highways england

European Union
European Regional Development Fund

A30 Chiverton to Carland Cross TR010026

8.4 RESPONSES TO THE EXAMINING AUTHORITY'S WRITTEN QUESTIONS

Volume 8

March 2019

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1 Introduction

1.1 Purpose of this document

1.1.1 The purpose of this document is to set out the Highways England (the Applicant) written responses to the Examining Authority's first written questions issued on 13 February 2019, relating to the A30 Chiverton to Carland Cross scheme. These can be found in **Table 2-1** overleaf.

2 Responses to the Examining Authority's First Written Questions

Table 2-1 Applicant's Response to the Examining Authority's First Written Questions

Number	Directed to	Question	Applicant's Response
0. GENERAL MATTERS			
1.0.1	Applicant	**Public Sector Equality Duty** In considering the application, the SoS will be subject to the Public Sector Equality Duty under Section 149 of the Equality Act 2010. a) How has the Applicant fulfilled its own duty under the Act? b) How does the applicant consider the SoS can fulfil the duty?	Highways England use the Equality Impact Assessment (EqIA) process to consider and evidence compliance with the Public Sector Equality Duty (PSED) under the Equality Act 2010. Equality Impact Screening and Assessment tools are used by Highways England at each stage of the design process to ensure it meets the PSED. An Equality Impact Screening was carried out during the previous stages of the scheme development, whereupon it was determined that a full EqIA was required at the preliminary design stage. The EqIA sets out the potential positive and negative impacts on the scheme, and how processes associated with its development (such as stakeholder engagement) have complied with the PSED. The EqIA has been submitted to support this response for Deadline 2 – see **Appendix A** of this document.
1.0.2	Applicant	Paragraph 3.1.4, Funding Statement [APP-010] indicates that a proportion of funding has been allocated to the scheme through the European Regional Development Fund, committed in the Operational Programme 2014 to 2020. Please confirm whether or not the funds would be affected by the stated intention of the United Kingdom to withdraw from the European Union.	The European Regional Development Fund (ERDF) contribution for the scheme represents approximately 7% of the overall scheme cost. This funding will not be affected by the stated intention of the United Kingdom to withdraw from the European Union. On 13 September 2018, HM Treasury guaranteed the allocated funding in the event of a "No-deal Brexit". Highways England is receiving a ERDF contribution of £20 million under the 2014-2020 ERDF Operational Programme period. This £20m is broken into two contributions. The first contribution of £8m is for the development phase and will have been fully drawn down by the end of March 2019. This funding is secure and isn't affected by the intention of the United Kingdom to withdraw from the European Union. The second contribution of £12 million is for construction phase funding. This allocation of funding is due to be delivered through the European Regional Development Fund. To cover the eventuality of a "No-deal Brexit" scenario, the Government has issued a guarantee to ensure there will be no gap in funding for all

<table>
<tr><th>Number</th><th>Directed to</th><th>Question</th><th>Applicant's Response</th></tr>
<tr><td></td><td></td><td></td><td>projects that would have been funded by the European Regional Development Fund under the 2014-2020 programme period.

The Government announcement states:

"in the event of a 'no-deal' scenario, the UK's departure from the EU would mean UK organisations would be unable to access EU funding for European Regional Development Fund projects after exit day.

We are committed to ensuring that there will be no gap in funding for regional growth in the event of a no-deal. The Chancellor announced in August and October 2016 that the government would guarantee certain EU projects agreed before we leave the EU in order to provide more certainty for UK organisations over the course of EU exit. This guarantee included European Regional Development Fund projects."

Further information regarding this commitment can be found within the following link of the Government's website, under the section "After March 2019 if there's no deal": https://www.gov.uk/government/publications/european-regional-development-funding-if-theres-no-brexit-deal/european-regional-development-funding-if-theres-no-brexit-deal</td></tr>
<tr><td>1.0.3</td><td>Applicant, CC, NE, HE, EA, WWUL, HSE, Arqiva Ltd, SPR, WPD, Nancarrow Farm, TCC, TT</td><td>See Paragraph 3 of Annex B to the Rule 8 letter. At the Preliminary Meeting, 6 February 2019, the applicant suggested that certain requested SoCG be not submitted and others submitted in their stead.

By Deadline 1 (Tuesday 19 February 2019) can all relevant parties indicate their agreement to submit, or not submit, SoCG as appropriate to confirm where such documents are expected.</td><td>Highways England has undertaken early preparation of SoCGs with various bodies as identified in the table below. This provides a list of SoCGs that are currently in place, in draft and where an SoCG is currently being prepared. This is detailed in the Statements of Common Ground (Document Reference 7.4(B)) submitted at Deadline 2.

Since the submission of the application for development consent, additional SoCGs have been requested by the ExA to be submitted during the course of the Examination. These have been requested through the Rule 6 Letter issued on 9 January 2019, the Preliminary Meeting held on 6 February 2019 and the Rule 8 letter issued on 13 February 2019.

List of SoCGs
<table>
<tr><th>Party</th><th>Position at Deadline 2</th></tr>
<tr><td colspan="2">Statutory Consultee</td></tr>
<tr><td>Cornwall Council</td><td>SoCG in draft</td></tr>
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Number	Directed to	Question	Applicant's Response

Natural England	SoCG signed, all matters agreed
Historic England	SoCG in draft
Environment Agency	SoCG signed, all matters agreed
Interested Parties	
Nancarrow Farm	SoCG in draft
Truro Cycling Campaign	SoCG in draft
National Farmers Union (NFU)	SoCG in draft
St Allen Parish Council	SoCG in draft

SoCGs requested by the ExA and not provided
Highways England do not consider it is necessary or appropriate to develop and submit an SoCG with some of the parties as requested by the ExA. This is set out below for each party.

Health and Safety Executive (HSE)
As set out in the **Comments on Relevant Representations** (Document Reference 8.1)[REP1-004] submitted at Deadline 1, Highways England considers that all matters raised by the HSE in their Relevant Representation have been resolved through engagement and therefore an SoCG is not required. On 13 February 2019, the HSE submitted a Position Statement to the ExA confirming that it does not propose to enter into a SoCG as they are satisfied that their concerns have been addressed.

Western Power Distribution (WPD)
It is expected that the issues raised by WPD will be dealt with via a side agreement and therefore an SoCG is not considered necessary.

Arqiva
As set out in the **Comments on Relevant Representations** (Document Reference 8.1) [REP1-004] submitted at Deadline 1, Highways England considers that all matters raised by Arqiva in their Relevant Representation have been resolved through engagement and therefore an SoCG is not required. Arqiva have confirmed this in a Position Statement emailed to the ExA on 15 February 2019, which states that their objections have now been addressed and that they request to withdraw their Relevant Representation.

Number	Directed to	Question	Applicant's Response
			Scottish Power Renewables (SPR) Highways England is undertaking ongoing engagement with SPR and it is expected that matters with this party will be resolved through a legal agreement. A Position Statement with SPR was submitted to the ExA on 5 February 2019 which sets out the current status of the discussions between both parties. For this reason, it is not considered that an SoCG is necessary at this time.
1. AIR QUALITY AND EMISSIONS			
1.1.2	Applicant, NE	Paragraph 5.7.14, ES [APP-058], states that monitoring was undertaken August 2016 – May 2017 adjacent to the existing A30 and the scheme and at the sensitive ecology sites in the period November 2016 – May 2017. a) As the monitoring at sensitive ecological sites was restricted to the winter season to what extent is the information likely to be representative for the purposes of the assessment? b) How has the data been used to inform the assessment of year-round effects to sensitive receptors, including sensitive ecological receptors?	a) The monitoring data carried out in August 2016 – May 2017 was annualised as detailed in paragraph 5.7.15 of **Chapter 5 Air Quality** of the Environmental Statement (Document Reference 6.2) [APP-058]. The details of the period average and the annualised average have been provided in Table 5.3 in **Appendix 5.4 Air Quality – Baseline Data** of the Environmental Statement (Document Reference 6.4) [APP-317]. The annualised data is representative of the annual concentrations at the ecological sites and is suitable for the purposes of the assessment, in accordance with Local Air Quality Management Technical Guidance (TG16), February 2018. b) The data has been used to inform baseline conditions at the ecological sites. Further details on the methodologies applied for assessing air quality effects of habitats are provided in section 5.6 in **Chapter 5 Air Quality** of the Environmental Statement (Document Reference 6.2) [APP-058] and paragraph 3.3.22 of the Habitat Regulations Assessment Screening within the **Statement to Inform an Appropriate Assessment** (Document Reference 6.5) [APP-033].
2. BIODIVERSITY, ECOLOGY AND NATURAL ENVIRONMENT			
1.2.1	Applicant	It is noted that the River Habitat Appraisal was carried out in November/December 2016. a) Can you confirm if there has been any update to the appraisal? b) If not, can you explain what confidence you have in the findings	a) Highways England consider that there was no requirement to repeat the 2016 River Habitat Appraisal, as this was a preliminary survey to inform the need for more detailed aquatic surveys which were subsequently carried out for the project, as further detailed in response to point b) below. b) The River Habitat Appraisal carried out in November / December 2016 was conducted on several water courses in or near the A30 route option corridor with the main objective to identify aquatic habitats within the corridor which would inform the requirement for further detailed aquatic surveys. This is documented in

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		and the extent to which it remains appropriate to inform the assessment?	**Appendix 8.4 River Habitat Appraisal Report** of the Environmental Statement (Document Reference 6.4) [APP-334] The preferred route was announced in July 2017, and as such detailed surveys were conducted within the preferred route corridor which included: • freshwater macroinvertebrate surveys undertaken in spring (May) and in autumn (October) 2017, as recorded in **Appendix 8.9 Freshwater Macroinvertebrate Survey Report** of the Environmental Statement (Document Reference 6.4) [APP-339] • fish population surveys conducted in July 2017, as recorded in **Appendix 8.10 Fish Survey Report** of the Environmental Statement (Document Reference 6.4,) [APP-340] These more detailed aquatic surveys were used to inform the assessment reported in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] and influence design and mitigation strategies, where appropriate, during the scheme design in the late 2017 and into early 2018. Highways England have full confidence in the findings of these aquatic surveys and the results remain appropriate for the subsequent assessment.
1.2.2	Applicant	Paragraph 8.6.24, ES, states that National Vegetation Classification surveys of the heathland were undertaken in late August 2016. a) Has been an update to the National Vegetation Survey for heathland? b) If not, can the Applicant explain what confidence they have in its findings and the extent to which it remains appropriate to inform the assessment?	a) Highways England consider that there was no requirement to update the National Vegetation Classification (NVC) survey of the heathland conducted in August 2016 as this survey was appropriate to both inform the assessment reported in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061], associated mitigation and scheme design requirements conducted in 2017/2018. Detailed topsoil sampling was conducted in April 2018 within the affected heathland area and within proposed locations for heathland mitigation and possible translocation, to inform mitigation suitability and requirement of treatment pre-planting or translocation, as reported in the **Factual Report of Topsoil Investigation**, **July 2018** in **Appendix B** of this document. The soil sampling within these locations provide a more detailed holistic analysis of the heathland conditions which can be used alongside the NVC survey data to inform and provide confidence in the mitigation measures proposed. Paragraph 8.10.69 in **Chapter 8 Ecology and Nature Conservation** of the

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			Environment Statement (Document Reference 6.2) [APP-061] details the nutrient levels of the receptor site for proposed translocation and that of the current heathland and concludes: "*the heathland translocation receptor site should not require pre-translocation treatment to ensure successful heathland translocation and growth*." b) The NVC survey in 2016 remains appropriate to inform the assessment. Habitat changes tend to be slow and gradual, unless a drastic event arises such as a change in habitat management or hydrological conditions, or unpredictable events such as fire or other human interference. This is illustrated between the description of heathland habitat from a survey in 2003 and that provided from the NVC survey in 2016. Paragraph 8.7.37 in **Chapter 8 Ecology and Nature Conservation** of the Environment Statement (Document Reference 6.2) [APP-061] states: *"The Newlyn Downs SSSI/SAC is designated for the presence of the largest area of Southern Atlantic wet heath with Dorset heath and cross-leaved heath in Cornwall. Previous surveys in 2003 [25] indicated that these species were present in a fragment of heathland near to Carland Cross and may therefore represent a remnant section of this habitat. The Dorset heath was described as being in the south western tip of the heathland fragment."* The NVC surveys in 2016 showed no change from the results reported in the 2003 surveys, thirteen years previous. Southern / Temperate Atlantic Wet Heath with *Erica ciliaris* and *Erica tetralix* habitat is described by H4 *Ulex galli - Agrostis curtisii* heath community using the NVC classification, as described in paragraph 2.4.2 in **Appendix 8.5 Heathland and Woodland NVC Report** (Document Reference 6.4) [APP-335] of the Environmental Statement. As detailed in paragraph 4.1.1 in **Appendix 8.5 Heathland and Woodland NVC Report** (Document Reference 6.4) [APP-335] of the Environmental Statement, H4 heath community was recorded at Site 1 (the affected heathland area), and the sub-community H4a was calculated for Site 2 (within the Newlyn Downs SSSI/SAC): "*the heathland habitats within the survey area displayed an affinity to the following vegetation communities:* *Site 1 H4 Ulex gallii – Agrostis curtisii heath; H4a Ulex gallii – Agrostis curtisii*

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			heath, Agrostis curtisii – Erica cinerea sub-community, and H4c Ulex gallii – Agrostis curtisii heath, Erica tetralix sub-community. *Site 2 H4a Ulex gallii – Agrostis curtisii heath, Agrostis curtisii – Erica cinerea sub-community*." Further to this, the only record of Dorset heath during the 2016 was recorded in the south western tip of the heathland fragment of Site 1 as shown in Figure 2 of **Appendix 8.5 Heathland and Woodland NVC Report** (Document Reference 6.4) [APP-335] of the Environmental Statement. Paragraphs 3.3.17 and 3.3.18 in the same report state: "*Erica ciliaris was recorded within at the western extent of the heathland survey area (grid reference SW 8382 5364). This species was recorded in the H4a Ulex gallii – Agrostis curtisii heath, Agrostis curtisii-Erica cinerea sub-community (Vegetation Type 2 Habitat). However, it was not recorded in any of the quadrats. The plant covered an extent of ground approximately 1 m by 1 m. The plant was growing at the edge of heathland habitat, close to a transition between heathland to scrub habitat."* This comparison between 2003 and 2016 surveys shows that there has been no change in the habitat classification in thirteen years of the heathland fragment. Highways England have made multiple visits to this area during ongoing ecological surveys in 2017 and 2018, and there has been no observed change in habitat classification, nor change in management or hydrological conditions, or any unpredictable events such as fire, to this area since 2016. Therefore, Highways England are confident the findings and the extent of the NVC surveys of the heathland remains appropriate to inform the assessment.
1.2.3	Applicant	Paragraph 8.6.65, ES, states that the breeding bird survey was carried out over four visits between April and June 2016. a) Can the Applicant explain if there has been an update to the breeding bird survey? b) If not, can the Applicant explain what	a) Highways England consider that there was no requirement to update the breeding bird survey conducted in 2016 as this survey was appropriate to inform the assessment reported in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2,) [APP-061] and the associated mitigation and scheme design requirements conducted in 2017/18, as well as informing the requirement of further specific breeding bird surveys for species of conservation concern, as further detailed in response to point b) below. b) Highways England consider that the breeding bird survey in 2016 remains appropriate to inform the assessment. The general breeding bird assemblage

Number	Directed to	Question	Applicant's Response
		confidence they have in its findings and the extent to which it remains appropriate to inform the assessment?	present within the study area was assessed to of local value (at most) for breeding bird populations, typical of such areas of farmland in Cornwall, as detailed within paragraph 8.11.55 of **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2,) [APP-061], with relative low numbers of species being listed as conservation concern and with no particularly large aggregations of breeding birds; see paragraphs 8.7.79 – 8.7.99 of **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061]. The six breeding bird transects covered habitats including arable farmland, pasture fields, woodland blocks, hedgerows, and residential and farm areas, with a small pocket of heathland located towards the eastern end of the scheme. The relative abundance of these habitats and their breeding bird potential is unlikely to change significantly between years. Highways England have visited the study area on multiple visits during 2017 and 2018, and no significant change to habitats through changes in habitat management or hydrological conditions, or unpredictable events such as fire or other human interference, have been observed. As such the baseline conditions of these habitats and the breeding birds they support have not altered as to cause change to the assessment. Furthermore, the proportionate effect on these habitats from the scheme does not warrant over a single field season of data, as agreed with Natural England and captured within the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) submitted at deadline 2. Highways England are therefore confident with the breeding bird findings and extent of the 2016 survey remains appropriate to inform the assessment. The breeding bird survey data also informed the requirement for further species-surveys breeding birds, including barn owl that were conducted in July and August 2017, and surveys for nightjar that were conducted in July 2017 and again in June/July 2018. The 2017 surveys for barn owls are reported in **Appendix 8.14 Barn Owl Survey Report** of the Environmental Statement (Document Reference 6.4) [APP-344] and summarised in paragraphs 8.6.74 - 8.6.78 (methods) and paragraphs 8.7.112 - 8.7.121 (results) of **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061].

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			The details for the 2017 nightjar surveys are fully detailed in **Appendix 8.15 - Nightjar Survey Report** of the Environmental Statement (Document Reference 6.4) [APP-345], and summarised in paragraphs 8.6.79 - 8.6.84 (methods) and paragraphs 8.7.122 - 8.7.128 (results) of **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061]. The 2018 nightjar surveys are fully detailed in the Nightjar Survey Report 2018, see **Appendix C** of this document.
1.2.4	Applicant	Paragraph 8.6.124, ES, explains that Bat Activity Transect Surveys were undertaken between May and September 2016. a) Can the Applicant explain if there has been an update to the Bat Activity Transect Surveys? b) If not, can the Applicant explain what confidence they have in its findings and the extent to which it remains appropriate to inform the assessment?	a) Highways England considers that there is no requirement to update the Bat Activity Transect Surveys conducted in 2016, as these surveys were appropriate to inform the assessment reported in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2,) [APP-061] and any associated mitigation and scheme design requirements conducted in 2017/18, as well as informing the requirement of further specific bat surveys, as further detailed in response to point b) below. b) The Bat Activity Transect Surveys carried out between May and September 2016 remain appropriate to inform the bat activity assessment, alongside the Automated Detector Surveys and Crossing Point Surveys as detailed in **Appendix 8.20 Bat Activity Survey Report** of the Environmental Statement (Document Reference 6.4) [APP-350], as well as informing scheme design and mitigation. The five bat activity transects followed good practice guidelines and covered habitats ranging from low bat suitability (e.g. large intensively managed arable fields with grass-topped Cornish hedgerows as field boundaries) to high bat suitability (e.g. woodland edges, pasture fields with hedgerows and marshy grassland). They were undertaken to assess the bat species assemblage and distribution of bat activity within the survey area, identify important habitat types and features for commuting and foraging bats. The Bat Activity Transect Surveys were partly used to inform the requirement for, and the locations of, the more focussed Crossing Point Surveys as detailed within paragraphs 8.6.132 to 8.6.138 of **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061]. These Crossing Point Surveys were undertaken between June and September during the 2016 and 2017 survey periods. The Crossing Point Surveys are fully detailed in **Appendix 8.20 Bat Activity Survey Report** (Document Reference 6.4) [APP-350] of the Environmental Statement and

Number	Directed to	Question	Applicant's Response
			summarised in paragraphs 8.7.187 - 8.7.192 of **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061]. The relative abundance of the habitats found throughout the scheme and their suitability for bats is unlikely to change significantly between years. Highways England has visited the study area on multiple visits during 2017 and 2018, including for further bat surveys, and no significant change to habitats through changes in in habitat management or hydrological conditions, or unpredictable events such as fire or other human interference, have been observed. As such the condition of these habitats and their associated suitability to support bats have not altered to a degree that would alter the assessment presented. The combination of bat activity surveys between 2016 and 2018 as detailed in **Appendix 8.20 Bat Activity Survey Report** of the Environmental Statement (Document Reference 6.4) [APP-350] and in the **Bat Survey Report 2019** (see Appendix D of this document), provide robust data to allow an assessment of the potential impacts of the scheme. Highways England are therefore confident that the results of these surveys remain valid and appropriate to inform the assessment.
1.2.5	Applicant	Paragraph 8.6.131, ES, explains that further Automated Detector Surveys were to be undertaken beyond the submission of the ES, further to those undertaken between May and October 2016. a) Can the Applicant provide the results of these surveys? b) Please clarify if there are any findings that would alter the assessment contained within the ES. c) If this is the case, please provide a clear explanation of the changes to the assessment.	a) Further Automated Detector Surveys were undertaken at the quarry pond west of Carland Cross (National Grid Reference: SW 84067 53686), in April, May, June and July 2018. These surveys were considered necessary to gain further information on bat species assemblage and activity levels at this particular location following the preferred route being announced in July 2017 and in consultation with Natural England as captured within the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) submitted at Deadline 2. The results of the additional Automated Detector Surveys are presented in the **Bat Survey Report 2019** in **Appendix D** of this document. In summary, the species assemblage recorded at the quarry pond was similar to that recorded across the scheme in 2016. All three Annex II species which have been recorded across the scheme (barbastelle, greater and lesser horseshoe bats) were recorded at the quarry pond, but the data did not indicate that the quarry pond area was of particular importance for these species. Common pipistrelle accounted for the majority of the bat calls identified over the

Number	Directed to	Question	Applicant's Response
			survey period, accounting for 97.5% of all identified calls. The next most recorded species was noctule, at 1.3% of all identified calls. The average bat activity across the 2018 survey period was higher compared to the other locations surveyed in 2016. As presented within the **Bat Survey Report 2019** (see **Appendix D** of this document), this has been attributed to various factors, including more favourable weather conditions in 2018 for foraging bats and landscape features which may have accounted for more sustained levels of bat activity over a large proportion of the nights surveyed. b) The findings of the 2018 quarry pond automated bat surveys do not affect the overall assessment or mitigation proposed as detailed in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061]. It was concluded in the **Bat Survey Report 2019** in **Appendix D** of this document that the findings of the 2018 Automated Detector Surveys do not affect the overall assessment of the scheme's impact on foraging and commuting bats as presented in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 8.2) [APP-061], and no change in the mitigation is therefore required. The ecological and landscape mitigation proposals presented in the **Environmental Masterplans** (Document Reference 6.3) [APP-180 – APP-200] would ensure that bats would be able to continue using the quarry pond area as a foraging resource, with appropriate underpasses proposed for crossing the scheme. c) No change to the assessment is needed as explained in response to point b).
1.2.6	Applicant	Paragraph 8.6.162, ES, explains that significance is determined by assessing the value or resources/receptors against residual impact. However, it is unclear, in reading Chapter 8 as a whole, what level of effect is considered by the Applicant to be significant. a) Can the Applicant explain what level of effect is considered to be significant for effects on ecology and	a) Paragraph 8.6.154 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] states: *"only receptors valued local or above will be taken forward for detailed assessment"*. This means that a significant effect occurs on a receptor valued at local or greater geographic scale, as determined in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for ecological impact assessment in the UK and Ireland. The CIEEM Guidelines also state: "*effects can be considered significant at a wide range of scales from international to local."*

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		nature conservation? b) Can the Applicant explain which of the effects identified were determined necessary for mitigation? c) How would any such mitigation be secured?	[The CIEEM Guidelines (2016) were updated and published in September 2018, after the DCO submission, with the main purpose to bring together the terrestrial and marine guidance's into one guidance document, with minimal changes to guidelines. No changes to references to the CIEEM Guidelines within the assessment are proposed. The assessment methodologies referenced within the assessment remain the same.] Paragraph 8.6.162 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] states: "*that the significance of effects, both adverse and beneficial, is determined by assessing the value of resources/receptors against any residual impact in accordance with DMRB IAN 130/10 (Neutral, Slight, Moderate, Large, Very Large), see Table 8-5. The assessment relies on professional judgement and guidance as provided within CIEEM Guidelines*." Table 8-5 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] does state that a Neutral effect has no significant impacts on key nature conservation receptors but does not state that other significance categories could be significant. Although not explicit, these two paragraphs and Table 8-5 infer that a significant effect on ecology and nature conservation is anything of slight significance or above. An additional two sentences will be added to the end of paragraph 8.6.162 in an Environmental Statement Addendum which will be submitted at a later deadline of the Examination and which will state: *"A significant effect, therefore is considered to be any impact of slight significance or above. Significant effects, or impacts which effect receptors protected under legislation, require consideration of avoidance, reduction or mitigation as defined within CIEEM Guidelines."* b) As described in response to point a) above, paragraph 8.6.154 of Chapter 8 **Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] infers that only receptors valued at local or above could receive a significant effect. Paragraph 8.6.155 of the same report states: "*in circumstances where there are other factors influencing the value of the*

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			receptor not covered *by the guidance, then professional judgement has overruled the guidance.*" This includes effects on legally protected species where their value may be deemed less than local but they will require mitigation to ensure legal compliance. As such, any receptor valued at local or above within the ecology and nature conservation assessment, or those protected under legislation, are determined necessary for mitigation. As detailed in a) above, two sentences will be added to the end of paragraph 8.6.162 in an Environmental Statement Addendum, which will be submitted at a later deadline of the Examination to provide clarity. c) Mitigation measures are detailed within the **Outline CEMP** (Document reference 6.4) [APP-375]. This is secured through Requirement 3 of the draft DCO (Document Reference 3.1(C)) submitted at Deadline 2.
1.2.7	Applicant	Paragraph 8.12.2, ES, states that detailed monitoring and management plans would be required to ensure that new habitats were succeeding, with further details to be included at the detailed design stage and within the Handover Environmental Management Plan. a) Can the Applicant explain in detail how they would undertake monitoring for new habitats? b) Can the Applicant explain how they would bring forward the Handover Environmental Management Plan?	a) Paragraph 8.12.2 and 8.12.3 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] state: *"Habitats planted throughout the scheme which will provide a moderate to slight beneficial effect, will require detailed monitoring and management plans. Outline information is provided within the Environmental Masterplans (ES Figure 7.6 of Volume 6 Document Ref 6.3), and full details will be provided at the detailed design stage and within the Handover Environmental Management Plan (HEMP)."* "*Beyond the first two year contractor aftercare period, management responsibilities would fall to the relevant highways authority. Highways England would be responsible for highways land associated with the A30 trunk road and Cornwall Council would look after the soft estate associated with the non-trunk road sections of the scheme.* Management *of the soft estate in either case up until year 15 (2038) would be necessary in accordance with normal highway soft estate management practices, to ensure that the planting does establish. Ongoing management activities and inspections during the first five years in particular would provide the opportunity to identify any further work or measures required to deliver the required level of mitigation.*"

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			These paragraphs confirm that detailed monitoring and management plans are required for ensuring newly created habitats are effective and developing as committed to within the **Environmental Masterplans** (Document Reference 6.3) [APP-180 – APP200]. Monitoring of these habitats would be required for at least the first five years post creation to identify any further work or remedial measures required to deliver the habitat types committed to and required deliver the appropriate level of mitigation. Monitoring maybe required beyond this five year period if habitats have not established sufficiently, and if normal highways soft estate management practices would not be suitable to establish the desired habitats. Monitoring of new habitats will occur annually in the first five years and then likely less frequency thereafter until the creation of habitats are considered to be successful. However, it is not the intention to be over-prescriptive with the target habitat community, monitoring will aim to determine broad target communities. With broad objective target habitats in mind, monitoring criteria will be adapted from the condition assessment methods and checklists as set out in the Common Standards Monitoring Guidance's for the relevant created habitats produced Joint Nature Conservation Committee (JNCC). Monitoring, as with the management, of new habitats will be further outlined within an Outline Landscape and Ecological Management Plan (OLEMP) to form a new Annex to the Outline CEMP to be submitted at Deadline 3. b) "HEMP" means the Handover Environmental Management Plan, being the CEMP to be developed towards the end of the construction of the authorised development which is to contain— (a) the environmental information needed for the future maintenance and operation of the authorised development; and (b) the long-term commitments to aftercare, monitoring and maintenance activities relating to the environmental features and mitigation measures that will be required to ensure the continued long-term effectiveness of the environmental mitigation measures and the prevention of unexpected environmental impacts during the operation of the authorised development. Mitigation measures during construction will be detailed within the Construction Environmental Management Plan (CEMP) which will include the Landscape and Ecological Management Plan (LEMP) and would be implemented by the contractor. This is secured through part 1 of Requirement 3 of the draft DCO

Number	Directed to	Question	Applicant's Response
			(Document Reference 3.1(C)): *Schedule 2, Requirement 3.— (1) No part of the authorised development is to commence until a* CEMP *has been prepared in consultation with the relevant planning authority and the local highway authority and submitted to and approved in writing by the Secretary of State.* The **Outline CEMP** (Document Reference 6.4) [APP-376] will be developed into a detailed CEMP once the detailed design and construction plans have been finalised. This is secured through part 2 of Requirement 3 of the draft DCO (Document Reference 3.1(C)): *Schedule 2,* Requirement *3.— (2) The CEMP must—* *(a) be* substantially *in accordance with the outline construction environmental management plan certified under article 45 (certification of plans etc.);* Highways England will require their contractors to adopt and implement the CEMP during the construction of the proposed development. This will be secured through contractual agreement between Highways England and the appointed contractor. Paragraph 16.1.8 of the Outline CEMP states: *"Upon completion of construction, the CEMP will be used to form the handover environmental management plan (HEMP). The indicative contents of the HEMP are detailed in Annex C of IAN 183/145. The HEMP will sit alongside the contractor's International Organisation for Standardisation (ISO)14001 accredited EMS."* This is secured through part 4 of Requirement 3 of the draft DCO (Document Reference 3.1(C)): *Schedule 2, Requirement 3.— (4) Upon completion of construction of the authorised development the CEMP must be converted into the HEMP. The HEMP must be submitted to the* Secretary *of State for approval within 28 days of the opening of the authorised development for public use.* *(5) The authorised* development *must be operated and maintained in accordance*

Number	Directed to	Question	Applicant's Response
			with the HEMP approved under paragraph (4). The HEMP would then be subject to a process of ongoing review and amendment during the lifetime of the Scheme to ensure it remains relevant. Highways England's 'Landscape Management Handbook' (Highways England, Design Manual for Roads and Bridges, Volume 10, Environmental Design and Management, Section 3 Landscape Management, Landscape Management Handbook) states that the landscape management plans should be updated annually and formally reviewed every five years.
1.2.8	Applicant	Paragraph 8.12.3, ES, explains that ongoing management and inspections would take place, in particular over the first five years. Monitoring would be required (under licence) to ensure bats and badgers are excluded before roosts and setts are demolished, and whether the artificial setts and roosts are being used. Monitoring would also be required for reptiles. Can the Applicant explain how the monitoring requirements proposed, would be secured?	Monitoring of any mitigation measures proposed for bats and badgers will be detailed within the relevant European Protected Species Licences from Natural England. Once licences have been granted, works should be conducted in adherence with the terms and conditions of the licence. Licences for bats and badgers are listed in **Details of Other Consents and Licenses** (Document Reference 7.2) [APP-046]. By way of update since submission, in relation to protected species: <u>Bats – European Protected Species Licence(s)</u> A draft Bat Licence Application was submitted to Natural England on the 20 December 2018, with further supporting information in January 2019. Highways England received a 'letter of no impediment' from Natural England on 13 March 2019 regarding the draft Bat Licence and mitigations proposed, which is appended and captured in the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) submitted at Deadline 2. <u>Badgers – Licence(s) to interfere with a sett</u> A draft Badger Licence Application was submitted to Natural England on 17 December 2018, with further supporting information supplied in February 2019. Highways England received a 'letter of no impediment' from Natural England on the 13 March 2019 regarding the draft Badger Licence and mitigations proposed, which is appended and captured in the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) submitted at Deadline 2. Monitoring relating to construction and operational mitigation for species and habitats will be secured through the Construction Environmental Management Plan (CEMP)

Number	Directed to	Question	Applicant's Response
			and Handover Environmental Management Plan (HEMP), respectively, and will be further outlined within an Outline Landscape and Ecological Management Plan (OLEMP) to form a new Annex to the Outline CEMP to be submitted at Deadline 3. The details of these documents will be secured through Requirement 3 of the draft DCO (Document Reference 3.1(C)) and detailed in the response to Question 1.2.7. <u>Reptiles</u> Specifically relating to monitoring requirements specifically for reptiles, paragraph 8.12.7 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] states: "*Reptile mitigation strategies, such as fencing if required, will also require monitoring throughout construction and post-construction.*" Paragraph 8.12.8 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] goes on to state: "*Monitoring will be required for habitat clearance to ensure no animals are harmed during the clearance and to ensure all retained vegetation are not damaged during the works.*" Both of these paragraphs relate to the level of monitoring that will be required for reptiles, and other species, to ensure legal compliance and the safeguarding of species during construction, and post-construction where appropriate. Monitoring, as with the management, of new habitats and species will be further detailed within an Outline Landscape and Ecological Managements Plan (OLEMP) that will form an Annex of the Outline CEMP to be submitted at Deadline 3.
1.2.9	Applicant	Tables 8-16 and 8-17, ES, provide a description of the potential impact, mitigation measures and significance effect during construction. Table 17-1, ES Summary [APP-070], states that the impact on habitat loss during construction would result in moderate to slight adverse effect, reducing to neutral	a) Highways England has retained Cornwall Roadside Verge Inventory (CRVI) sites and Habitat of Principal Importance (HPI) sites where possible based on other factors and design considerations. Where this has not been possible the impact has been mitigated through the creation of appropriate habitats in terms of flora assemblage and size of area as to provide an overall biodiversity net gain. Table 8-15 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] provides a comparison of habitat loss to proposed habitat gain, which demonstrates the significance of the

Number	Directed to	Question	Applicant's Response
		effect as planting throughout the scheme starts to establish. Habitat loss in one heathland area is stated to be neutral if heathland translocation was successful or moderate to slight adverse, reducing to a neutral effect as planting throughout the scheme started to establish. a) How would the habitat development of Cornwall Roadside Verge Inventory sites, the Habitats of Principle Importance and the heathland translocation area would be monitored to ensure they were successful? b) What remedial measures would be taken if monitoring showed that habitat development was not proving successful?	net gain of more ecologically valued habitats such as woodland, Cornish hedgerows, heathland and species rich grassland. Highways England are not proposing to develop CRVI's or HPI's through the newly created habitats. Tables 8-16 and 8-17 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] state: "*Planting of replacement* habitats*, including heathland and species rich grassland, will mitigate the loss of the CRVI's, but this habitat will not be fully available during construction (see Table 8-15 and the Environmental Masterplan (Figure 7.6 of Volume 6, Document Ref 6.3)).*" "*Planting of replacement habitats, including heathland and species rich grassland, will mitigate the loss of the CRVI's, providing a net gain of this habitat during operation (see Table 8-15 and the Environmental Masterplan (Figure 7.6 of Volume 6, Document Ref 6.3)).* These paragraphs within the Tables describe Highways England's commitment to mitigate the loss and/or damage of four CRVI sites (two of which are poor quality, and one of which is of HPI character), through the creation of 64.13 hectares of species rich grassland there will be a net habitat gain of 48.40 hectares of species rich grassland, as detailed within Table 8-15 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] and the **Environmental Masterplans** (Document Reference 6.3) [APP-180 – APP-200]. The same applies for the loss of four deciduous woodland HPI sites (not being of a particular high quality or valuable National Vegetation Classification (NVC) communities), and the part loss of heathland HPI. Highways England are proposing to provide habitat creation of these habitat types to mitigate the impact, which will result in a net habitat gain of 20.54 hectares of woodland and 4.89 hectares of heathland, as detailed within Table 8-15 in **Chapter 8 Ecology and Nature Conservation** of the Environmental Statement (Document Reference 6.2) [APP-061] and the **Environmental Masterplans** (Document Reference 6.3) [APP-180 – APP-200]. All habitats being created, including any translocated heathland, will be monitored to ensure establishment and success as detailed in the response to Question 1.2.7. Monitoring, as with the management, of new habitats will be

Number	Directed to	Question	Applicant's Response
			further detailed within an Outline Landscape and Ecological Managements Plan (OLEMP) that will form an Annex of the Outline CEMP to be submitted at Deadline 3. b) As detailed in the response to Written Question 1.2.7 monitoring of created habitats and any translocated heathland would be required for at least the first five years post creation to identify any further work or remedial measures required to deliver the habitat types committed to and required to deliver the appropriate level of mitigation. Monitoring maybe required beyond this five-year period if habitats have not established sufficiently, and if normal highways soft estate management practices would not be suitable to establish the desired habitats. Remedial measures would be specific to the failure of habitat establishment and informed by the monitoring. Common and prescriptive remedial measures will be outlined within the OLEMP, such as species dominance resulting in significant change in species composition, occurrence of bare ground, and scrub and weedy plant invasion, but the OLEMP within the CEMP and the HEMP would then be subject to a process of ongoing review during the lifetime of the scheme to ensure it remains relevant. Highways England's 'Landscape Management Handbook' (Design Manual for Roads and Bridges, Volume 10, Environmental Design and Management, Section 3 Landscape Management, Landscape Management Handbook) states that the landscape management plans should be updated annually and formally reviewed every five years. As such, appropriate and specific remedial measures will be updated and captured within the LEMP. The OLEMP will form an Annex of the Outline CEMP to be submitted at Deadline 3.
1.2.10	Applicant, CC	Paragraph 9.3.15, ES, refers to the draft Minerals Safeguarding Development Plan Document (2018). The Cornwall Minerals Safeguarding Development Plan Document was adopted by CC on 4 December 2018. a) Are you satisfied that the ES takes appropriate account of the adopted	a) Yes, the Environmental Statement takes appropriate account of the adopted plan. Paragraph 9.6.28 of **Chapter 9 Geology and Soils** of the Environmental Statement (Document Reference 6.2) [APP-062] states that the draft Minerals Safeguarding Development Plan (CC interactive map) does not indicate the presence of any Mineral Safeguarding Areas within the scheme study area. This is consistent with the final version of the plan that was adopted on 4 December 2018. This demonstrates that no mineral resource in the area would be sterilised by the proposed development. b) Not applicable. See response to point a) above.

Number	Directed to	Question	Applicant's Response
		plan? b) If not please indicate which measures are considered to be material and whether and/or how the proposal would comply or otherwise to that policy?	
1.2.11	Applicant	The baseline for mining and mineral workings has used the Mineral Resources map of Cornwall and Cornwall Consultants Ltd (2017) mining search information. Paragraph 9.7.14, ES, indicates that an adit may exist beneath the Scheme. a) What evidence is available to indicate that an adit may exist beneath the Scheme? b) Which area of the Scheme may be affected by its presence? c) What implications may this have for the proposed design?	a) The evidence for the potential presence of an adit at approx. Ch 0+400m is described further within Paragraphs 9.4.34 and 9.4.37 in **Appendix 9.4 Baseline Conditions** of the Environmental Statement [Document Reference 6.4) [APP-354] and **Figure 9.3 Mining And Mineral Resources Features Plan Sheet 1 of 4** (Document Reference 6.3) [APP-234] of the Environmental Statement. The sources of data are discussed within Paragraphs 9.6.1 to 9.6.5 of **Chapter 9 Geology and Soils** (Document Reference 6.2) [APP-062] and include: • the Cornwall Council interactive map; • aerial photography review; • The WSP Preliminary Sources Study Report in Appendix 9.1 of the Environmental Statement (Document Reference 6.4) [APP-351]; • the WSP Ground Investigation Report in Appendix 9.2 of the Environmental Statement (Document Reference 6.4) [APP-352]; and • and the Cornwall Consultant mining report and risk assessment 2017 report. There is no clear evidence for the presence of this adit, however, it's presence beneath the route is based on the assumption that major shafts associated with the Burra Burra Mine were drained by an adit and discharged in the valley to the south-east or connected to the former Prince Coburg Mine to the west. The mine was dated prior to the development of the steam engine, therefore it would have been drained by an adit rather than pumped. The British Geological Survey note that Street's Shaft to the west of the A30 is not known to be connected to the shafts to the east. b) The potential adit is interpreted to intersect the scheme at the west of the new Chiverton Junction at approximate Ch 0+400m.

Number	Directed to	Question	Applicant's Response
			c) This potential adit is located in an area where the only proposed engineering works are a shallow piped road drainage outfall from the attenuation pond east of the potential adit to the existing watercourse to the west. This would be a contained drainage pipe so there would be no impact from these works on the potential adit or from the potential adit on these works.
1.2.12	Applicant	ES, paragraph 9.6.17 [APP-062], states that no piling is currently envisaged as being required for the scheme. However, elsewhere there is reference to temporary sheet piling (ES paragraph 11.13.10 [APP064]), sheet piling (Table 11-1, Appendix 11.4 [APP-360]) and storage for piling (ES paragraph 2.6.66 [APP-055]). a) Please clarify whether or not piling is likely to be part of the scheme? b) If so, has consideration been given to the potential effect on geology and soils? c) Has there been consideration of different construction techniques in the assessment of the potential worst-case scenario for adverse effects from construction methods on geology and soils?	a) The current design for this scheme does not require any permanent piled foundations. Temporary sheet piling may be used to temporarily shore the sides of open excavations where these cannot be cut back or benched to a safe angle to allow formwork to be constructed or other works to be undertaken in the excavation safely. b) Construction activities will be undertaken on site in line with current best practice and guidance and in accordance with the **Outline CEMP** (Document Reference 6.4) [APP-375]. Temporary sheet piling shall be appropriately designed and risk assessed by the contractor's Temporary Works designer and this would ensure mitigation of potential effects on the geology and geomorphology during construction. Where approvals are required from the Environment Agency and Cornwall Council for works affecting watercourses, this would also include the approval for any temporary sheet piling where necessary. Where temporary piling could impact on assets that are owned by third parties, they will be consulted prior to implementation of the works to ensure compliance with their requirements. c) With the short-term nature (brief period during construction) of temporary sheet piling it is not expected that there would be any residual impact on the geology and soils. The construction activities identified with the scheme as requiring below ground excavations are structures foundations, mammal crossings, culverts and drainage. The temporary construction works with these activities shall be appropriately designed and risk assessed by the contractor's Temporary Works designer and this would consider associated ground conditions at each location and ensure mitigation of any potential effects on the geology and geomorphology. The following below ground temporary construction works are anticipated: • Structures foundations – they will be as far as possible open cut with temporary side slopes between 1:1 and 1:2, depending on actual ground

Number	Directed to	Question	Applicant's Response
			conditions. It is not anticipated that any sheet piling will be required for the construction of the majority of structure foundations. At Chiverton Cross Underpass and Trevalso Lane Underbridge, due to the staged construction requirements, there may be the need to use temporary sheet piling to maintain the integrity of existing roads at various stages. • Mammal crossings – these could require trenching up to 3m deep and it is anticipated that trench drag boxes would be used to retain the trench walls, therefore not requiring any penetration into the ground deeper than the trench base. • Culverts – similar to mammal crossings above. Due to ground conditions in the locations of the two 2.4m square box culverts at approximate Ch 8920 and Ch 9350, sheet piling and shoring may be required. • Road drainage – In general the trenching for drainage will be shallower at around 1.5m but will be treated in the same way as the mammal crossings. With the short-term nature (brief period during construction) of any below ground temporary construction works, it is not expected that there would be any residual impact on the geology and soils.
1.2.13	Applicant	It is indicated that a Soils Management Plan (SMP) will be developed as the scheme develops (Table 4-1, ES Appendix 4.2 [APP-312]). a) Please confirm the status of the SMP and when delivery of the document can be expected. b) If the SMP is to be relied upon in outlining and delivering mitigation measures to protect soils during construction, how would this be secured through the DCO? c) Have field drains and the impacts of the scheme been considered as part of soil management during	a) An Outline Materials Management Plan (MMP) is included as Annex C in the **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. Paragraph 2.2.1 states that a Soils Management Plan (SMP) will form part of the MMP to support the completion of an MMP for the scheme. A Soils Management Plan will be developed as an Annex to the Outline CEMP and submitted during the Examination. b) The Construction Environmental Management Plan (CEMP) will be implemented by Highways England, and is secured through Requirement 3 in Schedule 2 of the **draft DCO** (Document Reference 3.1(C)). c) An Outline Ground and Surface Water Management Plan is included as Annex G of the **Outline CEMP Annexes** (Document Reference 16.1) [APP-376]. This is based on the information available at this preliminary design stage. As the detailed design progresses, the plan would be reviewed and updated accordingly. The final Ground and Surface Water Management Plan will consider all drainage required during the construction phase and will reference

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		construction and operational phases?	all industry and regulatory pollution prevention guidelines. The reinstatement of any affected field drainage would be developed in detailed design and will be informed and agreed with the individual affected landowners. Requirement 13 in Schedule 2 of the **draft DCO** (Document Reference 3.1(C)) states that written details of the surface and foul water drainage system will be approved by the Secretary of State prior to the commencement of the scheme. This will include means of pollution control and will reflect the mitigation measures on **Chapter 13 Road Drainage and Water Environment** of the Environmental Statement (Document 6.2) [APP-066].
1.2.14	Applicant	For contaminated land, the ES indicates that the use of the CEMP and a Materials Management Plan (MMP) would prevent contamination being introduced and mobilisation of existing contamination or pathways to contamination being present during operation (ES paragraph 9.10.20 [APP-062] and the Outline CEMP Annex C (Outline MMP) [APP-375 & APP-376]. a) How would the MMP be secured? b) What confidence is there in its successful delivery?	a) An Outline Materials Management Plan (MMP) is included as Annex C in the **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. The Construction Environmental Management Plan (CEMP) would be implemented by the contractor, and is secured through Requirement 3 of the draft DCO (Document Reference 3.1(C)). Highways England will require their contractors to adopt and implement the CEMP during the construction of the scheme. This will be secured through contractual agreement between Highways England and the appointed contractor. The treatment of contaminated land is also secured through Requirement 8 of the **draft DCO** (Document Reference 3.1(C)): *Schedule 2, Requirement 8 - (3) In the event that contaminated material, including impacted groundwater, is found at any time when carrying out the authorised development,* which *was not previously identified in the environmental statement, the undertaker must cease construction of the authorised development in the vicinity of that contamination and must report it immediately in writing to the Secretary of State and the relevant planning authority, and in agreement with the relevant planning authority undertake a risk assessment of the contamination, and sub-paragraphs (4) and (5) will apply.* b) The mitigation measures with respect to contaminated land (Requirement 3 and Requirement 8 as noted above) require the completion of a number of further stand-alone reports using intrusive site data for the assessment and management of site-specific contamination risks as the scheme progresses. This would result in a high level of confidence in its successful delivery.

<table>
<tr><th>Number</th><th>Directed to</th><th>Question</th><th>Applicant's Response</th></tr>
<tr><td colspan="4">3. COMPULSORY ACQUISITION AND / OR TEMPORARY POSSESSION</td></tr>
<tr><td>1.3.1</td><td>Applicant</td><td>Paragraph 4.6 of the National Policy Statement for National Networks indicates that applicants are encouraged to make an assessment of the benefits and costs of scheme under high and low growth scenarios, in addition to the core case. Reference is made to high and low growth modelling and cost benefit analysis having been carried out, for example in 4.1 Statement of Reasons [APP-006], 7.1, the Planning Statement [APP-045] and 7.5, the Transport Report [APP-049].

Please provide a table showing the cost benefit analysis under high and low growth scenarios, alongside the presumed growth scenario.</td><td>The scheme's benefits are set against its investment and operating costs to calculate value for money. This is expressed as a benefit-cost ratio (BCR). A table of the cost benefit analysis showing the high and low growth scenarios, alongside the presumed growth scenario, is provided below.

<table>
<tr><th>Scenario</th><th>Initial BCR</th><th>Adjusted BCR</th></tr>
<tr><td>Low growth</td><td>3.37</td><td>3.60</td></tr>
<tr><td>Presumed growth</td><td>4.28</td><td>4.61</td></tr>
<tr><td>High growth</td><td>6.02</td><td>6.51</td></tr>
</table>

As explained in Section 4 of the Planning Statement (Document Reference 7.1) [APP-045], the adjusted BCR includes journey time reliability benefits and wider economic impacts.

The DfT's value for money categories are as follows:
• poor value for money if the benefit-cost ratio is between 0 and 1.0;
• low value for money if the benefit-cost ratio is between 1.0 and 1.5;
• medium value for money if the benefit-cost ratio is between 1.5 and 2.0;
• high value for money if the benefit-cost ratio is between 2.0 and 4.0; and
• very high value for money if the benefit-cost ratio is greater than 4.0.

The table above shows that in the presumed growth scenario the scheme represents 'very high value for money' with an initial BCR of 4.28 and an adjusted BCR of 4.61.</td></tr>
<tr><td colspan="4">4. CULTURAL HERITAGE</td></tr>
<tr><td>1.4.1</td><td>Applicant, HE</td><td>Paragraph 6.5.3, ES [APP-059], sets out that views from heritage assets towards permanent works such as new roads, cuttings, embankments, other structures and the removal of elements of the existing A30, are considered to be construction impacts for the purposes of the assessment.

a) As these would be permanent effects, is it appropriate that they do not appear to be acknowledged in</td><td>a) The assessment of cultural heritage assets states: "…has been prepared in accordance with guidance provided by DMRB (Volume 11, Section 3 Part 2 'Cultural Heritage' (HA 208/07)) as referenced in paragrapj 6.1.1 of Chapter 6 Cultural Heritage (Document Reference 6.2) [APP-059]. This specifies that anything that happens during construction is a construction impact, and operational impacts are those that would arise from the use of the road once built. The guidance follows on to state that: "It should be noted that a temporary element of the construction process might still cause a permanent impact on some cultural heritage assets, while being a temporary impact on others."

b) The assets identified as experiencing permanent significant adverse effects as a</td></tr>
</table>

Number	Directed to	Question	Applicant's Response
		relation to operation? b) Would it be possible and/or appropriate to provide mitigation measures for the significant adverse effects identified?	result of changes within their settings are largely prehistoric bowl barrows. Key aspects of the setting of these assets are outward views towards the wider landscape, and views towards the barrows from elsewhere in the landscape. As such, mitigation that could usually be considered to mitigate impacts on setting, such as screening by planting, would not be appropriate in these cases as it would prevent these views, and thereby impact further the setting of the assets. In the case of the Grade II Listed Nancarrow Farmhouse, it is considered that additional planting, over and above that included within the scheme design, would not be effective in reducing the moderate adverse significance of effect identified in the assessment.
5. DRAFT DEVELOPMENT CONSENT ORDER (dDCO)			
1.5.1	Applicant	**Classification of the Scheme under Section 22 PA 2008** Paragraph 2 of the Explanatory Memorandum (EM) to the dDCO identifies the proposed scheme as a Nationally Significant Infrastructure Project (NSIP) pursuant to paragraphs 14(1)(h) and 22(1)(a) of the Planning Act 2008 (as amended) (PA2008). This relates to construction of a highway. Section 22(1)(b) PA2008 relates to alteration of a highway and section 22(1)(c) PA2008 to improvement of a highway. Are you satisfied that the application relates entirely to construction of a highway and no part of this application should proceed under either, or both, s22(1)(b) and/or (c)?	The Applicant is satisfied that the Scheme should proceed as a construction scheme for the purposes of section 22 PA 2008. The Applicant has given extensive consideration to the definition of NSIP in section 22 in the past in relation to all of its schemes. That consideration has included discussions between the Applicant's Development Consent Orders and Statutory Processes team and the Inspectorate about the interpretation of and correct approach to section 22. As a result of those discussions, the Applicant is of the firm view that the categories in section 22 are mutually exclusive and therefore, the Scheme must fall into only one of the three categories. This approach is based on the wording of section 22, which states that a development may be construction, alteration **or** improvement. In the Applicant's view it is appropriate for this Scheme to fall into the category of a construction NSIP, given that it involves the construction of a new dual carriageway. While the Applicant accepts that the Scheme involves some alterations to the existing road network to make the Scheme workable, the Applicant is of the view that it is not appropriate or legally correct to seek to allocate separate elements of the Scheme differently for the purpose of section 22.
1.5.2	Applicant	**Table of contents**	The Applicant's preference is also for the dDCO to include page numbers. However, including page numbers causes the DCO validation report to display each page

Number	Directed to	Question	Applicant's Response
		The table details the page numbers but the individual pages are not numbered. Ensure that the dDCO is paginated (preferred option) or remove the references in the table of contents.	number as an error. To ensure that an acceptable validation report can be submitted it has therefore been necessary to delete the page numbers. The Applicant proposes to leave the draft as it is for now without page numbers, on the understanding that page numbers will be added by the Inspectorate/The Stationery Office immediately before the order is made (should that be the case).
1.5.3	Applicant	**Article 2, Interpretation, 'commence'** The definition would permit certain works to be carried out without commencing the development, identified in the EM, paragraph 4.5(a), to be related to preparatory works prior to submission of relevant details for approval under the requirements. This appears to provide a wide flexibility with potential impacts on local residents, businesses and visitors to the area depending on the location of the works and the interpretation of 'temporary'. Please provide information on the expected type, scale and duration of such 'exemption works' to fall outside 'commencement', identifying any potential impacts.	The works that are proposed to be excluded are: 1. Archaeological investigations 2. Investigations for the purpose of assessing ground conditions 3. Remedial work in respect of any contamination or other adverse ground conditions 4. Erection of any temporary means of enclosure 5. Temporary display of site notices or advertisements The Applicant has given careful consideration to these works. Due to their nature it is not considered that any of these activities have the potential for significant impacts on residents, businesses or visitors. They are all considered to be de minimis or low impact preparatory works. Each has been accepted on numerous occasions in previously made orders. At the time of writing seven out of the ten most recently made DCOs (Eggborough CCGT; M20 J10a; Silvertown Tunnel; Wrexham; Richborough Connection; Glyn Rhonwy Pumped Storage; North London Heat and Power) have excluded these or similar works, or in some cases more intrusive or extensive works (see e.g. Glyn Rhonwy Pumped Storage and North London Heat and Power) from the definition of 'commence' (e.g. removal of buildings and structures; installation of temporary facilities). The Applicant considers that it has struck a reasonable balance in this case in terms of the works that it is seeking to exclude.
1.5.4	Applicant	**Article 2, Interpretation, 'cycle track'** The term 'cycle track' is included but does not appear to be relevant to the dDCO. The term 'restricted byway' is not included but appears to be relevant to the dDCO. Please check all interpretations and include those relevant to the dDCO.	The Applicant has corrected this point in the latest revision of the dDCO submitted at Deadline 2. The term 'cycle track' has been deleted from the definitions in Part 1 as it is not used elsewhere in the dDCO. The term 'restricted byway' is used to identify a number of routes. A definition of restricted byway has been added to the dDCO as follows: *"restricted byway" has the meaning given in Section 48(4) of the Countryside and*

Number	Directed to	Question	Applicant's Response
			Rights of Way Act 2000
1.5.5	Applicant, any affected parties	**Article 2, Interpretation, 'Secretary of State'** Planning Inspectorate Advice Note 15 indicates that "generally, a definition for 'The Secretary of State' should not be provided (government departments ask for a general Secretary of State to be assumed to allow for future changes to government machinery)". Are you satisfied is appropriate to interpret the Secretary of State as set out?	The Applicant has considered the definition and on balance, is of the view it is more helpful to include the definition. It is used throughout the document, particularly in Schedule 2 where the Secretary of State is charged with discharging the requirements. However, the Applicant would not strongly object to the deletion of the definition of 'Secretary of State' by the ExA to allow for future changes to government departments in line with para 6.1 of Advice Note 15 if that is the ExA's preference.
1.5.6	Applicant	**Paragraph 4.5(b) of the EM refers to the 'power to maintain in article 5'.** Please check that the correct article is referred to in the EM.	The power to maintain is provided in article 6 of the dDCO so para 4.5(b) of the EM has been amended in the updated EM submitted at Deadline 2 with the latest revision of the dDCO.
1.5.7	Applicant	**Article 4, Disapplication of legislation, etc.** In relation to the disapplication of provisions of the Neighbourhood Planning Act 2017 (the 2017 Act) it is noted that that Act (section 18) would (on commencement) give the power to take temporary possession of land, or a new right over land, by agreement or compulsorily. Are you satisfied that the express provision you refer to in the dDCO is appropriate given that the 2017 Act	The primary reason for disapplying the provisions of the 2017 Act is that these provisions are not in force and so cannot be applied and a date has not yet been appointed to bring them into force. As noted in the EM, the provisions in the 2017 Act are new and untested, whereas the provisions that are included in the dDCO in articles 33 and 34 have their roots in the model provisions and a host of previously made orders, including the recent A19 Testos scheme. They are therefore well established and have been tested on numerous schemes which have already been carried out. In many respects they therefore offer a more consistent regime than the provisions in the 2017 Act. It would be unwise for the Applicant to proceed on the assumption that the provisions of the 2017 Act will come into force at some point during the examination, and the Applicant therefore considers it appropriate for the existing provisions in the dDCO to remain.

Number	Directed to	Question	Applicant's Response
		provisions aim to provide a consistent regime for the use of temporary possession powers including additional protection for affected landowners?	The Applicant has given careful consideration to the National Farmers' Union (NFU)'s request that 3 months' notice be given instead of 14 days in relation to taking temporary possession of land under the dDCO. The Applicant is prepared to accept an extended 28 day notice period for taking temporary possession of land and the dDCO submitted at Deadline 2 has been amended accordingly. This is considered to be a reasonable compromise considering that section 20 of the 2017 Act is not in force.
1.5.8	Applicant	**Reference to temporary possession of land in DCO** Paragraph 4.12 of the EM refers to the temporary possession of land being 'dealt with by articles 32 and 33'. Please check that the correct articles are referred to in the EM.	Temporary possession of land is dealt with by articles 33 and 34 so para 4.12 of the EM has been amended in the updated EM submitted at Deadline 2.
1.5.9	Applicant, EA	**Ancillary works** Paragraph 4.14 of the EM indicates that there are not considered to be any ancillary works in this case. However, Schedule 9, Part 3, article 21 refers to ancillary works. If satisfied that there would be no ancillary works would there be a need for this reference within the dDCO?	The term 'ancillary works' was used in the definitions in the EA protective provisions in a general sense and was not referring to works forming part of the authorised development. In any event, the EA protective provisions have now been deleted at the EA's request, so this wording is not included in the latest revision of the dDCO.
1.5.10	Applicant, CC	**Adjacent land in article 5** As explained in paragraph 4.15 of the EM article 5 paragraph (2) of the dDCO would provide that any enactment applying to land within or adjacent to the Order limits would have effect subject to the provisions of the Order.	(a) Yes, since it would be difficult to specify a precise distance from the Order limits for the purposes of this provision. In practice, the extent of 'adjacent' land would need to be judged on a case by case basis but would only be to the extent necessary for the construction and operation of the authorised development, so is not likely to extend a great distance beyond the Order limits. This article has been accepted in other orders and is well precedented. The only obvious example of where activity may take place on 'adjacent' land under the DCO, thereby potentially engaging the provisions of this article, is in

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		a) Are you satisfied that it would be appropriate to simply refer to the term 'adjacent' without greater clarity on the extent and limit? b) Are there any specific enactments causing concern in relation to the proposed Order land?	article 22, which gives the Applicant authority to enter land for the purpose of carrying out surveys and investigations. For the purpose of article 22, the term 'adjacent' would mean the land that was required to be surveyed because it would or might be affected by the authorised development. As amended in the latest dDCO submitted at Deadline 2, paragraph 2 of article 22 requires the Applicant to give owners and occupiers at least 28 days' notice before entering land for this purpose. It is important to recognise that Article 5(2) does not of itself confer powers on the undertaker to carry out any works on 'adjacent' land. It simply clarifies the relationship between the Order and other legislation. It would therefore be an arbitrary and largely unnecessary exercise to try and specify the limits of the term 'adjacent' in this article. (b) The Applicant has carried out a proportionate search for local legislation and has not found any that it considers needs to be disapplied or modified by the Order. However, that is not conclusive, and it is possible that such legislation exists. The Applicant has therefore taken a precautionary approach in including article 5(2) to ensure that if an enactment comes to light at a later stage which has not been included in the dDCO, it does not create any issues at a later stage.
1.5.11	Applicant, CC	**Planning permissions within the Order limits** a) In relation to article 7 of the dDCO, are there any known planning permissions within the Order limits? b) If so, is there any reason to suspect that implementation of them may lead to a breach of the Order if granted?	This article is not concerned so much with third party developments as development that might in future be carried out by the Applicant pursuant to a grant of planning permission. It ensures that the Applicant would not breach section 161 of the 2008 Act in carrying out development pursuant to a grant of planning permission provided that the development in question is not of itself an NSIP or part of one, or required to complete the authorised development or enable the use or operation of any part of it. The Applicant is not at present seeking planning permission for any other development within the Order limits.
1.5.12	Applicant, CC, EA, any affected parties	**Deviation from the Order limits** Paragraphs 4.22 – 4.25 of the EM refer to article 8 of the dDCO, which provides for deviation laterally or vertically from the authorised development with respect to certain specified works. Although	In the M20 and A14 orders the ability to exceed was limited to vertical. The lateral limits of deviation were defined by reference to the works plans however, rather than distances specified in the limits of deviation article. Those orders therefore took a different approach to the one that is proposed here. The M4 scheme was significantly different in that it related to the improvement of an existing road that was not being repositioned, rather than the construction of a new road.

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		reference is made to recent example Orders where this was used, it is my understanding that in the M20 and A14 the ability to exceed the maximum limits of deviation was limited to vertical, not lateral and in the M4 no such power was set out. a) Would it be appropriate to exceed the vertical and horizontal limits of deviation without applying for a change to the DCO in accordance with the processes set out under the 2008 Act? b) Given that the limits of deviation are themselves designed to permit flexibility to deviate from the proposed scheme, what processes would be put in place for the Secretary of State to determine whether or not the development proposed, in excess of the limits, would give rise to any new or worse environmental effects? Although there is a process in place for the discharge of requirements set out in Part 2 of Schedule 2 (requirements 16 and 17) there is no similar provision for the submission of any information to the Secretary of State in accordance with article 8.	(a) The Applicant has given very careful consideration to the limits of deviation that it considers are required in this case. As the scheme is currently a preliminary design, the challenge for the Applicant has been to strike an appropriate balance between including an appropriate degree of flexibility, reflecting that the scheme will not reach the detailed design stage until after consent is granted (if this is the case), and a sufficient degree of certainty and clarity about what the scheme will look like and where it will be positioned. The limits of deviation, and the ability to exceed those limits if the Secretary of State certifies their approval of such an exceedance, have been informed by the wording that has been approved in previously made orders. Although there is a high level of confidence that the scheme can be constructed within the limits of deviation included in article 8, it is possible that the detailed design process may lead to minor exceedances being necessary and there is therefore still a need for an additional degree of flexibility. It is not anticipated that the Applicant would need to rely on the ability to exceed these limits regularly, due to the considerable amount of design work that has already been undertaken and the attention that has been paid to the limits of deviation. However, it cannot be ruled out that there may be occasions where it does prove necessary for the limits to be exceeded and the Applicant has sought to be make this explicit within the DCO. In such cases, if the Applicant can demonstrate that the exceedance would not be so significant as to cause materially new or worse environmental effects compared to those assessed in the ES, the Applicant would need the approval of the Secretary of State in order to avoid having to seek an amendment to the DCO, as set out in article 8. If the Secretary of State was unable to approve the exceedance because it was considered to cause materially new or worse effects, the Applicant would then need to follow the process for seeking an amendment to the DCO. There are currently two systems for making amendments to DCOs (one for material and one for non-material amendments). However, these procedures are time-consuming and would both cause a significant amount of delay to the delivery of the Scheme. In the Applicant's view, a requirement to use either of these procedures to obtain approval for a minor exceedance would be disproportionate. (b) As noted above it is not expected that the Applicant would be relying on this article to exceed the limits of deviation regularly, and it is only anticipated to be by exception. That reduces the need for there to be a prescribed process as is

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			proposed for the requirements. Although there is no prescribed process as exists in Part 2 of Schedule 2, it is considered that an appropriate process would be followed in the event that the Applicant needed to seek the Secretary of State's approval of an exceedance under this article. In practice, the Applicant would assess the potential impacts arising from the exceedance and compile the relevant environmental information for submission to the Secretary of State, along with an explanation of the change and why it is needed. The Applicant would then consult the local highway authority and the local planning authority to seek their approval of the proposal prior to making an application to the Secretary of State. The Secretary of State would be at liberty to request any additional information they considered necessary to decide whether or not to grant a certificate. There is also a separate process for submission of detailed design proposals and it is likely that the approval of any deviation to the Order limits would also be incorporated into this process.
1.5.13	Applicant, SWWL, WPD, BT, WWUL, IL, L3C, RES, SPR, VDM, VML, VGPLC, SUK	**List of persons considered to benefit from the DCO** Paragraph 4.27 of the EM provides a list of the works (to fall under article 9 paragraph (2) of the dDCO) and persons considered to benefit. There appear to be discrepancies between the list in article 10(4) and that provided in the EM. Please confirm that the correct information is provided in both the EM and dDCO.	The Applicant has made the necessary amendments to the updated EM and dDCO submitted at Deadline 2. Both the EM and dDCO now contain the correct list of persons considered to benefit from the DCO.
1.5.14	Applicant, SWWL, WPD, BT, WWUL, IL, L3C, RES, SPR, VDM, VML,	**Security for compensation costs following a transfer** Article 10 paragraph (4) of the dDCO sets out that the benefit of the Order could be transferred or leased to others by the undertaker.	This is a precautionary provision as most statutory undertakers already have broad powers, including compulsory purchase powers, to relocate equipment themselves. However, the Applicant acknowledges that this point has not been dealt with expressly in this Order or previous orders. Subsequent to the DCO hearing, the Applicant has given further consideration to this issue. It is considered that the most straightforward solution is to expressly

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	VGPLC, SUK	How can it be confirmed that these parties would be able to meet the CA compensation costs if the DCO permitted transfer of the CA powers and TP powers to these bodies without further consideration by the Secretary of State?	provide in the DCO that the Applicant will be liable for any compensation payable on the exercise of compulsory acquisition powers by any of the transferees. Appropriate drafting has been included in Article 10 (consent to transfer benefit of order) of the dDCO submitted at Deadline 2.
1.5.18	Applicant, CC	As explained in paragraph 4.51 of the EM the purpose of article 14 paragraph (9) of the dDCO is to confirm that the matters covered in paragraphs (1) to (7) could be varied or revoked in the future without the need to apply under the 2008 Act for an amendment to the Order. Are you satisfied that this would be appropriate or would it circumvent the provisions of the 2008 Act?	The Applicant considers that this provision is appropriate and does not defeat the purpose of the provisions in the 2008 Act. Article 14 relates to the classification and regulation of highways. It would be unnecessarily burdensome for an amendment to the order to be required when the change would otherwise normally be dealt with under the provisions of the Highways Act or the Road Traffic Regulation Act. It is not anticipated that this provision would be used to make any changes to the authorised development in the short term and it is aimed more at regulating the long term position, should changes to the network be required in the future (e.g. a change to the speed limit on a road). This provision has been accepted in all previous Highways England orders that have included this article.
1.5.23	Applicant, Tregothnan Estate	**Minerals and compulsory acquisition** Taking account of The Cornwall Minerals Safeguarding Development Plan Document (2018) would article 24 of the dDCO, incorporating Parts II and III of Schedule 2, Minerals, to the Acquisition of Land Act (ALA) 1981 appropriately address the concerns raised by [RR-060]?	The Applicant has had regard to The Cornwall Minerals Safeguarding Development Plan Document (2018) and notes that the Scheme is not in a safeguarded area for the purposes of the DPD. The Applicant is aware that the Estate is concerned about the potential sterilisation of minerals due to the scheme and a meeting between the Applicant and the Estate took place on 4 February 2019. The Applicant considers that the incorporation of the minerals code via article 24 of the dDCO addresses the concerns raised in the Estate's Relevant Representation. The minerals code is contained in Schedule 2 to the ALA 1981. Part 2 of Schedule 2 provides, as a default position, that minerals are excluded from the scope of compulsory acquisition unless they are expressly conveyed. Part 3 prescribes a process whereby if an owner of minerals wishes to work them, a notice is served on the relevant authority. If the authority considers that the working of minerals has the potential to adversely affect the development, it can then serve a counter notice to prevent the owner from working the minerals, in which case compensation provisions

Number	Directed to	Question	Applicant's Response
			are engaged.
1.5.24	Applicant	**Justification for compulsory purchase powers** Article 26 would allow for rights over land to be acquired as well as the land itself, and also for new rights to be created over land, including the power to impose restrictive covenants. a) Please provide justification for this wide power, bearing in mind that the CA tests must be satisfied in order for the DCO to authorise the CA sought. b) Is it the intention to permit the creation of the new rights listed in schedule 5 as well as the creation of any new right over any of the order land? c) Would the dDCO achieve this? d) If not, what amendments would be sought?	This article is a standard power in relation to the acquisition of rights and sits alongside article 23 of the dDCO which deals with the acquisition of land outright. Whenever the need for compulsory acquisition arises, the Applicant is obliged to choose between these two powers and decide whether the land needs to be acquired outright or if acquiring rights over the land only is sufficient. The article has its roots in the model provisions and has been included in a significant number of previous orders. (a) The justification for this article is set out in the Statement of Reasons and Explanatory Memorandum. In summary, there is a significant public benefit in including this article in that it prevents the Applicant from having to acquire outright all of the land that is needed for the scheme. There is an obligation on any acquiring authority to only seek compulsory purchase powers for the land that they need to acquire for the scheme. It is therefore necessary to have this intermediate position provided for in article 26 which allows the acquiring authority to acquire rights over the land as an alternative to outright acquisition. It is in essence a 'lesser' form of compulsory acquisition, which minimises interference with property rights and consequently reduces the cost of the scheme. (b) The Applicant is not at liberty to create any right or impose any restrictive covenant it wishes over the Order land; any new right or restrictive covenant must be required to carry out, or facilitate, the authorised development, and so cannot be completely unrelated to the scheme. Paragraph (3) limits the imposition of restrictive covenants to the plots specified in Schedule 5, so the Applicant cannot impose restrictive covenants in relation to any of the other Order land. (c) No. The position is that the plots referred to in Schedule 5 can only be subject to the creation of new rights or the imposition of restrictive covenants as referred to in that Schedule. The rest of the Order land not included in Schedule 5 can be subject to the creation of new rights if that should prove to be appropriate at a later stage. As explained in the EM, although the Applicant has sought to identify all of the plots which it considers can be subject to the creation of rights and has set these out in Schedule 5, the wording of this article ensures that the Applicant retains the flexibility to create rights over the rest of the land. Removing this flexibility could force the

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			Applicant to acquire land outright in the future even if it became apparent that that was not necessary. (d) The provision in article 33 allowing the Applicant to create new rights over land currently identified for temporary possession is taken directly from article 28 of the model provisions and has been included in previous orders.
1.5.25	Applicant	**Disapplication of the 2017 Act** a) In relation to article 30 are you satisfied that this would be appropriate given that the 2017 Act provisions aim to provide a consistent regime for the use of temporary possession powers including additional protection for affected landowners? b) Would it be better to more closely reflect that regime? c) Alternatively could the EM explain why not?	See the Applicant's response to Question 1.5.7 above.
1.5.26	Applicant, Tregothnan Estate	Taking account of The Cornwall Minerals Safeguarding Development Plan Document (2018) would articles 31 and 32 of the dDCO, acquisition of subsoil or airspace only and rights under or over streets, appropriately address the concerns raised by [RR-060]?	As per Question 1.5.23, the Applicant considers that the incorporation of the minerals code via article 24 of the dDCO appropriately addresses the concerns raised in the Estate's Relevant Representation.
1.5.27	Applicant, any affected parties	**Article 33, Temporary use of land for carrying out the authorised development.** a) Are you satisfied that the provisions of paragraph 1(a)(ii) of the dDCO would not affect the compensation	The Applicant is of the view that the Order clearly provides for compensation to be payable whatever compulsory acquisition powers are used, whether this is acquiring land outright, creating new rights or exercising powers of temporary possession. It is certainly the intention of the Applicant to provide compensation in all of these situations. The DCO also provides for the possibility that the Applicant may take temporary possession of land and then subsequently acquire it and the DCO provides for compensation in both of those eventualities.

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		payable when that land was, eventually, compulsorily acquired? b) As 33(8) permits the CA of new rights in land listed in schedule 7 the CA tests would still have to be met, although this land is described as being for temporary use. Please ensure such justification if provided. c) Are you satisfied that this should not reflect the 2017 Act provisions, which aim to provide a consistent regime for the use of temporary possession powers, including additional protection for affected landowners?	(a) Yes. Paragraph 1(a)(ii) allows the Applicant to enter on and take temporary possession of any of the Order land not included in Schedule 7, provided that the process to acquire that land has not commenced by the service of a notice of entry or the making of a general vesting declaration. The Applicant does not consider that this would affect the amount of compensation payable and notes that paragraph 5 of this article requires the Applicant to pay compensation to the owners and occupiers of land temporarily possessed under this article for any loss or damage arising. Any loss that may arise that may not be covered by this provision would be covered by the general principles of compensation embodied in the 'compensation code', in that the claimant should not be in any worse position as a result of the scheme as far as money can provide compensation. The affected parties would be compensated in the normal way for the subsequent acquisition of the land. All effects of the Scheme are accounted for under the provisions of the compensation code, even if they occur before formal notices or acquisition takes place. (b) See the Applicant's response to Question 1.5.24 above. The Statement of Reasons sets out how the Applicant considers the CA tests are satisfied in relation to the land that is proposed to be subject to temporary possession and use (see section 5, the case for compulsory acquisition). (c) See the Applicant's response to Question 1.5.7 above.
1.5.28	Applicant, any affected parties	**Private water and sewerage supplies** Article 37 of the dDCO deals with recovery of costs of new connections in relation to statutory undertakers apparatus. How are private water and sewerage supplies to be dealt with?	The Applicant's intention is to ensure that all private water and sewerage supplies are dealt with as part of the detailed design and construction of the scheme (although note the provisions relating to private sewers in article 37). The Applicant is confident that it has identified where all private supplies are. In all cases it is satisfied that an alternative solution is available. In all cases a detailed hydrogeological study will be required before final details can be confirmed, which would be carried out during the detailed design stage. Where the potential for impacts to private water supplies remains unclear, a detailed assessment of groundwater levels and flows will be undertaken during detailed design to fully understand the potential impact upon each feature of interest. Where, following this assessment, the potential for impacts remains unclear or is certain, a new private water supply (e.g. a borehole) will be established following discussion with the landowner. These commitments are secured in the Outline CEMP (see Table 16-3 Record of Environmental Actions and Commitments).

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1.5.29	Applicant, CC, any affected parties	**Identification of hedgerows to be removed** Following the Planning Inspectorate's Advice Note 15, Drafting Development Consent Orders, paragraph 22.1 and Good Practice Point 6, in relation to article 39, where it is known that specific hedgerows need to be removed they should be listed in a Schedule and this article amended to refer to that Schedule. An additional paragraph should be added to this article to the effect that any other hedgerows should only be removed once the prior consent of the local planning authority has been obtained. Is there any reason not to include this matter within the DCO?	The difficulty with providing a detailed schedule of all of the hedgerows that need to be removed at this stage is that the Scheme has not yet reached the detailed design stage, and it is not yet known for certain the exact lengths of hedgerows that will be affected. The Applicant is seeking some flexibility in the DCO in relation to the Scheme and that has the potential to affect the lengths of hedgerow that are ultimately removed or retained. Any schedule attempting to list all of the hedgerows in turn would be of significant length. The Environmental Statement (ES) reports that approximately 11.5km of hedgerow (including Cornish hedgerow) would be removed (see Table 8-15 in **Chapter 8 Ecology and Nature Conservation** (Document Reference6.2) [APP-061]. The ES does not assess the impacts of removing hedgerows by reference to a precise list of individual lengths of hedgerow within the Order limits. Rather, the total lengths (which are stated to be approximate) have been calculated by reference to plans entitled **Trees and Hedgerows to be Removed or Managed Plans – Part 1 and Part 2** (Document Reference 2.13 [APP-027 and APP-028] which aim to illustrate the location of the hedgerows which are likely to be removed. The ES also notes that approximately 21km of hedgerow is to be planted as part of the Scheme which would result in a net increase of 9.5km of hedgerow. As they were not produced for the purpose of being prescriptive, if the hedgerows identified in these plans were required to be listed in a schedule to the dDCO, the Applicant would request that it is made clear that this list is not definitive and that other hedgerows not listed in the schedule may be identified for removal at the detailed design stage, whether or not that is subject to the prior approval of the Secretary of State (rather than the LPA), in line with the rest of the approval mechanisms in the dDCO. Because of the difficulties in producing a definitive list of all the hedgerows that are to be removed as part of the Scheme, the Applicant has considered whether this can be addressed elsewhere in the dDCO. As a result of this consideration the Applicant has introduced a new paragraph (5) to Article 39 (felling or lopping of trees and removal of hedgerows) which limits the Applicant's power to remove hedgerows to those hedgerows that are indicated for removal on the Trees and Hedgerows to be Removed or Managed Plans, save where the Applicant can demonstrate to the Secretary of State's satisfaction that the removal of other hedgerows within the Order limits would not give rise to any materially new or worse adverse environmental effects compared to those reported in the ES. The Applicant considers

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			that this wording, which is consistent with wording used elsewhere in the dDCO, provides an appropriate degree of certainty as to the hedgerows that are to be removed whilst also providing the essential flexibility that the Applicant needs in order to construct the authorised development. An amendment has also been introduced to Requirement 5 (landscaping) to confirm that the landscaping scheme must also be based on the Trees and Hedgerows to be Removed or Managed Plans.
1.5.30	Applicant	**Article 41 – the application of landlord and tenant law** Please provide justification for the powers provided by article 41 in the circumstances of this particular scheme, notwithstanding the precedent in other DCOs.	The Applicant is not able to say with any certainty at this stage whether an agreement of the kind referred to in this article will be granted in respect of the scheme. Accordingly the Applicant is not able to provide specific justification for this article at this stage, other than to say that it replicates the wording of the model provisions and has been included in previous Highways England orders. The Applicant would prefer to retain the existing wording on a precautionary basis as the previous schemes have done.
1.5.31	Applicant	**Keeping Schedule 10 up to date** What provisions have been put in place to ensure that Schedule 10, as referred to by article 45 of the dDCO, is up to date should changes arise to the documents to be certified?	The Applicant is aware of the need to keep Schedule 10 up to date as changes to these documents arise, so each revision of the dDCO will be cross-checked against the latest versions of the documents that are referred to. The Applicant will ensure that the references that have been assigned in the examination library are recorded in the Schedule as well.
1.5.33	Applicant	**Associated development** In relation to Schedule 1 to the dDCO and the EM, and notwithstanding the potential for some overlap, please can you clarify the works which form part of the NSIP and the associated development. In particular, there needs to be justification that all of the works would be necessary or expedient and have been subject to EIA.	The Applicant can confirm that all of the works included in Schedule 1 have been subject to EIA and are considered to be necessary or expedient. There is no consistency with regard to how associated development has been approached in previous orders over the last ten years. The Applicant has chosen not to identify associated development separately from the main works in Schedule 1 as it did not consider there to be sufficient value in such an exercise. Separating out the associated development within the dDCO would be problematic for the Applicant at this stage as a significant number of amendments would be required to re-organise and re-number the works in Schedule 1. Considering that separating out the associated works would not have any impact on the legal operation of the DCO, the Applicant proposes to leave Schedule 1 as drafted. However, the Applicant can provide the ExA with a list of the associated development works if this is considered to be necessary.

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			In response to the query from the NFU regarding the activities that may take place within the construction compounds, further information can be found in **Chapter 2 The Project** of the Environmental Statement, in particular at paragraphs 2.6.63 to 2.6.69 and 2.7.13.
1.5.34	Applicant, CC	Schedule 2, Part 1, Requirement 12, permits Secretary of State, following consultation with the relevant planning authority and the local highway authority, to permit the development to be carried out other than in accordance with the preliminary scheme design shown on the works plans and the general arrangement and sections plans, provided that the departure would not give rise to any materially new or materially worse adverse environmental effects. It seems that this could allow development to take place contrary to the works plans and general arrangements and sections plans. Although paragraph 5.29 of the EM says that any variations to the Scheme design must be within the limits of deviation, article 8 permits further deviation from the maximum limits of deviation where the Secretary of State, following consultation with the relevant planning authority and local highway authority, certifies that this would not give rise to any materially new or worse environmental effects than those reported in the ES (see question 1.5.11 above). Is it necessary and appropriate for amendments to be permitted to these key documents and the detailed design	The Applicant is not seeking consent to build a scheme that is completely different to what is shown on the works plans and the general arrangement and sections plans. Given the other constraints posed including the order limits, the description of the authorised development in Schedule 1 and the effect of the Environmental Impact Assessment Regulations, it does not consider that that would be possible. The Applicant is seeking wording that confirms that it is not bound to adhere rigidly to every element of the preliminary scheme design that is shown on the plans without any ability to deviate, however slightly. It should be noted that the article does not refer to 'significant' environmental effects, but uses a lower threshold of 'material' effects. As noted in the response to Question 1.5.12, the Applicant has sought to strike a balance between including an appropriate degree of flexibility, reflecting that the scheme has not yet progressed through the detailed design stage, and a sufficient degree of certainty and clarity in the application documents about what the scheme will look like and where it will be positioned. As with the limits of deviation in article 8, it cannot be ruled out that there may be occasions where it proves necessary for there to be departures from the design illustrated on the works plans and general arrangement plans, which is a preliminary design, albeit one that is fairly well advanced. In such cases, if the Applicant can demonstrate that the departure would not be so significant as to cause materially new or worse environmental effects compared to those assessed in the ES, it is appropriate for the Secretary of State to be able to approve it without the need for an amendment to be made to the DCO and without the need to re-consult (noting the requirement to consult with the LPA and LHA) or re-examine, which would be heavy handed if the departure in question is minor. If the Secretary of State is unable to approve the departure because it is too great and would cause materially new or worse effects, the Applicant would need to follow the process for seeking an amendment to the DCO, or would potentially need to consider an application for a new DCO, depending on the significance. It is noted that paragraph (2) of Requirement 12 requires the Applicant to publish the details of any approved departures online, which would give any party sufficiently

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		of the project without consultation or examination?	concerned about them the opportunity to challenge the approval. The removal of this flexibility would be inconsistent with the basis on which DCOs have been granted for previous schemes (including the A19/A184 Testos Junction Improvement, M20 Junction 10a and A14 Cambridge to Huntingdon Improvement Scheme).
1.5.35	Applicant, CC, EA	**Protective provisions in favour of the EA** a) Given the comments by the EA (RR-098] in relation to Schedule 9, Part 3 of the dDCO, should this part of the Schedule be removed from the dDCO? b) Given that the proposal crosses ordinary water courses is the appropriate consenting regime addressed and, if so, how? c) If this is not the case how would an appropriate consenting regime be addressed?	a) The EA has requested the deletion of the protective provisions in its favour from the dDCO. The Applicant understands that this is on the basis that there are no main rivers within the Order limits that stand to be affected and therefore there is no need for protective provisions within the dDCO. The Applicant has now deleted the EA protective provisions in the latest revision of the dDCO submitted at Deadline 2. b) This will be dealt with outside of the DCO via the ordinary consenting process with Cornwall Council: see the Details of other Consents and Licences document, paragraph 2.2.7. c) See response to point b) above.
1.5.36	Applicant	**Deemed consent in the dDCO** In relation to applications for consent where the dDCO provides for deemed consent/approval, what measures would be in place to ensure and demonstrate that appropriate consent was sought from the appropriate person/body at the appropriate time?	No formal process is proposed in the dDCO, but in practice the Applicant would have a record of the date on which the written request for consent was sent to the body in question which it could produce if required. The Applicant expects to maintain up to date records for who it will need to contact at each of the bodies in question and it will endeavour to record those details in the SoCGs where applicable.
6. ELECTRICITY & GAS CONNECTIONS AND OTHER INFRASTRUCTURE			
1.6.1	Applicant	The diversion of the gas high pressure pipeline forms part of the works	a) The Wales and West Utilities high pressure gas main is being diverted in two locations along the length of the scheme, at the Carland Cross junction (Ch.

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		considered by the Outline CEMP. One of the objectives of the CEMP (Paragraph 16.2.1, Document 6.4, Appendix 16.1 [APP-375]) would be to 'minimise the risk of any type of pollution incident or other form of unauthorised discharge.' a) What measures would be put in place to protect against unplanned interaction with the gas main during the construction phase? b) How would such measures be secured?	12900 – Ch. 13550) and at Tresawsen (Ch. 5050 – Ch. 6450). These diversion works will be undertaken in advance of any other construction works in these areas with marker posts installed to clearly delineate the line of the new main as a warning for any subsequent construction works. In addition to the diversions being undertaken in advance, the following measures to protect against unplanned interaction include: • WWU approval required for works within/near the pipeline easement, with reference given to: WWU SSW/22 (which details WWU's standard requirements for third parties working in the vicinity of a high pressure pipeline); National Grid specification for safe working in the vicinity of national grid high pressure pipelines and associated installations – requirements for third parties; and HSE publication HS(G)47 Safe digging practices; • The location (line and depth) of the diverted gas main will be stored and used by the Contractor's permit controller who is authorised, trained and competent to issue permits to penetrate the ground. The Contractor will enforce a permit to penetrate the ground permit system for the duration of the works which will be controlled by the permit controller; • Route of pipeline and diversions marked out by WWU and site indicators (typically a peg with a flag and warning "high pressure pipeline below") • Heavy duty wall pipe for the gas main at crossings and likely areas of interaction; • Additional marker posts at crossings and principal field boundaries; • Reinforced concrete protection slabs installed over the new gas main where further works required above; • Additional depths of cover to the gas main provided where possible where further works required above; • Designated temporary crossing points of the gas pipeline during road construction (typical the pipeline is fenced off to a crossing point comprising a surface slab or bogmats/sleepers overlain with geotextile membrane and stone); and • Frequent WWU monitoring onsite during construction. b) The **Outline CEMP** (Document Reference 6.4) [APP-375] sets out the protocols that will be implemented on site to minimise the likelihood of any unplanned interaction, such as appointment of appropriately qualified site management personnel and ensuring appropriate method statements. The CEMP will be

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			updated to specify these additional measures for the high pressure gas main. This is secured through Requirement 3 of the **draft DCO** (Document Reference 3.1(C)).
1.6.2	Applicant	Work No. 74 within Schedule 1 to the dDCO [AS-031] relates to the demolition of an abandoned oil pipeline at the location shown on sheet 7 of the works plans. Are further details available to show how these works would be executed?	The disused abandoned oil pipeline runs parallel to the main line works (from Ch. 11500 – Ch. 12300). The Ministry of Defence (MoD) have confirmed in writing that the pipeline was decommissioned some years ago, by emptying of fuel, pigging, and flushing with nitrogen gas. As such, the risks associated to removal are deemed to be low. However, although the abandoned pipe may have been pigged to clear product, cut and capped, the MoD cannot guarantee there is absolutely no product within the pipe, hence it has recommended to use appropriate specialist contractors to be engaged and provide confirmation certificates that the pipe is safe to remove. It is expected this will involve the pipe being purged with Nitrogen gas and cut/capped. Once a safety certificate is received the pipe removal will be completed. For the remainder of the pipe line that underlies the new road (Ch. 11800 – Ch. 12300), it may be possible to retain this section of pipe in position and fill the pipe void with foamed concrete or grout and this will be confirmed in detailed design and risk assessments The completion of the risk assessments and method statements, the appointment of specialist contractors to provide the confirmation certificates and the removal or grouting up of the abandoned pipeline, will be the responsibility of the contractor for the A30 main works. The **Outline CEMP** (Document Reference 6.4) [APP-375] will be updated to specify these additional measures for the abandoned oil pipeline.
7. LANDSCAPE AND VISUAL			
1.7.1	Applicant	Paragraph 7.10.38, ES [APP-060], indicates that due to the short-term and temporary nature of the construction effects identified by the ES, it would not be feasible to include any additional landscape mitigation measures to further reduce the construction phase effects.	a) There will be significant short term and reversible adverse effects as a result construction phase on the features and overall character of the local landscape and on the visual amenity of receptors at several locations identified in Table 7 11. These locations include Viewpoints 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 20, 21, 23, 24, 26, 27, 30 and 31. b) As explained at paragraph 7.10.36 of **Chapter 7 Landscape** of the Environmental Statement (Document Reference 6.2) [APP-060]: *'For the*

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		a) Please confirm whether these short term and temporary construction impacts will have any significant adverse effects on the receiving environment. b) If so, please explain why it is not feasible to have any additional mitigation measures.	*construction phase, environmental measures have been developed as part of the iterative design.'* These embedded mitigation measures integrated into the design are listed in this paragraph and are set out in Table 16-3 under references L1 to L6 in the **Outline CEMP** (Document Reference 6.4) [APP-375]. Landscape mitigation, comprising the soft landscape scheme, such as the measures described in paragraphs 7.10.19 to 7.10.35 of **Chapter 7 Landscape** of the Environmental Statement (Document Reference 6.2) [APP-060] would take significantly longer than the construction phase to establish and perform their mitigation function.
1.7.2	Applicant	The ES indicates that the Mitigation Route Map (MRM) (Document 7.3 [APP-047]) is intended to act as an audit trail of the controls and mitigation measures, setting out how this would be translated into enforceable controls which the MRM proposes would be secured through the DCO's Requirements, Environmental Masterplans and CEMP. The Responses to scoping opinion, page 9 of ES Appendix 4.2 [AP-312] is also noted. a) Please clarify whether the MRM is intended to meet the request for a table, as described in Annex 1 to the Planning Inspectorate's Advice Note 7, which would set out the proposed mitigation and/ or monitoring measures, including crossreference to the means of securing such measures (e.g. a draft DCO Requirement)? b) If this is the intention, please clarify how you feel this meets the advice	a) No. The **Mitigation Route Map** (Document Reference 7.3) [APP-047] is not intended to meet the request for a table as described in Annex 1 of Advice Note 7. As stated in paragraph 1.1.3 of the Mitigation Route Map: *"This Mitigation Route Map is not proposed to have any formal status, but is submitted to help both the Examining Authority and interested parties understand how and where mitigation relied on by the Environmental Statement (ES) is to be secured."* The Register of Environmental Actions and Commitments (REAC) is part of the **Outline CEMP** (Document Reference 6.4) [APP-375]. Table 16-3 Record of environmental actions and commitments forms the record of the scheme specific environmental actions and commitments to be implemented and managed through all stages of the scheme. b) Not applicable. See response to part a) of this question. c) As noted in response to part a) of this question, the REAC in Table 16-3 of the **Outline CEMP** (Document Reference 6.4) [APP-375] is the table, which sets out the record of the scheme specific environmental actions and commitments to be implemented and managed through all stages of the scheme as described in Annex 1 of the Planning Inspectorate's Advice Note 7.

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		given? c) If not, please confirm when and how such information will be made available.	
1.7.3	Applicant	Table 17-1, ES Summary [APP-070], outlines the required mitigation measures for the likely significant effects (considered to be residual effects with a significance of moderate or greater by the Applicant). However, it does not explain how these are to be secured and delivered. a) Please clarify where this information is held in the ES or confirm that this information is within the details shown in the Record of Environmental Actions and Commitments (REAC) in the Outline CEMP [APP-375 & APP-376]. b) Please explain how these mitigation measures would be legally secured and their relationship to the HEMP.	a) The required mitigation measures for the likely significant effects outlined in Table 17-1 of **Chapter 17 Summary** (Document reference 6.2) [APP-070] are outlined in the Record of Environmental Actions and Commitments (REAC) in the **Outline CEMP** (Document Reference 6.4) [APP-375] and **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. b) The mechanism to ensure implementation of the required mitigation measures for the likely significant effects outlined in Table 17-1 of **Chapter 17 Summary** of the Environmental Statement (Document Reference 6.2) [APP-070] is the **Outline CEMP** (Document Reference 6.4) [APP-375] and **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. The Construction Environmental Management Plan (CEMP) will be implemented by Highways England and is secured through Requirement 3 of the **draft DCO** (Document Reference 3.1(C)). Schedule 2, Requirement 3.— *(1) No part of the authorised development is to commence until a CEMP has been prepared in consultation with the relevant planning authority and the local highway authority and submitted to and approved in writing by the Secretary of State.* The **Outline CEMP** (Document Reference 6.4) [APP-375] will be developed into a detailed CEMP once the detailed design and construction plans have been finalised. This is secured through part 2 of Requirement 3 in Schedule 2 of the **draft DCO** (Document Reference 3.1(C)): Schedule 2, Requirement 3.— *(2) The CEMP must—* *(a) be substantially in accordance with the outline construction environmental management plan certified under article 45 (certification of plans etc.);* Highways England will require their contractors to adopt and implement the

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			CEMP during the construction of the scheme. This will be secured through contractual agreements. Handover Environmental Management Plan (HEMP) Paragraph 16.1.8 of the **Outline CEMP Annexes** (Document Reference 6.4) [APP-376] states: *"Upon completion of construction, the CEMP will be used to form the handover environmental management plan (HEMP). The indicative contents of the HEMP are detailed in Annex C of IAN 183/145. The HEMP will sit alongside the contractor's International Organisation for Standardisation (ISO)14001 accredited EMS."* This is secured through parts 4 and 5 of Requirement 3 in Schedule 2 of the **draft DCO** (Document Reference 3.1(C)): Schedule 2, Requirement 3.— *(4) Upon completion of construction of the authorised development the CEMP must be converted into the HEMP. The HEMP must be submitted to the Secretary of State for approval within 28 days of the opening of the authorised development for public use.* *(5) The authorised development must be operated and maintained in accordance with the HEMP approved under paragraph (4).*
1.7.4	Applicant	Table 17-1, ES Summary [APP-070], summarises residual environmental effects and indicates some moderate and large adverse effects after mitigation in relation to visual impact. a) Please clarify why the residual effects for visual receptors (identified in full in Tables 7-13 and 7-14 [APP-060] could not and/or should not be mitigated?	a) In line with paragraph 5.149 of NPS for National Networks: *"the aim should be to avoid or minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."* For this scheme, as with other major infrastructure projects, it is often not reasonable, practicable or proportionate to completely mitigate all significant adverse effects to the extent that they become insignificant. Across the scheme a reasonable and proportionate level of landscape mitigation has been provided. There are areas where large scale screen planting, which would be necessary to screen views of receptors with significant effects, would not be appropriate as it would for example be out of keeping with the character of the landscape and/or would require an unreasonable amount of land take to

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		b) Would any monitoring for residual effects take place? c) How would remedial measures, deemed necessary as a result, be dealt with?	achieve total screening or mitigation to the extent that effects reduce to insignificant levels. b) For Deadline 3 Highways England will produce an Outline Landscape and Ecology Management Plan (OLEMP) to form an Annex to the Outline CEMP. This will set out management and monitoring commitments for the landscape and ecological mitigation. Please refer to detail provided in the response to Question 1.2.7. c) As detailed in response to Question 1.2.9, monitoring of created habitats and landscape planting would be required for at least the first five years post creation to identify any further work or remedial measures required to deliver the required level of mitigation. Monitoring maybe required beyond this five-year period if measures have not established sufficiently, and if normal highways soft estate management practices would not be suitable to establish the desired mitigation. Common and prescriptive remedial measures will be outlined within the OLEMP, such as species dominance resulting in significant change in species composition, occurrence of bare ground, and scrub and weedy plant invasion. However the LEMP (within the CEMP and the HEMP) would then be subject to a process of ongoing review and amendment during the lifetime of the scheme to ensure it remains relevant. Highways England's 'Landscape Management Handbook' (Design Manual for Roads and Bridges, Volume 10, Environmental Design and Management, Section 3 Landscape Management, Landscape Management Handbook) states that the landscape management plans should be updated annually and formally reviewed every five years. As such, appropriate and specific remedial measures would be updated and captured within the LEMP. The OLEMP will form an Annex of the Outline CEMP to be submitted at Deadline 3.
1.7.5	Applicant	Paragraph 2.7.26, ES [APP-055] sets out that lighting associated with the construction phase will be designed to minimise light pollution at night, whilst being consistent with the requirements of site safety and security. Paragraph	a) The landscape and visual impact associated with construction lighting has been assessed in **Chapter 7 Landscape** of the Environmental Statement (Document Reference 6.2) [APP-060]. The night-time condition is described for each receptor in the baseline section; the perceptual and aesthetic row for each Landscape Character Area in Tables 7-2 to 7-5 for landscape receptors and Table 7-6 for visual receptors. In consultation with Cornwall Council see

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		2.5.9 and Table 16-3 of the Outline CEMP [APP375 & APP-376] refer to the production of a construction stage lighting strategy. a) Has there been any assessment of the potential impacts of construction phase night time lighting? b) If not, at what stage would such an assessment be undertaken? c) Would the CEMP provide the appropriate method to address impacts where significant effects may be likely to occur?	(**Statement of Common Ground with Cornwall Council** Document Reference 7.4(A)) [REP1-003], a selection of representative, night-time photographs have been provided for Viewpoints 3, 8 and 28. Construction effects on the features and overall character of the landscape within the order limits would be temporary and reversible, direct, moderately significant and adverse. The construction phase would give rise to significant adverse temporary and reversible visual effects on the following receptors: • Residential receptors at Marazanvose (VP 12) and Silverwell (VP 30). • People enjoying the views to and from the Barrow Cemetery at Carland Cross (1016888, 1017050, 1020758) (VP 27). • Residential receptors at Callestick Vean (south) (VP 6), Creegmeor Farm (VP 7), Hillview Farm (VP 8), Nanteague Farm (VP 10), the bungalow at NFH (VP 13), Chyverton Park Lodge (VP 16), Polstain Farm (VP 20), Zelah Hill Cottage and Mount Pleasant (VP 21), Pennycomequick (VP 23), Journey's End, Racland House, and Four Winds (VP 24), and Ennis Farm and Higher Ennis Farm (VP 31). • Pedestrians and equestrians using bridleway 314/64/1 (VP 6), bridleway 309/3/1 (VP 9), footpath 314/67/1 (VP 11), bridleway 319/9/1 (VP 17), footpath 319/16/1 (VP 15), and in Newlyn Downs Open Access Land (VP 26). • Cyclists using NCR 32 near Henver Lane (VP 20). • Transport receptors along the Quiet Lane near Pennycomequick (VP23). • People enjoying views to and from the Bowl Barrow (1016103) (VP 6). • Outdoor workers at NFH (VP 15). For details of the assessments refer to the columns in the following tables: • **Appendix 7.2 Landscape Assessment Table – Construction** of the Environmental Statement (Document Reference 6.4) [APP-326]. • **Appendix 7.3 Visual Assessment Table – Construction** of the Environmental Statement (Document Reference 6.4) [APP-327]. These effects are attributable mainly to the visually intrusive elements such as plant and construction traffic, dynamic earth movements and a bare ground scar on the landscape visible during daylight. Only a minor portion of these landscape and visual effects is attributable to construction lighting, which would

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			only be present in the landscape during the hours of darkness, would be intermittent and variable as works progress and would be avoided where possible by the embedded measures designed into the construction phase. As set out at paragraphs 7.10.36 and 7.10.37: "*Production of a construction stage lighting strategy to limit the use of construction lighting and ensure all essential lighting is specified and designed to reduce light spill…. These embedded measures are described in Outline CEMP (Volume 6 Document Ref 6.4 Appendix 16.1" [*APP375 & APP-376]. The impact on wildlife active at night such as bats, otters and badgers associated with lighting during the construction phase has been assessed in paragraphs 8.11.108 – 109, 8.11.88 – 91 and 8.11.97 - 100, respectively of **Chapter 8 Ecology and Nature Conservation** (Document Reference 6.2) [APP-061]. The construction impacts on bats, which includes potential light spill ranges from moderate adverse significance to neutral depending on the receptor and distance from works. The construction impacts on otter and badger are considered to be of neutral significance. These assessments are based on the specifications for lighting as set out within Section 8.10 Design, mitigation and enhancement measures, namely for bats as described in paragraph 8.10.74 which states: *"Temporary construction lighting required within bat activity periods, will be directional lighting and designed to ensure no light spill over 0.5 Lux on to any identified commuting and foraging areas, as well as roosting habitats. This is detailed within Table 16-2 and Annex E of the Outline CEMP (Volume 6 Document Ref 6.4 ES Appendix 16.1)."* Night time working in general (including disturbance effects of light spill) are also set out in paragraph 8.10.79 stating: *"Night time works could disturb foraging or commuting otters and badgers within approximately 50m of the scheme. Details on work timings to reduce disturbance to otters and badgers will depend on the pre-construction results and mitigation licence requirements; any restrictions will be within the final detailed CEMP."* Further specifications for construction lighting have also been included in Table 16-3 of the **Outline CEMP** (Document Reference 6.4) [APP-375] and in Table

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			16-3 reference L6 paragraphs 2.4.4 and 2.5.9 of the **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. b) Not applicable please refer to the response to point a) above. c) The CEMP would provide the appropriate method to avoid and reduce any significant lighting effects through the lighting strategy. Appropriate methods to address ecological impacts of construction lighting are set out in Annex E paragraphs 2.4.4 and 2.5.9 of the **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]: *"Production of a construction stage lighting strategy to limit the use of construction lighting and ensure all essential lighting is specified and designed to reduce light spill. This is to include locations of lighting and lighting levels* details*. The following measures should be considered within the construction stage lighting strategy:* • *No bat roosts, or important foraging and commuting habitat should be directly illuminated;* • *Lighting levels should be as low as current standards and guidelines allow; Lighting should only be provided only in essential areas;* • *Lighting should be directed to where it is needed and light spill avoided;* • *LED lighting produces no ultraviolet component and therefore is ideally suited as it greatly reduces the attraction of insects;* • *The height of lighting columns in general should be as low as possible. However, there are cases where taller columns will enable light to be directed downwards at a more acute angle and therefore reduce horizontal spill light."* The final CEMP will also detail the monitoring required throughout construction to ensure light spill compliance and effectiveness to avoid or reduce any significant effects on biodiversity, or landscape and visual receptors. The monitoring will be conducted through the Ecological Clerk of Works (ECoW) role and reporting to the site manager. Such monitoring may highlight the requirement for remedial measures, the mechanism of which will be detailed within the final CEMP. Further details on monitoring of habitats and for species, during construction

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			and operation, will also be further outlined within an Outline Landscape and Ecological Managements Plan (OLEMP) and will form an Annex of the Outline CEMP to be submitted at Deadline 3 of the Examination.
8. NOISE AND VIBRATION			
1.8.1	Applicant	Paragraph 12.7.41, section 6.4, Environmental Statement Appendix 12.1 classifies health impacts, due to noise during construction, "as minor due to the number of people affected by the construction noise, which is relatively few within the overall community." How is the health impact on these individuals being taken into account? How has the Public Sector Equality Duty been taken into account?	Health impacts has been assessed within specific Environmental Statement Chapters – namely, Air Quality, Noise and Vibration, Materials and People and Communities. In addition, a Health Impact Assessment (HIA) has been carried out for the scheme and is provided in **Appendix 12.1 Health Impact Assessment** of the Environmental Statement (Document Reference 6.2) [APP-362]. This provides a detailed assessment of the scheme on various aspects of health (including direct and indirect impacts) during both the construction and operation of the scheme. It finds that while there may be minor adverse impacts on some aspects of health during construction (particularly noise, air quality, amenity and accessibility), these will be temporary, and mitigation is proposed, such as the implementation of the **Outline CEMP** (Document Reference 6.4) [APP-375]. The HIA does not find that there would be any long-term adverse impacts on health during the operational phase of the scheme. With specific reference to minimising impacts of construction noise an Outline Noise and Vibration Management Plan has been produced in Annex K of the **Outline CEMP Annexes** (Document Reference 6) [APP-376]. Highways England has also committed to a number of measures are proposed within the REAC, namely measures: NV1 – NV5, which seek to minimise the noise and vibration effects of the scheme. **Chapter 12 People and Communities** of the Environmental Statement (Document Reference 6.2) [APP-065] assesses the scheme with regard to its overall effects on the population's wellbeing and quality of life, including health, amenity, community severance, access to open space and access for walkers, cyclists and horse-riders. In alignment with the HIA, the assessment concludes that while there may be slight adverse impacts on many of these receptors during construction (which would be temporary), there would be overall slight or moderate beneficial permanent impacts during operation. See response to Question 1.0.1 for how Highways England has complied with the Public Sector Equality Duty.

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1.8.2	Applicant, CC	Schedule 1 to the dDCO, Authorised Development, includes at "(g) landscaping, noise bunds and barriers, works associated with the provision of ecological mitigation and other works to mitigate any adverse effects of the construction, maintenance or operation of the authorised development." Paragraph 7.10.11, section 6.2, Environmental Statement, Chapter 7 refers to agreement to provide a 3 m high timber noise barrier in relation to Nancarrow Farmhouse. Are you satisfied that this fits with Local Plan policies regarding local distinctiveness and design?	The choice of a 3m high close boarded fence to the south of the scheme (between Ch. 6.800 and Ch. 7.500) was in order to provide noise and visual screening at the top of the cutting slope for receptors to the south. An alternative using a 1.8m Cornish hedge atop a 1.2m bund (false cutting) above the real cutting was previously considered in this location. Through engagement with the affected landowner, the more 'space-hungry' Cornish hedgerow option was discounted in favour of the taller timber fence, in order to reduce land take from the farm. The landscape mitigation design on Sheet 10 of the **Environmental Masterplans** (Document Reference 6.3) [APP-190] shows scrub and woodland planting to the north of this fence and woodland to the south, which is intended to break up, filter and eventually screen views of the fence from receptors to the south as well as from Marazanvose and the scheme to the north. It is considered that the proposed solution, comprising a fence with landscape mitigation, offers the best balance between aesthetics and function. The applicant is satisfied that the principles of Cornwall Council Local Plan Policy 12 Design, are met particularly in respect of weighing up the aims of paragraphs 1a) (character), 1e) (engagement) and 2c (noise and disturbance) in Policy 12.
9. PUBLIC INTEREST BALANCE			
1.9.1	Applicant, Any affected parties, HE, RR-003, RR-037, RR-057, RR-086, RR-090, RR-101, RR-104 & RR-109	ES Chapter 3, Consideration of Alternatives [APP-056] presents a summary of the alternative options which have been considered and the justification for the scheme as now applied for. Paragraphs 3.7.7 and 3.7.8 refer specifically to Marazanvose, where there have been questions over route choice. Section 3.8 goes on to set out the preferred option in this context, with subsequent amendments in 3.9 and 3.10. Taking account of the information provided – and other information you may have – please indicate how you believe the route choice would, or would not, represent the best available option	**Route selection process** The route choice at Marazanvose has been explored in a detailed and iterative manner during the development of the scheme and within the following documents. <u>Scheme Assessment Report (2017)(SAR)</u> Specifically: • Section 3.1.2 describes the option taken to non-statutory public consultation in 2016. • Sections 7.3.4 – 7.3.6 of the SAR outline the alternatives considered at Marazanvose. • Section 7.3.7 provides a justification why the preferred route has been chosen based on a consideration of nine assessment criteria: land area; utilities; business impacts; cultural heritage; visual impact; living conditions; noise; residential demolition and cost. • Section 7.4 provides further details as to why the preferred route (Option 7A) was selected based on forecast traffic flows, journey times, economic assessment and environmental assessment.

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		in this location.	<u>Localised engagement event (February 2017)</u> As detailed in the **Consultation Report** (Document Reference 5.1) [APP-029], Highways England held a localised engagement event on 8 February 2017, during the assessment of alternatives and prior to the Preferred Route Announcement (July 2017). The event was held in Shortlanesend and 150 properties in the Marazanvose, Zelah, Callestick and Tresawsen areas were notified via letter. The event was held in recognition that the alternative design options being considered at Marazanvose would have a potentially significant effect on several local properties and community views should be sought. Four alternative options were presented in the consultation and views sought, which included the southern route as presented in the October 2016 public consultation and three other alternative routes – Marazanvose South, Marazanvose North Option 1 and Marazanvose North Option 2. Figure 1-1 in the Addendum to Report on Public Consultation in Appendix B of the **Consultation Report Appendices** (Document Reference 5.2) [APP-030] depicts the alignment of these options. The results from this consultation is summarised as follows: • Residents of Zelah expressed a strong preference of the southern October 2016 consultation route, including through the submission of a petition expressing this view, signed by 45 people. • Marazanvose North Option 2 was preferred by most residents of Marazanvose. • Marazanvose South and Marazanvose North Option 1 were the least preferred options by all respondents. • The options would have differing levels of impact on local businesses, with a preference for the Northern options at Nancarrow Farm and a preference for Southern options at Chyverton Park. • Similarly, responses identified that individual properties would have varying severity of impacts depending on the option selected. The localised engagement event identified that there was not a clear consensus among the community, with differing preferences between residents of the Marazanvose hamlet and village of Zelah and between business and property owners. However, the largest number of respondents supported the southern October 2016 consultation layout.

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			Route Selection Report (2017) This report supports the summary information presented in the Scheme Assessment Report. Specifically, Section 7 details the methodology and rationale for selecting the preferred route at Marazanvose. Section 7 of this report notes that: *"Of all the locations for which alternative options were considered, this area had the most disparate considerations to be balanced and alternatives involved quite different alignments."* **Preferred route** The reasons given in Section 7.3.7 of the SAR supported by additional detail in Section 7 of the Route Selection Report support the route selected in Marazanvose. The only criteria which the preferred scheme was assessed as not being the best performing alternative was 'residential demolition'. The chosen option (Option 7A) was assessed to be the best performing alternative on 8 of 9 assessment criteria. As such, Highways England decided to progress with the chosen route in Marazanvose as it performed the best overall against overarching objectives and appraisal criteria. **Discounted Option** Taking into account the concerns raised by Nancarrow Farm with the selected route, Highways England has undertaken a further, more detailed geometry assessment of the discounted, alternative alignment to the north of Marazanvose. This has concluded that the relaxed horizontal and vertical design required to route north of Marazanvose and return back to the same line as the existing A30 over the Two Barrows underbridge, would require 3 additional departures from minimum safety standards and would require significant verge widening to provide the necessary forward visibility. The alignment and cross-section of the new A30 and the parallel realigned existing A30 would have significant construction, land and compensation impacts and costs in comparison to the route proposed in the DCO application. A number of significant direct impacts of the alternative route have been identified, including on the adjacent Town & Country Motors business, the Nursery business and the outbuildings at the rear of Marazanvose (the route would be within 35m of the rear of properties in Marazanvose), adjacent utilities including 133kV WPD

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			pylons and a telecommunications mast and the existing Two Barrows underbridge. The discounted route would also require an additional 1 km of realignment to the existing A30. In combination, the impacts of the alternative route would have significant construction, land and compensation costs over and above the selected route. **Best available option at Marazanvose** Taking into account the conclusions of the Environmental Statement, the principal residual effects of the scheme relate to cultural heritage, landscape and noise. Mitigation has been designed to address these effects where possible. The mitigation that has been designed into the scheme is considered to be proportionate and appropriate to the level and range of environmental effects predicted. It is not considered that there are any adverse effects which would outweigh the benefits of the scheme. Based on the above, the route selected is still considered by Highways England to perform the best in relation to construction, land, compensation, environmental and cost. This is evidenced in **Local Impact Report** (LIR) [REP1-010] submitted by Cornwall Council at Deadline 1 of the Examination, which states at paragraph 1.3 that there are relatively few impacts considered to be subject to Examination. With regards to route selection, the LIR states in Appendix A at A2.10: *"A2.10. The Council has undertaken a high level review of the Scheme Assessment Report and Route Selection report, and is satisfied that the Highways England (HE) Arup team have undertaken a robust assessment in line with appropriate guidance and policy, using competent and appropriately qualified professionals. Cornwall Council representatives were involved in this process as part of the stakeholder engagement, and accept the findings in relation to the major junction and alignment options considered."*
11. TRANSPORT AND TRAFFIC			
1.11.1	Applicant	It is noted in Paragraph 10.11.30, ES [APP-063], that construction phase traffic data was not available at that stage. The outline Traffic Management Plan (TMP), ES, 6.4 Appendix 2.1 [APP-	a) The **Traffic Management Plan** (Document Reference 6.4) [APP-300 to APP-309] and traffic management proposals have been developed using the following A30 and side road forecast traffic data: - Opening Year (2023) Do Minimum peak hour mainline and junction turning flows and Annual Average Daily Traffic (AADT) flows; and

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		300], has identified the key areas where the works would impact on the existing A30 traffic flow, with solutions derived to phase the construction works to minimise disruption and impact. It is noted that it has been assumed that construction traffic may result in significant adverse effects on the local road network. a) Please confirm what data was used to inform the assumptions for volume of traffic? b) Are you satisfied that you have identified the worst-case scenario?	- Opening Year (2023) Do Something peak hour mainline and junction turning flows and Annual Average Daily Traffic (AADT) flows. The plan has been developed by the Buildability Advisor and included Integrated Traffic Management Meetings with the Highways England Area 1 Maintenance and Operations Team and the Cornwall Council Streetworks Coordinator. At this Preliminary Design stage, the construction traffic data was not available, with material suppliers and waste disposal facilities yet to be confirmed. However, the scheme Preliminary Design has been developed with a close to earthworks balance, with minimal import and export of material to and from site, and all other more flexible material imports and waste exports would be generally moved to and from site outside of the peak traffic periods. The very low approximate 10,000m³ volume of imported fill material is likely to be required at the Chiverton end of the scheme and would have to be brought in during the earthmoving season, between the end of March and the end September. This equates to around 1,000 road vehicle journeys, however, the source of this import material is yet to be confirmed and the location will be selected, and a delivery route agreed at the ongoing Integrated Traffic Management Meetings to minimise impact on this section of the existing A30. With the majority of earthworks involving moving site won material around the site rather than onto and off site, it is currently anticipated that this will be carried out by Articulated Dump Trucks (ADT's) running along a haul route within the construction site, thus avoiding having to utilise this section of the existing A30 and impact traffic. In addition, it is the intention to minimise the amount of in-situ concrete required for site, with the utilisation or pre-cast options wherever possible. This will require large pre-cast elements to be delivered to the site, however, these deliveries can be timed to avoid peak traffic periods on the existing A30. And with the new road pavement construction, the materials would enter the site at either end of the works as required and once again use the construction haul road within the site, minimising the impact on the existing A30. On this basis, it was agreed in the Integrated Traffic Management Meetings that the construction traffic was not considered to significantly affect the general traffic data used in developing the traffic management proposals for the scheme, with more detailed traffic flow and queue analysis to be undertaken in the final

Number	Directed to	Question	Applicant's Response
			Traffic Management Plan in detailed design. b) Highways England is satisfied the **Traffic Management Plan** (Document Reference 6.4) [APP-300 to APP-309] is based on the worst-case scenario, as construction traffic was not considered to significantly affect the general traffic data used in developing the traffic management proposals for the scheme. The extensive ground investigation works undertaken has confirmed that a high percentage of the site won material will be reusable as fill (soils are generally geo-environmentally suitable for re-use as well as geotechnically) and the scheme will have a close to balanced earthworks with minimal import and export of material to and from site, and a delivery strategy will be developed for all other more flexible materials such that they generally avoid the peak summer months and the peak times of day. In addition, the economic assessment is also considered to incorporate the worst-case scenario, when it assesses the impact construction traffic management has on other road users. In line with the Traffic Management Plan, for the entire construction period it has been assumed that there would be one lane running in both directions over the full length of the existing A30 at all times during the day, with the maximum speed of 40mph and the lane widths reduced to 3.25m in accordance with the national Traffic Signs Manual Chapter 8 requirements. This is considered to be a worst-case scenario, as the number of lanes, widths and speed could well increase from this through sections of the scheme throughout the works which would reduce the traffic impacts during construction on the economic assessment.
1.11.2	Applicant	Paragraph 14.5.3, ES [APP-067] indicates that the scheme is expected to increase the resilience of transport systems in Cornwall to a range of hazards, including those resulting from climate change, and hence provide benefit for the overall resilience of the region. Please explain how the scheme would increase the resilience of transport systems in the region against climate change.	The baseline scheme and surrounding regional highways have in them an inherent level of climate vulnerability based on their vehicle carrying capacity, design strategy, relative age, and state of condition. By enhancing the capacity of the highway, the scheme both improves the resilience of the highway within the project zone and brings a wider transport system resilience to potential climate change impacts. The resilience of the transport system against climate change can be described as the ability of the system to absorb shocks and stresses brought about by climate change, while maintaining its function. Climate change resilience has four main aspects: • **Resistance** – physical protection of assets; • **Reliability** – the capability of the infrastructure to maintain operations under a

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			range of conditions; • **Redundancy** – the adaptability of the network, in the event of an isolated failure; and • **Response and recovery** – the ability to recover from a disruption to return to full functionality. Through introducing the A30 Chiverton to Carland Cross scheme, the resilience of the transport system in the region is enhanced in the following ways: 1) Within the project zone the scheme brings an improvement in resilience because the system is designed to the latest standards, e.g. within the drainage and attenuation design a provision has been made to reflect future rainfall events. This directly increases the ability of the system to **resist** climate-related stresses. 2) The scheme results in an increase in capacity of the road network through the proposed upgrade from single to dual carriageway and the construction of a 14km new offline section. By retaining the majority of the existing A30 as a local route, the scheme increases the inherent **redundancy** in the transport network, effectively introducing a new link to the system. This increases the overall resilience of the transport network in the region to a range of hazards, including hazards related to climate change. 3) By alleviating net vehicle loading on the wider highway network, the scheme will result in the reduction of the traffic-related deterioration of assets on the existing network (assuming all other variables remain equal). Thus, over time these assets will likely be less susceptible to weather-related damage and knock on disruption to users. This is anticipated because the scheme on balance is projected to take vehicles off the wider network. Summary perspectives to this effect include those summarised below: • The A390 between Treliske Hospital and Truro shows a reduction with the scheme in place. The opposite effect can be found in Shortlanesend, which has an increase in traffic. This is likely due to the presence of the west facing slips at Chybucca making the route via Shortlanesend more attractive for trips to access central Truro. • A decrease in traffic flow can also be seen on the A3075 Northbound, A390 between Chiverton Cross and Threemilestone and the A39 between Truro and Carnon Downs. This is caused by trips that previously used these routes to go to large centres of attraction like Newquay and Truro,

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			now using the Scheme, to reduce their travel times. • Analysis of the routing within the model confirms that trips from areas such as Falmouth, Penryn and Helston reroute to access the A30 to the west of Chiverton Cross rather than travel via the A39 when the scheme is in place. The same way, A3075 shows a reduction in trips due to trips to Newquay that previously used this route are using junctions to the east of the scheme such as Summercourt to access the A30 earlier when the scheme is in place. For detailed information on the points above, see **Key Route Link Flows in the Vicinity of the Scheme** in **Appendix E** of this document.
1.11.3	Applicant RR-004 – RR-034, RR-036, RR-039 – RR-045, RR-047 – RR-050, RR-052 – RR-056, RR-061 – RR-069, RR-071 – RR078, RR080 – RR-081, RR-083 – RR-086, RR-089, RR-091, RR-094 – RR-097, RR-099, RR-103, RR106 – RR-108,	A number of comments have been raised in relation to cycle access, in particular, in the Chiverton Cross roundabout area; and appropriateness of the proposed tunnel for all users. Taking account of the comments made in this respect, how does the scheme deliver to the policies set out in the NPSNN and other relevant policies, in particular those of the Department for Transport relating to non-motorised travel?	The scheme, including provisions for walkers, cyclists and horse riders has been designed in accordance with the Design Manual for Roads and Bridges (DMRB). As stated at paragraph 4.2.2. of **Chapter 4 Approach to the Environmental Impact Assessment** of the Environmental Statement (Document Reference 6.2) [APP- 57], all EIA work and environmental reporting on the scheme has been undertaken in accordance with guidance set out in DMRB and the relevant Interim Advice Notes (IANs). In relation to relevant policies set out within the NPSNN, the scheme delivers as follows: **Sustainable Transport** Paragraph 3.17 of the NPSNN states: "*There is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes. The Government also expects applicants to identify opportunities to invest in infrastructure in locations where the national road network severs communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions and ensuring that it is easy and safe for cyclists to use junctions."* The scheme recognises the role that the national road network can play in helping pedestrians and cyclists, as set out in paragraph 3.17 of the NPSNN. Through consultation and design review, Highways England has developed a scheme which it

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	RR-110 – RR-111, RR-114 – RR-115		considers adequately addresses the needs of walkers, cyclists and horse riders, providing enhanced and safer crossing facilities when compared to the existing situation and ensuring that it is easy and safe for cyclists and other non-motorised users to use the proposed junctions. At each stage of scheme development, any proposals for consultation and submission have been assessed against the requirements of NPSNN. **Road Safety** In relation to Road Safety, paragraph 4.64 of the NPSNN seeks for applicants to *"contribute to improvements in road safety for walkers and cyclists"*. The Road Safety Audit process is mandatory for Highways England and the project is being undertaken in accordance with HD 19 of the Design Manual for Roads and Bridges. A Stage 1 Road Safety Audit has been carried out for the scheme but does not, form a submission document for this national infrastructure application. Section 7.4 of the **Transport Report** (Document Reference 7.5) [APP-049] sets out the mitigation and enhancement measures associated with walkers, cyclists and horse riders, including where improvements in road safety for these users would be achieved. **Health** Paragraph 4.80 of the NPSNN states that "*New or enhanced national network infrastructure may have indirect health impacts"*, including affecting opportunities for cycling. Paragraph 4.82 of the NPSNN states, in relation to this, that "*the applicant should identify measures to avoid, reduce or compensate for adverse health impacts as appropriate"*. **Chapter 12 People and Communities** of the Environmental Statement (Document Reference 6.2) [APP-065] assesses the scheme with regard to its overall effects on the population's wellbeing and quality of life, including health, amenity, community severance, access to open space and access for walkers, cyclists and horse-riders. In alignment with the **Appendix 12.1 Health Impact Assessment** of the Environmental Statement carried out for the scheme (Document Reference 6.2) [APP-362], the assessment concludes that while there may be slight adverse impacts on many of these receptors during construction (which would be temporary), there would be overall slight or moderate beneficial permanent impacts during operation.

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			Expectation of Applicants Paragraph 5.184 of the NPSNN sets out expectations of applicants in relation to public rights of way, National Trails, and other rights of access to land (e.g. open access land), which it states are important recreational facilities for walkers, cyclists and equestrians. It further sets out that: "*Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access. In considering revisions to an existing right of way consideration needs to be given to the use, character, attractiveness and convenience of the right of way*." In relation to severance, paragraph 3.22 of the NPSNN states: "*Severance can be a problem in some locations. Where appropriate applicants should seek to deliver improvements that reduce community severance and improve accessibility*." In line with this, and having assessed the potential effects of the scheme on such facilities through section 12.11 in **Chapter 12 People and Communities** of the Environmental Statement (Document Reference 6.2) [APP-065], a Public Rights of Way Management Plan was prepared as Annex M of the **Outline CEMP Annexes** (Document Reference 6.4) [APP-376] and submitted in support of the application. This management plan sets out proposed mitigation measures to address adverse effects, as well as opportunities to improve access. Examples include: • New underpass at Chiverton Cross with new footpath / cycleway links allowing movements across the junction; • New bridleway connection between existing bridleways 314/64/1 and 314/65/1, providing enhanced facilities; • New steps from bridleway 314/65/1, providing access to side road / local route (quiet lane) at Chybucca; • Re-provision of Footpath 319/16/1 with further access via new green bridge as a bridleway; • New bridleway to connect existing footpath (319/16/1), quiet lane and new side road at Tresawsen; • New bridleway / Church Lane underpass; • New underbridge allowing movements across the Carland Cross Junction; and

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			• New bridleway south east of Carland Cross to provide new connection between existing side roads, footpaths and bridleways in surrounding area. The Management Plan has been discussed and agreed with Cornwall Council as detailed references 14.3 to 14.8 in Table 4.1 'Matters agreed' in Appendix A of the **Statement of Common Ground with Cornwall Council** (Document Reference 7.4(A)) [REP1-003] submitted at Deadline 1. **Summary** As detailed within paragraph 6.3.129 of the **Planning Statement** (Document Reference 7.1) [APP-045]: *"It is considered that Highways England has undertaken a proportionate assessment of the transport impacts on other networks and non-motorised users to meet the requirements of the NPSNN".* **Other Relevant Policy** With regard to other relevant policy, this is considered to include Paragraph 102 (b) of the NPPF which states that development proposals should consider *"opportunities to promote walking, cycling and public transport use".* Paragraph 12.11.60 of **Chapter 12 People and Communities** of the Environmental Statement (Document Reference 6.2) [APP-065] concludes that there is likely to be a long term and slight beneficial effect of the scheme for walkers, cyclists and horse-riders. The retention and enhancement of existing routes and the conclusion of Chapter 12 of the Environmental Statement demonstrate that the scheme is in accordance with section 9 NPPF. As detailed within Highways England's response to Truro Cycling Campaign's Relevant Representation in Annex G of the **Comments on Relevant Representations** (Document Reference 8.1) [REP1-004], Highways England have assessed the strategic need and latent demand for walking, cycling and horse-riding across the scheme, in accordance with all strategies and policies, and this includes 'Cycling Strategy – our approach', Interim Advice Note 195/16 – Cycle Traffic and the Strategic Road Network' and HD 42/05 Non-motorised user Audits, Advice note

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			91/05. **Chapter 12 People and Communities** (Document Reference 6.2) [APP-065] of the Environmental Statement specifically references in Table 12-5 the Highways England Cycling Strategy as relevant legislation and policy. **Chiverton Cross** Specifically, in relation to the Chiverton Cross roundabout area we acknowledge the concerns raised by organisations such as Truro Cycling Campaign, many of which focus on the proposed underpass. Highways England has responded to many of the concerns raised within Highways England's response to Truro Cycling Campaign's Relevant Representation in Annex G of the **Comments on Relevant Representations** document (Document Reference 8.1) [REP1-004], In summary, the scheme as submitted proposes a new grade separated route and crossing facility to the east of the existing roundabout at a similar overall distance to the existing Blackwater Bridge route that the cyclists are currently using (which will also remain available for use). Whilst this is not what was specifically requested by Truro Cycling Campaign, these changes ensure that cyclists would be able to cross the new main A30 carriageway without having to negotiate the new Chiverton junction and also link into the A3075 and the existing A30. Furthermore, the provision of a crossing for walkers, cyclists and horse riders away from the new Chiverton junction allows for the junction not to be lit. This minimises effects to the adjacent landowners, the local ecology and critical landscape and cultural heritage viewpoints across the junction. Overall, it is considered that the availability of a safe crossing for walkers, cyclists and horse riders at the location of the underpass is a benefit of the scheme compared to the existing situation as it also provides better links into the A3075 and the existing A30. The location and design of the crossing has been discussed and agreed with Cornwall Council, as is set out in reference 2.10, Appendix A of the **Statement of Common Ground with Cornwall Council** (Document Reference 7.4(A)) [REP1-003].

<table>
<tr><th>Number</th><th>Directed to</th><th>Question</th><th>Applicant's Response</th></tr>
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<tr><td>1.11.4</td><td>Applicant, CC, RR-002, RR-059, RR-100, RR-102 & RR-105</td><td>The design provides west-facing junctions only at Chybucca, where the B3284 and the A30 meet and there are questions over the lack of a full junction at this location.

a) Please provide the traffic data used to inform the decision regarding the proposed partial junction at Chybucca, the junction of the A30 and the B3284.

b) Taking account of the comments made in this respect, please indicate how you believe the decision for a partial junction in this location would, or would not, represent the best available option.</td><td>a) Forecast model data has been used to inform the decision regarding the proposed partial junction at Chybucca. An overview of the model is detailed in Section 4 of the Transport Report (Document Reference 7.5) [APP-049]. This demonstrates that the A30 Chiverton to Carland Cross base model achieves the required calibration and validation criteria, as set out in Table 2 of TAG Unit M3.1. This table sets out the calibration and validation criteria the base model must achieve for link counts, screenline counts, junction counts and journey times.

b) The forecast models have been run with east facing and west facing slips and the results for 2038 (design year) can be seen in the table below.

<table>
<tr><td colspan="2">Scenario</td><td>AM</td><td>IP</td><td>PM</td><td>Total</td></tr>
<tr><td rowspan="3">West facing slips</td><td>Off slip (eastbound)</td><td>632</td><td>499</td><td>491</td><td>1622</td></tr>
<tr><td>On slip (westbound)</td><td>248</td><td>447</td><td>411</td><td>1106</td></tr>
<tr><td>Total</td><td>880</td><td>946</td><td>902</td><td>2728</td></tr>
<tr><td rowspan="3">East facing slips</td><td>Off slip (westbound)</td><td>111</td><td>89</td><td>111</td><td>311</td></tr>
<tr><td>On slip (eastbound)</td><td>78</td><td>38</td><td>17</td><td>133</td></tr>
<tr><td>Total</td><td>189</td><td>127</td><td>128</td><td>444</td></tr>
</table>

As evidenced from the Table above, the forecast model shows that with the scheme in-situ and the additional traffic reassigned to the new A30, the traffic utilising the east facing slips is significantly lower than the flows on the west facing slips. It is considered that the de-trunked A30 would provide an appropriate route to serve low eastward traffic demand from the Chybucca area.

In addition to traffic flows, there are various other aspects that need to be considered when assessing east facing slips. Namely revised vertical alignment of the route at this point, increased construction costs, additional environmental impacts and additional land required from adjacent land owners.

Cornwall Council accept the analysis of Highways England in that the provision of east facing slips at Chybucca cannot be justified in terms of future traffic demand and associated costs, land take and environmental impact. This is detailed in Table 4.1 – Matters agreed between Cornwall Council and Highways England, specifically matter 2.11 in Appendix A of the Statement of Common Ground with Cornwall Council (Document Reference 7.4(A)) [REP1-003].</td></tr>
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Number	Directed to	Question	Applicant's Response
			As detailed in the Statement of Common Ground with Cornwall Council, they have agreed and accept that the base model and forecast models have achieved the required criteria and that the demand and infrastructure included in the forecast models are correct. This is detailed in Table 4.1 – Matters agreed between Cornwall Council and Highways England, specifically matters 20.1 – 20.8 in Appendix A of the **Statement of Common Ground with Cornwall Council** (Document Reference 7.4(A)) [REP1-003].
12. WATER ENVIRONMENT			
1.12.1	Applicant, EA	a) Is it accepted that access to the rain gauge at Nanteague Farm is required during construction as set out by the EA [RR-098]? b) If that is accepted, how would access be provided as required?	a) The Environment Agency has confirmed the access arrangements to the rain gauge is as follows.  Access requirements have been noted on the **Rights of Way and Access Plans** Sheet 4 (Document Reference 2.5(A)) [AS-026]. Access off the Tresawsen Road is not affected by the scheme. The current agreement with Cornwall Council is that the Tresawsen Road would be kept open to traffic at all times. If this was to be closed from the existing A30, there would be an alternative route from Shortlanesend Road to the south. b) Highways England will work with the contractor to ensure that access to the rain

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			gauge is maintained during the construction stage. Table 16-3 Record of environmental actions and commitments (REAC) of the **Outline CEMP** (Document Reference 6.4) [APP-375] and **Outline CEMP Annexes** (Document Reference 6.4) [APP-376] will be amended to ensure access to the rain gauge will be maintained during construction to secure this commitment with the contractor.
1.12.2	Applicant, CC, EA	If the matters set out in question 1.5.35 were accepted how would an appropriate consenting regime for ordinary water courses be addressed?	This would be dealt with outside of the DCO process via the ordinary consenting process with Cornwall Council. As set out in paragraph 2.2.7 of the **Details of Other Consents and Licences** (Document Reference 7.2) [APP-046], applications for written consent to alter ordinary watercourses will be made as required to Cornwall Council as the Lead Local Flood Authority pursuant to section 23 of the Land Drainage Act 1991. Reference to applying to Cornwall Council for Ordinary Watercourse Consents will be retained.
1.12.3	Applicant, CC, EA, Any affected parties	How should and would protection be provided for private water supplies and ephemeral headwaters?	The protection of ephemeral headwaters is secured by commitment RDWE 2, outlined in Table 16-3 Record of Environmental Actions and Commitments (REAC) in the **Outline CEMP** (Document Reference 6.4) [APP-375] and **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. These detail the outfall design features required to prevent scour in existing watercourses and subsequent detriment to the quality of river habitat. These will ensure that the magnitude of any pollution incident or temporary physical modification as a consequence of the construction of the scheme is likely to be negligible. The protection of private water supplies is secured by commitment RDWE 3, outlined in Table 16-3 Record of Environmental Actions and Commitments (REAC) in the **Outline CEMP** (Document Reference 6.4) [APP-375] and **Outline CEMP Annexes** (Document Reference 6.4) [APP-376]. This will prevent temporary or permanent impacts to existing private water supplies by ensuring that where the potential for impacts to private water supplies remains unclear, a detailed assessment of groundwater levels and flows shall be undertaken during detailed design to fully understand the potential impact upon each feature of interest. Where, following this assessment, the potential for impact remains unclear or is certain, a new private water supply (e.g. a borehole) will be established following discussion with the landowner.

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			The Construction Environmental Management Plan (CEMP) will be implemented Highways England, and is secured through Requirement 3 of the draft DCO (Document Reference 3.1(C)).
1.12.4	Applicant, EA	a) Do you agree that the Upper River Allen should be classified as high sensitivity [RR-098]? b) If not, please explain why not? c) If so, how would this alter the assessment of significant affects?	(a) It is agreed that the Upper River Allen should be classified as high sensitivity. In **Chapter 9 Geology & Soils** of the Environmental Statement (Document Reference 6.2) [APP-062], when considering the potential impact of existing contamination upon the Upper River Allen a sensitivity of medium has been assigned, as per paragraph 9.11.50: *"The sensitivity of the Upper River Allen is considered to medium given the WFD classification of moderate."* In **Chapter 13 Road Drainage & Water Environment** of the Environmental Statement (Document reference 6.2) [APP-066] the Upper River Allen has been assigned a sensitivity of High (see Table 13-3, watercourse at ch. 11+050). Paragraph 9.11.50 in **Chapter 9 Geology & Soils** of the Environmental Statement (Document reference 6.2) [APP-062], will be amended assigning a sensitivity of high to the Upper River Allen, it will state: *"The sensitivity of the Upper River Allen is considered to **high** given the WFD classification of moderate."* (b) Not applicable, see response to point a) above and c) below. (c) Changing the sensitivity from medium to high for the Upper River Allen would have no change upon the conclusions of the assessment. This is because the assessment within **Chapter 9 Geology & Soils** of the Environmental Statement (Document reference 6.2) [APP-062] (section 9.11.45 onwards) currently considers water bodies with both a sensitivity of High (Zelah Brook, River Kenwyn) and Medium (Upper River Allen). For the purposes of the assessment, the worst case (High value) was assumed.
1.12.5	Applicant, EA	Has any consideration been given to opportunities to improve or enhance the WFD status of the identified water bodies, River Kenwyn and Upper River	There are two key areas where the water body status could be enhanced through the scope of the project. However, neither area is considered to be applicable: • Removal of culverts or other structures – as the existing highway is being left in

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		Allen and Zelah Brook?	situ there is no scope within the project to remove structures. • Quality of runoff – the quality of runoff from the highway network will be improved as a result of the scheme through the improvement in drainage systems compared with the existing A30. Whether or not this is sufficient to contribute to an improvement in status will only be demonstrated through monitoring. None of the waterbodies in the study area have the impact of the highway network identified as a reason for not achieving 'good' status.
1.12.6	Applicant	The ES [APP-062] states that remediation and stabilisation of mine workings and entrances has the potential to impact the chemistry, turbidity and flow of groundwater and surface water. The significance of this effect cannot be determined without understanding what the potential stabilisation measures would be, which may require a more detailed assessment. The need for such an assessment would be determined or updated following further investigations (paras 9.11.1- 9.11.18). a) Has any further work regarding mining hazards been carried out? b) If not, then at what point is it intended that further investigations will be carried out? c) What influence might the results have on the design of the Scheme taking into account what has been requested through the DCO?	a) No further investigations or studies have been carried out in relation to mining since the publication of the Environmental Statement. Investigations that have been carried out are considered appropriate for this stage. b) Further investigations will be carried out during detailed design. c) Further investigation will allow the final standard design mitigation to be developed and refined. Based on the studies and investigations that have been undertaken to date risk levels have been reduced in certain areas, as discussed within Table 9-4 and Table 9-6 of **Chapter 9 Geology & Soils** of the Environmental Statement (Document reference 6.2) [APP-062]. This indicates that the significance of effect is between 'neutral' and 'moderate adverse' for all mining areas. Proposed additional mitigation has been described within Table 9-15 and comprises additional intrusive and non-intrusive ground investigation. Standard mitigation measures will be designed in accordance with the CIRIA C758 Abandoned mine workings manual. Mitigation measures may comprise capping or plugging of shafts and adits and grouting of mine workings. If shallow unrecorded mine workings are encountered during construction then these may be grubbed out and replaced within compacted engineered fill. If, based on further investigations, the significance of effect cannot be reduced then a reinforced geogrid can be incorporated into the road construction to mitigate the risk of collapse. The thickness of natural and man-made drift deposits is limited across the scheme, therefore any works will be localised to the mining feature(s). All these standard mitigation measures are deliverable within the Order limits.

Number	Directed to	Question	Applicant's Response
1.12.7	Applicant	For the predicted effects on geology and soils Table 9-14 [APP-062] identifies impacts where significant adverse effects are likely following additional mitigation measures and where no additional mitigation has been proposed. ES paragraph 9.11.52 indicates that the impact is likely to be temporary and the anticipated level of contamination is considered to be relatively low with the implementation of design mitigation and best practise during construction meaning that the impact would likely be 'negligible' on the both the groundwater and surface waters. However, Table 17-1, ES Summary [APP-070], lists the subsidence/ collapse of shallow underground mine workings due to construction of embankments at Chiverton and Journey's End; construction of Nanteague Cutting; Tolgroggan cutting and side road; and Carland Crossing Cutting, as construction and operational stage moderate adverse significant effects. a) Have there been further investigations in relation to these matters? b) What monitoring would be required and who would be responsible for it c) How would monitoring be secured?	Where residual moderate adverse effects have been assessed, additional mitigation has been proposed in the form of additional intrusive or non-intrusive ground investigation. a) No further investigations have been carried out to date. These investigations will be carried out during detailed design. b) As described within paragraph 9.11.7 of **Chapter 9 Geology & Soils** of the Environmental Statement (Document Reference 6.2) [APP-062], hydrological and/or hydrogeological monitoring may be required depending on the results of the additional investigations, the development of mitigation measures (if necessary), and the results of detailed hydrogeological risk assessments. Monitoring may be required where grouting of mine workings may be required. Grouting has the potential to influence the chemistry of groundwater and groundwater drainage pathways, therefore monitoring will be required to identify and control impacts to groundwater, and subsequent discharge to surface water. The scope of monitoring would be determined through appropriate consultation and agreement with the Environment Agency and Local Authority. Highways England would be responsible for undertaking, interpreting and reporting of the findings of monitoring. c) Mitigation measures are detailed within the **Outline CEMP** (Document Reference 6.4) [APP-375]. This is secured through Requirement 3 of the draft DCO (Document Reference 3.1(C)). d) The potential risk of subsidence/collapse of mine workings from construction of embankments has been determined through desk based studies and intrusive ground investigation and targeted non-intrusive ground investigation (see paragraph 9.7.11 to 9.7.14 of **Chapter 9 Geology & Soils** of the Environmental Statement (Document Reference 6.2) [APP-062].). The methodology for assessment of construction is set out within Table 9-1 and Table 9-2 of the same Chapter. e) If unexpected mine workings are encountered during construction then an appropriately trained engineering geologist/geotechnical engineer would inspect the feature(s) and develop mitigation measures. This could include off the shelf

Number	Directed to	Question	Applicant's Response
		d) How has the potential risk of subsidence/ collapse of mine workings from construction of embankments been determined in relation to any potential significant effects? e) What further mitigation may be required should any unexpected mine workings be discovered or in the event of subsidence/collapse of any mine workings during construction.	solutions such as capping or plugging details, that will be prepared during detailed design and could be amended based on encountered conditions. If encountered further mitigation most likely initially comprise further ground investigation. Other mitigation measures are likely to comprise capping or plugging of shafts and adits. If shallow unrecorded mine workings are encountered during construction then these may be grubbed out and replaced within compacted engineered fill. If, based on further investigations, the significance of effect cannot be reduced then a reinforced geogrid can be incorporated into the road construction to mitigate the risk of collapse. The thickness of natural and man-made drift deposits is limited across the scheme, therefore any works would be localised to the mining feature(s). All measures outlined above are considered deliverable within the Order limits.

Appendix A Equality Impact Assessment

European Union
European Regional Development Fund

highways england

A30 Chiverton to Carland Cross

Equality Impact Assessment (EqIA)

HA551502-ARP-GEN-SW-RP-ZM-000039

P05.1 | S0

Notice

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1 Introduction

1.1 Scheme Background and Content

1.1.1 The part of the A30 for which improvements are being developed is located to the north of Truro.

1.1.2 The scheme will upgrade 14 km of this section of the A30 to dual carriageway. This enhancement, along with the upgrading of the A30 between Temple and Higher Carblake from single carriageway to dual carriageway, will improve the A30 to a consistent standard from Camborne to the M5.

1.1.3 An EqIA screening assessment was conducted at the inception of the scheme, which determined that an Equality Impact Assessment (EqIA) was required for the scheme. During the options consultation for the scheme, one route alignment was assessed, but with a small variation at Callestick Vean. These variations were not deemed to have different equality impacts and therefore the two options were treated as one scheme for the purposes of EqIA assessment. The EqIA is now updated for the Examination of the scheme, the output of which is set out in this report.

1.1.4 The surrounding landscape is largely agricultural and the existing route is flanked by grass verges, trees, hedgerows, as well as residential dwellings, businesses and renewable energy installations.

1.1.5 There are numerous statutory designations in proximity of the site including: Cornwall and West Devon Mining Landscape World Heritage Site; Chyverton Park Statutory Registered Park and Garden; Newlyn Downs Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI); Carrick Heaths SSSI; and a large number of Scheduled Monuments and Listed Buildings.

1.2 Need for improvement

1.2.1 In December 2014, the DfT published the Road Investment Strategy (RIS) for 2015-2020. The RIS sets out the list of schemes that are to be developed by Highways England over the period covered by the RIS.

1.2.2 Possible solutions for schemes named in the RIS were identified through the route strategies process run by Highways England. This collated evidence on network performance issues and engaged local stakeholders and interested parties on the problems, issues, and potential range of options and solutions.

1.2.3 Subsequent to the publication and engagement sessions, the Highways Agency (predecessor of Highways England) developed Options Assessment Reports (OARs) and from these, recommended a solution for which Strategic Outline Business Cases (SOBCs) were produced. Using the SOBCs the solutions were prioritised to inform the DfT RIS. For A30 Chiverton to Carland Cross, the announced scheme is described as 'upgrading the A30 to dual carriageway north of Truro'. The scheme has also been subject to an Integrated Assurance Plan.

1.3 The Scheme

1.3.1 The scheme comprises the construction of 14km (8.7 miles) of new A30 to a dual carriageway between the existing Chiverton Cross roundabout in the west and Carland Cross roundabout in the east. At the western end, the scheme connects to the existing A30 Blackwater Bypass immediately west of the existing Chiverton Cross roundabout, leading on to the Scorrier Junction further west, and at the eastern end, the scheme connects to the existing Mitchell Bypass approximately 500m east of the existing Carland Cross roundabout.

1.3.2 The existing Chiverton Cross and Carland Cross roundabouts are to be replaced with new grade separated all-movement gyratory and dumbbell junctions respectively to provide connections to the local major side road network whilst maintaining uninterrupted traffic flow on the mainline A30. Additionally, a grade separated restricted movement dumbbell junction with west facing slip roads only is to be included at Chybucca.

1.3.3 The General Arrangement for the proposed scheme can be found in Volume 6 Document Reference 6.3 ES Figure 2.1. In addition to the mainline A30 there are associated side roads and junctions which will be provided.

1.4 Local Social Profile

1.4.1 Census 2011 data taken from the Office of National Statistics (NOMIS Official Labour Market Statistics) has been used to assess the demographics of the local population, in respect of the protected characteristics. Where data is not included below, this is because data is not available. The data has been considered both in terms of the England national average, the South West Region and Cornwall as a county. The data is also considered in the context of Lower Layer Super Output Areas (LSOAs). The following five LSOAs are directly impacted by the scheme:

- Trispen, Zelah and Mitchell (Cornwall 032A);
- Chacewater (Cornwall 047D);
- Shortlanesend and Kenwyn Rural (Cornwall 047E);
- Goonhavern and Rose (Cornwall 033A); and
- Bolingey and Callestick (Cornwall 033C).

1.4.2 Cornwall had a total resident population of 532,273 in 2011.displayed in Table 1-1 shows that 21.65% of Cornwall's population is aged over 65, which is significantly higher than the average in England (16.34%) and the South West (19.58%). The data also shows that Cornwall has less people aged 16-25 (10.08%) than England as a whole (11.86%). This indicates that the average age structure in Cornwall is older when compared to the South West and England as a whole.

1.4.3 In LSOA 033C 24.38% of the population is aged over 65, significantly higher than the average of the four other identified areas. All LSOAs have a lower proportion of Young Adults aged 16-25 than the English national average. LSOA 032A has a significantly higher proportion of adults aged 26-64 than any other LSOA and the Cornish and English averages.

Table 1-1 Population and age figures from Census 2011

Area	Children Aged <16	Young Adults aged 16-25	Adults Aged 26-64	Older People aged 65+
Cornwall 032A	19.89%	9.58%	58.49%	12.04%
Cornwall 033A	19.11%	8.34%	50.34%	22.21%
Cornwall 033C	14.40%	7.74%	53.48%	24.38%
Cornwall 047D	18.49%	8.36%	55.15%	18.00%
Cornwall 047E	18.74%	10.35%	54.60%	16.30%
Cornwall	16.90%	10.08%	51.38%	21.65%
South West	17.58%	11.29%	51.55%	19.58%
England	18.91%	11.86%	52.90%	16.34%

1.4.4 Tables 1-2 shows the percentage of males (all ages) to females (all ages) in Cornwall was recorded in 2011 as 49.17% and 50.82% respectively, showing a higher proportion of males and a lower proportion of females in comparison to the South West and England as a whole, where the percentages were 48.43% male and 51.56% female in 2011. Table 1-3 shows the absolute numbers of males and females. Data is not available for other genders.

Table 1-2 Population percentages by gender from Census 2011

Area	Males	Females
Cornwall	49.17	50.82
South West	48.98	51.01
England	48.43	51.56

Table 1-3 Population and gender figures from Census 2011

Area	Males	Females	Total
Cornwall 032A	1,015	1,011	2,026
Cornwall 033A	739	747	1,486
Cornwall 033C	630	662	1,292
Cornwall 047D	869	937	1,806
Cornwall 047E	622	605	1,227
Cornwall	257,805.00	274,468.00	532,273.00
South West	2,590,608.00	2,698,327.00	5,288,935.00
England	26,069,148.00	26,943,308.00	53,012,456.00

1.4.5 Table 1-4 shows that Cornwall has a significantly lower population density than England as a whole, with the Census 2011 showing that density was 1.5 persons per hectare in 2011, compared to 4.1 persons per hectare in England. LSOA 047D was the most densely populated area in 2011, with area 032A being the least densely populated.

Table 1-4 Population Density in Cornwall, South West and England in 2011

Area	Density (Number of Persons per Hectare)	Area (Hectares)	All Usual Residents
Cornwall 032A	0.50	4,033	2,026
Cornwall 033A	0.70	2,078	1,486
Cornwall 033C	0.60	2,056	1,292
Cornwall 047D	1.30	1,369	1,806
Cornwall 047E	0.80	1,579	1,227
Cornwall	1.50	354,619	532,273
South West	2.20	2,383,736	5,288,935
England	4.10	13,027,843	53,012,456

1.4.6 The percentage of each ethnicity as measured by the Office of National Statistics in 2011 is outlined in Table 1-4, and shows that there is a significantly higher proportion of White British and White Other residents in particular within Cornwall than compared to the South West and England. 98.21% of Cornwall's population is ethnically white, compared to 95.39% in the South West and 85.35% in England as a whole. This indicates that Cornwall is significantly less ethnically diverse than other parts of England.

Table 1-5 Ethnicity within Cornwall, the South West and England, ONS 2011

Area	Cornwall 032A	Cornwall 033A	Cornwall 033C	Cornwall 047D	Cornwall 047E	Cornwall	South West	England
White: English/Welsh/Scottish/Northern Irish/British (Persons) (%)	97.40	96.40	96.30	96.30	96.30	95.74	91.80	79.70
White: Irish (Persons) (%)	0.20	0.10	1.00	0.30	0.30	0.38	0.54	0.97
White; Gypsy or Irish Traveller (Persons) (%)	0.10	0.00	0.20	0.30	0.20	0.11	0.10	0.10
White; Other White (Persons) (%)	1.70	1.30	1.70	1.20	1.80	1.98	2.95	4.58
Mixed/Multiple Ethnic Groups; White and Black Caribbean (Persons) (%)	0.00	0.30	0.10	0.30	0.50	0.23	0.48	0.78
Mixed/Multiple Ethnic Groups; White and Black African (Persons) (%)	0.00	0.10	0.20	0.00	0.00	0.09	0.16	0.30
Mixed/Multiple Ethnic Groups; White and Asian (Persons) (%)	0.10	0.40	0.20	0.20	0.30	0.29	0.40	0.62
Mixed/Multiple Ethnic Groups; Other Mixed (Persons) (%)	0.10	0.00	0.10	0.20	0.10	0.20	0.30	0.53
Asian/Asian British; Indian (Persons) (%)	0.00	1.30	0.10	0.30	0.30	0.15	0.64	2.63
Asian/Asian British; Pakistani (Persons) (%)	0.00	0.00	0.00	0.40	0.00	0.02	0.21	2.09
Asian/Asian British; Bangladeshi (Persons) (%)	0.00	0.00	0.00	0.00	0.00	0.05	0.15	0.82
Asian/Asian British; Chinese (Persons) (%)	0.00	0.10	0.00	0.10	0.00	0.18	0.42	0.71
Asian/Asian British; Other Asian (Persons) (%)	0.00	0.10	0.00	0.10	0.20	0.22	0.54	1.54
Black/African/Caribbean/Black British; African (Persons) (%)	0.00	0.00	0.10	0.10	0.00	0.05	0.45	1.84
Black/African/Caribbean/Black British; Caribbean (Persons) (%)	0.10	0.00	0.00	0.00	0.00	0.06	0.28	1.11
Black/African/Caribbean/Black British; Other Black (Persons) (%)	0.00	0.00	0.00	0.00	0.00	0.01	0.19	0.52
Other Ethnic Group; Arab (Persons) (%)	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.41
Other Ethnic Group; Any Other Ethnic Group (Persons) (%)	0.10	0.00	0.10	0.20	0.00	0.12	0.18	0.61
Total	2,026	1,486	1,292	1,806	1,227	532,273	5,288,935	53,012,456

1.4.7 The percentage of each religion as measured by the Office of National Statistics in 2011 is outlined in Table 1-6, and shows that Cornwall has a similar proportion of Christians (59.81%) compared to England as a whole (59.38%). Cornwall has a lower proportion of the population from other religions including: Buddhists; Hindus; Jews; Sikhs and particularly Muslims, when compared to the South West and England.

Table 1-6 Religions within Cornwall, the South West and England in 2011

Area	Cornwall 032A	Cornwall 033A	Cornwall 033C	Cornwall 047D	Cornwall 047E	Cornwall	South West	England
Christian	60.30	61.10	60.70	61.30	61.70	59.81	60.39	59.38
Buddhist	0.40	0.10	0.70	0.50	0.00	0.32	0.37	0.45
Hindu	0.00	1.30	0.00	0.20	0.40	0.10	0.30	1.52
Jewish	0.00	0.00	0.00	0.20	0.70	0.07	0.12	0.49
Muslim	0.00	0.00	0.00	0.50	0.10	0.16	0.96	5.01
Sikh	0.00	0.10	0.00	0.00	0.00	0.01	0.11	0.79
Other Religion	0.70	0.50	0.30	0.30	0.50	0.67	0.55	0.42
No Religion	29.60	28.40	29.60	28.80	29.10	30.30	29.29	24.73
Religion Not Stated	9.00	8.50	8.70	8.10	7.60	8.52	7.88	7.17
Total	2,026	1,486	1,292	1,806	1,227	532,273	5,288,935	53,012,456

1.4.8 Cornwall has on average a higher number of people whose daily activities are limited a lot by a long-term health problem or disability than the South West or England, according to the 2011 Census. This may be due to the higher than average numbers of persons aged between 45 and 90. However, four out of the five relevant LSOAs affected by the scheme have a lower than average number of people whose activities are limited a lot, as outlined in Table 1-7.

Table 1-7 Number of People with a Long-Term Health Problem or Disability, Census 2011

Area	Day-to-day activities limited a lot	Day-to-day activities limited a little	Day-to-day activities not limited	Total
Cornwall 032A	130 (6.42%)	176 (8.69%)	1,720 (84.9%)	2,026
Cornwall 033A	103 (6.93%)	175 (11.78%)	1,208 (81.29%)	1,486
Cornwall 033C	109 (8.44%)	128 (9.91%)	1,055 (81.66%)	1,292
Cornwall 047D	123 (6.81%)	224 (12.4%)	1,459 (80.79%)	1,806
Cornwall 047E	89 (7.25%)	86 (7.01%)	1,052 (85.74%)	1,227
Cornwall	53,166 (9.99%)	60,549 (11.38%)	418,558 (78.64%)	532,273
South West	436,733 (8.26%)	536,963 (10.15%)	4,315,239 (81.59%)	5,288,935
England	4,405,394 (8.31%)	4,947,192 (9.33%)	43,659,870 (82.36%)	53,012,456

1.4.9 The Index of Multiple Deprivation (IMD) 2015 is the official measure of relative deprivation. It is an attempt to measure a broader concept of deprivation using a combination of information relating to: Income; Employment; Health and Disability; Education Skills and Training; Barriers to Housing and Services; Crime

and Living Environment to create an overall measure of deprivation. The IMD 2010 ranked Cornwall 154 out of the 326 Local Authority areas in the UK for deprivation. It also ranks neighbourhoods in England, defined as 32,844 Lower Layer Super Output Areas (LSOAs), with 1 being the most deprived and 32,844 being the least deprived. It is noteworthy to mention that the IMD score is not a direct measure of deprivation, but rather a tool to compare relative deprivation amongst areas.

1.4.10 As outlined in Table 1-8, none of the five relevant LSOAs in Cornwall fall within decile 1 (10% most deprived) and decile 2 (10% to 20% most deprived).

Table 1-8 Indices of Multiple Deprivation for Relevant LSOAs

LSOA	Rank	Decile
Cornwall 032A	9,217	3
Cornwall 033A	14,225	5
Cornwall 033C	12,605	4
Cornwall 047D	11,985	4
Cornwall 047E	14,936	5

2 Legislation

2.1.1 The Equality Act came into force on 1 October 2010 and brought together over 116 separate pieces of legislation into one single Act. The Act provides a legal framework to protect the rights of individuals and advance equality of opportunity for all. In section 149, the Act sets out the Public Sector Equality Duty. The intent of the duty is for the public sector to drive improvements in equality. Under the Public Sector Equality Duty, Highways England has a legal duty to give "due regard to the need to":

- Advance equality of opportunity between people who share a protected characteristic and those who do not. This includes:
  - Removing or minimising disadvantages suffered by people due to protected characteristics;
  - Taking steps to meet the needs of people with protected characteristics where these are different from the needs of other people; and
  - Encouraging people with protected characteristics to participate in public life or in other activities where their participation is disproportionately low.
- Foster good relations between people who share protected characteristic and those who do not. This includes:
  - Tackling prejudice; and
  - Promoting understanding.
- Eliminate unlawful discrimination, harassment and victimisation.

2.1.2 Highways England has also published its own corporate objectives[1] within the Highways England Public Sector Equality Duty Objectives 2016 – 2020 and Annual Progress Report 2015 -2016. The new overarching objective of this document is that:

"Highways England will embed the principles of equality, diversity and inclusion into all areas of their business, driving real change in how we work with their customers and communities, their supply chain and their employees."

2.1.3 The duty also applies to private sector companies when carrying out functions or services on behalf of Highways England.

[1] Highways England (2016) Highways England public sector equality duty objectives 2016 - 2020 and annual progress report for 2015-2016

3 Equality Impact Assessment

3.1 What Is EqIA

3.1.1 An Equality Impact and Assessment (EqIA) considers the impact of a proposal on relevant groups who share characteristics which are protected under the Equality Act (age, disability, gender, transgender, sexual orientation and faith), as well as others considered to be vulnerable within society such as low income groups. It is an information gathering tool which enables decision makers and designers to give "due regard" to their equality duty under the Equality Act.

3.1.2 An EqIA guides decision-makers and designers to:

- Consider the effects of existing and proposed policy or practice on people who share a "protected characteristic"; and
- Identify opportunities to improve equality of opportunity and eliminate discrimination.

3.1.3 An EqIA should be carried out before making decisions, to inform and shape the outcomes. They should be updated throughout the decision-making process as necessary, as policy or practices are developed.

3.1.4 Those "protected characteristics" which identify the vulnerable groups who may be disproportionately impacted upon or discriminated against are outlined in Table 3-1.

Table 3-1 Protected characteristics considered within an EqIA

Protected Characteristic	People and Aspects Included
Protection extends to those who are perceived to have these characteristics or who suffer discrimination because they are associated with someone who has that characteristic. e.g. cares for someone with a disability.	
Gender	Men, women, married and single people; parenting, caring, flexible working and equal pay concerns
Religion or belief	People who have a religious belief; people who are atheist or agnostic; people who have a philosophical belief which affects their view of the world or the way they live
Age	Young, old and middle-aged people
Disability	Disabled people with physical, mental, sensory, visible or hidden impairment e.g. cancer, HIV, dyslexia
Race	People from various ethnic groups, e.g. White British, Chinese, British Asians, Travellers, Gypsies, Roma, those who are of Caribbean origin, people of mixed heritage, White Irish communities, and people of other nationalities who reside in Britain (i.e. ethnic groups as defined in Census 2011)
Sexual orientation	Heterosexual and bisexual men and women, gay men and lesbians
Gender reassignment (Transgender/transsexual)	Anyone who is proposing to undergo, are undergoing or have undergone a process for the purpose of reassigning their sex.
Pregnancy and Maternity	Pregnant women and new mothers – protection against maternity discrimination (including as a result of breast feeding)
Marriage and civil partnership	Covers marriage between a man and a woman and same sex partnerships

3.2 Equality Hotspot Maps

3.2.1 Highways England has published “Hot Spot Maps” for defined areas across England, to be used as a tool to use to inform EqIA. These maps rate areas on a six-point scale under the following categories:

- Equality Hot Spots (those parts of the Area with concentrations of all categories – people, equality groups and destinations);
- Population Quintiles (those parts of the Area with the largest numbers of people);
- Equality Population Quintiles (those parts of the Area with the largest numbers of people from particular groups);
- Equality Population Proportions (those parts of the Area with the largest proportions of people from particular groups); and
- Trip Attractors (those parts of the Area with the highest numbers of destinations such as schools, hospitals, religious buildings and care homes).

3.2.2 Appendix B displays the Equality Hot Spot Maps for Highways England Area 1 (Cornwall), within which the scheme is located.

3.2.3 The location of the scheme is within a rural area. The relevant section of the existing A30 provides a through-route for traffic but does not directly serve any main town. It does, however, feed other A roads which connect with Truro. The surrounding area is largely agricultural, with only isolated residential properties, small villages and hamlets, and some commercial premises in the immediate vicinity. Therefore, there is low population density in the area, which is reflected by the Hot Spot maps for the area. There are several areas along the route listed on the Hot Spot Trip Attractor map, but only with one or two Attractors. Most are close to Chiverton junction and attractors include Trevarth Holiday Park, Chiverton Caravan and Touring Park, and Chiverton Arms. Marazan Farm campsite is particularly close to the existing A30 (70m South East).

3.3 Equality, Diversity and Inclusion Sifting Tool

3.3.1 The Department for Transport’s overall aim is for transport that works for everyone. The Equality Impact Screening and Assessment product, including the Equality, Diversity and Inclusion sifting Tool (EDIT), ensures equality issues are considered as part of the work Highways England deliver. The assessment and tool help Highways England meet legal duties (see Section 2) and deliver wider benefits. Additionally, the assessment and EDIT help to:

- Improve the quality and transparency of decision making processes;
- Ensure that decisions do not have unintended consequences for some groups and are fully effective for all;
- Increase understanding of why decisions have been made and the range of factors considered;
- Support Highways England risk management framework; and
- Avoid elements of potential discrimination or exclusion of community groups.

3.3.2 An EDIT assessment has been undertaken at each stage of the scheme to inform the EqIA. The Stage 4 EDIT assessment had an overall score of 60%. A copy of the Stage 4 EDIT assessment is provided in Appendix A.

3.3.3 In addition to identifying the relevant ratings against the Hotspot Maps, the EDIT tool also looks to highlight elements of scheme design and impact which could disproportionately affect vulnerable groups. During the Initial Sift was identified that key elements of the scheme where these impacts could occur are under:

- Scheme development and design considerations:
  - Pedestrian or community severance;
  - Access to public services and facilities;
  - Public transport usage;
  - Access to employment opportunities;
  - Crossings;
  - Physical accessibility; and
  - User experience and confidence.
- Construction considerations;
  - Temporary changes to the road or footpath;
  - Diversions and changes to key routes;
  - Noise, dust, light and environmental impacts;
  - Temporary construction employment; and
  - Changes in access to facilities and services.

3.3.4 Within the EDIT tool, Sections 2 (Scheme Information), 3 (Design Information) and 5 (Construction Effects) provide further evidence for these elements and highlight the following main points:

- There is potential for impact on Walkers, Cyclists and Horse-riders (WCH), due to the diversion of public rights of way (PRoW);
- There are opportunities for improving WCH provision as a result of detrunking the existing A30 (e.g. less trafficked and therefore safer for WCHs);
- There may be small diversions to bus routes, but they will not result in permanent disruption to services;
- There are no public services (for example doctors surgeries) or public facilities (for example parking or taxi ranks) along the existing A30 or the proposed scheme which would be affected; and
- The area has a very low number of trip attractors, and traffic is likely to be split between the existing A30 for local access and the proposed scheme for through traffic. Therefore, although volumes of traffic will increase over time in accordance with forecasted figures, the number of accidents is likely to reduce as congestion and traffic flows improve;
- Improved crossing of the proposed A30 (in comparison with existing A30) due to twelve locations proposed where people can cross the line of the proposed A30, including two terminal junctions. Crossings are a mix of A-, B-, unclassified roads and PRoW and are all rural. This compares to no safe places along the existing A30. The grade separated junctions will also improve the crossing environment.

3.3.5 Section 4 highlights what further evidence is available to demonstrate how equality, diversity and inclusion issues have been assessed during Stage 3 and 4.

3.4 PCF Stage 4 Equality Impact Assessment

3.4.1 An EqIA Screening Assessment was completed at PCF Stage 1 and determined that an EqIA was required for the scheme.

3.4.2 The updated EqIA for the scheme at PCF Stage 4 is shown in Table 3.2. The EDIT exercise has informed this assessment (see Appendix A).

Table 3-2 PCF Stage 4 Equality Impact Assessment A30 Carland Cross to Chiverton

EQUALITY IMPACT SCREENING AND ASSESSMENT			
Name of Practice/Policy	**A30 Chiverton to Carland Cross**	**Proposed or Current**	
Person Completing the Assessment			
Directorate			
Date		**Reference No**	

A: The aims, purpose, desired benefits and expected outcomes of the practice/policy, identifying the customers, staff or stakeholders involved or affected.

The scheme
The A30 Chiverton to Carland Cross scheme will introduce a new 14.3km dual carriageway section of the A30 north of Truro, between Chiverton and Carland Cross. This will connect the dual carriageway section around Bodmin with the dual carriageway Redruth bypass which will complete the A30 to a high quality dual carriageway standard from Camborne to the M5 at Exeter. The existing section of the A30 will remain in situ to be used for local access.

The scheme is intended to benefit all those in the local area, those living on or near the existing A30 will benefit from reduced traffic flows on the local network, those passing through the area will benefit from a high-quality transport corridor, less congestion and better journey time reliability.

Walkers/Cyclists/Horse-rider (WCH) access
Four WCH only crossings are proposed on the route.

- An underbridge is being provided at Chiverton, Ch1+200, so that WCHs can cross the carriageway without the need to interact with the new Chiverton junction roundabout.
- The Marazanvose Green Bridge at Ch 7+315 is primarily a wildlife crossing but will have WCH access over it to retain the existing public right of way connection.
- An underbridge is being provided at Church Lane, Ch 9+265, for the village of Zelah.
- An underbridge will be provided at Ch 13+000 for Newlyn Downs, which would improve public access to the heathland and adjacent historic landscape, as well as provide a crossing within close proximity to the Carland Cross junction allowing users to avoid the navigating the junction.

A Public Rights of Way Management Plan has been prepared for the scheme (provided as Appendix 16.1 Outline CEMP, Annex M).

During construction a number of existing PRoW will be affected. It is proposed that all footpaths, cycle routes and bridleways which are to be retained will be maintained during construction wherever possible and diverted with local temporary diversions, where necessary. It may be possible that some temporary closures will be required. However, these will be for short durations and will be agreed with the Local Authority Public Rights of Way (PRoW) Officer.

Local area
The local area around the A30 Chiverton to Carland Cross serves low numbers of residential properties and businesses at and around Chiverton, Marazanvose, Zelah and Carland Cross in a predominantly rural location. Blackwater is the largest of the settlements in the study area, situated around 1.5km to the South West of Chiverton. It is identified as a Category E Settlement, important to the immediate local area in terms of services and facilities it provides. These include a nursery, primary school, sports facilities and a number of public houses.

Zelah is located within the centre of the proposed scheme and benefits from an existing bypass. As a Category F Settlement, Zelah has a limited number of services and facilities, including a recreation ground, farm shop, a doctor's surgery and public house.

Mitchell is a village located north east of Carland Cross Roundabout and south of the existing A30 bypass. Mitchell is also a Category F Settlement with a small number of businesses and services including a pub, playground, farm shop and hotel.

The places of importance within these settlements for people with protected characteristics include the nursey, primary school, playground and doctor's surgery.

Details of the scheme are set out in Section 1.1

B: SCREENING: **Questions considered to establish impacts from the outset for new or changing policies/practices**	**Age**	**Disability**	**Gender reassignment**	**Marriage and Civil Partnership**	**Pregnancy & Maternity**	**Ethnicity & Race**	**Religion & belief**	**Sex**	**Sexual orientation**
1: Is there any indication or evidence that different groups have different needs, experiences, issues or priorities in relation to the practice/policy?	Yes	Yes	No	No	Yes	No	No	Yes	No
2: Is there evidence or an indication of higher or lower uptake by different groups?	No	No	No	No	No	No	No	No	No
3: Do people have different levels of access? Are there social or physical barriers to participation (e.g. language, format, physical access)?	Yes	Yes	No	No	Yes	Yes	No	No	No
4: Is there an opportunity to advance equality or foster good relations by altering the policy/practice?	Yes	Yes	No	No	No	No	No	No	No
5: Is there an opportunity to advance equality or foster good relations by working or engaging with other organisations or the wider community?	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes
6: Is there stakeholder (staff, Trade Unions or public) concern about the policy/practice in terms of actual, perceived or potential discrimination against a particular group?	No	Yes	No	No	No	No	No	No	No
7: Is there potential for, or evidence that, any part of this policy/practice may adversely affect equality of opportunity for all or may harm good relations between different groups?	Yes	Yes	No	No	No	No	No	No	No
8: Is there any potential for, or evidence that any part of the policy/practice could discriminate indirectly or directly? (Consider those who implement it on a daily basis).	Yes	Yes	No	No	Yes	No	No	Yes	No

C: The rationale behind the rating (at section B), and details of the evidence utilised to inform the screening decision.

The main objectives of the scheme are to develop major infrastructure improvements along the A30 between Chiverton and Carland Cross (north of Truro) in order to support economic growth, provide a safe, serviceable and more free flowing network, deliver an improved local environment and a more accessible and integrated network for all road users including Walkers, Cyclists and Horse-riders (WCHs).

The Highways England Equality, Diversity and Inclusion sifting Tool (EDIT) has been completed for this project, with an overall score of 57%. This suggests that equality, diversity and inclusion issues are likely to be a factor in the effective delivery of the scheme.

There are no community facilities, hospitals or health facilities, places of worship or religious institutions or leisure facilities that are located in the vicinity, directly accessed from or affected by the existing A30 and the proposed scheme. Air quality and noise pollution issues may disproportionately affect certain groups, but the impact has been

assessed to be largely not significant, as set out in **Chapter 5 Air Quality** and **Chapter 11 Noise** of the Environmental Statement (Document Reference 6.2) [APP-058] [APP-064].

The tool highlighted that WCHs are likely to be impacted; this is due to the public rights of way (PRoW) throughout the length of the scheme which will be severed or rerouted during construction. These PRoWs will either be reprovided, or diverted along suitable alternate routes. Some of the temporary and permanent diversions may increase in length of WCH routes. Bus services are not expected to be permanently affected, although there may be some temporary effects during construction, where bus stops, for e.g. at Marazanvose, may be temporarily relocated during construction. There are no other modes of public transport available. **Annex M: Public Rights of Way Management Plan** of the Outline CEMP (Appendix 16.1, Document Reference 6.4) [APP-376] has been prepared for the scheme which takes account of consultation responses and user requirements.

The 'equality hotspot' map for Area 1 is shown in Appendix B and indicates that the scheme is not located near an equality hotspot (where population, equality groups and destinations are concentrated within a local area), but that hotspots are located further to the south west along the A30.

Engagement
Consultation was carried out with nearby landowners and interested parties.

Options Consultation Public consultation events were held on the 15, 19 and 20 October 2016. Feedback from these events has been incorporated into the preliminary design and included in the current EDIT assessment.

Statutory Consultation Public events were held between 29 January 2018 and 12 March 2018. As required by section 47 of the Act, Highways England consulted people who live and work in the vicinity of the scheme, in addition to the prescribed consultees, PILs and local authorities required under section 42 of the Act. This included various representatives, groups and organisations who were contacted and invited to participate in the consultation to seek their views on the proposed development.

The table below sets out details of engagement activities which already took place with groups representing people with protected characteristics:

Equality group	Organisation	Outcome
Age – children/young people	Truro & Penwith College (Truro Campus)	Engaged. Agreed to post information on the student website.
	Cornwall Colleges Group	Engaged. Agreed to circulate on several social media accounts.
	Young People Cornwall	Engaged. Agreed to distribute materials to young people on appropriate programmes.
	Carefree Cornwall	Engaged. Agreed to distribute materials to young people on appropriate programmes
	Perranporth Children's Centre	No response received
	Hurly Burly Nursery	Engaged. Agreed to send out email to parents and accommodate physical materials. Posted 30 leaflets and 1 consultation booklet
	Daisy Fays Nursery	Declined
	Shortlanesend Community Primary School	Declined. Due to their proximity to the scheme, they were anxious about advertising the consultation as they believed it could be seen as controversial for the parents opposed to the scheme.
	Blackwater Community Primary School	Engaged. Happy to put information in their newsletter and accommodate leaflets. Posted 30 leaflets and 1 consultation booklet.
	St Newlyn East Primary School	Engaged. Happy to put information in their newsletter and accommodate leaflets. Posted 30 leaflets and 1 consultation booklet.
	Goonhavern Primary School	Engaged. Happy to put information in their newsletter and accommodate leaflets. Posted 30 leaflets and 1 consultation booklet.
	Mithian School (primary)	Engaged. Happy to put information in their newsletter and accommodate leaflets. Posted 30 leaflets and 1 consultation booklet.
	St Agnes ACE Academy	Engaged. Happy to put information in their newsletter and accommodate leaflets. Posted 30 leaflets and 1 consultation booklet.
	Chacewater Community Primary School.	Engaged. Happy to put information in their newsletter and accommodate leaflets.
	Penair School (secondary)	Engaged. Happy to accommodate physical materials and circulate information through newsletter and social media. Posted 10 leaflets and 1 consultation booklet.
	Newquay Tretherras School	Engaged. Agreed to include information on social media and within newsletter.
	Richard Lander School	Unknown. Emailed with stakeholder pack but no confirmation.

	Truro School (primary-6th form)	Engaged. Circulated information to parents and 6th formers.
	Truro High School	Engaged. Happy to output a school bulletin.
	Redruth School	Engaged. Happy to circulate information.
	Treviglas College (secondary and college)	Unknown. Emailed with stakeholder pack but no confirmation.
Age – older people	Age UK	Engaged. Posted 1 poster and 1 consultation booklet and shared information online.
	Age UK Truro Day Centre	No response
	Age UK Newquay Day Centre	Engaged. Happy to accommodate leaflets and posters at the day centre. Posted 30 leaflets, 1 poster and 1 consultation booklet.
	Perran Bay	Engaged. Agreed to display poster/leaflets to engage older visitors. Posted 30 leaflets, 1 poster and 1 consultation booklet.
Disabilities	disAbility Cornwall & Isles of Scilly	Engaged. Offered to share information on social media.
	iSightcornwall	Engaged. Agreed to forward information to members.
	Hearing Loss Cornwall	Declined. Believed the consultation was well publicised enough through the media and didn't think deaf people needed additional help accessing information.
	Green Light	No response
	Spectrum	Engaged. Agreed to accommodate physical materials and post information on social media. Posted 30 leaflets and 1 consultation booklet.
Ethnicity and Race	Devon and Cornwall Chinese Association	Unknown
	The Council for Racial Equality in Cornwall	Engaged. Happy to forward materials digitally
	TravellerSpace	Unknown
	South Asian Society Devon and Cornwall	Unknown
LGBT	Rainbow Source (radio)	Engaged. Happy to circulate to LGBT+ network (including Gay Outdoors)
	The Intercom Trust	Declined

Confirmation – Stating if a full equality impact assessment required or not
(Appropriate Box Ticked)

✓	• Adjustment required to prevent potential discriminatory practice and to remove barriers to equality of opportunity. • Further evidence/consultation required to enable sound equality decision making. **Proceed to Sections D – H**
	• The policy/practice/proposal is robust in terms of equality. • The impact on different groups is considered to be 'neutral' with no risk of discrimination or any minor impacts can be justified. **Proceed to Section E1 and Sign-off at H**

D: ASSESSMENT

The level of impact on protected characteristics gauged from available information, research, consultation
EDIT (Equality, Diversity, Inclusion Tool) has been completed and is referred to within this assessment. This assessment is to be updated as the scheme progresses, as further information is gathered and more details on scheme design are known.

The EDIT tool has been used to inform the following assessment:

Equality Group (Protected Characteristics)	Positive Impact	Negative Impact	Neutral Impact	Summary of reasons and evidence sources (data research and consultation) supporting this analysis
Age	✓			**Changes in access provision** It is assumed that PRoW in the area are mainly used to access residential properties and are not used for recreational, commuter or utility journeys (Source: Chapter 12 People and Communities, Environmental Statement, Document Reference 6.2 [APP-065]). However, the detrunking of the existing A30 will significantly improve the walking environment along this route

				(particularly regards to safety and air quality). As children and older people are likely to be a large proportion of walkers along this route, positive impacts are expected.
		✓		**Noise and air pollution during construction and operation of the scheme** The construction stage of the project is predicted to have no significant effects in terms of air quality (Chapter 5 Air Quality of the Environmental Statement, Document Reference 6.2 [APP-058]) and temporary significant effects during construction are predicted due to noise (Chapter 11 of the Environmental Statement, Document Reference 6.2 [APP-064]). These may disproportionately affect children and older people who are more sensitive to decreased air quality and increases in noise. However, due to the distance of schools to the scheme and the rural location of the scheme it is considered that impacts would be relatively minor.
Religion & Belief			✓	It is assessed that the proposals will not impact disproportionately on any type of religion or belief system. Access restrictions to St Allens church already exist from existing A30 and the scheme will not increase any existing severance.
Disability		✓		**Changes in access provision** Although the scheme has the potential to impact disproportionately on people with certain disabilities, as PRoW are used predominantly for acccess. Where diversions are implemented, access to PRoW will remain the same, or improved (for example, no new barriers will be introduced). Where PRoWs are permanently diverted, user counts have identified a very low usage, and a suitable alternate route has been identified, so negligible impacts are anticipated. Temporary diversions of PRoWs may be required during construction, where this is required it will be undertaken in consultation with the Local Authority. It is not known how many users may have a disability which may be affected by the proposed scheme.
		✓		**Changes in air quality** Disabled people are likely to be disproportionately negatively impacted by an increase in air pollution. Chapter 5 of the Environmental Statement (Document Reference 6.2) [APP-058] concludes that there will be no significant local emissions from construction or operation. It is considered that, due to the rural location of the scheme and the outcome of the assessment, it is unlikely that disabled people would be significantly affected due changes in air quality.
	✓			**Improved environment for WCHs** The detrunking of the existing A30 will result in better walking environments for all pedestrians using this route due to the reduction in traffic. For disabled people this will improve safety and provide a better environment for a group who is potentially more likely to be using the route. The inclusion of an underpass at Chiverton and the grade separation of crossings along the route is expected to improve the ability of all users to cross the A30 route safely.

Ethnicity & Race			✓	It is considered that the proposals will not impact disproportionately on any type of ethnicity or race.
Sexual Orientation			✓	It is considered that the proposals will not impact disproportionately on any type of sexual orientation.
Transgender/Transsexual			✓	It is considered that the proposals will not impact disproportionately on transgender people.
Pregnancy/ maternity	✓			**Improved environment for WCHs** The detrunking of the existing A30 will result in better walking environments for all pedestrians using this route due to the reduction in traffic. For expectant mothers this would improve safety and provide a better environment.
Marriage and Civil Partnerships			✓	It is considered that the proposals will not impact disproportionately on married people or those in civil partnerships.

Potential Risks Identified – Including insufficient information to make robust decisions (Appropriate Yes/No ticked)

No		
Yes (Mitigating action shown in Section F)	✓	**Identified Risks:** - WCHs – Risks identified relate to users of PRoW, although there is limited information on users of relevant PRoW in the area and whether members of certain protected characteristics will be disproportionately affected. Feedback from consultation indicates that comments relating to walking, cycling and horse riding (WCH) were the most prevalent in relation to the existing A30 and Chiverton junction to Chybucca section. - Decrease in air quality which is likely to negatively affect some groups more than others, e.g. children, older people and disabled. - Increases in noise which is likely to negatively affect children more than other groups.

E: Options: The rationale behind the decision reached from this analysis.

E1: Continue the work - no changes required as identified at the screening stage or following additional analysis in Section D) **(There are no unjustified negative impacts and the policy/practice is compliant in terms of the equality duty)**	
E2: Adjust the policy/practice, or ensure further evidence is gather to ensure any barriers are removed as identified and referenced in Sections F and G **(Opportunities were identified to advance equality, foster good relation and prevent discrimination)**	✓
E3: Stop and remove the policy/practice (Sign Off in Section H) (A negative impact has been identified that cannot be justified)	

Although there are no unjustified negative impacts identified, further information should continue to be gathered to prevent discrimination as the scheme progresses.

F: Description of additional evidence, research and consultation undertaken, required, ongoing or captured to ascertain how the policy or practice will advance equality, prevent discrimination and/or foster good relations. (Reference the evidence sources).
(Including how internal scoping tools such as EDIT have been utilised and, how this work has influenced other assessments such as the social aspects of environmental assessments)

Consultation
The Consultation Report prepared in August 2018 sets out statutory consultation carried out between 29 January 2018 and 12 March 2018 and also the non-statutory consultation and engagement activities carried out by Highways England between 2015 and 2017. Stakeholders engaged with includes over 170 different groups and individuals who were sent a scheme newsletter. Groups relevant to the EqIA are listed above. Cornwall Council representatives sit on the project steering group. Consultation with these groups enables the development of good relations with a diverse audience and ensure all views and ideas are given due consideration.

Any concerns that may emerge through ongoing consultation will continue to be addressed and documented in the Stakeholder Action Tracker that has been used throughout all PCF stages.

Care has been taken in selecting Public Consultation venues. Locations have been selected along the length of the scheme to provide convenience to members of the public. Access for the mobility impaired is catered for in all venues and a hearing loop system is in at least one venue to cater for those who are hard of hearing. Building checklists for public consultation events held in October 2016 are shown in Appendix C. These were also used for subsequent consultation events held in 2018.

Documents containing information on the scheme will be available online for those who are unable to attend the Public Consultation, paper copies of this information will also be made available for those without access to the internet.

Responses from public consultation have been reviewed and used to update the EqIA.

EDIT
The EDIT tool has been completed to inform this assessment and is discussed in Section C.

ESR
The Stage 1 and Stage 2 Environmental Study Report (ESR) (April 2016) and Public Rights of Way Condition Assessment (August 2016) produced by WSP|Parsons Brinckerhoff have been used to inform this assessment.

Activities to address any potential negative impacts or risks and deliver positive impacts	Activity & Completion dates

Mitigation measures should be put in place to minimise the impact of air pollution by investigating measures to reduce effects on local people, especially children, older people, disabled people and those who are pregnant. This should be the case throughout both the construction and operation phases.	During construction and operation of scheme
Mitigation measures should be put in place to minimise the impact of noise pollution by investigating measures to reduce effects on local people, especially children. This should be the case throughout both the construction and operation phases.	During construction and operation of scheme
Pedestrian access should continue to be considered throughout construction and operation. Pedestrian access should make reference to all WCHs, including pedestrians, cyclists and horse-riders, and be safe and accessible for all who wish to use them.	During construction and operation of scheme
A communication strategy to ensure that local residents are kept abreast of developments, including scheduling of works, details of enhancements and improvements, and other benefits of the scheme, including improved access and user safety should be developed.	During construction and operation of scheme

Summary of the findings, including details of consultation with communities/customers/groups/stakeholders/staff/professional organisations, explaining how this has shaped the development of the practice or policy:

Temporary impacts:
There is potential for temporary negative impacts during the construction period that would affect people with protected characteristics. Such impacts relate to an increase in both noise and air pollution and disruption to pedestrian access.

During the statutory consultation, stakeholders made reference to noise pollution and pedestrian/cycling/horse-riding access as areas of particular concern during construction.

Permanent impacts:
There is potential for permanent negative impacts as a result of the scheme that would affect people with protected characteristics. Such impacts relate to noise and air pollution and disruption to pedestrian/cycling/horse riding access.

Where available and appropriate – Photographic evidence/link:	**n/a**
Where appropriate - Link to communication/inclusion plans, environmental assessments or EDIT exercises (For internal use only):	**n/a**

G: Monitoring Activity

Agreed actions to implement the findings of this assessment.
(For relevant schemes, this includes planned POPE reviews, Post Implementation/Investment Reviews and compliance with other internal monitoring systems such as the Project Control Framework).

Monitoring Action	By Whom	By When
Scheme Communications Plan and Stakeholder Tracker will be updated and groups will be targeted with appropriate engagement following EqIA.	Highways England	

Where appropriate – link to Photographic evidence:	**n/a**

H: Senior responsible delegate Sign-Off:

Name	[redacted] **Josh Hodder**	**Date**	**19/03/2019**
Job Title	**Project Manager**		

In submitting this EqIA the senior delegate has:

Approved all activity including monitoring actions

Submitted documentation to the Directorate's Diversity Advocate **(CO, NDD, PTS, MP FBS etc.) for quality assurance and registration.** **For all MP schemes please contact MP Representative for the Agency Diversity Group**	**Ref no**

Considered the documentation as robust and suitable for publication

Checked that the documentation is saved in the EqIA area of the internal filing system and is retained as a record and as part of good governance.

Appendices

Appendix A Edit Tool

E-D-I-T

The Equality, Diversity and Inclusion sifting Tool

Prepared by Mott MacDonald on behalf of Highways England

Introduction

Why do I need to use EDIT on my projects?

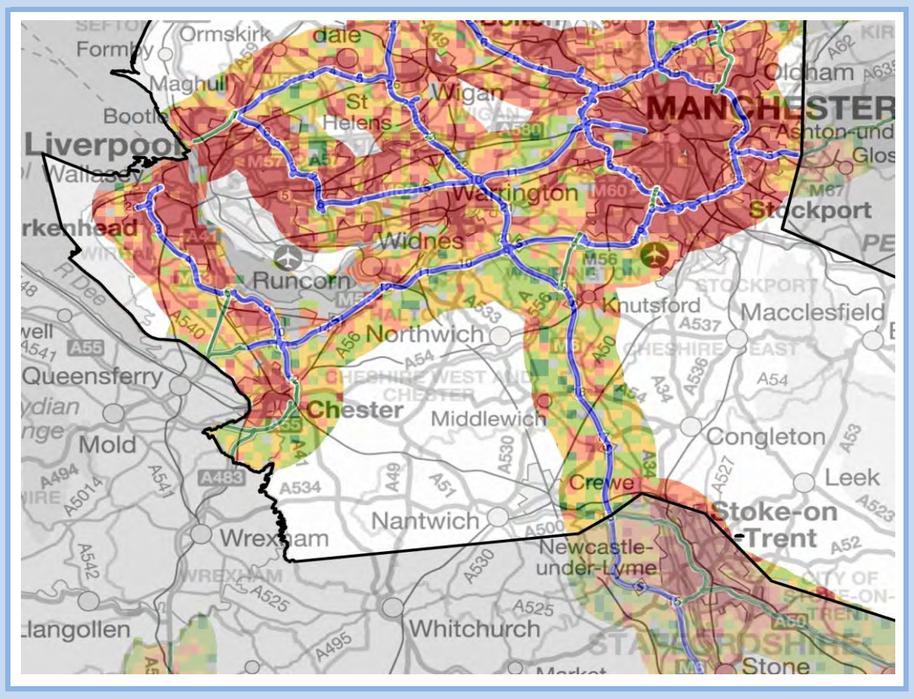
• In England and Wales the **Equality Act 2010** means that considering equality as part of service delivery is required by law.

• Highways England has duties under the Act to ensure that the Strategic Road Network is **accessible,** and that economic and social **opportunities** are maximised for all users.

• The **Equality, Diversity and Inclusion sifting Tool (EDIT)** is designed to help Highways England project teams make an informed decision about the extent to which equality, diversity and inclusion (EDI) are relevant to your project.

• EDIT uses scheme information, social and demographic data, current research, and draws on other evidence you may have to identify which schemes are likely to have the greatest EDI impact and therefore **which schemes to target with additional resources**.

• EDIT provides an **evidence base** which helps the project team to make the right decision about how to maximise the benefits of your scheme for all customers and communities.



What does EDIT involve?

EDIT involves two stages:

Stage 1: Initial sift

• Stage 1 involves an initial sift using high level project knowledge and a series of specially-designed EDI **'hotspot' maps.** The aim of this stage is to quickly determine whether EDI is relevant to your scheme.

• The maps include a single EDI look-up (or hotspot') map of the SRN, supported by four more detailed maps covering population, equality and destination data. The maps are designed to allow you to 'zoom in' on the local area of your scheme to understand the factors which may indicate that EDI issues warrant more detailed consideration

• The maps are accompanied by some high level questions about the type of scheme you are considering.

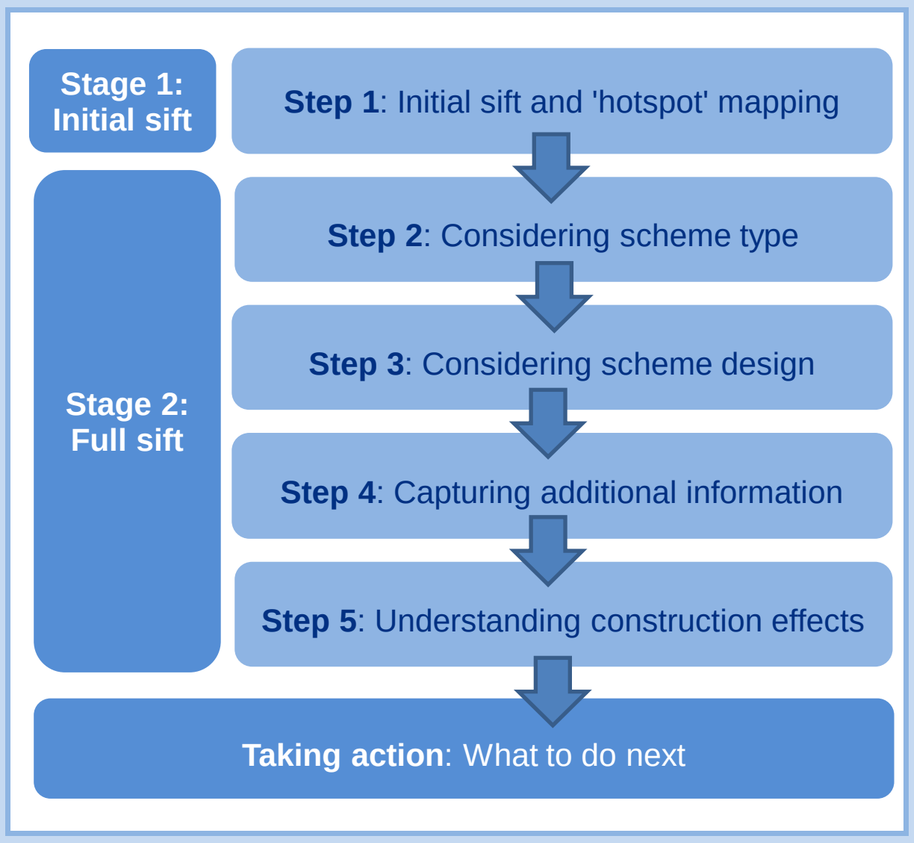
Stage 2: Full sift

• Stage 2 involves a full EDIT assessment of the scheme to identify in more detail whether EDI is relevant to your scheme.

• The full sift includes a range of questions across 4 steps (each one represented by a tab in this Excel spreadsheet.

• The questions cover details about your scheme and relevant design considerations, existing evidence from other assessments or consultation being undertaken, and the potential construction effects associated with delivery.

• This part of the sifting process generates a score identifying the extent to which EDI is relevant to your scheme and what to do next.



What do I do to get started?

1. Begin by completing the stage one 'initial sift' on the next tab, using the 'hotspots' maps for your area. ***This will provide you with an evidence base for proceeding (or not) with the tool in full.***

2. Certain selections you make will limit the options available in the tool, particularly around the location of the scheme.

3. If the initial sift suggests further investigation of EDI issues, continue through the tool answering the questions on each tab in turn. ***If the initial sift suggests that further action is not required AT THIS STAGE, you will still need to return to EDIT later on in the project life cycle.***

4. The remainder of the tool asks straightforward questions about the type of scheme, specific design features, assessment and consultation work already undertaken and construction considerations. Answer all the questions that are applicable by clicking the most appropriate button. ***Leave any questions that you cannot answer or do not apply as 'unknown' - these will not affect your EDIT score.***

5. Once you have your EDI score, ***further information is available on the 'Signposting' tab*** , highlighted in green on the worksheet tabs below.

6. You will need to update your EDIT document throughout the project life cycle. There is a sign-off and version control section on the summary page that should be completed following each revision, which could be undertaken in line with the Design Gateway process, for example:

- When assessing and prioritising need (as part of the Value Management process)
- During project design and planning
- During the construction review process (as part of project delivery)

Some hints and tips:

***** The user groups below are those included within the Equality Act, non-motorised users and those groups that tend to experience disadvantage in terms of transport. ***These should be kept in mind when using the tool.***

***** You will see the **'ⓘ'** symbol throughout the tool - hover over these sections with your cursor for more information.

* Most of the questions require you to select your answer by ***clicking the button*** 'yes', 'no', or 'unknown' if you don't know the answer. However, some of the questions use ***drop-down menu*** selections - just look for the downward arrow next to the response boxes, click and make your selection.

* Consider both your scheme in its current form, and realistic options and alternatives. ***This does not mean consider options that are way beyond the budgetary or other constraints in which you are working. Simply consider those design features that could be added to enhance your scheme if you know of any.***

Who should I be thinking about?

The aim of the tool is to help you identify whether your scheme is likely to have an impact on a range of different user groups, this includes people with characteristics protected under the Equality Act 2010, other groups potentially experiencing disadvantage, and other non-motorised users. These are detailed in the table below:

People with characteristics protected under the Equality Act 2010

Age
- Children (aged under 16)
- Younger people (aged 16-24)
- Working age people (aged 16-64)
- Older working age people (age 55 and over)
- Older people of retirement age (age 65 and over)

Disability
- Mobility impairments (e.g. wheelchair users)
- Sensory impairments (e.g. blind, deaf)
- Learning disabilities
- Mental wellbeing disabilities
- Serious illness (e.g. cancer, AIDS)

Gender reassignment
- People who consider themselves to be transgender including transsexuals and transvestites
- Anyone at any stage of gender reassignment
- Holder of gender recognition certificate

Marriage and Civil partnership
- People who are married
- People who are in a civil partnership
- People who are single (unmarried, divorced, widowed)

Pregnancy and maternity
- Women who are pregnant
- Women who are on statutory maternity leave (up to six months after their baby is born)
- Women with very young children
- Breastfeeding mothers

Race and ethnicity
- People from Black and Minority Ethnic communities (BAME)
- White British and Non White British people
- Different BAME categories (e.g. black people), and sub-categories (e.g. Black Caribbean people)

Religion and belief
- People from religious groups
- People from minority faiths (such as Buddhism, Hinduism, Judaism, Islam and Sikhism)
- Christians
- People with no religion and atheists

Sex / gender
- Men
- Women

Sexual orientation
- Heterosexuals
- Lesbian, gay and bi-sexual people (LGB)

Other groups potentially experiencing disadvantage

Poverty
- People living in income deprived areas
- People living in employment deprived areas

Accessibility
- People living in access deprived areas

Health inequality
- People living with a Long Term Limiting Illness (LTLI)
- People claiming Disability Living Allowance
- People from health deprived areas

Rural communities
- People living in areas defined as very rural or predominantly rural

Car ownership
- People living in households without a car

Other non-motorised and vulnerable users

Pedestrians
- People travelling on foot
- Including disabled pedestrians
- People using footpaths or public rights of way

Cyclists
- People travelling by bicycle
- People using cycle routes, cycle paths, or the National Cycle Network

Equestrians
- People travelling by horse
- People using bridleways

EDIT - Equality, Diversity and Inclusion sifting Tool

Step 1: Initial sift and 'hotspot' mapping

About your project

Record the key details of your project in the boxes below.

1.1	Project number / code:	HA551502
1.2	Project title:	A30 Chiverton to Carland Cross
1.3	Project manager:	Josh Hodder
1.4	Contact Email:	josh.hodder@highwaysengland.co.uk
	Telephone:	3004704406
1.5	Project directorate:	Major Projects Directorate (MP)
1.6	Project stage (PCF):	4: Statutory procedures and powers
1.7	Project type:	Major scheme
1.8	Project cost range:	Greater than £100 million

Equality hotspot assessment

1.9 Scheme location:	A30 Chiverton to Carland Cross

You can get a snapshot of the local area for your project from the following locations:

You can look up local demographic data on 'Neighbourhood Statistics' here:	ONS
You can look up local economic data on 'nomis' here:	nomis

For each Highways England Area five maps are available:

1. **An 'equality hotspots' map -** which shows those parts of the Area with concentrations of all of the above - people, equality groups and destinations.
2. **A population map -** which shows those parts of the Area with the largest numbers of people.
3. **An equality map** - which shows those parts of the Area with the largest **numbers** of people from particular groups.
4. **An equality map -** which shows those parts of the Area with the highest **proportions** of people from particular groups.
5. **A destinations map -** which shows those parts of the Area with the highest numbers of destinations such as schools, hospitals, religious buildings and care homes.

The colour coding on the maps is as follows:

	A 'hotspot' area.
	High number / proportions
	Medium number / proportions
	Low number / proportions
	Very low number / proportions
	No population or destinations

Consider the map booklet for your area. ***(NOTE: The maps are available to view separately in PDF booklet format and accompany this Excel tool).***

		Yes	No	Unknown	
1.10	***Using the equality 'hotspot' map:*** Does the scheme fall within or near to an equality 'hotspot'?	○	◉	○	1.10 The Scheme is mostly within the 3rd Quintile, with some in the 4th and 2nd.
1.11	***Using the population map:*** Does the scheme fall within or near to a densely populated area?	○	◉	○	1.11 The Scheme is mostly within the 4th most densely populated Quintile, with some in the 3rd.
1.12	***Using the equality numbers map:*** Does the scheme fall within or near to an area with a high number of people from equality groups?	○	◉	○	1.12 The Scheme is mostly within the 4th most populated Quintile, with some in the 3rd.
1.13	***Using the equality proportion map*** : Does the scheme fall within or near to an area with a high proportion of people from equality groups?	○	◉	○	1.13 The Scheme is mostly within the 4th highest population proportion Quintile, with some in the 3rd.
1.14	***Using the destinations map:*** Does the scheme fall within or near to an area with a high density of trip attractors?	○	◉	○	1.14 There are a few attractors along the relevant section of the A30 (very low numbers).

Relevant scheme development and design considerations

Are key elements of the scheme or its proposed design particularly relevant to the following:

		Yes	No	Unknown	
1.15	Pedestrian or community severance	◉	○	○	1.15 & 1.16 Potential for NMU or community severance at Chiverton Cross & Zelah/Trevalso and access to St Allen Parish Church.
1.16	Access to public services or community facilities	◉	○	○	
1.17	Public transport usage	◉	○	○	1.17 Bus routes along existing road and crossings at the junctions and side roads.
1.18	Access to employment opportunities	◉	○	○	1.18 Improves opportunities for local businesses to expand and grow and new businesses to open increasing employment opportunities.
1.19	Streetscape and the pedestrian environment	○	◉	○	1.20 Four crossings to be provided for WHC only.
1.20	Crossings	◉	○	○	1.21 PRoW's will be diverted (but not severed) as part of the proposed scheme.
1.21	Physical accessibility	◉	○	○	1.22 Reduced congestion and grade seperating junctions will simplify route.
1.22	User experience and confidence	◉	○	○	
1.23	Other	○	◉	○	

Relevant construction considerations

Are key elements of the construction of the scheme particularly relevant to the following:

		Yes	No	Unknown	
1.24	Temporary changes to the road or footpath	◉	○	○	1.24 There will be temporary and permanent diversions required for PRoW.
1.25	Diversions and changes to key routes	◉	○	○	1.25 The Scheme will provide a new route for through traffic on the A30, whereas the existing A30 will remain open for local traffic.
1.26	Noise, dust, light and environmental impacts	◉	○	○	1.26 Assessed within EIA
1.27	Temporary construction employment	◉	○	○	1.27 At peak the Scheme could employ 500 people (70% construction/30% wider project staff)
1.28	Changes in access to facilities and services	◉	○	○	1.28 The Scheme will result in changes to accesses temporarily during construction and permanently - although some beneficially as a result of new
1.29	Other	○	◉	○	

Stage One Sift Score: 59%

Based on the information you have provided:

Equality, diversity and inclusion issues are likely to be a factor in the effective delivery of your scheme. Proceed to sheet 2.

Please remember that EDI issues can arise at any stage in the project development process and you will need to return to EDIT at the next stage of the project life cycle to ensure that EDI issues are addressed.

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Step 2: Considering scheme type

Main effects of the scheme

		Yes	No	Unknown	
2.1	Does the scheme involve reorganisation of the built environment?	○	●	○	2.1 The Scheme will involve construction of a new road in a rural setting. 2.2 The existing A30 already exists as a barrier between communities, but there will be some temporary and permanent diversions required on PRoW. 2.3 There are no pavements providing a safe means of transit for NMUs on the existing A30. There will be no pavements along the length of the new A30. However, there are no
2.2	It the scheme likely to impact upon community severance?	●	○	○	
2.3	Are there likely to be disproportionate effects on those without access to a car?	○	●	○	
2.4	Will the scheme impact upon the mobility of non-motorised users?	●	○	○	
2.5	Will the scheme increase levels of traffic and speed?	○	●	○	
2.6	Will the scheme impact upon the distance between people and traffic?	○	●	○	

Primary beneficiaries

	Do the primary beneficiaries of the scheme include:	Yes	No	Unknown	
2.7	- Drivers and their passengers?	●	○	○	2.7 Improved safety, journey experience and reduce congestion. 2.8 One bus route, the 85, uses the existing A30, and will continue to do so. 2.9 & 2.12 De-trunking of the existing road will provide more oppotunities for pedestrians to access the network, grade seperation on the junctions of the main road will remove barriers to access from traffic volumes. Would also benefit
2.8	- Public transport users?	●	○	○	
2.9	- Pedestrians?	●	○	○	
2.10	- Cyclists?	●	○	○	
2.11	- Equestrians?	●	○	○	
2.12	- Mobility impaired pedestrians?	●	○	○	

Key asset: Motorways

		Yes	No	Unknown	
2.13	Is the scheme located entirely on a motorway?	○	●	○	
	Motorways				
2.14	Is the scheme likely to have an impact on safety or perceptions of safety of the motorway environment?	○	○	○	Please provide any relevant details or notes here
2.15	Will the scheme impact upon users ability to leave their vehicle independently or safely?	○	○	○	
2.16	Will the scheme impact upon ease of use and accessibility of emergency roadside telephones (ERTs)?	○	○	○	
2.17	Will the scheme result in changes to the speed, average likely speed or speed limit on the section of motorway?	○	○	○	
2.18	Will the scheme impact upon the level of information available on the motorway?	○	○	○	
	Managed / smart motorways				
2.19	Is the scheme a smart motorway scheme?	○	○	○	Please provide any relevant details or notes here
2.20	Will the scheme result in temporary or partial loss of the motorway hard shoulder?	○	○	○	
2.21	Will the scheme increase the distance between refuge areas?	○	○	○	

Key asset: Trunk A Roads

		Yes	No	Unknown	
2.22	Is the scheme located entirely on a trunk A Road?	●	○	○	
	Trunk A-Roads				
2.23	Does the location of the scheme include residential areas immediately adjacent to the carriageway?	●	○	○	2.23 No private properties are required to be demolished for the Scheme, although there will be some acquisition of private land. 2.26 One bus route, the 85, uses the existing A30, and will continue to do so. The 304, 87 and 86 routes join with the existing A30 at Chiverton Cross.
2.24	Does the location of the scheme include particular relevant trip attractors in close proximity to the carriageway?	○	●	○	
2.25	Does the scheme include sections of road used as an alternative to motorway travel?	○	●	○	
2.26	Does the location of the scheme incorporate public transport usage?	○	●	○	

Area type: rural and urban areas

		Rural	Urban	Both	
2.27	Is the scheme located primarily in a rural area, an urban area or combination of both?	●	○	○	
	Rural areas	**Yes**	**No**	**Unknown**	
2.28	Will the scheme affect public transport access for people living in rural areas?	●	○	○	2.28 Reduced traffic on the existing A30 will improve reliability and access to transport. 2.29 Cycle lanes being considered for de-trunked roads. 2.31 Accidents are expected to decrease due to the reduction in traffic volumes between the existing and proposed A30. 2.32 Public transport will not be permanently affected, and diversions will be implemented for any disrupted PRoW. Cycle lanes can be considered on detrunked roads.
2.29	Will the scheme affect the visibility of NMUs using rural roads?	●	○	○	
2.30	Will the scheme affect the accessibility of key services in rural areas?	○	●	○	
2.31	Will the scheme have an impact on the accident profile of the area?	●	○	○	
2.32	Will the scheme impact upon NMU infrastructure (pavements, cycle lanes etc.) in the area?	●	○	○	
2.33	Will the scheme have a disproportionate effect on young people in rural areas?	○	●	○	
	Urban areas	**Yes**	**No**	**Unknown**	
2.34	Will the scheme have disproportionate effect on people living in urban areas?	○	○	●	Please provide any relevant details or notes here
2.35	Will the scheme impact upon access to green or open space?	○	○	●	
2.36	Is the scheme located in areas of high deprivation?	○	○	●	
2.37	Is the scheme located in an area with a high accident rate?	○	○	●	

Non-motorised user (NMU) impact

		Yes	No	Unknown	
2.38	Does the scheme involve Public Rights of Way?	●	○	○	There are a number of PRoW, including footpaths and bridleways, crossed by the Scheme. Part of the existing A30 also forms part of National Cycle Network - Route 32. 2.41 There will be some temporary and permanent diversions required on PRoW, which are likely to increase the length of journeys via these routes.
2.39	Does the scheme involve a Public Right of Way with equestrian rights?	●	○	○	
2.40	Does the scheme involve cycle routes, or is it used by cyclists?	●	○	○	
2.41	Will the scheme increase the length of NMU routes?	●	○	○	
2.42	Can the safety of junctions, crossings or roundabouts be improved for NMUs?	●	○	○	

Stage 2 Score: **72%**

High scoring areas:
Primary beneficiaries , Non-motorised user (NMU) impact

Low scoring areas:
Motorways

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Step 3: Considering scheme design

Footways

			Yes	No	Unknown	
ⓘ	3.1	Will the scheme involve changes to footway width?	○	●	○	3.1 It is not proposed to include footway along the length of the Scheme. The Scheme will be a new road, and the existing A30 will remain. 3.4 Tactile paving will be used at crossing points. 3.6 Pedestrian crossing improvements will result from grade seperation of junctions. 3.7 Crossings of the new road layout would be compliant with accessibility requirements
ⓘ	3.2	Will the scheme involve changes to kerb height?	○	●	○	
ⓘ	3.3	Will the scheme involve changes to footway gradient and level?	○	●	○	
ⓘ	3.4	Will the scheme involve use of tactile paving?	●	○	○	
ⓘ	3.5	Will the scheme permanently affect access to footways?	○	●	○	
ⓘ	3.6	Does the scheme provide an opportunity to enhance the pedestrian environment?	●	○	○	
ⓘ	3.7	Are accessibility measures being included as part of the design?	●	○	○	

Crossings

			Yes	No	Unknown	
ⓘ	3.8	Will the scheme result in an increase in traffic levels or speed?	●	○	○	3.8 Traffic levels along the proposed scheme are likely to increase, in accordance with forecasts. Speeds along the existing A30 are likely to increase, due to the reduction in traffic on the existing A30. 3.9 There are no safe places along the existing A30
	3.9	Will the scheme reduce the number of crossings available?	○	●	○	
	3.10	Will the scheme change the means by which people cross?	●	○	○	
	3.11	Will the scheme affect identified pedestrian desire lines or existing crossing routes?	●	○	○	

Footbridges and underpasses

			Yes	No	Unknown	
ⓘ	3.12	Does the scheme involve the addition or removal of a footbridge?	●	○	○	Bridges for the use of pedestrians are included at Tolgroggan and Marazanvose. Underpasses are included at Chiverton, Carland Cross.
	3.13	Does the scheme involve the addition or removal of an underpass?	●	○	○	
	3.14	Can measures be implemented to improve the accessibility of the footbridge/underpass?	●	○	○	

Street Furniture

			Yes	No	Unknown	
ⓘ	3.15	Will the scheme involve additional or changes to existing street furniture?	●	○	○	3.15 Street furniture is likely to be amended at Carland Cross to accommodate the proposed scheme.
	3.16	Will the scheme affect the location of street furniture?	●	○	○	
	3.17	Can street furniture be combined as part of the design? (I.e. can lighting columns be set into grass verges? Can waste bins be combined with planters or seating?)	●	○	○	

Bollards

			Yes	No	Unknown	
ⓘ	3.18	Will the scheme involve the addition or removal of bollards?	○	●	○	Please provide any relevant details or notes here

Taxis

			Yes	No	Unknown	
ⓘ	3.19	Will the scheme impact upon the location of taxi ranks?	○	●	○	There are no taxi ranks on the existing A30, nor none proposed for the Scheme.
	3.20	Will the scheme impact upon access to existing taxi ranks?	○	●	○	
	3.21	If taxi ranks are relocated will they be situated at suitable drop off points near key services?	○	●	○	

Parking

			Yes	No	Unknown	
ⓘ	3.22	Will the scheme change the location or affect the provision of and access to on-street parking?	○	●	○	There is no on-street parking on the existing A30, or access to public parking.
	3.23	Will the scheme change the location or affect the provision of and access to disabled parking?	○	●	○	
	3.24	Will the scheme implement red routes, or other measures which prohibit disabled parking?	○	●	○	
	3.25	Will the scheme affect parking in destinations where disabled people may disproportionately use services – for example at hospitals or clinics providing outpatient services?	○	●	○	

Covers and gratings

			Yes	No	Unknown	
ⓘ	3.26	Will the scheme change the location of covers or gratings?	○	●	○	Please provide any relevant details or notes here
	3.27	Will the scheme involve the addition of covers and gratings?	○	●	○	

Walking distance

			Yes	No	Unknown	
ⓘ	3.28	Will the scheme affect walking distances between key local destinations?	●	○	○	3.28 There are no public services directly accessed from or in the vicinity of the existing or proposed scheme. Some routes around Chiverton will be amended by the scheme
	3.29	Will the scheme lead increase the walking distance between residential areas and public services?	●	○	○	
	3.30	Do proposed walking route include rest points such as benches?	○	●	○	

Signage

			Yes	No	Unknown	
ⓘ	3.31	Will the scheme change signed or natural / intuitive highways routes?	●	○	○	3.31 Through traffic will use the proposed Scheme and local traffic will use the existing A30 for access. Most Impacts will be temporary until works completed
	3.32	Will the scheme change signed or 'natural' pedestrian routes?	●	○	○	
	3.33	Will the scheme impact upon Rights of Way?	●	○	○	
	3.34	Will the scheme change routes to key destinations?	●	○	○	
	3.35	Will the scheme disrupt way-finding?	●	○	○	

Personal security, surveillance and lighting

			Yes	No	Unknown	
ⓘ	3.36	Will the scheme change the location of street lighting?	●	○	○	There will be no lighting along the proposed A30 mainline or junctions. For WCHs, low lux, demand sensitive lighting is proposed at the three WCH underbridges at Chiverton, Church Lane and
	3.37	Will the scheme lead to additional pedestrian routes or new roads where lighting should be considered?	●	○	○	
	3.38	Does the scheme include provision for other personal security measures such as CCTV?	○	●	○	

Public Transport

		Yes	No	Unknown	
3.39	Will the scheme change public transport routes?	○	◉	○	3.39 The 304, 87 and 86 routes join with the existing A30 at Chiverton Cross, so may be subject to minor route diversions and alterations to accommodate the scheme. 3.40 Bus stops are not proposed along the proposed scheme. Route 87 will be maintained along the existing A30, and no change to bus stops are proposed. 3.41 Access will be enhanced by the reduced traffic and grade
3.40	Will the scheme change the location of bus stops?	○	◉	○	
3.41	Will the scheme affect the accessibility of stops, stations or other public transport facilities?	◉	○	○	
3.42	Will the scheme impact upon existing interchange facilities?	○	◉	○	
3.43	Are measures proposed to enhance and support personal security?	○	◉	○	

Stage 3 Score: **55%**

High scoring areas:
Footbridges and underpasses, Street Furniture, Signage
Low scoring areas:
Bollards, Taxis, Parking, Covers and gratings

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Step 4: Capturing additional evidence

Scheme Consultation, appraisal and assessment activity

			Yes	No	Unknown		Yes	No	Unknown
ⓘ	4.1	Have **consultation** or other **public** or **stakeholder engagement** activities been undertaken as part of scheme development, options appraisal or similar?	◉	○	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	◉	○
ⓘ	4.2	Has an **Equality Impact Assessment** (EqIA) or other form of **Equality Analysis** been undertaken?	◉	○	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	◉	○	○
ⓘ	4.3	Have **Social and Distributional Impact Appraisals** been undertaken in accordance with WebTAG Units A4.1 and A4.2?	◉	○	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	◉	○
ⓘ	4.4	Has a **Health Impact Assessment (HIA)** been undertaken?	◉	○	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	◉	○
ⓘ	4.5	Has a **Non-motorised User** (**NMU)** audit been undertaken?	◉	○	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	◉	○
ⓘ	4.6	Has an **Environmental Statement** been prepared, or an **Environmental Impact Assessment (EIA)** been undertaken?	◉	○	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	◉	○
ⓘ	4.7	Has a **Strategic Environmental Assessment (SEA)** been undertaken?	○	◉	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	○	◉
ⓘ	4.8	Has a **Sustainability Appraisal** been completed?	○	◉	○	Has this process resulted in findings relevant to equality, diversity or inclusion issues?	○	○	◉

Provide any relevant findings from any consultation or assessments undertaken in the box below:

Temporary impacts: There is potential for temporary negative impacts during the construction period that would affect people with protected characteristics. Such impacts relate to an increase in both noise and air pollution and disruption to pedestrian access.

Stakeholders made reference to noise pollution and pedestrian/cycling/horse-riding access as areas of particular concern during construction.

Relevant activity being undertaken by other local bodies

			Yes	No	Unknown
ⓘ	4.10	Is any other highways work being undertaken in the local area (for example by the **local highways authority**) that is relevant to the project?	◉	○	○

Provide any details of work being undertaken by other local actors that is relevant to EDI in the box below:

Cornwall Council are undertaking works to the existing A30 once detrunked and handed over to them. These will include measures to promote usage by Non-Motorised user groups.

		Yes	No	Unknown
4.11	Is any of the work scheduled to be undertaken likely to contribute to the scheme's equality or community impact?	◉	○	○

Stage 4 Score: **48%**

High scoring areas:
Relevant activity being undertaken by other local bodies
Low scoring areas:

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Step 5: Understanding construction effects

Likely construction effects

			Yes	No	Unknown
ⓘ	5.1	Are there likely to be any specific construction effects?	◉	○	○
	5.2	Will vehicular access routes be temporarily affected by construction of the scheme?	◉	○	○
	5.3	Will footpaths, rights of way, or access routes be temporarily impacted by construction?	◉	○	○
	5.4	Will public transport routes be temporarily altered or service levels temporarily reduced by construction?	◉	○	○
	5.5	Will any community facilities (such as educational or healthcare facilities) be impacted by construction?	○	◉	○
	5.6	Will the full function of the facilities in question be impeded for any period during construction?	○	◉	○
	5.7	Will use of the facilities be temporarily disrupted due to construction noise, additional traffic or other construction activities?	○	◉	○
	5.8	Will access to facilities be disrupted? For how long? Will alternative access be provided?	◉	○	○
	5.9	Will there be temporary land take from community facilities as a result of construction?	○	◉	○

Provide details of relevant construction effects here
5.2 Vehicular access routes at several locations will be affected during construction but none will be closed off, therefore maintaining access.
5.3PRoW will be affected but will be maintained during construction where possible and diverted with local temporary diversions if required.
5.4 During the construction phase, the scheme would affect bus travellers' access to two bus stops, at Marazanvose (one in each direction) adjacent to the A30 and in close proximity to

Construction assessment and management processes

			Yes	No	Unknown
ⓘ	5.10	Has a construction impact assessment been undertaken for the scheme?	◉	○	○
ⓘ	5.11	Has a Code of Construction Practice (CoCP) been implemented for the scheme?	◉	○	○
ⓘ	5.12	Has a Construction Environmental Management Plan (CEMP) been implemented for the scheme?	◉	○	○

5.10 Construction effects have been assessed as part of the EIA.
5.11 An outline CEMP has been prepared which includes outline management plans for, amongst others: site waste management plan/ Public Rights of Way Management Plan / Pollution Prevention and Control Management Plan

			Yes	No	Unknown
	5.13	Does the CoCP or CEMP identify any measures designed to manage effects relevant to EDI?	○	◉	○

Stage 5 Score: **54%**

High scoring areas:

Low scoring areas:

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Summary and signoff

What does this page tell me?

This sheet summarises the findings of the EDIT process. Your running totals from each of the previous sheets is summarised here alongside a summary of the process including:
- The key areas driving your score (where you have primarily answered positively or negatively)
- Any steps where the score is based on a low response rate (you have provide fewer than 50% of answer)
- Any area where you answers do not match previously entered information (where your responses within two separate steps are contradictory)

The sheet also provides a final space to make some further notes for each of the steps

Summary of: Step 1: Hotspot Identification and Preliminary Decision

Step 1 score **59%**

The outcome of the hotspot mapping exercise showed that your scheme is located in:

Key areas identified for consideration include:
Pedestrian or community severance, Access to public services or community facilities , Public transport usage, Access to employment opportunities, Crossings, Physical accessibility, User experience and confidence, Temporary changes to the road or footpath, Diversions and changes to key routes, Noise, dust, light and environmental impacts, Temporary construction employment, Changes in access to facilities and services

Your response rate for this step was:
100% You have answered more than 75% of questions on this sheet and your score for this section is generally reliable

ⓘ **Insert any additional coments regarding this part of the assessment here:**

Summary of: Step 2: Information about the scheme

Step 2 score **72%**

Your score at step 2 is influenced by the following areas of positive response:
Primary beneficiaries , Non-motorised user (NMU) impact

Your score at step 2 is influenced by the following areas of negative response:
Motorways

Your response rate for this step was:
84% You have answered more than 75% of questions on this sheet and your score for this section is generally reliable

ⓘ **Insert any additional coments regarding this part of the assessment here:**

Summary of: Step 3: Scheme design elements for consideration

Step 3 score **55%**

Your score at step 3 is influenced by the following areas of positive response:
Footbridges and underpasses, Street Furniture, Signage

Your score at step 3 is influenced by the following areas of negative response:
Bollards, Taxis, Parking, Covers and gratings

Your response rate for this step was:
100% You have answered more than 75% of questions on this sheet and your score for this section is generally reliable

ⓘ **Insert any additional coments regarding this part of the assessment here:**

Summary of: Step 4: Capturing additional information

Step 4 score **48%**

Your score at step 4 is influenced by the following areas of positive response:
Relevant activity being undertaken by other local bodies

Your score at step 4 is influenced by the following areas of negative response:

Your response rate for this step was:
78% You have answered more than 75% of questions on this sheet and your score for this section is generally reliable

ⓘ **Insert any additional coments regarding this part of the assessment here:**

Summary of: Step 5: Understanding construction effects

Step 5 score **54%**

Your score at step 4 is influenced by the following areas of positive response:

Your score at step 4 is influenced by the following areas of negative response:

Your response rate for this step was:
100% You have answered more than 75% of questions on this sheet and your score for this section is generally reliable

ⓘ **Insert any additional coments regarding this part of the assessment here:**

OVERALL EDIT SCORE: 60%

From the information you have provided:

Equality, diversity and inclusion issues are likely to be a factor in the effective delivery of your scheme. Further consideration of appropriate development, design and construction measures should form part of the next stages of the project cycle - guidance on this can be found within the next tab.
EDIT is now complete for this stage.

ⓘ

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What next? Signposting for potential next steps

Undertaking further assessment: the Equality Impact Assessment (EqIA) process

If your scheme scored over 60% you should consider undertaking further explicit equality analysis on your scheme. If your scheme scored over 80% it is highly likely that some form of additional analysis will be required.

Highways England currently uses **Equality Impact Assessment (EqIA)** to assess those schemes considered likely to have a disproportionate impact on different sections of society. EqIA, when used in conjunction with EDIT, is a good way of evidencing your decision-making processes to support compliance with the **Equality Act** and **Public Sector Equality Duty**.

The next tab contains **Highways England's EqIA screening pro-forma** - a mandatory part of its EqIA process and a useful tool for turning what you have learned about your scheme from the EDIT process into an action plan to help you decide how to proceed with your project.

Guidance is available from Highways England and from national bodies responsible for this policy area.

Highways Agency (2011): 'Guide to Equality Impact Assessments'

Includes guidance on :
- Highways England process for EqIA
- Your legal duties
- What and EqIA is and who should undertake it
- Key EqIA stages within Highways England
- Screening and Full EqIA processes

Equality and Human Rights Commission (2014): 'Meeting the Equality Duty in Policy and Decision-Making'

Includes guidance on :
- What is equality analysis
- What you need to demonstrate to comply wit the PSED
- Gathering evidence and information
- Publishing your findings
- Consultation and engagement

Government Equality Office (2011): 'Public Sector Equality Duty: What Do I Need to Know?'

Includes guidance on :
- Your duties under the PSED
- What you need to demonstrate to comply with the PSED
- How to evidence your decisions
- Common misconceptions about the Equality Act and PSED

Consultation and engagement guidance

As part of developing, designing and delivering your scheme, you may need to undertake consultation or engagement with statutory consultees, key stakeholders and members of the public. Equality legislation places significant priority on consultation as a means of demonstrating compliance with the PSED and even if a decision is taken not to undertake an Equality Impact Assessment, demonstrating consideration for equality issues within project development and design processes is strongly supported by robust engagement with stakeholders, representatives of people with protected characteristics, and members of these groups.

There is a range of guidance available on how to undertake engagement activity.

Click on the headline links in each section to access the guidance online.

Highways Agency (2009): 'Approaches to consultation, A guide for Highways Agency Major Projects staff'

Includes:
- Scheme preparation and design
- Detailed consultation
- Public inquiry
- Construction
- Post scheme evaluation

Equality and Human Rights Commission (2011): 'Engagement and the equality duty: A guide for public authorities'

Includes guidance on:
- Timescales
- Who to involve
- Engagement methodologies
- Publication of engagement materials

Amending your scheme: design guidance

One key conclusion you may have drawn from undertaking the EDIT process (and from any further assessment activity you undertake) is that certain aspects of your design may need to be revisited to further explore opportunities maximise EDI benefits.

There is a range of guidance available, and while some of it is now more than ten years' old, it remains current. Much of it has been issued by the Department for Transport or Highways England and constitutes the 'design standard' on many of the issues considered throughout EDIT.

Click on the headline links in each section to access the guidance online.

Highways Agency: 'DMRB, Volume 5: Assessment and preparation of road schemes'

Contains guidance on:
- Crossings
- Junctions
- General considerations (such as surfaces, signing and markings, lighting, drainage and manholes, street furniture, personal safety and security, maintenance and monitoring and other issues (bus stops, escape routes for disabled motorists, and service and picnic areas).

Department for Transport (2005): 'Inclusive Mobility: a Guide to Best Practice on Access to Pedestrian and Transport Infrastructure'

Section 2 on preparation and implementation, includes part 4, covering provision for non-motorised users and contains guidance on:
• Pavement widths
• Gradients
• Seating
• Barriers on footways
• Street furniture
• Street works
• Street works
• Surfaces
• Crossings
• Bay design
• Bus stops
• Taxi ranks

Department for Transport: 'Manual for Streets'

Guidance on different types of crossings linked to user groups, cyclists, public transport, bus stops

Department for Transport: 'Shared Space'

Guidance on shared space, which may be of particular relevance to people with disabilities.

SaMERU - Safer Mobility for Elderly Road Users (2013): 'Guidance'

Specific guidance for making the environment accessible for elderly road users.

Inclusive Design for Getting Outdoors (I'DGO)

Specific guidance for improving the environment for older people:
• Seating guidance
• Bus stops
• Tactile paving
• Pedestrian crossings
• Widths of footways and footpaths
• Adjacent and shared use (cyclists and pedestrians) of footways and footpaths
• Materials of footways and footpaths
• Changes in level of footways and footpaths
• Kerbs including tactile dropped kerbs of footways and footpaths
• Signage

Sustrans (2014): 'Design Manual: Handbook for cycle-friendly design'

Technical guidance on key issues around on and off highway cycle infrastructure, covering:
• Understanding user needs
• Network planning
• Streets and roads
• Traffic free routes
• Rural areas
• Crossings
• Interface with carriageway
• Bridges and other structures
• Destination signage
• Cycle parking

Department for Transport (2012): 'Shared Use Routes for Pedestrians and Cyclists'

Guidance on
• Site assessment
• General design considerations
• Detailed design issues

EDIT - Equality, Diversity and Inclusion sifting Tool

Equality Impact Assessment (EqIA) Screening Pro-forma

About the screening pro-forma

This tab re-produces the Highways England Equality Impact Assessment Screening Pro-forma, previously available as part of Highways Agency guidance on Equality Impact Assessment. The EqIA process is triggered by the use of EDIT. High scoring projects should automatically be subject to an EqIA screening to determine whether a full Equality Impact Assessment should be undertaken as part of compliance with the Public Sector Equality Duty.

Project Information

Name of policy / practice	DfT's Roads Investment Strategy - A30 Chiverton to Carland Cross	**Current or Proposed**	Proposed
Name of person completing form	Rowena Ekermawi	**Date of assessment**	06/03/2019

Purpose of the policy / practice

This screening document relates specifically to the design and delivery of the A30 Chiverton to Carland Cross scheme which will upgrade 14km of the A30 from single to dual two lane carriageway north of Truro, between Carland Cross and Chiverton Cross. This will connect the dual carriageway section around Bodmin with the dual carriageway Redruth bypass which will complete the A30 to a high quality dual carriageway standard from Camborne to the M5. As part of the works, there is a requirement to carry out an Equality Impact Screening or Assessment (EqIA) and this document has been prepared in response to this requirement.

Screening questions

Indicate **'yes'**, **'no'** or **'unknown'** for each protected characteristic. Use the guide at the start of the EDIT process to identify which groups are referred to under each protected characteristic.

		Age	Disability	Gender Reassignment	Marriage and Civil Partnership	Pregnancy and Maternity	Race and ethnicity	Religion and Belief	Sex	Sexual orientation
1	Is there any indication or evidence that different groups have different needs, experiences, issues or priorities in relation to the particular policy/practice?	Yes	Yes	No	No	Yes	No	No	Yes	No
2	Is there any evidence or indication of higher or lower uptake by different groups?	No	No	No	No	No	No	No	No	No
3	Do people have different levels of access? Are there social or physical barriers to participation (e.g. language, format, physical access/proximity)?	Yes	Yes	No	No	Yes	Yes	No	No	No
4	Is there an opportunity to advance equality or foster good relations by altering the policy/practice or working with other government departments or the wider community?	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes
5	Is there any stakeholder (staff, public, unions) concern in the policy/practice area about actual, perceived or potential discrimination against a particular group(s)?	No	Yes	No	No	No	No	No	No	No
6	Is there potential for, or evidence that, this policy/practice may adversely affect equality of opportunity for all and may harm good relations between different groups?	Yes	Yes	No	No	No	No	No	No	No
7	Is there any potential for, or evidence that, any part of the proposed policy could discriminate, directly or indirectly? (Consider those who implement it on a day to day basis)?	Yes	Yes	No	No	Yes	No	No	Yes	No

Determination of relevance to PSED

If you have answered **'no'** to all the questions, an EqIA is not required. Please summarise in the box below the reason/evidence for your above assessments and how actual outcomes will be monitored.

If your answer is 'yes' or "not known" to any of these questions then you will need to make a judgement about whether you need to gather more evidence to come to an informed decision on whether this area of work is relevant in relation to the Agency's equality duties.

If you need more evidence, carry out an Equality Impact Assessment. If you are confident that the effect of your policy will not be different for different groups, cannot be used to advance equality or to foster good relations between different groups, detail your thinking in the box below and sign off.

The main objectives of the Scheme are to develop major infrastructure improvements along the A30 between Chiverton and Carland Cross (north of Truro) in order to support economic growth, provide a safe, serviceable and more free flowing network, an improved local environment and deliver a more accessible and integrated network for all road users including NMUs. To this extent, it would include every group covered in the above. The Scheme aims to avoid introducing negative impacts on NMUs including those with disability. It also aims to provide improvements along the route such as WCH only crossings. With the EqIA's focus on policies and practices, the eventual scheme that would emerge from this study is expected to comply with established policies and practices, rather than instigating changes to either. For this reason, "no" is the most prudent response that could be provided to the above screening exercise at this stage – i.e. we would not envisage any impacts on NMUs or the specific groups above, with the view of

EqIA required: **Yes**

Signed off by policy owner:

Name: Josh Hodder

Job title: Project Manager

Signature: Josh Hodder

Date: 19/03/2019

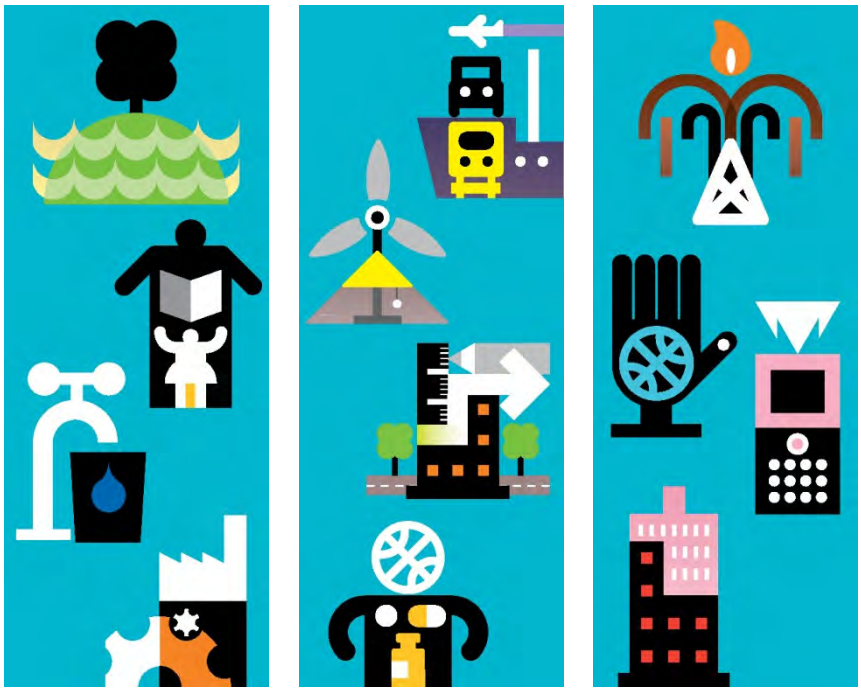
Signed off by Directorate Diversity Rep:

Name: N/A

Signature: N/A

Date: N/A

Appendix B Area 1 Hotspot Maps



Equality Diversity and Inclusion sifting Tool (EDIT)

Equality Hotspot Maps

Area 1 – Cornwall & Devon

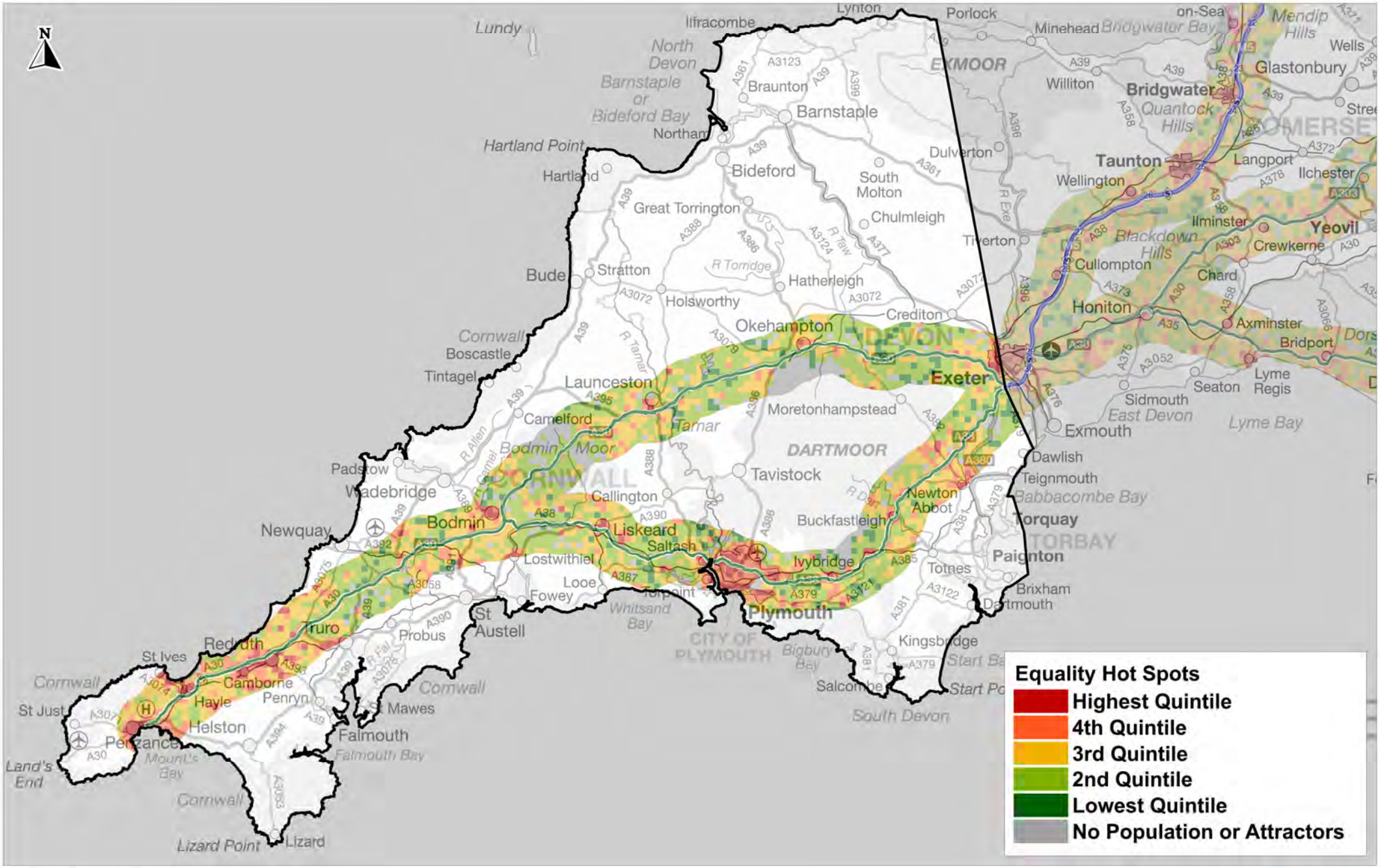
Highways Agency

HIGHWAYS AGENCY

Mott MacDonald

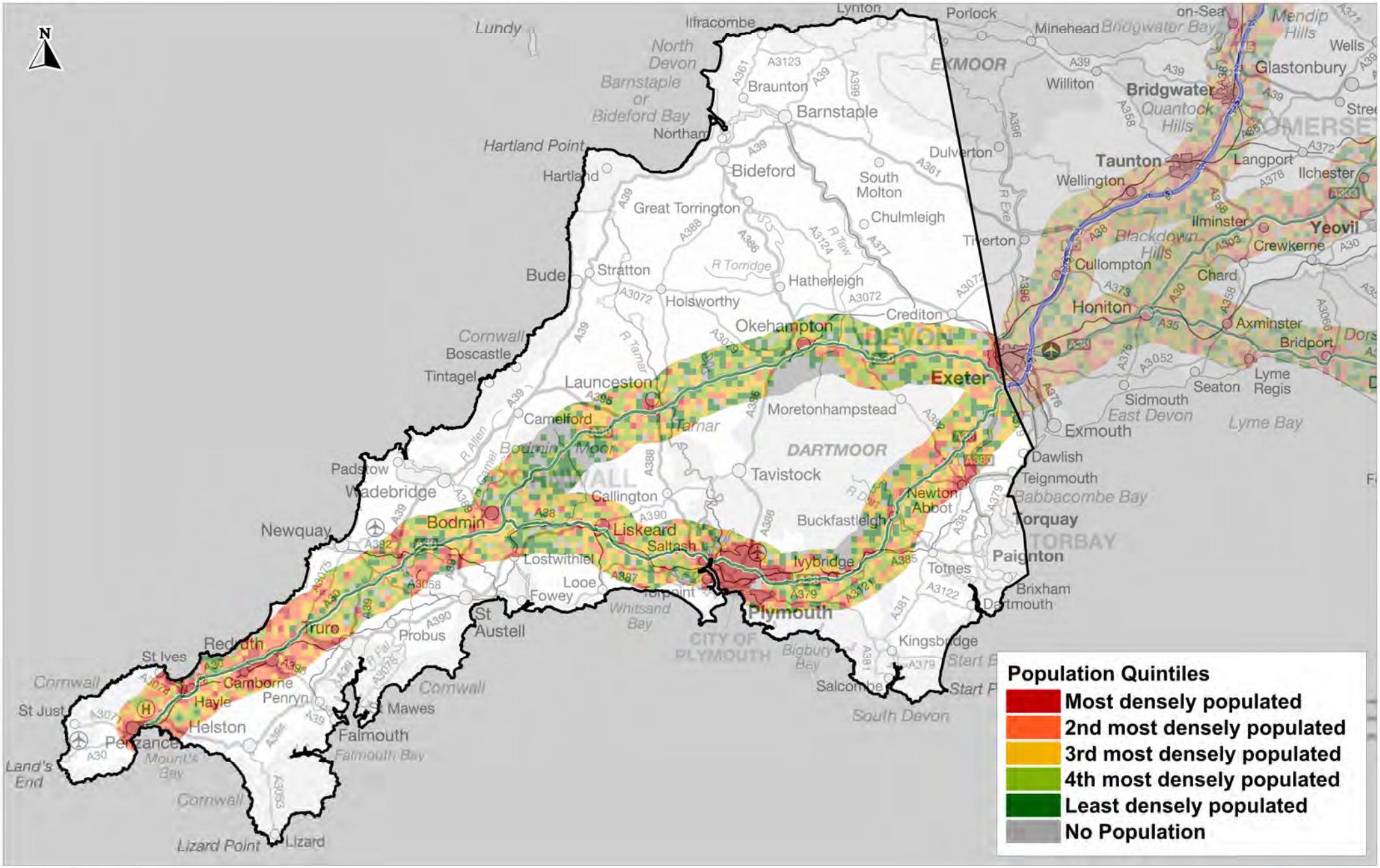
Contents

Area 1



Mott MacDonald

Area 1



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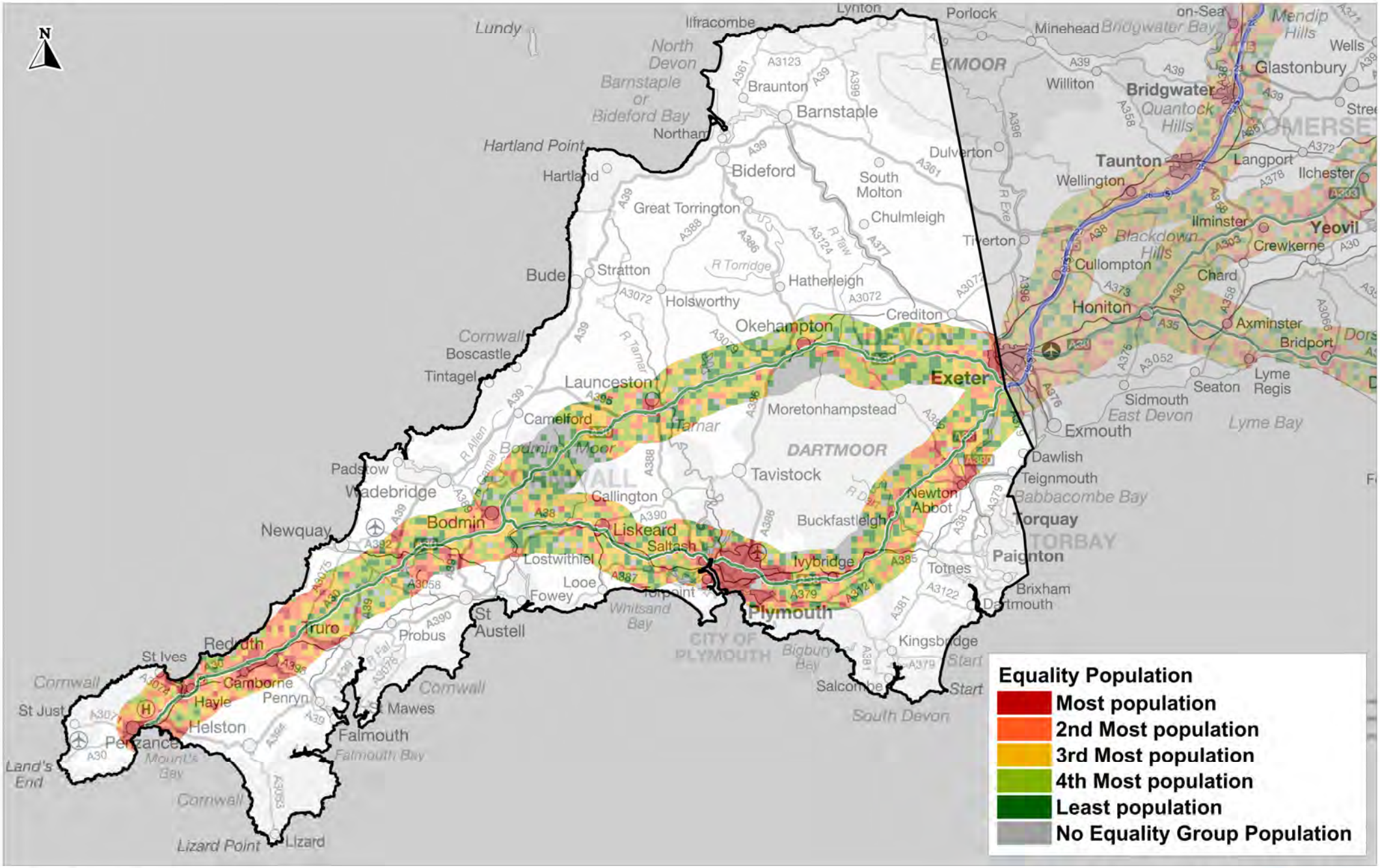

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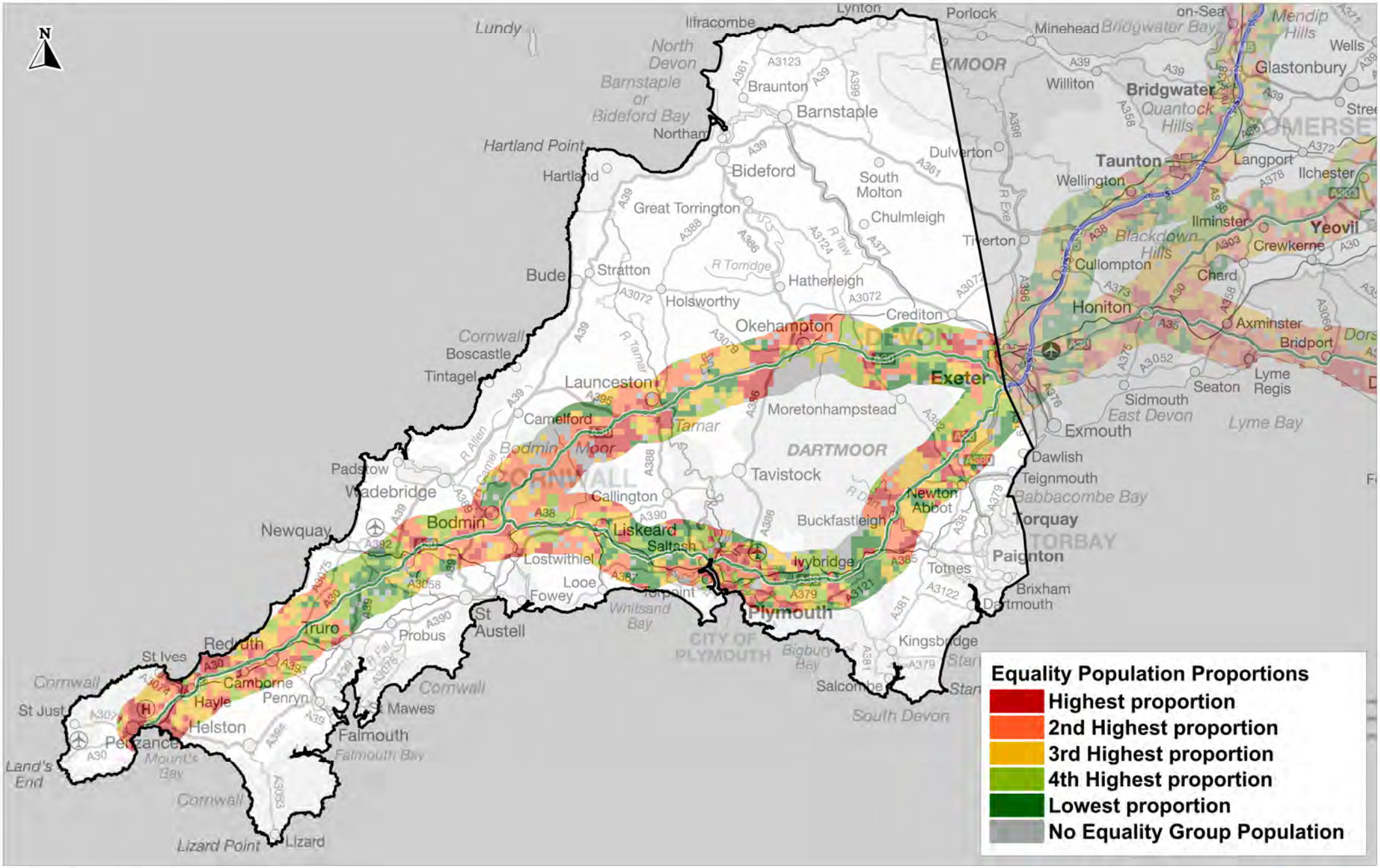
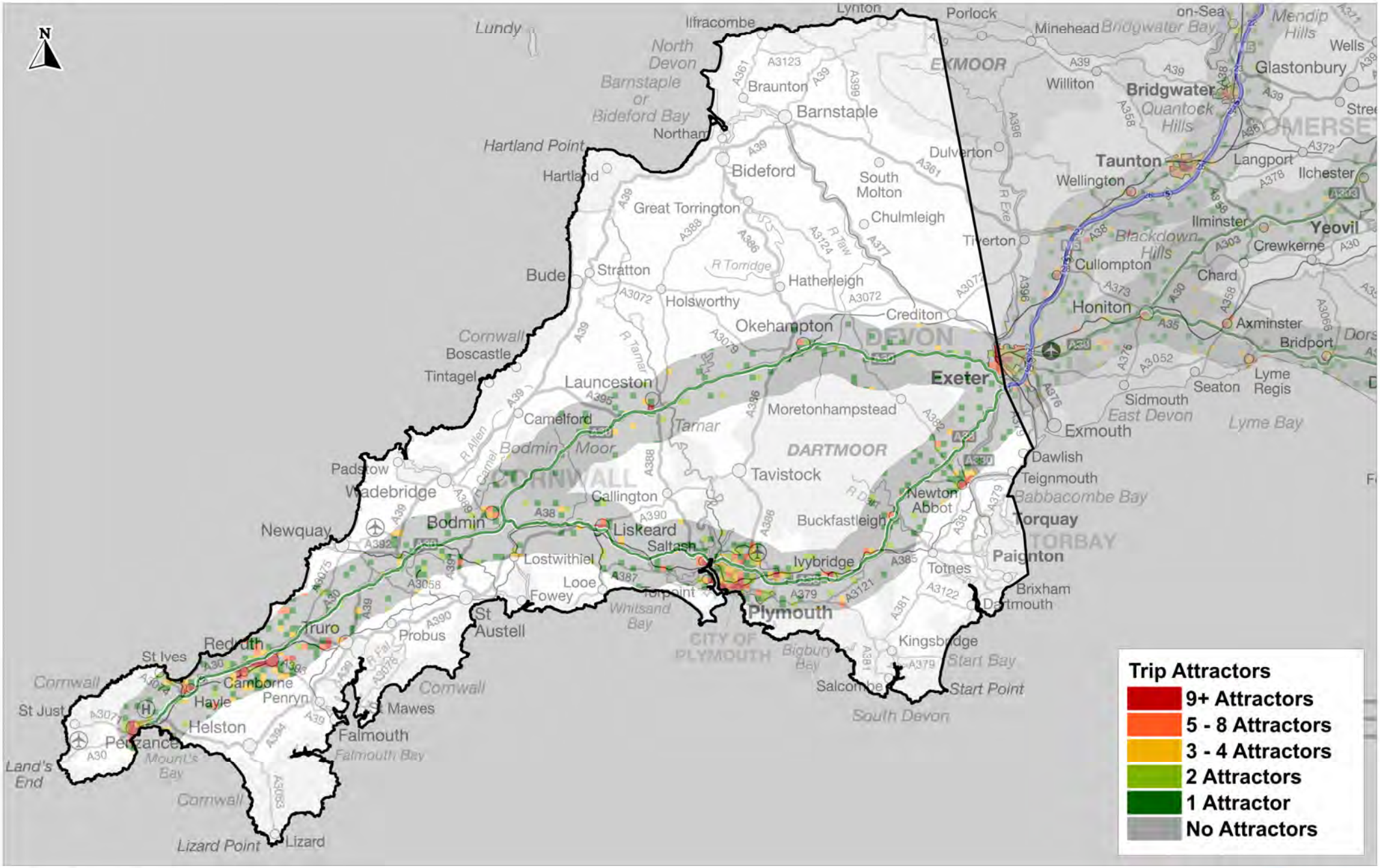
Area 1



Mott MacDonald

Area 1



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Appendix C Public Consultation 2016 Building Checklist

Building Accessibility Checklist Shortlanesend Village Hall

This checklist will help you to evaluate the accessibility of a venue. It is not a full access audit, but will be helpful for you when planning events, such as training.

Access Issue	Yes	No	Measurement / Distance if appropriate	Comments
ACCESS TO BUILDING / TRAVEL				
1. Is there accessible public transport to the venue?	Yes		Newquay, Stenalees, Truro	
a) Low floor bus route?				
b) Taxi drop off point?	Yes		In car park	
c) Metro link?		No		
d) Train station close by?		No	Via Truro	
2. Are the pavements leading to the venue in good condition with dropped kerbs?		No	Last 30m to venue does not have footpath	
a) Good accessible road crossings with warning texture and crossing systems?		No		
3. Is there accessible parking near the entrance?	Yes			
a) How many spaces are there?	Yes		Parking for approximately 40 vehicles	
b) Is it within 50 metres uncovered or 100 metres covered to an accessible entrance?	Yes		Within 50m uncovered	
c) Is there lighting from the accessible parking to accessible entrance?		No	Not required due to summer consultation	
4. Is the main entrance easy to recognise, which can be defined by a unique physical feature or colour?	Yes		Main aspect of the building	
a) If dark outside is there appropriate lighting?		No	Not required due to summer consultation	
5. Is the entrance accessible?	Yes			
a) If there is a ramp, does it have a levelled area at the top?		No	Not required	
b) If the doors are closed, can they be opened unaided by a person in a wheelchair i.e. light weight door (try opening it with one finger), low door handle…?			Doors will be left open	
c) Are steps and floor level changes clearly marked with a bright contrast edging?			No steps or level changes	
6. Is there an entrance Lobby where a wheelchair user can move clear of one door before using the next one?	Yes			
a) Does the lobby door have space to be fully opened?	Yes			
b) Is there a trip hazard?		No		
c) Is there a visual panel so you can see someone approaching?	Yes			
7. Is there a reception area?		No		
a) Is there a low area for someone who may not be able to see over the counter?			N/A	
b) Is there a higher area for tall people who might find it difficult to			N/A	

bend for signing things?				
c) Is there a minicom?		No		
d) Is there a fax?		No		
e) Are the staff trained to help with disabilities?		No	Staff are members of the project team	
8. Are the floor surfaces non-slip?			Not clear – floors are vinyl	Not clear
a) Does the floor surface create a glare?	Yes		Light does reflect from vinyl floor	Not clear
9. If there is seating, do some have armrests?	Yes		Seats do not have armrests	
a) Is the seating fixed to the floor?		No		
b) Is the seating set out in rows and if so can you get a walking frame down the rows?		No		
c) Is there a clear space for wheelchair users to sit where they are away from traffic flow?	Yes		This will be incorporated into the floor plan	
ROOM AND FACILITIES				
10. Is there clear access to the meeting room?	Yes			
a) Wide doors?	Yes			
b) Wide corridor?	Yes			
c) No obstacles in the way i.e. rubbish bin, etc…		No	This will be reinforced on the floor plan	
d) If the doors are closed, can they be opened unaided by a person in a wheelchair i.e. light weight door (try opening it with one finger), low door handle…?				Not clear
11. Is there colour contrasting in the building so that the doors and fixtures are easy to distinguish?	Yes			
a) Does the furniture contrast with the surroundings so that people don't bump it?	Yes		Chairs are in a distinguishable colour	
12. Is there an accessible toilet at least 1.5m x 2.2m?	Yes		Venue has disabled toilet	
a) how many toilets are there?	Yes		Three	Not clear
b) Wide door?	Yes			
c) Is there a low door handle?	Yes			
d) Does the handle have a lock that can be flipped or slid to lock? I.e. no twisting locks	Yes			
e) Is it kept clear of storage equipment?	Yes			
f) Is it easily accessible from the meeting room?	Yes			
g) Is the sink near the toilet, so it can be reached while on the toilet, but not located in the transfer space?		No		Not clear
13. Do the average toilets have door handles no higher than 1.1m?	Yes			Not clear
a) Are the cubical door handles near 80cm from the floor & have a lock that can be flipped or slid? I.e. no twisting locks				Not clear
b) Do the toilets and sinks contrast with surroundings so they can be				Not clear

easily identified?				
14. Is the meeting room on the ground floor?	Yes			
a) If not is there a lift?				
b) Are the buttons in the lift at the height that a wheelchair user could reach?				
15. Is there equipment to assist with hearing?		No	The is a hearing loop at the other venues, hearing facilities will be communicated to appropriate disability groups	
a) Is there a working induction loop available to users of the meeting room?		No		
b) Do you have amplifiers and microphones available to hirers of the meeting room?		No		
c) Does the wiring for these systems impede access to seating			N?A	
d) Are there power points available to plug in equipment?	Yes			
16. Is there clear signage?				Not yet finalised
a) Is only the first letter of each word capitalised?				Not yet finalised
b) Is the font simple or plain, such as Arial or Helvetica?				Not yet finalised
c) Is there colour contrasting, such as black & white or yellow & dark blue?				Not yet finalised
18. Is there an outdoors area for a Service or Guide dog to "relieve" itself?	Yes			
19. Is there a public phone?				
a) Is there a low phone for wheelchair users?	Yes			
b) Is there a minicom for Deaf people?		No		
EVACUATION PROCEDURES				
20. What is the evacuation procedure for assisting wheelchair users out of the building? Give details…			TBC	

Created by James Kennaby, Diversity Team –
GTN – 6189 4184, 0121 678 4184

Source data includes –
www.salford.gov.uk
and
www.laria.gov.uk
(Document entitled – Guidelines on Effective Communication and Consultation with Disabled People)

Building Accessibility Checklist – St. Erme

This checklist will help you to evaluate the accessibility of a venue. It is not a full access audit, but will be helpful for you when planning events, such as training.

Access Issue	Yes	No	Measurement / Distance if appropriate	Comments
ACCESS TO BUILDING / TRAVEL				
1. Is there accessible public transport to the venue?	Yes		Newquay, Wadebridge, Truro	
a) Low floor bus route?				
b) Taxi drop off point?	Yes		In car park	
c) Metro link?		No		
d) Train station close by?		No	Via Truro	
2. Are the pavements leading to the venue in good condition with dropped kerbs?		Yes	Footpath access to south end of gravel car park. Approximately 100m.	
a) Good accessible road crossings with warning texture and crossing systems?		No		
3. Is there accessible parking near the entrance?	Yes			
a) How many spaces are there?	Yes		Parking for approximately 80 vehicles	
b) Is it within 50 metres uncovered or 100 metres covered to an accessible entrance?	Yes		Up to 100m uncovered	
c) Is there lighting from the accessible parking to accessible entrance?		No	Not required due to summer consultation	
4. Is the main entrance easy to recognise, which can be defined by a unique physical feature or colour?	Yes		Main aspect of the building. Signing boards will also be in place	
a) If dark outside is there appropriate lighting?		No	Not required due to summer consultation	
5. Is the entrance accessible?	Yes			
a) If there is a ramp, does it have a levelled area at the top?		No	Not required	
b) If the doors are closed, can they be opened unaided by a person in a wheelchair i.e. light weight door (try opening it with one finger), low door handle…?			Doors will be left open	
c) Are steps and floor level changes clearly marked with a bright contrast edging?			No steps or level changes	
6. Is there an entrance Lobby where a wheelchair user can move clear of one door before using the next one?	Yes			
a) Does the lobby door have space to be fully opened?	Yes			
b) Is there a trip hazard?		No		
c) Is there a visual panel so you can see someone approaching?	Yes			
7. Is there a reception area?		No		
a) Is there a low area for someone who may not be able to see over the counter?			N/A	
b) Is there a higher area for tall people who might find it difficult to			N/A	

bend for signing things?				
c) Is there a minicom?			There is a hearing loop system integrated with the PA/sound system	
d) Is there a fax?		No		
e) Are the staff trained to help with disabilities?		No	Staff are members of the project team	
8. Are the floor surfaces non-slip?			Not clear – floors are vinyl	Not clear
a) Does the floor surface create a glare?	Yes		Light does reflect from vinyl floor	Not clear
9. If there is seating, do some have armrests?	Yes		Seats do not have armrests	
a) Is the seating fixed to the floor?		No		
b) Is the seating set out in rows and if so can you get a walking frame down the rows?		No		
c) Is there a clear space for wheelchair users to sit where they are away from traffic flow?	Yes		This will be incorporated into the floor plan	
ROOM AND FACILITIES				
10. Is there clear access to the meeting room?	Yes			
a) Wide doors?	Yes			
b) Wide corridor?	Yes			
c) No obstacles in the way i.e. rubbish bin, etc…		No	This will be reinforced on the floor plan	
d) If the doors are closed, can they be opened unaided by a person in a wheelchair i.e. light weight door (try opening it with one finger), low door handle…?				Not clear
11. Is there colour contrasting in the building so that the doors and fixtures are easy to distinguish?	Yes			
a) Does the furniture contrast with the surroundings so that people don't bump it?	Yes		Chairs are in a distinguishable colour	
12. Is there an accessible toilet at least 1.5m x 2.2m?	Yes		Venue has disabled toilet	
a) how many toilets are there?	Yes			Not clear
b) Wide door?	Yes			
c) Is there a low door handle?	Yes			
d) Does the handle have a lock that can be flipped or slid to lock? I.e. no twisting locks	Yes			
e) Is it kept clear of storage equipment?	Yes			
f) Is it easily accessible from the meeting room?	Yes			
g) Is the sink near the toilet, so it can be reached while on the toilet, but not located in the transfer space?		No		Not clear
13. Do the average toilets have door handles no higher than 1.1m?	Yes			Not clear
a) Are the cubical door handles near 80cm from the floor & have a lock that can be flipped or slid? I.e. no twisting locks				Not clear

b) Do the toilets and sinks contrast with surroundings so they can be easily identified?				Not clear
14. Is the meeting room on the ground floor?	Yes			
a) If not is there a lift?				
b) Are the buttons in the lift at the height that a wheelchair user could reach?				
15. Is there equipment to assist with hearing?	Yes		Integrated into the PA/Sound system	
a) Is there a working induction loop available to users of the meeting room?	Yes			
b) Do you have amplifiers and microphones available to hirers of the meeting room?	Yes			
c) Does the wiring for these systems impede access to seating	No		To be incorporated into floor plan	
d) Are there power points available to plug in equipment?	Yes			
16. Is there clear signage?				Not yet finalised
a) Is only the first letter of each word capitalised?				Not yet finalised
b) Is the font simple or plain, such as Arial or Helvetica?				Not yet finalised
c) Is there colour contrasting, such as black & white or yellow & dark blue?				Not yet finalised
18. Is there an outdoors area for a Service or Guide dog to "relieve" itself?	Yes			
19. Is there a public phone?				
a) Is there a low phone for wheelchair users?				Not clear
b) Is there a minicom for Deaf people?		No		
EVACUATION PROCEDURES				
20. What is the evacuation procedure for assisting wheelchair users out of the building? Give details…			TBC	

Created by James Kennaby, Diversity Team –
GTN – 6189 4184, 0121 678 4184

Source data includes –
www.salford.gov.uk
and
www.laria.gov.uk
(Document entitled – Guidelines on Effective Communication and Consultation with Disabled People)

Appendix B Factual Report of Topsoil Investigation

A30 CHIVERTON TO CARLAND CROSS

FACTUAL REPORT OF TOPSOIL INVESTIGATION

Carried out for:

Interserve Construction Limited
395 George Road
Erdington
Birmingham
B23 7RZ

JULY 2018

Report No: H8051/TS

SOCOTEC UK Limited
Registered Office: SOCOTEC House, Bretby Business Park, Ashby Road, Burton upon Trent, DE15 0YZ

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Report No H8051/TS

July 2018

Issue No Date	Status	Prepared by	Checked by	Approved by
1 July 2018	Final report	NAME and QUALIFICATIONS Malcolm Gray BSc MSc	NAME and QUALIFICATIONS Simon Mason BSc BForSc MI Soil Sci	NAME and QUALIFICATIONS Simon Mason BSc BForSc MI Soil Sci
		SIGNATURE 	SIGNATURE 	SIGNATURE 
		NAME and QUALIFICATIONS	NAME and QUALIFICATIONS	NAME and QUALIFICATIONS
		SIGNATURE	SIGNATURE	SIGNATURE

SOCOTEC UK Limited was formerly known as Environmental Scientifics Group Limited. The Certificate of Incorporation on Change of Name was filed on 16 October 2017.

CONTENTS

1 INTRODUCTION

In April 2018 SOCOTEC UK Limited (formerly known as ESG) was commissioned by Interserve Construction to carry out a topsoil investigation for preparatory A30 Chiverton to Carland Cross. The investigation was required to obtain information on the topsoil quality / fertility for a proposed heathland habitat translocation / establishment project.

The scope of the investigation was specified by ARUP and comprised the collection of 14 No. topsoil samples at 7 No. locations using a pot or cheese corer / auger and laboratory analysis of the topsoil samples for a range of soil quality / fertility parameters.

This report presents the factual records of the fieldwork and laboratory testing.

2 SITE SETTING

The A30 Chiverton to Carland Cross development site is approximately 12.72 km in length, however, the topsoil sampling for the heathland establishment is agricultural land and heathland habitat located to the west of Carland Cross roundabout.

3 FIELDWORK

The topsoil sampling was performed in general accordance with Natural England (NE, 2008) Technical Information Note 035 – Soil sampling for habitat recreation and restoration. At each topsoil sample location a pot-corer sample from 0 to 7.5 cm and cheese-corer sample obtained from 0 to 20 cm were obtained for laboratory analysis. The sample depth of the cheese-corer sample SS-CC-03 was restricted to 15 cm due to dense granular gravels and cobbles.

The fieldwork took place on 8 and 9 May 2018.

The topsoil sample locations are presented in Drawing D1.

The topsoil sample locations are listed in the following table.

TABLE 1 : SUMMARY OF TOPSOIL SAMPLE LOCATIONS

SAMPLE LOCATION	HABITAT	POT-CORER SAMPLE (0-7.5 CM)	CHEESE-CORER SAMPLE (0-20 CM)	REMARKS
SS1	Heathland	-	-	Site not accessible
SS2B	Heathland	SS-PC-02B	SS-CC-02B	Original sample location not accessible, obtained sample from nearest accessible location within the same field
SS3	Heathland	SS-PC-03	SS-CC-03	
SS4	Grazing pasture	SS-PC-04	SS-CC-04	
SS5	Grazing pasture	SS-PC-05	SS-CC-05	
SS6	Grazing pasture	SS-PC-06	SS-CC-06	
SS7	Grazing pasture	SS-PC-07	SS-CC-07	
SS8	Arable crop	SS-PC-08	SS-CC-08	

Photographs of the site and topsoil encountered are presented in Appendix B.

On completion of the fieldwork topsoil samples were transported to the laboratories of NRM, Berkshire for analysis.

4 SOIL DESCRIPTION

The soil encountered was described in accordance with the Soil Survey of England and Wales Field Handbook (Technical Monograph No. 5, 1975), to include soil structure, compaction, aeration and potential drainage characteristics, and stone content. Soil texture has been classified using the USDA soil texture classification system.

The samples from locations SS-04, SS-06 and SS-08 were similar and could generally be described as dark yellowish brown (Munsell colour 10YR 4/4), slightly to moderately stony, slightly moist, occasionally friable, generally SANDY CLAY LOAM, grading to CLAY with depth in SS-08, with a moderately well-developed structure, consisting of fine (<2 mm), medium (2 - 5 mm) and coarse (6 - 15 mm) granular aggregates and sub-angular blocky aggregates (>15 mm) that break into granular aggregates with light to firm pressure. The samples had a frequent to moderate content of fine to coarse roots, decreasing with depth (ie. frequent in the PC sample, and moderate in the PC samples.

The samples from locations SS-02 could be described as dark greyish brown (Munsell colour 10YR 4/2), slightly stony, slightly moist, SANDY CLAY LOAM grading to CLAY with depth, with a moderately well-developed structure, consisting of fine (<2 mm), medium (2 - 5 mm) and coarse (6 - 15 mm) granular aggregates and sub-angular blocky aggregates (>15 mm). The samples had a frequent to moderate content of fine to coarse roots, decreasing with depth.

The samples from locations SS-03 could be described as very dark grey (Munsell colour 10YR 3/1), slightly stony to very stony and grading to a gravel stratum at 150 mm below ground level, very moist, ORGANIC SANDY LOAM (Peat), with a poorly developed to moderately well-developed structure, consisting of medium (2 - 5 mm) and coarse (6 - 15 mm) granular aggregates and sub-angular blocky aggregates (> 15 mm). The samples had frequent content of medium and coarse roots.

The samples from locations SS-05 could be described yellowish brown (Munsell colour 10YR 5/4), slightly stony to stony, slightly moist, occasionally friable, CLAY LOAM, with a moderately well-developed to well-developed structure, consisting of fine (<2 mm), medium (2 - 5 mm) and coarse (6 - 15 mm) granular aggregates and sub-angular blocky aggregates (>15 mm) that in the top 75 mm of soil break into granular aggregates with light pressure. The samples contained a moderate content of fine and medium roots.

The samples from locations SS-07 could be described as brown (Munsell colour 10YR 4/3), slightly stony, slightly moist, CLAY, with a moderately well-developed structure, consisting of fine (<2 mm), medium (2 - 5 mm) and coarse (6 - 15 mm) granular aggregates and sub-angular blocky aggregates (>15 mm), that occasionally break into granular aggregates with firm pressure The samples had a frequent to moderate content of fine to coarse roots, decreasing with depth.

The topsoil encountered at all sample locations was free of deleterious material (brick, ash, concrete, glass, etc.) and no particular odours were noted.

4 LABORATORY TESTING

Topsoil quality / fertility laboratory testing was scheduled by SOCOTEC on all 14 No. soil samples and the results are presented in Appendix A.

- Particle Size Analysis (sand, silt and clay content)
- Stone Content (2-20 mm, 20-50 mm and >50 mm)

- Soil Reaction (pH Value in 1:2.5 water extract)
- Electrical Conductivity (Salinity) Value
- Organic Matter (Loss on ignition)
- Total Nitrogen
- Available Phosphorus
- Available Potassium
- Available Magnesium

REFERENCES

BSI 3882 : 2015 : Specification for Topsoil. British Standards Institution, London. April 2015.

Hodgson, M. : 1976 : Soil Survey Field Handbook. Soil Survey of England and Wales. Technical Monograph No. 5, Harpenden.

MAFF : 1998 : The Soil Code Revised 1998, Code of Good Practice for the Protection of Soil, Ministry of Agriculture Fisheries and Food, Welsh Office Agriculture Department, October 1998

Munsell Color Company Inc. : 1973 : Baltimore, Maryland 21218, USA.

Natural England : 2008 : Technical Information Note 035 – Soil sampling for habitat recreation and restoration. First edition 21st February 2008.

DRAWINGS

Sample Location Plan

GENERAL NOTES

1. Reproduced from Interserve Construction Limited's Drawing.
2. Hole Locations to National Grid Co-ordinate Reference System.

LEGEND TO SYMBOLS

● Soil Sampling

Scale: 1:1500

0 15m 30 45 60 75

x	x	x	x	x	x
Rev	Drawn	Date	Approv.	Date	Modification Details

AMENDMENTS

Title

SITE PLAN

Project

A30 CHIVERTON TO CARLAND CROSS
PHASE 2 ADDITIONAL
GROUND INVESTIGATION

Client

INTERSERVE
CONSTRUCTION LIMITED

SOCOTEC

Date	Drawn By	Approv. By
10/07/2018	BS	NK

Sheet Size	Scale	Project No
A3	1:1500	H8051-18

Drawing No	Rev
D1	0

APPENDIX A
LABORATORY TEST RESULTS

Certificate of Analysis

Client	:	Interserve Construction Limited	Our Ref.	:	H8051
Client Reference	:	/	Date Received	:	08/05/2018
Suite ID	:	Landscape Package 1	Date Reported	:	23/05/2018
Site Details	:	A30 Chiverton to Carland	Sampled by	:	SOCOTEC

Soil Sample Reference :		**SS-PC-02B**	**SS-CC-02B**	**SS-PC-03**	**SS-CC-03**
Particle Size Distribution	**(USDA Classification)**				
Clay (<0.002mm)	%	31	39	10	9
Silt (0.063-0.002mm)	%	23	31	36	28
Sand (2.00-0.063mm)	%	46	30	54	63
Textural Class		SCL	CL	SL	SL
Stone Content (Dry Weight Basis)					
Stones 2-20mm	%w/w	9.9	7.2	8.1	21.4
Stones 20-50mm	%w/w	1.1	2.3	10.1	22.1
Stones >50mm	%w/w	0	0	0	0
Soil Reaction & Soluble Salts					
pH Value †	units	5.5	5.5	4.9	4.9
Electrical Conductivity †	µS/cm	112	99	137	135
Organic Matter & Nutrient Status					
Organic Matter (LOI^)	%	10.6	9.5	53.1	39.8
Total Nitrogen	%	0.5	0.43	1.57	0.99
Extractable Phosphorous	mg/l	5	4	9	8
Extractable Potassium	mg/l	110	88	93	85
Extractable Magnesium	mg/l	71	73	167	144

Notes:

† 1:2.5 water extract

^ Loss on Ignition

pH & EC Value

- Acid
- Alkaline
- Low salinity

Organic Matter & Nutrient Status

- ✓ No Improvement required
- M May benefit from improvement
- × Improvement recommended

USDA Soil Texture Classification

C	Clay	Z	Silt
CL	Clay Loam	ZC	Silty Clay
S	Sand	ZCL	Silty Clay Loam
SC	Sandy Clay	ZL	Silt Loam
SCL	Sandy Clay Loam	L	Loam
SL	Sandy Loam	LS	Loamy Sand

See report comments

Coding/interpretations/comments are valid only when viewed in accordance with the associated report

Sample(s) were analysed by the UKAS accredited laboratory of NRM

Certificate of Analysis

Client	:	Interserve Construction Limited	Our Ref.	:	H8051
Client Reference	:	/	Date Received	:	08/05/2018
Suite ID	:	Landscape Package 1	Date Reported	:	23/05/2018
Site Details	:	A30 Chiverton to Carland	Sampled by	:	SOCOTEC

Soil Sample Reference :		**SS-PC-04**	**SS-CC-04**	**SS-PC-05**	**SS-CC-05**
Particle Size Distribution	**(USDA Classification)**				
Clay (<0.002mm)	%	27	28	35	31
Silt (0.063-0.002mm)	%	23	23	29	26
Sand (2.00-0.063mm)	%	50	49	36	43
Textural Class		SCL	SCL	CL	CL
Stone Content (Dry Weight Basis)					
Stones 2-20mm	%w/w	9.8	13.8	13.7	6.3
Stones 20-50mm	%w/w	3.8	6.3	4.1	1.9
Stones >50mm	%w/w	0	0	4	0
Soil Reaction & Soluble Salts					
pH Value †	units	6.8	7	5.7	5.5
Electrical Conductivity †	µS/cm	103	88	95	135
Organic Matter & Nutrient Status					
Organic Matter (LOI^)	%	6.2	5.6	6.2	9.1
Total Nitrogen	%	0.31	0.27	0.33	0.4
Extractable Phosphorous	mg/l	8	6	8	12
Extractable Potassium	mg/l	65	52	41	50
Extractable Magnesium	mg/l	49	48	44	53

Notes:

† 1:2.5 water extract

^ Loss on Ignition

pH & EC Value

- Acid
- Alkaline
- Low salinity

Organic Matter & Nutrient Status

- ✓ No Improvement required
- M May benefit from improvement
- × Improvement recommended

USDA Soil Texture Classification

C	Clay	Z	Silt
CL	Clay Loam	ZC	Silty Clay
S	Sand	ZCL	Silty Clay Loam
SC	Sandy Clay	ZL	Silt Loam
SCL	Sandy Clay Loam	L	Loam
SL	Sandy Loam	LS	Loamy Sand

See report comments

Coding/interpretations/comments are valid only when viewed in accordance with the associated report

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Certificate of Analysis

Client	:	Interserve Construction Limited	Our Ref.	:	H8051
Client Reference	:	/	Date Received	:	08/05/2018
Suite ID	:	Landscape Package 1	Date Reported	:	23/05/2018
Site Details	:	A30 Chiverton to Carland	Sampled by	:	SOCOTEC

Soil Sample Reference :		**SS-PC-06**	**SS-CC-06**	**SS-PC-07**	**SS-CC-07**
Particle Size Distribution	**(USDA Classification)**				
Clay (<0.002mm)	%	29	24	50	49
Silt (0.063-0.002mm)	%	25	21	33	34
Sand (2.00-0.063mm)	%	46	55	17	17
Textural Class		SCL	SCL	C	C
Stone Content (Dry Weight Basis)					
Stones 2-20mm	%w/w	2.6	12.6	0.9	9.6
Stones 20-50mm	%w/w	0	11.9	0	2.4
Stones >50mm	%w/w	0	0	0	0
Soil Reaction & Soluble Salts					
pH Value †	units	5.3	5.8	5.4	5.5
Electrical Conductivity †	µS/cm	116	89	107	91
Organic Matter & Nutrient Status					
Organic Matter (LOI^)	%	11.2	5.1	11.3	7
Total Nitrogen	%	0.46	0.24	0.46	0.31
Extractable Phosphorous	mg/l	7	5	7	5
Extractable Potassium	mg/l	87	64	75	65
Extractable Magnesium	mg/l	60	39	52	48

Notes:

† 1:2.5 water extract

^ Loss on Ignition

pH & EC Value

- Acid
- Alkaline
- Low salinity

Organic Matter & Nutrient Status

- ✓ No Improvement required
- M May benefit from improvement
- × Improvement recommended

USDA Soil Texture Classification

C	Clay	Z	Silt
CL	Clay Loam	ZC	Silty Clay
S	Sand	ZCL	Silty Clay Loam
SC	Sandy Clay	ZL	Silt Loam
SCL	Sandy Clay Loam	L	Loam
SL	Sandy Loam	LS	Loamy Sand

See report comments

Coding/interpretations/comments are valid only when viewed in accordance with the associated report

Sample(s) were analysed by the UKAS accredited laboratory of NRM

Certificate of Analysis

Client	:	Interserve Construction Limited	Our Ref.	:	H8051
Client Reference	:	/	Date Received	:	08/05/2018
Suite ID	:	Landscape Package 1	Date Reported	:	23/05/2018
Site Details	:	A30 Chiverton to Carland	Sampled by	:	SOCOTEC

Soil Sample Reference :		**SS-PC-08**	**SS-CC-08**
Particle Size Distribution	**(USDA Classification)**		
Clay (<0.002mm)	%	30	41
Silt (0.063-0.002mm)	%	24	32
Sand (2.00-0.063mm)	%	46	27
Textural Class		SCL	C
Stone Content (Dry Weight Basis)			
Stones 2-20mm	%w/w	7.1	11.4
Stones 20-50mm	%w/w	3	6.2
Stones >50mm	%w/w	0	0
Soil Reaction & Soluble Salts			
pH Value †	units	6.4	6.4
Electrical Conductivity †	µS/cm	91	91
Organic Matter & Nutrient Status			
Organic Matter (LOI^)	%	5	5.8
Total Nitrogen	%	0.26	0.27
Extractable Phosphorous	mg/l	11	11
Extractable Potassium	mg/l	56	106
Extractable Magnesium	mg/l	20	26

Notes:

† 1:2.5 water extract

^ Loss on Ignition

pH & EC Value

- Acid
- Alkaline
- Low salinity

Organic Matter & Nutrient Status

- ✓ No Improvement required
- M May benefit from improvement
- × Improvement recommended

USDA Soil Texture Classification

C	Clay	Z	Silt
CL	Clay Loam	ZC	Silty Clay
S	Sand	ZCL	Silty Clay Loam
SC	Sandy Clay	ZL	Silt Loam
SCL	Sandy Clay Loam	L	Loam
SL	Sandy Loam	LS	Loamy Sand

See report comments

Coding/interpretations/comments are valid only when viewed in accordance with the associated report

Sample(s) were analysed by the UKAS accredited laboratory of NRM

APPENDIX B

PHOTOGRAPHS

PHOTOGRAPHS

Plate 1: Wheat field location for SS-08

Plate 2: Sample SS-CC-08 from 0 to 0.2 mm below ground level (bgl).

Plate 3: Location of sample SS-04

Plate 4: Sample SS-CC-04.

Plate 5: Field from which samples SS-05 were obtained

Plate 6: Sample SS-CC-05

Plate 7: Location of SS-07 (SS-06 was also located in a lower part of this grazed field)

Plate 8: Collection of soil for sample SS-CC-07

Plate 9: Location of sample SS-02B. Auger in situ.
The required location for SS-02 was not safely accessible

Plate 10: Sample SS-CC-02B

Plate 11: Location SS-03B. Survey flag marks location for subsequent GPS measurement.

Plate 12: Organic sandy loam (peat) of sample SS-PC-03B

Appendix C Nightjar Survey Report 2018

BSG | ecology

A30 Chiverton to Carland Cross, Cornwall

Nightjar Survey Report 2018

BSG | ecology

Issuing office

Merlin House | No 1 Langstone Business Park | Newport | NP18 2HJ
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Client	Arup
Project	A30 Chiverton to Carland Cross, Cornwall; Nightjar Survey Report 2018
Version	DRAFT
Project number	P18-365 A30 Nightjar Survey Report 2018.docx

	Name	**Position**	**Date**
Originated	Joanne Conway	Ecologist	09 August 2018
Reviewed	Owain Gabb	Partner	09 August 2018
Approved for issue to client	Owain Gabb	Partner	17 August 2018
Issued to client	Owain Gabb	Partner	17 August 2018
Revised and reissued (client comments)	Owain Gabb	Partner	13 September 2018

Contents

1 Summary

1.1 The Government's Road Investment Strategy: 2015 to 2020, published in 2014, sets out the vision for the strategic road network and includes a commitment to improve the A30 between Chiverton and Carland Cross to dual carriageway standard.

1.2 A comprehensive review of options and extensive analysis of responses to the 2016 public consultation was undertaken and on 3 July 2017, the preferred route for the A30 Chiverton to Carland Cross improvement scheme was announced by Highways England. The preferred route provides a new dual carriageway running to the north of the existing A30 between Chiverton and Chybucca and to the south between Chybucca and Carland Cross. The existing A30 will be kept to provide a local route.

1.3 The scheme, comprises the construction of 14km (8.7 miles) of offline dual carriageway between Chiverton Cross roundabout and Carland Cross junction on the A30. The existing Chiverton Cross and Carland Cross roundabouts are to be replaced with grade separated junctions to provide connections to the local highway network.

1.4 The scheme is required as this section of the A30 is the last remaining length of single carriageway between Camborne and the M5 motorway, and regularly experiences congestion and delays.

1.5 To accommodate the new dual carriageway, the existing A30 will be retained to provide a local route. The existing A30 will connect to a number of minor side roads leading to and from Truro to the south of the A30, and to and from Perranporth and Newquay to the north.

1.6 BSG Ecology was commissioned by Arup, acting on behalf of Highways England, to conduct nightjar survey work in relation to the scheme in 2018. This followed initial survey by WSP Parsons Brinkerhoff in 2017, which recorded the presence of one breeding pair of nightjar in the Newlyn Downs Special Area of Conservation (SAC), located approximately 200 m to the northwest of the existing A30 at its closest point.

1.7 The 2018 work involved desk study, a ground-truthing visit to identify all areas with some apparent potential as nightjar breeding habitat, and surveys for churring males.

1.8 Surveys were conducted of four areas of potentially suitable habitat, in accordance with industry standard guidance, during June and July 2018.

1.9 No nightjars were recorded within any of the four survey areas during the work.

2 Introduction

Project Description

2.1 The Government's Road Investment Strategy: 2015 to 2020, published in 2014, sets out the vision for the strategic road network and includes a commitment to improve the A30 between Chiverton and Carland Cross to dual carriageway standard.

2.2 A comprehensive review of options and extensive analysis of responses to the 2016 public consultation was undertaken and on 3 July 2017, the preferred route for the A30 Chiverton to Carland Cross improvement scheme was announced by Highways England. The preferred route provides a new dual carriageway running to the north of the existing A30 between Chiverton and Chybucca and to the south between Chybucca and Carland Cross. The existing A30 will be kept to provide a local route.

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2.5 To accommodate the new dual carriageway, the existing A30 will be retained to provide a local route. The existing A30 will connect to a number of minor side roads leading to and from Truro to the south of the A30, and to and from Perranporth and Newquay to the north.

Background to commission

2.6 BSG Ecology was commissioned by Arup, on behalf of the Highways England, to undertake a nightjar *Caprimulgus europaeus* survey in relation to the proposed dual carriageway.

2.7 Survey work had previously been completed in 2017 by WSP Parsons Brinkerhoff (hereafter referred to as 'WSP'). Following submission of the report from this study, concerns were expressed by Natural England as to whether they represented an accurate baseline[1].

2.8 The WSP surveys returned records of two nightjars (a male and female) on Newlyn Downs SAC (approximately 475 m from the existing A30). WSP concluded that these observations were likely to refer to a breeding pair.

Aims of study

2.9 The aims of the 2018 study were to:

- Establish a clear rationale to support the selection of areas for nightjar survey in relation to the proposed scheme.
- Complete robust baseline surveys for the species in accordance with industry standard guidance.

[1] Natural England's comments included (in summary) that there was a lack of clear rationale in the report with regard to areas selected for survey, the timing of survey work (all surveys were completed in July) did not sample the entire survey period identified in guidance, and that they were concerned about the feasibility of surveying two areas relatively remote from each other on the same evening (this had been undertaken in 2017).

3 Methods

Desk study

Literature Review

3.1 A literature review was carried out in order to define typical nightjar breeding habitat in southern England.

3.2 The Forestry Commission (2017) state that breeding pairs require an area of at least two hectares of suitable habitat in order to nest. They typically occur in lowland heath (often scattered with scrub and some taller trees such as silver birch *Betula pendula* or Scots pine *Pinus sylvestris*), woodland edges and clearings, young forestry plantations (which are used up to 15-20 years after planting), and coppiced woodland (Cadbury, 1981; Gilbert *et al.* 1998; Forestry Commission, 2017). Occasional patches of bare ground are also considered to be important for nesting (Berry, 1979). Nightjars can forage up to 3km away from nest sites (Forestry Commission, 2017). Key foraging habitats include heathlands, moorlands, open areas of woodland or clear-felled conifer plantations and scrubby vegetation; however they may also use orchards, gardens, riparian habitats and freshwater wetlands (Henderson *et al.* 2018; RSPB, 2018).

3.3 The 2004 National Nightjar Survey examined the association of churring males with habitat features in forestry and heathland sites (Conway *et al.* 2007). A clear dependency on two main habitat types, coniferous plantation and heathland, was noted. These habitats supported approximately 40% and 55% of the national nightjar population respectively. At least 59% of churring male nightjars in the UK were associated with areas of land containing heathland, while 55% of churring males were associated with areas of land containing forestry plantations, and 10.2% with mixed/broadleaf woodland[2]. Similar results were noted in previous National Nightjar Surveys in 1981 (Gribble, 1983) and 1992 (Morris *et al.* 1994). Between 1992 and 2004, there was a 21% increase in the number of male-occupied sites that contained heathland and a 9% increase in the number of male-occupied sites that contained forest plantations (planted and unplanted) (Conway *et al.* 2007).

3.4 In Southwest England, the percentages of males associated with woodland and heathland were 50% and 52%, respectively (Conway *et al.* 2007). Heathland accounted for 57% of suitable nesting habitat, while unplanted habitats (i.e. bare ground or areas with brash) within forestry (as opposed to young plantations) constituted 77% of suitable nesting habitat (Conway *et al.* 2007). It was found that a higher number of males were associated with dry heath than wet heath, and significantly higher numbers of males were recorded close to edge features (rides and forest margins) than within the interior coupes (Conway *et al.* 2007).

3.5 Gilbert *et al.* 1998, which is generally treated as the industry standard guidance for nightjar survey, indicates that areas that require survey for nightjar comprise all regularly occupied sites, formerly occupied sites and potential sites, including clearfell, young forestry plantations and areas of lowland heath.

3.6 Based on this review, typical nightjar breeding habitat in Southwest England includes areas of clearfell, young forestry plantation, and / or lowland heath habitats that are larger than 2 hectares. Additional habitat that may be critical to supporting breeding nightjar in some locations included broadleaved and mixed woodland.

[2] The percentages of churring male nightjars associated with different habitat types are able to equate to more than 100% given that each individual can be associated with more than one habitat type / habitats grade into each other in places.

Review of aerial imagery

3.7 Online aerial images[3], Ordnance Survey mapping[4] and The Multi Agency Geographic Information for the Countryside (MAGIC) website[5], were used to obtain information on the locations of suitable nightjar habitat in relation to the proposed scheme.

3.8 In 2017 areas within 500 m of the proposed scheme (as detailed in the WSP (2018) report) were surveyed. This survey area was derived from appropriate literature (Ruddock & Whitfield, 2007) and discussion with Natural England. It was therefore adopted as an appropriate perimeter search area for scoping habitat suitability for nightjar in 2018.

Data request

3.9 The British Trust for Ornithology (BTO) was approached for nightjar records in relation to the proposed route and the Newlyn Downs SAC, following discussion with Greg Conway (Research Ecologist, BTO) on 21 May 2018.

3.10 In 2017 WSP had approached the Environmental Records Centre for Cornwall and Isles of Scilly (ERCCIS) and the Cornwall Bird Watching and Preservation Society (CBWPS). Nightjar records were requested by WSP from within 5 km and 2 km, respectively, of the existing A30 route between Chiverton Cross and Carland Cross.

Field survey

Reconnaissance

3.11 A reconnaissance visit was undertaken by Gareth Lang on 31 May and 1 June 2018.

3.12 This visit involved driving around the local area (concentrating on land within 500 m of the A30), and assessing the potential of sites previously identified by WSP, and any additional areas identified during the desk study, to support breeding nightjars.

Nocturnal / Crepuscular Survey

3.13 The 2018 nightjar surveys were carried out in accordance with industry standard guidance (Gilbert *et al.* 1998).

3.14 Visits to each survey area were completed out in both June and July 2018. The dates, times and weather conditions of each survey are given in **Appendix 1**. Despite the very small size of Area 4, and the proximity of Areas 1, 2 and 4 to one another, all areas were surveyed on separate nights, in order to ensure that each survey was carried out thoroughly and in optimum conditions.

3.15 Guidance (Gilbert *et al.* 1998) recommends that surveys commence 20 minutes after sunset in order to allow light levels to reduce to a point where nightjars will become active. Given the overcast weather and the lowland locations of most of the areas, there were frequently low light levels at sunset. Therefore, on each occasion, the survey was commenced when conditions were suitable for nightjar to become active (based on experience from other sites). The survey start times in relation to published sunset times in **Appendix 1** reflect this.

3.16 Transect routes and stop points for each area were determined during the ground truthing work on 31 May and 1 June 2018. A suitable amount of stop points were chosen for each survey area; these were located within 100 m of areas of typical nightjar breeding habitat within each site selected. Each stop point was 10 minutes in duration, during which surveyors listened and watched for nightjars. A recording of a churring male nightjar was played for one minute halfway through the stop point time, in order to elicit a response if no nightjar had been recorded at that time (nightjars respond readily to tapes and are often captured by ringers who use audio recordings to lure them

[3] Google Maps (https://www.google.co.uk/maps) and the Google Earth Pro software.
[4] 'Where's the Path?' available at https://wtp2.appspot.com/wheresthepath.htm
[5] http://magic.defra.gov.uk/

into mist nets). Transect routes and stop points were reversed for all areas during the second visit in order to avoid any bias associated with light levels and detectability.

3.17 The transect routes and stop points for Areas 1 – 4 are presented in **Figures 2** - **5**, respectively.

3.18 Given the history of nightjar breeding in Area 1, two additional visits to the Newlyn Downs SAC were made during appropriate weather conditions (and within the time window for effective survey identified by Gilbert *et al*.) to confirm apparent absence and to ensure the accuracy of the snapshot surveys. During these additional visits (completed after the work had been done on Area 4 – a very small area), a transect was walked across Area 1, but no stopping points were used (in order that the whole of the area could be covered within a suitable time period).

3.19 All surveys were carried out in suitable weather conditions; with wind speeds of no greater than Beaufort force 3 and in the absence of heavy rain (see **Appendix 1**).

Limitations

3.20 There were no limitations to the surveys. All surveys were carried out in accordance with the methods recommended by Gilbert *et al.* (1998) and in suitable weather conditions for survey.

Project Personnel

3.21 Owain Gabb MSc, MCIEEM, CEnv undertook the review of this report. Owain has worked as a professional ecologist specialising in ornithology since 1999. During this time he has overseen ornithological survey that has involved the capture and radio tracking of nightjar in Wales, undertaken and co-ordinated conventional surveys for churring males using industry standard methods, and ringed and taken biometric data from nightjar on sites in England and Wales on behalf of the British Trust for Ornithology.

3.22 Gareth Lang MSc, ACIEEM undertook the reconnaissance work. He has previously undertaken survey for nightjar in a variety of moorland and plantation habitats, and also has experience of capture (under licence), radio-tracking and thermal imaging of nightjar to determine their nest locations and ranging behaviour.

3.23 James Garside BSc was the lead ornithological surveyor. James is a technically excellent field ornithologist who has undertaken conventional churring surveys, radio tracking and nest finding of nightjar in Wales, and has filmed nightjar foraging behaviour using thermal imaging cameras.

3.24 Joanne Conway, BSc assisted with the survey, working alongside James during all nocturnal work, and compiled this report. Joanne is currently researching the incidence of *Fringilla* papilloma virus in chaffinch populations in South Wales as part of her studies for a post graduate certificate in ecological survey techniques (Oxford University), and is a trainee bird ringer who has handled and taken biometric data from over 350 birds.

4 Results and Interpretation

Desk study

Review of aerial imagery

4.1 The review of aerial imagery, Ordnance Mapping and the MAGIC website identified the locations of seven areas that were considered to have some potential to support breeding nightjar. These areas were selected for survey based on the following criteria:

- Suitable breeding habitat for nightjar
- Larger than 2 Hectares
- Located within 500 m of the proposed route.

Data request

4.2 The discussion with Greg Conway on 21 May 2018 revealed that there are very few nightjar records from within the last 10 years for the area concerned.

4.3 The data request to the BTO returned records of six nightjars from within a 500 m perimeter of the proposed route and one 3 km to the east of the route, as detailed in **Table 1**.

Table 1: Records returned from the BTO data request.

Date	Site name	Location	Number of nightjars recorded
15/06/2004	St. Newlyn East	Within Area 1: Newlyn Downs, approximately 960 m to the north of the A30.	1 (male)
20/06/2004	St Enoder	3 km to the east of Carland Cross.	1
27/06/2009	Newlyn Downs	Within Area 1: Newlyn Downs, approximately 740 m to the north of the A30.	5

4.4 The ERCCIS data search undertaken by WSP returned no records of nightjar within the last 10 years, however 24 historic records of nightjar were returned. The CBWPS data request returned one record of a churring male at Newlyn Downs in 2009.

Field survey

Reconnaissance

4.5 Following on from the results of the desk study, four areas were scoped in for survey during the ground-truthing exercise (see **Table 2**) and three areas scoped out (see **Table 3**)**.**

4.6 The locations of these four survey areas in relation to the proposed route can be found in **Figure 1**.

Table 2: Areas that were visited and scoped in for survey.

Area name	Distance from proposed A30 route (at closest point) (m)	Grid reference	Area description
Newlyn Downs SAC (Area 1)	172	SW 83278 54144	This area is designated a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI) due to its large areas of dry and wet heath. The area measures approximately 77 hectares and varies in topography. The land is regularly grazed by cattle, resulting in areas of bare ground and variation in sward height across the site. See **Photographs 1** and **2**.
Land adjacent to Trewater Farm (Area 2)	405	SW 85277 53468	This area comprises a disused quarry and surrounding grassland and woodland, measuring approximately 17 hectares. Small areas of heath are interspersed within rank grassland tussocks, areas of bare ground and scattered trees including Scots pine. See **Photographs 3** and **4**.
Allet Common (Area 3)	483	SW 79539 48950	One section of this area belongs to Cornwall Wildlife Trust and comprises a clearing of largely marshy grassland tussocks within an area of woodland. This area is occasionally grazed by ponies. The other two sections of Allet Common also comprise grassland clearings within woodland. The total area measures approximately 5.6 hectares. See **Photographs 5** and **6**.
Land adjacent to A30 Carland Cross (Area 4)	0	SW 84051 53720	This area is smaller than the other areas, measuring approximately 3.6 hectares. It comprises a disused quarry with fringing trees surrounded by small areas of heathland. This area directly borders the A30. See **Photographs 7** and **8**.

4.7 Areas 1, 2 and 3 are the same areas surveyed by WSP in 2017. Area 4 was scoped in for survey in 2018 due to its proximity to the Newlyn Downs SAC where nightjar were found in 2017, and its suitability in terms of nightjar habitat.

4.8 Information on areas that were visited but scoped out for survey can be found in **Table 3**.

Table 3: Areas that were visited but subsequently scoped out for survey.

Area name	Distance from proposed A30 route (at closest point) (m)	Grid reference	Reason for scoping out for survey
Land adjacent to Zelah bypass	114	SW 81406 51407	This area was not considered suitable nightjar habitat as the ground is dominated by wet rush.
Land to the South West of Callestick	246	SW 77320 49363	The suitable heathland area identified is too small (less than 0.2 hectares) to support breeding nightjar.
Land adjacent to Silverwell Farm	504	SW 74874 48314	This area is on the borderline of the 500 m perimeter and quite isolated from any other suitable habitat. The southern side was considered unsuitable for nightjar as it is closely grazed by sheep. The northern side has better potential for nightjar, however it is becoming encroached by scrub and is too small an area (approximately 0.3 hectares) to provide territory for breeding nightjar.

Nocturnal / Crepuscular Survey

4.9 No nightjars were recorded in any of the survey areas during the work in 2018.

4.10 A range of other nocturnal and crepuscular species were recorded including tawny owl *Strix aluco* and barn owl *Tyto alba*.

4.11 Dates, times, durations and weather conditions during surveys are contained in **Appendix 1**.

National Context

4.12 Discussion with Greg Conway on 08 August 2018 revealed there has been no indication that 2018 was a poor year for nightjar in southern Britain. Nightjar numbers for the majority of southern Britain have been broadly consistent with previous years where sufficient data sets are available to allow conclusions to be drawn.

5 Conclusions

5.1 All areas of suitable nightjar breeding habitat were identified and surveyed in 2018 in accordance with industry standard guidance by suitably experienced surveyors. No nightjars were recorded.

5.2 It is concluded that nightjars were absent from all areas of suitable habitat within 500 m of the A30 widening scheme in 2018.

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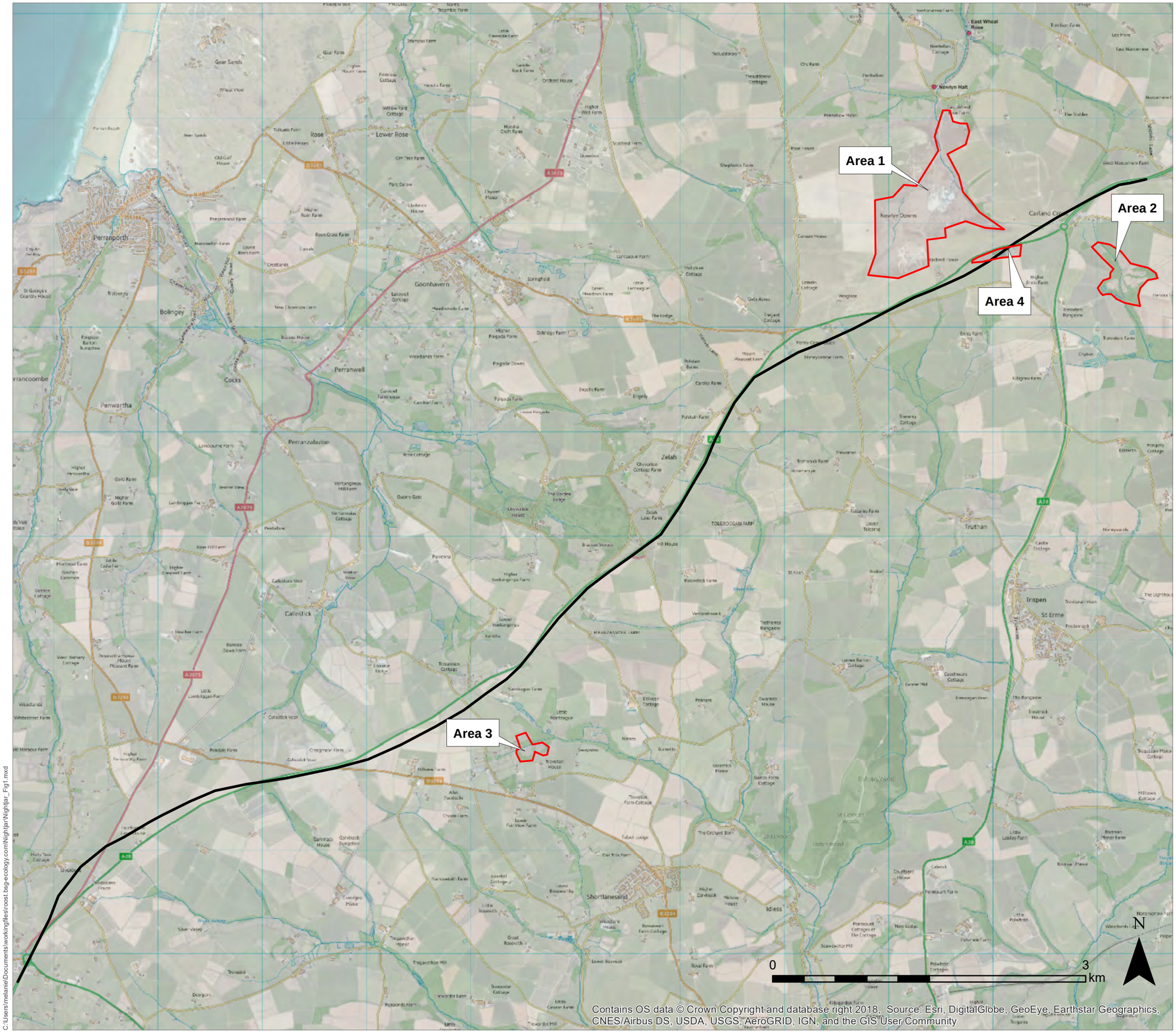
7 Appendix 1: Survey details

Area	Date	Sunset Time	Start Time	End Time	Weather				Nightjar Recorded	Survey Notes
					Temperature (°C)	Wind (Beaufort)	Cloud (oktas)	Precipitation		
1	11/06/2018	21:31	21:51	23:30	14-13	N3	0/8	Nil	N	Survey commenced 20 mins after sunset (in line with guidance (Gilbert *et al.,* 1998)) due to a lack of cloud and the resulting high light levels at dusk.
2	12/06/2018	21:32	21:32	23:26	14-13	N1-2	0-2/8	Nil	N	Due to its topography (low altitude relative to surrounding areas) sunset for this area was noted at 21:12, and light levels were therefore low at dusk. The survey commenced 20 mins after this time. Tawny owl calls (probable nest) were heard to the SE of stop point 2.
3	14/06/2018	21:32	21:33	23:09	14-13	0	0/8	Nil	N	Due to its topography (low altitude relative to surrounding areas) sunset for this area was noted at 21:13, and light levels were therefore low at dusk.
4	13/06/2018	21:33	21:32	22:15	15	SE3	8	Nil	N	Survey commenced at sunset due to overcast conditions and the resulting low light levels.
1	02/07/2018	21:34	21:54	23:39	21-19	0	0-1/8	Nil	N	Survey started 20 mins after sunset (in line with guidance (Gilbert *et al.,* 1998)) due to lack of cloud and resulting high light levels at dusk. Barn owl observed during tape play at SP4.
2	05/07/2018	21:34	21:34	23:18	17-16	N1-2	0-2/8	Nil	N	Due to its topography (low altitude relative to surrounding areas) sunset for this area was noted at 21:14, and light levels were therefore low at dusk. The survey commenced 20 mins after this time.

Area	Date	Sunset Time	Start Time	End Time	Weather				Nightjar Recorded	Survey Notes
					Temperature (°C)	Wind (Beaufort)	Cloud (oktas)	Precipitation		
3	04/07/2018	21:34	21:34	22:47	17-16	0	8	Nil	N	Due to its topography (low altitude relative to surrounding areas) and the overcast conditions, light levels were low at dusk.
4	03/07/2018	21:34	21:34	22:09	16	E3	8	Light Drizzle	N	Survey commenced at sunset due to overcast, misty weather and resulting low light levels.

8 Figures

(overleaf)



LEGEND

- Survey Area Boundary
- Proposed route for new road

BSG | ecology

OFFICE: Newport
T: 01633 509 000

JOB REF: P18-365

PROJECT TITLE
A30 NIGHTJAR MONITORING

DRAWING TITLE
Figure 1: Survey area locations

DATE: 17.08.2018 | CHECKED: JC | SCALE: 1:35,000
DRAWN: MS | APPROVED: OG | VERSION: 1.3

Sources: BSG Ecology survey data

C:\Users\melanie\Documents\working\files\roost.bsg-ecology.com\Night\arNight\ar_Fig1.mxd

LEGEND

- Survey Area boundary
- Transect route
- Stop point

BSG | ecology

OFFICE: Newport
T: 01633 509 000

JOB REF: P18-365

PROJECT TITLE

A30 NIGHTJAR MONITORING

DRAWING TITLE

Figure 2: Survey Area 1- Newlyn Downs

DATE: 13.08.2018 CHECKED: JC SCALE: 1:6,000

DRAWN: MS APPROVED: OG VERSION: 1.1

Sources: BSG Ecology survey data

C:\Users\melanie\Documents\working\files\roost.bsg-ecology.com\Nightjar\Nightjar_Fig2.mxd

LEGEND

- Survey Area boundary
- Transect route
- Stop point

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OFFICE: Newport
T: 01633 509 000

JOB REF: P18-365

PROJECT TITLE

A30 NIGHTJAR MONITORING

DRAWING TITLE

Figure 3: Survey Area 2 - Land adjacent to Trewater Farm

DATE: 13.08.2018 CHECKED: JC SCALE: 1:2,500

DRAWN: MS APPROVED: OG VERSION: 1.1

Sources: BSG Ecology survey data

C:\Users\melanie\Documents\working\files\roost.bsg-ecology.com\Nightjar\Nightjar_Fig3.mxd

LEGEND

- Survey Area boundary
- Transect
- Stop point

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T: 01633 509 000

JOB REF: P18-365

PROJECT TITLE

A30 NIGHTJAR MONITORING

DRAWING TITLE

Figure 4: Survey Area 3 - Allet Common

DATE: 13.08.2018 CHECKED: JC SCALE: 1:1,250

DRAWN: MS APPROVED: OG VERSION: 1.2

Sources: BSG Ecology survey data

C:\Users\melanie\Documents\working\files\roost.bsg-ecology.com\Nightjar\Nightjar_Fig4.mxd

LEGEND

- Survey Area boundary
- Transect route
- Stop point

BSG | ecology

OFFICE: Newport
T: 01633 509 000

JOB REF: P18-365

PROJECT TITLE

A30 NIGHTJAR MONITORING

DRAWING TITLE

Figure 5: Survey Area 4 - Land adjacent to A30 (Carland Cross)

DATE: 13.08.2018 CHECKED: JC SCALE: 1:1,500

DRAWN: MS APPROVED: OG VERSION: 1.1

Sources: BSG Ecology survey data

C:\Users\melaniel\Documents\working\files\roost bsg-ecology.com\Nightjar\Nightjar_Fig5.mxd

9 Photographs

Photograph 1: View of the northern aspect of Area 1: Newlyn Downs Special Area for Conservation (SAC).	**Photograph 2**: View of the southern aspect of Area 1: Newlyn Downs SAC.
	

Photograph 3: View at Stop Point 1 within Area 2: Land adjacent to Trewater Farm.	**Photograph 4**: View of Stop Point 2 within Area 2: Land adjacent to Trewater Farm.
	

Photograph 5: View at Stop Point 1 within Area 3: Allet Common.	**Photograph 6**: View at Stop Point 3 within Area 3: Allet Common
	

Photograph 7: View at Stop Point 2 within Area 4: Land adjacent to A30 (Carland Cross).	**Photograph 8**: View at Stop Point 1 within Area 4: Land adjacent to A30 (Carland Cross).
	

Appendix D Bat Survey Report 2019

European Union
European Regional Development Fund

highways england

A30 Chiverton to Carland Cross

BAT SURVEY REPORT 2019

Notice

Table of Contents

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1 Introduction

1.1 Background

1.1.1 This report details the methodologies, results and conclusions of bat surveys carried out at the A30 Chiverton to Carland Cross between May and August 2018.

1.1.2 These surveys were commissioned by Highways England (HE) to address any gaps identified in the survey coverage of the 2016 and 2017 bat surveys undertaken to inform the Environmental Statement (ES) chapter **Ecology and Nature Conservation** (Volume 6 Document Reference 6.2 ES Chapter 8). These gaps were either due to the design not having been finalised in certain locations at the time of the previous surveys or due to access constraints.

1.1.3 The extent of the 2018 bat surveys were agreed in consultation with Natural England (NE) during a meeting on 22 March 2018; the surveys were conducted between April and August 2018. A list of the surveys and a summary of the reasons why they were proposed can be found in Table 1-1.

Table 1-1 List of 2018 bat surveys

Site ID	2017 ID	Chainage	National Grid Reference	Justification for 2018 Survey and Scope
B1 Elmsleigh	Building 32	Ch 7+210	SW 79911 50355	The building was assessed as moderate potential but due to access constraints further surveys could not be arranged in 2017. Two dusk emergence and/ or dawn re-entry surveys in 2018 were therefore proposed.
B2 NFH barn	Building 35	Ch 7+320	SW 80024 50393	The building was confirmed in 2017 to be a multi-species roost used by lesser horseshoe bat *Rhinolophus hipposideros*, brown long-eared bat *Plecotus auritus*, and a *Myotis* species (likely Natterer's bat *Myotis nattereri*) as a night roost, as well as used by common pipistrelle *pipistrellus pipistrellus* and brown long-eared bat as a day/ transitional roost. The building was subject to three dusk/dawn surveys to characterise the roost in 2017 but due to access restrictions these were undertaken one week apart (instead of a minimum of two weeks as per guidelines) in late August and early September 2017. To remove any uncertainty that the building might support a maternity roost, a further survey in late May 2018 was proposed. In order to try to identify the species of *Myotis* using the building, a trapping survey was also proposed which would enable a reliable identification in the hand.
Trees / woodland southwest of Chyverton Estate	T77 to T104	Ch 7+600 to Ch 8+000	SW 80330 50813	Since the route alignment was confirmed in July 2017, the ground level tree assessment was repeated to ensure all trees within 50m of the new alignment had been assessed.
T94 and T99	T94 and T99	Ch 7+600 to Ch 8+000	SW 80330 50813	Several bat droppings were recorded in T94 during an aerial tree climbing inspection in 2017 but they could not be collected for DNA analysis. A species of *Myotis* bat was seen in

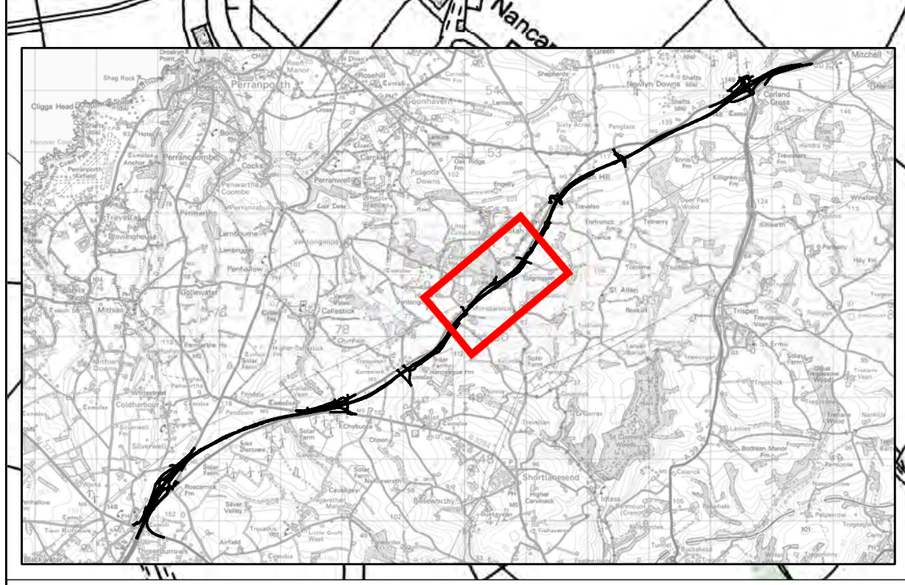
Site ID	2017 ID	Chainage	National Grid Reference	Justification for 2018 Survey and Scope
				T99 during the 2017 aerial climbing inspections but it was not possible to confirm to species level/obtain any droppings. A further aerial inspection was therefore proposed to both these trees to try to identify the species in each.
B3	Building 42	Ch 8+000	SW 80475 50911	This building was confirmed to be a day / transitional / occasional roost of brown long-eared bat and common pipistrelle in 2017, but only two of the three dusk/dawn surveys had been carried out. Since the route alignment was confirmed in 2017, the roost has been identified as within 50 metres of the scheme. As such, a third survey was completed in 2018 to be in line with guidance.
B4, B5, B6, B7 and B8 - Zelah Lane Farm	N/A	Ch 8+540	SW 80823 51278	The buildings at this property are within 50m of the proposed Tolgroggan Bridge and were not surveyed in 2017. Since the route alignment was confirmed in July 2017, these buildings were surveyed to determine the presence / likely absence of roosting bats.
B9	N/A	Ch 8+580	SW 80830 51298	This building is within 50m of the proposed Tolgroggan Bridge and was not surveyed in 2017. Since the route alignment was confirmed in July 2017, this building was surveyed to determine the presence / likely absence of roosting bats.
Trevalso Cottage	Building 51	Ch 9+600	SW 81517 52103	The building was confirmed as a maternity roost for a species of *Myotis* bat (suspected Natterer's bat) and brown long-eared bat, however no access had been granted to inside the building to collect droppings and confirm the species of *Myotis*. An internal inspection was therefore proposed, access permitting. **This survey was not carried out in 2018 due to ongoing access constraints.** **The assessment within the ES, however, was conducted based on this being a maternity roost of *a Myotis* species and brown long-eared bat at a distance within 20 meters of the scheme; determining the *Myotis* to species level does not affect the overall assessment of bats, nor the necessary mitigation which relates to disturbance only. This roost is also included within the Draft Bat Licence for which mitigation is proposed. and will be re-surveyed during the pre-construction surveys to inform the Final Bat Licence.**
Pennycome quick	Buildings 62 and 63	Ch 10+900	SW 82369 53002	Access restrictions in 2017 meant only one dusk survey was carried out of these moderate potential buildings. No internal/external inspection was permitted. *Myotis* species' activity was recorded during the dusk survey. A further dusk/dawn survey

Site ID	2017 ID	Chainage	National Grid Reference	Justification for 2018 Survey and Scope
				and internal/external inspection was therefore proposed, access permitting. **These surveys were not carried out in 2018 due to ongoing access constraints.** **These buildings were assessed as moderate potential buildings within the ES at a distance over 50m. These buildings are not considered to be affected by construction or operational impacts due to distance, and as such were scoped out of being considered within the Draft Bat Licence.**
Quarry pond west of Carland Cross roundabout	N/A	Ch 12+700	SW 84075 53695	No static activity survey had been carried out previously in vicinity of the quarry pond and surrounding woodland, which will be partially lost to the scheme. A static detector survey to gain further information on species assemblage / bat activity in this area was therefore proposed.

(Site ID relate to these 2018 surveys, and 2017 ID relate to the 2017 surveys as detailed within the Ecology and Nature Conservation (Volume 6 Document Reference 6.2 ES Chapter 8))

1.1.4 The report concludes that the findings of these 2018 bat surveys do not affect the overall assessment of the scheme on roosting and foraging bats as presented in **Ecology and Nature Conservation** (Volume 6 Document Reference 6.2 ES Chapter 8).

1.1.5 The findings from these 2018 bat surveys were used to further inform the Draft Bat Licence which has been agreed with Natural England, as captured within the **Statement of Common Ground with Natural England** (Document Reference 7.4.2).



LEGEND

- PROPOSED ROUTE ALIGNMENT
- BUILT STRUCTURES SURVEYED
- TREES SURVEYED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made in the design hazard log)

Construction
NONE

Maintenance / Cleaning
NONE

Use
NONE

Decommission / Demolition
NONE

Rev	Date	Description	By	Chk'd	App'd
C01	05/10/18	FIRST ISSUE	SJ	CJ	JP

Suitability: A3
Drawing Status: STAGE COMPLETED

Designer: ARUP

Client: highways england

European Union
European Regional Development Fund

Project Title: A30 CHIVERTON TO CARLAND CROSS

Drawing Title: SURVEYED BUILDINGS AND TREES BAT SURVEY ADDENDUM REPORT

Scale	Designed / Drawn	Checked	Approved	Authorised
1:5,000	SJ	CJ	JP	IM

Original Size	Date	Date	Date	Date
A3	05/10/18	05/10/18	05/10/18	05/10/18

Drawing Number: Project | Originator | Volume | Location | Type | Role | Number
HA551502-ARP-EBD-SW-DR-LE-000085

Revision: C01

2 Methodology

2.1 Preliminary Bat Roost Assessment (Buildings)

2.1.1 Preliminary bat roost assessments of buildings were carried out in May 2018 (B2 and B9) and August 2018 (B4, B5, B6, B7 and B8) by experienced ecologists Catherine Jones and Gareth Harris (both Natural England bat licence holders (Level 2)). B1 and B3 were excluded from requiring a preliminary bat roost assessment as these buildings had both already been assessed in 2017. B1 was assessed as moderate potential and B3 was confirmed to a roost. B2 was re-visited in 2018 due to being lost to the scheme and further surveys proposed to address the data gap in relation to roost status and *Myotis* species identification. The surveys were undertaken in accordance with the Bat Conservation Trust's (BCT) Good Practice Guidelines [1].

2.1.2 A preliminary bat roost assessment involves a detailed and systematic examination of buildings or other structures to look for features that bats could use for entry/exit and roosting and to search for any evidence of bats. The evidence of bats which is searched for includes: live or dead bats, bat droppings, urine splashes, fur-oil staining (such as around features potentially used for entry/exit), discarded feeding remains such as butterfly wings and audible squeaking noises. Any confirmed roosts, potential roost features (PRFs), potential or actual bat entry/exit points and any evidence of bats found is recorded.

2.1.3 Close focusing binoculars and a high-powered torch were used to search the exterior of buildings. The internal inspection also involved the use of a high-powered torch to search loft voids, basements and any other sufficiently dark undisturbed areas. Features with potential for use by bats were categorised as to their suitability in accordance with BCT's Good Practice Guidelines [1]. These categories are shown in Table 2-1.

Table 2-1 Guidelines on assessing the suitability of habitats for bats

Suitability	Roosting habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions1 and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

From BCT's Good Practice Guidelines [1]

[1] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

2.1.4 The buildings which were subject to preliminary roost assessments are listed with the survey date in Table 2-2 and shown on Figure 1-1.

Table 2-2 Buildings subject to preliminary roost assessments in 2018.

Building ID and Name	2017 ID	Chainage	Grid Reference	Survey date
B2 - NFH	Building 35	Ch 7+320	SW 80026 50392	29.05.2018
B4 - Zelah Lane Farm (Main House)	N/A	Ch 8+540	SW 80823 51276	02.08.2018
B5 - Zelah Lane Farm (Garage)	N/A	Ch 8+540	SW 80831 51262	02.08.2018
B6 - Zelah Lane Farm (Woodstore)	N/A	Ch 8+540	SW 80855 51265	02.08.2018
B7 - Zelah Lane Farm (Shed)	N/A	Ch 8+540	SW 80850 51251	02.08.2018
B8 - Zelah Lane Farm (Barn)	N/A	Ch 8+540	SW 80823 51278	02.08.2018
B9 - Tolgroggan Lodge	N/A	Ch 8+580	SW 80830 51298	31.05.2018

2.2 Dusk Emergence and/or Dawn Re-Entry Surveys

2.2.1 In accordance with BCT's Good Practice Guidelines [1], PRFs and potential entry/exit points assessed as low, moderate or high suitability during the preliminary roost assessment were subject to one, two or three dusk emergence and/or dawn re-entry surveys respectively. Confirmed roosts were also subject to three survey visits to characterise the roosts. All surveys were carried out between May and August 2018. Dusk emergence surveys commenced half an hour before sunset and continued until 1.5-2 hours after sunset. Dawn re-entry surveys commenced 2 hours before sunrise and continued until sunrise.

2.2.2 Each surveyor was equipped with a handheld bat detector, either an Elekon BatLogger M, a Wildlife Acoustics EchoMeter Touch, or a BatBox Duet with a Rowland Edirol MP3 recorder to support the observation and species identification of bats during the surveys. Any calls which could not be identified in the field were later analysed using sound analysis software (see paragraph 2.2.4 for further details).

2.2.3 All surveys were carried out in suitable weather conditions, with temperatures above 10°C at sunset, with no more than light rain and no strong winds, except for one survey, see limitations (paragraph 2.7.6).

The buildings which were subject to dusk emergence and /or dawn re-entry surveys are listed in Table 2-3. Weather conditions are shown with the survey results summary tables in Appendix 1.

Table 2-3 Buildings subject to dusk emergence and /or dawn re-entry surveys

Building ID	2017 ID	Chainage	Grid Reference	Survey dates
B1 - Elmsleigh	Building 32	Ch 7+210	SW 79911 50355	30.05.18 (dusk)
				02.08.18 (dawn)
B2 - NFH barn	Building 35	Ch 7+320	SW 80026 50392	29.05.18 (dusk)
B3 - Chyverton Estate Lodge	Building 42	C 8+000	SW 80475 50911	02.08.18 (dusk)
B4 - Zelah Lane Farm (Main House)	N/A	Ch 8+540	SW 80823 51278	14.08.18 (dawn)
B9 - Tolgroggan Lodge	N/A	Ch 8+580	SW 80830 51298	01.08.18 (dusk)
				13.08.18 (dusk)
				16.08.18 (dawn)

Sound Analysis

2.2.4 The sonograms from the detector recordings were later analysed to reduce uncertainty in species identification. The WAV files from the Elekon BatLoggers were analysed using BatExplorer software version 1.11.4.0. The WAV files from the Echo Meter Touch detectors were analysed using Kaleidoscope Pro 4.3.2. Kaleidoscope was also used to analyse the WAV files from the BatBox Duet recordings.

2.2.5 Species of the same genus in the generas *Plecotus*, *Myotis* and *Nyctalus* have similar call structures and are therefore often difficult to distinguish and identify to species level. Due to the geographical location[2] and habitat structure within the survey area every *Plecotus* bat recorded was assumed to be a brown long-eared bat *Plecotus auritus*. Where it was not possible to distinguish between *Myotis* species, these have been labelled as *Myotis* species. Similarly where it was not possible to distinguish between *Nyctalus noctula* and *Nyctalus leisleri*, these have been labelled as *Nyctalus* species.

2.3 Bat Trapping Survey

2.3.1 A bat trapping survey using a mist net was carried out at B2 (NFH barn) on 29th May 2018 by experienced bat surveyors Gareth Harris (Natural England bat licence holder (advanced Levels 3 & 4)), Chloe Delgery and Catherine Jones (both Natural England bat licence holders (Level 2)). The survey was carried out in accordance with Chapter 9 'Advanced licence bat survey techniques' in the BCT guidance [1]. The survey was carried out in suitable weather conditions with temperatures above 10°C at sunset and no rain or strong winds.

2.3.2 The mist net was secured across the door and window on the west side of the barn before dusk and was left in situ until 01.30am. As explained in Table 1-1, the aim of the survey was to identify the *Myotis* species using the building and to remove any uncertainty that the building supports a maternity roost.

[2] There are no known colonies of grey long-eared bat in Cornwall, there is only a single, unverified record https://www.cornwallmammalgroup.org/brown-long-eared-bat.

2.3.3 The survey was supplemented with the positioning of a Wildlife Acoustics Song Meter Full Spectrum bat detector (SM4BAT FS) inside the barn. The detector was set to record continuously from half an hour before dusk until dawn.

Table 2-4 Buildings subject to trapping surveys

Building Name	2017 ID	Chainage	Grid Reference	Survey date
B2 - NFH barn	Building 35	Ch 7+320	SW 80026 50392	29.05.2018

Sound Analysis

2.3.4 The WAV files from the SM4BAT FS were analysed using Kaleidoscope software version 5.0.3. A similar approach to identification of calls was used as described in paragraph 2.2.5.

2.4 Ground Level Tree Assessment

2.4.1 A ground level tree assessment was carried out in May 2018 by Kim Jelbert of Plan for Ecology, a Natural England bat survey licence holder (Level 2). The survey was carried out in accordance with BCT's Good Practice Guidelines [1] over two dates, 24th May and 29th May 2018. The focus of the survey was the woodland between Ch 7+600 and Ch 8+000, to the southwest of the Chyverton Estate. The survey included all trees of diameter at breast height of 0.25m or above, which were within 50m north of the scheme in this area. For further details on the methodology see Appendix 2.

2.5 Aerial Tree Inspection

2.5.1 An aerial tree inspection was carried out of two trees (T94 & T99), which were both confirmed as bat roosts during the 2017 surveys but the species of bat in both cases could not be confirmed. Both trees were located to the southwest of the Chyverton Estate north of the scheme alignment, see Table 2-5 for location details. The aerial inspections were carried out by experienced ecologist Paul Gregory, a NE bat survey licence holder (Level 2) and were undertaken in accordance with BCT's Good Practice Guidelines [1]. All features that where suitable to potentially support roosting bats in each tree were accessed using a five-piece survey ladder and were inspected with the aid of a digital endoscope. For more detail on the methodology see Appendix 2.

Table 2-5 Trees subject to aerial inspection.

Tree ID	Species	2017 ID	Chainage	Grid Reference	Survey Date
T94	Holme Oak	T94	Ch 7+850	SW 80353 50827	08.05.2018
T99	Sycamore	T99	Ch 7+850	SW 80371 50811	08.05.2018

2.6 Automated Detector Activity Survey

2.6.1 An automated detector survey was undertaken at the quarry pond west of Carland Cross (National Grid Reference: SW 84067 53686), in April, May, June and July 2018 as agreed with Natural England, as detailed in the **Statement of Common Ground with Natural England** (Document Reference 7.4.2). No automated detector survey had been carried out previously in this location which will be partially lost to the scheme. An automated activity survey to gain further information on species assemblage and activity levels was therefore carried out.

2.6.2 Each five-day recording period was carried out in suitable weather conditions. For more detailed information on the sound analysis and the weather conditions, see Appendix 2.

2.6.3 The survey was carried out using a Wildlife Acoustics Song Meter (SM2+) detector which was deployed in a tree on the southern edge of the pond for five consecutive nights each month. The detector was programmed to switch on 30 minutes before sunset, and record continuously until sunrise.

Sound Analysis

2.6.4 The sound analysis of recordings was carried out by experienced bat ecologist Naomi Perry of Plan for Ecology using AnalookW 4.1 software to determine the date, time and species of bats recorded (where possible).

2.6.5 Using the software, a filter was first applied to filter out 'noise' files. Subsequently, all files that the software does not consider to be a bat pass are filtered from the data set into a separate folder. This folder was only interrogated in instances where no/low levels of bats were recorded to ensure the SM2+ had been recording successfully.

2.6.6 To allow standardisation and comparison of static detector survey results the number of bat passes recorded per hour (PPH) was used, as detailed below:

$$\text{Bat PPH} = \frac{\text{Total bat passes recorded at a SM2 location}}{\text{number of hours SM2 surveyed}}$$

2.6.7 This standardisation compensated for the changes in seasonal night length and as such available bat foraging time as well as varying survey length due to battery life or occasional equipment malfunction. The PPH measurement allowed an un-biased comparison of the data. It should be noted that the results of this survey type represent an index of bat activity and not a measure of bat abundance.

2.6.8 Where possible, bat calls were identified to species level. However, species of the genus Myotis were grouped together in most cases as their calls are similar in structure and have overlapping call parameters, making species identification difficult.

2.7 Limitations

Preliminary Bat Roost Assessment (Buildings)

2.7.1 Due to access constraints it was not possible to carry out an internal inspection at Trevalso Cottage (Ch 9+600, 2017 ID Building 51) to confirm the species of

Myotis using the building as a maternity roost. The classification of this building being a maternity roost for *Myotis* and brown long-eared bats, within 20m of the scheme, however, was sufficient to inform the assessment of potential impacts, and not determining the species of *Myotis* did not affect the overall assessment for bats. Furthermore, this classification was sufficient to inform the Draft Bat Licence and the associated mitigation proposed to safeguard this roost during construction.

2.7.2 Due to access constraints it was not possible to carry out an internal and external inspection of Penny-Come-Quick (Ch 10+900, 2017 ID Buildings 62 & 63). These buildings were assessed as moderate potential buildings within the ES at a distance over 50m. These buildings are not considered to be affected by construction or operational impacts due to distance, and as such were scoped out of being considered within the Draft Bat Licence.

2.7.3 Due to access constraints it was not possible to carry out an internal inspection of the main house of Zelah Lane Farm (B4 Ch 8+540), however a full external inspection was conducted which concluded the building to be of low potential and a subsequent dusk emergence/dawn re-entry survey was conducted. A full internal and external inspection was carried out on the other four buildings B5 to B8 within the same farm complex.

2.7.4 Sometimes bats leave no visible sign of their presence on the outside of a building and, even when they do, wet weather can wash evidence away. Therefore, the absence of any evidence found during the external inspection does not always mean the absence of roosting bats. These limitations have not adversely affected the overall integrity of the survey, which was adequate to allow for a reasonable judgement to be made of the likelihood of bats being present.

Dusk Emergence and/or Dawn Re-Entry Surveys

2.7.5 Due to access restrictions it was not possible to carry out the further dusk emergence/dawn re-entry survey proposed at Penny-Come-Quick (Ch 10+900, Buildings 62 & 63). These buildings were assessed as moderate potential buildings within the ES at a distance over 50m. These buildings are not considered to be affected by construction or operational impacts due to distance, and as such were scoped out of being considered within the Draft Bat Licence.

2.7.6 During the third survey visit to B9 Tolgroggan Lodge, a dawn re-entry survey on 16th August 2018, it rained steadily throughout the survey until the last 30 minutes. The survey was not repeated as it was considered that sufficient information had already been gathered to characterise the roosts within this building.

Bat Trapping Survey

2.7.7 There were no known limitations to the survey; it was carried out at the suitable time of year to suit the survey objectives and was undertaken in suitable weather conditions.

Ground Level Tree Assessment

2.7.8 Preliminary ground level tree assessments are best carried out in winter (December – March) after the leaves have fallen and before new leaves replace them in spring to allow for maximum visibility. The survey was carried out in May,

which is sub-optimal as dense foliage reduced visibility. It is therefore recommended the tree assessment is repeated during the winter months at least one year prior to any trees being felled in order to give sufficient time to carry out further aerial inspections and /or dusk emergence surveys and dawn re-entry surveys as required.

2.7.9 The suitability of confirmed roosts or PRFs in trees can change rapidly with, for example, the loss of limbs meaning features are lost/become more exposed, or through use by a different species (such as woodpeckers, owls etc). The findings of ground level tree assessments therefore become out of date quickly, within one to two years.

Aerial Tree Inspection

2.7.10 Individual bats and groups of bats show a sporadic use of roosts; they are known to change roosting sites from day to day. Therefore, the absence of bats in PRFs during a climbing inspection is not proof that it is not a roost. Bat droppings in PRFs may also be quickly decomposed by invertebrates such as woodlice and therefore these signs may only be very temporary.

Automated Detector Activity Survey

2.7.11 On the last date of the May activity survey the batteries of the SM2+ ran out part way through the night since no bat calls or noise files were recorded after 1am. During the July survey, no data was recorded on the 25 July (first night of the five-day monitoring period) or 29 July (last night of the monitoring period). This is likely due to a fault with the 'automated switch on and off times' of the detector. This was accounted for when working out the total hours of recording time per night and per month, before calculating the passes per hour (PPH) for each species so as not to skew the data. This limitation was therefore not considered significant.

2.7.12 Analook uses zero-crossing analysis which can only detect the dominant / strongest, frequency content of any sound wave, whereas full-spectrum analysis provides a higher resolution and higher quality time frequency analysis, which enhances confident species identification. Zero-crossing was used in this instance for continuity since the 2016 automated detector analysis had also used Analook.

2.7.13 It should be noted that any surveys using bat detectors are inherently biased as bats with louder calls (such as *Nyctalus* and *Pipistrellus* species) can be recorded at a greater distance and with greater confidence than species with quiet calls such as *Plecotus* species, quiet calling *Myotis* species, barbastelle bat *Barbastella barbastellus*, or species with highly directional calls like lesser horseshoe bat. This affects the results as it under represents the species with quieter and more directional calls.

3 Results

3.1 Preliminary Bat Roost Assessment

3.1.1 The preliminary bat roost assessment of Building B2, the barn at NFH, which included an inspection for signs of bats prior to the dusk emergence and trapping survey on the 29 May 2018, found no bats or evidence of bats.

3.1.2 The building inspection of B9 Tolgroggan Lodge, which is located 11 metres west of the scheme at Ch 8+500, identified the presence of a brown long-eared bat maternity roost in the loft space. Approximately 30 brown long-eared bats were present. The survey, which was carried out on 30 May 2018, also identified the presence of a high potential feature between the stone wall of the porch and the wooden soffit which had fur oil staining around it and bat droppings on the wall below, likely *Pipistrellus* sp.

3.1.3 The building inspection at Zelah Lane Farm which was carried out 2 August 2018 included the main house (B4) plus four outhouses (B5 to B8), the nearest of which is 6 metres from the scheme. Bat droppings (consistent in shape and size with lesser horseshoe bat) and feeding remains were found in building B7 Zelah Lane Farm shed, suggesting this building, which is 22 metres north of the scheme supports a night roost of this species. Buildings B6 woodstore and B8 barn are located in the immediate vicinity of Building B7, and were also assessed as having potential to be used as night roosts, though no evidence of bats was found in B6 and B8. These three buildings were not the subject to emergence / re-entry surveys as neither were deemed suitable as a day roost (only suitable as a night roost). Two low potential features for bats were recorded on the exterior of the main house B4. B5 was assessed as being of negligible potential, so no further surveys or consideration within this report is required.

3.1.4 The detailed results of the preliminary roost assessments are shown in Appendix 1. A summary of confirmed roosts is found in

3.2 Dusk Emergence and/or Dawn Re-Entry Surveys

3.2.1 The detailed results of the dusk emergence and dawn re-entry surveys can be found in Appendix 1.

3.2.2 A summary of the confirmed bat roosts identified in the buildings from the combined results of the 2016 and 2017 surveys, and the 2018 surveys is given in Table 3-1

Table 3-1 Confirmed Bat Roosts in Buildings

Building ID and Name	Chainage	Species	Roost type	Distance from scheme
B2 NFH barn	Ch 7+320	Rhip, Paur, Ppip, *Myotis* sp.	Night roost (Rhip, *Myotis* sp., Paur). Day /transitional roost (Ppip, Paur).	Within scheme
B3 Chyverton Estate Lodge	Ch 8+540	Ppip, Paur	Day / transitional roost (Ppip, Paur)	2 metres
B7 Zelah Lane Farm Shed	Ch 8+540	Rhip	Night roost	22 metres
B9 Tolgroggan Lodge	Ch 8+580	Paur, Ppip	Maternity roost (Paur), Day / transitional (Ppip)	11 metres

3.3 Bat Trapping Survey

3.3.1 One adult male common pipistrelle was caught in the outside of the mist net at 23:25, indicating that it was trying to fly into the barn. One lesser horseshoe bat was observed by the surveyors flying into the net from the track. It was likely heading into the barn to forage / use the building as a night roost. The bat did not get caught by the net but bounced off and continued north along the track towards the existing A30. No *Myotis* species were caught in the net, entering or emerging from the barn, during the trapping survey so the species of *Myotis* which uses the barn remains unconfirmed.

3.3.2 The following species were recorded foraging / commuting in the vicinity of the barn and along the farm track over the duration of the trapping survey by the surveyors: common pipistrelle, noctule *Nyctalus noctula*, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat and *Myotis* sp.

3.3.3 The SM4BAT FS static detector which had been placed inside the barn to record between dusk and dawn (sunset was 21:19 and sunrise was 05:15) recorded the following species: common pipistrelle (145 passes between 21:44 and 05:00), noctule (1 pass at 21:44), greater horseshoe bat (1 pass at 00:40) and *Myotis* sp. (34 passes between 01:35 and 04:46).

3.4 Ground Level Tree Assessment

3.4.1 The ground level tree assessment identified 85 trees with at least low potential to support roosting bats in the woodland within 50m of the Scheme southwest of the Chyverton Estate. Trees with less than low potential were not described or recorded. Detailed results of the tree assessment can be found in Appendix 2. of the 85 trees with low potential or above:

- no trees were identified with confirmed roosts;
- 3 trees were identified with moderate to high potential;
- 33 trees were identified with moderate potential;
- 6 trees were identified with low to moderate potential; and,
- 43 trees were identified with low potential.

3.4.2 As explained in the Limitations section, the suitability of PRFs in trees can change rapidly with, for example, the loss of limbs meaning features are lost/become

more exposed, or through use by a different species (such as woodpeckers, owls etc). In addition, individual bats and groups of bats show a sporadic use of tree roosts and are known to switch roost on a regular basis. The findings of tree surveys therefore become out of date quickly. Since update bat surveys will be required in 2019/2020 to inform the Final Bat Licence, no further surveys of trees with bat roosting potential were conducted in 2018 to ensure that the most recent information is used to inform the Licence and any necessary mitigation.

3.5 Aerial Tree Climbing Survey

3.5.1 No roosting bats or any signs/evidence of roosting bats were found in either of the two trees T94 and T99 subject to aerial inspections in May 2018. The status of roosts in these trees as recorded in the main ES Vol 6 Nature Conservation therefore remains the same, that T94 is a day/transitional roost for an individual or small number of individual unidentified bats and T99 is a day/transitional roost for an individual or small number of individual *Myotis* sp. bats.

3.6 Automated Detector Activity Survey

3.6.1 During the 2018 automated detector survey period at the quarry pond a total 147 hours of data was recorded, from which 28,887 bat calls were identified. An assemblage of eight species (common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat, noctule bat, Leisler's bat *Nyctalus leisleri*, barbastelle bat, greater horseshoe bat and lesser horseshoe bat) and one species group (*Myotis* sp.) were recorded over the duration of the survey period.

3.6.2 The bat activity index presented in Passes Per Hour (PPH) for each species per month is shown in Table 3-2. A list of all identified calls per hour of recording for each month is included in Appendix 2.

Table 3-2 Quarry Pond 2018 Bat Activity shown in Passes Per Hour by Month

	Passes per hour (PPH) per month												
Month	Ppip[3]	Ppyg	PNat	Rfer	Rhip	Nnoc	NLei	Bbarb	Eser	Paur	*Myotis* sp.	PipSp	All species
April	145.96	0.00	0.00	0.02	0.00	3.09	0.00	0.34	0.00	0.15	0.00	0.00	149.55
May	317.59	0.52	0.00	0.03	0.00	1.34	0.00	0.03	0.00	0.16	0.33	0.00	320.00
June	91.53	1.03	0.00	0.08	0.03	1.79	0.11	0.00	0.00	0.00	1.89	0.08	96.53
July	244.16	0.04	0.00	0.00	0.04	4.71	0.20	0.00	0.00	0.00	6.16	0.00	255.29

3.6.3 Common pipistrelle accounted for the majority of calls recorded, in this case 97.5% of all identified calls across the survey period. The next most recorded species was noctule (1.3% of all identified calls).

3.6.4 The peak of bat activity was recorded during the month of May, see Figure 3-1. Bat activity during this survey period was consistently high for four of the five nights (22 May to 25 May 2018) with over 2,400 common pipistrelle calls recorded each night, see Appendix 2. There are no obvious reasons for the peak in May; it cannot be explained by weather conditions as there were no unfavourable

[3] Key to species abbreviations used here is presented in Abbreviation list at end of this document.

weather conditions during the hours of recording in the April, June or July survey periods. For the purposes of comparison, three of the 15 automated detector locations from the 2016 surveys (Location 11 Trevalso Lane underbridge (Ch 9+720), Location 14 east of Carland Cross roundabout (Ch 13+600) and Location 5 NFH farm track (Ch 7+315)) also had activity peaks in May which were high enough to result in May being the peak in activity overall for the 15 locations combined.

3.6.5 Bat activity on average across all months in passes per hour (all species) at the quarry pond was 196.51 PPH. This is higher compared to the average across all months at the 15 locations surveyed in 2016, the highest of which was 70 PPH (Location 11 Trevalso Lane underbridge (Ch 9+720)). This difference in activity between the 2016 locations and the quarry pond could be attributed to a number of factors, one of which could be that activity season as a whole in 2018 had more favourable weather conditions overall than 2016, which led to an increase in invertebrate numbers and therefore an increase in food source for bats.

3.6.6 It may also be attributed to the habitat context; the quarry pond is a reliable standing waterbody surrounded by a belt of coniferous woodland which provides a wind-break effect in an otherwise open landscape, and the surrounding heathland which supports a good invertebrate assemblage, may account for there being more sustained levels of bat foraging activity over a large proportion of the night.

3.6.7 In addition, the quarry pond survey was undertaken to assess the importance of a potential foraging area. In contrast, the other 15 static automated survey locations from the 2016 surveys were primarily chosen to inform the crossing point survey locations, i.e. to identify important commuting routes which would be severed by the route options at the time. See Table 2.3.1 of the **Bat activity survey report** (Volume 6 Document Ref 6.4 ES Appendix 8.20) for details of the 2016 survey locations.

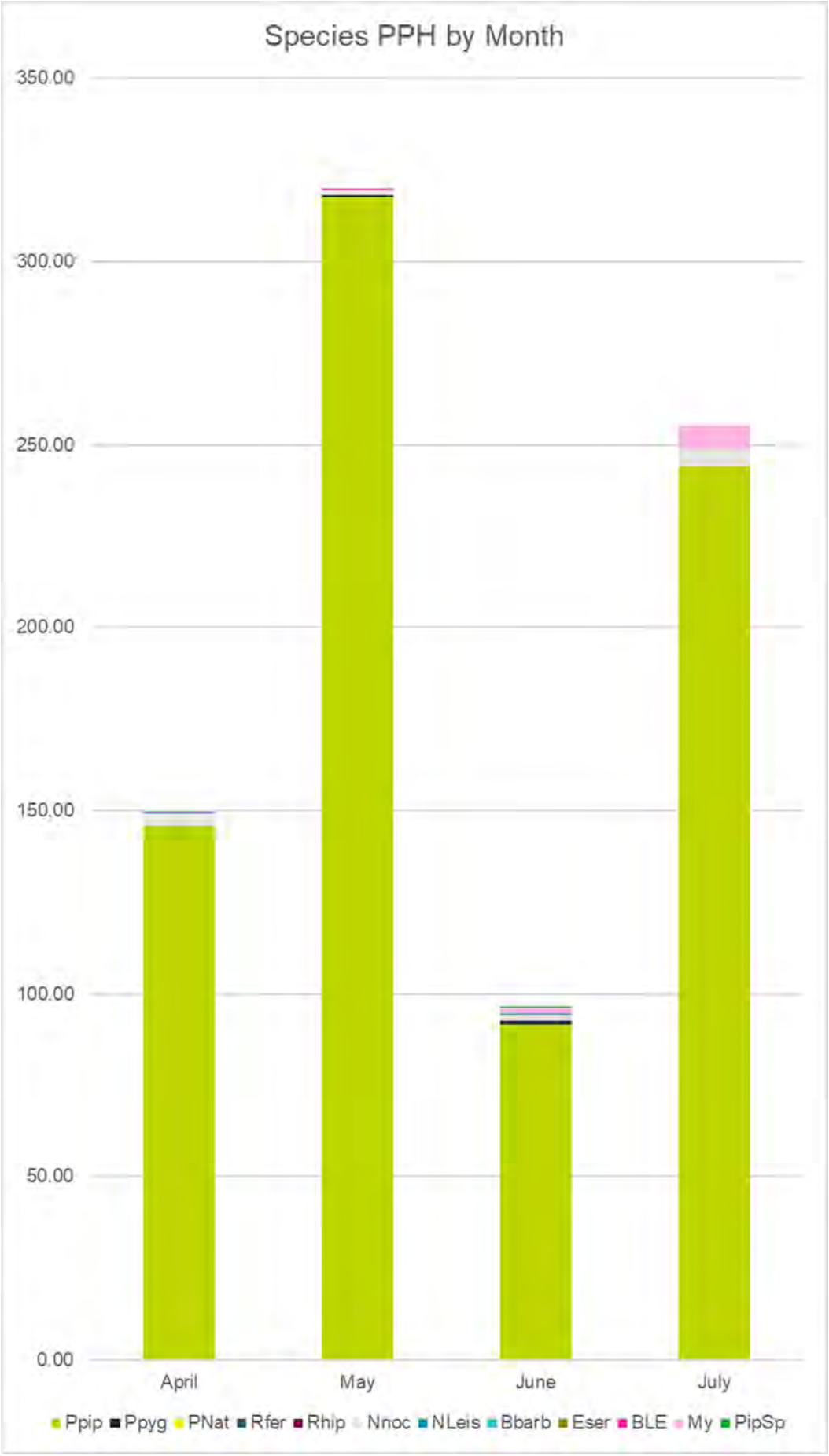


Figure 3-1 Automated Detector Survey Results (PPH by month, all Species)

3.6.8 All three Annex II species which had been recorded during the 2016 automated detector surveys were recorded at the quarry pond site in 2018. In 2016 seven out of the 15 static locations recorded barbastelle, 12 out of 15 locations recorded greater horseshoe bat and 13 out of the 15 locations recorded lesser horseshoe bat.

3.6.9 Barbastelle bat, which is considered widespread but rare in Cornwall and is mainly associated with suitable woodland to the east of Truro[4], was recorded in April and May only with 16 of the total 17 passes recorded in one night (26th April). The earliest of the 16 passes was recorded at 21:57, 1 hour 35 minutes after sunset, the remainder were recorded between 23:00 and 01:00. The only other barbastelle pass recorded was on 24th May at 22:25, 1 hour 13 minutes after sunset. Barbastelle bats are known to emerge early from their roosts, often in daylight, and typically remain within their woodland roost areas for half an hour after emergence [2] before commuting to foraging areas. This data does not therefore suggest they are roosting near the quarry pond. It is more likely that barbastelle uses the woodland and possibly the heathland around the quarry as it is located on their route to wider foraging grounds such as Newlyn Downs.

3.6.10 Greater horseshoe passes were recorded once in April, once in May, three times in June and were absent in July. Lesser horseshoe passes were only recorded once in June and once in July. The very low number of passes recorded of these two species in combination with the challenges to record them as explained under the Limitations section above means it is difficult to draw any conclusions, although these low numbers of passes suggest the quarry pond is not an important foraging site for these species.

[4] https://www.cornwallmammalgroup.org/barbastelle

4 Conclusions and Recommendations

4.1 Bat Roosts

4.1.1 The 2018 survey findings for B2 NFH barn and B3 Chyverton Estate Lodge made no change to the roost species or status already presented in **Ecology and Nature Conservation** (Volume 6 Document Reference 6.2 ES Chapter 8). Therefore, these survey findings do not affect the overall assessment of the Scheme on bat roosts as presented in the ES and the mitigation stated for these building roosts still stands. The mitigation for these have been further assessed and agreed by Natural England within the Draft Bat Licence, which is captured within the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) and through the Letter of No Impediment being issued from Natural England.

4.1.2 Following the publishing of the ES in August 2018, B7 Zelah Lane Farm shed was confirmed as a night roost (likely for lesser horseshoe bat), and B9 Tolgroggan Lodge was confirmed as a common pipistrelle day roost (as well as a brown long-eared maternity roost as already stated in the ES). These new findings do not affect the overall assessment of the Scheme on bat roosts either during the construction or operational stages. Mitigation for both B7 and B9, both of which are being retained and will be further away from the main alignment during operation than the existing A30, has therefore been scoped out from the Draft Bat Licence, based on distance (see **Statement of Common Ground with Natural England** (Document Reference 7.4.2).

4.1.3 Preliminary roost assessments of buildings (as well as dusk emergence / dawn re-entry surveys, as required) should be repeated within one year prior to construction commencing in order to account for changes in building conditions and changes in use of the building by roosting bats as well as to inform the final Bat Licence.

4.1.4 The 2018 tree surveys did not result in any change to the species and status of tree roosts T94 and T99, therefore the assessment of the scheme and the mitigation proposed in **Ecology and Nature Conservation** (Volume 6 Document Reference 6.2 ES Chapter 8) still stands. Whilst all trees at Chyverton Park within 50m of the scheme were ground-based assessed in 2018 following confirmation of the route alignment in July 2017, no further surveys were conducted in 2018 since these surveys will be carried out in 2019/2020 to further inform the final Bat Licence (and to ensure surveys are carried out in the most recent optimal survey season as per licence requirements). Mitigation measures for all known trees roosts within 50m of the scheme have been agreed with Natural England within the Draft Bat Licence, which is captured within the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) and through the Letter of No Impediment being issued from Natural England. Any new roosts identified during the update 2019/2020 tree surveys will follow agreed mitigation which will form part of the Final Bat Licence.

4.2 Foraging and Commuting Bats at Quarry Pond

4.2.1 The species assemblage recorded at the quarry pond during the automated detector survey between April and July 2018 is similar to that recorded across the scheme at the other 15 automated detector locations in 2016.

4.2.2 The average bat activity for the quarry pond across the survey season was higher compared to the other locations surveyed in 2016. As discussed in paragraphs 3.6.5 to 3.6.6, this may be due to a number of factors including favourable weather conditions, habitat quality and food source availability compared to the 2016 locations.

4.2.3 All three Annex II species which have been recorded across the scheme (barbastelle and greater and lesser horseshoe bat) were recorded at the quarry pond, albeit in low numbers, and the data did not indicate that the quarry pond area was of particular importance for these species.

4.2.4 The landscape mitigation proposals (**Environmental Masterplan** (ES Figure 7.6 of Volume 6, Document Ref 6.3)) ensure that bats will be able to continue using the quarry pond area as a foraging resource. The hedgerow which currently provides connectivity to the north side of the quarry pond will be retained and connected to the landscape design to ensure connectivity. To the south of the pond, heathland embankments and hedgerows will provide connectivity to existing hedgerows and habitat features.

4.2.5 The nearest bat underpass to cross the scheme is to the east of the quarry pond being the proposed Newlyn Downs Walking, Cycling and Horse-riding (WCH) underpass (Ch 13+000) which was originally designed for bats, approximately 240m from the pond. The nearest bat underpass to the west of the quarry pond will be the Journeys End culvert (Ch 12+000), approximately 690m from the pond. Proposed Cornish hedgerows and landscape planting will ensure bats are guided towards these structures while maintaining connectivity to existing commuting and foraging features within the landscape.

4.2.6 The findings of 2018 quarry pond automated monitoring does not affect the overall assessment of the Scheme on foraging and commuting bats as presented in **Ecology and Nature Conservation** (Volume 6 Document Reference 6.2 ES Chapter 8), and no change in the mitigation is proposed as mitigation was already considered to ensure connectivity to this foraging resource and maintaining its suitability.

4.3 Conclusion

4.3.1 The results of these 2018 bat surveys do not affect the overall assessment as detailed in **Ecology and Nature Conservation** (Volume 6 Document Reference 6.2 ES Chapter 8). These results were used to further inform the Draft Bat Licence, which has now been agreed with Natural England and captured in the **Statement of Common Ground with Natural England** (Document Reference 7.4.2) and through the Letter of No Impediment being issued from Natural England.

Abbreviations List

Ppip	common pipistrelle *Pipistrellus pipistrellus*
Ppyg	soprano pipistrelle *Pipistrellus pygmaeus*
PNat	Nathusius' pipistrelle *Pipistrellus nathusii*
Paur	brown long-eared bat *Plecotus auritus*
Nnoc	noctule *Nyctalus noctula*
Nleis	Leisler's *Nyctalus leisleri*
Eser	serotine *Eptesicus serotinus*
Mdau	Daubenton's bat *Myotis daubentonii*
Mnat	Natterer's bat *Myotis nattereri*
Mmys	whiskered bat *Myotis mystacinus*
Mbra	Brandt's bat *Myotis brandtii*
Bbar	Western barbastelle *Barbastella barbastellus*
Rfer	greater horseshoe bat *Rhinolophus ferrumequinum*
Rhip	lesser horseshoe bat *Rhinolophus hipposideros*

References

[1] J. Collins, Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)., London: The Bat Conservation Trust, 2016.

[2] Zeale et al, “Home range use and habitat selection by barbastelle bats (Barbastella barbastellus): implications for conservation.,” *Journal of Mammalogy,,* vol. 93(4):, pp. 1110-1118, (2012).

Appendix 1: Bat Survey Results

Building ID:	**B1 - Elmsleigh (Building 32)**		**Final Potential**	**Low Potential**	
Chainage	Ch 7+210		Grid Reference	SW 79911 50355	
Description	• Two-storey stone-built cottage on side of A30, fields behind. • Inspected internally and externally in April 2017, but no response from landowner to undertake further surveys in 2017.				
External	Date: 04/04/2017				
	Roof construction	Wall construction	Windows	Access points	Other features
	Slate-tiled pitched roof in good condition.	Stone, rendered.	Plastic window frames, no gaps present.	Gaps under fascia.	N/A.
Internal	Date: 04/04/2017				
	Description	Size	Truss Design	Access points	Evidence
	Bitumen felt lined, dusty, timber ridge beam.		Simple truss design, not cluttered.	Possible access near chimney, breeze noticed, although access point not found. Possible access under tiles & between felt (although limited).	Within S section of loft, possible bat droppings (~10) typical of *Pipistrellus* sp. (could not safely collect). Cobwebs present. Within N section only one possible dropping noted (not safe to collect).
DNA analysis	N/A				
Limitations	Not safe to collect potential bat droppings.				
Potential	Moderate	No. surveys required.	2	No. of surveyors required	2
Emergence	Visit 1	Visit 2	Visit 3	Summary	Limitations
Date	30.05.18	02.08.18	n/a	No emerging / re-entering bats. Ppip, Ppyg, Pnat, Nnoc all incidentally recorded foraging /commuting during surveys.	Eastern end of building could not be covered by either surveyor as too close to mainline A30.
Sunset / sunrise	21:19	05:49			
Weather Conditions	Temp: 16°C Wind: 2 Rain: 0 Start: 21:05 End: 23:09	Temp: 16°C Wind: 1 Rain: 0 Start: 03:58 End: 05:48			
Results	No bats emerged. 1 x Pnat and 1 x Ppip observed crossing A30 incidentally during survey.	No bats re-entered. 1 x Nnoc seen passing high up over A30. Ppip recorded foraging in garden throughout.			
Photographs					

Building ID:	**B2 - NFH Barn (2017 ID - Building 35)**		**Final Potential**	**CONFIRMED ROOST**	
Chainage	Ch 7+320		Grid Reference	SW 80026 50392	
Description	• One-storey, stone-built, barn/shepherds hut; • Access through window and large gaps around wooden door which on west side of building; • Confirmed to be a night roost for Rhip and *Myotis* sp (most likely Mnat) and day roost for Ppip during 2016 and 2017 surveys. Paur also recorded foraging in barn in 2017; • Subject to 3 x dusk/dawn surveys in late August and early September 2017; • Subject to 1 x dusk, bat trapping and static survey in May 2018. • SM2 also deployed 29.05.18 to record from 30 mins before sunset until sunrise.				
External	Date: 29.05.2018				
	Roof construction	Wall construction	Windows	Access points	Other features
	Single-pitch roof of corrugated metal sheeting.	Thick stone and cob walls likely with rubble infill. Large gaps.	Window missing.	Open window and door on W side. Several access points into soffits / eaves.	Swallows *Hirundo rustica* nesting in barn.
Internal	Date: 29.05.2018				
	Description	Size	Truss Design	Access points	Evidence
	-	3m x 4m	N/A	Open window, gaps around wooden door on W side. Gaps in walls giving access to larger voids.	No droppings / other evidence of bats found.
DNA analysis	N/A				
Limitations	Thick bed of hay/straw on floor of barn may have obscured droppings/other evidence of bats.				
Potential	Confirmed Roost	No. surveys required.	2	No. of surveyors required	2
Emergence	Visit 1	Visit 2	Visit 3	Summary	Limitations
Date	29.05.2018	n/a	n/a	No emerging bats. Ppip, Ppyg, Mnat, Nnoc, Rhip, Rfer, *Myotis* sp. recorded foraging/ commuting, mainly along access track.	
Sunset / sunrise	21:18				
Weather Conditions	Temp: 21°C Wind: 2 Rain: 0 Start: 20:48 End: 22:48				
Results	No bats seen emerging by any of the 3 x surveyors.				
Photographs	 				

Building ID:	**B3 - Chyverton Lodge (2017 ID - Building 42)**		**Final Potential**	**CONFIRMED ROOST**	
Chainage	C 8+000		Grid Reference	SW 80475 50911	
Description	• Gatehouse at entrance to Chyverton Estate. • Single-storey, sandstone construction, 1800s, with more modern extension on north side of building. • Confirmed to be a day roost for Paur and Ppip through internal inspection and 2 x dusk surveys in 2017.The third survey in 2017 was cancelled due to weather.				
External	Date: 18.04.2017				
	Roof construction	Wall construction	Windows	Access points	Other features
	Multiple pitched roof, slate-tiled, in good condition. Wooden soffits. Extension has a bitumen-lined, single-pitched roof with wooden fascia boards.	Sandstone blocks. Extension is concrete blocks, painted.	Timber framed windows in good condition.	Hole in rotten wooden fascia board on south side of extension.	
Internal	Date: 18.04.2017				
	Description	Size	Truss Design	Access points	Evidence
	No lining present.	1.5m tall, cluttered, cobwebs.	No data.	Couple of access points in northern side where tiles have been lifted.	Few scatterings of droppings over viewed roof area Lots of mouse evidence.
DNA analysis	Positive: Common pipistrelle and brown long-eared				
Limitations					
Potential	Confirmed Roost	No. surveys required.	3	No. of surveyors required	2
Emergence	Visit 1	Visit 2	Visit 3	Summary	Limitations
Date	(June 2017)	(June 2017)	02.08.18	Ppip roost confirmed behind rotten wooden fascia on south side of extension. Almost continuous Ppip foraging over grounds throughout survey, also some Paur.	
Sunset / sunrise	(June 2017)	(June 2017)	21:03		
Weather Conditions	(June 2017)	(June 2017)	Temp: 19°C Wind: 0 Rain: 0 Start: 20:50 End: 22:33		
Results	Ppip emergence from under fascia at N gable end.	No emergence / re-entry.	Ppip entered hole in wooden fascia on south side of extension 5 minutes before sunset, then emerged again 2 minutes later.		
Photographs					

Building ID:	**B4 - Zelah Lane Farm (Main House)**		**Final Potential**	**Negligible Potential**	
Chainage	Ch 8+540		Grid Reference	SW 80823 51276	
Description	• Main House of Zelah Lane Farm. • Two-storey stone-built residential house with more modern single-storey brick-built extension. • Internal inspection not carried out – no permission given.				
External	Date: 02.08.18				
	Roof construction	Wall construction	Windows	Access points	Other features
	Both the main house and more modern extension are slate-tiled pitched roofs with wooden fascia boards. All in good condition.	Main house was painted stone with slate hanging tiles on top half of walls at front. Extension was rendered bricks / blocks.	Timber framed windows, no gaps present.	Gap under lifted slate hanging tile on north side of house, lifted lead flashing where extension meets main house.	No evidence of bats recorded. Low potential for single/small number of crevice dwelling species such as common pipistrelle.
Internal	N/A				
	Description	Size	Truss Design	Access points	Evidence
	N/A				
DNA analysis	N/A				
Limitations	Internal inspection not carried out – no permission given.				
Potential	Low Potential	No. surveys required.	1	No. of surveyors required	2
Emergence	Visit 1	Visit 2	Visit 3	Summary	Limitations
Date	14.08.18	N/A	N/A	No re-entering / emerging bats. Ppip and GHS observed commuting along track towards bridge.	
Sunset / sunrise	06:07				
Weather Conditions	Temp: 16°C Wind: 0 Rain: 1 Start: 04:15 End: 06:07				
Results	No re-entries / emergences. Ppips recorded, mainly flying along track. GHS Passed along track towards bridge.				
Photographs					

Building ID:	**B5 - Zelah Lane Farm (Garage)**		**Final Potential**	**Negligible Potential**	
Chainage	Ch 8+540		Grid Reference	SW 80831 51262	
Description	• Timber-framed garage C1990.				
External	Date: 02.08.18				
	Roof construction	Wall construction	Windows	Access points	Other features
	Timber framed pitched roof with corrugated asbestos covering and clear plastic skylights.	Concrete block walls at base with vertical wooden boards above.		100mm gap at top of wooden door.	No evidence of bats found. Negligible potential for day roosting bats as light inside.
Internal	Date: 02.08.18				
	Description	Size	Truss Design	Access points	Evidence
	No roof lining / ceiling, daylight inside.	7m x 5m		100mm gap at top of wooden door.	No evidence of bats found.
DNA analysis	N/A				
Limitations	N/A				
Potential	Negligible	No. surveys required.	N/A	No. of surveyors required	N/A
Photographs					

Building ID:	**B6 - Zelah Lane Farm (woodstore)**		**Final Potential**	**Suitable for use as a night roost**	
Chainage	Ch 8+540		Grid Reference	SW 80855 51265	
Description	• Open-sided timber-framed woodstore C1990. • 8m x 4m				
External	Date: 02.08.18				
	Roof construction	Wall construction	Windows	Access points	Other features
	Single pitch roof of corrugated tin. North facing aspect.	No walls.	No windows.	Open-sided	No evidence of bats found. Suitable for use as a night roost.
Internal	Date: 02.08.18				
	Description	Size	Truss Design	Access points	Evidence
		8m x 4m	N/A	Open-sided	None.
DNA analysis	N/A				
Limitations	N/A				
Potential	Suitable for use as a night roost.	No. surveys required.	N/A	No. of surveyors required	N/A
Photographs					

Building ID:	**B7 - Zelah Lane Farm (Shed)**		**Final Potential**	**Confirmed Night Roost**	
Chainage	Ch 8+540		Grid Reference	SW 80850 51251	
Description	• Timber-framed shed C1990. • Confirmed as a night roost, likely for lesser horseshoe bat.				
External	Date: 02.08.18				
	Roof construction	Wall construction	Windows	Access points	Other features
	Single-pitch roof of corrugated tin sheeting.	Walls are constructed of vertical wooden boards.	No windows, East side of shed is open.	Open-sided shed.	North facing aspect.
Internal	Date: 02.08.18				
	Description	Size	Truss Design	Access points	Evidence
	Open-sided shed/store with work bench and stored equipment / materials. No ceiling / roof lining.	10m x 4m		Open-sided barn.	Small number of droppings (4) likely LHS (in three parts). Insect wing feeding remains. Building likely serves as a lesser horseshoe bat night roost. Negligible potential to be used by day roosting bats due to too much daylight light.
DNA analysis	DNA analysis FAILED.				
Limitations					
Potential	Suitable for use as a night roost	No. surveys required.	0	No. of surveyors required	N/A
Photographs					

Building ID:	**B8 - Zelah Lane Farm (Barn)**		**Final Potential**	**Suitable for use as a night roost**	
Chainage	Ch 8+540		Grid Reference	SW 80842 51260	
Description	• Large timber-framed open-fronted barn C1990, previously used as an animal shelter. • Approximately five metres high at highest point.				
External	Date: 02.08.18				
	Roof construction	Wall construction	Windows	Access points	Other features
	Pitched roof of corrugated asbestos/concrete with corrugated plastic skylights.	Concrete blocks at base, vertical wooden boards above.	Corrugated plastic skylights in roof, open-fronted.	Open-fronted.	No evidence of bats found.
Internal	Date: 02.08.18				
	Description	Size	Truss Design	Access points	Evidence
	Previously used as an animal shelter. No celling or roof lining.	15m x 7m		Open-fronted.	No evidence of bats found. Negligible potential for day roosting bats too much daylight.
DNA analysis	N/A				
Limitations	N/A				
Potential	Suitable for use as a night roost.	No. surveys required.	N/A	No. of surveyors required	N/A
Photographs					

Building ID:	**B9 - Tolgroggan Lodge bungalow**		**Final Potential**	**CONFIRMED MATERNITY ROOST**	
Chainage	Ch 8+580		Grid Reference	SW 80830 51298	
Description	• Bungalow, C1960, with porch on south side. • Inspected externally and internally. • Confirmed as a maternity roost for brown long-eared and a day roost for common pipistrelle.				
External	Date: 30.05.2018				
	Roof construction	Wall construction	Windows	Access points	Evidence
	Concrete-tiled pitched-roof. White plastic soffits. Porch - bitumen felt covered flat roof with wooden soffit and fascia boards.	Pre-fabricated concrete sections, rendered. Gable ends have concrete hanging tiles. Porch wall constructed of stone.	PVC double glazing.	Gap at apex on both N and S gable ends. Hole between top of stone wall and wooden soffit on porch.	Slide marks in algae covered plastic fascia immediately below gap at N apex. Fur-oil staining around hole in porch and bat droppings on wall below, likely *Pipistrellus* sp.
Internal	Date: 30.05.2018				
	Description	Size	Truss Design	Access points	Evidence
	Loft space very warm as central heating on below.	15m x 7m		None identified, the roof void was not fully accessed so as not to disturb the maternity colony.	Brown long-eared maternity colony present in loft space approximately 30 individuals.
DNA analysis	N/A				
Limitations					
Potential	Confirmed Roost	No. surveys required.	3	No. of surveyors required	2
Emergence	Visit 1	Visit 2	Visit 3	Summary	Limitations
Date	01.08.2018	13.08.2018	16.08.2018	Main loft void is a Paur maternity roost, plus Ppip roost behind fascia board on porch.	Light drizzle throughout visit 3; not repeated as visits 1 and 2 considered enough to characterise roost.
Sunset / sunrise	21:05	20:44	06:30		
Weather Conditions	Temp: 18°C Wind: 2 Rain: 0 Start: 20:40 End: 22:40	Temp: 18°C Wind: 1 Rain: 0 Start: 20:15 End: 22:30	Temp: 12°C Wind: 1 Rain: 1-2 Start: 04:10 End: 06:10		
Results	Yes 2 x Paur emergence. 1 x common pipistrelle emergence from porch.	Yes 3 x emerging Paur. Noctule, serotine, lesser horseshoe also recorded incidentally during survey.	2 x non-echolocating bats flew towards bungalow at eaves height, presumed to re-enter.		
Photographs					

Appendix 2: Tree Surveys & Automated Detector Activity Survey Report

Bat Survey Report

Site:

A30 Cornwall

Grid Reference: SW 840 537

1st October 2018 version 3

Prepared for ARUP by:

Author:	Naomi Perry BSc (Hons) MSc GradCIEEM
Signed:	[redacted]
Document approved by:	Kim Jelbert BSc (Hons) MSc MCIEEM
Signed:	[redacted]

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CONTENTS

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1.0 Introduction

1.1 Background & Purpose of Survey

ARUP commissioned Plan for Ecology to undertake a static automated detector survey of a quarry pond west of Carland Cross, Cornwall (OS Grid Ref: SW 840 537), an aerial inspection of two trees and a preliminary ground level roost assessment of trees within a block of woodland to the immediate north of the eastbound A30 road carriageway between Marazanvose and Zelah, Cornwall (OS Grid Ref: SW 802 507) in April 2018. It is understood that this survey work will inform works to the A30 road in Cornwall.

This report presents the results of the automated detector survey, aerial inspection of trees and preliminary ground level roost assessment of trees in accordance with the 'Bat Surveys for Professional Ecologists - Good Practice Guidelines' (BCT, 2016).

1.2 Site Location

The quarry pond is located west of Carland Cross, Cornwall (OS Grid Ref: SW 840 537). The woodland is located to the immediate north of the eastbound A30 road carriageway between Marazanvose and Zelah, Cornwall (OS Grid Ref: SW 802 507). Plans showing the location of each site are provided at Appendix 1.

1.3 Project Administration

Site Name:	A30 Cornwall
OS Grid References:	SW 840 537/ SW 802 507
Client:	ARUP
Planning Authority:	Central 1
Report Reference Number:	P4E705
Surveyors & Licence Numbers:	Kim Jelbert BSc (Hons), MSc, MCIEEM (Bat licence no: 2015-10444-CLS-CLS; Barn owl licence no. CL29/00037; Dormouse licence no: 2016-22394-CLS-CLS) Naomi Perry BSc (Hons), MSc, GradCIEEM (Bat licence no: 2018-34120-CLS-CLS; Dormouse licence no: 2016-20661-CLS-CLS) Paul Gregory BSc (Hons) CEcol MCIEEM (Bat licence no: 2015-10235-CLS-CLS)

1.4 Legislation & Planning Policy

Planning: The local planning authority has a statutory obligation to consider impacts upon protected species resulting from development. Planning permission will not be granted with outstanding ecological surveys, and if applicable an appropriate mitigation plan.

Bats: In the UK all bat species are listed on Annex IV(a) of the European Communities Habitats Directive and as such are European Protected Species (EPS). In Britain protection of bats is achieved through their inclusion on Schedule 2 of the Conservation and Habitats Regulations 2010, Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 12 of the Countryside and Rights of Way Act 2000 (HM Government, 1981, 2000 & 2010).

As a result of this statutory legislation it is an offence to:

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- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat/s in its roost;
- Intentionally or recklessly damage, destroy or obstruct access to a bat roost (even if bats are not occupying the roost at the time);
- Possess or sell or exchange a bat (dead or alive) or part of a bat.

Works with potential to cause significant disturbance to roosting bats may require a European Protected Species (EPS) licence from Natural England before works can legally commence. Works likely to result in less significant disturbance may be carried out under a Bat Mitigation Method Statement. The magnitude of disturbance and therefore the requirement for a licence or method statement is assessed on a case by case basis by the bat ecologist. The Bat Mitigation Method Statement or EPS licence must be prepared and/or applied for by a suitably experienced and licensed bat ecologist. Where planning permission is required, the EPS licence cannot be obtained until planning permission has been granted. Please note that Natural England usually takes 35 days to process licence applications. European Protected Species licences must be informed by up-to-date survey information; if more than 1 year has lapsed between the further surveys (bat emergence and remote detector surveys) and submission of the EPS licence application, additional survey effort will be required to inform the licence application.

European Protected Species (EPS) (Bat, dormouse, otter, water vole & great crested newt): EPS are listed on Annex IV(a) of the European Communities Habitats Directive.

In Britain protection of EPS is achieved through their inclusion on Schedule 2 of the Conservation and Habitats Regulations 2010, Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 12 of the Countryside and Rights of Way Act 2000 (HM Government, 1981, 2000 & 2010).

As a result of this statutory legislation it is an offence to:

- Deliberately capture, injure or kill an EPS;
- Intentionally or recklessly disturb an EPS in its place of rest/ breeding site;
- Intentionally or recklessly damage, destroy or obstruct access to a EPS place of rest/ breeding site (even if the EPS is not occupying the resting / breeding place at the time);
- Possess or sell or exchange an EPS (dead or alive) or part of an EPS.

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2.0 Methodology

2.1 Automated Detector Survey of Quarry Pond

Automated detector surveys of the quarry pond were undertaken on four separate occasions in April, May, June and July 2018. An SM2 remote monitoring device was placed in suitable habitat within the site, to record bat activity (bat passes) for a period of 5 nights, during each of the four monitoring periods. The detector was programmed to switch on 30 minutes before sunset, and switch off at sunrise. Survey information, including weather conditions, is detailed in Table 1 below. The results were analysed using the sound analysis program AnalookW 4.1 to determine the date, time and species of bat recorded. We define a bat pass as two or more bat calls in a continuous sequence; each sequence separated by 1 second or more, in which no calls are recorded (Hundt, 2012).

Table 1: Automated Detector Survey of Quarry Pond - survey information and weather conditions

Survey period	Assessor(s)	Weather
26th April – 30th April 2018	Naomi Perry Kim Jelbert	Weather conditions in line with seasonal norms; no spells of heavy rain or high wind.
22nd May – 26th May 2018	Naomi Perry Kim Jelbert	Weather conditions in line with seasonal norms; no spells of heavy rain or high wind.
18th June – 22nd June 2018	Naomi Perry Kim Jelbert	Weather conditions in line with seasonal norms; no spells of heavy rain or high wind.
25th July – 29th July 2018	Naomi Perry Kim Jelbert	Weather conditions in line with seasonal norms; no spells of heavy rain or high wind.

2.2 Preliminary Ground Level Roost Assessment of Trees

The preliminary ground level roost assessment of trees was carried out by a bat licenced ecologist (Kim Jelbert) on 24th May 2018 in accordance with chapter 6.2 of the 'Bat Surveys for Professional Ecologists Good Practice Guidelines', BCT 2016). A Preliminary ground level roost assessment of a tree is a detailed inspection of the exterior of the tree from ground level to look for features that bats could use for roosting (PRFs). All trees surveyed were numbered and marked on a map (see Appendix 2). The location (grid reference), tree species and diameter at breast height were all noted. Trees were systematically searched for PRFs.

PRFs that may be used by bats include:

- woodpecker holes;
- rot holes;
- hazard beams;
- other vertical or horizontal cracks and splits (such as frost cracks) in stems or branches;
- partially detached, platey bark;
- knot holes arising from naturally shed branches, or branches previously pruned back to branch collar;
- man-made holes or cavities created by branches tearing out from parent stems;
- cankers (caused by localised bark death) in which cavities have developed;
- other hollows or cavities, including butt rots;
- double-leaders forming compressed forks creating potential cavities;
- gaps between overlapping stems or branches;
- partially detached ivy with stem diameters in excess of 50mm;
- bat, bird or dormouse boxes.

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Signs of a bat roost include:

- presence of bats;
- bat droppings in, around or below a PRF;
- odour emanating from a PRF;
- audible squeaking at dusk or in warm weather;
- staining below the PRF.

2.3 Aerial Inspection of Trees

An aerial inspection was carried out on two trees (T94 & T99) previously confirmed as having bat roosts. This survey was carried out in accordance with chapter 6.3 of the 'Bat Surveys for Professional Ecologists Good Practice Guidelines', BCT 2016). The trees were accessed using a five piece survey ladder. All features that where suitable as a bat roost were inspected with the aid of a digital endoscope operated by a bat licenced ecologist (Paul Gregory).

2.4 Limitations

There was free access to all areas of the site.

Automated Detector Survey of Quarry Pond: The automated detector surveys were undertaken during suitable weather conditions (see Table 1) during the bat active season, and in accordance with the 'Bat Surveys for Professional Ecologists Good Practice Guidelines' (Collins, 2016). During the May 2018 survey, no calls or noise files were recorded after 01:00 on the 26th May (5th night of monitoring period). This is likely a result of the automated detector running out of battery. During the July 2018 survey, no calls were recorded on the 25th July (first night of monitoring period) or 29th July (last night of monitoring period). This could be due to absence of bat activity or more likely a fault with the 'automated switch on and off times' of the detector. We cannot be certain why the detector failed to record bat calls on two of the five nights during the July monitoring period. The number of bat passes per night recorded between the 26th and 28th July were as expected based on the number of bat passes recorded in the April, May and June monitoring periods.

The calls of four bat species are notoriously difficult to record: the long-eared bat (*Plecotus spp.)* and the barbastelle bat (*Barbastella barbastellus*) has a quiet echolocation call and the horseshoe bats (*Rhinolophus hipposideros* & *R. ferrumequinum*) have highly directional calls. The long-eared, barbastelle and horseshoe species can be easily missed during bat detector surveys. We presume all *Plecotus spp.* recordings are those of brown long-eared bat (*Plecotus auritus*) because Cornwall is outside the known range of the grey long-eared bat (*Plecotus austriacus*).

Preliminary Ground Level Roost Assessment of Trees: Preliminary ground level roost assessments of trees are best carried out in winter (December – March) after the leaves have fallen and before new leaves replace them in spring to allow for maximum visibility. The survey was carried out in May, which is deemed suitable though dense foliage reduced visibility. Tree specific limitations are provided in the table at Appendix 2. Weather during the survey was in line with seasonal norms; there are no limitations associated with weather.

Aerial Inspection of Trees: PRF inspection surveys can be carried out at any time of year. Weather conditions during the survey were in line with seasonal norms.

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2.5 Declaration

"The information, evidence and advice, which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology & Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions."

Name(s): Naomi Perry BSc (Hons) MSc GradCIEEM; Kim Jelbert BSc (Hons) MSc MCIEEM

Signed: [redacted] [redacted]

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3.0 Survey Results

3.1 Automated Detector Survey of Quarry Pond

The April, May, June and July 2018 automated detector survey results are presented in Table 2 below, and are summarised as follows: the automated detector, positioned within vegetation to the south of the quarry pond, as shown on the map at Appendix 1, recorded common pipistrelle bat (*Pipistrellus pipistrellus*) (28,154 passes), soprano pipistrelle bat (*Pipistrellus pygmaeus*) (60 passes), brown long-eared bat (13 passes), noctule bat (*Nyctalus noctula*) (382 passes), Myotis species (*Myotis spp.,*) (241 passes), barbastelle (*Barbastella barbastellus*) (17 passes), leisler's (*Nyctalus leisleri*) (9 passes), greater horseshoe (5 passes) and lesser horseshoe bat (2 passes) over the course of four monitoring periods in April, May, June and July 2018 as shown in Table 2 below. Calls per hour are provided in Appendix 4.

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Table 2: Bat Automated Detector Survey Results 2018: bat passes by species

Species	26th April	27th April	28th April	29th April	30th April
Pp	1757	733	1381	1398	1591
Nn	5	1	0	73	66
Pa	0	2	5	0	0
Bb	16	0	0	0	0
Rf	1	0	0	0	0
Total Passes	1779	736	1386	1471	1657

Species	22nd May	23rd May	24th May	25th May	26th May
Pp	3129	3154	2431	2521	356
Ppy	19	0	1	0	0
Nn	10	3	12	18	6
My	1	5	4	2	0
Rf	0	1	0	0	0
Pa	0	4	2	0	0
Bb	0	0	1	0	0
Total Passes	3159	3167	2451	2541	362

Species	21st June	22nd June	23rd June	24th June	25th June
Pp	258	237	709	1033	1244
Nn	16	7	17	17	11
My	1	1	4	6	60
Rf	0	1	0	1	1
Rh	0	0	1	0	0
Nl	0	0	4	0	0
Ppy	0	0	0	2	37
Total Passes	274	246	735	1059	1353

Species	25th July	26th July	27th July	28th July	29th July
Pp	0	3045	1588	1593	0
Nn	0	80	39	1	0
My	0	4	4	149	0
Nl	0	0	5	0	0
Rh	0	1	0	0	0
Ppy	0	1	0	0	0
Total Passes	0	3131	1636	1743	0

Pp = common pipistrelle; Ppy = soprano pipistrelle; Nn = noctule; Pa = brown long-eared; My = myotis species; Rh = lesser horseshoe; Rf = greater horseshoe; Bb = barbastelle; Ni = Leisler's.

A total of nine bat species have been recorded during the automated detector surveys. This represents a high diversity of species and the number of bat passes illustrates that the site is used heavily by common pipistrelle bat, noctule and Myotis species. The number of passes by other bat species (brown long-eared bat, soprano pipistrelle bat, greater and lesser horseshoe bats, leisler's bat and barbastelle) indicates occasional use of the site. Overall, data indicates a relatively high level of bat activity.

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In the UK all bat species are European Protected Species (EPS) protected under both UK and European Legislation; for further information on legal protection see section 1.4.

The level of survey work undertaken and presented in this report forms only part of the survey effort required to assess the value of the sites for foraging and commuting bats. On this basis, an assessment of the value of each site surveyed for roosting or foraging and commuting bats in accordance with CIEEM (2016) has not been made.

3.2 Preliminary Ground Level Roost Assessment of Trees

A preliminary ground level roost assessment of trees within a block of woodland to the immediate north of the eastbound A30 road carriageway between Marazanvose and Zelah, Cornwall was carried out in May 2018. The results of this assessment are presented in the table at Appendix 3. Trees were assessed as being of low, moderate or high suitability for roosting bats. Those assessed as being of negligible suitability are not recorded. In the table at Appendix 3, each tree is identified to species, a list of PRFs is provided along with an indication of how PRFs can be inspected for evidence of bats (aerial inspection via ladder or climber). A plan showing tree locations is provided at Appendix 2.

Overall, many of the trees within the woodland supported features with potential to support roosting bats. Loss of the trees would necessitate further survey.

3.3 Aerial Inspection of Trees

No bats were present or evidence or bats, such as droppings were found within trees T94 and T99 (see Table 3 below) during the aerial inspection. It is considered likely that the confirmed roosts are transient roosts for species, such as Myotis, *Pipistrellus, Plecotus*.

Tree Ref	Species	Lat.	Long.	Value	Status
T94	Holme Oak	50.31636	-5.08665	Moderate	Confirmed as bat roost previously; species not identified
T99	Sycamore	50.31623	-5.08639	High	Confirmed as bat roost previously; species not identified

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4.0 References

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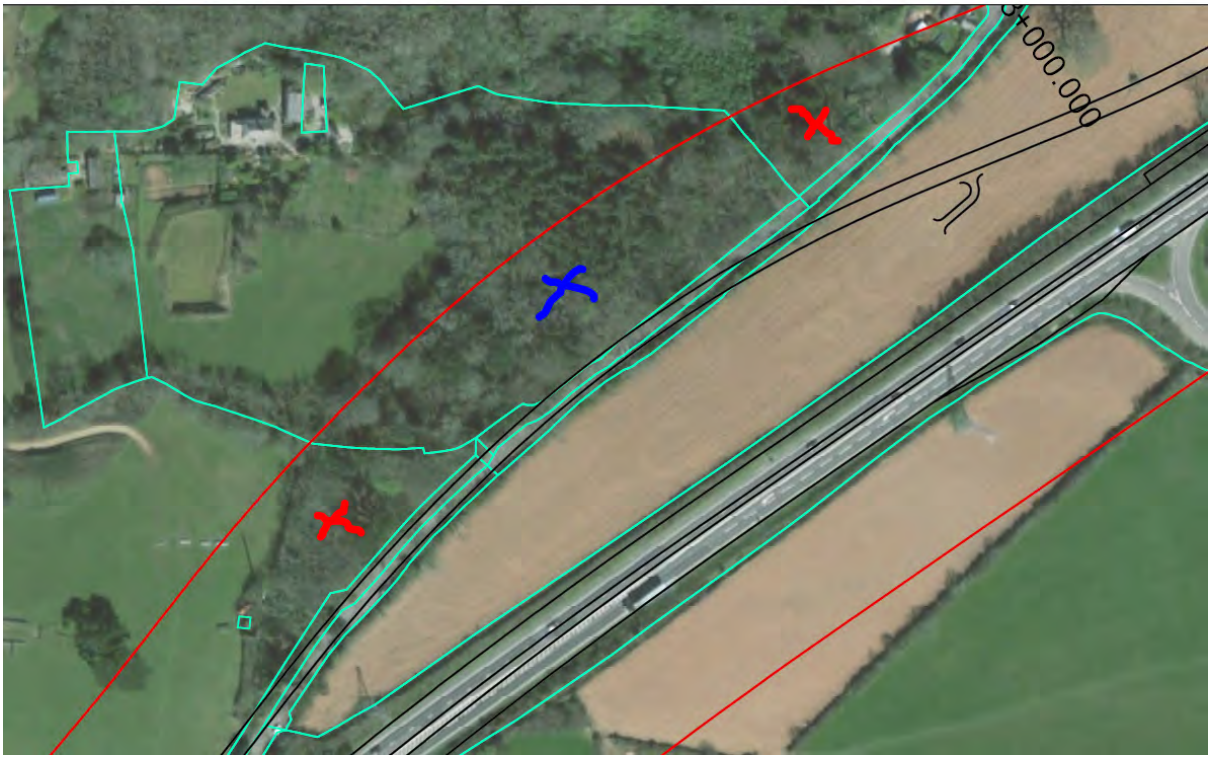
Appendix 1: Site Locations



All trees within the areas marked with a red or a blue 'X' were assessed as part of the Preliminary Ground Level Roost Inspection. The two trees assessed as part of the aerial inspection were also located within these blocks. Woodland is located to the immediate north of the eastbound A30 road carriageway between Marazanvose and Zelah, Cornwall (OS Grid Ref: SW 802 507).

Quarry pond located west of Carland Cross, Cornwall (OS Grid Ref: SW 840 537).

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Appendix 2: Map of Trees - Preliminary Ground Level Roost Assessment of Trees

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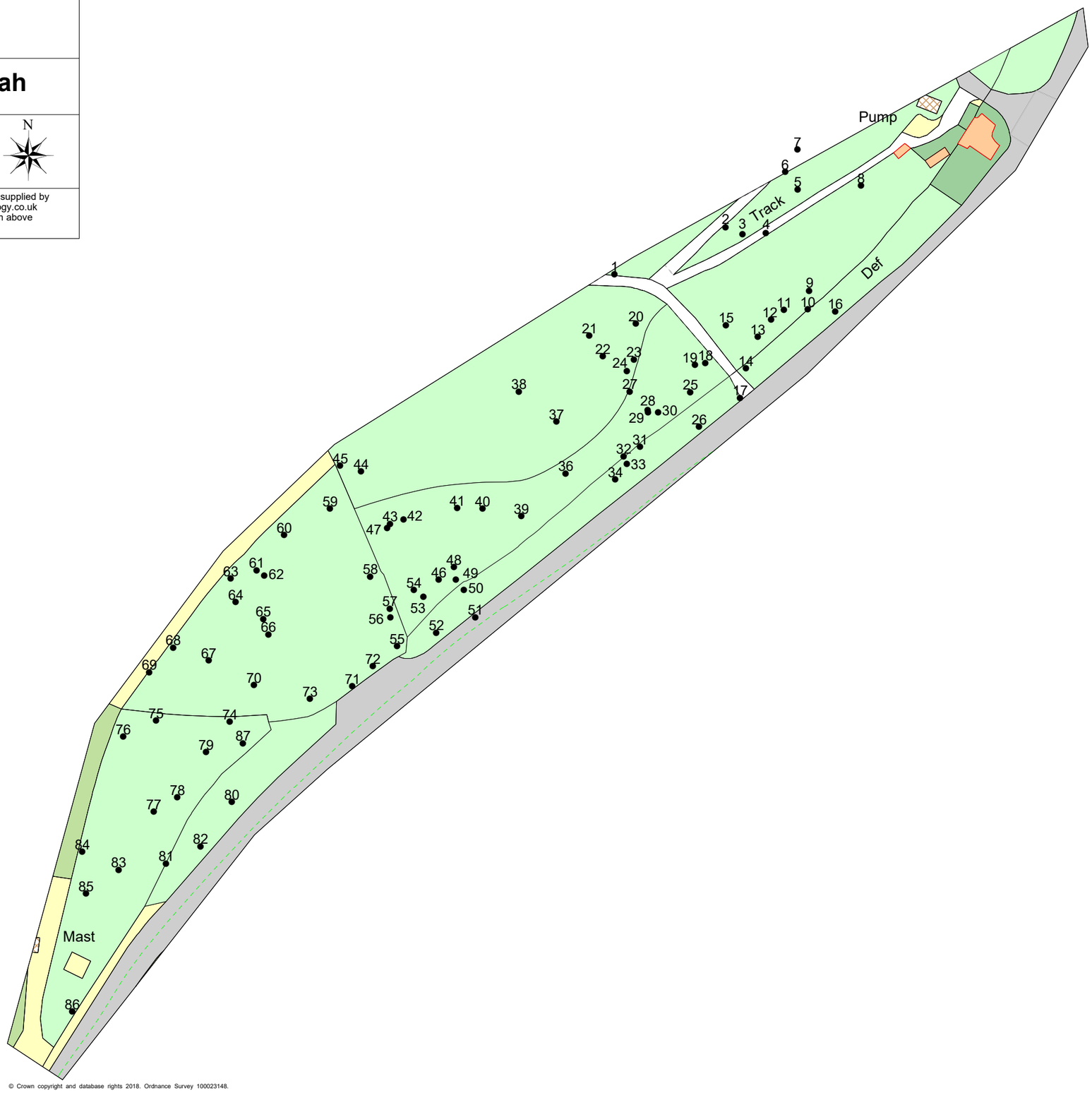
PLAN FOR ECOLOGY

Bat Survey A30 Zelah

SCALE : 1 : 1250 @ A3	DATE : 13/06/2018	N
MAP FILENAME : ZelahA30V1		



Appendix 3: Table of Results – Preliminary Ground Level Roost Assessment of Trees

Plan for Ecology, Tremough Innovation Centre, Tremough Campus, Penryn, Cornwall, TR10 9TA;
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Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180371.37	50873.12	93.196	1	Common Ash	1	200	Knot holes	Low potential. Aerial inspection - climber required.	09:59:01	24/05/18
180403.42	50886.58	93.496	2	Spruce	2	550	Gaps between over-lapping stems	Low potential. Ladder required.	10:06:42	24/05/18
180408.32	50884.69	92.796	3	Beech	2	130, 100	Cavity; Knot holes	Low potential. Aerial inspection - climber required.	10:15:56	24/05/18
180415.07	50885	92.796	4	Douglas Fir	1	620	Touching upright stems	Low. Aerial inspection - climber required.	10:19:14	24/05/18
180424.28	50897.57	87.696	5	Sweet Chestnut	1	170	Cavity	Low. Ladder required. Feature 3.5m above ground level	10:25:38	24/05/18
180420.7	50902.6	94.296	6	Common Ash	1	320	Partially detached ivy stems (50mm>)	Low. Aerial inspection - climber required.	10:33:20	24/05/18
180424.21	50909.06	0	7	Douglas Fir	1	580	Gaps between over-lapping stems; Partially detached ivy stems (50mm>)	Low. Aerial inspection - climber required.	10:35:56	24/05/18
180442.58	50898.65	90.996	8	Small leaved lime	1	760	Canker; Stem flute with ascending void	Moderate potential. Aerial inspection - climber required.	10:40:56	24/05/18
180427.62	50868.26	93.596	9	Turkey Oak	1	960	Horizontal splits / cracks; Cavity	Decay on branch southern side of crown. Moderate - high potential. Aerial inspection - climber required.	10:51:07	24/05/18
180427.21	50862.95	0	10	English oak	1	390	Horizontal splits / cracks; Knot holes	Moderate potential. Aerial inspection - climber required.	10:57:02	24/05/18
180420.33	50862.82	0	11	Beech	1	720	Fused stem; Knot holes	Moderate potential. Aerial inspection - climber required.	11:06:34	24/05/18
180416.59	50859.94	94.596	12	Turkey Oak	1	800	Partially detached bark; Horizontal splits / cracks	Low. Aerial inspection - climber required.	11:14:04	24/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180412.78	50855.05	93.096	13	Turkey Oak	1	890		Low. Precautionary approach due to tree height features easily concealed. Aerial inspection - climber required.	11:18:09	24/05/18
180409.34	50845.93	92.596	14	Beech	1	450	Squirrel damage creating crevice; Cavity	Low. Aerial inspection - climber required.	11:24:03	24/05/18
180403.59	50858.38	93.096	15	Turkey Oak	1	820	Horizontal splits / cracks; Partially detached bark	Low. Aerial inspection - climber required. Tall tree - many features potentially concealed	11:27:06	24/05/18
180435.14	50862.38	94.296	16	Sycamore	2	150 & 200	Horizontal splits / cracks; Knot holes	Low. Ladder required.	11:35:06	24/05/18
180407.68	50837.4	92.497	17	English oak	2	700 & 730	Horizontal splits / cracks; Knot holes	Moderate. Aerial inspection - climber required.	11:39:10	24/05/18
180397.61	50847.47	97.196	18	Sweet Chestnut	2	270 & 300	Cavity; Knot holes	Moderate. Aerial inspection - climber required.	11:43:48	24/05/18
180394.63	50846.89	101.896	19	Sweet Chestnut	2	390 & 330	Horizontal splits / cracks	Low. Aerial inspection - climber required.	11:46:22	24/05/18
180377.55	50858.85	92.896	20	Beech	1	860	Bark damage	Low. Ladder required.	11:56:36	24/05/18
180364.11	50855.36	90.796	21	Turkey Oak	1	930	Horizontal splits / cracks	Moderate - high. Aerial inspection - climber required.	12:04:20	24/05/18
180368	50849.43	91.496	22	Sweet Chestnut	1	250	Knot holes	Low. Aerial inspection - climber required.	12:07:22	24/05/18
180376.98	50848.53	86.996	23	Sweet Chestnut	2	400 & 240	Partially detached bark; Horizontal splits / cracks	Moderate. Aerial inspection - climber required.	12:08:43	24/05/18
180374.93	50845.17	96.796	24	Sweet Chestnut	2	200 & 260	Vertical splits / cracks; Horizontal splits / cracks	Low. Aerial inspection - climber required.	12:11:31	24/05/18
180375.8	50839.21	95.196	27	Sweet Chestnut	2	230 & 330	Horizontal splits / cracks	Low. Aerial inspection - climber required.	12:13:09	24/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180393.28	50839.06	93.096	25	Holly	1	360	Knot holes	Low. Ladder required.	12:15:17	24/05/18
180395.82	50829.06	91.997	26	Sweet Chestnut	5	400	Horizontal splits / cracks; Partially detached bark	Low. Aerial inspection - climber required.	12:20:11	24/05/18
180380.96	50833.84	105.596	28	Sweet Chestnut	2	220 & 250	Cavity	Low - moderate. Ladder required. Dead tree.	12:23:13	24/05/18
180381.09	50833.18	105.796	29	Sweet Chestnut	3	220 & 250 & 270	Gaps between over-lapping branches; Gaps between over-lapping stems	Low. Ladder required.	12:25:01	24/05/18
180384.02	50833.21	105.896	30	Birch	1	300	Cavity	Low. Aerial inspection - climber required.	12:26:20	24/05/18
180378.75	50823.28	103.297	31	Beech	2	250 & 280	Vertical splits / cracks; Knot holes	Moderate. Aerial inspection - climber required.	12:28:10	24/05/18
180374.02	50820.5	95.397	32	Sycamore	1	140	Horizontal splits / cracks	Low. Ladder required.	12:31:08	24/05/18
180374.93	50818.35	98.597	33	Beech	1	630	Cavity;Gaps between over-lapping branches; Fused stem	Moderate. Aerial inspection - climber required.	12:35:34	24/05/18
180371.64	50813.84	101.697	34	Beech	3	400 & 300 & 380	Partially detached ivy stems (50mm>)	Low. Aerial inspection - climber required. Features easily obscured due to height.	12:37:29	24/05/18
180357.29	50815.55	97.997	36	Common Ash	2	180 & 250	Partially detached bark	Low. Ladder required.	13:05:52	24/05/18
180354.62	50830.53	103.896	37	Monterey pine	1	770	Partially detached bark	Moderate. Aerial inspection - climber required.	13:10:28	24/05/18
180343.74	50839.19	92.396	38	Conifer sp	1	380	Woodpecker holes	Moderate. Ladder required. Dead tree.	13:13:12	24/05/18
180344.45	50803.19	107.197	39	Beech	1	230	Cavity; Horizontal splits / cracks	Low. Aerial inspection - climber required.	13:21:20	24/05/18
180333.3	50805.38	103.097	40	Sycamore	2	150 & 160	Cavity	Low. Ladder required.	13:23:13	24/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180325.93	50805.55	99.096	41	Beech	1	210	Cavity; Vertical splits / cracks; Squirrel damage creating crevice	Moderate. Aerial inspection - climber required.	13:25:02	24/05/18
180310.42	50802.28	101.696	42	Sycamore	1	150	Cavity; Knot holes	Low. Ladder required.	13:27:00	24/05/18
180305.75	50799.88	102.296	47	English oak	1	340	Knot holes	Moderate. Height of tree and foliage could conceal other features. Aerial inspection - climber required.	13:28:27	24/05/18
180306.54	50800.99	99.496	43	English oak	1	510	Horizontal splits / cracks; Partially detached bark	Moderate. Aerial inspection - climber required.	13:30:04	24/05/18
180298.17	50816.13	99.296	44	Sycamore	1	240	Cavity;Horizontal splits / cracks	Moderate. Aerial inspection - climber required.	13:32:09	24/05/18
180292.14	50817.85	94.396	45	English oak	1	500	Partially detached ivy stems (50mm>); Knot holes	Moderate. Aerial inspection - climber required.	13:35:25	24/05/18
180320.62	50784.91	97.997	46	Holm oak	1		Described previously (T94) - see aerial inspection	Surveyed previously.	13:39:27	24/05/18
180324.98	50788.5	99.097	48	Beech	1	460	Cavity	Moderate. Aerial inspection - climber required.	13:41:26	24/05/18
180325.55	50784.99	98.897	49	English oak	1	300	Cavity	Moderate. Aerial inspection - climber required.	13:44:26	24/05/18
180327.91	50781.97	102.597	50	English oak	1	360	Knot holes	Low - moderate. Upper parts not visible due to height and foliage. Aerial inspection - climber required.	13:45:19	24/05/18
180331.17	50774.04	102.697	51	English oak	1		Cavity; Horizontal splits / cracks; Partially detached bark;Knot holes	Moderate - high. Aerial inspection - climber required. Upper parts obscured due to height and foliage.	13:47:46	24/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180319.87	50769.61	103.497	52	English oak	1	540	Cavity; Knot holes	Moderate. Aerial inspection - climber required. Upper parts obscured due to height and foliage.	13:54:04	24/05/18
180316.22	50779.99	102.697	53	Sycamore	1	480	Knot holes	Moderate. Aerial inspection - climber required.	13:56:34	24/05/18
180313.43	50781.91	99.397	54	Beech	1	870	Horizontal splits / cracks	Low but upper parts obscured. Aerial inspection - climber required.	13:59:45	24/05/18
180308.58	50765.72	0	55	Turkey Oak	1	Est 1200	Knot holes	Low potential. Foliage obscures upper parts. Aerial inspection - climber required.	12:29:56	29/05/18
180306.62	50774.04	99.797	56	Beech	2	Est 1000 & 700	Vertical splits / cracks	Foliage obscures upper parts. Low potential. Aerial inspection - climber required.	12:32:15	29/05/18
180306.46	50776.54	93.497	57	Beech	1	Est 500	Vertical splits / cracks; Knot holes	Low - moderate potential. Aerial inspection - climber required.	12:34:47	29/05/18
180300.81	50785.79	92.997	58	Beech	1	Est 550	Knot holes	Low potential. Aerial inspection - climber required.	12:36:40	29/05/18
180289.18	50805.39	96.696	59	Common Ash	4	Est largest 750	Horizontal splits / cracks; Knot holes	Low - moderate. Upper parts obscured by leaves. Aerial inspection - climber required.	12:38:44	29/05/18
180275.94	50797.75	89.696	60	English oak	1	Est 670	Knot holes	Low - moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	12:41:00	29/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180267.97	50787.65	98.596	61	English oak	1	Est 840	Partially detached bark; Knot holes; Vertical splits / cracks	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	12:46:46	29/05/18
180270.22	50786.11	101.496	62	Sycamore	1	Est 150	Cavity	Low. Ladder required.	12:48:54	29/05/18
180260.53	50785.22	91.496	63	Turkey Oak	1	Est 1200	Partially detached ivy stems (50mm>)	Low potential. Upper parts obscured by leaves. Aerial inspection - climber required.	12:50:12	29/05/18
180261.98	50778.46	91.996	64	English oak	1	Est 840	Vertical splits / cracks; Horizontal splits / cracks; Partially detached bark	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	12:51:50	29/05/18
180269.94	50773.6	95.797	65	Holm oak	2	Est 730	Vertical splits / cracks	Low - moderate. Upper parts obscured by leaves. Aerial inspection - climber required.	12:53:47	29/05/18
180271.42	50769.12	95.797	66	Holm oak	2	Est 1000	Vertical splits / cracks; Knot holes	Low potential. Upper parts obscured by leaves. Aerial inspection - climber required.	12:55:02	29/05/18
180254.18	50761.58	106.497	67	Holm oak	1	Est 1100	Knot holes	Low potential. Aerial inspection - climber required.	12:59:30	29/05/18
180243.9	50765.25	98.296	68	Beech	2	Est largest 1400	Vertical splits / cracks; Knot holes	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:00:46	29/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180236.99	50758.17	99.197	69	Sycamore	1	Est 230	Knot holes	Low potential. Aerial inspection - climber required.	13:02:00	29/05/18
180267.23	50754.45	101.097	70	Sycamore	1	Est 130	Knot holes	Low potential. Ladder required.	13:05:39	29/05/18
180295.64	50754.12	100.097	71	English oak	2	Est largest 1050	Horizontal splits / cracks; Vertical splits / cracks	Moderate potential. Aerial inspection - climber required. Upper parts obscured by leaves	13:08:03	29/05/18
180301.6	50760	101.597	72	English oak	1	Est 970	Horizontal splits / cracks; Knot holes	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:15:33	29/05/18
180283.41	50750.53	103.097	73	English oak	1	Est 980	Knot holes; Partially detached bark; Vertical splits / cracks; Horizontal splits / cracks	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:17:43	29/05/18
180260.22	50743.86	103.497	74	Sycamore	1	Est 760	Knot holes	Low potential. Aerial inspection - climber required.	13:19:26	29/05/18
180238.93	50744.21	102.797	75	Holm oak	1	Est 850	Knot holes; Cavity	Moderate potential. Aerial inspection - climber required.	13:20:57	29/05/18
180229.45	50739.59	105.697	76	Beech	2	Est largest 1500	Vertical splits / cracks; Horizontal splits / cracks; Knot holes	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:22:21	29/05/18
180238.28	50717.97	104.297	77	Monterey pine	1	Est 2000	Vertical splits / cracks; Horizontal splits / cracks; Partially detached bark	Moderate potential. Aerial inspection - climber required.	13:24:22	29/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180245.1	50722.01	101.997	78	Monterey pine	1	Est 2010	Vertical splits / cracks; Horizontal splits / cracks; Partially detached bark	Moderate potential. Aerial inspection - climber required.	13:25:24	29/05/18
180253.37	50735.09	100.997	79	Sycamore	1	Est 860	Knot holes	Low potential. Ladder required.	13:26:44	29/05/18
180264.03	50737.71	102.997	87	Beech	1	Est 980	Cavity; Vertical splits / cracks; Knot holes	Moderate potential. Aerial inspection - climber required.	13:27:39	29/05/18
180260.83	50720.73	104.097	80	Turkey Oak	2	Est largest 1040	Knot holes; Partially detached ivy stems (50mm>); Squirrel damage creating crevice	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:30:02	29/05/18
180251.78	50707.97	102.197	82	English oak	1	Est 890	Partially detached ivy stems (50mm>)	Low potential. Aerial inspection - climber required. Upper parts obscured by leaves.	13:31:48	29/05/18
180241.85	50703	104.397	81	English oak	1	Est 990	Partially detached ivy stems (50mm>); Knot holes; Squirrel damage creating crevice; Horizontal splits / cracks	Moderate potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:33:19	29/05/18
180228.14	50701.17	103.097	83	Turkey Oak	1	Est 960	Knot holes; Partially detached ivy stems (50mm>)	Low potential. Aerial inspection - climber required.	13:35:29	29/05/18
180217.63	50706.34	104.197	84	Common Ash	1	Est 820	Partially detached ivy stems (50mm>)	Low potential. Upper parts obscured by leaves. Aerial inspection - climber required.	13:36:41	29/05/18
180218.72	50694.25	103.197	85	Turkey Oak	1	Est 700	Knot holes	Low potential. Aerial inspection - climber required. Upper parts obscured by leaves.	13:38:28	29/05/18

Easting	Northing	Height	Tree ID	Species	No. of Stems (1 to 5)	Stem Diameter - mm (1 to 5)	PRF Type	Comments, Observations, Bat Roost Potential*	Time	Date
180214.74	50660.3	100.297	86	Monterey pine	1	Est 2700	Horizontal splits / cracks; Partially detached bark	Moderate potential. Upper parts obscured by surrounding vegetation. Aerial inspection - climber required.	13:41:49	29/05/18

Appendix 4: Analook Output – Automated Detector Survey (calls per hour)

Pp = common pipistrelle; Ppy = soprano pipistrelle; pipsp = pipistrelle species; Pa = brown long-eared; Rh = lesser horseshoe; Rf = greater horseshoe; Nn = noctule; My = myotis species; Bb = barbastelle; Nl = leislers.

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Night	Time	Label	Number
2018/04/26	07:00	NumFiles	0
2018/04/26	08:00	Pp	1
2018/04/26	09:00	Bb	2
2018/04/26	09:00	Noise	2
2018/04/26	09:00	Pp	361
2018/04/26	10:00	Noise	3
2018/04/26	10:00	Pp	336
2018/04/26	11:00	Bb	13
2018/04/26	11:00	Nn	4
2018/04/26	11:00	Noise	4
2018/04/26	11:00	Pp	325
2018/04/26	12:00	Nn	1
2018/04/26	12:00	Noise	1
2018/04/26	12:00	Pp	332
2018/04/26	12:00	Rf	1
2018/04/26	13:00	Bb	1
2018/04/26	13:00	Pp	391
2018/04/26	14:00	Pp	11
2018/04/26	15:00	NumFiles	0
2018/04/26	16:00	Noise	38
2018/04/26	17:00	Noise	213
2018/04/26	18:00	Noise	377
2018/04/27	07:00	NumFiles	0
2018/04/27	08:00	NumFiles	0
2018/04/27	09:00	Nn	1
2018/04/27	09:00	Noise	2
2018/04/27	09:00	Pa	2
2018/04/27	09:00	Pp	63
2018/04/27	10:00	Pp	278
2018/04/27	11:00	Pp	142
2018/04/27	12:00	Noise	1
2018/04/27	12:00	Pp	20
2018/04/27	13:00	Noise	5
2018/04/27	13:00	Pp	107
2018/04/27	14:00	Noise	2
2018/04/27	14:00	Pp	80
2018/04/27	15:00	Pp	28
2018/04/27	16:00	Pp	14
2018/04/27	17:00	Noise	1
2018/04/27	17:00	Pp	1
2018/04/27	18:00	Noise	2
2018/04/28	07:00	NumFiles	0
2018/04/28	08:00	NumFiles	0
2018/04/28	09:00	Pp	176
2018/04/28	10:00	Pp	287
2018/04/28	11:00	Pa	2
2018/04/28	11:00	Pp	362
2018/04/28	12:00	Noise	3
2018/04/28	12:00	Pa	3
2018/04/28	12:00	Pp	357
2018/04/28	13:00	Noise	1
2018/04/28	13:00	Pp	126
2018/04/28	14:00	Pp	61

2018/04/28	15:00	Pp	8
2018/04/28	16:00	Noise	2
2018/04/28	16:00	Pp	4
2018/04/28	17:00	NumFiles	0
2018/04/28	18:00	Noise	1
2018/04/29	07:00	NumFiles	0
2018/04/29	08:00	NumFiles	0
2018/04/29	09:00	Noise	2
2018/04/29	09:00	Pp	167
2018/04/29	10:00	Nn	8
2018/04/29	10:00	Noise	2
2018/04/29	10:00	Pp	393
2018/04/29	11:00	Nn	38
2018/04/29	11:00	Noise	2
2018/04/29	11:00	Pp	587
2018/04/29	12:00	Nn	21
2018/04/29	12:00	Pp	148
2018/04/29	13:00	Nn	4
2018/04/29	13:00	Noise	1
2018/04/29	13:00	Pp	37
2018/04/29	14:00	Nn	2
2018/04/29	14:00	Pp	55
2018/04/29	15:00	Pp	5
2018/04/29	16:00	Noise	1
2018/04/29	16:00	Pp	6
2018/04/29	17:00	NumFiles	0
2018/04/29	18:00	NumFiles	0
2018/04/30	07:00	NumFiles	0
2018/04/30	08:00	NumFiles	0
2018/04/30	09:00	Nn	2
2018/04/30	09:00	Noise	1
2018/04/30	09:00	Pp	63
2018/04/30	10:00	Nn	27
2018/04/30	10:00	Noise	7
2018/04/30	10:00	Pp	350
2018/04/30	11:00	Nn	32
2018/04/30	11:00	Noise	1
2018/04/30	11:00	Pp	419
2018/04/30	12:00	Nn	4
2018/04/30	12:00	Pp	206
2018/04/30	13:00	Nn	1
2018/04/30	13:00	Noise	1
2018/04/30	13:00	Pp	218
2018/04/30	14:00	Noise	3
2018/04/30	14:00	Pp	271
2018/04/30	15:00	Pp	64
2018/04/30	16:00	NumFiles	0
2018/04/30	17:00	NumFiles	0
2018/04/30	18:00	NumFiles	0

Night	Time	Label	Number
2018/05/22	07:00	NumFiles	0
2018/05/22	08:00	NumFiles	0
2018/05/22	09:00	Noise	1
2018/05/22	09:00	Pp	66
2018/05/22	10:00	Nn	6
2018/05/22	10:00	Noise	8
2018/05/22	10:00	Pp	379
2018/05/22	10:00	pip55	7
2018/05/22	11:00	Nn	1
2018/05/22	11:00	Noise	1
2018/05/22	11:00	Pp	435
2018/05/22	11:00	pip55	11
2018/05/22	12:00	Noise	2
2018/05/22	12:00	Pp	497
2018/05/22	12:00	myotis	1
2018/05/22	12:00	pip55	1
2018/05/22	13:00	Nn	3
2018/05/22	13:00	Noise	1
2018/05/22	13:00	Pp	444
2018/05/22	14:00	Pp	429
2018/05/22	15:00	Noise	4
2018/05/22	15:00	Pp	463
2018/05/22	16:00	Pp	416
2018/05/22	17:00	NumFiles	0
2018/05/22	18:00	NumFiles	0
2018/05/23	07:00	NumFiles	0
2018/05/23	08:00	NumFiles	0
2018/05/23	09:00	Noise	1
2018/05/23	09:00	Pp	50
2018/05/23	10:00	Nn	2
2018/05/23	10:00	Noise	1
2018/05/23	10:00	Pa	1
2018/05/23	10:00	Pp	403
2018/05/23	10:00	myotis	5
2018/05/23	11:00	Nn	1
2018/05/23	11:00	Noise	5
2018/05/23	11:00	Pp	538
2018/05/23	12:00	Pp	464
2018/05/23	13:00	Pp	414
2018/05/23	14:00	GHS	1
2018/05/23	14:00	Pa	2
2018/05/23	14:00	Pp	434
2018/05/23	15:00	Pa	1
2018/05/23	15:00	Pp	429
2018/05/23	16:00	Noise	1
2018/05/23	16:00	Pp	410
2018/05/23	17:00	Pp	12
2018/05/23	18:00	NumFiles	0
2018/05/24	07:00	NumFiles	0
2018/05/24	08:00	NumFiles	0
2018/05/24	09:00	Noise	1
2018/05/24	09:00	Pp	18
2018/05/24	10:00	Bb	1

2018/05/24	10:00	Nn	6
2018/05/24	10:00	Pp	342
2018/05/24	10:00	myotis	1
2018/05/24	10:00	pip	1
2018/05/24	11:00	Nn	5
2018/05/24	11:00	Noise	3
2018/05/24	11:00	Pa	1
2018/05/24	11:00	Pp	486
2018/05/24	12:00	Noise	1
2018/05/24	12:00	Pp	478
2018/05/24	13:00	Pp	368
2018/05/24	13:00	myotis	1
2018/05/24	14:00	Nn	1
2018/05/24	14:00	Pp	368
2018/05/24	15:00	Noise	1
2018/05/24	15:00	Pa	1
2018/05/24	15:00	Pp	206
2018/05/24	15:00	myotis	2
2018/05/24	15:00	pip55	1
2018/05/24	16:00	Pp	164
2018/05/24	17:00	Noise	1
2018/05/24	18:00	NumFiles	0
2018/05/25	07:00	NumFiles	0
2018/05/25	08:00	NumFiles	0
2018/05/25	09:00	Pp	36
2018/05/25	10:00	Nn	6
2018/05/25	10:00	Noise	2
2018/05/25	10:00	Pp	310
2018/05/25	10:00	myotis	1
2018/05/25	11:00	Nn	5
2018/05/25	11:00	Noise	4
2018/05/25	11:00	Pp	461
2018/05/25	12:00	Pp	417
2018/05/25	13:00	Nn	4
2018/05/25	13:00	Noise	4
2018/05/25	13:00	Pp	335
2018/05/25	14:00	Nn	3
2018/05/25	14:00	Pp	256
2018/05/25	14:00	myotis	1
2018/05/25	15:00	Pp	366
2018/05/25	16:00	Noise	4
2018/05/25	16:00	Pp	340
2018/05/25	17:00	NumFiles	0
2018/05/25	18:00	NumFiles	0
2018/05/26	07:00	NumFiles	0
2018/05/26	08:00	NumFiles	0
2018/05/26	09:00	Pp	29
2018/05/26	10:00	Nn	6
2018/05/26	10:00	Noise	1
2018/05/26	10:00	Pp	239
2018/05/26	11:00	Pp	88
2018/05/26	12:00	NumFiles	0
2018/05/26	13:00	NumFiles	0
2018/05/26	14:00	NumFiles	0

```
2018/05/26       15:00   NumFiles 0
2018/05/26       16:00   NumFiles 0
2018/05/26       17:00   NumFiles 0
2018/05/26       18:00   NumFiles 0
```

Night	Time	Label	Number
2018/06/21	07:00	NumFiles	0
2018/06/21	08:00	NumFiles	0
2018/06/21	09:00	NumFiles	0
2018/06/21	10:00	Noct	3
2018/06/21	10:00	Pip45	94
2018/06/21	11:00	Noct	10
2018/06/21	11:00	Pip45	125
2018/06/21	11:00	Pipsp	1
2018/06/21	12:00	MyotisSp	1
2018/06/21	12:00	Pip45	9
2018/06/21	13:00	Pip45	2
2018/06/21	14:00	Pip45	2
2018/06/21	15:00	NumFiles	0
2018/06/21	16:00	Noct	1
2018/06/21	16:00	Noise	2
2018/06/21	16:00	Pip45	2
2018/06/21	17:00	NumFiles	0
2018/06/21	18:00	NumFiles	0
2018/06/22	07:00	NumFiles	0
2018/06/22	08:00	NumFiles	0
2018/06/22	09:00	NumFiles	0
2018/06/22	10:00	GHS	1
2018/06/22	10:00	Noct	2
2018/06/22	10:00	Pip45	91
2018/06/22	11:00	Noct	3
2018/06/22	11:00	Noise	1
2018/06/22	11:00	Pip45	81
2018/06/22	12:00	Noct	1
2018/06/22	12:00	Pip45	22
2018/06/22	13:00	MyotisSp	1
2018/06/22	13:00	Noct	1
2018/06/22	13:00	Pip45	12
2018/06/22	14:00	Pip45	15
2018/06/22	15:00	Pip45	3
2018/06/22	16:00	Pip45	13
2018/06/22	17:00	NumFiles	0
2018/06/22	18:00	NumFiles	0
2018/06/23	07:00	NumFiles	0
2018/06/23	08:00	NumFiles	0
2018/06/23	09:00	Pip45	10
2018/06/23	10:00	Leis	1
2018/06/23	10:00	Noct	6
2018/06/23	10:00	Pip45	112
2018/06/23	11:00	LHS	1
2018/06/23	11:00	Leis	3
2018/06/23	11:00	Noct	5
2018/06/23	11:00	Noise	1
2018/06/23	11:00	Pip45	70
2018/06/23	12:00	Noct	1
2018/06/23	12:00	Pip45	53
2018/06/23	13:00	Noct	2
2018/06/23	13:00	Pip45	65
2018/06/23	14:00	MyotisSp	1

2018/06/23	14:00	Pip45	83
2018/06/23	15:00	MyotisSp	2
2018/06/23	15:00	Pip45	57
2018/06/23	16:00	MyotisSp	1
2018/06/23	16:00	Noct	3
2018/06/23	16:00	Pip45	259
2018/06/23	17:00	NumFiles	0
2018/06/23	18:00	NumFiles	0
2018/06/24	07:00	NumFiles	0
2018/06/24	08:00	NumFiles	0
2018/06/24	09:00	Noct	2
2018/06/24	09:00	Noise	2
2018/06/24	09:00	Pip45	12
2018/06/24	10:00	MyotisSp	1
2018/06/24	10:00	Noct	1
2018/06/24	10:00	Pip45	84
2018/06/24	11:00	Noct	4
2018/06/24	11:00	Pip45	180
2018/06/24	11:00	Unsure	1
2018/06/24	12:00	Noct	5
2018/06/24	12:00	Pip45	42
2018/06/24	13:00	GHS	1
2018/06/24	13:00	MyotisSp	1
2018/06/24	13:00	Noct	2
2018/06/24	13:00	Pip45	46
2018/06/24	13:00	Unsure	1
2018/06/24	14:00	MyotisSp	2
2018/06/24	14:00	Noct	1
2018/06/24	14:00	Pip45	97
2018/06/24	15:00	MyotisSp	2
2018/06/24	15:00	Noct	1
2018/06/24	15:00	Pip45	275
2018/06/24	15:00	PipSp	1
2018/06/24	16:00	Noct	1
2018/06/24	16:00	Pip45	296
2018/06/24	16:00	Pip55	2
2018/06/24	17:00	NumFiles	0
2018/06/24	18:00	NumFiles	0
2018/06/25	07:00	NumFiles	0
2018/06/25	08:00	NumFiles	0
2018/06/25	09:00	Noct	1
2018/06/25	09:00	Pip45	7
2018/06/25	10:00	Noct	2
2018/06/25	10:00	Pip45	90
2018/06/25	11:00	GHS	1
2018/06/25	11:00	MyotisSp	3
2018/06/25	11:00	Noct	2
2018/06/25	11:00	Pip45	138
2018/06/25	11:00	Pip55	1
2018/06/25	12:00	NumFiles	0
2018/06/25	13:00	NumFiles	0
2018/06/25	14:00	NumFiles	0
2018/06/25	15:00	NumFiles	0
2018/06/25	16:00	NumFiles	0

2018/06/25	17:00	NumFiles	0
2018/06/25	18:00	NumFiles	0
2018/06/21	07:00	NumFiles	0
2018/06/21	08:00	Noise	6
2018/06/21	09:00	Noct	2
2018/06/21	10:00	Pip45	23
2018/06/21	11:00	NumFiles	0
2018/06/21	12:00	NumFiles	0
2018/06/21	13:00	NumFiles	0
2018/06/21	14:00	NumFiles	0
2018/06/21	15:00	NumFiles	0
2018/06/21	16:00	NumFiles	0
2018/06/21	17:00	NumFiles	0
2018/06/21	18:00	NumFiles	0
2018/06/25	07:00	NumFiles	0
2018/06/25	08:00	NumFiles	0
2018/06/25	09:00	NumFiles	0
2018/06/25	10:00	NumFiles	0
2018/06/25	11:00	NumFiles	0
2018/06/25	12:00	NumFiles	0
2018/06/25	13:00	NumFiles	0
2018/06/25	14:00	NumFiles	0
2018/06/25	15:00	NumFiles	0
2018/06/25	16:00	Noct	1
2018/06/25	12:00	Noise	1
2018/06/25	12:00	Pip45	67
2018/06/25	13:00	Pip45	55
2018/06/25	14:00	MyotisSp	14
2018/06/25	14:00	Noct	1
2018/06/25	14:00	Noise	1
2018/06/25	14:00	Pip45	225
2018/06/25	14:00	Pip55	9
2018/06/25	15:00	MyotisSp	42
2018/06/25	15:00	Noct	1
2018/06/25	15:00	Pip45	387
2018/06/25	15:00	Pip55	26
2018/06/25	16:00	MyotisSp	1
2018/06/25	16:00	Noct	3
2018/06/25	16:00	Pip45	274
2018/06/25	16:00	Pip55	1
2018/06/25	16:00	PipSp	1
2018/06/25	17:00	NumFiles	0
2018/06/25	18:00	NumFiles	0

Night	Time	Label	Number
2018/07/26	07:00	NumFiles	0
2018/07/26	08:00	NumFiles	0
2018/07/26	09:00	MyotisSp	1
2018/07/26	09:00	Noct	22
2018/07/26	09:00	Pip45	170
2018/07/26	10:00	LHS	1
2018/07/26	10:00	Noct	48
2018/07/26	10:00	Pip45	385
2018/07/26	11:00	MyotisSp	1
2018/07/26	11:00	Noct	2
2018/07/26	11:00	Pip45	404
2018/07/26	12:00	MyotisSp	1
2018/07/26	12:00	Noct	1
2018/07/26	12:00	Pip45	385
2018/07/26	13:00	MyotisSp	1
2018/07/26	13:00	Pip45	357
2018/07/26	14:00	Pip45	405
2018/07/26	15:00	Noct	2
2018/07/26	15:00	Pip45	409
2018/07/26	15:00	Pip55	1
2018/07/26	16:00	Noct	3
2018/07/26	16:00	Pip45	419
2018/07/26	17:00	Noct	2
2018/07/26	17:00	Pip45	111
2018/07/26	18:00	NumFiles	0
2018/07/27	07:00	NumFiles	0
2018/07/27	08:00	NumFiles	0
2018/07/27	09:00	Leis	3
2018/07/27	09:00	Noct	23
2018/07/27	09:00	Pip45	103
2018/07/27	10:00	Leis	2
2018/07/27	10:00	Noct	4
2018/07/27	10:00	Pip45	357
2018/07/27	11:00	Noct	1
2018/07/27	11:00	Pip45	293
2018/07/27	12:00	Pip45	194
2018/07/27	13:00	Noct	1
2018/07/27	13:00	Pip45	162
2018/07/27	14:00	MyotisSp	1
2018/07/27	14:00	Noct	5
2018/07/27	14:00	Pip45	105
2018/07/27	15:00	MyotisSp	2
2018/07/27	15:00	Pip45	238
2018/07/27	16:00	MyotisSp	1
2018/07/27	16:00	Noct	4
2018/07/27	16:00	Pip45	136
2018/07/27	17:00	Noct	1
2018/07/27	18:00	NumFiles	0
2018/07/28	07:00	NumFiles	0
2018/07/28	08:00	NumFiles	0
2018/07/28	09:00	Noct	1
2018/07/28	09:00	Pip45	158
2018/07/28	10:00	Pip45	461

2018/07/28	11:00	MyotisSp	134
2018/07/28	11:00	Pip45	288
2018/07/28	12:00	MyotisSp	15
2018/07/28	12:00	Pip45	389
2018/07/28	13:00	Pip45	191
2018/07/28	14:00	Pip45	101
2018/07/28	15:00	Pip45	5
2018/07/28	16:00	NumFiles	0
2018/07/28	17:00	NumFiles	0
2018/07/28	18:00	NumFiles	0

Appendix E Key Route Link Flows in the Vicinity of the Scheme

Table 1 AM peak key route link flows in the vicinity of the scheme

Site location	Dir	2015 BASE	2023 DM	2023 DS7A	2038 DM	2038 DS7A
A3075 Between Chiverton and B3284	NB	368	439	332	589	388
A3075 Between Chiverton and B3284	SB	440	492	502	598	608
A39, Between Truro and Carland Cross Rbt	NB	470	511	331	496	407
A39, Between Truro and Carland Cross Rbt	SB	605	697	499	693	732
A39, Between Truro and Carnon Downs	NB	915	979	927	1,117	1,049
A39, Between Truro and Carnon Downs	SB	744	807	784	858	869
A390, Between Chiverton and Threemilestone	EB	839	1,102	1,019	1,096	1,137
A390, Between Chiverton and Threemilestone	WB	635	652	548	856	709
A390, Between Treliske Hospital and Truro	EB	1,001	1,119	836	1,214	1,032
A390, Between Treliske Hospital and Truro	WB	1,134	1,171	982	1,235	1,093
A390, Between Truro and Probus	EB	478	557	526	688	577
A390, Between Truro and Probus	WB	826	865	875	886	943
B3284, Between Shortlanesend and Truro	NB	229	281	424	323	475
B3284, Between Shortlanesend and Truro	SB	552	528	797	530	818
Chacewater Hill between Threemilestone and Chacewater	EB	582	651	671	867	845
Chacewater Hill between Threemilestone and Chacewater	WB	129	188	226	233	279

Table 2 IP peak key route link flows in the vicinity of the scheme

Site location	Dir	2015 BASE	2023 DM	2023 DS7A	2038 DM	2038 DS7A
A3075 Between Chiverton and B3284	NB	426	486	409	632	466
A3075 Between Chiverton and B3284	SB	410	449	451	563	552
A39, Between Truro and Carland Cross Rbt	NB	581	655	421	496	558
A39, Between Truro and Carland Cross Rbt	SB	504	557	419	608	444
A39, Between Truro and Carnon Downs	NB	845	924	813	952	862
A39, Between Truro and Carnon Downs	SB	772	828	779	877	770
A390, Between Chiverton and Threemilestone	EB	727	687	627	796	758
A390, Between Chiverton and Threemilestone	WB	872	917	594	1,170	801
A390, Between Treliske Hospital and Truro	EB	1,120	1,118	877	1,190	978
A390, Between Treliske Hospital and Truro	WB	1,077	1,113	876	1,233	1,007
A390, Between Truro and Probus	EB	635	692	666	832	752
A390, Between Truro and Probus	WB	583	607	586	646	628
B3284, Between Shortlanesend and Truro	NB	363	449	659	536	725
B3284, Between Shortlanesend and Truro	SB	328	434	604	435	650
Chacewater Hill between Threemilestone and Chacewater	EB	303	366	395	498	511
Chacewater Hill between Threemilestone and Chacewater	WB	284	313	398	394	442

Table 3 PM peak key route link flows in the vicinity of the scheme

Site location	Dir	2015 BASE	2023 DM	2023 DS7A	2038 DM	2038 DS7A
A3075 Between Chiverton and B3284	NB	628	687	509	767	599
A3075 Between Chiverton and B3284	SB	427	486	473	636	564
A39, Between Truro and Carland Cross Rbt	NB	656	565	651	444	785
A39, Between Truro and Carland Cross Rbt	SB	453	518	434	568	511
A39, Between Truro and Carnon Downs	NB	882	873	791	868	782
A39, Between Truro and Carnon Downs	SB	921	995	894	1,075	910
A390, Between Chiverton and Threemilestone	EB	538	623	531	649	673
A390, Between Chiverton and Threemilestone	WB	1,255	1,298	810	1,294	774
A390, Between Treliske Hospital and Truro	EB	1,077	1,156	971	1,245	1,011
A390, Between Treliske Hospital and Truro	WB	1,123	1,159	930	1,236	1,072
A390, Between Truro and Probus	EB	952	939	945	943	951
A390, Between Truro and Probus	WB	554	599	539	586	576
B3284, Between Shortlanesend and Truro	NB	557	632	740	711	757
B3284, Between Shortlanesend and Truro	SB	464	402	574	444	614
Chacewater Hill between Threemilestone and Chacewater	EB	178	240	261	354	272
Chacewater Hill between Threemilestone and Chacewater	WB	615	616	676	801	867

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

Creative M170036