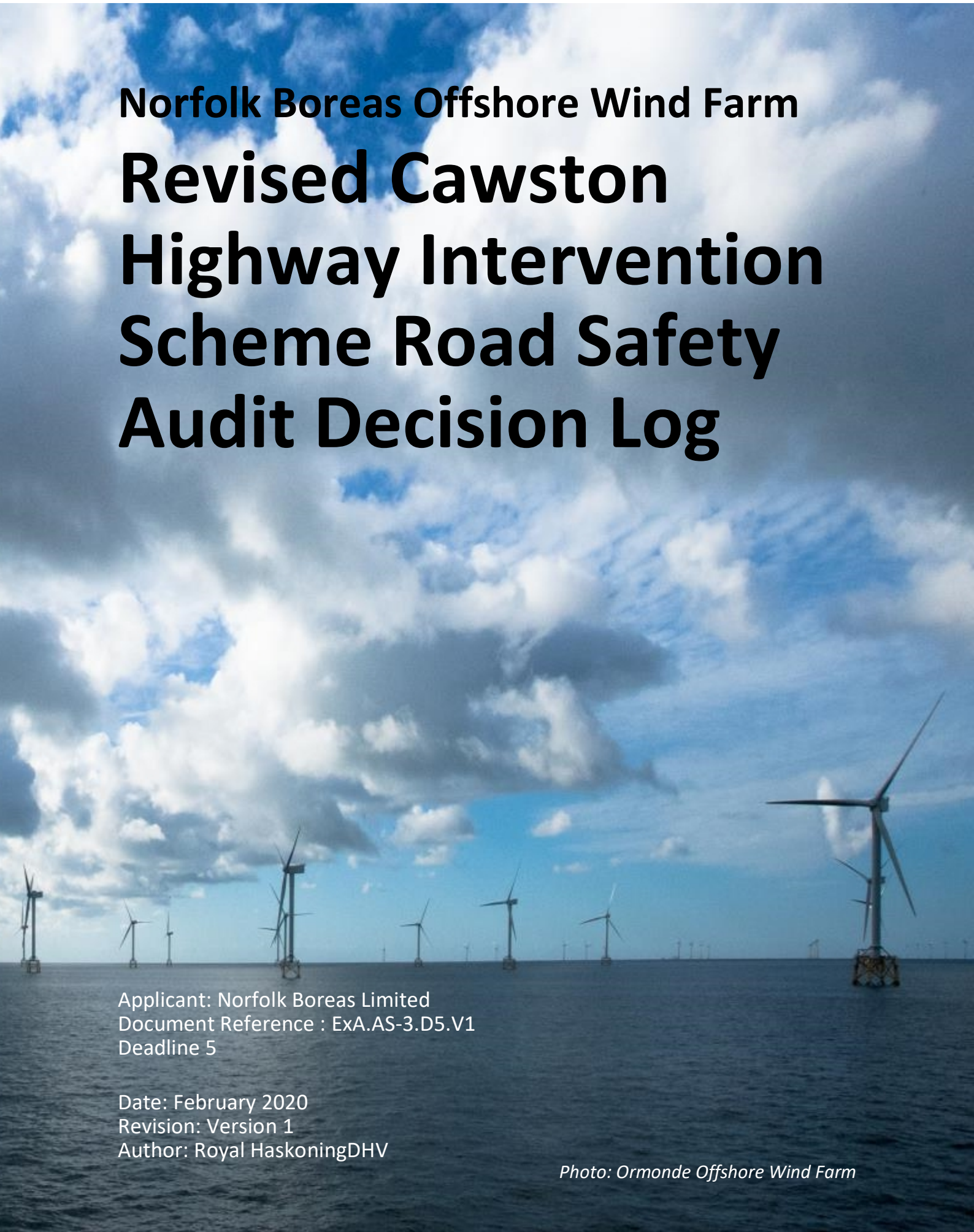
Royal HaskoningDHV
Enhancing Society Together

VATTENFALL



Norfolk Boreas Offshore Wind Farm

Revised Cawston Highway Intervention Scheme Road Safety Audit Decision Log

Applicant: Norfolk Boreas Limited
Document Reference : ExA.AS-3.D5.V1
Deadline 5

Date: February 2020
Revision: Version 1
Author: Royal HaskoningDHV

Photo: Ormonde Offshore Wind Farm

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
25/02/2020	01D	First draft for internal review	RE/AR	CD	JL
26/02/2020	01F	Final for Deadling 5.	RE/AR	CD/VR/JL	JL

Table of Contents

Glossary of Acronyms

DfT	Department for Transport
GEART	Guidelines for the Environmental Assessment of Road Traffic
HGV	Heavy Goods Vehicle
HIS	Highway Intervention Scheme
IEMA	Institute of Environmental Management and Assessment
Mph	Miles per hour
NCC	Norfolk County Council
OTMP	Outline Traffic Management Plan
OTS	On The Spot
PIC	Personal Injury Collision
RSA	Road Safety Audit
TMPCo	Travel Management Plan Co-ordinator

1 Introduction

1. A Road Safety Audit (RSA) is a review of scheme intervention by qualified road safety professionals independent to the design team. RSA is mandated by Highways England as set out in the Design Manual for Road and Bridges, requirement GG119.

2. The road safety process as set out in GG119 is to identify aspects of engineering interventions that could give rise to road safety problems and to suggest modifications that could improve road safety for all users.

3. This RSA Decision Log Report provides a Designer's response to the outcomes from a stage 1 road safety audit (RSA) carried out on the revised Highway Intervention Scheme (HIS) for link 34, B1145 Cawston.

4. The RSA stage 1 report (Report Ref: BN/RH/20-101) dated February 2020 (provided in Appendix A) was received by the design team and the recommendations have been reviewed in accordance with the revised GG119 procedure. The Road Safety Audit Brief, prepared in accordance with the GG119 Road Safety Audit, has been provided in Appendix B, this brief was submitted along with the Technical Note on the Revised Cawston Highway Intervention Scheme [REP4-016] to the Safety Auditors in advance of the audit.

2 Requirements for an RSA Decision Log

5. The RSA Decision Log includes the RSA 'Problems' and Recommendations (reproduced within **Section 3** in italicised text). The Design Organisation's (Norfolk Boreas Limited., 'The Applicant') response to each problem follows each recommendation, either accepting the recommendation or providing relevant reasons why they have not been accepted.

6. The Decision Log (Problem, Recommendation and Design Organisation response) is to be reviewed by the Overseeing Organisation (Norfolk County Council, 'NCC') who will review the Problems and Design Organisation responses and provide their own response.

7. The RSA Decision Log then requires the Design Organisation and Overseeing Organisations to work in collaboration to find a solution and Agreed RSA action for each Problem raised.

8. **Section 3** of this RSA Decision Log provides the RSA Problems, Recommendation and Design Organisation response. **Table 4** contained within **Section 4** provides the template for the Overseeing Organisation Response and resultant Agreed RSA Actions.

3 Designer's Response to Matters Arising from Stage 1 Road Safety Audit

RSA Section 3.1 – GENERAL

3.1 RSA Section 3.1.1 – PROBLEM

The drawing provided makes no reference to the following:

- *Ongoing Maintenance programmes – all visibility splays and proposed signage to be kept clear of vegetation.*

RECOMMENDATION: It is recommended that an on-going maintenance programme is put in place to keep all visibility splays, footways and signage clear of vegetation.

3.2 Designer's Response

9. Agree with the recommendation.

10. The Applicant will comply with NCC's policy for grass cutting of visibility splays. The policy sets out a maintenance regime of five cuts between May and September in urban areas (defined as roads subject to less than a 40mph speed limit). A note will be added to the scheme drawings.

RSA Section 3.2 – WALKING, CYCLING AND HORSE RIDING

3.3 RSA Section 3.2.1 – PROBLEM

Location: A – Chapel St

Summary: Introduction of a signpost may result in a pedestrian having to step into the carriageway.

Details: The Audit Team note that the drawings detail the introduction of a signpost and '20mph zone' sign to the footway in the vicinity of no 6 Chapel Street. No details have been provided to the exact location of the proposed sign; however, any signpost will reduce the already narrow footway. This may result in a pedestrian, particularly with a pram or wheelchair, having to step out on to the carriageway putting themselves at risk of conflict with approaching vehicles, or indeed personal injury.

RECOMMENDATION: It is recommended that the signpost is introduced to the widest area of footway and is positioned to the back of the footway to afford maximum footway area. The sign could be cantilevered on a rectangular backing board, to ensure post can be situated at the very back of the footway.

3.4 Designer's Response

11. Agree with recommendation.

12. The sign is to be located adjacent to an existing concrete post that extends out into the footway from the residential property wall (no 6 Chapel Street). The post will be set at the back of the footway and thus will not interfere with the existing available footway width.

13. It is further agreed, that the rectangular sign would be cantilevered on a rectangular backing board to ensure that the post can be situated at the very back of the footway. Full details will be set out in the drawings submitted for RSA 2.

3.5 RSA Section 3.2.2 – PROBLEM

Location: B – High Street

Summary: Narrow footway and existing vegetation overhanging the footway will increase risk to pedestrians being struck by passing large vehicles.

Details: Whilst on site is was noted that the footway on the High Street between Norwich Road and Chapel Street is reduced considerably by existing vegetation. The perception of the width of the footway is already decreased by the proximity of the walls to the foot way edge, which effectively reduces the width. With an increasing number of larger vehicles travelling through the village pedestrians will be at a higher risk of striking from HGVs.

RECOMMENDATION: It is recommended that the vegetation along this section of the High Street is maintained accordingly to provide maximum footway area to pedestrians.

3.6 Designer's Response

14. Agree with the recommendation.

15. The Applicant has sort guidance from NCC's policy with regards to vegetation maintenance, the most relevant being for highway verge grass cutting . The policy sets out a maintenance regime of five cuts between May and September in urban areas (defined as roads subject to a speed limit less than 40mph speed limit). A note will be added to the scheme drawings.

3.7 RSA Section 3.2.3 – PROBLEM

Location: C – High Street

Summary: Narrow footway will increase risk to pedestrians being struck by passing larger vehicles.

Details: Whilst on site is was noted that the footway along both sides of the High Street is narrow. The perception of the width of the footway is decreased by the proximity of the houses and their railings/walls to the foot way edge, which effectively reduces the width. With an increasing number of larger vehicles travelling through the village pedestrians will be at a higher risk of striking from HGVs.

Whilst the Audit Team note that within the Technical Note Dated January 2020 states that it has been agreed that 'by providing adequate road space and introducing the mandatory 20mph speed limit that the likelihood of a pedestrian and vehicle conflict will be reduced and therefore will mitigate the pedestrian amenity impact.' and that 'It is also highlighted that at the narrowest points of the footpath protection is afforded by parked vehicles.'

The Audit Team has also noted that the Applicant has committed to the prohibition of HGV deliveries during school pick up and drop off times i.e. 7:30am to 9am and 3pm to 4pm, Monday to Friday, when there are higher volumes of footpath users and welcome this.

However, even with these points in mind, the Audit Team still perceives there to be a risk to pedestrians due to the narrowness of the footway and the proximity that HGVs will be to pedestrians.

RECOMMENDATION: It is recommended that the Design Team:

- Introduce measures to highlight the presence of pedestrians within the area;

- Introduce road markings and 20mph signage at the gateways allowing for maximum impact and awareness;

- Provide maximum footway area, by attaching all signs to existing street furniture where possible and introducing any new signposts to the back of the footway, reducing footway clutter.

- Review the compliance of drivers following the introduction of the reduced speed limits and introduce further measures if necessary.

3.8 Designer's Response

16. To qualify the Designer's response to problem 3.2.3, the issue of "perceived risk" has been examined in detail by reviewing the baseline conditions and the Project's traffic demand to evaluate the probability of the perceived risk manifesting into incidents.

3.8.1 Baseline conditions

17. **Appendix C** sets out salient baseline data for existing traffic flow, traffic speeds and road safety. Key observations are:

- The B1149 Cawston High Street currently experiences daily HGV flows of 189 movements (west (Site 1)) and 225 (east (Site 2));
- 85th percentile speeds of approximately 29 mph have been recorded at both ends of the High Street;
- Four Personal Injury Collisions (PICs) have been recorded for Cawston Parish in the last (recorded) five years. None of these PICs involved pedestrians, all involved hurry driver behaviour or speeding.

18. It is noted that Cawston High Street currently has no parking restrictions and is subject to indiscriminate parking and the narrowness of the footways is well documented. These are contributory factors to the current perceptions of pedestrian road safety risk.

19. Notwithstanding, it can is evidenced by the collision (accident) records that the limitations of pedestrian amenity in Cawston are not leading to an inherent pedestrian road safety risk.

3.8.2 Evaluation of Perceived Pedestrian Risk

20. As noted by the RSA, the likelihood of pedestrian/vehicle conflicts has been minimised by the HIS key design principles of:

- Providing adequate road space for HGVs to traverse the High Street without the requirement to mount or project over the pavement;
- Protecting adequate road space for the HGV routes with the introduction of formal parking controls;
- Advance sign warning of 'pinch points'; and
- The introduction of a mandatory 20mph limit.

21. A review of the residual pedestrian risk follows, examining the concepts of likelihood and severity.

3.8.2.1 Likelihood of Pedestrian Risk

22. The review has referred to the principal guidance for assessing the environmental impact of traffic, the Institute of Environmental Management and Assessment (IEMA), Guidelines for the Environmental Assessment of Road Traffic, 1993 ('GEART').

23. GEART directs that in the first instance, collision data should be utilised to undertake a statistical analysis of the likelihood of increase in collisions by applying traffic increases. Recognising there is no record of pedestrian collisions on which to base a statistical assessment of likelihood (i.e. statistically the risk is very low), the environmental effect of pedestrian amenity has been adopted as a pedestrian risk proxy to augment the collision data.

24. GEART defines pedestrian amenity as "the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic".

25. GEART suggests pedestrian amenity impacts could be significantly adverse when a threshold of doubling the HGV component is forecast (i.e. 100% + increase in HGV flow).

26. **Table 1** and **Table 2** set out the peak daily HGV flows for Norfolk Boreas (Scenario 2 worst case) and Norfolk Boreas/Hornsea Project Three (cumulative) respectively and compares this with baseline flows. To contextualise demand, the peak duration for HGV demand is also presented.

Table 1: Summary of Norfolk Boreas Development Traffic and Percentage Increases

Peak Period	Time Period	Norfolk Boreas Scenario 2	2019 Baseline Average	% increase	Peak Duration
		Peak	HGV	% HGVs	
Primary Peak	12-Hour Daily (07:00-19:00)	112	207	54%	1 week
Secondary Peak	12-Hour Daily (07:00-19:00)	96	207	46%	2 weeks
Third Peak	12-Hour Daily (07:00-19:00)	66	207	31.8%	27 weeks
Fourth Peak	12-Hour Daily (07:00-19:00)	9	207	4.3%	18 weeks

Table 2: Summary of Cumulative (Norfolk Boreas & Hornsea Project 3) Development Traffic and Percentage Increases

Peak Period	Time Period	Cumulative	2019 Baseline Average	% increase	Peak Duration
		Peak	HGV	% HGVs	
Primary Peak	12-Hour Daily (07:00-19:00)	239	207	115.5%	1 week
Secondary Peak	12-Hour Daily (07:00-19:00)	223	207	107%	2 weeks
Third Peak	12-Hour Daily (07:00-19:00)	193	207	93%	27 weeks
Fourth Peak	12-Hour Daily (07:00-19:00)	136	207	65.4%	18 weeks

27. **Table 1** illustrates that for Norfolk Boreas Scenario 2, the GEART amenity thresholds are not exceeded for the 48-week construction duration. **Table 2** illustrates that for a Norfolk Boreas/ Hornsea Project Three cumulative scenario the amenity thresholds are exceeded for three weeks. This indicates that the potential for amenity impacts

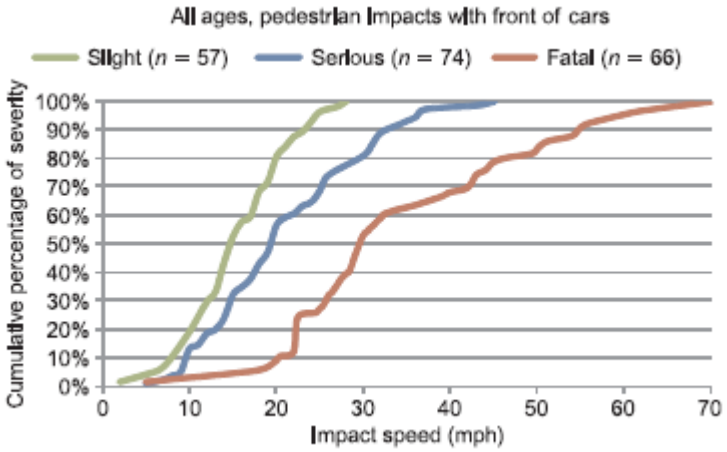
above baseline situation are for a limited duration and of limited magnitude. It is therefore summarised that historically there has been no recorded of pedestrian collisions and amenity impacts would be at their peak for a limited duration. With the introduction of the HIS, the amenity impacts would be mitigated and therefore it is concluded the likelihood of pedestrian risk due to the Project's traffic demand is low.

3.8.2.2 Severity of Pedestrian Risk

28. To evaluate severity, reference has been made to the Department for Transport (DfT) publication, Relationship between Speed and Risk of Fatal Injury: Pedestrians and Car Occupants, 2010. The paper sets out the findings of a study that utilised UK road safety data sets to establish the relationship between speed and risk of fatal injury.

29. **Insert 1** details the DfT's publication on cumulative[1] impact speed for pedestrian casualties using police on the spot (OTS) and file data.

Insert 1: Cumulative Impact Speed for Pedestrian Casualties in the OTS and Police Fatal File Dataset



30. It can be observed from **Insert 1** that there is a significant reduction in the severity of pedestrian casualties when comparing 20mph impacts to 30mph impacts. Noting the baseline 85th percentile speeds are measured at 29mph (**Appendix C** refers), it is concluded that the introduction of a 20mph speed limit would have a positive impact on the severity of pedestrian risk.

3.8.2.3 Pedestrian Risk Conclusion

31. Following the evaluation of the key effects that are likely to influence pedestrian risk it is concluded that the likelihood and severity are low and therefore the probability of the perceived pedestrian risk manifesting into an incident is low.

[1] Cumulative pedestrian age groups.

3.8.3 Designer Response to RSA Section 3.2.3 Specific Recommendations

3.8.3.1 Introduce measures to highlight the presence of pedestrians within the area

32. Agree with the recommendation.

33. The HIS will be updated to include the introduction of Diagram 544.1 'Pedestrians in the road ahead' at the same location (on the same posts) as the Diagram 516 'Road narrows' signs. This will have maximum impact by raising motorist awareness of pedestrians prior to traversing the sections of High Street with the narrowest footway.

3.8.3.2 Introduce road markings and 20mph signage at the gateways allowing for the maximum impact and awareness

34. Agree with the recommendation.

35. The HIS will be updated to introduce the 20mph signing at the gateway features. The detail of the gateway features will be developed for RSA 2 in consultation with NCC with the potential for Cawston Church of England Primary to be involved as part of a road safety educational programme.

3.8.3.3 Provide maximum footway area, by attaching all signs to existing street furniture where possible and introducing any new signposts to the back of the footway reducing clutter

36. Agree with the recommendation.

37. The quantum, location and form of signs and location of signposts has been carefully chosen to minimise street clutter, conservation impact and not compromise footway width. Full details of sign/post sizes and residual footway widths will be provided for RSA 2.

3.8.3.4 Review the compliance of drivers following the introduction of the reduced speed limits and introduce further measures if necessary

38. Agree with the recommendation.

39. The Outline Traffic Management Plan (OTMP) [REP1-022] submitted with the DCO application sets out the standards and procedures for managing the impact of HGV traffic during the onshore construction period, including localised road improvements necessary to facilitate the safe use of the existing road network.

40. The OTMP contains a commitment to a comprehensive monitoring regime, supported by community liaison and the appointment of a Traffic Management Plan Co-ordinator (TMPCo).

41. The Applicant will ensure effective and open communication with local residents and businesses that may be affected by noise or other amenity aspects caused by the

construction works. Communications will be co-ordinated on site by a designated member of the construction management team facilitating local concerns with vehicle speeds (or other matters relating to construction traffic) to be raised.

42. The contractor will establish the role of a TMPCo. Their key responsibilities include:

- Managing the implementation of the plan;
- Reporting monitoring to Norfolk Boreas Limited and relevant stakeholders (i.e. local authorities, NCC and Highways England);
- Inputting into and attending community liaison as required by Norfolk Boreas Limited;
- Providing details of any complaint investigations to Norfolk Boreas community liaison; and
- First point of contact for construction workers and sub-contractors.

43. The OTMP monitoring regime will be updated to contain a specific requirement for undertaking regular speed surveys and introducing additional measures as necessary.

4 Overseeing Organisation and Agreed RSA Action

44. **Table 4** provides the template for RSA Decision Log and is informed by the RSA Problems, Recommendations, and Design Organisation Reponses outlined in **Section 3**. **Table 4** is designed to be a live document and will be updated throughout the RSA Decision Log Process as per the new GG119 RSA procedures.

Table 3: RSA Decision Log

RSA Problem	Overseeing Organisation Response	Agreed RSA Action
The drawing provided makes no reference to the ongoing maintenance programmes – all visibility splays and proposed signage to be kept clear of vegetation.		
Location: A – Chapel St Summary: Introduction of signpost may result in a pedestrian having to step into the carriageway.		
Location: B – High Street Summary: Narrow footway and existing vegetation overhanging the footway will increase risk to pedestrians being struck by passing large vehicles.		
Location: C – High Street Summary: Narrow footway will increase risk to pedestrians being struck by passing larger vehicles.		

Appendix A - Road Safety Audit

BETH NEWISS & ASSOCIATES

ROAD SAFETY AUDIT
STAGE 1

PROPOSED HIGHWAY INTERVENTION SCHEME – NORFOLK BOREAS OFFSHORE WINDFARM

HIGH STREET, CAWSTON, NORFOLK

REPORT REF: BN/RH/20-101

Beth Newiss & Associates
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ROAD SAFETY AUDIT
STAGE 1

PROPOSED HIGHWAY INTERVENTION SCHEME-
NORFOLK BOREAS OFFSHORE WINDFARM

HIGH STREET,
CAWSTON, NORFOLK

February 2020

REPORT REF: BN/RH/20-101

CLIENT: Royal Haskoning DHV
Rightwell House
Bretton
Peterborough
PE3 8DW

Report Prepared By:

[redacted]

Beth Newiss MCIHT MSoRSA

Checked By:

[redacted]

Jason Bown MICE MSoRSA

NB: This report was produced for *Royal Haskoning DHV*, for the specific purpose of documenting the Stage 1 Road Safety Audit process undertaken under the principles of GG119.

CONTENTS

APPENDICES

DRAWINGS/DOCUMENTS PRESENTED FOR AUDIT

ExA.AS-2.D4.Va	Technical Note Revised Cawston Highway Intervention Scheme N/A
PB5640-DR015/F1.0	Cawston Highway Intervention Scheme – Approach Driver Awareness works on B1145 1:2000
PB5640-DR016/F1.0	Cawston Highway Intervention Scheme – Cawston Village Centre 1:500
PB5640-DR017/F1.0	Cawston Highway Intervention Scheme – HGV Forward Visibility and Chapel Street Junction Visibility 1:500
PB5640-DR018/F1.0	Cawston Highway Intervention Scheme – Swept Path Analysis Articulated and Large Tipper Vehicles – Two Way Movements 1:500
PB5640-DR019/F1.0	Cawston Highway Intervention Scheme – Swept Path Analysis Articulated, Large Tipper Vehicles and Car – Two Way Movements 1:500
PB5640-DR020/F1.0	Cawston Highway Intervention Scheme – Sign Schedule NTS

1.0 INTRODUCTION

1.1 This report results from a Road Safety Audit (RSA) carried out on a Proposed Highway Intervention Scheme in connection with the Norfolk Boreas Offshore Windfarm Project. The scheme is located through the village of Cawston, Norfolk. The audit was requested by Royal Haskoning DHV on behalf of Vattenfall.

1.2 The Audit Team are as follows:

Beth Newiss MCIHT MSoRSA
Beth Newiss & Associates
Captiva 19a Grange Hill, Coggeshall, Essex, CO6 1RE
TEL: [redacted] Email: bethnewissandassociates@gmail.com

Jason Bown PGDipMS IEng FIHE MICE MSoRSA
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Captiva 19a Grange Hill, Coggeshall, Essex, CO6 1RE
TEL: [redacted] Email: bethnewissandassociates@gmail.com

1.3 The Design Organisation:
Royal Haskoning DHV
Rightwell House
Bretton
Peterborough
PE3 8DW

1.4 The Overseeing Organisation Project Sponsor and Adopting Authority:
Norfolk County Council.

1.5 The audit was undertaken in accordance with procedures laid out in GG119 (Formerly HD 19/15). The audit comprised an examination of the drawings presented to the Audit Team and listed within the contents. All comments are further detailed on a location plan as detailed under Appendix 1.

1.6 Cawston is a Village and civil parish in the Broadland District of Norfolk. The Village lies approximately 11 miles (18km) north of Norwich on the B1145. The B1145 is subject to a 30mph speed limit through the Cawston Village centre. There is intermittent footway provision of variable width alternating between the north and south side of the carriageway through the Village.

1.7 The proposals presented for audit include:

- 20mph zone along the High Street;

- Realignment of Give ay marking at High Street/Chapel Street junction;
- Introduction of designated parking areas along the High Street;
- Introduction of road narrowing signs and associated waiting restriction signage;
- New Vehicle Activated Signs.

1.8 A site visit was undertaken on the 7th February 2020 between the hours of 12:00 and 12:30. During the site visit the weather was cold and dry. The surrounding road surfaces were damp. There was minimal traffic observed during the site visit, the traffic observed included HGVs. Pedestrians were noted. No cyclists nor equestrians were observed. During the site visit parking was noted along the length of the High Street and along Booton Road. Parking was also noted in Chapel Street within a triangular shaped area within the centre of the junction as well as around the junction on both sides.

1.9 The Audit Team have not been notified of any Departures to Design Standards.

1.10 The Audit Team were provided with collision data for this site. The collision information had been extracted from the CrashMAP database for the most recent five-year period to date. It was noted that during this period there had been 5 collisions recorded. Having obtained full collision data it was noted that 2 of the 5 collisions recorded were on the High Street. A 'slight' collision in 2016 involving a parked vehicle and a 'serious' collision in 2017 resulting in a head on collision. Without full collision data the Audit Team cannot ascertain the causation factors for these collisions.

1.11 The Audit Team have examined and reported only on highway safety implications of the scheme as presented and have not examined or verified the compliance of the designs to any other criteria.

1.12 Road Safety Audit is not a technical check that the design conforms to Standards and/or best practice guidance. Design Organisations are responsible for ensuring that their designs have been subjected to the appropriate design reviews (including, where applicable, Walking, Cycling & Horse Riding Assessment & Review) prior to Road Safety Audit.

Road Safety Audit is not a check that the scheme has been constructed in accordance with the design.

Whilst reference is made to certain design standards, where safety may be compromised by a reduction in standard, this report is not intended to provide a design check. The Auditors have only reported on matters that might have an adverse effect on road safety in the context of the chosen design. No attempt has been made to comment on the justification of the scheme or the appropriateness of the design. Consequently, the Auditors accept no responsibility for the design or construction of the scheme.

1.13 The Overseeing Organisation response to the RSA should be formally recorded and reported to the Designer and the RSA Team so that a record of the Audit process is contained in the As Built design pack to be provided and retained by the Overseeing Organisation on final completion.

2.0 PREVIOUS ROAD SAFETY AUDIT(S)

2.1 A previous Stage 1 Road Safety Audit was completed by Beth Newiss and Associates on the 21st March 2019.

2.2 Changes have been made to the initial design and as nearly a year has lapse, it was deemed that the scheme should be subject to a new Road Safety Audit.

3.0 SAFETY ISSUES RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

As a result of an examination of the drawings and documents supplied Royal Haskoning DHV and the site visit undertaken on the 7th February 2020, the problems highlighted in Section 3.0 were identified. The recommended course of action that should be taken in respect of each problem was also indicated, and the locations are shown on the drawings in Appendix 1.

3.1 GENERAL

3.1.1 PROBLEM

The drawing provided makes no reference to the following:

- Ongoing maintenance programmes – all visibility splays and proposed signage to be kept clear of vegetation.

RECOMMENDATION: It is recommended that an on-going maintenance programme is put in place to keep all visibility splays, footways and signage clear of vegetation.

3.2 WALKING, CYCLING AND HORSE RIDING

3.2.1 PROBLEM

Location: A – Chapel Street

Summary: Introduction of signpost may result in a pedestrian having to step into the carriageway.

Details: The Audit Team note that the drawings detail the introduction of a signpost and '20mph zone' sign to the footway in the vicinity of no 6 Chapel Street. No details have been provided to the exact location of the proposed sign; however, any sigh post will reduce the already narrow footway. This may result in a pedestrian, particularly with a pram or wheelchair, having to step out on to the carriageway putting themselves at risk of conflict with approaching vehicles, or indeed personal injury.

RECOMMENDATION: It is recommended that the signpost is introduced to the widest area of footway and is positioned to the back of the footway to afford maximum footway area. The sign could be cantilevered on a rectangular backing board, to ensure post can be situated at the very back of the footway.

3.2.2 PROBLEM

Location: B – High Street

Summary: Narrow footway and existing vegetation overhanging the footway will increase risk to pedestrians being struck by passing large vehicles.

Details: Whilst on site is was noted that the footway on the High Street between Norwich Road and Chapel Street is reduced considerably by existing vegetation. The perception of

the width of the footway is already decreased by the proximity of the walls to the foot way edge, which effectively reduces the width. With an increasing number of larger vehicles travelling through the village pedestrians will be at a higher risk of striking from HGVs.

RECOMMENDATION: It is recommended that the vegetation along this section of the High Street is maintained accordingly to provide maximum footway area to pedestrians.

3.2.3 **PROBLEM**

Location: C – High Street

Summary: Narrow footway will increase risk to pedestrians being struck by passing larger vehicles.

Details: Whilst on site is was noted that the footway along both sides of the High Street is narrow. The perception of the width of the footway is decreased by the proximity of the houses and their railings/walls to the foot way edge, which effectively reduces the width. With an increasing number of larger vehicles travelling through the village pedestrians will be at a higher risk of striking from HGVs.

Whilst the Audit Team note that within the Technical Note Dated January 2020 states that it has been agreed that 'by providing adequate road space and introducing the mandatory 20mph speed limit that the likelihood of a pedestrian and vehicle conflict will be reduced and therefore will mitigate the pedestrian amenity impact.' and that 'It is also highlighted that at the narrowest points of the footpath protection is afforded by parked vehicles.'

The Audit Team has also noted that the Applicant has committed to the prohibition of HGV deliveries during school pick up and drop off times i.e. 7:30am to 9am and 3pm to 4pm, Monday to Friday, when there are higher volumes of footpath users and welcome this.

However, even with these points in mind, the Audit Team still perceive there to be a risk to pedestrians due to the narrowness of the footway and the proximity that HGVs will be to pedestrians.

RECOMMENDATION: It is recommended that the Design Team:

- **Introduce measures to highlight the presence of pedestrians within the area;**
- **Introduce road markings and 20mph signage at the gateways allowing for maximum impact and awareness;**
- **Provide maximum footway area, by attaching all signs to existing street furniture where possible and introducing any new signposts to the back of the footway, reducing footway clutter.**
- **Review the compliance of drivers following the introduction of the reduced speed limits and introduce further measures if necessary.**

4.0 AUDIT TEAM STATEMENT

4.1 We certify that this audit has been undertaken in accordance with the principles of GG119.

Audit Team Leader

Beth Newiss MSoRSA

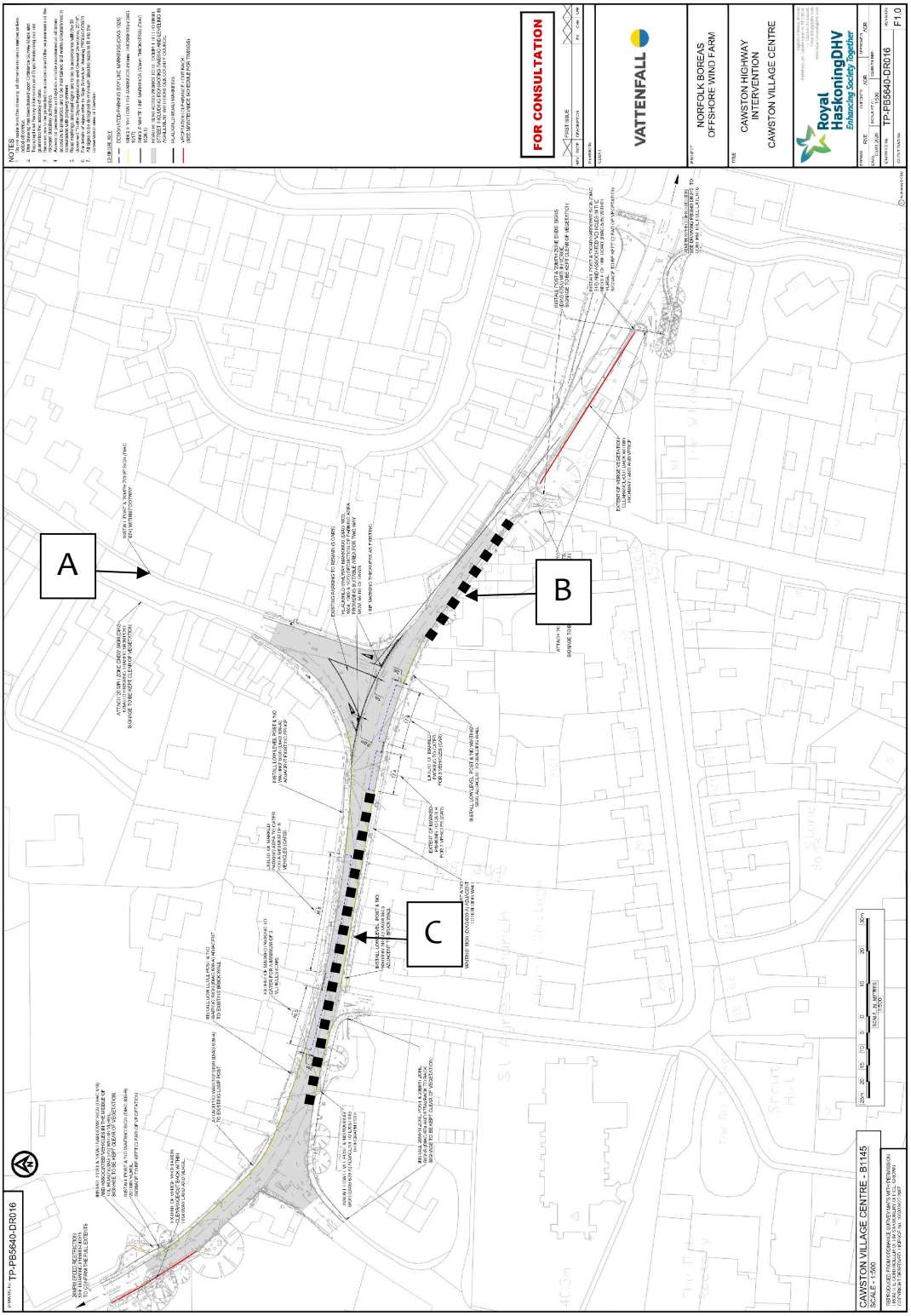
Date: 11th February 2020

Audit Team Member

Jason Bown

Date: 12th February 2020

APPENDIX 1


FOR CONSULTATION
VATTENFALL
NORFOLK BOREAS OFFSHORE WIND FARM
CAWSTON HIGHWAY INTERVENTION
CAWSTON VILLAGE CENTRE
Royal HaskoningDHV
Enhancing Society Together
TP-PB5640-DR016
F1.0
CAWSTON VILLAGE CENTRE - B1145
SCALE = 1:500
A
B
C

APPENDIX 2

Appendix B – Road Safety Brief

ROAD SAFETY AUDIT BRIEF

Prepared in Accordance with: - GG 119 Road Safety Audit (formerly HD 19/ 15)

Project Summary	
Date:	30.01.2020
Document Reference:	
Prepared By:	Royal HaskoningDHV
On Behalf Of:	Norfolk Boreas Limited
Authorisation sheet	
Project:	Norfolk Boreas Offshore Wind Farm
Report Title:	RSA Stage 1
Prepared By:	Ryan Eldon
Signed:	Ryan Eldon
Organisation:	Royal HaskoningDHV
Date:	31.01.2020
I approve the RSA brief and instruct the RSA to take place on behalf of the overseeing organisation	
Name:	
Signed:	
Organisation:	
Date:	

General Details	
Scheme Title	Norfolk Boreas Offshore Wind Farm
Location (description of carriageway or junction to be audited)	Cawston Village High Street (B1145) is subject to a 30mph speed limit. There is intermittent footway provision of variable width alternating between the north and south side of the carriageway through the Village. See Appendix A for location plan.
Date	TBC
Required Audit Stage	1 ☒ 1/2 ☐ 2 ☐ 3 ☐ 4 ☐ (12 month) 4 ☐ (36 month)

Contact Details		
	Overseeing Organisation details	**Design Organisation details**
Contact Name	Martin Dixon	Ryan Eldon
Organisation	Norfolk County Council	Royal HaskoningDHV
Address	Highway Depot Burgh Road Aylsham NR11 6AR	Rightwell House Bretton Peterborough PE3 8DW
Telephone Number	01263 738831	01733 373549
Email Address	Martin.dixon@norfolk.gov.uk	Ryan.eldon@rhdhv.com

ROAD SAFETY AUDIT BRIEF

Prepared in Accordance with: - GG 119 Road Safety Audit (formerly HD 19/ 15)

	Maintaining Agent	**Police Contact** (Stage 3 Audits Only)
Contact Name	Martin Dixon	unknown
Organisation	Norfolk County Council	
Address	Highway Depot Burgh Road Aylsham NR11 6AR	
Telephone Number	01263 738831	
Email Address	Martin.dixon@norfolk.gov.uk	

Terms of Reference
The audit should be completed in accordance with the requirements of the Design Manual for Roads and Bridges GG119.

General Scheme Description	
Purpose and Key Elements of the Scheme	The route through Cawston on the B1145 is required for access to the Norfolk Boreas Offshore Wind Farm project, specifically to access onto the onshore cable route and trenchless crossings west of Cawston.
Design Standards	DMRB Design Standard CD109
Departures from Standard	None known
Design Speeds	Existing designs speeds of 60B (30mph)
Speed Limits	Introduction of a 20mph Zone through the extents of Cawston Village (B1145)
Existing Traffic Conditions/ queue lengths	Details of existing flows and speeds are provided within the Hornsea P3 High Street, Cawston – Highway Intervention Scheme (29th March 2019)
Forecast Traffic Flows	The following traffic flows are what are expected to access through Cawston along the B1145 during the peak period. Norfolk Boreas Construction Traffic = 165 light vehicles movements per day, 112 HGV movements per day.
Pedestrian, cyclist and equestrian desire lines	There is intermittent footway provision of variable width alternating between the north and south side of the carriageway through the Village. No pedestrian counts have been undertaken.
Environmental Constraints	The brief includes a Briefing Note (ExA.AS-2.D4.V1) that details the history of the scheme and the changes made to the previous design which are of a result of problems raised by the previous RSA and comments from the NCC Safety team.

	Details of existing PIC details are provided within the Hornsea P3 High Street, Cawston – Highway Intervention Scheme (29th March 2019) and are still current as of January 2020.

Description of Locality
General Description Cawston Village High Street (B1145) is subject to a 30mph speed limit. There is intermittent footway provision of variable width alternating between the north and south side of the carriageway through the Village.
Relevant Factors Which May Affect Road Safety Method statements and Risk Assessments have been produced to minimise risk to Road Safety Auditors. Once at site use the Bell Inn Car Park to park car off the public highway.

Checklist of Documents Provided for Audit			
	Document/Drawing No	Title / Description	Scale
	ExA.AS-2.D4.Va	Technical Note Revised Cawston Highway Intervention Scheme	N/A
	PB5640-DR015/F1.0	Cawston Highway Intervention Scheme – Approach Driver Awareness works on B1145	1:2000
	PB5640-DR016/F1.0	Cawston Highway Intervention Scheme – Cawston Village Centre	1:500
	PB5640-DR017/F1.0	Cawston Highway Intervention Scheme – HGV Forward Visibility and Chapel Street Junction Visibility	1:500
	PB5640-DR018/F1.0	Cawston Highway Intervention Scheme – Swept Path Analysis Articulated and Large Tipper Vehicles – Two Way Movements	1:500
	PB5640-DR019/F1.0	Cawston Highway Intervention Scheme – Swept Path Analysis Articulated, Large Tipper Vehicles and Car – Two Way Movements	1:500
	PB5640-DR020/F1.0	Cawston Highway Intervention Scheme – Sign Schedule	NTS
Previous Audit Reports and Designer's Responses	A previous Road Safety Audit was undertaken on the Hornsea P3 Highway Intervention Scheme and a copy of that is included within the Hornsea P3 High Street, Cawston – Highway Intervention Scheme (29th March 2019) document.		
Strategic decisions	-		

Completion of this Audit Brief forms the formal instruction to undertake the required Road Safety Audit.

Signed: Ryan Eldon Date: 31.01.2020

Name: Ryan Eldon

Appendix C – Baseline Information

Background Traffic Data

1. The most recent traffic flow data has been obtained from the Hornsea Project Three Offshore Wind Farm: Construction Traffic Noise and Vibration Assessment for Cawston Village (Annex E of Appendix 26) [REP7-046] submitted as part of the DCO Examination.

2. The first survey location (Site 1) is located on the B1145 adjacent to the Village Hall on the western side of the village and the second (Site 2) at a point on the eastern side of the Village on the B1145 between Chapel Street and Norwich Road. The ATC surveys recorded traffic data over a consecutive 7-day (one-week) period from Monday 11 February 2019 to Sunday 17 February 2019 inclusive. The results of the two surveys are detailed in **Table C1**.

Table C1: ATC Survey Results

	Site 1 Movements		Site 2 Movements		Average Movements		
	Total	HGV	Total	HGV	Total	HGV	% HGVs
AM Peak (08:00-09:00)	168	16	216	22	192	19	9.9%
PM Peak (17:00-18:0)	124	8	162	9	143	9	6.3%
12-Hour Daily (07:00-19:00)	2108	189	2674	225	2391	207	8.6%
24-hour Daily	2455	224	3175	262	2815	243	8.6%

Speed Data

3. During the 7 days of ATC data, the mean and 85th Percentile speeds were recorded and are outlined in **Table C2**.

Table C2: Summary of Traffic Speeds along B1145 Through Cawston

	Site 1		Site 2		Average Speeds	
	Mean	85th Percentile	Mean	85th Percentile	Mean	85th Percentile
Eastbound (mph)	25.4	29	23.4	28.4	24.4	28.7
Westbound (mph)	27.3	30.8	23	27.7	25.1	29.2

Personal Injury Collision (PIC) Data

4. To expand on the open source CrashMap collision data previously provided to the RSA team, detailed STATS19[2] have been obtained from NCC for the five year period, 01.12.2014 to 30.11.2019. A summary of STATS19 data is provided in **Insert C1** and **Table C3**.

Insert C1: STATS19 Data

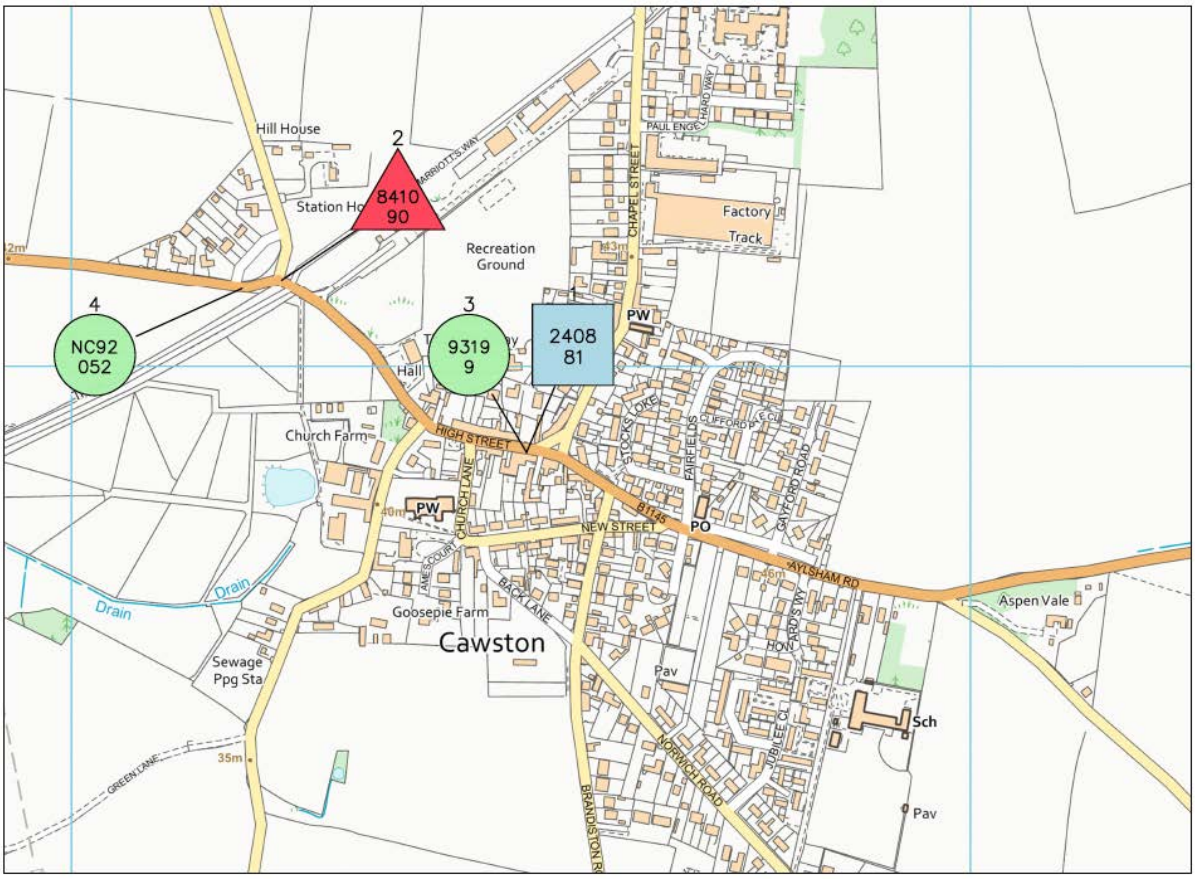


Table C3: Personal Injury Collision Summary

NCC Collision Ref	Severity	Description	Contributory Factors	
			Likely	Very Likely
240881	Serious	Involved a driver travelling east to west who lost control on the B1145 Main Street and collided with an oncoming car. The collision occurred during daylight hours at 08:15 on a Sunday.	• Slippery road (due to weather) • Travelling too fast for conditions • Loss of control • Careless, reckless or in a hurry	n/a
841090	Fatal	The driver, travelling west to south east lost control on a left S bend, crashed through a wooden fence and came to	• Slippery road (due to weather) • Swerved	• Exceeding speed limit • Careless, reckless or in a hurry

[2] Accidents on the public highway that are reported to the police and which involve injury or death are recorded by the police on a STATS19 form. The form collects a wide variety of information about the accident (such as time, data, location, road conditions).

NCC Collision Ref	Severity	Description	Contributory Factors	
			Likely	Very Likely
		rest with the rear of the vehicle through iron railings to the side of the bridge.	• Defective brakes • Impaired by alcohol	
93199	Slight	Where a vehicle (V2) has been stationary around a blind bend waiting for two lorries negotiating to pass each other, another vehicle (V1) has come around the bend, travelling too fast and has collided with V2.	• Failed to judge other person's path or speed	• Careless, reckless or in a hurry • Road layout (e.g. bend, hill, narrow carriageway)
NC92052	Slight	At the junction with Glebe Crescent the bus and car, slowed to negotiate the S bend, at which the van following failed to react and hit the rear of the car pushing it into the rear of the bus.	• Dazzling sun	• Failed to look properly • Careless, reckless or in a hurry