of the Project are **not significant** except during the drilling, hydraulic fracturing and flow texting phases when significant effects are anticipated. This is consistent with the position as at the date of the SoS's decision letter.

13 Transport

1. A revised HGV Route Strategy is presented in the Traffic Addendum, the evidence of which will be submitted for examination at the April 2018 inquiry. This is therefore not addressed in this Supplementary Environmental Report.

14 Water Resources

14.1 New Guidance

1. New guidance and plans pertinent to the assessment of water resources have been issued. This includes:

    - Technical National Planning Practice Guidance (2012) superseded by Planning Practice Guidance (2014);
    - Technical National Planning Practice Guidance paragraphs 11 - 15 (2012) superseded by the Climate Change Allowances (2016) Guidance;
    - United Utilities Water Resources Management Plan, 2015; and
    - Updated River Basin Management Plans (2015).

2. The key change between the superseded Technical National Planning Practice Guidance and the Climate Change Allowances (2016) Guidance is the way in which climate change in terms of peak river flow and rainfall intensity is calculated for the development in terms of River Basin District and type of development.

14.2 New Baseline

3. A desk study of available information has been undertaken.

4. The Site area remains unchanged with regards to geology, proximity to surface watercourses and further existing hydrological features. The Site lies entirely within Flood Zone 1.

5. The main change in the observed Water Framework Directive (WFD) status is with regards to Lords Brook where the watercourse is currently recorded as attaining a Poor Overall and Poor Ecological status. In terms of results this change will have a negligible impact with the 2014 ES Chapter assessing the watercourse with a higher significance and therefore provides an assessment against a slightly worst case scenario.

14.3 Conclusions

6. With no significant change to the baseline conditions and predicted impacts the re-assessment has concluded that the resulting residual effects of the Project are **not significant**. This is consistent with the position as at the date of the SoS's decision letter.

15 Public Health

15.1 New Baseline

1. Updated baseline information has been collected. This has included:

    - New data on the population statistics of Newton and Treales ward;
    - New data on life expectancies of Newton and Treales ward;
    - Deprivation statistics of Flyde; and
    - Health statistics of Flyde.

2. Coupled with the relatively low levels of deprivation, the updated datasets indicates that the general health and wellbeing of the local population is good.

15.2 Conclusions

3. Whilst some of the data has changed, the community profile has not changed significantly enough to alter the outcome of the assessment and as such is deemed to still be valid. This is consistent with the position as at the date of the SoS's decision letter.

16 Overview of Cumulative and In Combination Effects

1. An indicative programme for Roseacre Wood is provided in Section 2. There may be up to a maximum of a 2 year overlap of exploration operational activities between the two projects. However, these projects are sufficiently distant from one another and different activities will be synchronised at each site that cumulative impacts are not anticipated. This is consistent with the position as at the date of the SoS's decision letter.

2. A review of emerging local plans and planning applications (24-28 June 2017) was undertaken to determine whether any significant development granted or in determination lie within 1km of the Site. These are presented in Appendix 17.1 The following resources were considered:

    - Emerging Fylde Local Plan (to 2032);
    - Lancashire Minerals and Waste Development Framework Core Strategy (2007);
    - Fylde Borough Councils Planning Portal;
    - Wyre Borough Council Planning Portal;
    - Preston City Council Planning Portal; and
    - Lancashire County Council Planning Portal.

3. The review of local plans and planning applications identified no new large planning applications within 1km of the Site. The Project therefore has limited scope to result in cumulative effects with other local developments. This is consistent with the position as at the date of the SoS's decision letter.

17 Conclusion

1. This Supplementary Environmental Report seeks to update the SoS on whether there have been any non-highway safety related relevant changes to policy, guidance and legislation and any other material changes that have arisen since the SoS's decision letter was issued.

2. The re-assessments that have been carried out have concluded that there has been no material change to the likely significant impacts of the proposed development from the position as at the SoS's decision letter.

3. Except for the recommendation for an Invasive Species Management Plan, as set out in Section 9, all other proposed mitigation measures remain unchanged. Should the SoS consider it to be appropriate, Cuadrilla would be willing to accept an additional condition to require submission of Invasive Species Management Plan prior to construction commencing on site.

Cuadrilla Elswick Ltd
Temporary Shale Gas Exploration
Roseacre Wood, Lancashire

Supplementary Environmental Report

Appendix 6.1 – Air Quality Operational Assessment Results

APPENDIX 6.1 – OPERATIONAL ASSESSMENT RESULTS

Human Receptors

Table 6.5.1: Maximum Predicted Annual Mean NO_2 Concentrations at Discrete Human Receptors

Receptor ID	Receptor Description	Annual Mean NO_2 Concentration			
		PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL
R1	Roseacre Hall	1.63	4.1%	10.70	26.8%
R2	Roseacre Village East	0.79	2.0%	9.85	24.6%
R3	Old Orchard Farm	1.99	5.0%	11.00	27.5%
R4	New Hall	1.06	2.6%	10.93	27.3%
R5	Stanley Farm	0.42	1.1%	9.12	22.8%
R6	White Carr Farm	0.09	0.2%	9.67	24.2%
R7	North Greenhills	0.17	0.4%	9.89	24.7%
R8	Higham Nook	0.38	1.0%	9.07	22.7%
Air Quality Objective		40 µg/m^3			

Table 6.5.2: Maximum Predicted 99.79th Percentile of Hourly Mean NO_2 Concentrations at Discrete Human Receptors

Receptor ID	Receptor Description	99.79th Percentile 1 Hour Mean NO_2 Concentration			
		PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL
R1	Roseacre Hall	26.59	13.3%	44.73	22.4%
R2	Roseacre Village East	18.43	9.2%	36.55	18.3%
R3	Old Orchard Farm	31.89	15.9%	49.91	25.0%
R4	New Hall	18.33	9.2%	38.07	19.0%
R5	Stanley Farm	12.14	6.1%	29.54	14.8%
R6	White Carr Farm	5.86	2.9%	25.02	12.5%
R7	North Greenhills	6.04	3.0%	25.48	12.7%
R8	Higham Nook	5.91	3.0%	23.29	11.6%
Air Quality Objective		200 µg/m^3			

Table 6.5.3: Maximum Predicted Annual Mean PM_{10} and $PM_{2.5}$ Concentrations at Discrete Human Receptors

Receptor ID	Annual Mean PM_{10} Concentration				Annual Mean $PM_{2.5}$ Concentration			
	PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL	PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL
R1	0.04	0.1%	13.25	33.1%	0.04	0.2%	8.95	35.8%
R2	0.02	0.1%	13.23	33.1%	0.02	0.1%	8.94	35.8%
R3	0.04	0.1%	12.74	31.8%	0.04	0.2%	8.68	34.7%
R4	0.02	0.1%	13.36	33.4%	0.02	0.1%	9.05	36.2%
R5	0.01	0.0%	13.17	32.9%	0.01	0.0%	8.88	35.5%
R6	0.00	0.0%	13.62	34.1%	0.00	0.0%	9.12	36.5%
R7	0.00	0.0%	13.35	33.4%	0.00	0.0%	8.98	35.9%
R8	0.01	0.0%	13.16	32.9%	0.01	0.0%	8.87	35.5%
Air Quality Objective	40 µg/m^3				25 µg/m^3			

Table 6.5.4: Maximum Predicted 90.4th Percentile of 24 Hour Mean PM_{10} Concentrations at Discrete Human Receptors

Receptor ID	Receptor Description	90.4th Percentile 24 Hour Mean PM_{10} Concentrations			
		PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL
R1	Roseacre Hall	0.29	0.6%	13.51	27.0%
R2	Roseacre Village East	0.15	0.3%	13.37	26.7%
R3	Old Orchard Farm	0.33	0.7%	13.03	26.1%
R4	New Hall	0.16	0.3%	13.50	27.0%
R5	Stanley Farm	0.08	0.2%	13.24	26.5%
R6	White Carr Farm	0.02	0.0%	13.64	27.3%
R7	North Greenhills	0.04	0.1%	13.39	26.8%
R8	Higham Nook	0.04	0.1%	13.20	26.4%
Air Quality Objective		50 µg/m^3			

Table 6.5.5: Maximum Predicted Annual Mean Benzene Concentrations at Discrete Human Receptors

Receptor ID	Receptor Description	Annual Mean Benzene Concentrations			
		PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL
R1	Roseacre Hall	0.01	0.2%	0.32	6.4%
R2	Roseacre Village East	0.00	0.0%	0.32	6.4%
R3	Old Orchard Farm	0.01	0.2%	0.32	6.4%
R4	New Hall	0.01	0.2%	0.32	6.4%
R5	Stanley Farm	0.00	0.0%	0.29	5.8%
R6	White Carr Farm	0.00	0.0%	0.32	6.4%

Receptor ID	Receptor Description	Annual Mean Benzene Concentrations			
		PC	PC as % AQAL	Total Concentration	Total Concentration as % of AQAL
R7	North Greenhills	0.00	0.0%	0.32	6.4%
R8	Higham Nook	0.00	0.0%	0.29	5.8%
Air Quality Objective		5 µg/m^3			

Ecological Receptors

Table 6.5.6: Maximum Predicted Annual Mean NO_x Concentrations at Designated Ecological Site

Receptor ID	Receptor Description	Annual Mean NO_x Concentration				
		Background NO_x Concentration (µg/m^3)	PC (µg/m^3)	Total Concentration (µg/m^3)	PC as % Objective	Total Concentration as % of Objective
E9	Morecambe Bay SPA	12.30	0.04	12.34	0.1%	41.1%
Air Quality Objective		30µg/m^3				

Table 6.5.7: Nitrogen Deposition Contribution at Nearby Ecological Site

Receptor ID	Receptor Location	Broad Habitat Type	Critical Load Range kg N/ha/yr	PC (kg N/ha/yr)	Total N Deposition keq/ha-yr	Process Contribution as a % of lower critical load	PC as a % of background Deposition Rate
E9	Morcambe Bay SPA (& Ramsar)	Coastal Saltmarsh	20-30	0.0041	23.7	0.02	0.02

Table 6.5.8: Acid Deposition Contribution at Nearby Ecological Sensitive Site

Receptor ID	Receptor Location	Broad Habitat Type	Total Background Deposition (keq/ha-yr)	Total Process Deposition (keq/ha-yr) (PC)	Total Acid Deposition (keq/ha-yr) (PEC)	CLMaxS	CLMinN	CLMaxN
E9	Morcambe Bay SPA (& Ramsar)	Coastal Saltmarsh	1.850	0.0006	1.851	There is no comparable critical load class for which the CL function is calculated		
Keq/ha-yr = kilo equivalents per hectare per year CL = Critical Load								

Cuadrilla Elswick Ltd
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Roseacre Wood, Lancashire

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Appendix 10.1 – Ecological Constraints Walkover

Cuadrilla Elswick Ltd

Temporary Shale Gas Exploration

Roseacre Wood, Lancashire

Ecological Constraints Walkover 2017

661310

OCTOBER 2017

GENERAL NOTES

Project No.: 661310

Title: Temporary Shale Gas Exploration, Roseacre Wood, Lancashire
Ecological Constraints Walkover 2017

Client: Cuadrilla Elswick Ltd

Date: October 2017

Status: Draft/Rev 00

EXECUTIVE SUMMARY

1. This report presents the results of a Site-walkover survey and bat activity surveys to identify possible ecological constraints associated with proposed works at Roseacre Wood, including the proposed access track (DHFCS Inskip route). The surveys were carried out to update and confirm findings from the baseline ecological surveys, carried out by ARUP in 2013 and 2014 to inform an Environmental Statement for the proposed temporary shale gas exploration Project.

2. The surveys included Badgers, bats, nesting birds and Water Voles, non-native invasive plant species and hedgerows. Incidental sightings of other important species and habitats were also noted where seen.

3. The Site is within agricultural farm land, with both arable land and improved pasture. There are several ditches and hedgerows as well as an area of broad-leaved woodland. The access to the Site (DHFCS Inskip route) is on existing tarmac and gravel tracks. The Site is close to the village of Roseacre, Lancashire, *c.* 8 km north-west of Preston. It is surrounded on all sides by agricultural land.

4. On the Site there is habitat suitable for Badgers, bats, nesting birds and Water Voles. A single stand of *Rhododendron ponticum* (Rhododendron) was recorded on the Site.

5. The bat activity survey results show a common assemblage of bats present on the Site and that the Site provides good quality foraging habitat, particularly along the woodland edges in the survey area.

6. The survey results are comparable to those recorded in the baseline ecological surveys for the 2014 Environmental Statement.

7. The proposed mitigation measures remain unchanged from those as described in Section 10.9 of the 2014 ES.

CONTENTS

1 INTRODUCTION

1.1 Purpose of this Report

This report presents the results of a Site-walkover survey and bat activity surveys to detect any possible ecological constraints on the proposed temporary shale gas exploration at Roseacre Wood, Lancashire. A previous Environmental Statement (2014 ES) and baseline ecology surveys were carried out in 2013 and 2014 by ARUP. These new surveys are to update and confirm the findings from the original surveys in the 2014 ES.

1.2 Ecological Context

The Site is within agricultural farm land, with both arable land and improved pasture. There are several ditches and hedgerows along field boundaries as well as an area of broad-leaved woodland. The access to the Site (DHFCS Inskip Route) is on existing tarmac and gravel tracks. The access will cross Roseacre Road. The Site is close to the village of Roseacre, Lancashire, c. 8 km north-west of Preston. It is surrounded on all sides by agricultural land.

1.3 Structure of this Report

The remainder of this report is structured as follows:

- *Section 2* describes the survey and assessment methods;
- *Section 3* presents the survey results;
- *Section 4* evaluates the results;
- *Section 5* lists the references; and
- *Section 6* gives the figures.

Subsequent sections contain the appendices:

- *Appendix A* explains the protected species legislation.

2 METHODS

2.1 General

The initial survey was carried out by two appropriately trained and qualified ecologists on 01 June 2017. The assessment included:

- a field survey to identify ecological constraints; and
- a habitat assessment for protected species.

Further surveys for Water Voles and bat activity surveys were carried out throughout 2017.

There are no habitats on the Site that are suitable for reptiles. An assessment was made for the suitability of the habitats for Badgers, nesting birds, Otter and Water Voles. Great Crested Newt surveys have already been completed at the Site and the results are reported separately.

2.2 Ecological Constraints Survey

The surveys were carried out in suitable weather conditions. The constraints survey comprised a walkover of the Site, recording notable habitats, evidence of invasive species, and the suitability of habitats for protected or notable species[1].

The survey included the following:

2.2.1 Hedgerow Survey

The hedgerows were assessed for their likelihood for qualifying as Important Hedgerows under the Hedgerow Regulations (1997). If hedgerows were identified as being likely to be important, then further botanical surveys would be carried out.

2.2.2 Invasive Species Survey

A walkover of the area within the well pad site and access track (DHFCS Inskip route) (*Figure* 1) was carried out in June 2017. Where invasive plant species, e.g. *Fallopia japonica* (Japanese Knotweed), *Heracleum mantegazzianum* (Giant Hogweed), *Impatiens glandulifera* (Indian Balsam), were seen during the normal course of other surveys (Great Crested Newt and bat surveys) they were noted and recorded.

[1] Primarily those listed on the Habitat and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended), or as species of principal importance for nature conservation in England under the Natural Environment and Rural Communities Act, 2006

2.2.3 Badgers

All suitable Badger habitats on the Site and within a 30 m buffer of the Site (*Figure* 1) was surveyed. A systematic survey of the Site was carried out, focusing on habitats that are suitable for Badgers, including grassland, woodland and hedgerows. The badger survey comprised a detailed search for signs of Badger activity including latrines (droppings), footprints, paths, feeding evidence, hairs and setts.

2.2.4 Bats

Habitats were assessed for their suitability for foraging and commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and habitats with good numbers of insects such as woodland edges, hedgerows, watercourses and species-rich or rough grassland.

Habitats and areas of particular interest to foraging and commuting bats on and adjacent to the Site are:

- edges of woodland and scrub;
- tree lines; and
- hedgerows and ditches.

Transect Surveys

Bat surveys followed methodology outlined in Collins (2016) to identify areas of high commuting and foraging activity and also the species involved (large roosts can sometimes also be identified from patterns of activity). Survey visits were undertaken with one visit per season (Spring – April/May, Summer – June/July/August and Autumn – September/October) during 2017. One transect route was covered during the surveys. This is shown in *Figure 2.*

Transects consisted of 2 hour dusk surveys across the Site, consisting of walking sections with five minute monitoring stops at previously identified locations with high quality habitat where bats were likely to be encountered. On each visit, a set transect route was walked in suitable weather (above 7°C with little or no rain and no strong winds) using a Batlogger detector and a Duet detector, which allow both targeted and continuous recordings during the survey in both frequency division and time expansion formats. Dusk surveys commenced 30 minutes before sunset and lasted until 2 hours after sunset.

Table 1 details the dates and survey times for each activity survey completed. *Table* 2 provides the weather conditions recorded at the beginning and end of each survey were also recorded.

Table 1: Survey dates and timings for each transect surveys

Date	Survey Type	Sunset/ Sunrise Time	Start Time	End Time
17/05/2017	Dusk – Transect 1	21:11	20:41	23:41
11/07/2017	Dusk – Transect 1	21:39	21:09	23:39
31/08/2017	Dusk – Transect 1	20:04	19:34	22:34

Table 2: Weather conditions recorded at the beginning and end of each transect survey

Date	Air Temperature (°C)	Cloud Cover (%)	Wind Speed (Beaufort)	Precipitation
17/05/2017	14	2	2	None
11/07/2017	18	4	3	Light drizzle 1 hour before survey
31/08/2017	16	7	3	None

Levels of bat activity were quantified by the number of bat passes recorded during each walking section or monitoring stop. A single pass by a bat was defined by a gap of one second or more between the end and beginning of the next bat call. Species were identified either in the field or through the analysis of recordings using Bat Explorer® software programs.

Static Surveys

Wildlife Acoustics Song Meter 2 Bat+ (SM2) detectors were used to monitor two different monitoring points (MP) on the Site (see *Figure 2*), on three occasions (see *Table 3*). These surveys followed methodology outlined by Collins (2016) by which SM2s were kept out for five consecutive nights each survey. The SM2 detectors provided complementary data derived from longer recording periods with each monitoring point corresponding with the following habitat:

- MP1 – on woodland edge, near to proposed works (OS grid reference SD 4419 4366); and

- MP2 – along hedge, near to proposed works (OS grid reference SD 4400 3640).

These locations were identified as providing potentially high quality habitat for both commuting and foraging bats where the number of passes by bats was likely to be high.

Static Survey dates (shown on *Table 3*) were selected when the predicted weather forecast indicated suitable weather conditions for foraging and commuting bats (*i.e.* air temperature above 7°C, the absence of strong winds and no precipitation). The surveys were designed to provide information on the level of bat activity and composition of bat species using the Site, the relative importance of features and locations and how patterns of bat activity may change throughout the year. The information collected was used to compliment the information collected during the bat transect surveys as the SM2s collected information over a longer period of time.

Table 3: Survey dates for static detector deployment

Monitoring Point	Spring	Summer	Autumn
1 & 2	17/05/2017	11/07/2017	31/08/2017

The units were set up to continuously record from 30 minutes before sunset until 30 minutes after sunrise. The microphones were mounted on extension cables at least 3 m off the ground. All recordings were stored onto memory cards and analysed using the Kaleidoscope Pro® software program. All automated identifications, noise and no ID files from the software were double checked by an experienced ecologist for quality assurance purposes. Echolocation calls were identified down to species or genus level depending on the type of bat encountered (*i.e.* it is not possible to reliably identify species belonging to the genus *Myotis* and *Plecotus* and *Nyctalus* species) and the quality of the recording.

The level of bat activity was quantified by the number of files (passes) and pulses (individual echolocation pulses within a call) recorded for each recorded species for each night and monitoring period. The Kaleidoscope analysis software produced a single file for each pass made by an echolocating bat. The number of pulses within each file also gives a quantifiable measure for the approximation of the level of foraging and commuting activity.

2.2.5 Nesting Birds

The sites were assessed for nesting birds. Birds nest in a wide variety of habitats including on open ground and in hedgerows.

2.2.6 Otter & Water Vole

Surveys of the ditches crossed by the works and within 100 m of the Site boundary (*Figure 1*) were carried out. The surveys were carried out on two occasions, one early season (June 2017) and one late season (August 2017) in line with the latest Water Vole Guidance (2016).

2.2.6.1 Otter Survey

The Otter survey comprised a detailed search for signs of Otters including spraint (droppings), footprints, slides, paths, feeding evidence, holts (underground resting places) or couches (temporary resting places).

2.2.6.2 Water Vole

Habitat Assessment

Habitat was assessed for Water Voles according to subjective criteria, which were then used to categorise habitat according to suitability for the species. The following habitat factors are taken into consideration:

- water quality;
- water-level regime;
- channel dimensions;
- bank type and material;
- vegetation for cover and food sources;
- shading;
- predation and competition; and
- habitat management.

Habitat suitability was classified as follows:

- Suitable – habitat that has all the elements required for Water Voles certainly in the summer, and probably through most winters.
- Suitable (Sub-optimal) – habitat that has some of the habitat features that are suitable for Water Vole, but with some constraints so that suitability throughout the year is not certain.
- Unsuitable – habitat lacking one or more crucial element for use by Water Voles. This category does not necessarily preclude the habitat being used by commuting Water Voles, but it would not be able to support a resident population.

Evidence of Water Vole Activity

Survey for evidence of Water Vole followed standard methods adapted from Strachan and Moorhouse (2011). All suitable habitats were systematically and thoroughly searched for signs of the species where access was possible. Early June is a suitable time of the year to survey for Water Voles as they are active above ground, and latrines are maintained from February through to November by territorial individuals (Strachan and Moorhouse, 2011). For those habitats that were classed as suitable, a repeat survey for evidence was carried out in August 2017.

Surveys involved an intensive search of the bank side and water-edge habitat, searching for Water Vole field signs including:

- burrows;
- feeding platforms and evidence of feeding;
- food remains;
- latrines; and
- footprints.

2.3 Other Notable Species

During the surveys outlined above, a record was made of any incidental sightings of other notable species, including Hedgehog and Brown Hare.

2.4 Validity of Data

According to Natural England advice, survey data up to two years old may be acceptable for medium to high impact schemes (*e.g.* housing developments), as long as the habitats have not changed significantly in that time period.

Where a European Protected Species licence is required after the grant of planning permission, Natural England expects applicants to check - by walk-over survey not more than three months before the submission of a licence application - that conditions have not changed significantly since the original walkover surveys were carried out.

3 RESULTS

3.1 Botanical Surveys

3.1.1 Hedgerows

There are five hedgerows either crossed by the access route to the Site, or adjacent to the Site. All hedgerows are similar in structure, being dense and *c.* 2 m high and 1.5 m wide. They are all species poor with a maximum of three woody species, including *Acer pseudoplatanus* (Sycamore), *Crataegus monogyna* (Hawthorn) and *Fraxinus excelsior* (Ash). None of the hedgerows qualify as Important under the *Hedgerow Regulations* (1997).

3.1.2 Non-native Invasive Plant Species

A single stand of *Rhododendron ponticum* (Rhododendron) was recorded in the woodland at the southern boundary of the Site. No other non native invasive species were recorded in or adjacent to the survey area.

3.2 Assessment for Protected Species

3.2.1 Badgers

No evidence of Badger activity and no Badger setts were recorded on the Site or within 30 m of any works areas.

3.2.2 Bats

Transect Surveys

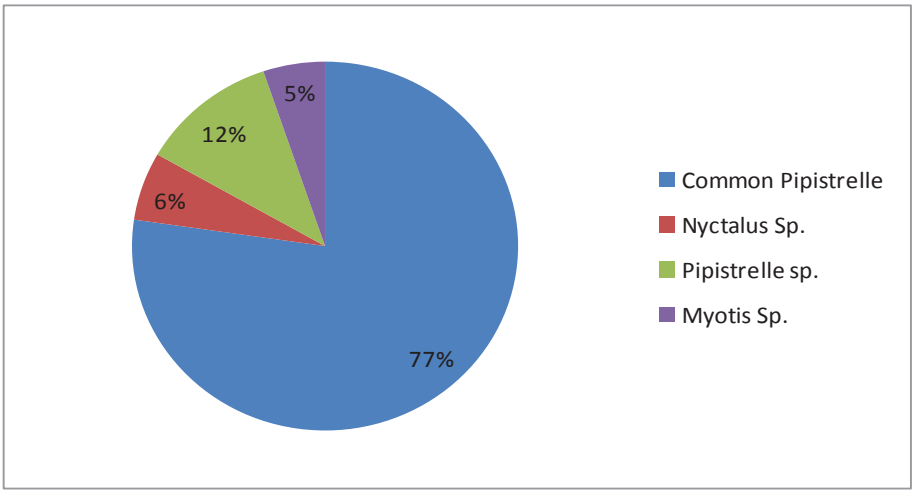
Table 4 details the total number of bat passes recorded during the three surveys in May, July and August 2017.

At least four different species of bat were recorded during the surveys including Common Pipistrelle (*Pipistrellus pipistrellus*), *Pipistrellus sp., Nyctalus sp*. and *Myotis sp*. Over the course of the surveys, Common Pipistrelle attributed for 77% of all activity recorded (foraging and commuting) on the Site. This was followed by unidentified *Pipistrellus sp.* (12%); these are most likely to be Common or Soprano Pipistrelles. With *Nyctalus sp*. (6%), which were most likely to be Noctule and finally *Myotis sp*. (5%) as shown in *Chart 1*.

Table 4: Total number of bat passes recorded during the transect surveys

Species	May	July	August	TOTAL
Transect				
Common Pipistrelle	122	63	9	194
Nyctalus Sp.	0	15	0	15
Pipistrelle sp.	27	0	2	29
Myotis Sp.	5	7	1	13
TOTAL	**154**	**85**	**12**	**251**

Chart 1: Species contributions to total level of bat activity recorded across transects



The May survey had the peak level of bat activity recorded (total of 154 passes). At least three different bat species were recorded during each of the transect surveys (with 4 overall).

Bat activity was largely limited to the woodland edge in the east of the transect area and a hedgerow and lines of trees to the south and west, where high levels of foraging activity by Pipistrelle bats was recorded. Occasional passes by Pipistrelles and *Myotis sp*. were recorded along the farm track to the north of the transect area and along the road to the east. *Nyctalus sp* were recorded passing over the Site (*Figure 2*).

Static Surveys

A summary of the results for each monitoring point are given in *Table 5 and 6* for MP1 and MP2 respectively. Across all monitoring points at least four different species of bat were recorded overall; Common Pipistrelle, *Pipistrelle sp*., *Myotis* sp. and *Nyctalus sp*. Common Pipistrelle bats were recorded most frequently across all monitoring points and mostly on a nightly basis. *Nyctalus sp*. was the next most frequent at MP1 and *Myotis* sp. was the next most frequent at MP2. Overall the highest levels of activity were recorded at MP1 along the woodland edge that runs along the track to the eastern boundary of the Site. This was followed by MP2 alongside the hedgerow.

The May survey did not record any bat activity and this is thought to be because of an equipment malfunction or interference from the surrounding aerial masts at the Ministry of Defence site nearby.

The tables below present the Number of Files and Pulses for each monitoring point in May, July and August. The column 'Number of Files' represents the number of passes per species (intervals of one second between bat calls represents a new pass). The column titled 'Number of Pulses' represents the number of calls emitted per bat species – this varies between species due to their different calls.

Table 5: Summary of results for Monitoring Point 1

Species	May-17		Jul-17		Aug-17		TOTAL	
	Number of Files	Number of Pulses	Number of Files	Number of Pulses	Number of Files	Number of Pulses	Number of Files	Number of Pulses
Common Pipistrelle	0	0	1226	9187	8	256	**1234**	**9443**
Pipistrelle sp.	0	0	9	21	0	0	**9**	**21**
Nyctalus sp.	0	0	3	28	1	4	**4**	**32**
Myotis sp.	0	0	8	49	0	0	**8**	**49**
TOTAL	**0**	**0**	**1246**	**9285**	**9**	**260**	**1255**	**9545**

Table 6: Summary of results for Monitoring Point 2

Species	May-17		Jul-17		Aug-17		TOTAL	
	Number of Files	Number of Pulses	Number of Files	Number of Pulses	Number of Files	Number of Pulses	Number of Files	Number of Pulses
Common Pipistrelle	0	0	118	982	0	0	**118**	**982**
Pipistrelle sp.	0	0	0	0	0	0	**0**	**0**
Nyctalus sp.	0	0	2	6	11	157	**13**	**163**
Myotis sp.	0	0	7	19	0	0	**7**	**19**
TOTAL	**0**	**0**	**127**	**1007**	**11**	**157**	**138**	**1164**

3.2.3 Nesting Birds

The hedgerows are suitable for nesting birds, however no evidence of active nests was recorded during the survey. The hedgerows are particularly dense, making a thorough search for nests impossible. A single Skylark (*Alauda* arvensis) was seen singing over the agricultural fields adjacent to the Site.

3.2.4 Otter and Water Voles

Two of the ditches on the Site are dry and are not suitable for Otter or Water Voles.

The remaining three ditches are suitable for Otter and Water Voles, however no evidence was seen during either of the Site surveys.

3.3 Other Notable Species

Two Brown Hares were recorded on the Site during the survey. They are present within the improved grassland adjacent to the access track and within the arable farm land adjacent to the proposed Site.

4 EVALUATION

4.1 Habitats and Plants

The habitats present at this Site are generally species-poor and common in the local area. The survey was sufficient to assess the value of the habitats on the sites and no further botanical surveys are required. The hedgerows do not qualify as important under the Hedgerow Regulations.

Care will have to be taken when working near the stand of *Rhododendron ponticum* (Rhododendron), as it is an offence to cause this species to spread in the wild.

Mitigation measures proposed for any loss of habitat remains as described in Section 10.9 of the 2014 ES.

4.2 Protected Species

4.2.1 Badgers

No evidence of Badgers was recorded on the Site and no further action is required with regard to Badgers. A repeat survey of the Site should be carried out prior to construction to determine whether these results are still valid.

4.2.2 Bats

Habitats

The habitats on the Site, and in the immediate area, provide suitable foraging and commuting opportunities for bats. This was confirmed when activity and static surveys recorded at least four species of bats using the Site area.
During the transect surveys bat foraging and commuting activity was recorded in association with hedgerows, lines of trees and woodland edges with concentrated activity along the woodland edge on the east of the transect and the hedgerow in the south and west of the transect .
In addition, static bat detectors deployed at two different locations on Site recorded highest levels of activity at MP1 along the woodland edge that runs along the farm track to the eastern boundary of the Site. Activity was also recorded at MP2 (the hedgerow to the west); peak activity was recorded during July at the Site. Myotis recording numbers were higher in east at MP1 and Nyctalus over in the west of Site near MP2.

Species

At least four different species of bat have been recorded on the Site by the surveys; these are Common Pipistrelle, Pipistrelle sp., Nyctalus sp. and *Myotis* sp.
By far the most frequently encountered species were Common Pipistrelle which were recorded mostly on a nightly basis with high levels of activity. Low levels of the other species were recorded in May, June, July and September.

Conclusions

The results indicate a common assemblage of bats present on the Site and that the Site provides good quality foraging habitat, particularly along the woodland edges in the survey area.

Mitigation measures proposed to minimise the impacts on bats remains as described in Section 10.9 of the 2014 ES.

4.2.3 Nesting Birds

No active nests were found in the hedgerows during the survey; however the hedgerows were dense and could not be fully inspected. A check of any vegetation which is due to be removed for active nests should be made immediately prior to removal of the vegetation.

Mitigation measures will remain as described in Section 10.9 of the 2014 ES.

4.2.4 Otter and Water Voles

Three of the ditches are suitable for both Otter and Water Vole however surveys in both June and August did not record any evidence of either species.

No further action is required with regard to these species.

4.3 Other Notable Species

Care will be required when working in any areas which are suitable for Brown Hare (arable fields).

Mitigation measures proposed to minimise the impacts on Brown Hares will remain as described in Section 10.9 of the 2014 ES.

5 REFERENCES

Harris, S., Cresswell, P. & Jefferies, D. (1989). *Surveying Badgers*. Mammal Society, Occasional Publications **9**, London.

Stace CA (2010). *New Flora of the British Isles*. Cambridge University Press; 3rd Edition.

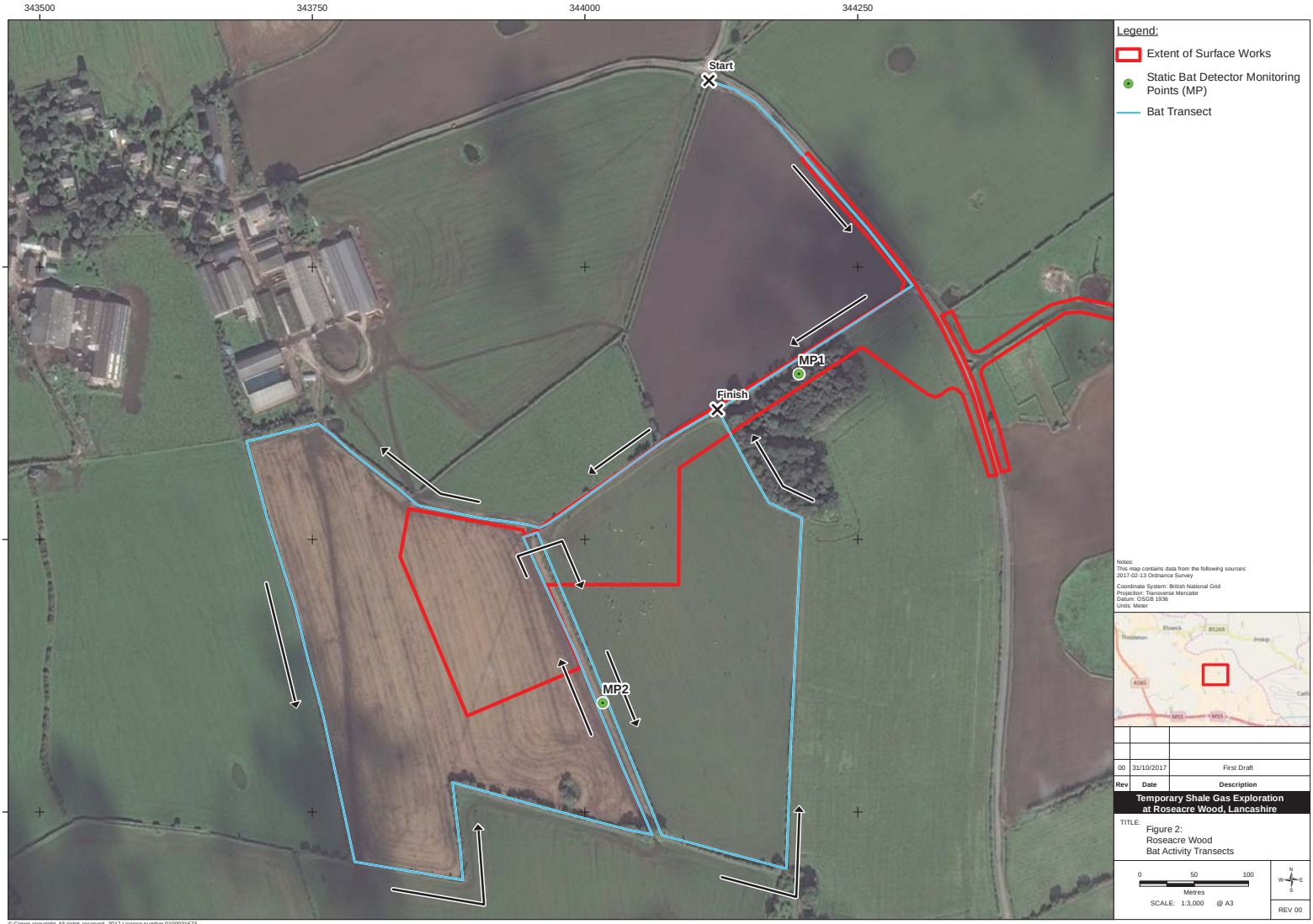
Strachan, R. and Moorhouse, T. (2011). *Water Vole Conservation Handbook 3rd Edition*. Wildlife Conservation Research Unit, Tubney.

6 FIGURES

Figure 1 – Ecological Constraints Walkover 2017

Figure 2 – Bat Activity Transects.


344000
344500
345000
345500
437000
436500
436000
Invasive Species
Rhododendron ponticum
Tree with Bat
Roost Potential
Legend:
Extent of Surface Works
Ditch - Dry/Unsuitable for Water Vole
Ditch - Suitable for Water Vole but no Evidence
Species Poor Hedgerow
Tree with Bat Roost Potential
Invasive Species -
Rhododendron ponticum
Notes:
This map contains data from the following sources:
2017-02-13 Ordnance Survey
Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter
00 31/10/2017 First Draft
Rev Date Description
Temporary Shale Gas Exploration at Roseacre Wood, Lancashire
TITLE:
Figure 1:
Roseacre Wood Ecological Constraints Walkover
0 100 200
Metres
SCALE: 1:5,500 @ A3
REV 00
© Crown copyright. All rights reserved. 2017 License number 0100031673
© OpenStreetMap (and) contributors, CC-BY-SA
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Document Path: P:\60\000 - EPD Projects\60\280 - PM\00 Graphics\01 - GIS\Roseacre Wood - Figure 1 Ecological Constraints Walkover.mxd


343500
343750
344000
344250
436750
436500
436250
Start
Finish
MP1
MP2
Legend:
Extent of Surface Works
Static Bat Detector Monitoring Points (MP)
Bat Transect
Notes:
This map contains data from the following sources:
2017-02-13 Ordnance Survey
Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter
00 31/10/2017 First Draft
Rev Date Description
Temporary Shale Gas Exploration at Roseacre Wood, Lancashire
TITLE:
Figure 2:
Roseacre Wood
Bat Activity Transects
0 50 100
Metres
SCALE: 1:3,000 @ A3
REV 00
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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APPENDIX A – RELEVANT LEGISLATION

General

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation, but summarises the salient points.

Badgers

Meles meles (Badger) is protected in Britain under the *Protection of Badgers Act 1992* and Schedule 6 of the *Wildlife and Countryside Act 1981* (as amended).

The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

Bats

All species of British bat are protected by *The Wildlife and Countryside Act 1981* (as amended) extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst is occupies a bat roost.

Bats are also European Protected Species listed on *The Conservation of Habitats and Species Regulations 2010*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destroy a breeding site or resting place of a bat; and

- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present.

Birds

All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). The protection was extended by the CRoW Act.

The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Certain species of bird are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Sections 1(4) and 1(5) of the Act.

The protection was extended by the CRoW Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

Otter

Lutra lutra (Otter) is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receives full protection under Section 9. This species is also listed as a European Protected Species on Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations 1994 which gives it full protection under Regulation 39. Protection was extended by the CRoW Act.

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;

- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The Otter is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under Section 74 of the CRoW Act.

The Otter is also protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended). This protection relates specifically to trapping and direct pursuit of the species.

The European sub-species is also listed as globally threatened on the IUCN/WCMC RDL.

Water Vole

Water Vole (Arvicola amphibius) is fully protected under Section 9 of Schedule 5 of The Wildlife and Countryside Act 1981 (as amended). Protection was extended by the CRoW Act.

Under this legislation, it is an offence to:

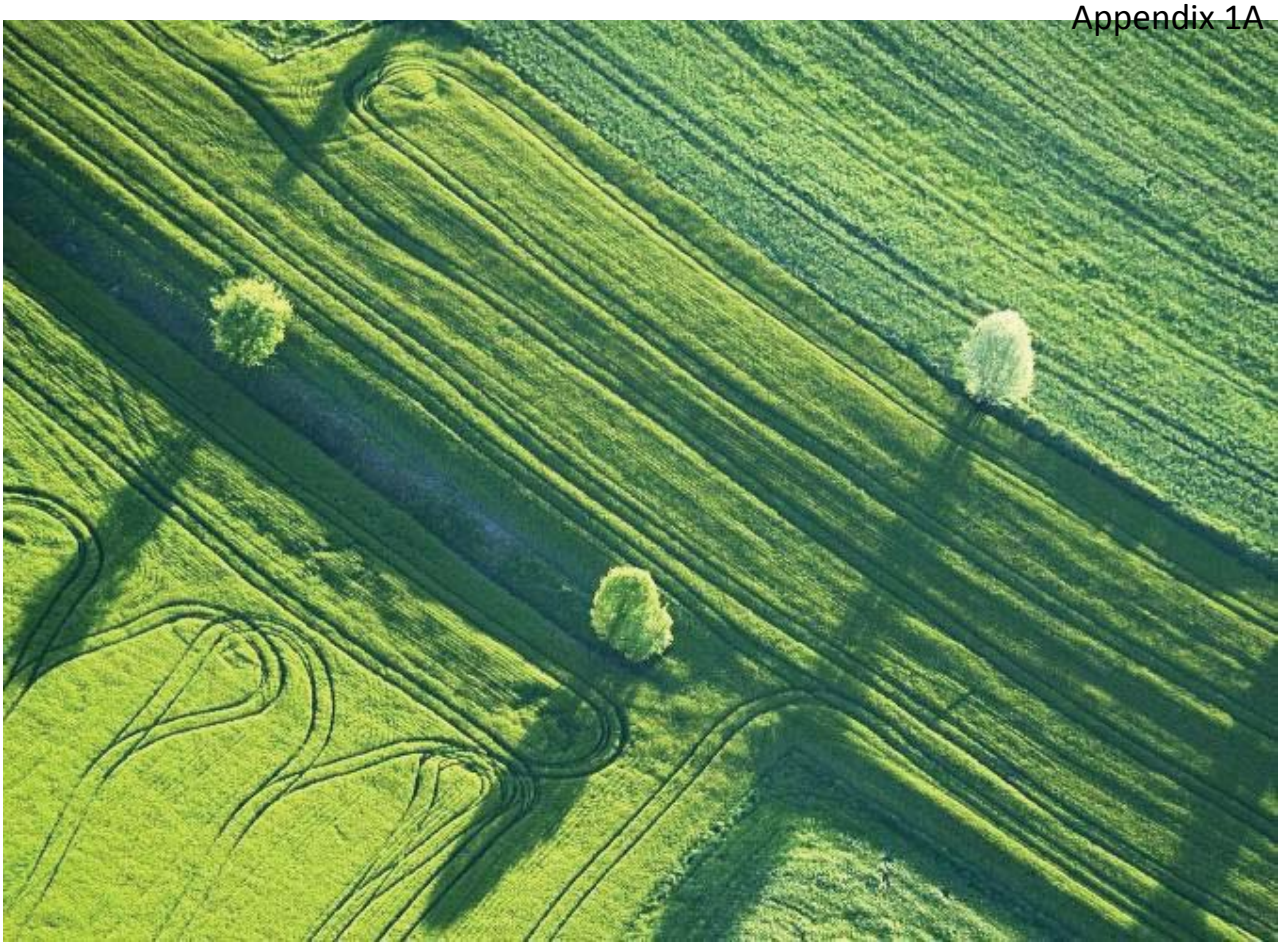
- intentionally kill, injure or take (capture) a Water Vole;
- possess or control a live or dead Water Vole, or any part of a Water Vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection, or to intentionally or recklessly disturb Water Voles while they are using such a place; or
- sell, offer for sale or advertise for live or dead Water Voles.

The Water Vole is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP).

Cuadrilla Elswick Ltd
Temporary Shale Gas Exploration
Roseacre Wood, Lancashire

Supplementary Environmental Report

Appendix 10.2 – Great Crested Newt Survey 2017



Cuadrilla Elswick Ltd

Temporary Shale Gas Exploration

Roseacre Wood, Lancashire

Great Crested Newt Survey 2017

66131

OCTOBER 2017

GENERAL NOTES

Project No.: 661310

Title: Temporary Shale Gas Exploration, Roseacre Wood, Lancashire
Great Crested Newt Survey 2017

Client: Cuadrilla Elswick Ltd

Date: November 2017

Status: Draft/Rev 01

EXECUTIVE SUMMARY

1. This report presents the results of Great Crested Newt (*Triturus cristatus*) surveys carried out at the Roseacre Wood Site, Lancashire, in connection with shale gas investigations. Surveys were carried out during May 2017.
2. Previous surveys in 2013/14 found evidence of Great Crested Newts in two waterbodies (Waterbodies 6 and 8). Environmental DNA surveys in 2014 recorded the presence of Great Crested Newts in one further waterbody (Waterbody 11).
3. Ten waterbodies within 500 m of the site were identified as suitable during the Habitat Suitability Index (HSI) assessment.
4. Surveys to prove presence or absence of Great Crested Newts (GCN) were carried out by licensed surveyors in accordance with Natural England survey guidelines (Natural England 2001).
5. GCN were recorded in two waterbodies with a maximum count of 5 (small population) in Waterbody 6 and maximum count of 28 (medium population) in Waterbody 8. These population size classes are identical to those recorded in the 2014 ES. Contrary to the Regulation 22 information, no Great Crested Newts were recorded in Waterbody 11.
6. Great Crested Newts have therefore been recorded in the same Waterbodies (Waterbodies 6 and8) as in the 2014 ES and with the same population size class present.
7. Smooth Newts were recorded in two waterbodies with a maximum count of 7 (small population) in Waterbody 6 and maximum count of 23 (medium population) in Waterbody 8.
8. The proposed mitigation measures remain unchanged from those as described in Section 10.9 of the 2014 ES.

CONTENTS

1 INTRODUCTION

1.1 Purpose of this Report

This report presents the results of Great Crested Newt *(Triturus cristatus)* surveys undertaken at Roseacre Wood, Lancashire (OS Grid reference SD 439364). These surveys have been carried out on suitable waterbodies within approximately 500 m required by Natural England and are to determine if Great Crested Newts are present in the wider area.

Great Crested Newts, if present, would present a constraint to the future development at the Site and would require mitigation to prevent harm.

1.2 Ecological Context

The site at Roseacre Wood is in the district of Fylde, Lancashire. The landscape is characterised by arable farmland divided by hedgerows with scattered trees, with Roseacre Wood to the east of survey area. The River Ribble is c.6 km to the south, the villages of Little Plumpton are to the south east and Great Plumpton to the north east, Blackpool is c. 7 km to the west.

1.3 Structure of this Report

The remainder of the report is structured as follows:

- *Section 2* describes the survey methods;
- *Section 3* summarises the results;
- *Section 4* details the ecological evaluation for the site;
- *Section 5* lists the documents referred to in this report;
- *Appendix A* lists the survey results
- *Appendix B* Habitat Suitability Index assessment results.
- *Appendix C* gives relevant legislation.

2 METHODS

2.1 Background Data Search

Records of Great Crested Newts within 2 km of the site boundary were requested from the Lancashire Environmental Records Network as part of an Environmental Statement prepared by Arup in 2014. Records of Great Crested Newts obtained as part of the 2014 Environmental Statement are repeated in this report to inform habitat evaluations. This data is also supplemented with the 2013/2014 survey data and 2014 Regulation 22 data.

Table 1. Data sources used in the background data search relevant to Great Crested Newts.

Information Obtained	Available From	Date obtained
Great Crested Newt records	Lancashire Environmental Records Network	2013-14
Designated site locations and citations	Natural England website	2013-14
Designated site locations and citations	Lancashire Environmental Records Network	2013-14

2.1.1 General

2.1.2 Identification of Features – Scoping Survey

Initially 12 waterbodies were identified using OS maps and aerial imagery, supplemented by the previous survey report published by Arup in 2014. The location of all waterbodies is shown on Figure 1. Their suitability for Great Crested Newts was determined during a Habitat Suitability Index (HSI) assessment in 2017.

2.1.3 Habitat Suitability Index

Water features were assessed to determine their suitability for Great Crested Newt using a Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000), which is derived from assessment systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect Great Crested Newts as follows:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);

- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent Waterbodies (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

Each factor is scored and the scores are converted to SI scores on a scale from 0.01 to 1 from graphs given in Oldham *et al.* (2000). The HSI result is calculated using the following formula:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define waterbody suitability for Great Crested Newts according to the following categories:

- HSI <0.5 = poor
- HSI 0.5 – 0.59 = below average
- HSI 0.6 – 0.69 = average
- HSI 0.7 – 0.79 = good
- HSI > 0.8 = excellent

There is a positive correlation between HSI scores and presence and abundance of Great Crested Newts in waterbodies. Generally, waterbodies with high HSI scores are likely to support larger populations. However, the relationship is not sufficiently precise to conclude that a waterbody with a high HSI will definitely have a large newt population, or that a waterbody with a low HSI score will only have a small newt population or no newts at all.

2.1.4 Great Crested Newt Presence/ Absence Survey Techniques

Surveys to record presence or likely absence were carried out under the supervision of licensed surveyors and in accordance with English Nature survey guidelines (English Nature 2001), which are outlined below:

- Four survey visits to be carried out between mid-March and mid-June;
- Surveys to be carried out in suitable weather conditions;
- Two of the four survey visits to be carried out between mid-April and mid-May; and
- Surveys using at least three of four methods – egg searching, netting, torching and bottle trapping.

Should Great Crested Newts are found to be present during any of the surveys a further two surveys will be required between mid- March and mid- June in order to estimate the population size class of a waterbody.

All water bodies suitable for Great Crested Newts were surveyed four times (where possible); using at least three of the following four survey methods (where appropriate).

The surveys were carried out by suitably qualified ecologists who hold a Natural England licence allowing the disturbance of Great Crested Newts for the purposes of survey in all counties of England (Class Licence CL08), and supervised the surveys undertaken.

Table 1 below provides a summary of weather conditions on all survey visit dates.

Table 1: Weather conditions on survey dates

Date	Time of check	Temperature (^{0}C)	Wind speed	Cloud cover (%)	General weather
02/05/2017	18:00	12	10	0	Clear, dry, mild
03/05/2017	18:00	11	15	0	Clear, dry, warm
08/05/2017	18:00	10	16	0	Clear, dry, warm
09/05/2017	18:00	7	7	0	Clear, dry, cool
10/05/2017	18:00	8	6	60	Fog in morning,
11/05/2017	18:30	13	10	20	Patch cloud, light breeze
16/05/2017	18:30	16	11	40	Light rain, patchy cloud.
17/05/2017	18:30	11	8	0	Clear, cold, dry.
22/05/2017	18:30	17	13	20	Light rain
25/05/2017	18:30	19	6	60	Patchy fog in morning

2.1.5 Field Methods

Egg Searching

Egg search involves searching both live and dead submerged vegetation for Great Crested Newt eggs. The eggs are characteristically laid in a folded leaf, and the large size and yellowish/white coloration readily distinguishes the eggs of Great Crested Newts from those of smaller species. Eggs are unwrapped from folded leaves to confirm identification, and the developmental stage of eggs is noted. Once a Great Crested Newt egg is reliably identified, the search is terminated because this method does not give any meaningful quantitative information on population size and can harm the eggs.

Netting

Netting is carried out using a long-handled dip-net with a very fine mesh of 2-4 mm. The perimeter of the water body is walked, and 15 minutes of netting is carried out for every 50 m of water-margin. The method is less effective than bottle trapping and torching when surveying for adult Great Crested Newts, but is very useful when searching for larvae. This method is used as an alternative or extra method of survey when weather conditions or other constraints did not allow bottle trapping to be carried out efficiently or safely. If a waterbody has significant quantities of dead leaf litter on the bottom, netting would not be carried out due to the amount of disturbance that would be caused and subsequent impact upon the water quality of the waterbody.

Torching

This technique is carried out at night, when newts are most active, and negative results are only meaningful when survey is carried out under suitable weather conditions. Ideal weather conditions are:

- a night-time air temperature of more than 5˚C;
- little or no wind; and
- no rain.

Survey involves walking slowly around the edge of the waterbody and scanning the water with a torch (in this instance 1,000,000 candle power Clulite torches were used) where access and safety permit. Great Crested Newts can be easily identified and counted in clear water. The technique is less successful in thick weed or turbid water, but can still be used. Bright light may cause newts to seek cover where they will be undetected, but the technique is appropriate to establish presence and for estimating populations. The species, sex (if possible), number of newts, and survey times are recorded.

Bottle Trapping

This method involves trapping newts at night and if not carried out correctly it can be harmful to the trapped newts. Because of this, strict guidelines from Natural England are followed in accordance with Natural England licence conditions.

The method is reliable for detecting presence of Great Crested Newt, and is especially useful in weedy or turbid water where water visibility is poor or the vegetation is too dense to give good results from torch surveys. ‘Funnel traps’ constructed from plastic bottles attached to bamboo canes are submerged in the waterbody after dusk and removed early the following morning. Newts enter through the funnel entrance but cannot find their way back out again. The recommended density of traps is 1 trap every 2 m of margin, placed 2 m from the edge, though this depends upon habitat suitability, substrate, and the incline of banks and the depth of the waterbody. Traps are checked in the early morning before the temperature rises (which causes a reduction in the availability of oxygen in the water), and the trapped newts are sexed, counted and released.

A cautious approach to this method is used because there is a risk that newts may be harmed, even following standard trapping protocol as described by Natural England, and following questions raised on the safety of this technique (i.e. Denton 2002). The technique is also unsuitable during periods of hot weather when dissolved oxygen levels in water decrease markedly, where water levels are too low or if there is a risk of vandalism. If the risks are low, bottle trapping is maintained until the end of the survey period.

2.1.6 Population Estimate

When Great Crested Newts are recorded, then a further two surveys are carried out in order to obtain a population estimate. This is calculated from the maximum number of newts caught or seen using one survey method. The maximum count breaks down into three size classes, presented in *Table 2*.

Table 2: Population Estimate

Maximum Count recorded from any single survey method	Population Size Class
1-9	Small
10-99	Medium
100+	Large

2.1.7 Survey Constraints

Waterbodies 4, 5 and 7 are no longer present within the landscape and are not shown on *Figure 1*. Waterbodies 9 and 10 could not be surveyed due to access limitations. These waterbodies were scoped out during the HSI survey prior to commencement of the Great Crested Newt surveys.

Waterbody 1 was ruled out after visit 1 as it had a large number of waterfowl nests present. Surveys were ceased to prevent disturbance of nesting birds. Waterbodies 2 and 12 were ruled out during the second visit as they had been poached by continuous cattle use.

3 RESULTS

3.1 Background Data Search

No records of Great Crested Newts from places within 500 m of the site boundary were returned. The nearest record of Great Crested Newts is *c.*2.5 km north west of the site.

During field surveys carried out by Arup in 2014 a small population of Great Crested Newts were recorded in Waterbody 6 and a medium population recorded in Waterbody 8. Information provided in the Regulation 22 report in 2014 recorded the presence of Great Crested Newts in eDNA samples in Waterbody 11.

3.2 Great Crested Newt

3.2.1 Identification of Features

There were seven water bodies within 500 m of the site surveyed. Waterbody locations are shown of *Figure 1*. Waterbodies 4, 5 and 7 are no longer present within the landscape. Waterbodies 9 and 10 could not be surveyed due to access limitations.

3.2.2 Habitat Suitability Index

Table 3 below provides a summary of HSI scores for the waterbodies assessed during the surveys. HSI scores and waterbody descriptions were calculated and provided in the HSI assessment report (2017).

Table 3. Habitat Suitability Index (HSI) summary.

Water Feature Number	HSI Score	Suitability
Waterbody 1	0.55	Below Average
Waterbody 2	0.65	Average
Waterbody 3	0.42	Poor
Waterbody 4	-	No Longer Exists
Waterbody 5	-	No Longer Exists
Waterbody 6	0.69	Average
Waterbody 7	-	No Longer Exists
Waterbody 8	0.72	Good
Waterbody 9	-	No access
Waterbody 10	-	No access
Waterbody 11	0.67	Average
Waterbody 12	0.49	Poor

3.2.3 Survey Data

The dates on which the surveys were undertaken are provided in *Table 4*.

Table 4. Survey dates.

Survey Visit Number and Date Surveyed					
1	**2**	**3**	**4**	**5**	**6**
02/05/17 03/05/17	08/05/2017 09/05/2017	10/05/2017 11/05/2017	16/05/2017 17/05/2017	22/05/2017	25/05/2017

Table 5 summarises the results of population size class surveys for Great Crested Newts. The full survey results are given in *Appendix A*. All surveys were undertaken during suitable weather conditions, as advised in English Nature (now Natural England) Great Crested Newt Mitigation Guidelines (English Nature, 2001). The overall population is considered medium

Table 5. Great Crested Newt survey results – summary.

Water Feature Number	Amphibians Recorded				Maximum Count of Great Crested Newt	Population Size of Great Crested Newts
	Great Crested Newt	Smooth Newt	Frogs	Toads		
Waterbody 1	0	0	0	0	-	-
Waterbody 2	0	0	0	0	-	-
Waterbody 3	0	0	0	0	-	-
Waterbody 6	5 (1m,4f)	7 (2m,5f)	0	0	5	Small
Waterbody 8	28 (2m,26f)	23 (11m, 12f)	0	0	28	Medium
Waterbody 11	0	0	0	0	-	-
Waterbody 12	0	0	0	0	-	-

4 EVALUATION AND CONCLUSIONS

4.1.1 Potential Impacts

There is small population of Great Crested Newts in Waterbody 6 (peak count 5) and a medium population of Great Crested newts in Waterbody 8 (peak count 28). Overall the meta-population for the site is considered medium. The population size class findings are identical to those recorded in the 2014 ES.

The Regulation 22 report produced in 2014 recorded the presence of Great Crested Newts in Waterbody 11. No Great Crested Newts were recorded in this waterbody in 2017.

Where possible, surveys should be completed at waterbodies where access was not available in 2017 (Waterbodies 9 and 10). Great Crested Newts were not recorded in these waterbodies in 2014, however these survey results are now out of date. In accordance with Natural England guidance, survey data should not be over two years old for medium-high impact schemes. Therefore, subject to development timescales repeat surveys may be required.

Mitigation measures will follow those proposed in Section 10.9 of the 2014 ES.

5 REFERENCES

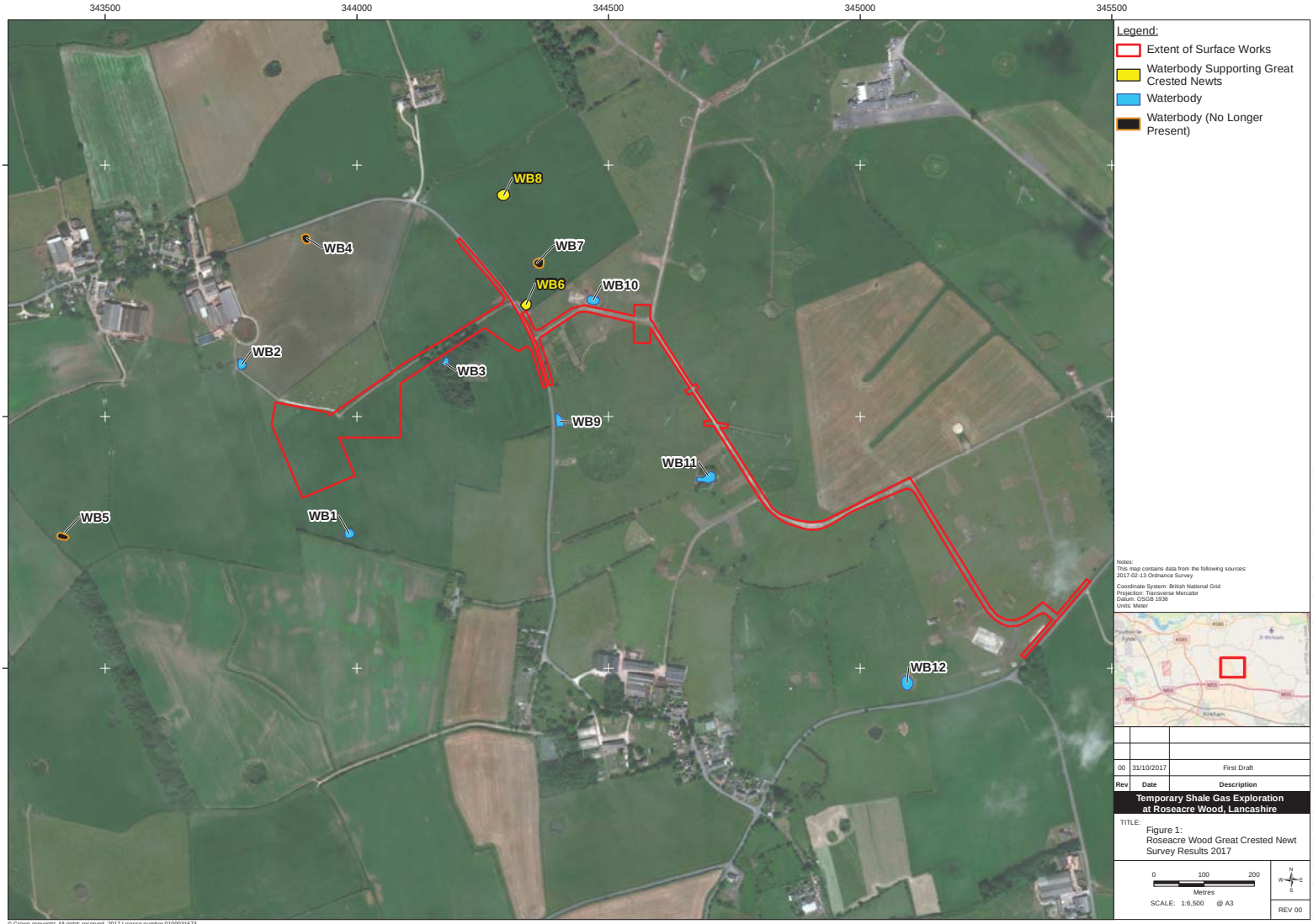
Arup (2014) *Roseacre Wood – Environmental statement*. Report to client.

Natural England. (2001). *Great Crested Newt Mitigation Guidelines*. English Nature.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155

6 FIGURES

Figure 1 – Great Crested Newt Survey Results 2017



APPENDIX A: SURVEY RESULTS

Waterbody 1 – Amphibians Recorded					
Visit Date	Torch Survey	Bottle Trapping	Netting	Egg Search	Refugia
02/05/2017	0	0	-	0	0
08/05/2017	RULED OUT (BREEDING WATERFOWL)	-	-	-	-
N/A	-	-	-	-	-
N/A	-	-	-	-	-

Waterbody 2 – Amphibians Recorded					
Visit Date	Torch Survey	Bottle Trapping	Netting	Egg Search	Refugia
02/05/2017	0	0	-	0	0
08/05/2017	RULED OUT (SLURRY)	-	-	-	-
N/A	-	-	-	-	-
N/A	-	-	-	-	-

Waterbody 3 – Amphibians Recorded					
Visit Date	Torch Survey	Bottle Trapping	Netting	Egg Search	Refugia
02/05/2017	0	0	-	0	0
08/05/2017	0	Too Cold	0	0	0
10/05/2017	0	0	-	0	0
16/05/2017	Too turbid	Heavy Rain	0	0	0

Waterbody 6 – Amphibians Recorded					
Visit Date	**Torch Survey**	**Bottle Trapping**	**Netting**	**Egg Search**	**Refugia**
02/05/2017	3 male GCN 12 female Smooth Newt	0	-	0	0
08/05/2017	0	Too Cold	0	1 found, many folded leaves.	0
10/05/2017	0	1 male 1 female Smooth Newt	0	-	0
17/05/2017	0	1 male 1 female GCN	0	-	0
22/05/2017	0	1 female Smooth Newt	0	-	0
25/05/2017	0	3 female GCN, 3 female 1 male Smooth Newt	0	-	-

Waterbody 8 – Amphibians Recorded					
Visit Date	**Torch Survey**	**Bottle Trapping**	**Netting**	**Egg Search**	**Refugia**
03/05/2017	0	0	-	0	0
09/05/2017	1 female Smooth Newt, 1 Common Toad	1 male 6 female GCN, 1 female Smooth Newt	-	0	0
11/05/2017	0	1 female GCN	-	0	0
17/05/2017	0	12 female GCN 10 male 7 female Smooth Newt	-	0	0
22/05/2017	0	1 male 6 female GCN 1 male 2 female Smooth Newt	-	0	0
25/05/2017	0	1 female GCN, 2 female Smooth Newt	-	0	0

Waterbody 11 – Amphibians Recorded					
Visit Date	Torch Survey	Bottle Trapping	Netting	Egg Search	Refugia
03/05/2017	0	0	-	0	0
09/05/2017	0	0	-	0	0
11/05/2017	0	0	-	0	0
16/05/2017	0	Heavy Rain	-	0	0

Waterbody 12 – Amphibians Recorded					
Visit Date	Torch Survey	Bottle Trapping	Netting	Egg Search	Refugia
03/05/2017	0	-	0	0	0
09/05/2017	RULED OUT (SLURRY)	-	-	-	-
N/A	-	-	-	-	-
N/A	-	-	-	-	-

APPENDIX B – HABITAT SUITABILITY INDEX ASSESSMENT DETAILS

Assessment of Waterbodies

The following tables show the notes and scores for the Habitat Suitability Index assessment of the waterbodies following the methods of ARG UK (2010).

Details of the Habitat Suitability Index assessment for Waterbody 1.

Factor	Notes	Score
Location (SI 1)	Northern England, Region A OS grid reference: SD 4336 9826	1.0
Surface Area (SI 2)	250m^2	0.33
Waterbody Drying (SI 3)	Never dries	0.90
Water Quality (SI 4)	Poor	0.33
Shade (SI 5)	50%	1.0
Water Fowl (SI 6)	Minor	0.67
Fish (SI 7)	Minor	0.33
Waterbodies (SI 8)	>10 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Poor	0.33
Macrophyte Cover (SI 10)	0%	0.33
		HSI Score = 0.55
		Below Average

Details of the Habitat Suitability Index assessment for Waterbody 2.

Factor	Notes	Score
Location (SI 1)	Northern England, Region A OS grid reference: SD 4336 7760	1.0
Surface Area (SI 2)	250m^2	0.33
Waterbody Drying (SI 3)	Never	0.9
Water Quality (SI 4)	Poor	0.33
Shade (SI 5)	20%	1.0
Water Fowl (SI 6)	Minor	0.67
Fish (SI 7)	Possible	1.0
Waterbodies (SI 8)	>10 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Moderate	0.67
Macrophyte Cover (SI 10)	0%	0.33
		HSI Score = 0.65
		Average

Details of the Habitat Suitability Index assessment for Waterbody 3.

Factor	Notes	Score
Location (SI 1)	Northern, Region A OS grid reference: SD 4436 2358	1.0
Surface Area (SI 2)	950m^2	0.95
Waterbody Drying (SI 3)	Never	0.9
Water Quality (SI 4)	Poor	0.33
Shade (SI 5)	95%	0.33
Water Fowl (SI 6)	Major	0.01
Fish (SI 7)	Possible	0.67
Waterbodies (SI 8)	>10 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Good	0.33
Macrophyte Cover (SI 10)	0%	0.33
		HSI Score = 0.42
		Poor

Details of the Habitat Suitability Index assessment for Waterbody 6.

Factor	Notes	Score
Location (SI 1)	Northern England, Region A OS grid reference: SD 4436 3372	1.0
Surface Area (SI 2)	400m^2	0.8
Waterbody Drying (SI 3)	Never	0.9
Water Quality (SI 4)	Moderate	0.67
Shade (SI 5)	30%	1.0
Water Fowl (SI 6)	Minor	0.67
Fish (SI 7)	Minor	0.33
Waterbodies (SI 8)	>10 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Moderate	0.67
Macrophyte Cover (SI 10)	0%	0.33
		HSI Score = 0.69
		Average

Details of the Habitat Suitability Index assessment for Waterbody 8.

Factor	Notes	Score
Location (SI 1)	Northern England, Region A OS grid reference: SD 4436 2993	1.0
Surface Area (SI 2)	550m^2	0.8
Waterbody Drying (SI 3)	Never	0.9
Water Quality (SI 4)	Moderate	0.67
Shade (SI 5)	0%	1.0
Water Fowl (SI 6)	Minor	0.67
Fish (SI 7)	Minor	0.33
Waterbodies (SI 8)	>10 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Moderate	0.67
Macrophyte Cover (SI 10)	10%	0.4
		HSI Score = 0.72
		Good

Details of the Habitat Suitability Index assessment for Waterbody 11.

Factor	Notes	Score
Location (SI 1)	Northern England, Region A OS grid reference: SD 4436 7037	1.0
Surface Area (SI 2)	350m^2	0.65
Waterbody Drying (SI 3)	Never	0.9
Water Quality (SI 4)	Poor	0.33
Shade (SI 5)	60%	1.0
Water Fowl (SI 6)	Minor	0.67
Fish (SI 7)	Possible	0.67
Waterbodies (SI 8)	>10 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Moderate	0.67
Macrophyte Cover (SI 10)	10%	0.33
		HSI Score = 0.67
		Average

Details of the Habitat Suitability Index assessment for Waterbody 12.

Factor	Notes	Score
Location (SI 1)	Northern England, Region A OS grid reference: SD 4535 0996	1.0
Surface Area (SI 2)	550m^2	0.85
Waterbody Drying (SI 3)	Never dries	0.9
Water Quality (SI 4)	Bad	0.01
Shade (SI 5)	0%	1.0
Water Fowl (SI 6)	Minor	0.67
Fish (SI 7)	Possible	0.67
Waterbodies (SI 8)	>15 waterbodies within 1km	1.0
Terrestrial Habitat (SI 9)	Moderate	0.67
Macrophyte Cover (SI 10)	10%	0.33
		HSI Score = 0.49
		Poor

APPENDIX C: LEGISLATION

There has been no changes to the legislation governing the protection of Great Crested Newts since that which was reported in the 2014 ES and related Regulation 22 information.

A repeat of the legislation has therefore not been provided here.

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Appendix 13.1 – Landscape and Visual Amenity Baseline

13 Landscape and Visual Amenity Baseline

13.1 Baseline

1. Table 13.1 lists the visual receptors, their location and distance from the Site, a short description and viewpoint sensitivity.

Table 13.1 – Schedule of principle viewpoints

Ref No.	Location / Grid Ref / Distance to Roseacre Wood site (m)	Receptor type, susceptibility to change and value and description	Sensitivity
V1	FP3 Junction with Roseacre Lane (SD 343269, 436680) 698m	Recreational PRoW View east close to the beginning of footpath FP3 as it leaves Roseacre Lane towards site	**High**
V2	Campsite Roseacre Lane, Roseacre (SD 343336, 436718) 652m	Recreational PRoW Representative view from campsite entrance towards site	**High**
V3	FP4 neat to Roseacre Hall Farm (SD 343540, 436571) 406m	Recreational PRoW Representative panoramic view from the PRoW just south of Roseacre Hall Farm	**High**
V4	FP4 just north of Holmes Wood (SD 343509, 436404) 413m	Recreational PRoW Representative view from PRoW at point located due west of the site	**High**
V5	Junction of FP5/FP4 (SD 343706, 435725) 738m	Recreational PRoW Representative view from the junction of two PRoW south west of the site	**High**
V6	FP5/Bridleway close to Wharles Wood (SD 344144, 435866) 607m	Recreation PRoW Representative view from the PRoW/Bridleway running east-west south of the site close to Wharles wood	**High**
V7	FP5/Bridleway close to village of Wharles (SD 38613, 38014) 660m	Recreational PRoW Representative view from the start of the PRoW/Bridleway as it leaves Wharles heading west	**High**
V8	FP8 adjacent to M55 (SD 344470, 434844) 1679m	Receational PRoW Representative view from the PRoW that runs parallel to the north side of the M55	**High**
V9	View at entrance to Old Orchard Farm off Roseacre Lane (SD 344387, 436156) 541m	Residential Representative view from the roadside entrance to the drive leading to the residential property Old Orchard Farm	**High**
V10	Highway view looking east from Roseacre Lane (SD 41601, 436391) 467m	Highway Oblique view toward site obtained from users of Roseacre Lane	**Low**
V11	Junction of Footpath FP1/FP2 north of Nigget Wood looking south (SD 344196, 437618) 1218m	Recreational PRoW Representative view from the junction of footpaths FP1/FP2 north of Nigget Wood looking south to site at a distance of 1.2km	**High**
V12	Footpath FP2 looking west	Recreational PRoW	**High**

Ref No.	Location / Grid Ref / Distance to Roseacre Wood site (m)	Receptor type, susceptibility to change and value and description	Sensitivity
	from boundary with Inskip Airfield (SD 344423, 437111) 845m	Representative view from the PRoW FP2 looking west from boundary with Inskip Airfield where PRoW terminates	
V13	Group of five residential units around Stanley Farm residential properties (SD 344128, 437059) 661m	Residential Representative view south from the group of residential properties at Stanley Farm	**High**
V14	Junction of footpaths FP1/FP2 adjacent to Roseacre Lane looking south (SD 344118, 437059) 540m	Recreational PRoW Representative view from Junction of footpaths FP1/FP2 adjacent to Roseacre Lane looking south	**High**
V15	Southern residential edge of Inskip looking south west (SD 436094, 437925) 2.6km	Residential Representative view from two storey residential properties on southern edge of Inskip	**High**
V16	Moorside – Junction of PRoW's FP6 and FP8 (SD 344122, 435300) 1.1km	PRoW View due north across rising agricultural land to broad horizon punctuated by pylons and woodland blocks with Inskip telecommunication masts to right of view	**High**
V17	Cross Lane – Residential property (SD 343827, 434184) 2.3km	Residential View due north across flat terrain marked by very visually prominent pylons and catenaries	**High**
V18	South Greenhills – ProW FP9 (SD 342701, 435697) 1.4km	PRoW Expansive view north east across agricultural land to a broad horizon punctuated by pylons crossing in the middle distance and woodland blocks in the middle distance (Carr and Holmes Wood) with well-maintained hedgerows and hedgerow trees	**High**

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Appendix 17.1 – Cumulative Developments

Scope of Search: Jan 2014 – June 2017 (search undertaken 24-28 June 2017)

Fylde Planning Portal: (Wards) Newton and Treales, Freckleton E., Kirkham N&S, Medlar with Wesham, Elswick and Little Eccleston and Singleton and Greenhalgh

Wyre Planning Portal: Great Eccleston Ward

Lancashire Planning Portal: Fylde Borough Area

Preston Planning Portal: Lea Ward

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
No.	**FYLDE COUNCIL – KIRKAM N/S, MEDLAR WITH WESHAM, FRECKLETON E, ELSWICK WITH LITTLE ECCLESTON and NEWTON AND TREALES**						
1	14/0102	Change of use of land for use as air ambulance base including formation of concrete take off pad, siting of portacabin for crew rest facility and siting of containerised fuel storage facility.	Granted	25/07/2014	341600 433900	Land to the rear of Wesham house farm, Fleetwood Road, Medlar with Wesham, Preston, pr4 3hd	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
2	14/0151	Change of use of agricultural land to form a 25 pitch touring caravan and 15 pitch camping site with associated extension to internal road and erection of a facilities building - (re-submission of withdrawn application 13/0717).	Granted	14/04/2015	343149 428238	Donkey Creek Farm, Maze Lane East, Freckleton, Preston, pr4 1un	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
3	14/0188	Proposed erection of an extraction chimney to a height of 23 metres situated to rear of food production plant.	Granted	12/05/2014	341505 432594	Kepak, St Georges Park, Kirkham, Preston, pr4 2dq	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
4	14/0261	Telecommunications determination for replacement of existing 15m high monopole with 17.5m high monopole with 6 antennas, with associated equipment and meter cabins.	Withdrawn	20/05/2014	N/A	Progress Business park, Orders Lane, Kirkham, Preston, pr4 2tz	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
5	14/0429	Proposed replacement of existing 15m high telecommunications monopole with 17.5m high telecommunications monopole and 6 antennas, with associated equipment and meter cabins.	Granted	24/08/2014	N/A	Progress Business Park, Orders Lane, Kirkham, Preston, pr4 2tz	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
6	14/0743	Outline application 8no bungalows	Withdrawn	15/01/2015	342793 430828	The hollies, Lower Lane, Freckleton, Preston, pr4 1jd	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
7	14/0779	Resubmission of application 13/0754 for outline planning permission for erection of up to 264 dwellings together with associated development, open space, landscaping and development relating to biodiversity enhancement / protection. (access applied for and all other matters reserved)	Approved with 106 Agreement/**Discharge of details associated with conditions registered**	12/03/2015	342119 433377	Land east of Fleetwood Road and north of, Mowbreck Lane, Medlar with Wesham	The development proposal is sufficiently distant enough from the Site (~3.7km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
8	14/0844	Listed building consent for proposed erection of three detached dwellings, two garages and landscaping works in curtilage of listed building	Granted	18/06/2015	N/A	48 Preston Street, Kirkham, Preston, pr4 2za	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
9	14/0861	Proposed erection of terrace of four x two storey dwellings following the demolition of an existing single storey office and store building.	Awaiting Decision	N/A	342695 431984	Land near Balshaw Terrace, Marsden street, Kirkham	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
10	14/0895	Removal of existing flats, glass house buildings and industrial buildings, erection of 12no new dwellings, erection of a fishing hut, landscaping and provision of communal green space	Decided/ Approve with 106 Agreement	03/12/2015	342557 429977	197 Kirkham Road, north of bypass, Freckleton, Preston, pr4 1hu	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
11	15/0124	Outline application for demolition of existing buildings and erection of up to 25 dwellings (access applied for with all other matters reserved)	Decided/ Approve with 106 agreement	19/01/2016	341844 440383	Sunnydale Nurseries, Garstang Road, Little Eccleston with Larbeck, Preston, pr3 0xa	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
12	15/0165	Outline application for residential development of 30 dwellings (access applied for with other matters reserved)	Awaiting Decision	N/A	346866 430523	Land east of Rowan Close, Ash Lane, Newton with Clifton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
13	15/0177	Proposed erection of 231 no. Residential units and associated works	Registered/ **revised sit plan registered July 2017**	Application received: 17/03/2015	341179 432569	Land west of Kirkham bypass (opposite st Georges park), Kirkham	The development proposal is sufficiently distant enough from the Site (~4.9km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
14	15/0349	Outline application for erection of 8 dwellings following demolition of existing buildings (all matters reserved)	Granted	12/02/2016	342187 438566	Bonds of Elswick, Bonds Lane, Elswick, Preston, pr4 3ze	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
15	15/0367	Outline application (all matters reserved) for the erection of up to three dwellings	Granted	N/A	343880 432876	Land east and west of Primrose Farm, Kirkham Road, Treales Roseacre and Wharles, Preston, pr4 3sd	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
16	15/0434	Proposed agricultural building and retention of part of the adjacent building both for the purposes of livestock housing.	Granted	N/A	343723 436795	Roseacre hall farm, Roseacre Road, Treales Roseacre and Wharles, Preston, pr4 3ue	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
17	15/0450	Outline application for demolition of existing workshop buildings and erection of up to 8 dwellings (use class c3) including associated works (access applied for with other matters reserved)	Granted	N/A	344038 432882	Foundry Yard, Kirkham Road, Treales Roseacre and Wharles, Preston, pr4 3sd	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
18	15/0529	Proposed demolition of the existing annexe building and the construction of a single storey detached teaching unit for sixth form pupils.	Granted	09/10/2015	342187 432162	Pear Tree School, Station Road, Kirkham, Preston, pr4 2ha	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
19	15/0547	Outline application for demolition of existing buildings and residential development of up to 170 dwellings including associated infrastructure (access applied for with all other matters reserved)	Appeal Accepted (Council failed to decide in time) ~Nov 2016 – Granted Jan 2017	N/A	343583 431934	Brook Farm, Dowbridge, Kirkham, Preston, pr4 3rd	The development proposal is sufficiently distant enough from the Site (~4.5km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
20	15/0576	Outline application for erection of 5 no. Detached dwellings, following the demolition of existing barns. (access applied for all other matters reserved)	Refused	15/10/2015	342705 438205	Gorst Farm, Lodge Lane, Elswick, Preston, pr4 3yh	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
21	15/0724	Application for approval of reserved matters of appearance, landscaping, layout and scale for erection of 159 dwellings associated outline planning permission 14/0779	Granted	15/02/2016	342087 433469	Land east of Fleetwood Road and north of, Mowbreck Lane, Medlar with Wesham	The development proposal is sufficiently distant enough from the Site (~3.6km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
22	15/0761	Conversion of existing barn into a cafe and tack shop, construction of an outdoor manege with lighting on 8m high columns, erection of 2 x 8m columns for cctv, siting of an equine field shelter, demolition of an existing single storey building to widen access, and reconfiguration and extension of the existing car parking area.	Granted	N/A	347443 433869	Pepper Hill Farm, Roseacre Road, Salwick, Preston, pr4 0sd	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
23	16/0050	Outline application for erection of 1 no. Detached dwelling with access, scale and layout applied for and other matters reserved	Refused	17/10/2016	341425 432015	The Homestead, Ribby Road, Kirkham, Preston, pr4 2be	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
24	16/0076	Erection of two storey dwelling to replace existing with revision to existing access point. Erection of single storey outbuilding to side.	Granted	N/A	N/A	Ivy Cottage, Church Road, Treales Roseacre and Wharles, Preston, pr4 3se	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
25	16/0102	Resubmission of application 15/0576 for outline application for erection of 5 no. Detached dwellings, following the demolition of existing barns. (access applied for all other matters reserved)	Refused	11/05/2016	N/A	Gorst Farm, Lodge Lane, Elswick, Preston, pr4 3yh	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
26	16/0112	Outline application for residential development of up to 30 dwellings (access applied for with other matters reserved)	Awaiting decision	N/A	340552 432376 (this has been derived from the postcode)	Campbells Caravans, Blackpool Road, Kirkham, Preston, pr4 2re	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
27	16/0195	Erection of 2 no. Dwellings with associated garage, boundary fence/wall and parking area, and creation of a footpath link to Fleetwood road recreation ground	Granted	13/06/2016	341779 433421	Land east of Fleetwood Road and north of, Mowbreck Lane, Medlar with Wesham	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
28	16/0306	Re-submission of 15/0842 - change of use of agricultural land to form 36 pitch holiday touring caravan site with associated extension to internal access road, erection of facilities / reception building, siting of static caravan for warden's accommodation and use of previously approved barn for general agricultural use	Granted	15/09/2016	343351 427942	Donkey creek farm, Naze Lane east, Freckleton, Preston, pr4 1un	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
29	16/0516	Construction of earth bound clay lined slurry lagoon with tractor roadway and 1.8m high fence around	Granted	N/A	N/A	Hale Hall Farm, Salwick road, Treales Roseacre and Wharles, Preston, pr4 3sn	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
30	16/0536	Construction of standby electricity generation facility including 14 x engine containers, 2 x transformers, associated switchrooms / metering stations and other infrastructure within compound formed by 2.4m high fence and 4m high bund	Granted	N/A	345384 431524	Dingle farm industrial estate, Vicarage Lane, Newton with Clifton, Preston, pr4 3rx	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
31	16/0621 13/0655	Hybrid planning application (part full / part outline) full planning application? 6,000 capacity football stadium, 11,431m2 warehouse and distribution centre (class b8), 1,518m2 neighbourhood retail store (class a1), internal spine road with access from a585 roundabout, associated parking, landscaping, drainage and infrastructure outline planning application (access sought with other matters reserved) ? , 8 x outdoor floodlit all weather pitches, changing room block, petrol filling station, 785m2 non-food bulky goods retail unit (class a1), hotel (class c1), pub / restaurant (class a4), drive thru restaurant (class a3/a5), 492 space overflow car park & the formation of a surface water attenuation pond.	Decided/ Approved with 106 Agreement	17/02/2015 Discharge details of conditions received 17/08/2016	341605 433931	Mill Farm Ventures, Fleetwood road, Medlar with Wesham	The development proposal is sufficiently distant enough from the Site (~3.6km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
32	16/0776	Prior notification for proposed telecommunications development to replace existing 15m pole with 15m pole, new wrap around cabinet and installation of 1 equipment cabinet.	Approve Prior Determination	N/A	343985 431630	T mobile site adj Dowbridge farm, Blackpool Road, Kirkham	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
33	16/0846	Outline application for the erection of up to 24 no. Dwellings (access applied for and other matters reserved)	Awaiting Decision	N/A	342180 438707	Land north of high gate and east of, Copp Lane, Elswick	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
34	16/0879	Outline application for erection of 2 no. Dwellings with access and layout applied for and other matters reserved	Granted	30/06/2017	341865 432072	6 Victoria Road, Kirkham, Preston, pr4 2bt	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
35	16/1029	Outline application for erection of up to 68 dwellings and associated open space and infrastructure. (all matters reserved)	Refused	27/07/2017	341748 433678	Land north of Sanderling way off Fleetwood Road, Medlar with Wesham	The development proposal is sufficiently distant enough from the Site (~3.7km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are**

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
							predicted.
36	16/1038	Outline application for erection of up to 9 dwellings (all matters reserved)	Refused	26/05/2017	341715 438278 (derived from postcode)	Land west of west view, West View, Elswick, Preston, pr4 3ua	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
37	17/0044	Erection of 23 affordable dwellings following demolition of existing mill building	Granted / **revised layout plan submitted May 2017**	15/05/2017	341839 432389	Sunny bank mill, Sunny Bank, Kirkham, Preston, pr4 2je	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
38	17/0092	Extension to rear (east) of industrial unit including erection of 23 metre high extraction chimney and installation of co2 tank	Granted	30/06/2017	341490 432590	Kepak, st Georges Park, Kirkham, Preston, pr4 2dq	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
39	17/0114	Outline application for erection of 10 no. Dwellings following demolition of existing dwelling (access, layout and scale applied for and all other matters reserved)	Registered	N/A	344435 431279	Highgate barn, Blackpool Road, Newton with Clifton, Preston, pr4 3rj	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
40	17/0421	Proposed detached two storey dwelling to replace existing dwelling and associated buildings.	Awaiting Decision	N/A	344716 431136	Rose wood, Blackpool Road, Newton with Clifton, Preston, pr4 3rj	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
41	17/0471	Erection of 4 residential dwellings	Registered	N/A	343933 432852	Foundry yard, Kirkham Road, Treales Roseacre and Wharles, Preston, pr4 3sd	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
42	17/0502	Application for prior notification for extension to existing agricultural storage building	Approve Prior Determination	N/A	343518 436764	Derby Lodge Farm, Roseacre Road, Treales Roseacre and Wharles, Preston, pr4 3ue	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
43	17/0536	Erection of 50 dwellings to be accessed from beech road with associated landscaping, parking, pumping station and electricity sub-station following demolition of existing agricultural buildings (resubmission of 16/0645)	Registered	N/A	341831 438554	Land north of, Beech Road, Elswick	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
44	17/0536	Erection of 50 dwellings to be accessed from beech road with associated landscaping, parking, pumping station and electricity sub-station following demolition of existing agricultural buildings (resubmission of 16/0645)	Registered	N/A	341831 438554	Land north of, Beech Road, Elswick	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
45	17/0558	Demolition of existing cottage and erection of two detached dwellings	Registered	N/A	344984 430782	Moons Cottage, 29 School Lane, Newton with Clifton, Preston, pr4 3rt	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
46	17/0568	Outline application for the development of up to 190 dwellings with access from Weeton road and all other matters reserved	Registered	N/A	341255 433533	Land to north of Weeton road / west of a585 Kirkham bypass, Medlar with Wesham, Preston, pr4 3na	The development proposal is sufficiently distant enough from the Site (~4km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
47	17/0595	Outline application for residential development of 30 dwellings including 10 affordable dwellings (access and layout applied for and other matters reserved)	Registered	N/A	344631 430717	Land adj to 12a oak lane, Newton with Clifton, Preston, pr4 3rr	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
		WYRE COUNCIL – GREAT ECCLESTON					
48	17/00631/REMMAJ	Reserved matters application for the erection of 55 dwellings with matters of access, layout, scale, appearance and landscaping to be determined (following outline approval 16/00481/OUTMAJ)	Pending Consideration	Received: 07/07/2017	345996 437983	Land to the north and south of Preston Road Inskip Preston Lancashire pr4 0tt	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
		LANCASHIRE COUNCIL – FYLDE BOROUGH AREA					
49	LCC/2017/0053	Erection of a multi - use games area including 3m high ball stop fencing	Granted/Valid	16/06/2017	343031 429720	Strike Lane Primary School, Strike Lane, Freckleton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
50	LCC/2017/0048	Single storey detached building to provide additional teaching accommodation	Granted/Valid	16/05/2017	338099 436339	Weeton County Primary School, Grantham Road, Weeton with Preese	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
51	LCC/2017/0020	Retrospective application for a 150mm diameter borehole for groundwater sampling, water level and water quality monitoring on agricultural land	Granted/ Completed	07/02/2017	343028 436629	Field to west of Roseacre Village, Roseacre, nr Kirkham	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
52	LCC/2017/0004	Single storey detached classroom pod	Granted/Valid	01/03/2017	332875 429607	Primary School, St Leonards Road east, Lytham st Annes	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
53	LCC/2016/0073	Single storey extension to form new office and canopy to main entrance	Granted/ Completed	16/01/2017	332134 429685	Mayfield Primary School, st Leonards Road East, Lytham st Annes	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
54	LCC/2016/0060	Construction of earth bunded lagoon to store digestate from anaerobic digester plant at Stanley villa farm	Granted/ Completed	19/10/2016	337905 434208	Land off Mythop road, Weeton with Preese	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
55	LCC/2016/0058	Variation of condition 4b of planning permission lcc/2014/0120 to allow working of composting and wood shredding operations on Sundays between the hours of 8.00 to 1700	Granted/ Completed	09/09/2016	346767 428874	Clifton Marsh landfill site, Lytham Road, Clifton, Preston	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
56	LCC/2016/0057	Construction of a biological treatment plant	Granted/ Completed	09/09/2016	339707 435571	Stanley Villa Farm, Back Lane, Greenhalgh, Weeton with Preese	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
57	05/12/0618NM1	Non material amendment for amendments to the drainage system	Granted/ Completed	26/07/2016	338155 436472	Weeton Primary School, Grantham Road, Weeton, Preston	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
58	LCC/2016/0024	Single storey extension, new pedestrian entrance, widening of existing vehicle entrance and 7no new car parking spaces to replace spaces lost due to new pedestrian footpath	Granted/ Completed	13/04/2016	332114 429688	Mayfield Primary School, St Leonard's Road East, Lytham st Annes	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
59	LCC/2016/0013	Erection of a detached office building and an open sided extension to the existing waste transfer building to cover a conveyor belt and two outside storage bays. (Retrospective application).	Granted/ Completed	13/07/2016	338275 428319	Lidun Park Industrial Estate, Boundary Road, Lytham st Annes.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
60	LCC/2016/0014	Change of use of land and building as an extension to the existing waste transfer station and for the storage of skips (retrospective application)	Granted/ Completed	13/07/2016	339276 428320	Lidun Park Industrial Estate, Boundary Road, Lytham st Annes.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
61	LCC/2016/0007	The erection of photovoltaic panels and associated works including switchgear housing, security fencing and integral connection to the existing waste water treatment work substation	Refused/ Completed		345030 428086	Clifton Marsh waste water treatment works, Preston New Road, Freckleton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
62	LCC/2015/0100	Construction of earth bunded lagoon to store digestate from anaerobic digester plant at stanley villa farm	Withdrawn		337828 434309	Land off Mythop road, Weeton.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
63	LCC/2015/0047	Proposed temporary construction compound	Granted/Valid	30/07/2015	330559 431657	Land adjacent to Squires Gate Lane, Blackpool	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
64	LCC/2015/0039	Variation of condition 16 of permission 05/10/0641 to allow the fishing lake to be used for commercial purposes for a maximum of 12 persons at any one time	Withdrawn		345192 431166	Lynwood, Blackpool Road, Newton.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
65	LCC/2015/0018	Single storey extension and canopy	Granted/Valid	30/04/2015	334143 428948	Clifton County Primary School, Clitheroe Road, Lytham st Annes	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
66	LCC/2014/0164	The construction of a lagoon and associated work to the existing ad plant	Withdrawn		338817 428770	Carr Farm, Lodge Lane, Brying with Warton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
67	LCC/2014/0162	Variation of conditions 1 and 2b of permissions 05/09/0376 and 06/09/0395 to allow land filling and land raising to be extended until 31 December 2035 and restored within 12 months of cessation of land filling and land raising and to amend the final restored landform	Granted/ Completed	19/05/2015	347229 429022	Clifton Marsh landfill site, Preston New Road, Newton with Clifton.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
68	LCC/2014/0160	Erection of a bund	Refused		336530 434124	Ream Hills Farm Mythop Road Weeton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
69	LCC/2014/0126	Change of use of agricultural land to extend the lcc highways depot site by 25 metres south and west of the existing site	Granted/ Completed	10/12/2014	339562 439146	Lcc Highways Depot, Grange Road, off Fleetwood Road, Singleton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
70	05/13/0715NM1	Non material amendment for re- orientation of the underground plant by 90 degrees, provision of 6x 0.9m high concrete bollards, relocate the kiosk and storage container, reduce the size of the grp dosing unit reduce the stone surface to provide more landscaping, the central access track to be stone filled porous paving and minor changes to position and size of man hole covers	Granted/ Superseded		337837 439548	Off Pool Foot Lane, Little Singleton, Poulton le Fylde.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
71	LCC/2014/0123	Variation of condition 1 of planning permission of 05/11/0431 to extend the time period for restoration of the site to 30 April 2015	Granted/ Completed	23/09/2014	337525 436590	Preese Hall Exploration Site, Preese Hall Farm, Weeton, Kirkham	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
72	LCC/2014/0120	Non compliance with conditions 5 and 8 of planning permission 05/13/0696 to extend the hours of working for composting and wood shredding	Granted/ Completed	10/11/2014	346851 428848	Clifton Marsh Landfill Site, Lytham Road, Clifton, Preston	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
		operations and to increase the stockpile height of waste materials from 5m to 10m					visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
73	LCC/2014/0116	Installation of a desalination plant within the existing landfill gas control compound for a temporary trial period of two years	Granted/ Completed	29/09/2014	347042 428760	Clifton Marsh Landfill site, Lytham Road, Clifton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
74	LCC/2014/0115	Erection of 2.4 metre boundary fencing	Granted/ Completed	15/08/2014	332858 429609	Heyhouses Endowed C of E Junior School, Clarendon Road north, Lytham st Annes	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
75	LCC/2014/0105	Construction of a bund with soils and inert waste	Refused	15/10/2014	336918 433937	Ream Hills Farm Mythop Road Weeton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
76	LCC/2014/0104	New salt dome to store rock salt, extensions to existing vehicle storage units and additional landscaping	Granted/ Completed	10/12/2014	339591 439169	LCC Highways Depot, Grange Road, off Fleetwood Road, Singleton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
77	LCC/2014/0096	Construction and operation of a site for drilling up to four exploration wells, hydraulic fracturing of the wells, testing for hydrocarbons, abandonment of the wells and restoration, including provision of an access road and access onto the highway, security fencing, lighting and other uses ancillary to the exploration activities, including the construction of a pipeline and a connection to the gas grid network and associated infrastructure to land to the north of Preston new road, little Plumpton	Refused		337408 432740	Agricultural land that forms part of Plumpton Hall Farm to west of the farm buildings, north of Preston New Road, off Preston New Road, Little Plumpton, Preston	The development proposal is sufficiently distant enough from the Site (~7.5km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. It is acknowledged that there is likely to be an overlap of construction activities between Preston New Road and Roseacre Wood. As stated in the 2014 ES, different activities would be synchronised at each site to reduce the risk of any cumulative effect **No significant incombination or cumulative effects are predicted.**
78	LCC/2014/0099	Retention of the temporary office unit and external ramps and guard rails	Granted/ Completed	03/09/2014	339543 439262	Lancashire County Council depot, Grange Road, Singleton	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
79	LCC/2014/0084	Permission is sought for a three year period to retain the existing site compound and access track, install seismic and pressure monitors within the existing well; undertake seismic and pressure monitoring; plugging and abandonment of the existing exploratory well and restoration of the site.	Refused		339168 438954	Grange Hill Exploration Site, off Grange Road, Singleton, Poulton le Fylde	The development proposal is sufficiently distant enough from the Site (~5.5km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
80	LCC/2014/0068	Non compliance with condition 3 of permission 05/12/0557 to allow the permanent retention of the access road	Granted/Valid	21/08/2014	335688 440683	Poulton waste water treatment works, Old Mains Lane, Poulton le Fylde	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
81	LCC/2014/0070	Modification to existing pipe bridge across main dyke, temporary access off the a585 mains lane on land adjacent to former Poulton waste water treatment works	Granted/ Completed	18/07/2014	335648 440669	Land north of Mains lane, Poulton le Fylde	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
82	LCC/2014/0028	Demolition of existing building for new single storey intensive support unit, including new access road off moor street, fencing, access gates, 6x6m high lighting columns, 6x illuminated bollards, relocation of existing car parking spaces and landscaping	Granted/Valid	03/09/2014	342167 432082	Pear Tree School, Station Road, Kirkham.	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
83	LCC/2014/0032	Proposed 15m wide pipe bridge across main dyke, supported on raised manholes, and with associated hardstanding, bank stabilisation and ground reprofiling	Granted/ Completed	06/05/2014	336535 439380	Land north of main Dyke Bridge, off Garstang Road East, Poulton le Fylde	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely.

	Application No	Summary of Application	Status/ Decision	Decision Date	Grid ref	Site Address	Overview of Cumulative and In-combination Effects
							No significant incombination or cumulative effects are predicted.
		PRESTON: LEA					
84	06/2014/0339 06/2013/0148	Erection of 104 dwellings, associated roads, footways, open space and landscaping	Previously approved subject to s106 agreement	8/8/2013	349963 431718	Cottam Way, West of, Canberra Lane, (Cottam Hall Site K), Preston, Lancashire	The development proposal is sufficiently distant enough from the Site (~7.5km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
85	06/2014/0581	Erection of 4no. Detached two storey dwellings and alterations to existing vehicular access (reserved matters application for outline approval 06/2013/0701)	Approval of reserved matters	20/11/2014	347895 430927	38 Darkinson Lane, Lea, Preston, Lancashire, pr4 0rj	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
86	06/2014/0685	Erection of 6no. Two storey detached dwellings with garages and creation of new vehicular access to serve new dwellings and no. 154 Hoyles Lane	Refused	N/A	N/A	N/A	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
87	06/2014/0932	Erection of 6no. Two storey detached dwellings with garages and creation of new vehicular access to serve new dwellings and no.154 Hoyles Lane (resubmission of planning application 06/2014/0685)	Previously approved subject to s106 agreement	23/04/2015	N/A	154 Hoyles Lane, Preston, Lancashire, pr4 0nb	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
88	06/2015/0243	Reserved matters application for 283 dwellings, including associated infrastructure, commercial and community facilities, open space provision, landscaping and ecological mitigation measures	Approval of reserved matters	23/07/2015	349650 431733	Land adjacent to Cottam between Cottam Way, Lea Road and Lancaster Canal - Plot 11, 12 and 13 at Cottam Hall, Lea, Preston	The development proposal is sufficiently distant enough from the Site (~7.4km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
89	06/2015/0530 06/2017/0588	Erection of 350no dwellings, new vehicular access from Hoyles Lane and Sidgreaves Lane, open space, landscaping and associated infrastructure	Approval of amended plans/	17/12/2015	349269 432587	Land to the north of Hoyles Lane and to the east of Sidgreaves Lane, Lea, Preston	The development proposal is sufficiently distant enough from the Site (~6.5km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
90	06/2016/0046 06/2012/0145	Outline application for the redevelopment of 53 hectares of land for residential development of up to 1100 dwellings (Class C3), retail (Class A1 500 sqm), commercial (Class A3 1600 sqm) and community facilities (Class D1/D2), children's play areas, open space provision, landscaping and associated infrastructure including internal road layout, footpaths, cycle routes and ecological mitigation measures (all matters reserved)	Approval in outline/ previously approved subject to a106 agreement	22/03/2013	349454 431936	Sidgreaves Lane, Lea Road and Lancaster Canal - Cottam Hall, Lea, Preston, Lancashire	The development proposal is sufficiently distant enough from the Site (~7km). Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
91	06/2016/0786	6no. Dwellings with access from lea road	None available on portal	N/A	349297 431758	Bridge House, Lea Road, Preston, pr4 0ra	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
92	06/2016/0847	8no. Dwellings and associated works	Approval with conditions	06/12/2016	347870 430991	Harrison House Farm, 76, Darkinson Lane, Preston, pr4 0rj	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
93	06/2016/1159	Erection of 6no. Two storey detached dwellings with garages and creation of new vehicular access to serve new dwellings and no.154 Hoyles Lane (resubmission of planning application 06/2014/0685) (pursuant to 06/2014/0932 to seek variation of condition no.13 "Code for Sustainable Homes")	Approval with conditions	19/01/2017	349767 432540	154 Hoyles Lane, Preston, Lancashire, pr4 0nb	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**
94	LCC/2016/0046	Preston western distributor. Link road and east west link road. The development includes a new motorway junction to the m55 together with	Approved		348697 432102	Land in Lea, Cottam and Bartle and to the west and north of the	The development proposal is sufficiently distant enough from the Site (~6.3km). Therefore cumulative effects on air

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		temporary soil storage and contractor areas, cycle track alongside all highways, water attenuation ponds, diversion/stopping up of public rights of way, landscaping and ecology mitigation areas, construction of two bridges, two viaducts, two underpasses and a cattle creep.				existing built up area of Preston.	quality, heritage, ecology, noise, landscape and visual impacts, and water resources are unlikely. The permitted route for all vehicle types and vehicles under 7.5T for the development proposal will only interact with the Project at Clifton Lane, where Clifton Road meets Stations Road and where Church Lane crosses into Deepdale Lane. However, given the small timescale of overlap it is not considered that it will cause a significant cumulative transport effect. **No significant incombination or cumulative effects are predicted.**
95	17/0247 Appeal reference: APP/M2325/W/17/3172835	Outline application for residential development of up to 50 dwellings (access applied for with all other matters reserved).	2 Applications refused (Feb and July 2017). Appeal hearing 1st Nov 2017	Appeal hearing 1st Nov 2017	342385 438502	Land North of Mill Lane, Elswick, PR4 3ZH	The scale of development is small. Therefore cumulative effects on air quality, heritage, ecology, noise, landscape and visual impacts, water resources and transport are unlikely. **No significant incombination or cumulative effects are predicted.**

Cuadrilla Elswick Ltd

Temporary Shale Gas Exploration
Roseacre Wood, Lancashire

Planning Statement Addendum

March 2018

Contents

1 Introduction

1. This report has been written in support of the ongoing planning appeal ref. APP/Q2371/W/15/3134385 submitted by Cuadrilla Elswick Limited ("Cuadrilla") in respect of proposed temporary shale gas exploration works at Roseacre Wood in Lancashire.

2. As confirmed in his decision letter of 6 October 2016, the Secretary of State (SoS) is minded to grant this appeal subject to the re-opening of the inquiry to hear further evidence on highway safety. That inquiry is due to take place in April 2018, after which Inspector Mel Middleton will prepare an addendum inspector's report for the SoS on highway safety. It is then expected that the SoS will make his final decision on this appeal at some stage thereafter.

3. This Planning Statement Addendum has been prepared to provide an update to the SoS on whether there have been any relevant non-highway safety related changes to policy, guidance and legislation and any other material changes that have arisen since the SoS decision letter was issued. This report will not form part of the evidence base for the inquiry, which will solely consider highway safety, and will be the subject of separate public consultation.

4. Except as set out below in this report, all other planning matters remain unchanged from the position as at the date of the SoS's decision letter.

2 Planning Context and Project Update

2.1 Planning History of Exploration Works within the Licence Area

1. Whilst there is no material change to the information presented in Section 2.3 of the 2014 Planning Statement, work at Cuadrilla's Preston New Road site commenced in January 2017.

2.2 Groundwater Monitoring Wells (Subject of a Separate Application)

2. The updated Environment Agency (EA) document '*The Environment Agency's approach to groundwater protection* (EA, 2017)' refers to the *Infrastructure Act 2015*[6] stressing the importance of measuring methane emissions for 12 months prior to hydraulic fracturing.

3. The monitoring of dissolved methane in groundwater commenced on site on 13th October 2016. Since this date a groundwater sample for dissolved methane has been collected and analysed by an external laboratory each month (the analysis also includes a test for carbon dioxide and other hydrocarbons C_3-C_6). At the time of

writing, 11 months of monitoring has been completed with the most recent sample taken on 30th August 2017.

2.3 Environmental Management

4. Other than the new requirement for an Invasive Species Management Plan (see Section 3, below) there has been no material change to the environmental management, which includes environmental monitoring, as considered in the 2014 Planning Statement.

3 Site and Surroundings

3.1 Access

1. Section 4.6 in the 2014 Environmental Statement (ES) describes the assessment of impacts and arrangements for offsite access. This has since been updated based on a revised HGV Route Strategy, and is presented in the Traffic Addendum, evidence on this will be submitted for examination at the April 2018 inquiry.

3.2 Ecological Context

2. Updated baseline ecological surveys were carried out for the Project in 2017. The 2017 ecological survey results were comparable with those undertaken in 2013 and 2014.

3. The only additional finding was the identification of a single area of Rhododendron within 10m of the proposed access route into the Site. As a result, an Invasive Species Management Plan will be required for works in close proximity to the stand of Rhododendron identified in Roseacre Wood.

4 The Proposed Development

4.1 Well Pad Construction and Drilling

1. Based on experience of constructing the Preston New Road exploration site, Cuadrilla is likely to use construction techniques which reduce the aggregate required to construct the site foundation, and therefore reduce the number of HGVs which might otherwise be necessary. Assuming the use of these techniques and based on experience of the actual length of the site construction and the drilling of wells 1 and 2 at the Preston New Road exploration site, it is anticipated that the site construction and drilling phase for wells 1 and 2 for the Roseacre Wood site will last approximately 7 and 12 months respectively, however 2 months of these phases overlap with each other so the total consecutive length of time is actually 17 months.

2. At the previous planning inquiry in 2016, it was estimated that construction of the Roseacre Wood site would take 2 months[1]. This has now been revised to 7 months following the experience at Preston New Road. The drilling of wells 1 and 2 was originally estimated to take 8 months at the previous inquiry but this has been revised to 12 months. Finally the restoration of the site was originally estimated to take 2 months[2] and this has been revised to 4.5 months.

3. Note that, irrespective of the phase of operation, the imposition of a cap on HGV movements of 50 movements (25 HGVs in and 25 HGVs out) per day ensures that in environmental terms the duration of any particular phase and the total number of HGV movements, within the life of the planning permission, would not affect the significance of the environmental effects. In addition the revised indicative programme complies with the proposed planning condition that all operations are completed within a period of 75 months from commencement of development.

5 Key Benefits and the Justification for Natural Gas from Shale

5.1 Local and National Economic Benefit

1. The HM Treasury (2016)[3] has consulted on a Shale Wealth Fund which could deliver £1 billion of funding that would be paid to communities in which the resource is being developed over the next 25 years. The fund has been proposed to ensure that economic growth and investment are spread as widely as possible in the local community, thereby addressing at a national level any concerns over a narrow spread of economic benefit and furthering Government commitment to the development of shale gas and local communities.

2. Consultation closed on 26 October 2016, during which it emerged that the Shale Wealth Fund should benefit the communities who host shale sites, and that local communities should have a say over how the money is spent in their area. This was confirmed by the Government in their Autumn Statement 2016.

3. On 25 January 2018, the SoS issued a written statement in which he confirmed that "Exploring and developing the UK's shale gas resources could bring substantial benefits and the Government's view is that there is a national need to develop these resources in a safe, sustainable and timely way." As set out in the clean growth strategy, the Government are fully committed to the development and deployment of low-carbon technologies for heat and electricity generation. As we move towards this low-carbon economy, natural gas will continue to play an important role in our energy system. The Government are confident that the right protections are in place

[1] CUA/INQ/024 estimated 3 months for construction and the indicative programme in Figure 2 of Mr Smith's proof cited 5 months, though the main position at the previous inquiry, as set out in the Transport Proof of Mr Ojeil submitted on behalf of Cuadrilla, was considered to be 2 months.

[2] The indicative programme in Figure 2 of Mr Smith's proof cited 12 months for restoration, though the main position at the previous inquiry, as set out in the Mr Ojeil's Transport Proof, was considered to be 2 months.

to explore shale safely and have always been clear that shale development must be safe and environmentally sound.

6 Accordance with Planning Policy

6.1 Relevant Policy and Guidance

6.1.1 Emerging Fylde Local Plan

1. The Fylde Borough Local Plan (1996-2006) is due to be replaced in due course by the Emerging Fylde Local Plan (to 2032).

2. The Emerging Fylde Local Plan will cover the plan period 1 April 2011 up to 31 March 2032.

3. Following the issue of the SoS's decision letter on the Roseacre Wood appeal in October 2016, the Fylde Local Plan Submission Version was submitted to the SoS on 9 December 2016 for Examination in Public, which took place between March and December 2017. The Examination Inspector has not yet published her report.

4. The current published timetable for adoption of the plan is early summer 2018. However, as confirmed at a Planning Committee meeting that took place on 17 January 2018, Fylde Borough Council is in the process of producing a modified version of the plan which will be subject to a further round of consultation. The Examination Inspector will consider any consultation responses before deciding whether any further changes are required to make the plan sound.

6.2 Land use and Agriculture

6.2.1 Countryside

5. Policy SP2 (Development in Countryside Areas) in the Fylde Borough Local Plan (1996-2006) is due to be replaced in due course by the Submission Fylde Local Plan (to 2032) Policy GD4 (Development in the Countryside). Under these policies the Site is designated as Countryside. Policy GD4 defines the types of development which are acceptable in the countryside in appropriate circumstances. These include a number of uses including minor extensions to existing buildings and developing isolated new homes. It also states that development in the countryside will be limited to:

   "*That needed for the purposes of…other uses appropriate to a rural area, including which would help to diversify the rural economy.*"

6. The exploration and extraction of shale gas and oil is considered to be appropriate to a rural location, subject to appropriate environmental criteria. This is due to the open and un-built nature of the countryside which means that there is less potential for development to pose any harm to the residential amenity of any surrounding occupiers of residential properties. The development would help to diversify the

rural economy in accordance with the emerging plan's vision for the site which seeks to *"remain flexible in its approach to changing economic and employment patterns"* and promotes an *"energy hub"* in Fylde with a *"cluster of energy based companies"*. Policy GD4 is considered relevant to the extraction of Shale Gas as it will form an important part of diversifying the rural communities with an industry which can provide many investment opportunities into the provision of local services.

6.2.2 Agricultural Land

7. Consultation saw Policy EC3 evolve into Policy GD1 in the Submission Fylde Local Plan (to 2032), which states:

> *"The significant loss of the best and most versatile agricultural land will be resisted unless it is necessary to deliver development allocated in the Local Plan, or for strategic infrastructure."*

8. Policy GD1 moves away from the term *"irreversible"* towards *"significant"* implying that a loss of the best and most versatile agricultural land is permissible in certain circumstances. This policy also seeks to ensure that the loss of the best and most versatile land throughout the district and not just outside of settlement boundaries is minimised.

9. The best and most versatile agricultural land is defined as Grades 1, 2 and 3a. The loss of grade 3a land is not considered to be significant as any permission would be temporary and on a relatively small scale. Furthermore, the excavated top-soil and sub-soil will be stored during the works and restored during decommissioning and restoration in line with industry best practice. Taking land out of intensive agricultural practices for a period of time would also see a reduction of artificial inputs (fertilizers, pesticides and herbicides) into the natural environment.

6.3 Biodiversity

10. Policy ENV2 (Biodiversity) in the Submission Fylde Local Plan (to 2032) seeks to replace in due course several policies from the Fylde Local Plan (1996-2006) including policies EP15, EP16, EP17 (Nature Conservation, Sites of Specific Scientific Interest and Biological Heritage Sites) and EP19 (Special Protected Sites). Policy ENV2 is considered relevant to the extraction of Shale Gas as it seeks to ensure the strongest possible protection will be given to sites designated for their biodiversity value.

11. In terms of the natural environment, there is one statutory designated ecological site within a 5km radius surrounding the Site. Fishwick Bottoms Local Nature Reserve is *c.*3km south-east of the Site. It is ecologically distinct from the Site and is sufficient distance that it would not be affected by the Project. Morecombe Bay Ramsar and Special Protection Area (SPA) are located approximately 6km to the north-west of the Site. No non-statutory designations are located within the Site boundary and there are none within a 1km radius surrounding the Site. The application would lead to no significant detrimental impact in terms of biodiversity.

12. EP18 (Existing Natural Features) in the Fylde Local Plan (1996-2006) is due to be replaced in due course by ENV1 (Landscapes) in the Submission Fylde Local Plan (to 2032). This is discussed further below.

6.4 Landscape Character

13. Policy ENV1 (Landscape) in the Submission Fylde Local Plan (to 2032) is due to replace in due course both Policies EP11 (New Development in Rural Areas) in the Fylde Local Plan (1996-2006) and the Preferred Options Policy ENV1 (Landscape and Biodiversity).

14. Policy ENV1 (Landscape) states:

> *"Development will have regard to its visual impact within its landscape context and the landscape type in which it is situated. Development will be assessed to consider whether it is appropriate to the landscape character, amenity and tranquillity within which it is situated, as identified in the Lancashire Landscape Character Assessment, December 2000 or any subsequent update. In addition:*
>
> - *A landscaped buffer of appropriate depth and species will be provided for development that impacts upon land in or adjacent to the Countryside, and wherever necessary includes advanced planting, in order to limit the visual impact of development;*
> - *In the event of the loss of landscape features, the impact will be minimised or, where loss is unavoidable, their like-for-like replacements will be provided. Where such features, including trees, woodlands, hedgerows and field ponds, are lost and replaced, measures will be put in place to manage these new features;*
> - *Suitable landscape planting of native species, appropriate to its context should be incorporated within or, where appropriate, close to new development. Measures should be put in place for the management of such landscaping. Specific consideration should be given to how landscaping schemes will minimise the rate of surface water run-off."*

15. The Submission Fylde Local Plan (to 2032) outlines that landscape buffers will need to be provided in the open countryside, rather than just outside of settlement boundaries as outlined in the Preferred Options Report, and it should be of an appropriate depth.

16. The visual impacts of the Project would be short term, temporary and reversible. Cuadrilla has outlined that they will provide a sufficient and an appropriate buffer to screen the impacts of the Project. This includes the planting of trees and shrubs around the periphery of the well pad and planting to fill gaps in existing hedgerows where they increase visibility of the Site. These commitments are captured by draft planning conditions 39, 40 and 41 (Appendix C – Planning Conditions, SoS decision letter).

17. Policy ENV1 cannot be sensibly applied due to the short term, temporary and reversible nature of the Project.

6.5 Existing Open Space

18. It is noted that the SoS decision letter makes reference to Policy ENV4 (Protecting existing open space).

19. Policy ENV3 and ENV4 of the Submission Fylde Local Plan (to 2032) refer to the protection of existing open space and provision of new open space (the Green Infrastructure network) respectively.

20. Policy ENV3 refers to the protection of the Green Infrastructure network from inappropriate development. The Project does not affect any existing public open space, loss of land currently used for allotments, or impinges on Fylde's Public Rights of Way network and as such Policy ENV3 cannot be sensibly applied.

21. Policy ENV4 covers policy for housing developers to provide open space as part of their proposal, for developers to contribute to the Green Infrastructure network or for developers to provide money for other local enhancement. The Project does not involve any new housing and as such Policy ENV4 cannot be sensibly applied.

6.6 Pollution

6.6.1 Surface Water

22. Policy EP23 (Development that would affect coastal waters and rivers etc.) in the Fylde Local Plan (1996-2006) is due to be replaced in due course by Policy INF1 (Service Accessibility and Infrastructure) in the Submission Fylde Local Plan (to 2032) (in accordance with paragraph 100 of the National Planning Policy Framework (NPPF)). The policy is considered relevant as it requires development to demonstrate that it will support the infrastructure requirements as outlined in the Infrastructure Delivery Plan and states:

23. "In order for Fylde to protect and create sustainable communities, proposals for development should:

- *Minimise any negative impacts on the quality of existing infrastructure as a result of new development;*
- *Mitigate any environmental impacts of new infrastructure provision;*
- *Use sustainable natural resources where appropriate."*

24. In accordance with this policy, the Project is not anticipated to have any negative impacts on existing infrastructure. Mains water will be supplied by the local United Utilities mains; all fowl sewage water will be collected and tankered off site. Electricity will be supplied by onsite diesel generators. Small power (mains electricity) and telecom communications may be provided to the site welfare facilities. Demands on utility services will thus be minimal.

25. Policy CL1 (Flood Alleviations, Water Quality and Water Efficiency) of the Submission Fylde Local Plan (to 2032) is considered relevant as it makes provisions for a requirement for new development to minimise flood risk impacts on the environment. The policy notes that all new development is required to minimise flood risk impacts on the environment, retain water quality and water efficiency, and mitigate against the likely effects of climate change on present and future generations. The key sections of this policy updated from the Preferred Options version and with relation to the Project include:

    - *"a) Ensuring that development incorporates the most sustainable form of managing surface water, subject to the requirement for approval from the drainage authority. This will be expected to be investigated and confirmed as part of any planning application submission. It will be necessary to attenuate any discharge of surface water through the incorporation of sustainable drainage systems (SuDS), following the SuDS hierarchy. This would be greenfield run-off rate on greenfield sites. On previously developed land, surface water betterment will be expected. The preference will be for no surface water to discharge to the public sewer, directly or indirectly, if more sustainable alternatives are available. The priority options for the management of surface water are set out in detail in the Infrastructure Delivery Plan.*
    - *e) Ensuring that watercourses, which require watercourse consent are protected from encroachment and adverse impacts and that water quality is maintained and improved.*

26. Provisions relating to surface water are also covered in Policy CL2 (Surface Water Run-Off and Sustainable Drainage) of the Submission Fylde Local Plan (to 2032). The Policy is considered relevant as it sets a requirement for discharge rates to be pre-agreed with relevant parties and outlines a number of attenuation measures that must be incorporated into new developments, for example:

27. "Store rainwater for later use; and

28. The first 5mm of rainfall should infiltrate. In areas where infiltrations rates are slow, e.g. soils with a high proportion of clay, then permeable surfaces may be under-drained. This will have the effect of slowed surface water run-off rates"

29. "Attenuate rainwater in ponds or open features for gradual release into the watercourse"; or

30. "Attenuate rainwater by storing in tanks or sealed water features for gradual release into a watercourse."

31. Where compelling and detailed evidence demonstrates that the above measures are not feasible or would adversely affect viability, then the following national discharge (SuDS) hierarchy will be considered in priority order:

    1. Controlled discharge of rainwater direct to a watercourse;

    2. Controlled discharge of rainwater to a surface water drain; and

3. Controlled discharge of rainwater to the combined sewer. Development must utilise SuDs whenever practical; and reduce discharge to greenfield run-off rates wherever feasible.

32. In accordance with these policies, any discharge of surface water via an interceptor from the Site will be discussed and agreed with the Environment Agency. Approval will be sought from the Environment Agency for any discharge to a watercourse.

6.6.2 Ground Water

33. Policy EP23 (Development that would affect coastal waters and rivers etc.) in the Fylde Local Plan (1996-2006) is due to be replaced in due course by Policy INF1 (Service Accessibility and Infrastructure) in the Submission Fylde Local Plan (to 2032) (in accordance with paragraph 100 of the NPPF).

34. Provisions made for the protection of groundwater are also outlined in Submission Fylde Local Plan (to 2032) Policy CL1 (Flood Alleviations, Water Quality and Water Efficiency), which states:

35. "Where development potentially impacts on groundwater, satisfactory mitigation is possible. However, there are some types of development which are unlikely to be acceptable within Source Protection Zones".

36. The implications of these policies are relevant to the Project.

37. In accordance with these policies, the monitoring of dissolved methane in groundwater commenced on site on 13th October 2016. At the time of writing, 11 months of monitoring has been completed with the most recent sample taken on 30th August 2017.

38. In addition to this, hydraulic fracturing is prohibited in protected groundwater source areas. According to the current classification of aquifers in the Fylde area there are no protected groundwater source areas.

39. The monitoring scope and reporting procedures will be agreed with the regulators and presented in advance in the Environmental Management and Monitoring Plan (EMMP). Cuadrilla will liaise with the EA to discuss the EMMP in the context of recent regulatory updates.

6.6.3 Light Pollution

40. Policy EP28 (Light Pollution) of the Fylde Local Plan (1996-2006) has not been replaced in the Submission Fylde Local Plan (to 2032), instead light pollution will be dealt with in accordance with paragraph 125 of the NPPF, which encourages the use of good design to *"limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation".*

41. The implications of this NPPF policy are relevant to the Project.

42. It is acknowledged that the Site would be lit at night. However, in accordance with the NPPF, this would be subject to a detailed lighting scheme to limit light pollution.

6.6.4 Air Quality

43. Policy EP26 (Air Pollution) of the Fylde Local Plan (1996-2006) is due to be replaced in due course in accordance with paragraph 124 of the NPPF, which states *"planning policies should sustain compliance and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and cumulative impact on air quality from individual sites in local areas".*

44. The implications of this NPPF policy are relevant to the Project.

45. According to the [4]Defra website, there remain no Air Quality Management Areas (AQMAs) within the vicinity of the Site. A re-assessment of impacts of the Project has concluded that in accordance with the NPPF policy, the residual air quality effects of the Project are of negligible significance under a conservative operating scenario.

6.7 Noise

46. The Planning Inspector made reference to Policy EP27 (Noise Pollution) in the Fylde Borough Local Plan (1996-2006), which states:

> *"Development which would unnecessarily and unacceptably result in harm by way of noise pollution will not be permitted. Where appropriate, planning permission will be granted subject to conditions to minimise or prevent noise pollution."*

47. Policy EP27 has not been replaced in the Submission Fylde Local Plan (to 2032). Instead, noise pollution will be dealt with in accordance with paragraph 123 of the NPPF, which states:

"Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*

[4] https://www.gov.uk/preventing-air-pollution

- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."*

48. At paragraph 12.293 of the Inspector's Report appended to the SoS's October 2016 decision letter, the Inspector states that setting a noise limit of 39db would not entirely eliminate all adverse effects, it would reduce them to an acceptable level and as a result there would be no significant adverse noise impact. He concludes that subject to the imposition of appropriate planning conditions, the Project would be in accordance with policy EP27.

49. It is considered that, with the imposition of conditions, the Project also complies with paragraph 123 of the framework.

50. The implications of this NPPF policy are therefore relevant to the Project.

6.8 Cultural Heritage

51. It is noted that the SoS decision letter makes reference to Policy ENV6 (Historic environment).

52. Policy EP21 (Archaeology) of the Fylde Borough Local Plan (1996-2006) are due to be replaced in due course by Policy ENV5 (Historic Environment) of the Submission Fylde Local Plan (to 2032).

53. ENV6 related to good design in new development, was subsequently dropped in the Submission Plan.

54. There are no World Heritage Sites, Scheduled Monuments, Registered Parks and Gardens, Registered Battlefields, Listed Buildings or Conservation Areas within proximity (within 1km) of the Site. Whilst Policy ENV5 is considered relevant, there would be no significant environmental effects on any of the features designated for their heritage or historic value. No harm will be generated by the proposal to their historical significance or the setting of these heritage assets.

7 Conclusion

1. On review, there has been no material change that would alter the position as set out in the SoS decision letter. The Project continues to be in alignment with Government policy and its support for shale gas exploration.