SUNNICA ENERGY FARM

EN010106

Volume 6

Environmental Statement

6.2 Appendix 13C: Framework Construction Traffic Management Plan and Travel Plan

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

18 November 2021

Version number: 00

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Sunnica Energy Farm

Environmental Statement
Appendix 13: Framework Construction Traffic Management Plan and Travel Plan

Regulation Reference:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	EN010106
Application Document Reference	EN010106/APP/6.2
Author	Sunnica Energy Farm Project Team

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Rev 00	18 November 2021	Application Version

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1 Introduction

1.1 Background

1.1.1 AECOM has been appointed by the Applicant to provide transport planning advice in relation to the proposed energy farm comprising solar PV and battery storage (hereafter referred to as the 'Scheme') on land near Red Lodge, Suffolk (hereafter referred to as the 'Sunnica East Site A' and 'Sunnica East Site B') and Chippenham, Cambridgeshire (hereafter referred to as the 'Sunnica West Site A' and 'Sunnica West Site B'). The main components of the Scheme are as follows:

a. Sunnica East Site A (straddling the administrative area of West Suffolk Council (WSC) and Suffolk County Council (SCC) and Cambridgeshire County Council (CCC) and East Cambridgeshire District Council (ECDC) is located approximately 3.5 kilometres (km) east of Mildenhall, 0.5km south-east of Isleham and 0.6km south-west of West Row;

b. Sunnica East Site B (within the administrative areas of WSC and SCC) is located approximately 1.5km south-east of Mildenhall, 1.5km east of Freckenham and immediately south of Worlington;

c. Sunnica West Site A (within the administrative areas of ECDC and CCC) is located approximately 0.3km east of the village of Snailwell, 1km south of Chippenham and 1.5km west of Kennett, immediately north of the A14 at Newmarket;

d. Sunnica West Site B (within the administrative areas of ECDC and CCC) is approximately 5.5km to the east of Burwell and 0.5km north of Snailwell;

e. Burwell National Grid Substation Extension. The Sites will connect to the National Grid system at Burwell, at an existing substation; and

f. The cable route corridor for Grid Connection Route A is located between Sunnica East Site A and Sunnica East Site B and then between Sunnica East Site B to Sunnica West Site A. Grid Connection Route B is located between Sunnica West Site A and Sunnica West Site B and then between Sunnica West Site B and Burwell National Grid Substation Extension.

1.1.2 The Sunnica East Site A, Sunnica East Site B, Sunnica West Site A and Sunnica West Site B are approximately 223 hectares (ha), 319ha, 373ha, and 66ha, respectively. Collectively, these are referred to as the Sites in this Environmental Statement and have a combined area of 981.ha.

1.1.3 The Scheme qualifies as a Nationally Significant Infrastructure Project and will require a Development Consent Order (DCO) from national government, due to its generating capacity. It is an Environmental Impact Assessment development. Consultation has taken place in 2020 and 2021, in accordance with the requirements of the Planning Act 2008, which governs the DCO application process.

1.1.4 The location of the Scheme is shown in Figure 1 and in **Annex A.**

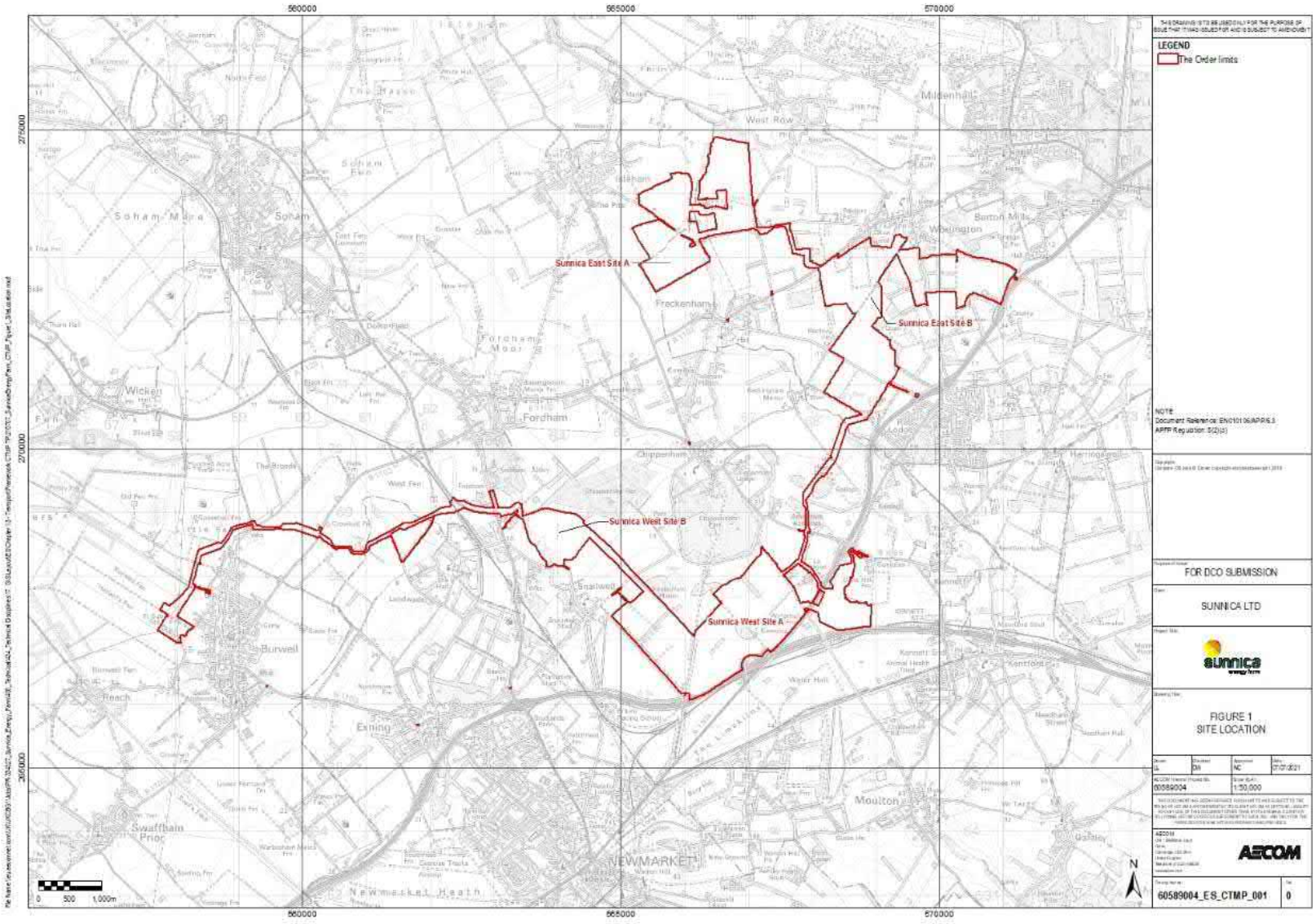

Figure 1: Site Location

1.2 Scope

1.2.1 This Framework Construction Traffic Management Plan (CTMP) and Travel Plan (TP) accompanies the application for a DCO to the Planning Inspectorate for the Scheme. This Framework CTMP and TP has been developed as the project has progressed. It is anticipated that the DCO, if granted, would include a requirement for the Framework CTMP and TP to be developed into a final CTMP and TP (either as a combined document or as separate documents) that would be submitted for the approval of the relevant planning authority (or authorities) following consultation with the relevant highway authorities, before construction is begun. The DCO, would therefore, secure that its measures are complied with.

1.2.2 This Framework CTMP and TP sets out the Applicant's proposals to manage construction traffic and staff vehicles during the construction of Sunnica Energy Farm. It identifies the management of freight traffic (i.e. Heavy Goods Vehicles (HGVs)), as well as staff vehicles to the two centralised car parks located on La Hogue Road and Elms Road.

1.2.3 It should be noted that as this is a framework document, it sets out what the Applicant would undertake to manage the impact of construction traffic, however certain details remain to be developed as the Scheme progresses into detailed design. The full detail of all measures may not be available until after consent for the Scheme has been granted and so this Framework CTMP and TP sets out the measures that in accordance with the requirements of the DCO, if granted.

1.2.4 Within each section of this Framework CTMP and TP a summary is included on the purpose of the section and if it is expected to be updated in the final CTMP and TP.

1.3 Objectives

1.3.1 The objectives of the Framework CTMP and TP are to set a framework for the measures that would be developed in the full CTMP and TP to:

a. Minimise the volume of HGV and staff vehicles associated with the construction of Sunnica Energy Farm so far as reasonably practicable;

b. Maximise the safe and efficient movement of materials and staff required for Sunnica Energy Farm so far as reasonably practicable;

c. Minimise the impacts both for the local community and visitors to the area using the road network so far as reasonably practicable; and

d. Set out a management plan to be adhered to by those travelling to and from the site to reduce the impact of the construction of the Scheme.

1.4 Report Structure

1.4.1 This Framework CTMP and TP is structured as follows:

a. **Section 2:** summarises the HGV and staff vehicle movements generated by Sunnica Energy Farm during the construction phase;

b. **Section 3**: discusses SCC and CCC Freight Management Plans which set out the preferred routeing options for HGVs;

c. **Section 4**: details the proposed site access locations and the HGV inbound and outbound routes as well as the routes staff will be directed to use;

d. **Section 5:** provides a summary of the site access reviews of Sunnica East Site A and B, Sunnica West Sites A and B, Grid Connection Route A and Grid Connection Route B including visibility splays, swept path analysis and indicative site access layouts. This section is a summary of the crane route review which identifies the considerations given to possible routes to/from Strategic Road Network and the required site accesses including vehicle swept path analysis of 1000T, 650T and 400T cranes. Also summarised is the Stage 1 Road Safety Audit (RSA) for the site access located on Newmarket Road between the A11 and Golf Links Road;

e. **Section 6:** provides details of the proposed traffic management including temporary traffic signals, temporary Public Right of Way (PRoW) closures, temporary speed limits and temporary traffic signals. A summary of the speed surveys undertaken are also provided in this section;

f. **Section 7:** deals with management measures and control, monitoring and review of the CTMP and TP; and

g. **Section 8:** deals with compliance and enforcement of the CTMP and TP.

2 Construction Movements

2.1 Introduction

2.1.1 This section summarises the HGV and staff vehicle movements that are estimated to occur during the construction of the Sunnica Energy Farm, in terms of types of vehicles, estimated number of movements (peak and average) and routing. Further details are also provided in the Transport Assessment (TA) (**Appendix 13B** of this Environmental Statement **[EN010106/APP/6.2]**). This section provides an overview of the forecast construction movements as background information

2.2 Construction Period

2.2.1 Based on information provided by the Applicant, the construction of the Scheme is expected to occur over a two-year period with all sites being constructed concurrently. This is considered to be a reasonable worst-case assumption for this assessment; i.e. a slower construction period would reduce the daily movements.

2.3 Construction Movements

2.3.1 A summary of the freight (i.e. HGVs) movements and the routes to be taken for Sunnica East Site A and B (including two substations), Sunnica West Site A and B (including one substation), the Burwell National Grid Substation Extension and the Grid Connection Route A and Grid Connection Route B is provided in the following paragraphs. In addition, a summary of the forecast Abnormal Indivisible Loads (AILs) and cranes are provided below in this section. The forecast flows are indicative and represent a robust assessment. They are presented to provide context to the rationale for the measures included within this document. The Full CTMP to be produced by the contractor will not need to include the construction movement analysis, but will focus on the detail of the measures to be delivered to manage the movements presented within this Framework CTMP.

2.3.2 **Table 2-1** identifies the forecast daily HGVs during each of the construction months.

2.3.3 The HGV routes have been considered following a review of the local road network and the CCC and SCC freight management plans in Section 4 of this document.

Table 2-1: Summary of Forecast Daily HGVs (Vehicles, Single Direction) per Construction Month

	Months																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Sunnica East Total (Sunnica East Site A & B)	35	57	53	53	42	31	27	19	18	18	18	20	31	41	31	39	36	33	25	14	21	23	12	4
Sunnica West Total (Sunnica West Site A & B)	25	45	48	34	30	51	52	38	34	27	21	19	17	16	15	12	11	11	10	4	14	14	0	0
Burwell National Grid Substation Extension Total	0	0	9	9	9	8	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HGV Total (Sunnica East Site A & B, Sunnica West Site A & B and Burwell National Grid Substation Extension)	60	102	110	96	81	90	87	58	52	45	39	39	48	57	46	51	47	44	35	18	35	37	12	4
Grid Connection Total (Route A and Grid Connection Route B)	-	44	45	46	45	44	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total (Sunnica East Site A & B, Sunnica West Site A & B, Burwell National Grid Substation Extension, Grid Connection Route A and Grid Connection Route B)	60	146	155	142	126	134	131	58	52	45	39	39	48	57	46	51	47	44	35	18	35	37	12	4
Average	119								38															

Sunnica West Site A & B

2.3.4 It is anticipated on average there will be 21 HGV deliveries (42 vehicle movements) per day to the Sunnica West Site during the construction phase. The peak HGV deliveries are forecast to occur in month two with 51 HGV deliveries per day (102 movements). This is outlined in Section 5.4 in the Transport Assessment (**Appendix 13B** of this Environmental Statement **[EN010106/APP/6.2]**).

2.3.5 Assuming a 10-hour daily construction delivery window, excluding the two highway peak hours, with movements split equally across the hours (noting that there will be more arrivals at the start of the day and departures towards the end), it would be anticipated on average of circa five HGV movements per hour to the Sunnica West Site and circa ten HGV movements per hour during peak period of activity.

Sunnica East Site A and B

2.3.6 It is anticipated that on average there will be 26 HGV deliveries (52 vehicle movements) per day to the Sunnica East Site during the construction phase. The peak HGV deliveries are forecast to occur in month three and four with 43 HGV deliveries per day (86 movements). This is outlined in Section 5.4 in the Transport Assessment (**Appendix 13B** of this Environmental Statement **[EN010106/APP/6.2]**).

2.3.7 Assuming a 10-hour typical construction delivery window, excluding the two highway peak hours, with movements split equally across the hours (noting that there will be more arrivals at the start of the day and departures towards the end), there would be anticipated on average to be circa four HGV movements in an hour to the Sunnica East Site and five HGV movements in an hour during the peak month of activity.

Substations

2.3.8 It is anticipated that the substations will be constructed within an eight-month period towards the start of the construction period.

2.3.9 Based on this eight-month period, on average there will be five HGV deliveries (ten vehicle movements) per day per substation. Each substation is expected to be built at a slightly different point in this eight-month period during the construction phase. The peak HGV deliveries are forecast to occur in months three to five with eight to nine HGV deliveries per day per substation, with the peak forecast at the Burwell substation. This is outlined in Section 5.4 in the Transport Assessment (**Appendix 13B** of this Environmental Statement **[EN010106/APP/6.2]**).

Grid Connection Route A and Grid Connection Route B

2.3.10 It is anticipated that Grid Connection Route A and Grid Connection Route B will be constructed in a seven-month period towards the start of the construction period.

2.3.11 The construction of Grid Connection Route A and Grid Connection Route B is forecast to take place across a six-month window, with the seventh month when a small number of construction staff will remain on-site. Grid Connection Route A and Grid Connection Route B are expected to be constructed evenly over the six-month window. Therefore, on average there will be 23 HGV deliveries (46 vehicle movements) per day to each section of Grid Connection Route A and Grid

Connection Route B. This is outlined in Section 5.4 in the Transport Assessment (**Appendix 13B** of this Environmental Statement **[EN010106/APP/6.2]**).

Other Vehicles

2.3.12 The AILs and cranes that are expected to be required across the 24-month construction period are identified in **Table 2-2**.

Table 2-2: Summary of Cranes and AILs across the 24-Month Construction Period (Vehicles)

Vehicle	Sunnica West A	Sunnica East A	Sunnica East B	Burwell National Grid Substation Extension	Total
80 tonne crane	4	4	4	4	**16**
400 tonne crane	2	2	2	2	**8**
1000 tonne crane	1	1	1	1	**4**
STGO CAT 2 Low Loader (AIL)	4	4	4	4	**16**
STGO CAT 3 Low Loader (AIL)	2	2	2	2	**8**
Total	**13**	**13**	**13**	**13**	**52**

2.3.13 These AILs and cranes are expected at the Sunnica West Site A main access on La Hogue Road, Sunnica East Site A on Beck Road, Sunnica East Site B main access on Elms Road, and at the Burwell National Grid Substation Extension on Weirs Drove. Further information regarding the AIL and crane routes is provided within Section 5.

Total HGV Construction Vehicles

2.3.14 For the Sunnica West Sites, Sunnica East Sites, substations and Grid Connection Route A and Grid Connection Route B, it is forecast there would be a peak of 155 HGV deliveries per day across the Order limits.

2.3.15 During the eight-month period which includes the substations and Grid Connection Route A and Grid Connection Route B, an average of 119 HGV deliveries per day are anticipated across the Order limits. Once the substations and Grid Connection Route A and Grid Connection Route B have been constructed, an average of 38 HGVs deliveries per day are forecast across the Order limits for the remaining 16-months construction period.

2.3.16 **Plate 1** identifies the forecast total number of HGV deliveries (vehicles single direction) per day across the construction period.

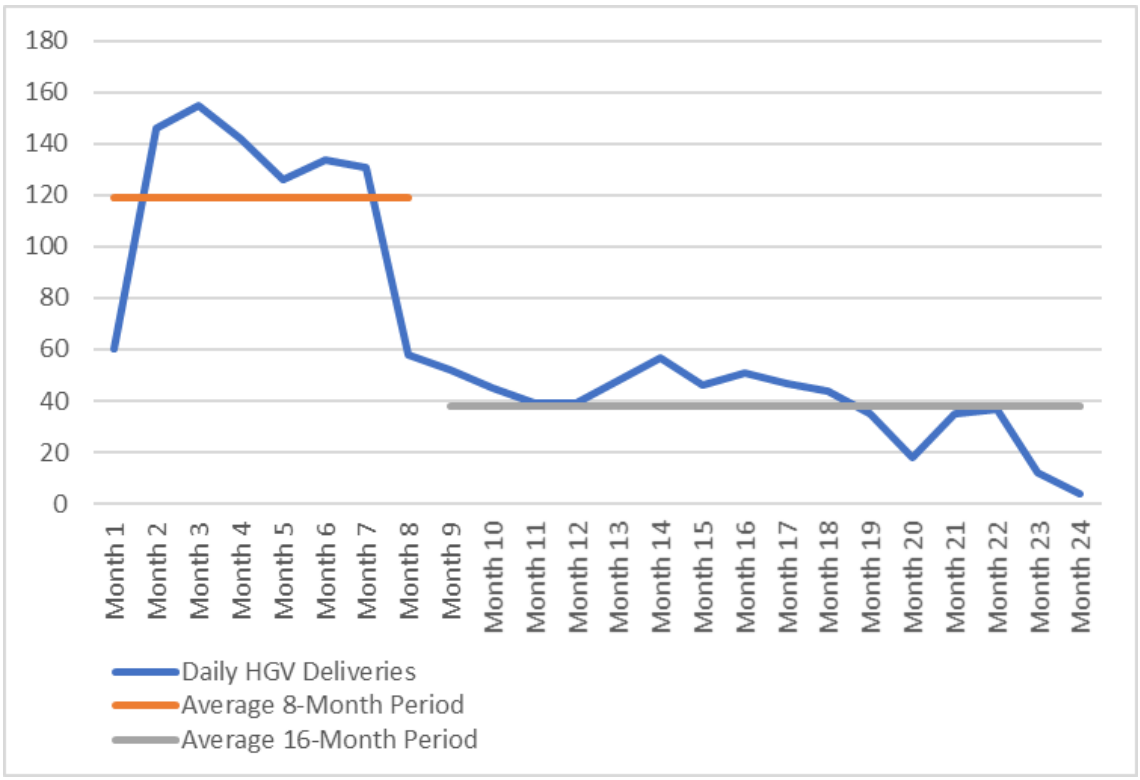

Plate 1: Forecast Total HGVs Deliveries (Single Direction) per Day

2.4 Staff Movements

2.4.1 The construction of the substations (three on-site and Burwell National Grid Substation Extension) and the Grid Connection Route A and Grid Connection Route B are forecast to occur within an eight-month period towards the start of the construction period. Staff relating to all four substations will be required to enter the central car parks at the main access to Sunnica West Site A (La Hogue Road) or Sunnica East Site B (Elms Road).

2.4.2 For the Sunnica West Site A substation and Burwell National Grid Substation Extension, staff will be required to travel to the Sunnica West Site A car park. Whereas, for Sunnica East Site A and Site B substations, staff will be required to travel to the Sunnica East Site B central car park.

2.4.3 As the Grid Connection Route A and Grid Connection Route B are being constructed in two sections staff will be able to travel to/from the required accesses as the construction progresses. In total the Grid Connection Route A and Grid Connection Route B are forecast to generate an average of six staff per day with a maximum of eight staff (a total across both Grid Connection Route A and Grid Connection Route B). This results in an average of five staff vehicles and a maximum of six staff vehicles per day over a seven-month period (across both Grid Connection Route A and Grid Connection Route B). Given the number of Grid Connection Route A and Grid Connection Route B site accesses and the area the routes cover, it is unknown which site accesses staff will require and when. However, given the low number of forecast staff and staff vehicles, it is not considered the addition of the Grid Connection Route A and Grid Connection Route B staff and staff vehicles to have a significant impact on the total forecast staff and staff vehicle totals.

2.4.4 Therefore, the Sunnica West Site A and B staff total and staff vehicles discussed below includes staff relating to the main construction at Sunnica West A and B, Sunnica West A substation and Burwell substation. The Sunnica East Sites A and B staff totals discussed below includes staff relating to the main construction at Sunnica East Site A and B and the two on-site substations located at Sunnica East A and B, respectively.

2.4.5 The peak number of staff required for the Sunnica West Sites A and B including the Burwell National Grid Substation Extension, is forecast to occur in month 12 with 777 staff per day. The peak number of staff required for the Sunnica East Sites A and B is forecast to occur in month six with 834 staff per day. The peak number of staff across the Scheme is forecast to occur in month nine of the construction period with 1,393 staff per day. Across the entire construction period the average number of staff required for the Sunnica West Sites A and B including the Burwell National Grid Substation Extension is forecast to be 439 staff and 525 staff for the Sunnica East Sites A and B resulting in an average of 966 staff per day across the Scheme.

2.4.6 Due to the rural location of the Order limits, it is anticipated that the majority of staff will drive or be a vehicle passenger to / from the Order limits. For the purpose of this assessment, it is assumed that the staff vehicles will have an average vehicle occupancy of 1.5 persons. Further information is provided in Section 5 of the Transport Assessment (**Appendix 13B** of this Environmental Statement **[EN010106/APP/6.2]**). The average vehicle occupancy has been identified from previous AECOM experience in Suffolk as per the Transport Assessment for the Sizewell C Project DCO application (May 2020) and also the Hinkley Point C Power Station DCO which is currently under construction.

2.4.7 For the construction of the substations (three on-site substations and Burwell National Grid Substation Extension) staff will be required to travel to either of the two central car parks depending on the substation location, with the Burwell National Grid Substation Extension staff required to travel to the Sunnica West Site A car park. Given the low number of staff required for the construction of Grid Connection Route A and Grid Connection Route B and given the construction location will change as it is progressed, the associated staff will travel to the required site access as the construction progresses.

2.4.8 The peak number of vehicles associated with the staff for the Sunnica West Sites A and B including the Burwell National Grid Substation Extension is forecast to be 562 in month six. The peak number of vehicles associated with the staff for the Sunnica East Site A and B is forecast to be 522 in month 12. The peak number of vehicles across the Scheme is 937 vehicles per day associated with the Sites in month nine.

2.4.9 The average number of vehicles associated with the staff for the Sunnica West Sites A and B (including the on-site substation and Burwell National Grid Substation Extension) is forecast to be 295 and 356 for the Sunnica East Site A and B resulting in an average of 653 staff vehicles per day for the Scheme for the construction period.

2.4.10 **Plate 2** identifies forecast total number of staff vehicles per day across the construction period). The peak number of daily staff vehicles is forecast in month nine with 937 staff vehicles, whereas the average over the construction period is 653

vehicles. The maximum number of staff vehicles identified is an additional 284 vehicles (43%) higher than the average number of daily staff vehicles.

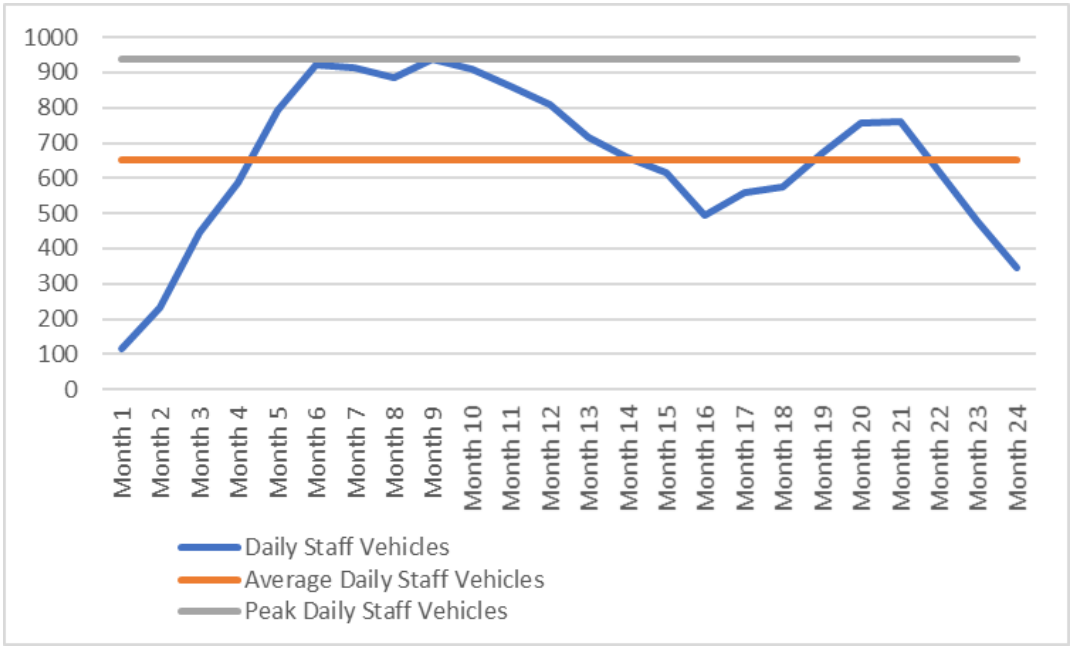

Plate 2: Forecast Total Staff Vehicles Per Day (Single Direction)

3 Local Authority Freight Management Plans

3.1 Introduction

3.1.1 SCC) and CCC both operate Freight Management Plans which set out the preferred routeing options for HGVs travelling within both authority areas. The Plans also identify where height and weight restrictions are in place. This section is provided as information and background as part of the process to identifying the HGV routes. This section of the Framework CTMP and TP is not expected to be updated within the final CTMP and TP unless local authority guidance is updated in the intervening period.

3.2 SCC Lorry Route Network

3.2.1 The SCC 'Lorry Route Network' illustrates the routes which SCC have identified as the recommended routes for HGVs when travelling within and through the county. There are three route types identified by SCC. The route type, the description and the roads which form those routes are set out in **Table 3-1**.

Table 3-1: SCC Lorry Route Types

Route Type	Description	Roads (Examples)
Strategic Lorry Routes	Predominantly the trunk road network and larger 'A' classified roads. All movements crossing Suffolk should use these, with those starting or ending in the county using them in preference to local lorry routes.	A11 A14 A12 A140 A143 A134
Zone Distributor Routes	Predominantly 'A' classified and 'B' classified roads. Roads within a zone serving as a route directly to a location or as a route to local access routes.	A143 A1101 A1065 B1506
Local Access Routes	Roads or part of roads serving as access to a specific location.	B1085 B1102 B1106

Source: SCC

3.2.2 In addition to the routes identified in **Table 3-1**, weight restrictions are in place on roads within Suffolk with a weight restriction of 44 tonnes on the bridge on Ferry Lane.

3.2.3 A copy of the plan illustrating which roads within Suffolk fall within which route type is included in **Annex B** of this report.

Cambridgeshire Advisory Freight Map

3.2.4 The CCC 'Cambridgeshire Advisory Freight Map' illustrates the routes which CCC has identified as the recommended routes for Heavy Goods Vehicles when travelling within and through the county. There are two route types identified by CCC. The route type, the description and the roads which form those routes are set out in **Table 3-2**.

Table 3-2: CCC Lorry Route Types

Route Type	Description	Roads (Examples)
Strategic Route	Predominantly the trunk road network and larger 'A' classified roads.	A11 A14 A142
Local Route	Predominantly 'A' classified and 'B' classified roads.	B1085 B1104 B1102

Source: CCC

3.2.5 In addition to the routes identified in **Table 3-2**, weight and height restrictions are in place on roads within Cambridgeshire. There are two roads within the vicinity of the Order limits which are affected by a restriction. A 3-tonne weight restriction has been placed on the bridge over the River Kennet on Badlingham Road. The bridge is located approximately 1km west of the south-western boundary of the proposed Sunnica East Site B. Badlingham Road connects with B1085 Elms Road on the sites south-western boundary. The second is located on Fordham Road/Snailwell Road, where a 7.5 tonne weight restriction has been placed on the bridge over the River Snail. The bridge is located approximately 150m of a proposed access to the Sunnica West Site B.

3.2.6 A copy of the plan illustrating which roads within Cambridgeshire fall within which route type is included in **Annex B** of this report.

4 Site Accesses and HGV Routes

4.1 Introduction

4.1.1 This section identifies the HGV routes and the locations of the site accesses during the construction and operational phases. These figures include the following and are also provided in **Annex A** of this report:

a. Figure 2 – Sunnica West – Site Access Locations;
b. Figure 3 – Sunnica West – Site Access Locations;
c. Figure 4 – Sunnica West – HGV Inbound Routes;
d. Figure 5 – Sunnica West – HGV Outbound Routes;
e. Figure 6 – Sunnica East – HGV Inbound Routes;
f. Figure 7 – Sunnica East – HGV Outbound Routes;
g. Figure 8 – Burwell Substation – HGV Inbound Routes;
h. Figure 9 – Burwell Substation – HGV Outbound Routes;
i. Figure 10 – Grid Connection Route A and Grid Connection Route B – Site Access Locations 1;
j. Figure 11 – Grid Connection Route A and Grid Connection Route B – Site Access Locations 2;
k. Figure 12 – Grid Connection Route A and Grid Connection Route B – Site Access Locations 3; and
l. Figure 13 – Grid Connection Route A and Grid Connection Route B – Site Access Locations 4.

4.1.2 Where possible, the site accesses identified on the figures have been chosen as they are currently utilised for field access by agricultural vehicles and therefore existing access points have been reutilised rather than creating new access points.

4.1.3 The main access to the Sunnica West Site A and B is proposed to be from La Hogue Road and located in close proximity to the A11/La Hogue Road/Norwich Road T-junction. To minimise the number of HGVs on the local network internal routes will be used where possible from the main access point. Where HGVs are unable to use internal routes, there are various secondary access points identified which include Dane Hill Road for the site to the south of the A11 and Chippenham Road and Fordham Road to access Sunnica West Site B. The Sunnica West Site A substation will be accessed via La Hogue Road.

4.1.4 The main access to the Sunnica East Site A and B is proposed to be from Elms Road and located in close proximity to the A11 northbound off-slip/Elms Road T-junction. To minimise the number of HGVs on the local network internal routes will be used where possible from the main access point. Where HGVs are unable to use internal routes, there are various secondary access points which include Newmarket Road, Beck Road and Ferry Lane. The Sunnica East Site A substation will be accessed via the site access on Ferry Lane with the Sunnica East Site B substation accessed via the site access on Elms Road.

4.1.5 The Burwell substation is an existing substation located to the northwest of the main village on Newnham Drove accessed via Weirs Drove. An extension is proposed in an adjacent field. There are two potential options for the Burwell National Grid Substation Extension. Option 1 is located adjacent to Weirs Drove and Option 2 is located adjacent to Newnham Drove. The HGVs associated with the construction of Grid Connection Route A and Grid Connection Route B will use the most appropriate route available using either the routes identified to/from Sunnica West, Sunnica East or the Burwell Substation. The route selected will be set out in the CTMP and TP submitted for approval in accordance with the requirements of the DCO.

4.1.6 Any changes to the HGV routes included in the CTMP and TP submitted for approval in accordance with the requirements of the DCO must demonstrate that they would not lead to any materially new or materially different significant effects than those assessed in the Environmental Statement. This does not apply to the site accesses as these locations are fixed by the provisions of the DCO, as outlined in the Access and Rights of Way Plans **[EN010106/APP/2.3]**.

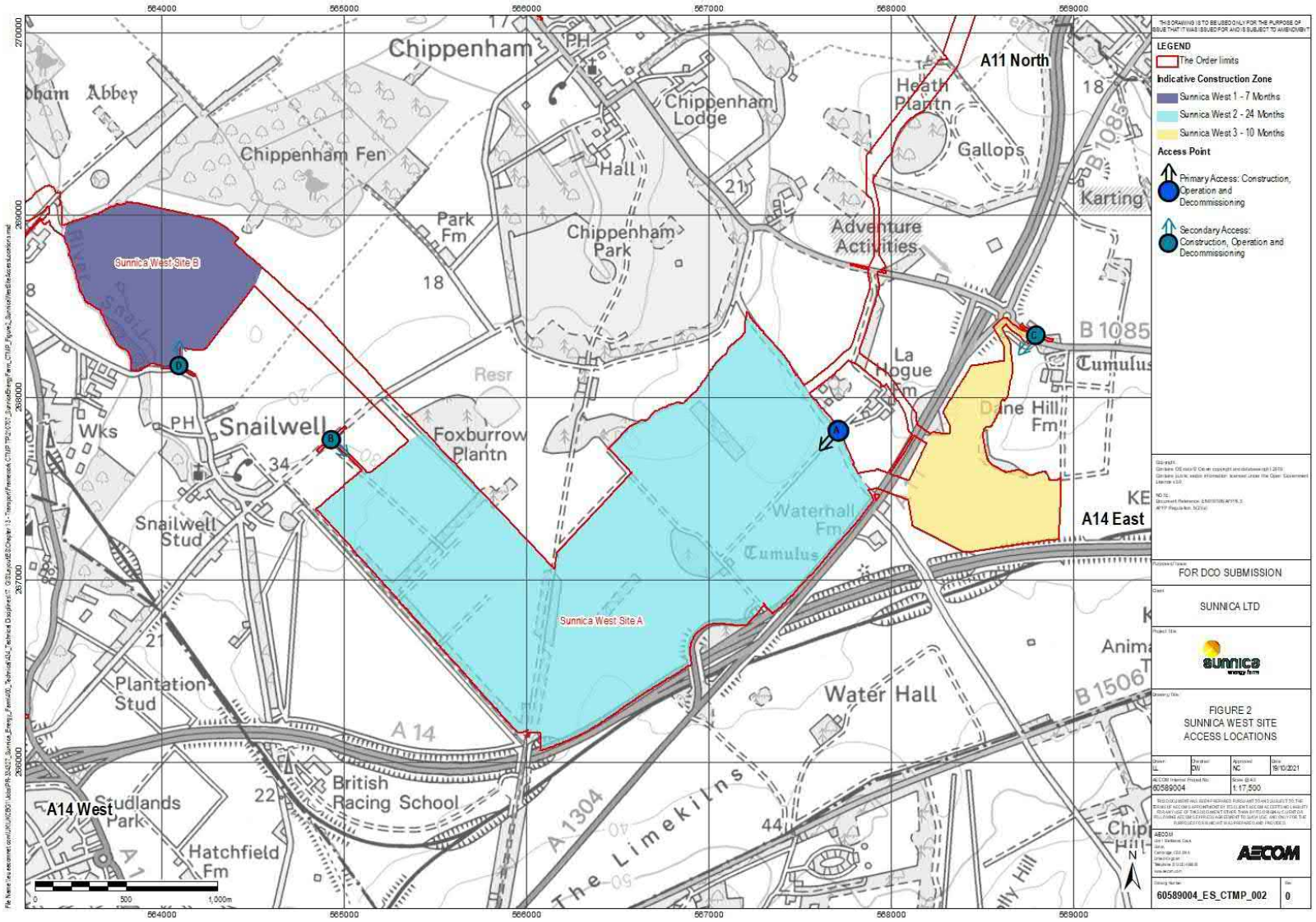

Figure 2: Sunnica West Site Access Locations

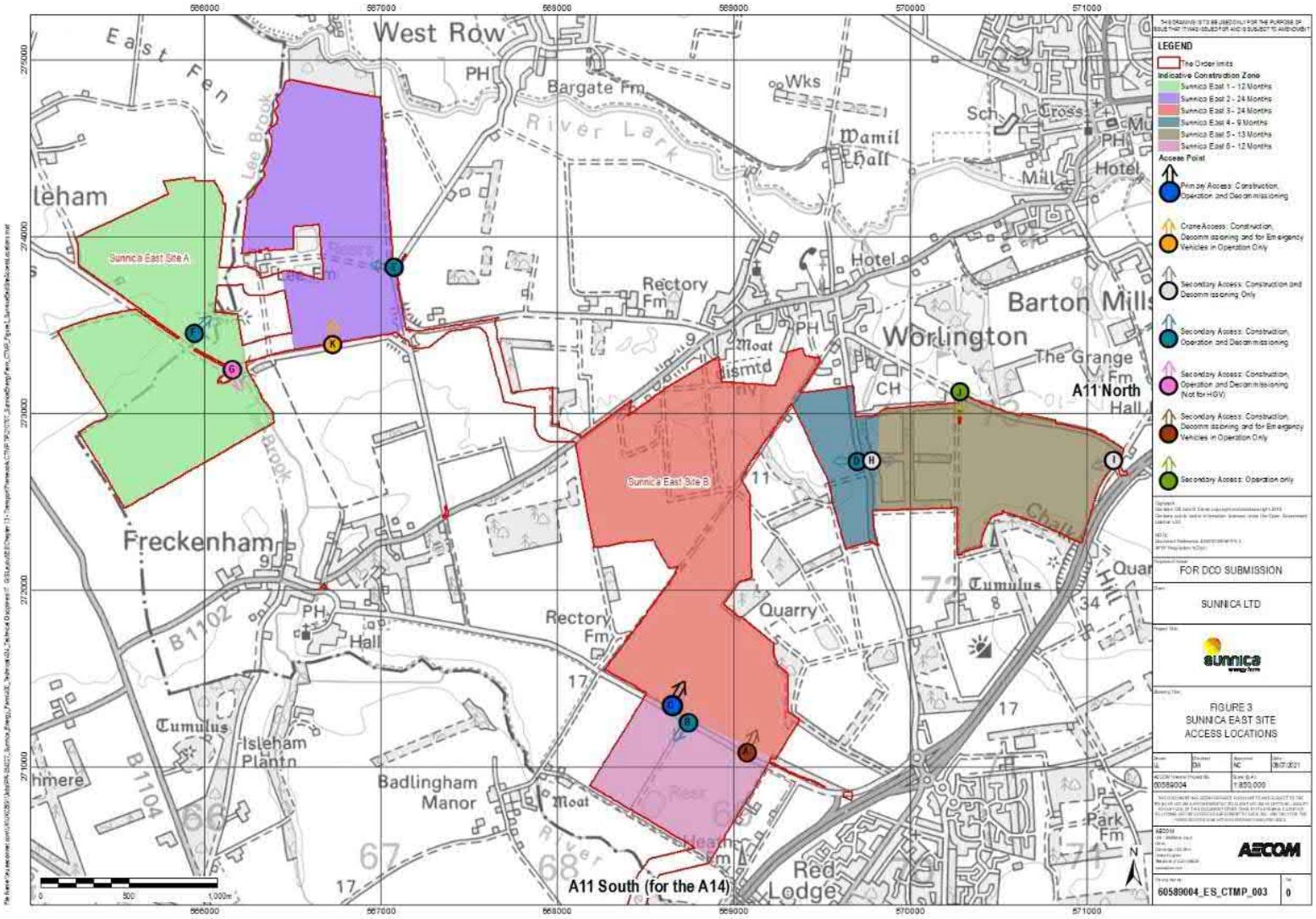

Figure 3: Sunnica East Site Access Locations

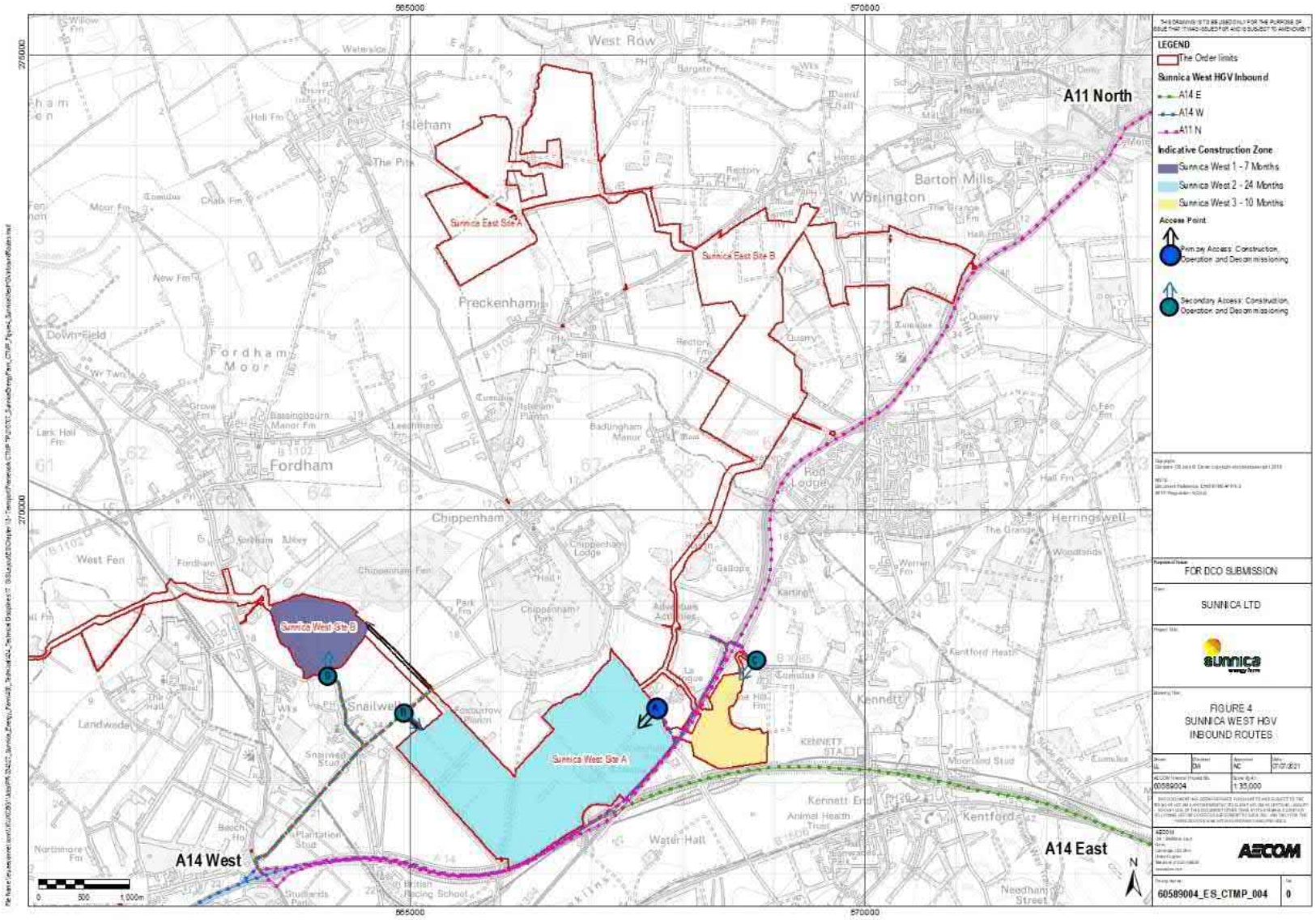

Figure 4: Sunnica West HGV Inbound Routes

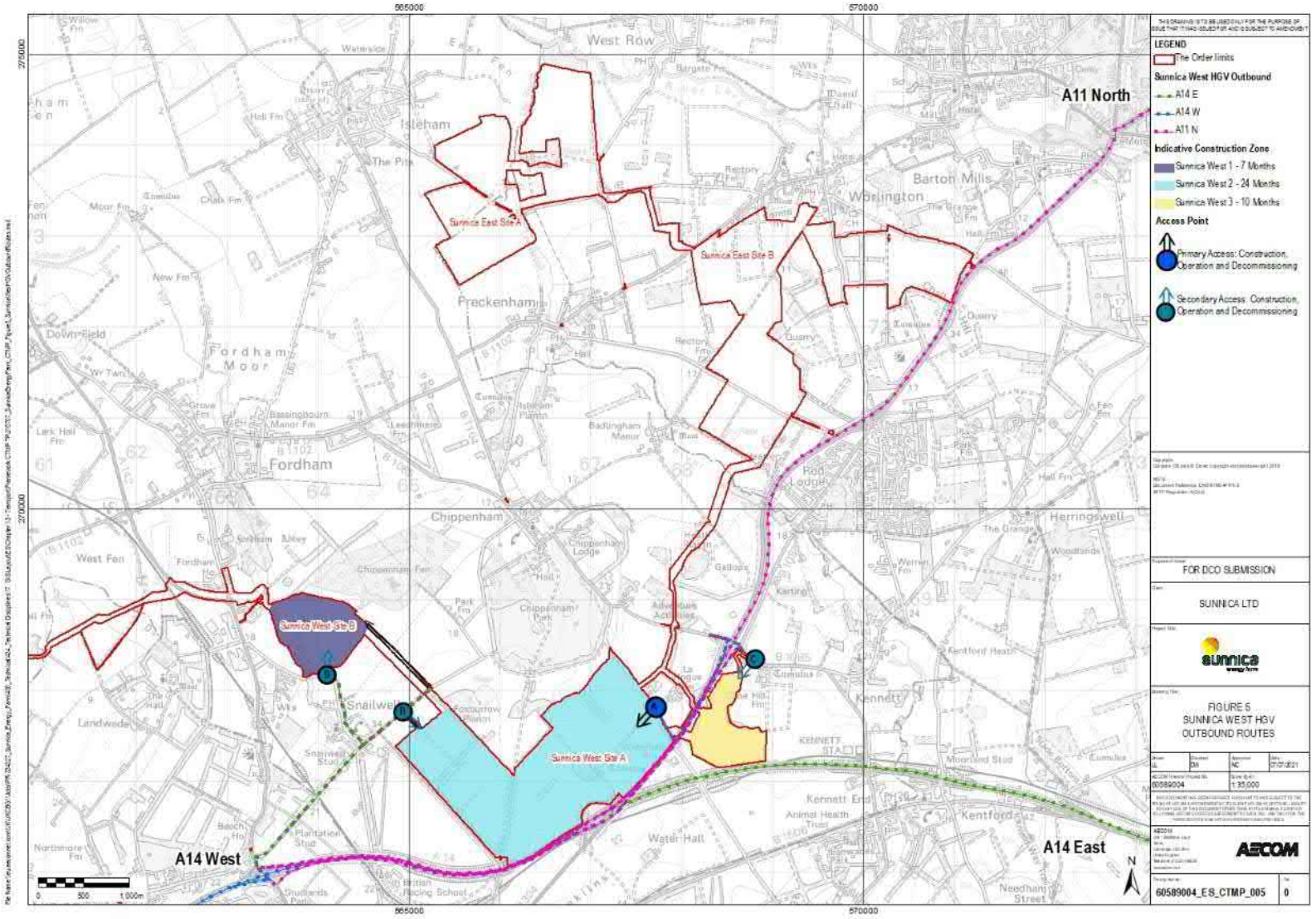

Figure 5: Sunnica West HGV Outbound Routes

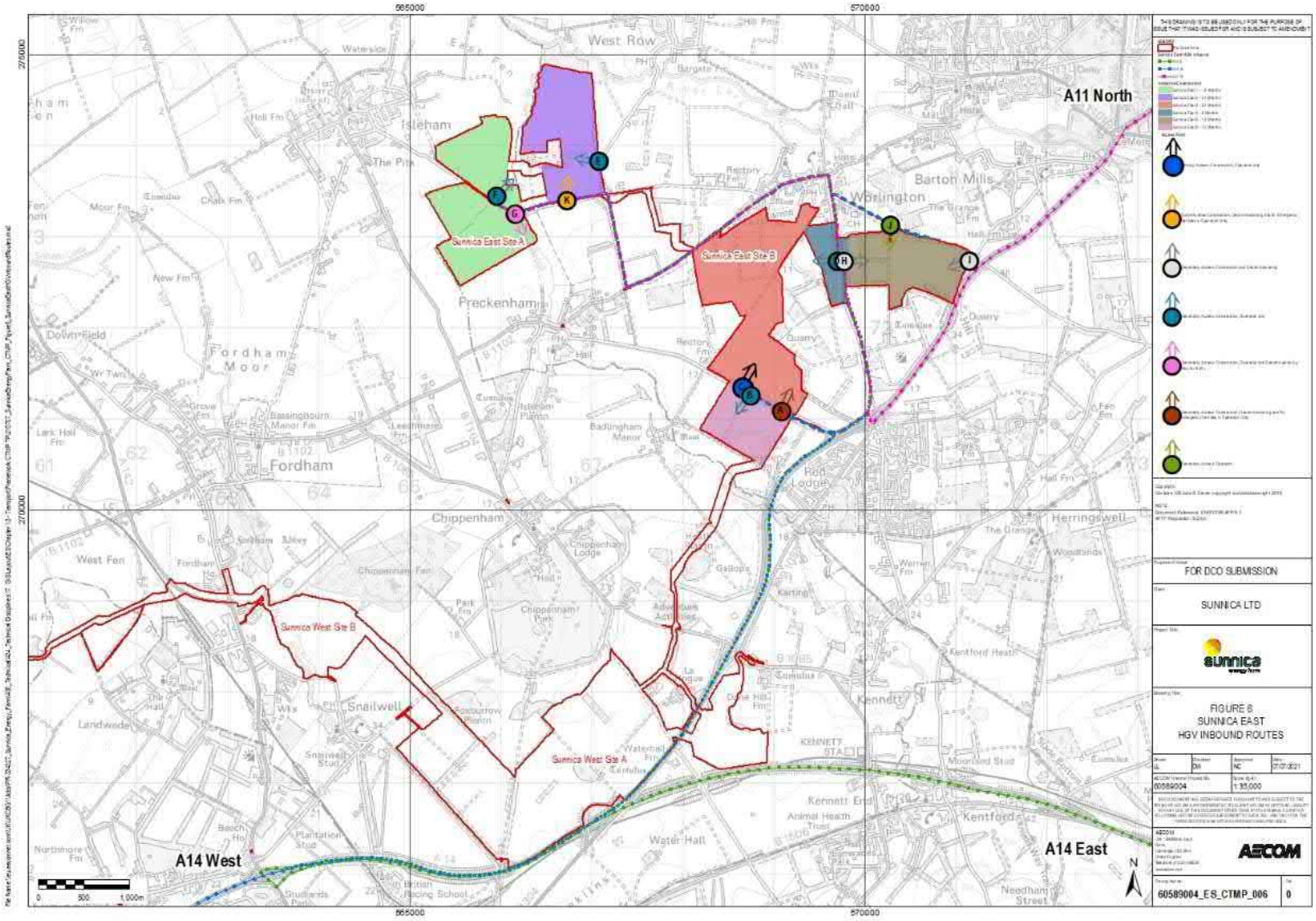

Figure 6: Sunnica East HGV Inbound Routes

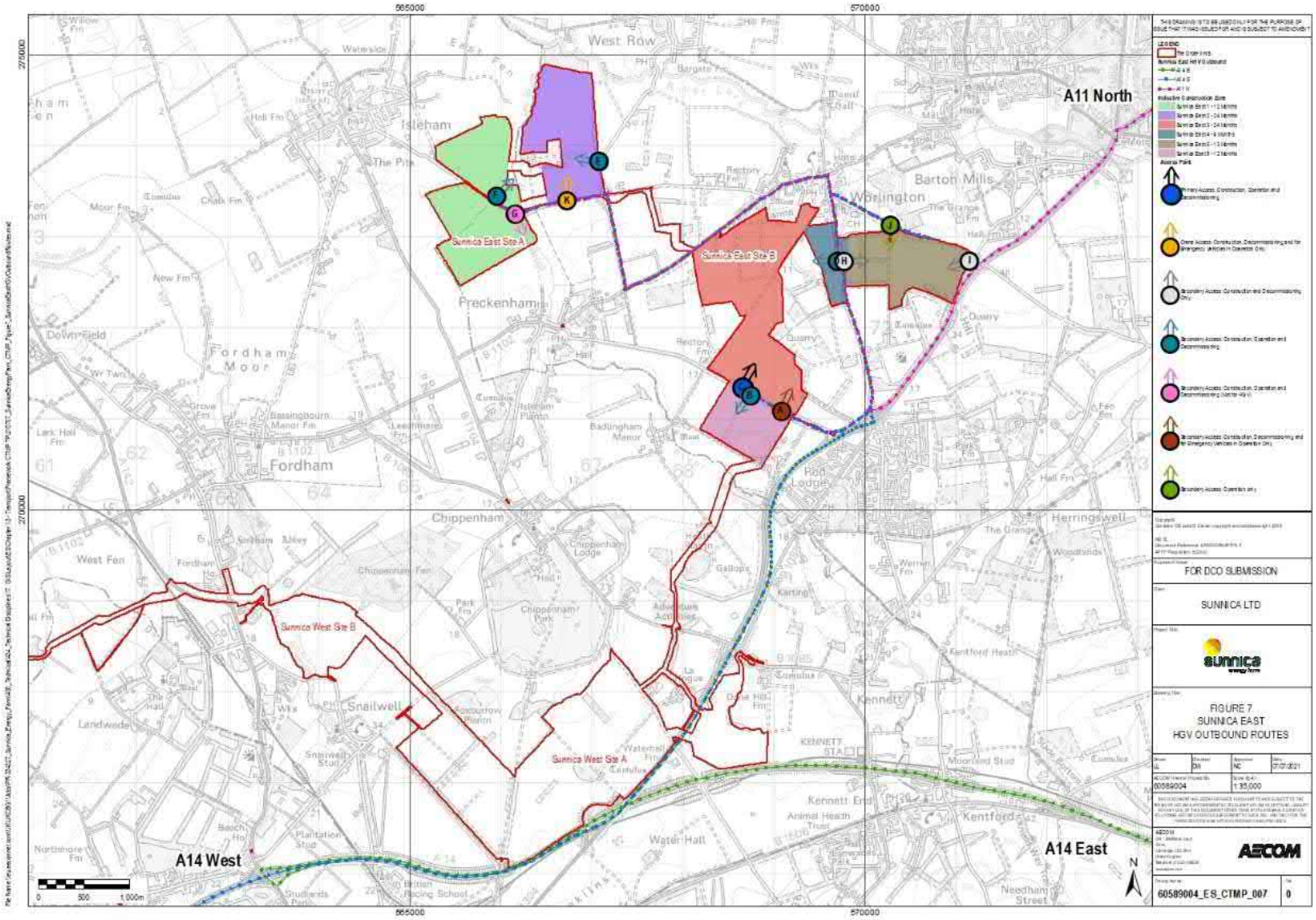

Figure 7: Sunnica East HGV Outbound Routes

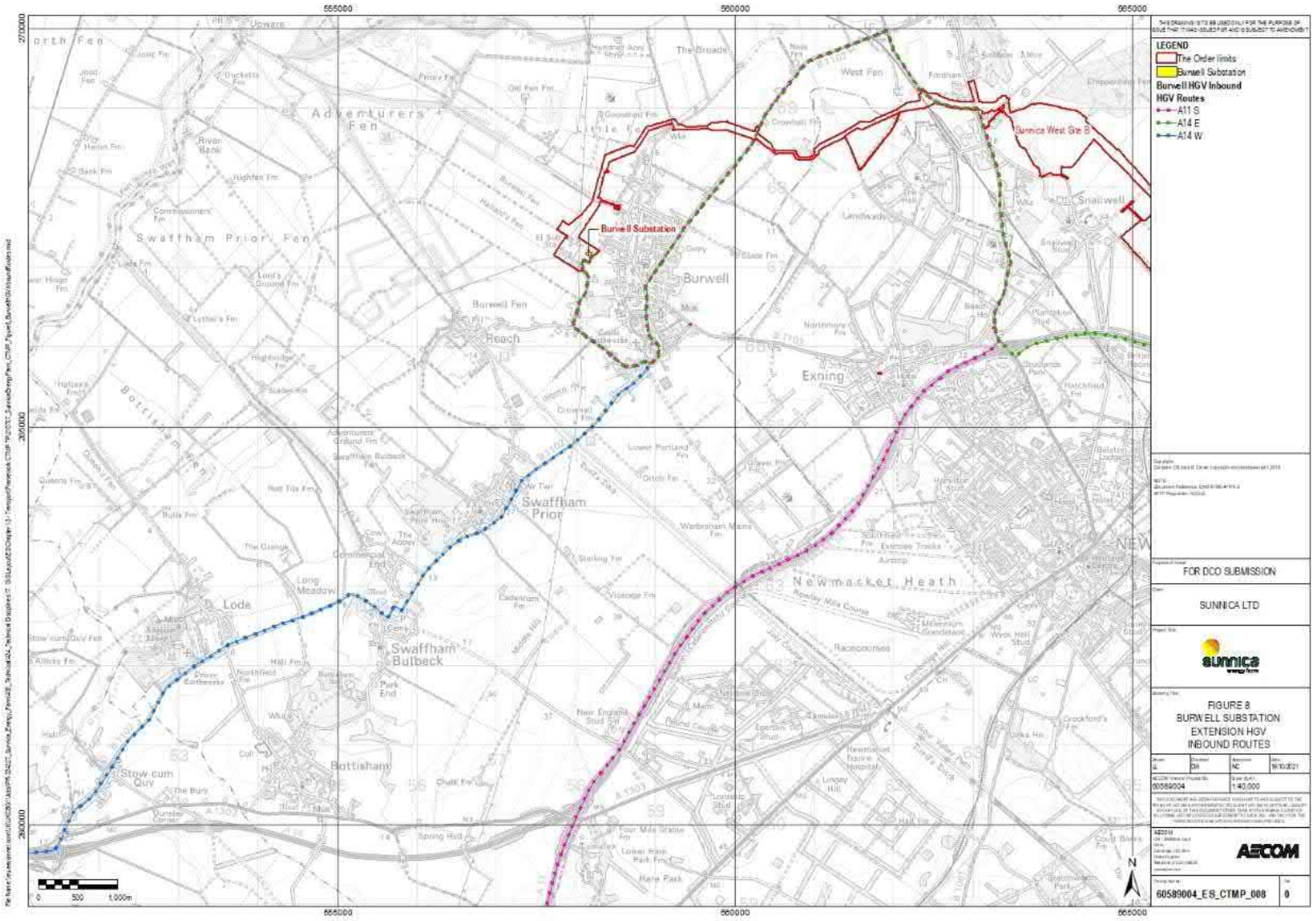

Figure 8: Burwell Substation HGV Inbound Routes

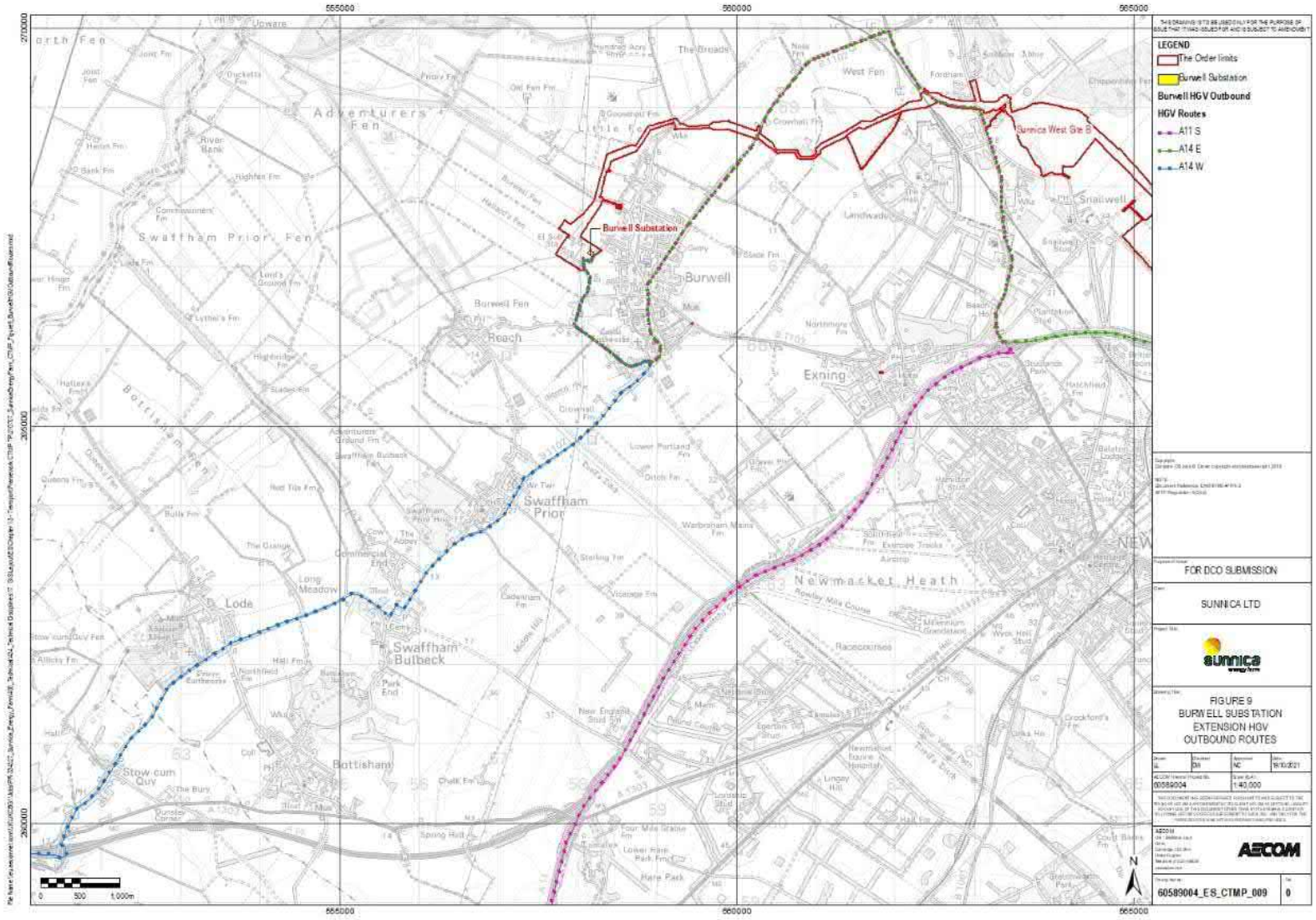

Figure 9: Burwell Substation HGV Outbound Routes

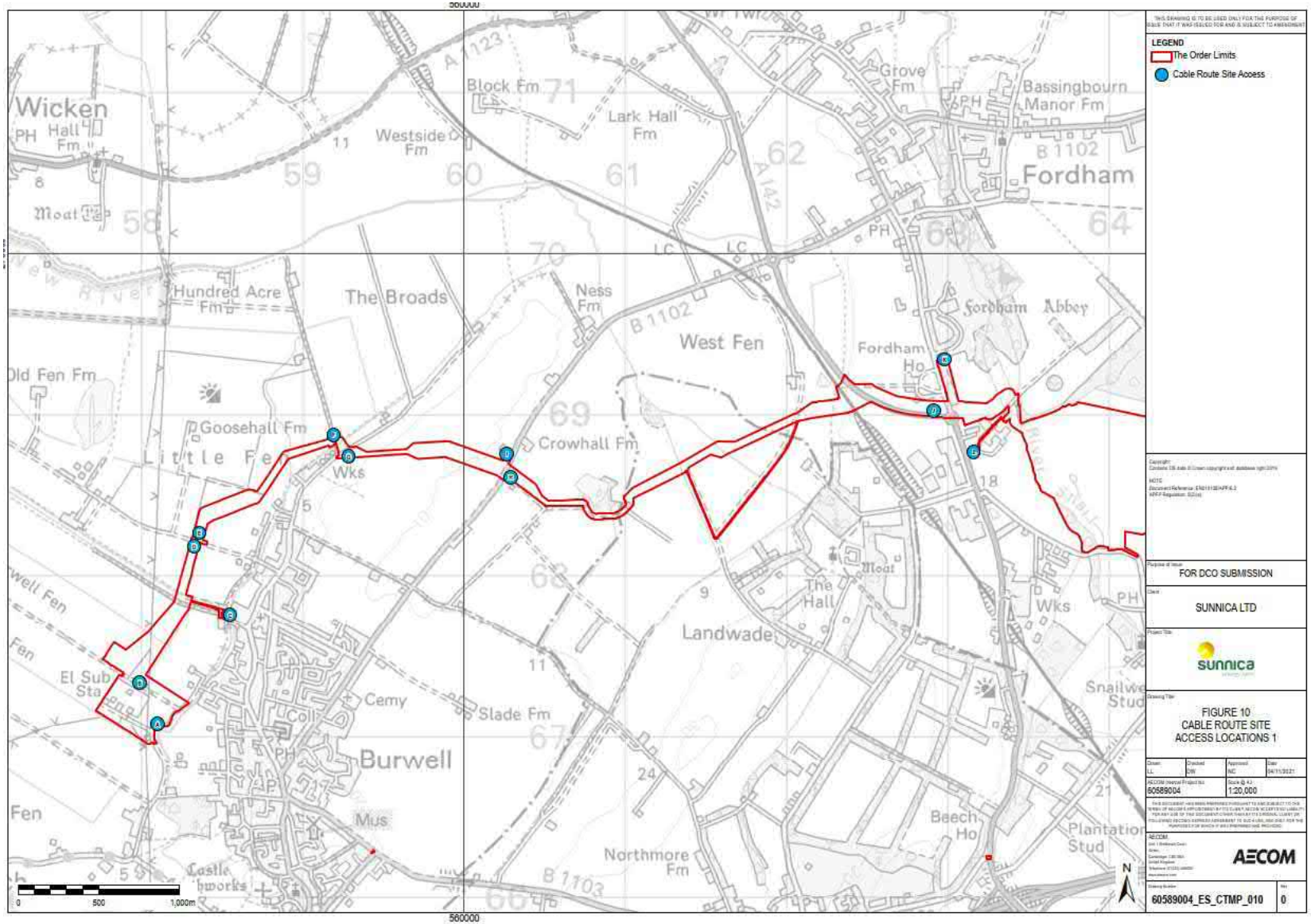

Figure 10: Grid Connection Route A and Grid Connection Route B Site Access Locations (Plan 1 of 4)

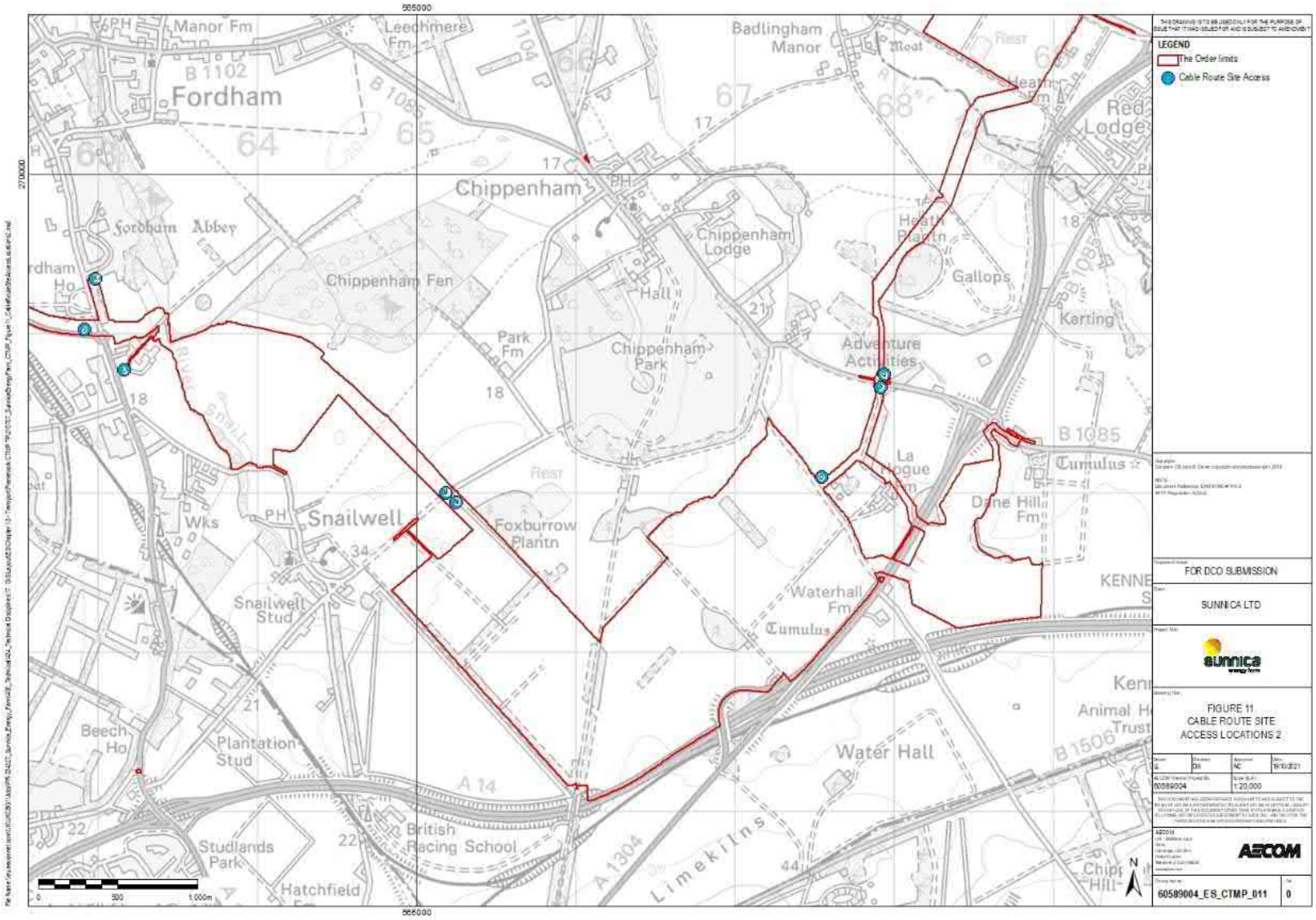

Figure 11: Grid Connection Route A and Grid Connection Route B Site Access Locations (Plan 2 of 4)

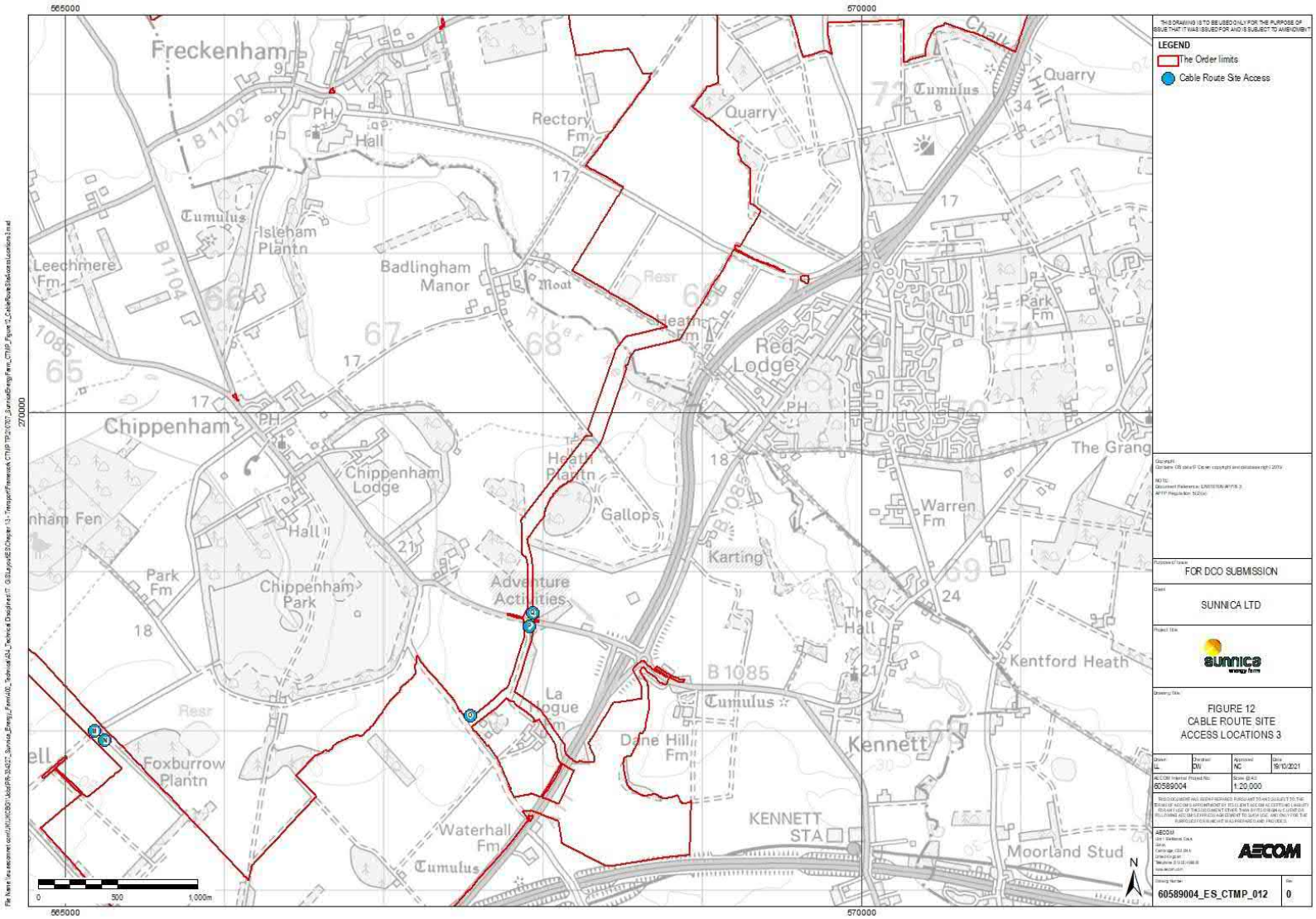

Figure 12: Grid Connection Route A and Grid Connection Route B Site Access Locations (Plan 3 of 4)

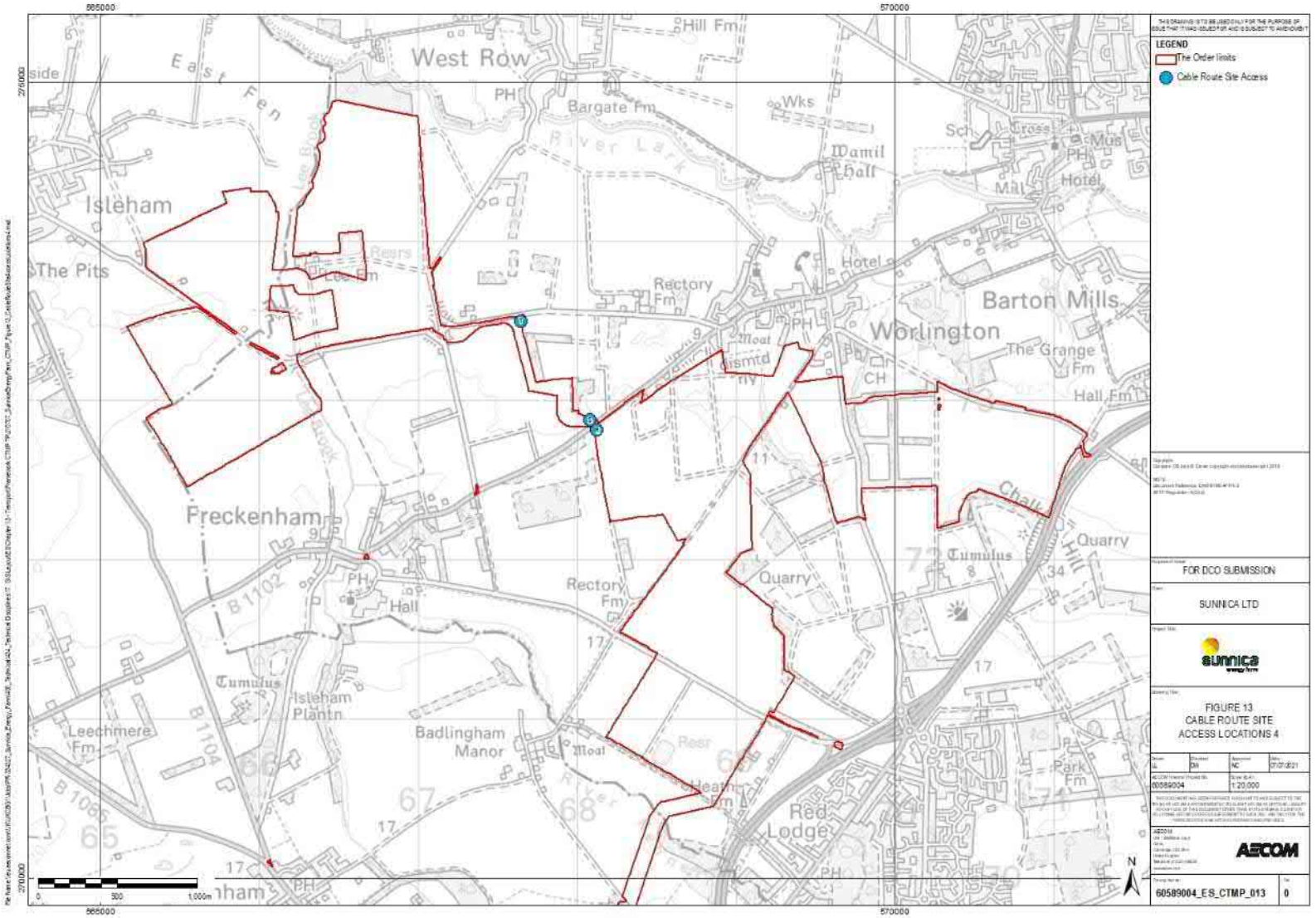

Figure 13: Grid Connection Route A and Grid Connection Route B Site Access Locations (Plan 4 of 4)

5 Site Access Reviews and Crane Route Reviews Summary

5.1 Introduction

5.1.1 From the consultation following the submission of the Preliminary Environmental Information (PEI) Report, comment was received from SCC and CCC regarding further details of the site access arrangements including visibility splays, swept path analysis and junction layouts to show they can be used safety by the proposed construction vehicles.

5.1.2 This section of the Framework CTMP and TP provides a summary of the Sunnica East Sites A and B and Sunnica West Sites A and B Access Review, the Grid Connection Route A and Grid Connection Route B Site Access Review and the Crane Route Review. Included in the site access reviews and the crane route reviews are visibility splays, swept path analysis and junction work areas (indicative site access layouts).

5.1.3 This section provides details of the layout of the two centralised car parks and the summary of the Stage 1 RSA carried out for the Site access located on Newmarket Road between the A11 and Golf Links Road.

5.1.4 The final CTMP and TP is expected to identify any changes to the information provided within this section. This could include changes in size of the site accesses, changes in vehicle sizes and types proposed to enter/egress the site accesses, confirmation of the cranes vehicles and routes to be used and changes in the street furniture required to be temporarily removed for the cranes to gain access to the Order limits. In addition, the final CTMP and TP will outline the final option of the Burwell National Grid Substation Extension and the layouts of the two centralised staff car parks.

5.2 Sunnica West Sites A and B and East Sites A and B Accesses Review Summary

5.2.1 The proposed locations of the Sunnica West Sites A and B and Sunnica East Sites A and B site accesses are identified previously in Section 4.

5.2.2 A review of the Sunnica West Sites A and B and Sunnica East Sites A and B site accesses was undertaken. This included the following with further information provided in **Annex C** of this report:

a. Summary of the existing site access or the proposed site access location;

b. Site visit photos of the access and views from the access;

c. Swept path analysis using a 16.5m articulated lorry;

d. Junction work areas (indicative layouts) showing an indicative layout of the site access junctions based on a 16.5m articulated lorry, the largest vehicle anticipated to use the site on a regular basis. Consideration was given to smaller vehicles such as large cars for entry and egress from the staff car parks at Sunnica West La Hogue Road Site Access A and Sunnica East Elms Road Site Access C; and

e. Visibility splays based on Design Manual for Roads and Bridges (DMRB) guidance for 60mph (100kph) roads showing a splay of 2.4m x 215m.

5.2.3 Where required, the junction work areas (indicative layouts) have been considered in order to accommodate larger vehicles such as cranes and AILs on an infrequent basis at Sunnica West Site A: Access A (La Hogue Road), Sunnica East Site A: Access E (Ferry Lane/Beck Road), Sunnica East Site B: Access A (Elms Road) and Burwell Substation: Access A (Weirs Drove). These are discussed in the Crane Route Review later in this section.

5.2.4 The proposed traffic management is outlined in Section 6 of this report.

Elms Road

5.2.5 During consultation, SCC inquired about HGVs passing another vehicle without overrunning the verge. Therefore, a review was undertaken into the widths of key local roads including Elms Road, Newmarket Road and La Hogue Road where the majority of the HGV trips would be undertaken on the local roads. In the Manual for Streets, 4.8m is identified as the width of the carriageway which can accommodate an HGV passing a car. The review identified where the widths of these roads were less than 4.8m and as a result identified areas of the Elms Road carriageway that is proposed to be widened to 4.8m. An indicative plan is shown in **Annex C** of this report of the verge along Elms Road to be widened.

5.3 Summary of Grid Connection Route A and B Site Access Review

5.3.1 The proposed locations of the Grid Connection Route A and Grid Connection Route B site accesses are identified previously in Section 4.

5.3.2 As part of the Grid Connection Route A and Grid Connection Route B site access review, a number of accesses were adjusted or removed from the Scheme. Thus, the choice of access locations has been optimised to reduce potential impacts on the highway network. The following summary is provided for the site accesses proposed for Grid Connection Route A and Grid Connection Route B.

5.3.3 A review was undertaken of the Grid Connection Route A and Grid Connection Route B site accesses which included the following, with further information provided in **Annex C** of this report:

a. Summary of the existing site access or the proposed site access location;

b. Site visit photos of some of the access and views from the access;

c. Swept path analysis using a 16.5m articulated lorry;

d. Junction work areas (indicative layouts) showing an indicative layout of the site access junctions based on the 16.5m articulated lorry. Consideration was given to smaller vehicles where the 16.5m articulated lorry was too large to gain access, with further information provided in **Annex C** of this report;

e. Visibility splays based on Design Manual for Roads and Bridges (DMRB) guidance for 60mph (100kph) roads showing a splay of 2.4m x 215m. In addition, the visibility splay was considered for the access from Anchor Lane for a 30mph speed limit with further information provided in **Annex C** of this report; and

f. An alternative site access review was undertaken for Ferry Lane/Beck Road.

5.3.4 At the Grid Connection Routes A and Grid Connection Route B site accesses, hard standing surface is to be provided for the junction work areas. The Grid Connection Route A and Grid Connection Route B site accesses are not required during the operational phase of the Scheme, so these will be reinstated with the hard surfacing removed and vegetation replanted following the construction phase. While not required to be maintained during the operational period the Applicant requires the ability to reinstate and use these accesses should it be necessary to carry out maintenance and, following the completion of such maintenance, the accesses would be removed and the land reinstated.

5.3.5 The proposed traffic management arrangements are provided in Section 6 of this report.

5.4 Crane Route Review Summary

5.4.1 In addition to the site access reviews of the Sunnica West, Sunnica East and Grid Connection Route A and Grid Connection Route B, a review of the potential crane routes from the Strategic Road Network (SRN) to the required site accesses was undertaken.

5.4.2 The crane route review included swept path analysis of a 1000T, 650T and 400T crane to/from the following site accesses with further information provided in **Annex D** of this report:

a. Sunnica West Site A: Site Access A on La Hogue Road;

b. Sunnica East Site A: Site Access E on Ferry Lane and Site Access K on Beck Road;

c. Sunnica East Site B: Access A on Elms Road; and

d. Burwell National Grid Substation Extension on Weirs Drove (Option 1) or Newnham Drove (Option 2).

5.4.3 Based on the information provided by an experienced contractor, the 1000T crane is identified as the largest vehicle expected on-site. Included in the crane route review was a 1000T Crane (22.6m long), 650T Crane (20.6m long) and a 400T Crane (18.5m long). The cranes identified represent a range of vehicle sizes likely to be required to use the accesses. Refer to Figures 14 to 19 for visual representations.

5.4.4 As a result of the swept path analysis undertaken for the cranes, the junction work areas (indicative layouts) were amended to accommodate the cranes where necessary. The layout of these four site accesses are discussed in the next section of this report.

5.4.5 The route review identifies feasible routes for the cranes. A review of the route will be carried out by an experienced contractor prior to the crane(s) requirement on-site. The requirements for the cranes along the routes will be discussed with the relevant local highway authorities, National Highways and police.

5.4.6 The swept path analysis included below shows the wheel lines (in red) and the overhang/oversail of the vehicle's body (in green).

Figure 14 1000T Crane (22.6m)

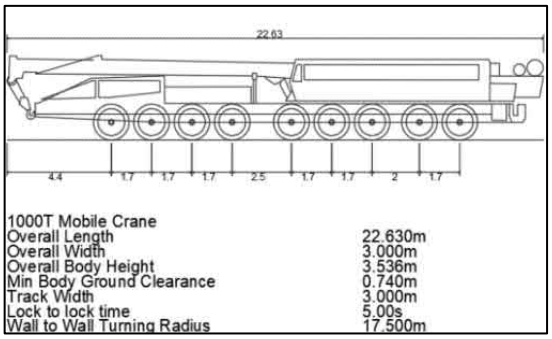

Figure 15: Swept Path Analysis – Vehicle Profile – 1000T Crane (22.6m)

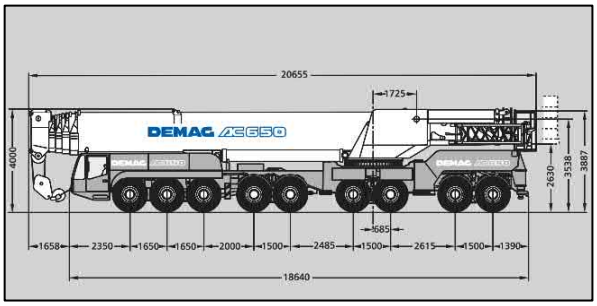

Figure 16: 650T Crane (20.6m)

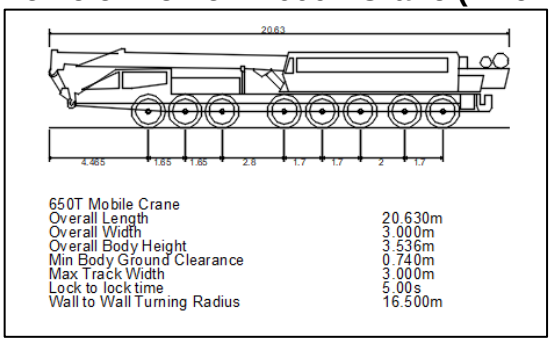

Figure 17: Swept Path Analysis – Vehicle Profile – Crane (20.6m)

Figure 18: 400T Crane (18.5m)

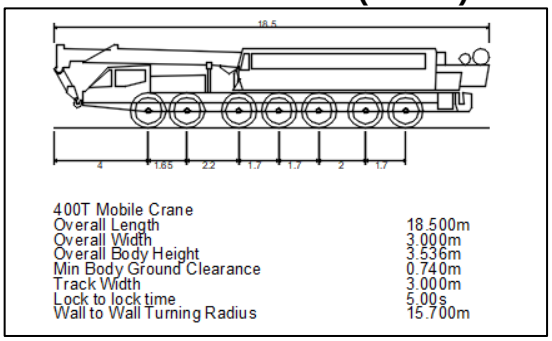

Figure 19: Swept Path Analysis – Vehicle Profile – 400T Crane (18.5m)

5.5 Sunnica West Site A – La Hogue Road

5.5.1 The nearest part of the SRN to La Hogue Road site access is the A11 via the A11 northbound off-slip/northbound on-slip/La Hogue Road junction. A summary of the route between the A11 and the site access on La Hogue Road is provided below:

a. The La Hogue Road site access is located a short distance from the A11 northbound off-slip which requires the crane to turn left from the A11 onto La Hogue Road on entry and left turn from La Hogue Road onto the A11 on egress. The swept path analysis for the 1000T crane is shown in Figure 20Figure 20: Swept Path Analysis – 1000T Crane – A11 Northbound Off-Slip – Entry and Figure 34. The swept path analysis shows that the wheel paths will remain within the carriageway, but the body of the vehicle will overhang the central island. This will not result in conflict with pedestrians, however entry for the 1000T crane requires the temporary removal of the traffic signage within the central island at the A11/La Hogue Road slip road junction. This is not required for the 650T or 400T cranes. On egress, there is also the requirement for traffic signage to be temporarily removed for the 1000T crane, with the swept path analysis shown in Figure 34 for the 1000T crane. However, the removal of the road sign is not required for the 650T or 400T cranes. The short-term temporary removal of street signage is not considered to be a concern to the operation of this junction and signage will be promptly re-instated.

b. If required, the cranes can manoeuvre at the Red Lodge Dumbbell Roundabouts to make a U-turn as identified in the Sunnica East Site B (Elms Road) summary.

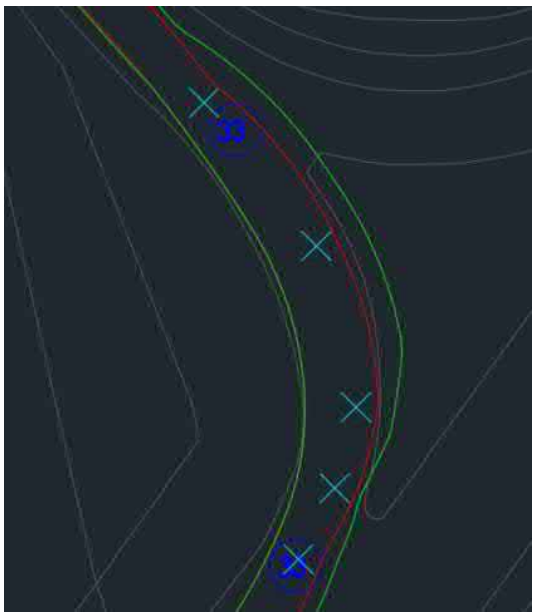

Figure 20: Swept Path Analysis – 1000T Crane – A11 Northbound Off-Slip – Entry

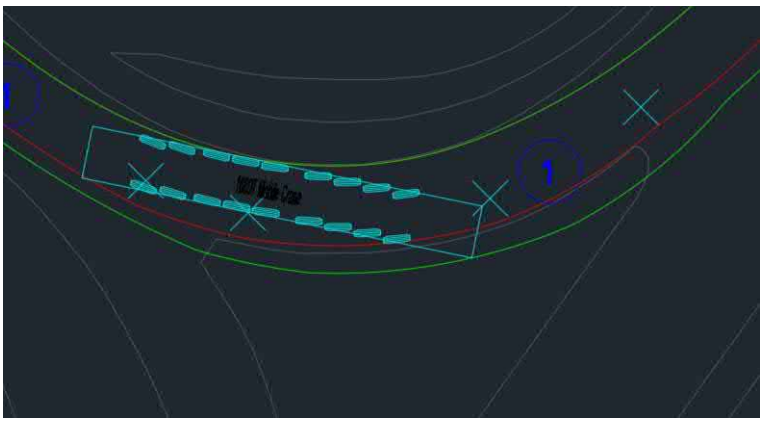

Figure 21: Swept Path Analysis – 1000T Crane – A11 Northbound Off-Slip – Egress

5.6 Sunnica East Site A – Ferry Lane and Beck Road

5.6.1 Various routes were initially considered for the cranes and AILs between the SRN and Sunnica East Site A: Site Access E on Ferry Lane. Initial investigation was for the crane(s) to access the site via the existing access on Ferry Lane, A summary is provided below.

a. Route 1 via the B1085 (High Street) through Chippenham B1104 and B1102 Fordham Road through Frechenham to Ferry Lane;

b. Route 2 via the Red Lodge Dumbbell Roundabouts and via Newmarket Road and Mildenhall Road through Worlington and Isleham Road to Ferry Lane; and

c. Route 3 via Elms Road, Church Lane through Freckenham, B1102 (Mildenhall Road) and to Ferry Lane.

5.6.2 A route via the A1101 Kingsway through Mildenhall and B1102 Worlington Road was also considered and discounted at this stage so as to avoid disruption through Mildenhall and following a high-level consideration of the potential highway constraints.

5.6.3 The primary concern with Route 1 was the weight limited bridge on Ferry Lane. Therefore, alternative routes were investigated if the weight of the cranes were too heavy for the bridge. Route 2 identified the cranes and AILs were unable to manoeuvre the Newmarket Road/Mildenhall Road T-Junction in Worlington. As a result, a third route was investigated via Elms Road and Church Lane through Frechenham. This identified the cranes and AILs were unable to manoeuvre the Elms Road/Church Lane T-Junction.

5.6.4 Following discussions with the Historic Railway Estate on behalf of Department for Transport, it was confirmed the weight limit of the bridge on Ferry Lane is 44 tonnes.

5.6.5 Following the initial review, an additional review of the site access options for the cranes for the Ferry Lane site access was undertaken. This identified two alternative options via Beck Road. A summary is provided below:

a. Alternative option 1 is located on Beck Road which is a two-way road with a national speed limit (60mph). The existing access to the farm consists of hard surfacing (tarmac) with gates and a brick wall on both sides of the access road; and

b. Alternative option 2 is located on Beck Road approximately 320m to the east of option 1. There is an existing farm access with a gap in the hedgerow connected to an internal track which runs in a north-south direction. The existing site access is narrow and is an unmade access which is bounded by hedgerow on either side. This access, approximately 4.0m to 4.5m wide, is used by agricultural vehicles to access the farmland.

5.6.6 Investigation into the two alternative site access options on Beck Road identified that the cranes and AILs were unable to manoeuvre via option 1 through the existing gated access without removing the gates and part of the existing brick wall. Therefore, the existing agricultural access on Beck Road (alternative option 2) has been identified as the preferred site access for the cranes and AILs as there is an existing gap in the hedgerow and the site access will provide emergency access

during the operational phase. The other HGVs using the existing site access on Ferry Lane.

5.7 Sunnica East Site B – Elms Road

5.7.1 The nearest part of the SRN to Elms Road site access is the A11 via the A11 northbound off-slip/Elms Road T-Junction (entry) or the Red Lodge Dumbbell Roundabouts (egress). A summary of the routes is provided below:

a. All three cranes can manoeuvre the A11 northbound off-slip/ Elms Road T-Junction, with the swept path analysis shown in Figure 22 for a 1000T crane. There is the potential with the 1000T crane on entry that the temporary removal of a nearby road sign on Elms Road could be required which will need to be confirmed prior to the crane being required on-site. This is not considered to be a significant constraint to using this junction. Any signage temporarily removed is to be promptly reinstated.

b. All three cranes can manoeuvre the Red Lodge Dumbbell Roundabouts on egress and if required on entry. An example of a possible manoeuvre at the Red Lodge Dumbbell Roundabouts is provided in Figure 23 for a 1000T crane.

Figure 22: Swept Path Analysis – 1000T Crane – A11 Northbound Off-Slip/Elms Road T-Junction Lodge Dumbbell Roundabouts

Figure 23: Swept Path Analysis – 1000T Crane – Red Lodge Dumbbell Roundabouts

5.8 Burwell National Grid Substation Extension – Weirs Drove

5.8.1 The nearest part of the SRN to the Weirs Drove site access is the A14 J37. The crane route reviewed is from the A14 to Weirs Drove along Windmill Hill Road, Oxford Street, B1103 (Burwell Road/Newmarket Road), B1102 (Isaacson Road), High Street, and Reach Road. A summary of the route is provided below:

a. A142 Fordham Road/Windmill Hill Road Junction – Based on the swept path analysis, on entry the 1000T crane can make the left-turn manoeuvre from Fordham Road onto Windmill Hill Road. However, this will require the temporary removal of the street furniture within the central refuge island, with the swept path analysis for the 1000T crane shown in Figure 24. The 650T and 400T cranes can negotiate this turn without the removal of the street furniture. During egress no concerns were identified with manoeuvring through this junction. The temporary removal of the street furniture is not considered a significant constraint to the use of this junction, with the swept path analysis for the 1000T crane shown in Figure 25. Any street furniture temporarily removed is to be promptly reinstated.

b. Windmill Hill becomes Swan Lane then Oxford Street where Swan Lane forms a T-Junction with Chapel Street and Oxford Street. On entry, the 1000T crane cannot negotiate the bend outside of The White Swan Pub without overrunning the footpath ,and as identified later in this report, conditional surveys will be undertaken, and any damage caused will be rectified. It is noted that one 1000T crane (two movements) will be required at the Burwell National Grid Substation Extension. The 650T and 400T cranes can manoeuvre this turn without the removal of the street furniture along Awan Road, with body overhang but wheels within the carriageway. As well as the road closure the footway will also be required to be closed while the 1000T crane makes the manoeuvre. During egress no concerns were identified with manoeuvring this junction for the 650T and 400T cranes. The temporary removal of the street signage along Swan Road is not considered a significant constraint for the use of this junction for the 650T and 400T cranes. Any signage temporarily removed is to be promptly reinstated. The swept path analysis for the 1000T, 650T and 400T crane are shown in Figure 39, Figure 26 and Figure 27 respectively.

c. The proposed site access is located on Weirs Drove close to the Burwell substation entrance. On entry, to negotiate the ‘S’ bends on Weirs Drove adjacent to the Burwell substation and the proposed site access, the 1000T crane would require the carriageway to be widened by circa 2.5m on the first ‘S’ bend, whereas the 650T and 400T cranes require the carriageway to be widened by circa 1.5m. It is noted that Weirs Drove is also close to the watercourse which is a factor in why the carriageway requires widening on the northern side. Widening of the carriageway could impact on the vegetation along the northern side of the carriageway. The entry swept path analysis of the 1000T crane is shown in Figure 28 for the first bend adjacent to the existing substation entrance and in Figure 29 for the second bend adjacent to the proposed site access.

d. An alternative route was considered via the Causeway, Hythe Lane and Hythe Lane Bridge. This route would require the crane to travel through the residential area of Burwell and enter and egress the site access from the north. The swept path analysis undertaken showed the cranes were unable to manoeuvre across the bridge and therefore this was not considered an appropriate route.

Figure 24: Swept Path Analysis – 1000T Crane – A142 Fordham Road/Windmill Road T-Junction – Entry

Figure 25: Swept Path Analysis – 1000T Crane – A142 Fordham Road/Windmill Road T-Junction – Egress

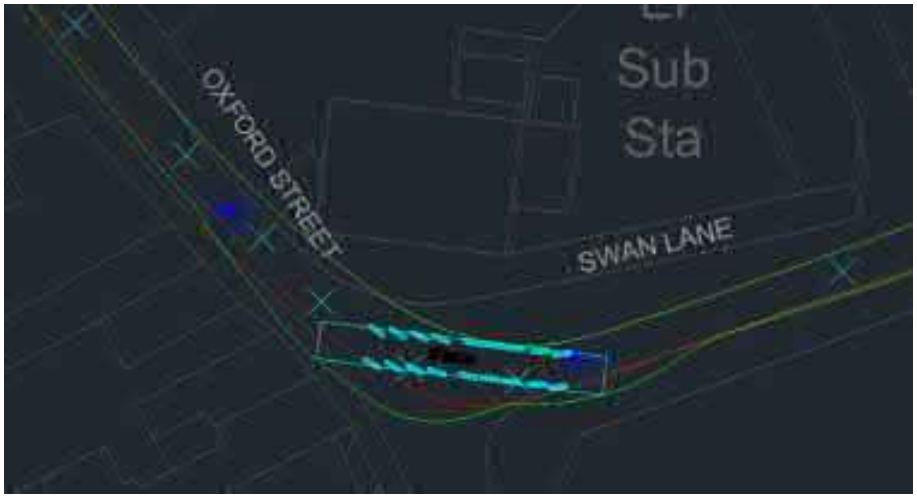

Figure 26: Swept Path Analysis – 1000T Crane – Swan Lane/Oxford Street – Entry

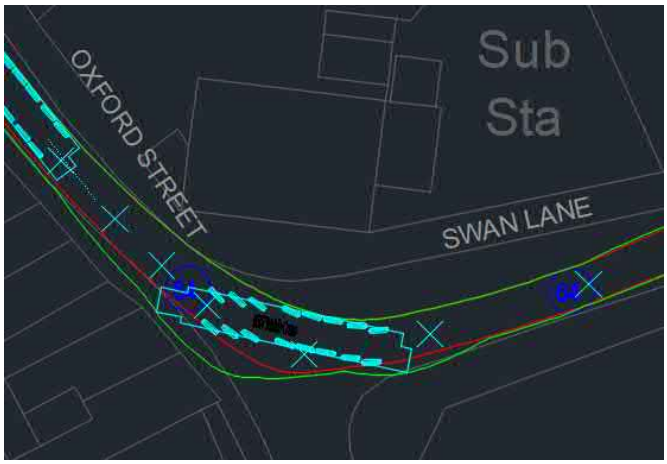

Figure 26: Swept Path Analysis – 650T Crane – Swan Lane/Oxford Street – Entry

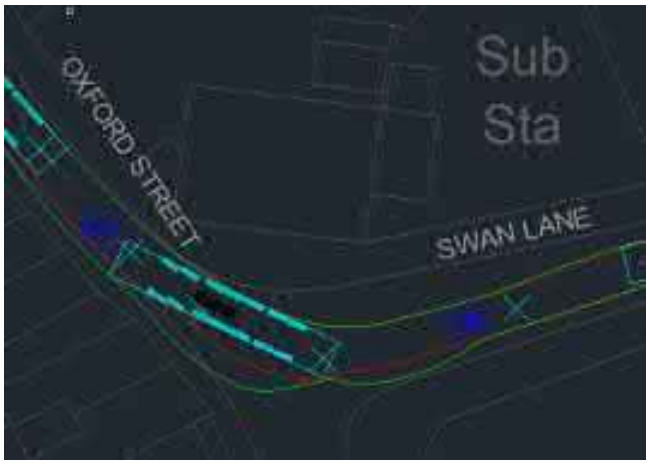

Figure 27: Swept Path Analysis – 400T Crane – Swan Lane/Oxford Street – Entry

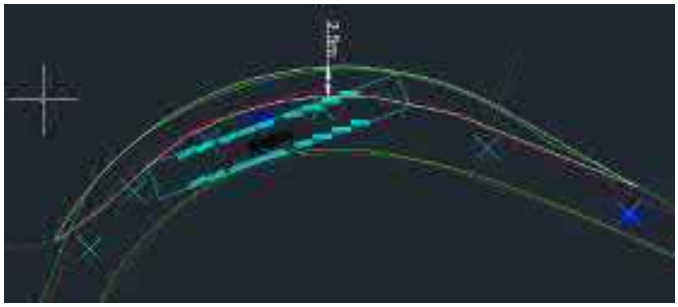

Figure 28: Swept Path Analysis – 1000T Crane – Weirs Drove – Entry

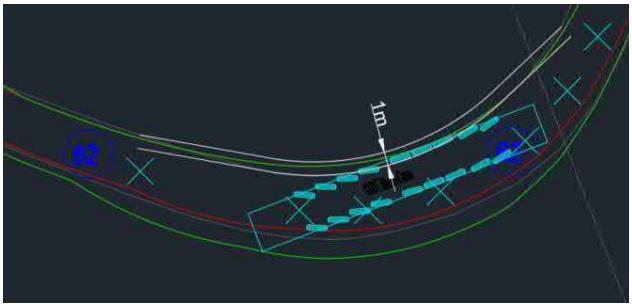

Figure 29: Swept Path Analysis – 1000T Crane – Weirs Drove – Entry

5.9 Summary of Key Site Accesses – Indicative Layouts

5.9.1 This section of the report identifies the indicative layouts for the four site accesses where cranes are required as well as the staff site access to the centralised car park on Elms Road for Sunnica East Site B. Further information regarding the remaining site accesses in relation to junction works (indicative layouts) are provided within **Annex C** of this report.

Sunnica West Site A – La Hogue Road

5.9.2 Figure 31 identifies the entry and egress swept path analysis for the 1000T crane respectively. Figure 32 identifies the junction work area (indicative layouts) for the Sunnica West Site A, with an additional area highlighted (hatched area) required for when the crane(s) requires entry and egress to the site access on La Hogue Road. This access will be used by staff during the construction and operational phase as well as HGVs and crane(s) during the construction phase.

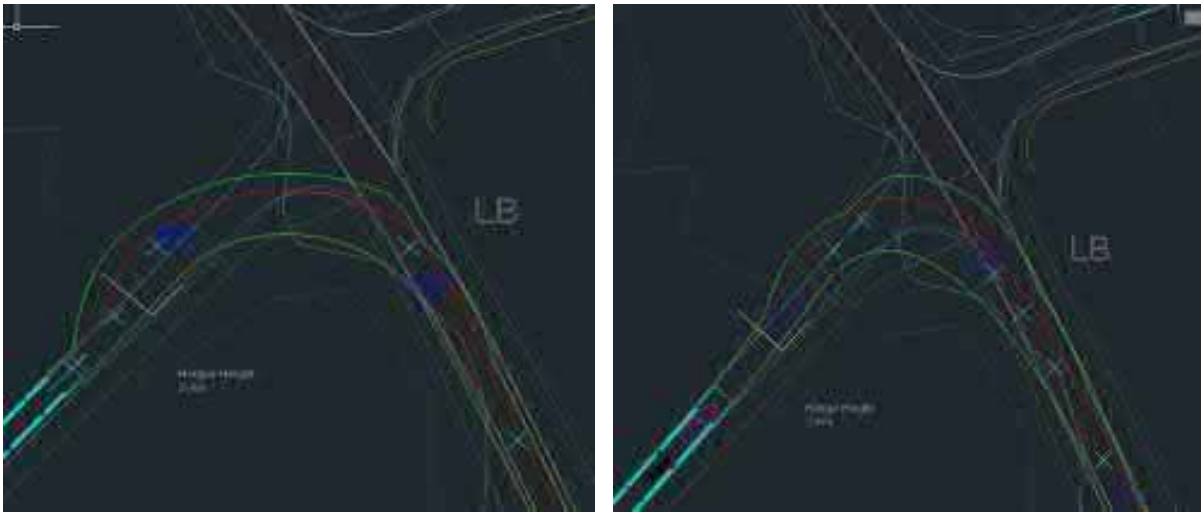

Figure 31: 1000T Crane Swept Path Analysis (Entry and Egress): Sunnica West Site A on La Hogue Road

Figure 32: Junction Work Area: Sunnica West Site A on La Hogue Road

Sunnica East Site A – Beck Road

5.9.3 Figure 33 identifies the entry and egress swept path analysis for the 1000T crane respectively. Figure 34 identifies the junction work area (indicative layouts) for the site access on Beck Road to accommodate the 1000T crane. This access will only be used for entry and egress of cranes with HGVs and the mini-bus using the site access on Ferry Lane.

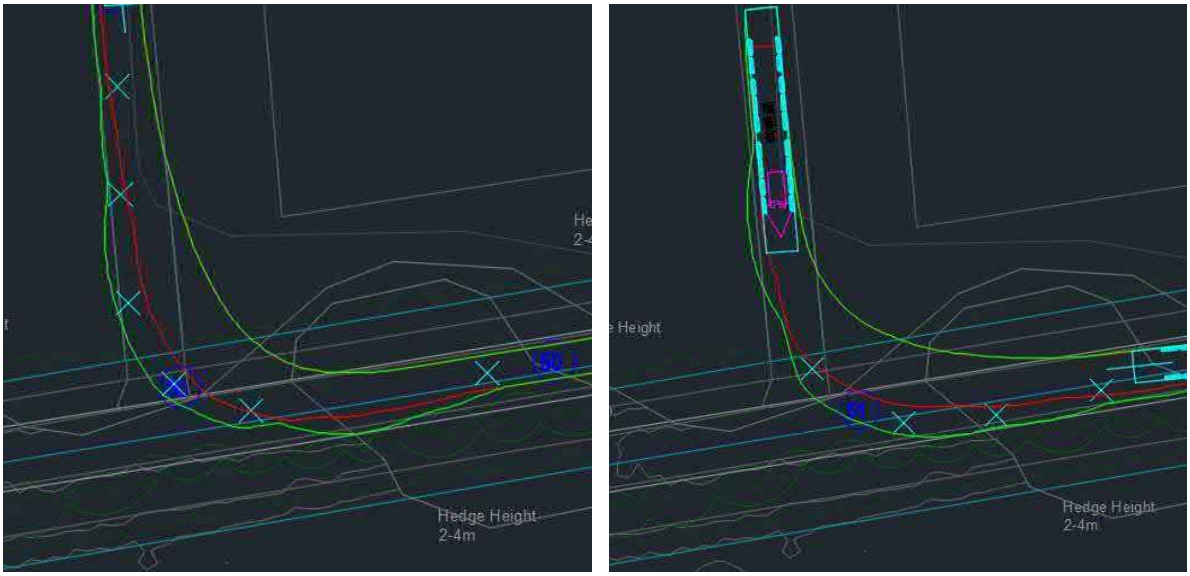

Figure 33: Sunnica East Site A Beck Road: 1000T Crane Swept Path Analysis (Entry and Egress)

Figure 34: Junction Work Area: Sunnica East Site A on Beck Road

Sunnica East Site B – Elms Road

Crane and HGV Site Access

5.9.4 Figure 35 identifies the entry and egress swept path analysis for the 1000T crane respectively. Figure 36 identifies the junction work area (indicative layouts) for the site access on Elms Road to accommodate the 1000T crane. This access will be used for entry and egress of cranes and HGVs. The hatched area identifies the additional area required to accommodate the 1000T crane.

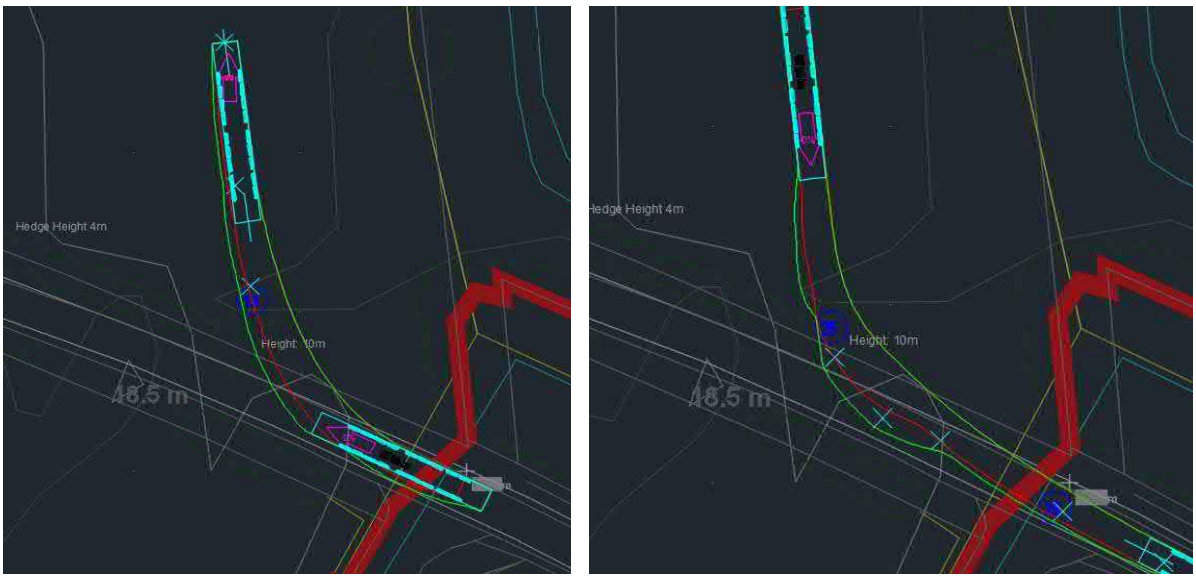

Figure 35: 1000T Crane Swept Path Analysis (Entry and Egress): Sunnica East Site B on Elms Road

Figure 36: Junction Work Area: Sunnica East Site B on Beck Road

Staff Car Park Site Access

5.9.5 Figure 37 presents a selection of swept path analysis of a large car for entry and egress into Sunnica East Site Access C on Elms Road (Site Access C). This access will be used by staff during the construction and operation phases.

5.9.6 Figure 38 shows the Junction Work Area for Sunnica East Site B on Elms Road (for staff car park).

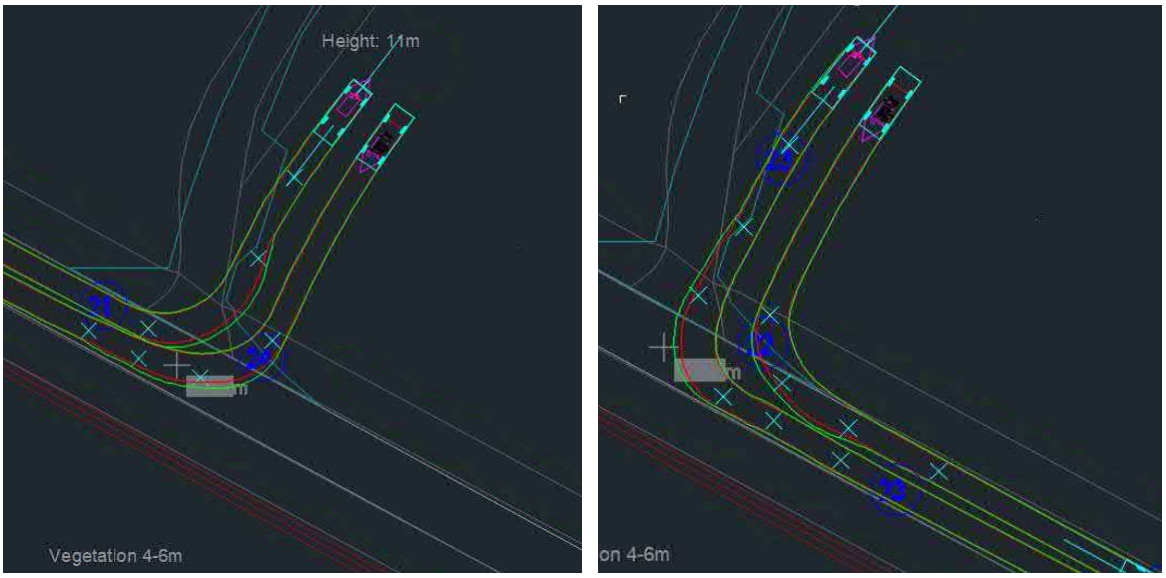

Figure 37: Large Car Swept Path Analysis (Entry and Egress): Sunnica East Site B on Elms Road for Staff Car Park

Figure 38: Junction Work Area: Sunnica East Site B on Elms Road for Staff Car Park

Burwell National Grid Substation Extension

Overview

5.9.7 There are two potential options for the Burwell National Grid Substation Extension. Option 1 is located adjacent to Weirs Drove and Option 2 is located adjacent to Newnham Drove. Below provides the swept path analysis and indicative site layouts for both options.

5.9.8 As the Scheme design has progressed, changes have been made to the proposed site accesses for Option 1 and Option 2. Below identifies the final proposed site accesses for both options.

Option 1 – Weirs Drove

5.9.9 Figure 39 identifies the entry and egress swept path analysis for the 1000T crane and Figure 40 identifies the indicative junction layout for Option 1. The crane would be required to drive into the site in forward gear and reverse out.

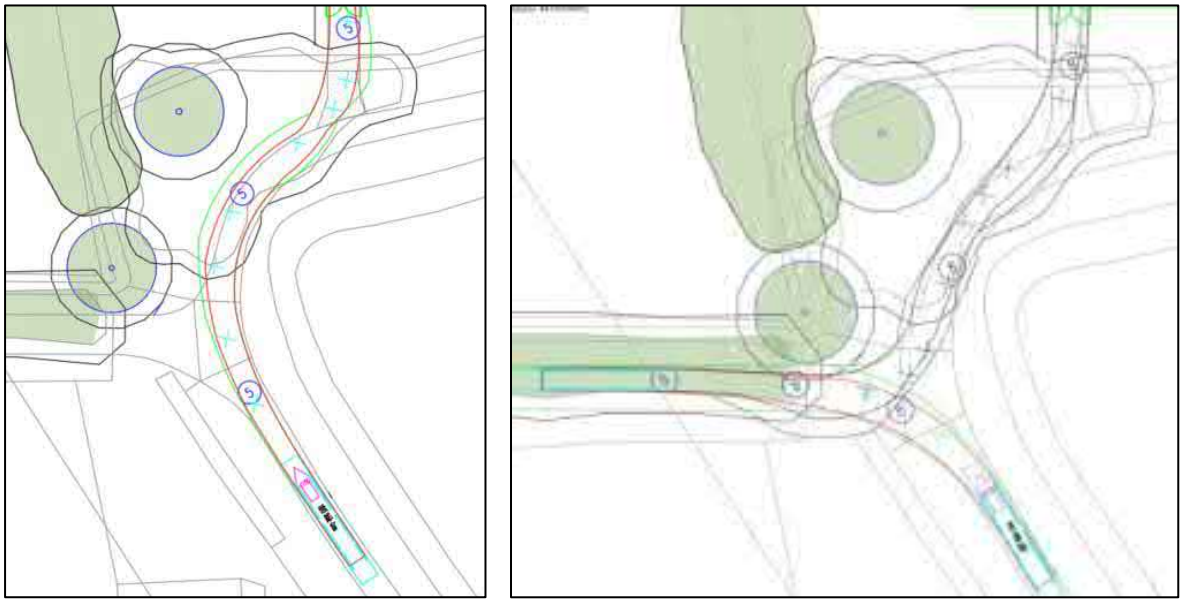

Figure 39: 1000T Crane Swept Path Analysis (Entry and Egress): Option 1

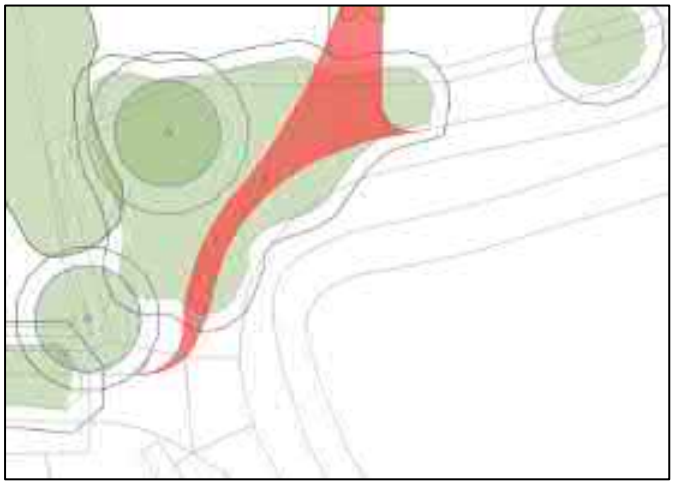

Figure 40: Indicative Junction Layout: Option 1

Option 2 – Newnham Drove

5.9.10 Figure 41 presents the entry and egress swept path analysis for the 1000T crane and Figure 42 identifies the indicative junction layout for Option 2.

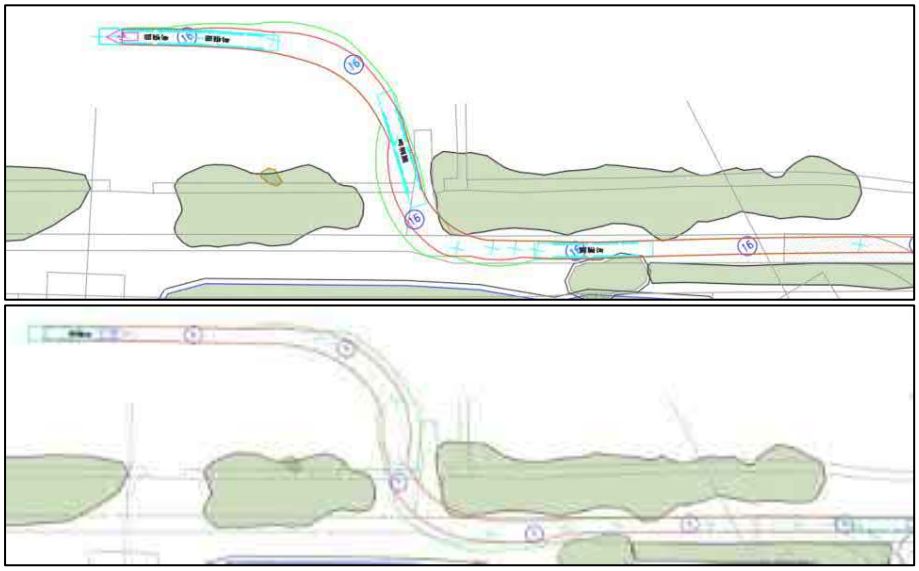

Figure 41: 1000T Crane Swept Path Analysis (Entry and Egress): Option 2

5.9.11 The figure below identifies the indicative junction layout (red area) required to accommodate the 1000T crane. In addition, a temporary surface (orange area) is provided during the construction phase for ease of manoeuvring, which will be removed following construction and will not be used during the operational phase.

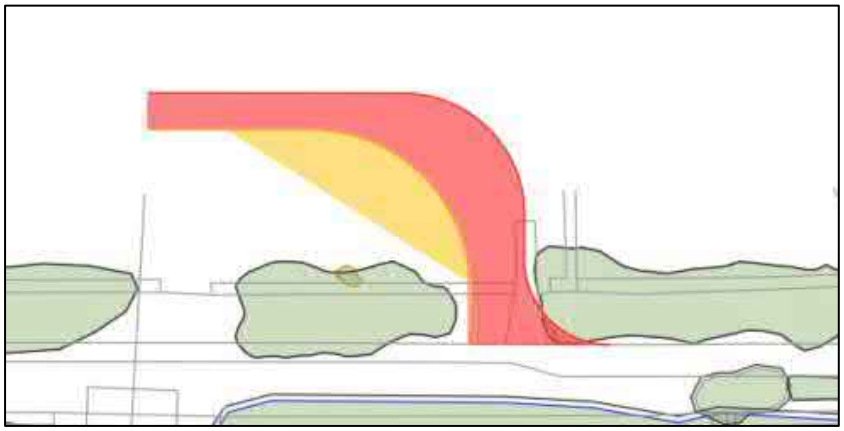

Figure 42: Indicative Junction Layout: Option 2

5.9.12 Newnham Drove is typically a 3m wide single carriageway. To accommodate the 1000T crane along Newnham Drove it is proposed to widen Newnham Drove between its junction with Weirs Drove to the Option 2 site access to 3.5m.

5.9.13 In addition, swept path analysis has been undertaken of the 100T crane at the Weirs Drove/Newnham Drove junction, which is outlined in Figure 43. To accommodate the 1000T crane at the Weirs Drove/Newnham Drove junction highway works is required. An indicative plan is shown in Figure 44 to outline the junction works required (area highlighted in red) to accommodate the 1000T crane.

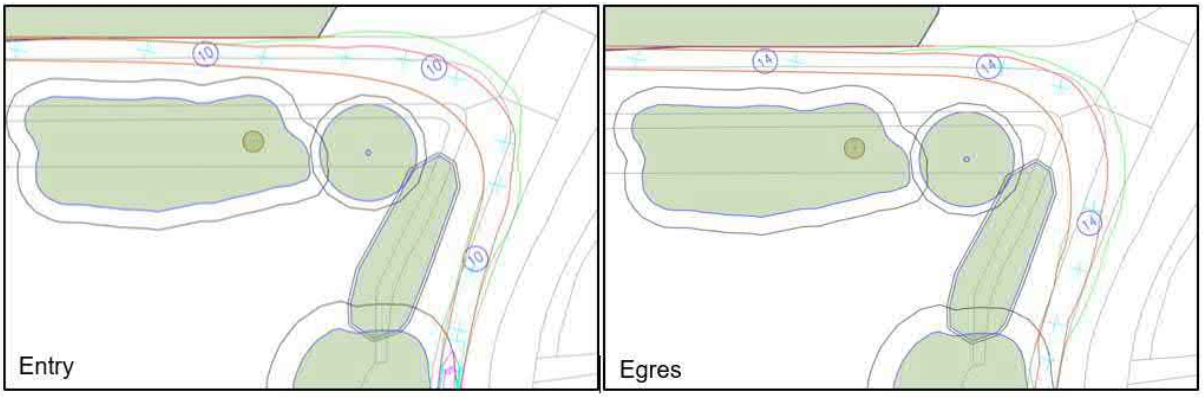

Figure 43: 1000T Crane Swept Path Analysis Entry and Egress: Weirs Drove/Newnham Drove Junction

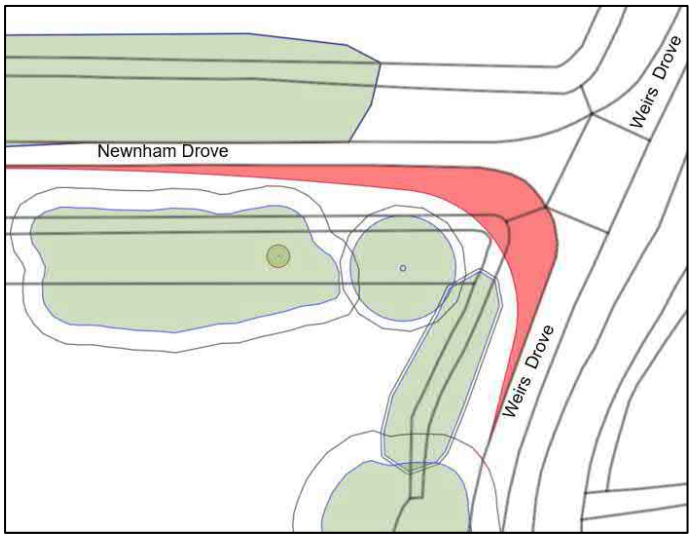

Figure 44: Indicative Junction Works: Weirs Drove/Newnham Drove Junction

5.10 Indicative Staff Car Park Layouts

5.10.1 The indicative layouts of the two centralised car parks for Sunnica West and Sunnica East are identified in Figure 45 and Figure 46 respectively. The indicative car park layouts shown can accommodate the forecast individual staff vehicle peaks which demonstrates how the car parks layout could be achieved with the final car park layout to be provided in the final CTMP and TP which would be required to be approved following grant of consent, in accordance with the DCO requirements. The brown lines in the figures below represent the internal tracks. The staff car parks will reduce in size and capacity as the construction progresses and the demand for staff and staff vehicles decreases.

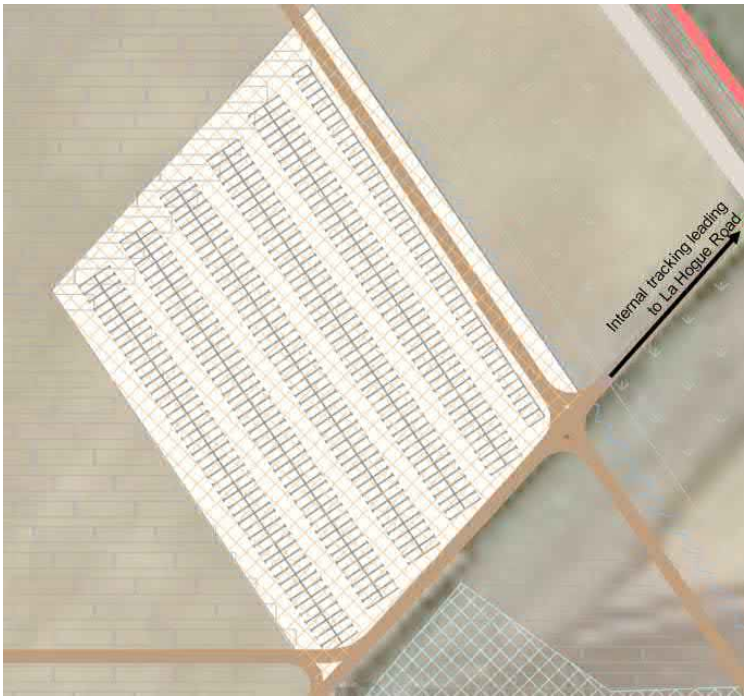

Figure 45: Indicative Car Park Layout – Sunnica West (La Hogue Road)

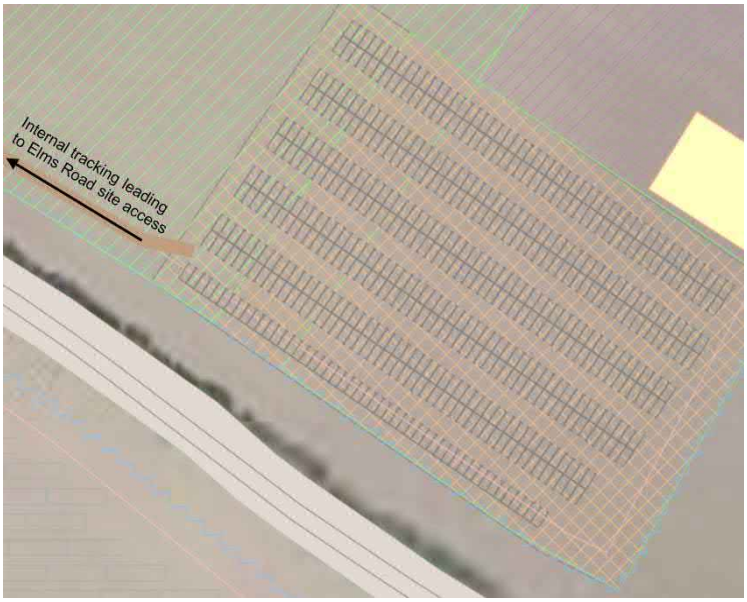

Figure 46: Indicative Car Park Layout – Sunnica East (Elms Road)

5.11 Stage 1 Road Safety Audit

Overview

5.11.1 Within the PEI Report, a site access was identified on Golf Links Road with the HGV route identified via Newmarket Road which avoided the A11/Newmarket Road Junction. However, during the consultation concerns were raised regarding HGVs travelling along Golf Links Road. As part of the site access review, alternative site access locations were investigated. The preferred alternative site access option located on Newmarket Road between the A11 and Golf Links Road was discussed with National Highways regarding development related vehicles using the A11/Newmarket Road Junction. It was agreed that development related vehicles would be permitted to undertake left in and left out movements and would be prohibited to undertake right in and right out movements at the A11/Newmarket Road junction.

5.11.2 The site access on Newmarket Road between the A11 and Golf Links Road is forecast to need to accommodate an average of between 9-12 HGVs (18-24 movements) daily for the first five months of the 13-month construction period. The forecast HGVs reduce to between 2-3 HGVs (4-6 movements) daily for months six to thirteen.

Stage 1 RSA Summary

5.11.3 During discussions with SCC in August 2021 regarding the proposed relocation of the Golf Links Road site access to Newmarket Road to between the A11 and Golf Links Road, SCC stated that they would expect a Stage 1 RSA to be completed for an access close to a major junction. As a result, a Stage 1 RSA was undertaken. The Stage 1 RSA only identified one “problem” to be addressed. A summary is provided below with the full report provided in **Annex E** of this report.

a. Summary: Slow moving HGVs turning from access may be at risk of being struck by northbound vehicles on Newmarket Road.

b. The proposed construction access is located close to the A11(T) junction. Construction turning right out of the site will do so relatively slowly and vehicles heading north on Newmarket Road, having turned from the A11 may collide with the slow turning construction vehicles.

c. Recommendation: Although it is acknowledged that the RSA brief states that warning signs are proposed along Newmarket Road warning motorists of the site access and HGVs turning, it is recommended that, at detailed design stage, a suitable clear warning signage strategy is designed (and reviewed as part of the Stage 2 Road Safety Audit) to ensure that drivers joining Newmarket Road from the A11 are aware of the construction access and potential for slow turning vehicles ahead. It is advised that the signage is provided as a ‘gateway’ on entry to Newmarket Road so that it is clearly seen by both right turning and left turning traffic from the A11.

5.11.4 In line with the recommendations made in the Stage 1 RSA, it is proposed that appropriate signage is provided as a ‘gateway’ on entry to Newmarket Road to warn both right and left turning vehicles of the construction site access.

6 Summary of Traffic Management Proposals and Summary of Speed Surveys

6.1 Introduction

6.1.1 This section summarises the proposed traffic management which includes temporary road closures, temporary PRoW closures, temporary traffic signals and temporary speed limits. The temporary traffic management proposals are shown on the Traffic Regulation Measures Plans which accompany the DCO Application.

6.1.2 It is anticipated that the DCO, if granted, would include a requirement for the Framework CTMP and TP to be developed into a final CTMP and TP (either as a combined document or as separate documents) that would be submitted for the approval of the relevant planning authority (or authorities) following consultation with the relevant highway authorities, before construction is begun. The DCO, would therefore, secure that its measures are complied with. Therefore, this section is expected to be updated within the final CTMP and TP if any of the proposals outlined in this section were to change.

6.1.3 The proposed traffic management is shown on the Traffic Regulation Measures Plans – Temporary Road Closures and Traffic Regulation Measures Plans – Temporary Measures **[EN010106/APP/2.3]** which accompany the DCO Application. A summary of the temporary road closures, PRoW closures, traffic signals and speed limit reductions are provided in this section.

6.1.4 The proposed traffic management measures summarised below are to occur at different and various time periods throughout the construction of the Scheme. However, notwithstanding this, there could be more than one temporary road closure or temporary PRoW closure occurring at the same time.

6.1.5 During consultation with SCC and CCC, in August 2021, the temporary traffic management was discussed. SCC and CCC indicated that they would expect to see speed surveys carried out wherever there was intention to change the speed limit. Firstly, this was to confirm that it was actually necessary to change the speed limit and secondly to identify if existing speeds were significantly higher than the proposed speed reductions. Therefore, as a result, speed surveys were undertaken. Vehicle speeds are unlikely to be affected to the extent that traffic flow volumes have been affected during the Coronavirus Pandemic, and therefore speed survey data collection has been feasible.

6.1.6 The speed surveys in Suffolk were undertaken for seven consecutive days between 28th September 2021 to 5th October 2021 while the speed surveys in Cambridgeshire were undertaken between 18th to 24th October 2021.

6.1.7 The purpose of the temporary traffic signals and speed limit reductions for individual site accesses during the construction phase is to provide safe access and egress for HGVs in/out of the site access. The temporary traffic signals and speed limit reductions are applied where the full visibility splay was unable to be achieved without significant vegetation trimming or removal. Appropriate warning signage will be provided on the approaches to the temporary traffic signals which will assist in reducing vehicles speeds past the site accesses.

6.2 Summary of Speed Surveys

6.2.1 The speed data has been collected using Automatic Traffic Counters (ATCs). The average and 85th percentile 12-hour weekday (Monday to Friday 07:00-19:00) speeds has been summarised in **Table 6-1**. The development HGVs are forecast to occur Monday to Friday between 07:00 and 19:00. The speed surveys were caried out in locations of generally free-flowing traffic and as a result it is unlikely the inclusion of peak hour speed data would reduce the average and 85th speeds significantly. Using the 12-hour average and 85th percentile speeds provides a more comprehensive representation of vehicle speeds where the site accesses are located while they are in use. All the roads identified in the table below are national speed limit (60mph). The raw speed survey data is provided in **Annex F** of this report.

6.2.2 The proposed reduced speed limits are temporary in nature, cover a short distance, will be accompanied with appropriate warning signage and will be introduced in combination with temporary traffic signals. The purpose of the temporary speed limits is to provide safe entry and egress of the site accesses for the construction vehicles. The proposed temporary speed limits are discussed further in Section 6.4.

Table 6-1: Summary of Speed Surveys: Average and 85th Percentile (mph)

Roads	Northbound/ Eastbound		Southbound/ Westbound		Proposed Temporary Speed Limit
	Average	85th Percentile	Average	85th Percentile	
Weirs Drove	18.7	22.1	18.7	22.3	-
B1102 Ness Drove	53.3	59.5	55.4	62.4	40mph
Newmarket Road (North of the A142 Roundabout)	46.0	53.3	44.9	52.1	40mph
Snailwell Road / Fordham Road	28.9	32.6	30.5	34.1	30mph
Chippenham Road (West)	44.2	50.8	42.7	49.6	40mph
Chippenham Road (East)	48.5	55.7	47.4	54.4	
La Hogue Road	43.1	51.3	44.0	51.2	40mph
Dane Hill Road (West)	40.4	45.6	43.0	48.9	40mph
Dane Hill Road (East)	42.4	48.5	45.0	51.5	
B1085	48.0	55.3	51.0	58.2	40mph
Elms Road (North)	48.9	57.6	46.6	55.3	40mph
Elms Road (South)	40.7	47.7	38.6	45.7	
Newmarket Road (Worlington)	45.2	50.9	45.7	51.7	40mph
B1102 Freckenham Road	49.6	57.2	49.6	57.6	-
Isleham Road	42.6	49.2	47.5	55.5	-
Newmarket Road (between A11 & Golf Links Road)	32.7	39.8	32.8	41.1	-

6.3 Temporary Road and PRoW Closures

6.3.1 Several roads are crossed, which will result in temporary road closures, by the Grid Connection Routes A and B, and internal cable crossings within the Sites. The temporary road closures include the following:

a. Weirs Drove;
b. Newnham Drove;
c. Little Fen Road;
d. First Drove;
e. Broads Road;
f. Chippenham Road;
g. La Hogue Road;
h. B1085;
i. Elms Road;
j. Beck Road;
k. Isleham Road;
l. B1102 Freckenham Road;
m. Newmarket Road between (Worlington and Red Lodge); and
n. U6006.

6.3.2 Each of the temporary road closures are expected to be no longer than one-week and occur on narrow roads where the use of two-way signals is not possible.

6.3.3 Prior to any road closures advanced warning will be provided in line with the Local Highway Authority (LHA) guidance with diversions in place.

6.3.4 It is likely that over the course of the construction period a number of PRoW will need to be temporarily closed for a maximum of three weeks, which is considered a worst-case scenario. The temporary closure of the PRoWs will occur at different stages therefore each will be impacted on separately at differing stages of the construction. The timing of the temporary PRoW closures are currently unknown. The Scheme has been designed to minimise the PRoW closures in terms of the number of closures and their duration.

6.3.5 Three PRoWs are located within the boundary of Sunnica East Site A. PRoWs W-257/007/0, W-257/002/X and W-257/002/0 cross the south-west part of the site between Beck Road and Mortimer Lane.

6.3.6 One PRoW is located within the boundary of Sunnica East Site B. PRoW W257/003/0 runs along the south-western boundary of the site from Turnpike Road at Red Lodge in the south-east to Badlingham Manor in the north-west. An unclassified road (U6006), which is a publicly accessible route, including for equestrians, extends northwards from Elms Road to Worlington. To the west of Sunnica East Site B the B1102 provides a footway for a section along the northern carriageway, alongside vehicles travelling eastbound, which is approximately 2m wide between North Street and East View. To the north, on Newmarket Road,

footways are provided on both sides of the carriageway between the B1102 and The Paddocks.

6.3.7 Grid Connection Route A crosses the Chippenham footpath 49/7 before passing approximately 20m west of the Chippenham Gravel Pit CWS and crossing the B1085. No PRoWs are situated within the boundary of Sunnica West Site A or Sunnica West Site B. Snailwell 5 bridleway (PRoW) runs along the south-west boundary of Sunnica West Site A.

6.3.8 There are six PRoWs that intersect Grid Connection Route B. Towards Snailwell, footpath PRoW 204/1 connects Snailwell with Chippenham Park. Heading west from Sunnica West Site B, footpath 92/19 runs through agricultural fields between Fordham and Snailwell. Footpath 35/10 and 35/11 run between Wicken and Burwell passing through several agricultural fields. There are also two PRoWs 35/6 and 35/7 running between Burwell and Reach, again through agricultural land.

6.3.9 The PRoWs to be closed are as follows:

a. W-257/002/X;
b. W-257/007/0;
c. W-257/003/0;
d. W-257/002/0;
e. 49/7;
f. 204/1;
g. 92/19; and
h. 35/10.

6.4 Summary of Temporary Traffic Signals and Temporary Speed Limits

6.4.1 The proposed temporary speed limits and temporary traffic signals locations are outlined below:

a. Proposed temporary traffic signals at the site access on Weirs Drove;
b. Proposed speed limit reduction to 40mph along a short section of the B11102 Ness Road with temporary traffic signals at the site access;
c. Proposed speed limit reduction to 40mph along a short section of Newmarket Road (north of the A142 roundabout) with temporary traffic signals at the site access;
d. Proposed temporary traffic signals along a short section of Newmarket Road (north of the A142 roundabout);
e. Proposed speed limit reduction to 30mph along a short section of Snailwell Road with temporary traffic signals at the site access;
f. Proposed speed limit reduction to 30mph along a short section of Fordham Road with temporary traffic signals at the site access;
g. Proposed speed limit reduction to 40mph along a short section of Chippenham Road with temporary traffic signals at the site accesses;
h. Proposed speed limit reduction to 40mph along a short section of La Hogue Road with temporary traffic signals at the site access;
i. Proposed speed limit reduction to 40mph along a short section of the B1085 with temporary traffic signals at the site access;
j. Proposed speed limit reduction to 40mph along a short section of Dane Hill Road with temporary traffic signals at the site access;
k. Proposed speed limit reduction to 30mph along a short section of Elms Road with temporary traffic signals at the site access;
l. Proposed temporary traffic signals along a short section of the B1102 Freckenham Road at the site access; and
m. Proposed speed limit reduction to 40mph along a short section of Newmarket Road (Worlington) with temporary traffic signals at the site accesses.

7 Management

7.1 Introduction

7.1.1 This section of the Framework CTMP and TP outlines the construction traffic and travel plan management measures that would be developed and detailed in the final CTMP and TP to be implemented.

7.2 Management Measures and Controls

HGV Measures and Controls

7.2.1 The freight strategy for the Sunnica Energy Farm seeks to manage HGV deliveries to the Order limits through the implementation of the following measures:

a. Delivery Management System;
b. HGV Routes;
c. HGV Timing Restrictions;
d. HGV Emission Standards;
e. Communications Strategy;
f. Site Accesses; and
g. Cranes and AILs Management Measures.

Delivery Management System (DMS)

7.2.2 A DMS will be implemented to control bookings of HGV deliveries from the start of the construction period. This will be used to effectively plan all HGV deliveries in accordance with the construction programme, regulate the flow of HGVs via timed delivery slots and monitor compliance of HGV routeing.

7.2.3 A Traffic Management and Monitoring System (TMMS) will be developed. The TMMS will provide details of the technologies and other means employed to monitor HGVs to/from the development site (e.g. Global Positioning System (GPS), Automatic Number Plate Recognition (ANPR)). This will enable the Applicant to monitor the following:

a. Compliance with the HGV routes;
b. Compliance with the number of HGV limits in terms of number of deliveries arriving and departing at any one time and over the course of the day; and
c. Compliance with the timing restrictions.

7.2.4 The precise form of DMS would be determined following the appointment of a contractor and will include a summary of the contractual requirements which those visiting the site will have to adhere, along with the measures to be taken for non-compliance. This could include implementing a three-strike system for contractors which could lead to financial penalties.

HGV Routes

7.2.5 HGVs travelling to the Order limits from the wider highway network will be required to comply with the HGV routes set out in Section 4 of this document, and in accordance with the DMS and TMMS. It is acknowledged that there will be the requirement for the occasional HGV to travel on the local highway network to access the secondary access points. Local HGV deliveries, those HGV movements where both the origin and the destination are within the Sunnica sites, would be required where possible to follow Sunnica HGV routes.

HGV Timing Restrictions

7.2.6 To reduce the potential impact of the HGV deliveries, the arrival and departure times will be managed to minimise the number of HGVs travelling to the site during the highway peak hours. In addition, the HGV deliveries can be arranged to avoid the need for vehicles to depart the Site within the PM avoid the network peak hour (17:00-18:00). The HGV deliveries will be routed onto the SRN (A11 / A14) to travel to / from the site.

7.2.7 As set out in Section 4 of this document, the HGV deliveries will be required to use the A11 to travel to the main accesses of the Sites and will therefore not have an impact on any of the local villages near the Order limits such as Chippenham or Red Lodge during the AM or PM highway peak hours (08:00-09:00 and 17:00-18:00).

7.2.8 The timing restrictions are:

a. No arrivals or departures on a Weekday between 08:00 and 09:00, and between 17:00 and 18:00;

b. No arrivals or departures on a Saturday before 08:00 or after 13:00; and

c. No arrivals or departures on Sundays or public holidays.

7.2.9 The restrictions imposed on deliveries by HGVs will be set out within the DMS and TMSS.

HGV Monitoring

7.2.10 The Applicant will implement a monitoring system whereby the route of all HGVs travelling to and from the site is recorded such that non-compliance with the CTMP can be identified and measures taken. The precise form this monitoring will take will be included within the final CTMP.

HGV Emissions

7.2.11 All HGVs routeing to the development sites (with the exception of vehicles used for the transportation of Abnormal Indivisible Loads including cranes) will be required to be compliant with the latest emission standards at the time of construction.

Communications Strategy

7.2.12 A Communications Strategy will be developed by the Applicant to ensure that all relevant measures are communicated between contractors. This would include an information pack setting outing the contractual requirements.

7.2.13 Further to this, the Applicant will hold regular meetings with contractors to discuss HGV management, any issues that arise and any required remedial actions.

Highway Conditional Survey

7.2.14 The Applicant will undertake highway conditional surveys before, during and after the construction to identify any impacts which are a result of the development that need to be remediated. The exact roads to be agreed with the local highway authorities in advance of construction.

Site Accesses

7.2.15 Consideration has been given to the layout of the site accesses to ensure the geometry can accommodate HGVs in Section 5 above and in **Annex C** of this report.

7.2.16 Hard standing surface will be provided at the site accesses which can accommodate the weight of the HGVs. Where there is existing hard standing surface provided at a site access, the contractor will be responsible for ensuring it can accommodate the weight of the HGVs.

7.2.17 In addition, wheel washing facilities will be provided at the site accesses to prevent mud being trafficked onto the highway.

Crane and AILs

7.2.18 Before the movement of the cranes and AILs the police will be given advanced notification under the Road Vehicle Authorisation of Special Types Order 2003.

7.2.19 In addition, communication and coordination will occur with both National Highways and the local highway authority before the crane and AILs are required on-site to ensure sufficient notification is provided. This also includes the co-ordination of the temporary removal and subsequent re-instatement of signage and street furniture.

Staff Vehicle Measures and Controls

7.2.20 The staff strategy for the Sunnica Energy Farm seeks to manage staff movements to and around the Order limits through the implementation of the following measures:

a. Lift-Sharing;
b. Staff Routeing;
c. Staff Arrival and Departure Times;
d. Car parking strategy and parking permit scheme; and
e. Mini-Bus.

Lift-sharing

7.2.21 To reduce the potential impact of vehicles associated with the staff during the construction period, the applicant will implement measures to maximise the numbers of staff that lift share with colleagues to reduce the number of vehicles travelling to/from the Site each day. Staff will also be directed to use the SRN in the vicinity of the Site such as the A11, A14 and A142 to travel to/from the Site where appropriate

to minimise the amount of construction traffic using local roads through the nearby villages, in line with the routes identified in Section 4 of this document for the HGVs.

7.2.22 To not exceed the staff vehicle forecast within **Chapter 13: Transport and Access** of the Environmental Statement **[EN010106/APP/6.1]** and the Transport Assessment (**Appendix 13B** of the Environmental Statement **[EN010106/APP/6.2]**), the average vehicle occupancy of 1.5 persons per vehicle will be required to be achieved at the peak construction period, with lift sharing to be encouraged throughout the whole construction period. To further reduce the impact of the development on the highways network throughout the construction period the promotion to staff of the benefits of car sharing will be carried out such as reduced fuel costs, ease of parking with possibility of dedicated spaces for those sharing provided nearer to the mini-bus collection points within the compounds.

7.2.23 Further to the above, a Car Share Scheme will be implemented which will actively match potential sharers and be available to staff so that they can find their own match as well as that identified by the Transport coordinator. Further information regarding the Transport coordinator is provided in the 'management structure' section later on in this Framework CTMP and TP.

7.2.24 Dedicated spaces for those lift sharing will be considered within the parking areas and be located close to the mini-bus pick up points to reduce park and walk time. Further details on this will be provided in the full CTMP and TP once the contractor has been appointed.

Staff Routeing

7.2.25 Staff will be directed to use the SRN for as much of their journey to and from the two centralised car parks as practicable. As well as the A11 and A14 this will include the A142 to avoid staff travelling through local villages. The routeing staff will be directed to use is the same identified for the HGV routes. The full CTMP and TP will contain details as to the measures to be employed to direct staff trips to these routes.

Staff Arrival and Departure Times

7.2.26 The working hours of the staff are 07:00-19:00 with the AM development peak hour between 06:00 and 07:00 and the PM development peak hour between 19:00 and 20:00 for staff. The working hours ensures staff do not travel within the AM and PM highway peak hours 08:00-09:00 and 17:00-18:00.

Parking Strategy

7.2.27 The parking strategy seeks to minimise the potential impact of the vehicle trips associated with the staff, in particular in the surrounding villages. Two evenly split centralised car parking areas are proposed, one within Sunnica West Site A and the other in Sunnica East Site B. The alternative was to provide car parking compound at each of the site accesses / construction zones for staff to park in however this was considered likely to result in many staff trips on the local highway network. Therefore, the two centralised car parks were identified as the following:

a. Sunnica West Site A – to be accessed off La Hogue Road which links to the A11 junction; and

b. Sunnica East Site B – to be accessed off Elms Road which links to the A11 northbound off-slip and is also in close proximity to the Red Lodge Dumbbell Roundabouts providing access to/from the A11.

7.2.28 It is anticipated that a one-way system will be in place within the two car parks with a single point providing the entry/egress onto the local highway network. Appropriate signage, internally and externally, will identify the entry and egress routes for vehicles for the two car parking areas.

7.2.29 A car parking permit system is proposed to be implemented across the two car parking areas. The intention of the car parking permit system is to identify the most appropriate of the two car parks to direct staff to use the SRN in the vicinity of the Site such as the A11 and A14 and also the A142. This will assist in minimising the number of vehicle trips which could occur on the local roads, in particular through Fordham, Chippenham, Worlington and Red Lodge. Full details of the car parking permit system will be provided in the detailed CTMP and TP.

Mini-Bus

7.2.30 A mini-bus service will be used to transport staff around the site making use of internal routes where possible. Where the mini-bus is unable to use internal routes, the local highway network will be used to transport staff to the other site compounds. Considering the start/finish time of staff, any mini-bus service trips on the local highway network are expected to occur outside of the peak highway hours. Given the use of a mini-bus service the departure of staff is expected to be staggered outside of the highway peak hours and will be dictated on when staff return to the main two car parking areas.

7.2.31 Once staff origin locations are known investigation will be made into providing a mini-bus service to local residential areas to pick up/drop off staff who live locally. In addition, this will investigate the potential to provide the mini-bus service to local railway stations.

7.3 Management Structure

7.3.1 The overall management and implementation of the CTMP will be the responsibility of the Applicant. A Transport coordinator will be appointed by the Applicant to be responsible for the management, development and implementation of the CTMP.

7.3.2 The Transport / Travel Plan coordinator will:

a. Liaise as appropriate with local transport and traffic groups, local planning authorities, local highway authorities, National Highways and the police;

b. Monitor the CTMP and TP to identify what is working well and what can be improved;

c. Promote the CTMP and TP to all staff and contractors travelling to and from the site to ensure compliance with its contents;

d. Monitor data relating to HGV routes, timing of HGV arrivals and departures, how contractors are utilising the DMS and the emission standards of vehicles;

e. Manage the Car Share Scheme;

f. Investigate providing a mini-bus service to local railway stations and local residential areas to pick-up and drop-off staff;

g. Assign staff to the most appropriate of the two centralised car parks including the provision of a car parking permit to staff for one of the two centralised car parks; and

h. Discuss issues which come to light with the relevant parties and discuss any amendments required to ensure that compliance with the CTMP and TP is maintained.

7.4 Monitoring and Review

HGVs

7.4.1 To ensure that contractors are complying with the CTMP and TP, a monitoring and review approach will be taken. This will be led by the Transport coordinator.

7.4.2 The Transport coordinator will monitor data relating to the routes utilised, the timing of arrivals and departures, how contractors are utilising the DMS and the emission standards of vehicles accessing the site. Regular reporting will set out the results of the data monitoring and identify any issues which need to be resolved and what measures would need to be implemented to ensure that any identified issues do not occur again.

Staff

7.4.3 The Car Share Scheme will be managed by the Transport coordinator to implement and identify potential matches for car sharers. This will also be available to staff so that they can find their own matches. The Transport coordinator will require the starting location of staff before commencing work on site, to assist in promoting the Car Share Scheme and also to allocate car drivers to one of the two car parking areas which will be based on their starting location for their travel to the Site. This takes into consideration if staff are starting their journey from a different location to their home. Where possible, staff's primary working location in the Sunnica East Site and Sunnica West Site will be the same as their parking permit location.

7.4.4 The two centralised car parks will be monitored during the arrival of staff in the morning and departure of staff in the evening. Given the close proximity of the two centralised car parks to the A11, the majority of staff will travel northbound on La Hogue Road and Elms Road to access the Sunnica West and East car parks respectively. Monitoring will be in place to ensure a low number of staff travel southbound (i.e. arrive via the north) on La Hogue Road and Elms Road. The monitoring will also include that the majority of staff departure southbound on La Hogue Road and Elms Road in the PM development peak hour.

7.4.5 During arrival of staff at both sites the car parking areas will be managed to ensure the efficient arrival of staff and assignment of the car parking spaces where vehicles will be routed to the most appropriate location based on their arrival time. The car parking management will ensure staff entering the car parking areas park in a timely and safe manner. Given the working patterns identified it is not expected there will be the requirements for car parking management outside of the development peak hours of 06:00-07:00 and 19:00-20:00.

8 Compliance and Enforcement

8.1 Introduction

8.1.1 This section of the Framework CTMP and TP provides a summary of the mechanisms that will ensure compliance with the final CTMP and TP.

8.2 Compliance

8.2.1 There are three areas under which enforcement of the CTMP and TP will be imposed: Best Practice, Contractual Conditions and Default Mechanisms.

Best Practice

8.2.2 The Applicant will use internal management procedures to ensure compliance with the requirements of the CTMP and TP, including:

a. **Contractor kick off meetings:**

   i. Contractors will be reminded of the Applicant's standards and expectations as set out in contract documentation.

b. **Site induction:**

   i. Driver induction to include briefing on aims and objectives of the CTMP and TP, including booking system, designated routes and driver behaviour.

   ii. A copy of the CTMP and TP will be provided to each of the companies who provide services to the Scheme so that all are informed of how the sites are being managed and what the Applicant expects all contractors to adhere to.

c. **Reporting:**

   i. Incidences of non-compliance with the CTMP and TP will be investigated.

   ii. Reports from each incident will be raised and shared with the relevant contractor.

   iii. Where appropriate updates to the CTMP and TP will be considered, in accordance with the provisions of the DCO, to resolve the risk of repeated breaches.

Contractual Conditions

8.2.3 Upon appointment, each contractor will be provided with a contract setting out their contractual requirements in terms of compliance with the CTMP and TP.

8.2.4 A copy of the CTMP and TP will be provided along with confirmation of the routes vehicles are required to take to reach the site from their starting location as well as the access which they will use and the time of entry.

Enforcement

8.2.5 If despite the careful efforts of the Applicant and its contractor, there are breaches of the movement arrangements as set out in this CTMP during the construction phase, the enforcement procedures are as follows:

a. The Transport coordinator will notify the Applicant of a breach of the CTMP or TP arrangements as and when they occur.

b. The Applicant will issue a warning letter to the relevant contractor outlining what action would be taken in the event of a further breach. Details relating to the action which would be taken will be provided within the full CTMP and TP.

c. The Applicant will report the details of the response to the Transport coordinator as part of the monitoring report. The monitoring report will be made available to the relevant local planning authorities and relevant highway authorities at their request to ensure compliance and that action is being taken where breaches are occurring.

8.2.6 Further detail on the sanctions which could be applied would be included within the final CTMP and TP.

Annex A – Figures

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Grid Connection Route A

Sunnica East Site A

Sunnica East Site B

Grid Connection Route A

Grid Connection Route B

Sunnica West Site B

Grid Connection Route B

Burwell National Grid Substation Extension - Option 2

Sunnica West Site A

Burwell National Grid Substation Extension - Option 1

0 500 1,000m

N

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LEGEND

The Order Limits

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)
.

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 1
SITE LOCATION

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:50,000

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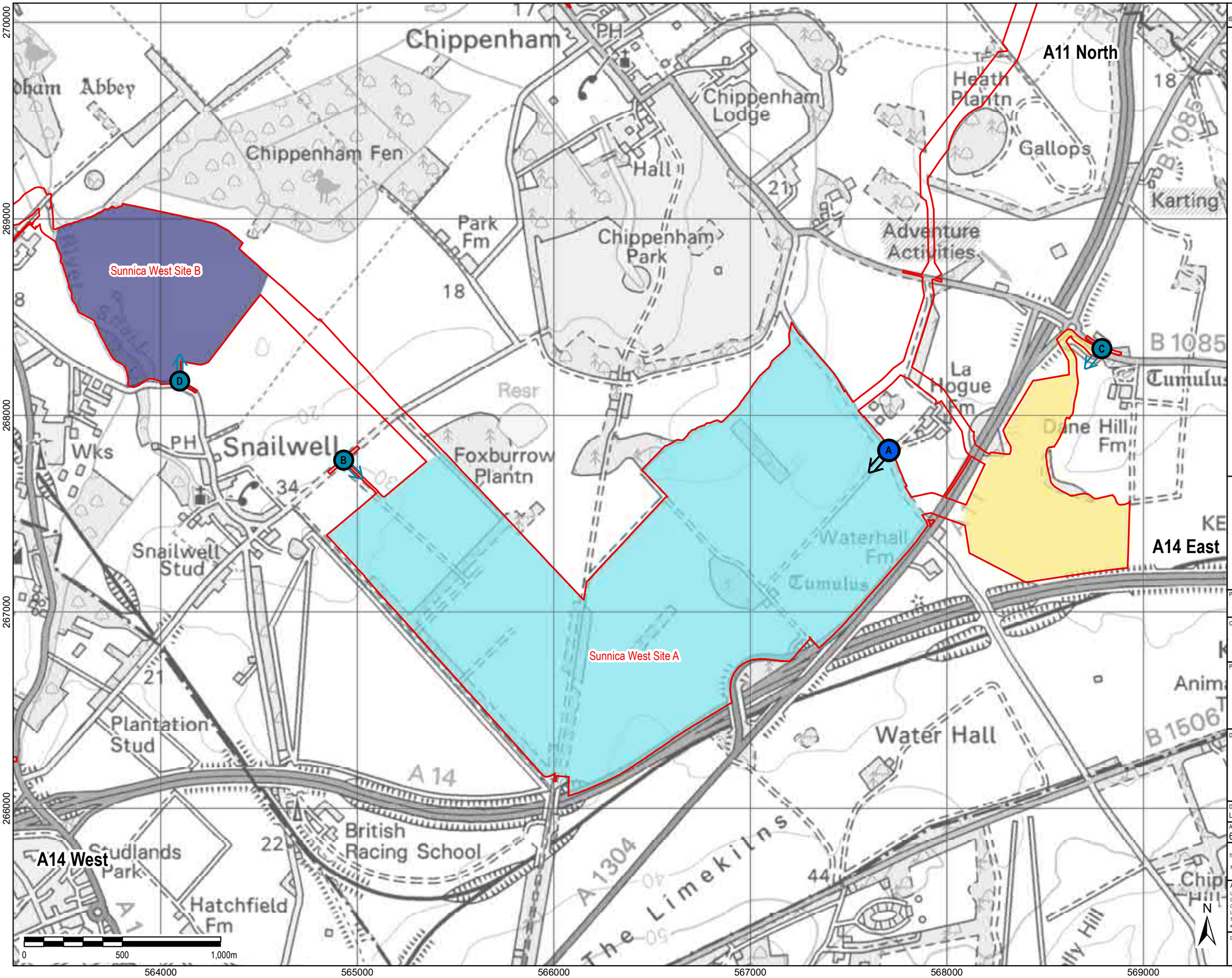

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LEGEND

The Order Limits

Indicative Construction Zone

- Sunnica West 1 - 7 Months
- Sunnica West 2 - 24 Months
- Sunnica West 3 - 10 Months

Access Point

- Primary Access: Construction, Operation and Decommissioning
- Secondary Access: Construction, Operation and Decommissioning

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 2
SUNNICA WEST SITE
ACCESS LOCATIONS

Drawn	Checked	Approved	Date
LL	DW	NC	20/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:17,500

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60589004_ES_CTMP_002	0

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566000 567000 568000 569000 570000 571000

275000 274000 273000 272000 271000

Sunnica East Site A

Sunnica East Site B

A11 North

A11 South (for the A14)

E F G K D H J I C B A

West Row, East Fen, Lee Brook, Bargate Fm, River Lark, PH, Wks, Wamil Hall, Sch, Cross, Mill, Hotel, leham, Rectory Fm, Moat, Worlington, Barton Mills, The Grange Fm, CH, Hall, Freckenham, B1102, Tumulus, Isleham Plantn, B1104, Badlingham Manor, Quarry, Park Fm, Red Lodge, Chalk Hill, Quar

0 500 1,000m

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LEGEND

- The Order Limits

Indicative Construction Zone

- Sunnica East 1 - 12 Months
- Sunnica East 2 - 24 Months
- Sunnica East 3 - 24 Months
- Sunnica East 4 - 9 Months
- Sunnica East 5 - 13 Months
- Sunnica East 6 - 12 Months

Access Point

- Primary Access: Construction, Operation and Decommissioning
- Crane Access: Construction, Decommissioning and for Emergency Vehicles in Operation Only
- Secondary Access: Construction and Decommissioning Only
- Secondary Access: Construction, Operation and Decommissioning
- Secondary Access: Construction, Operation and Decommissioning (Not for HGV)
- Secondary Access: Construction, Decommissioning and for Emergency Vehicles in Operation Only
- Secondary Access: Operation only

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue: FOR DCO SUBMISSION

Client: SUNNICA LTD

Project Title: sunnica energy farm

Drawing Title: FIGURE 3 SUNNICA EAST SITE ACCESS LOCATIONS

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:850,000

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A11 North

A14 West

A14 East

Sunnica East Site A

Sunnica East Site B

Sunnica West Site A

Sunnica West Site B

A

B

C

D

0 500 1,000m

N

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LEGEND

The Order Limits

Sunnica West HGV Inbound

A14 E

A14 W

A11 N

Indicative Construction Zone

Sunnica West 1 - 7 Months

Sunnica West 2 - 24 Months

Sunnica West 3 - 10 Months

Access Point

Primary Access: Construction, Operation and Decommissioning

Secondary Access: Construction, Operation and Decommissioning

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

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Project Title
sunnica energy farm

Drawing Title
FIGURE 4
SUNNICA WEST HGV INBOUND ROUTES

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
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A11 North

A14 West

A14 East

Sunnica East Site A

Sunnica East Site B

Sunnica West Site A

Sunnica West Site B

A

B

C

D

0 500 1,000m

N

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LEGEND

The Order Limits

Sunnica West HGV Outbound

A14 E

A14 W

A11 N

Indicative Construction Zone

Sunnica West 1 - 7 Months

Sunnica West 2 - 24 Months

Sunnica West 3 - 10 Months

Access Point

Primary Access: Construction, Operation and Decommissioning

Secondary Access: Construction, Operation and Decommissioning

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 5
SUNNICA WEST HGV OUTBOUND ROUTES

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:35,000

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A11 North

A14 West

A14 East

Sunnica East Site A

Sunnica East Site B

Sunnica West Site B

Sunnica West Site A

A

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LEGEND

The Order Limits

Sunnica East HGV Inbound

A14 E

A14 W

A11 N

Indicative Construction Zone

Sunnica East 1 - 12 Months

Sunnica East 2 - 24 Months

Sunnica East 3 - 24 Months

Sunnica East 4 - 9 Months

Sunnica East 5 - 13 Months

Sunnica Esat 6 - 12 Months

Access Point

Primary Access: Construction, Operation and Decommissioning

Crane Access: Construction, Decommissioning and for Emergency Vehicles in Operation Only

Secondary Access: Construction and Decommissioning Only

Secondary Access: Construction, Operation and Decommissioning

Secondary Access: Construction, Operation and Decommissioning (Not for HGV)

Secondary Access: Construction, Decommissioning and for Emergency Vehicles in Operation Only

Secondary Access: Operation only

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
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Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 6
SUNNICA EAST
HGV INBOUND ROUTES

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
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A11 North

A14 West

A14 East

Sunnica East Site A

Sunnica East Site B

Sunnica West Site B

Sunnica West Site A

A

B

C

D

E

F

G

H

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J

K

0 500 1,000m

N

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LEGEND

The Order Limits

Sunnica East HGV Outbound

A14 E

A14 S

A11 N

Indicative Construction Zone

Sunnica East 1 - 12 Months

Sunnica East 2 - 24 Months

Sunnica East 3 - 24 Months

Sunnica East 4 - 9 Months

Sunnica East 5 - 13 Months

Sunnica Esat 6 - 12 Months

Access Point

Primary Access: Construction, Operation and Decommissioning

Crane Access: Construction, Decommissioning and for Emergency Vehicles in Operation Only

Secondary Access: Construction and Decommissioning Only

Secondary Access: Construction, Operation and Decommissioning

Secondary Access: Construction, Operation and Decommissioning (Not for HGV)

Secondary Access: Construction, Decommissioning and for Emergency Vehicles in Operation Only

Secondary Access: Operation only

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
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SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 7
SUNNICA EAST
HGV OUTBOUND ROUTES

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

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555000 560000 565000

270000

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Sunnica West Site B

Burwell

Reach

Exning

Swaffham Prior

Swaffham Bulbeck

Lode

Bottisham

Stow cum Quy

Newmarket Heath

Adventurers Fen

Swaffham Prior Fen

0 500 1,000m

N

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LEGEND

- The Order Limits
- National Grid Substation Extension Burwell - Option 1
- National Grid Substation Extension Burwell - Option 2

Burwell HGV Inbound

HGV Routes

- A11 S
- A14 E
- A14 W

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title

Drawing Title
FIGURE 8
BURWELL SUBSTATION
EXTENSION HGV
INBOUND ROUTES

Drawn	Checked	Approved	Date
LL	DW	NC	08/11/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:40,000

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LEGEND

- The Order Limits
- National Grid Substation Extension Burwell - Option 1
- National Grid Substation Extension Burwell - Option 2

Burwell HGV Outbound HGV Routes

- A11 S
- A14 E
- A14 W

Sunnica West Site B

0 500 1,000m

N

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 9
BURWELL SUBSTATION
EXTENSION HGV
OUTBOUND ROUTES

Drawn	Checked	Approved	Date
LL	DW	NC	08/11/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:40,000

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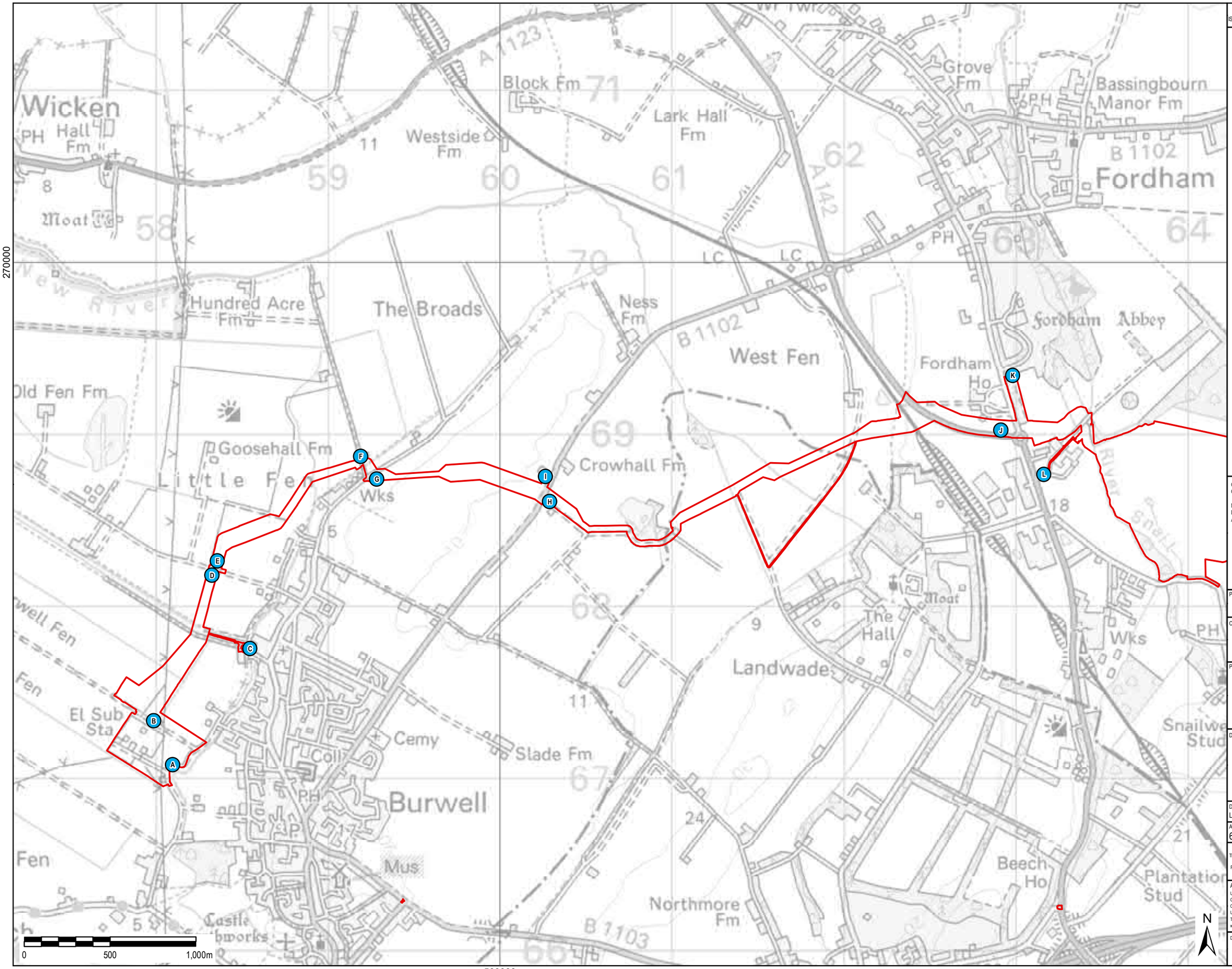

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LEGEND

- The Order Limits
- Cable Route Site Access

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title

Drawing Title
FIGURE 10
CABLE ROUTE SITE
ACCESS LOCATIONS 1

Drawn	Checked	Approved	Date
LL	DW	NC	04/11/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:20,000

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60589004_ES_CTMP_010	0

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Fordham
Chippenham
Chippenham Fen
Chippenham Lodge
Chippenham Park
Park Fm
Badlingham Manor
Leechimere Fm
Manor Fm
Fordham Abbey
Hall
Gallops
Karting
Adventure Activities
Red Lodge
Heath Plantn
Snailwell
Snailwell Stud
Foxburrow Plantn
Waterhall Fm
Water Hall
Dane Hill Fm
Tumulus
Beech Ho
Plantation Stud
Studlands Park
British Racing School
Hatchfield
Limekilns
A14
A1304
B1102
B1085
B1506

K
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0 500 1,000m

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File Name:\\eu.aecomnet.com\UKUKCBG1\Jobs\PR.334327_Sunnica_Energy_Farm\400_Technical\434_Technical Disciplines\17. GIS\Layout\ES\Chapter 13 - Transport\Framework CTMP TP\210707_SunnicaEnergyFarm_CTMP_Figure11_CableRouteSiteAccessLocations2.mxd

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LEGEND

The Order Limits

Cable Route Site

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title

Drawing Title
FIGURE 11
CABLE ROUTE SITE
ACCESS LOCATIONS 2

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:20,000

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LEGEND

The Order Limits

Cable Route Site Access

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title

Drawing Title
FIGURE 12
CABLE ROUTE SITE
ACCESS LOCATIONS 3

Drawn	Checked	Approved	Date
LL	DW	NC	20/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:20,000

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Drawing Number: 60589004_ES_CTMP_012

Rev: 0

0 500 1,000m

N

File Name:\\eu.aecomnet.com\UKUKCBG1\Jobs\PR.334327_Sunnica_Energy_Farm\400_Technical\434_Technical Disciplines\17. GIS\Layout\ES\Chapter 13 - Transport\Framework CTMP TP210707_SunnicaEnergyFarm_CTMP_Figure12_CableRouteSiteAccessLocations3.mxd

565000

570000

275000

270000

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LEGEND

The Order Limits

Cable Route Site Access

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title

Drawing Title
FIGURE 13
CABLE ROUTE SITE ACCESS LOCATIONS 4

Drawn	Checked	Approved	Date
LL	DW	NC	19/10/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:20,000

AECOM
Unit 1 Wellbrook Court,
Girton,
Cambridge, CB3 0NA
United Kingdom
Telephone (01223) 488000
www.aecom.com

Drawing Number
60589004_ES_CTMP_013

Rev
0

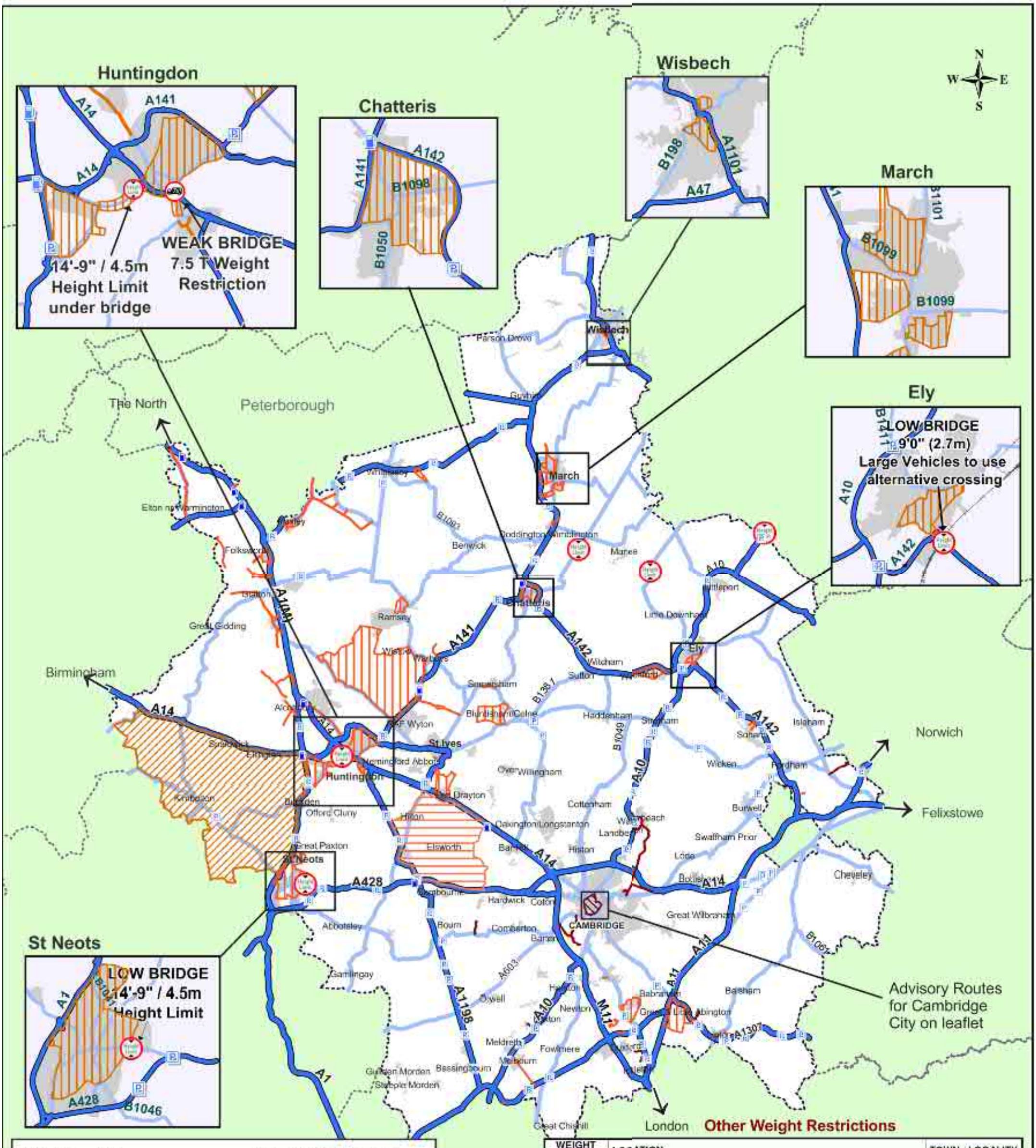
0 500 1,000m

N

File Name:\\eu.aecomnet.com\UKUKCBG1\Jobs\PR-334327_Sunnica_Energy_Farm\400_Technical\434_Technical Disciplines\17 GIS\Layout\ES\Chapter 13 - Transport\Framework CTMP TP210707_SunnicaEnergyFarm_CTMP_Figure13_CableRouteSiteAccessLocations4.mxd

Annex B – SCC Lorry Route Map and CCC Advisory Freight Map

Cambridgeshire Advisory Freight Map



HCV Route Type

- Strategic Route
- Local Route

Height Restrictions

- Height Limit

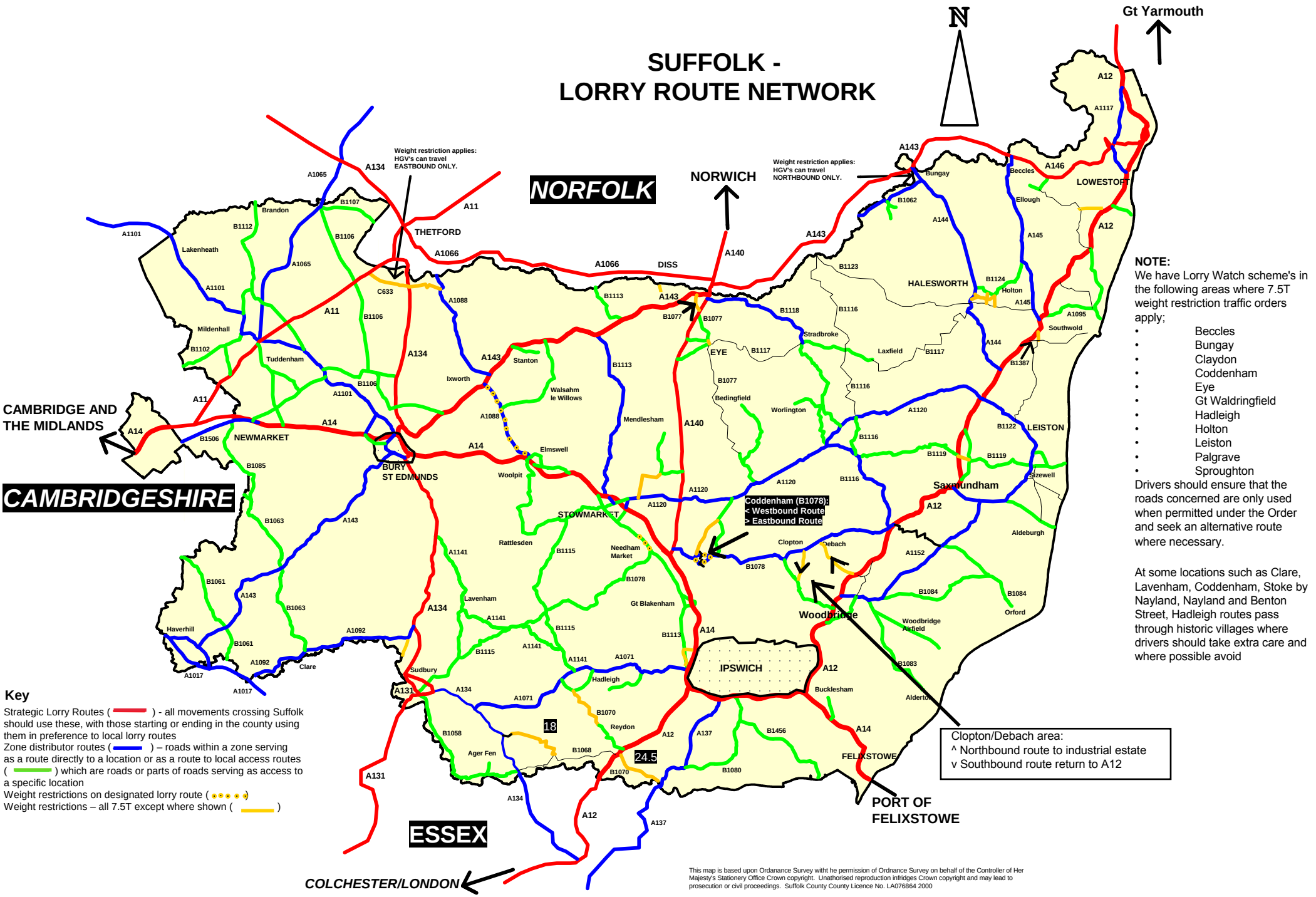
Weight Restriction Areas

- 7.5T
- 7.5 T Overnight only 23:00-07:00
- 18T
- Other Weight Restrictions (see table on right)

Other Weight Restrictions

WEIGHT LIMIT	LOCATION	TOWN / LOCALITY
2 T	Warsford Bridge [Bridge End]	Sibson
3 T	Cambridge City Centre area (see city map for further detail)	Cambridge
3 T	Bridge on Mill Road (C108)	Alconbury
3 T	Badlingham Road Bridge [New Street & Badlingham Road]	Chippenham
3 T	Horningsea Road; Clayhithe Road; Cambridge Road; Denny End Road	Waterbeach & Horningsea
3 T	Mill Way; High Street; Coton Road; Granchester Road	Grantchester
7.5 T	Gilbert Road. Overnight only (22:00-07:00)	Cambridge
7.5 T	High Street (Church Street to Green End Road), Church Street (Chapel Street to St Andrews Road), Chapel Street, Union Lane, Scotland Road	Chesterton, Cambridge
8 T	Shepreth Mill Bridge [Fowlmere Road]	Shepreth
11 T	Main Street	Caldecote/Kingston
12 T	High Street	Hildersham
18 T	Horningsea Road, Ditton Lane, High Ditch Road	Fen Ditton
20 T	Ickleton Road and Duxford Road	Hinxton

SUFFOLK - LORRY ROUTE NETWORK



Key

Strategic Lorry Routes ( ) - all movements crossing Suffolk should use these, with those starting or ending in the county using them in preference to local lorry routes

Zone distributor routes ( ) – roads within a zone serving as a route directly to a location or as a route to local access routes ( ) which are roads or parts of roads serving as access to a specific location

Weight restrictions on designated lorry route ( )

Weight restrictions – all 7.5T except where shown ( )

NOTE:

We have Lorry Watch scheme's in the following areas where 7.5T weight restriction traffic orders apply;

- Beccles
- Bungay
- Claydon
- Coddenham
- Eye
- Gt Waldringfield
- Hadleigh
- Holton
- Leiston
- Palgrave
- Sproughton

Drivers should ensure that the roads concerned are only used when permitted under the Order and seek an alternative route where necessary.

At some locations such as Clare, Lavenham, Coddenham, Stoke by Nayland, Nayland and Benton Street, Hadleigh routes pass through historic villages where drivers should take extra care and where possible avoid

Annex C – Sunnica East, Sunnica West and Grid Connection Route A and Grid Connection Route B Site Access Reviews

Annex C1: Sunnica East and Sunnica West Site Accesses Review

Swept Path Analysis

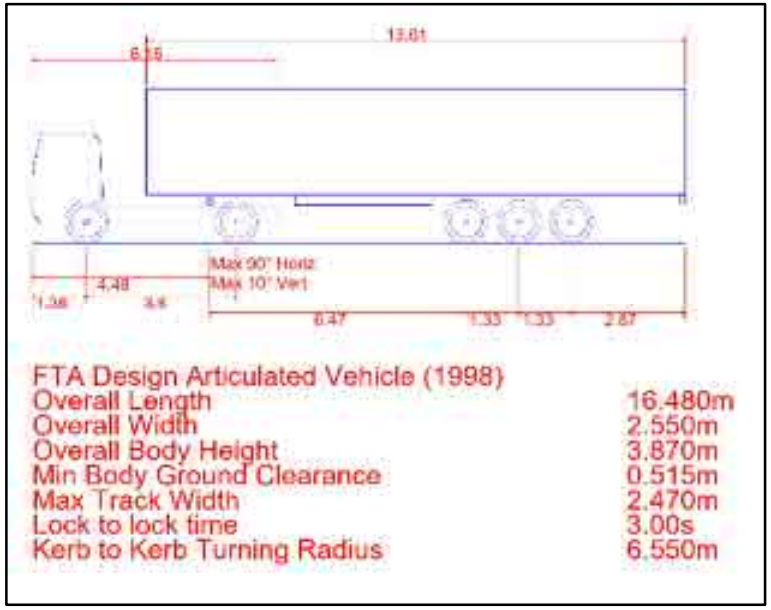


Figure 0-1: Swept Path Analysis Vehicle Profile: 16.5m Articulated Lorry

Access Review

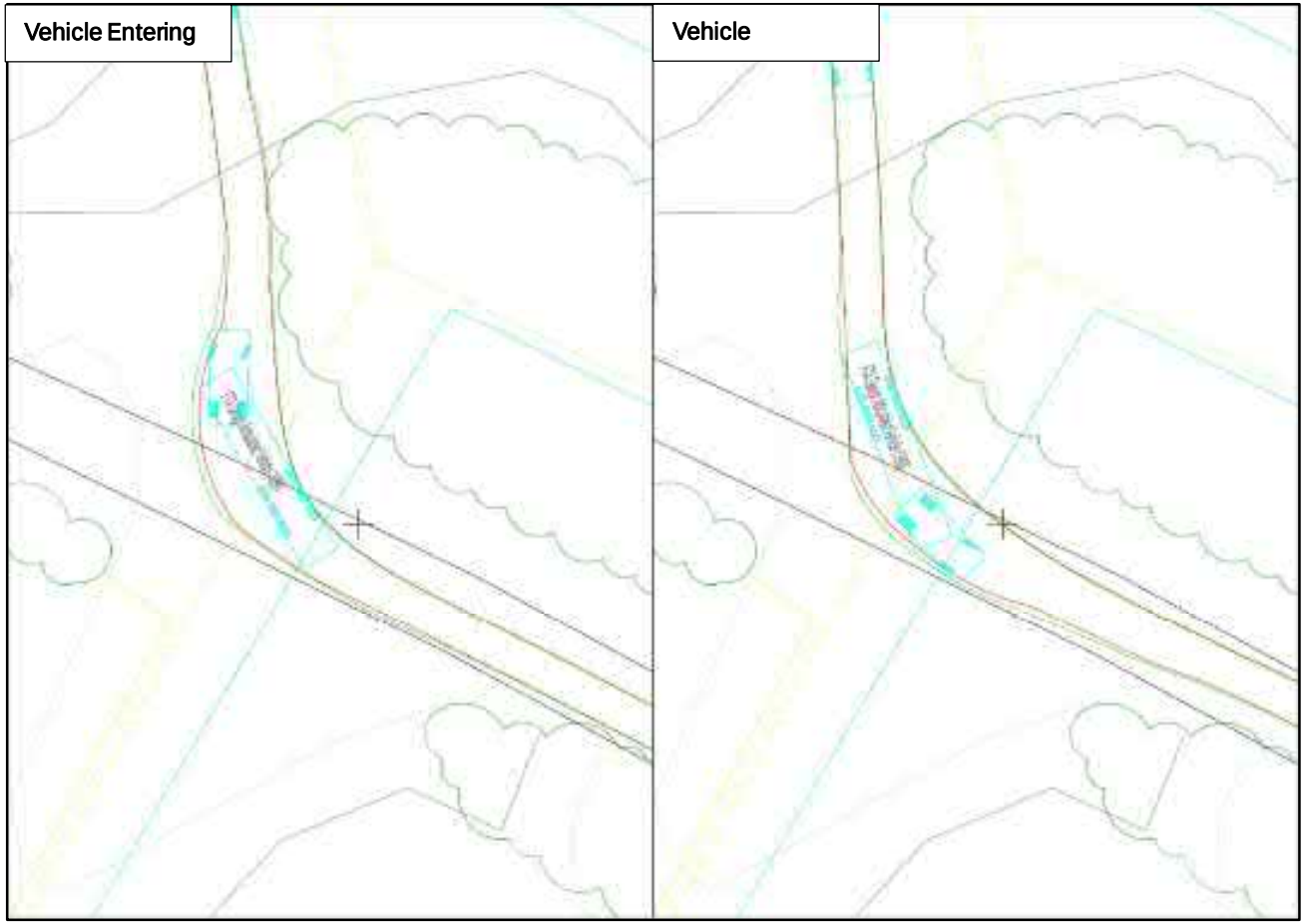
Table 1: Sunnica East – Access A

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	A	Elms Road	• Single unmade field access heavily overgrown with vegetation previously utilised by agricultural vehicles. • Elms Road is narrow but is generally wide enough for two cars to pass however HGVs cannot pass apart from at limited passing paces. The road is signposted as being unsuitable for heavy goods vehicles. • This will form the main access for East Site and will provide access to the East Site parking for workers.	• Junction arrangement has been considered based on the vehicle tracking and base mapping shown in Figure 3. This illustrates the site access likely requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (right turn in) and will egress the access to the south (left turn out).

Figure 2: Sunnica East – Access A – Visibility Splay and Site Visit Photos

x

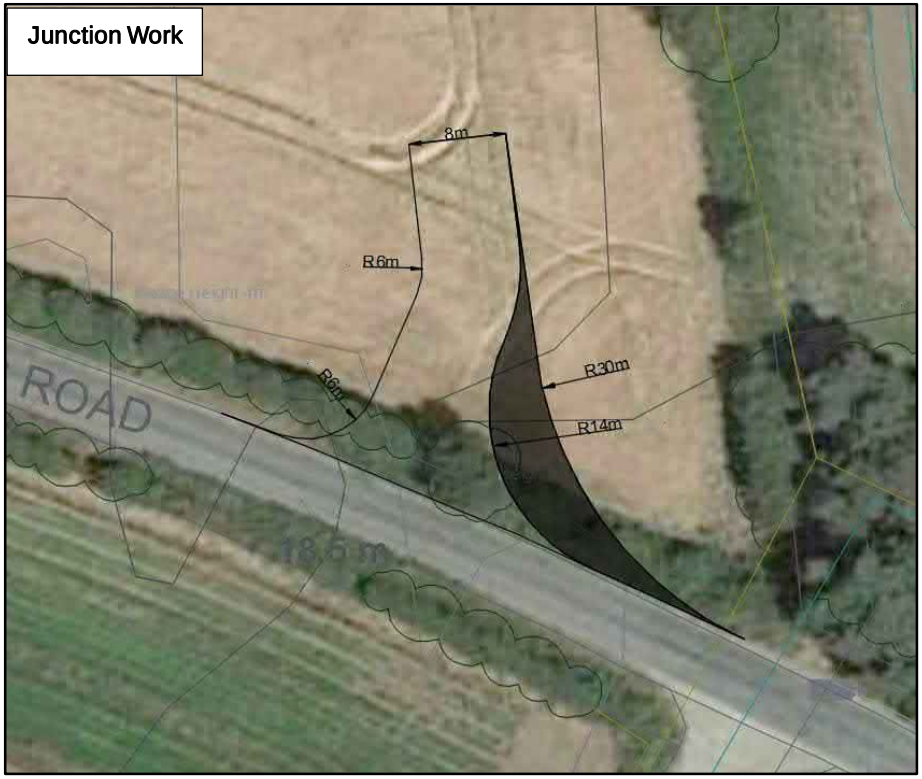
Figure 3: Sunnica East – Access A – Vehicle Tracking




View of the existing access


View of the existing trees adjacent to the

Figure 4: Sunnica East – Access A – Junction Work



The hatched area in the above figure identifies the additional area required to accommodate the crane(s).

Table 2: Sunnica East – Access B

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	B	Elms Road	• Gated 5.5m wide unmade field access currently used by agricultural vehicles. • Elms Road is narrow but is generally wide enough for two cars to pass however HGVs cannot pass apart from at limited passing paces. The road is signposted as being unsuitable for heavy goods vehicles.	• The visibility can be achieved, with limited/minimal removal of vegetation required, although some cutting back and reduction in height of hedgerow to be undertaken. • The photos shown in Figure 5 illustrate the vegetation / hedgerow to be cut back in line with the visibility splay. • Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 6. This illustrates the site access requires widening to accommodate a 16.5m artic, with fencing to be removed with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (right turn in) and will the access to the south (left turn out).

Figure 5: Sunnica East – Access B – Visibility Splay and Site Visit Photos

Figure 6: Sunnica East – Access B – Vehicle Tracking

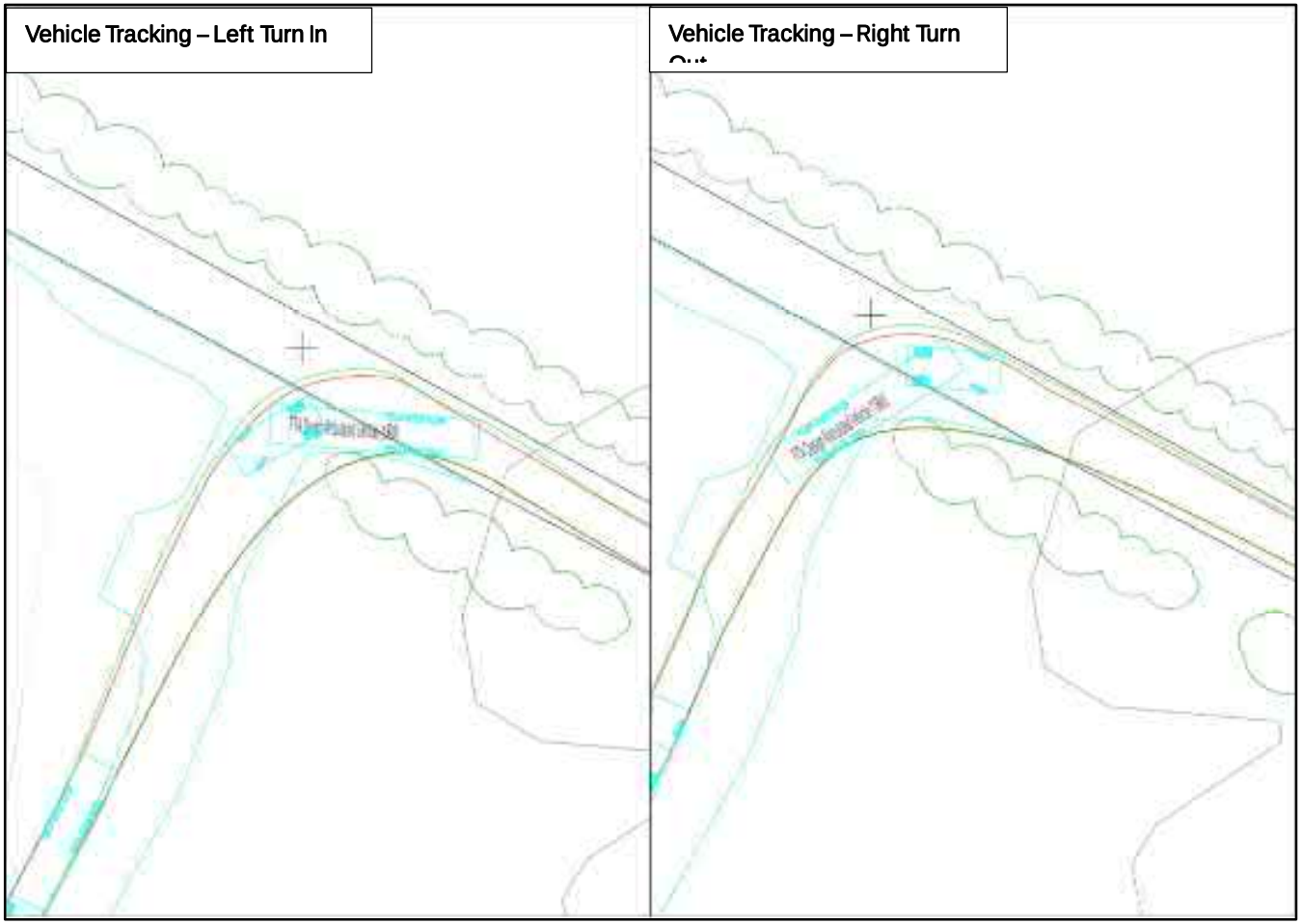


Figure 7: Sunnica East – Access B – Junction Work

Table 3: Sunnica East – Access C

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	C	Elms Road	• Gated 5.5m wide access currently used by agricultural vehicles. • Elms Road is narrow but is generally wide enough for two cars to pass however HGVs cannot pass apart from at limited passing paces. The road is signposted as being unsuitable for heavy goods vehicles.	• The visibility can be achieved, and no significant removal of vegetation required, although some cutting back and reduction in height of hedgerow to be undertaken. • The photos shown in Figure 8 illustrate the vegetation / hedgerow to be cut back in line with the visibility splay. • Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 9. This illustrates the site access requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (right turn in) and will egress the access to the south (left turn out).

Figure 8: Sunnica East – Access C – Visibility Splay and Site Visit Photos

Figure 9: Sunnica East – Access C – Vehicle Tracking

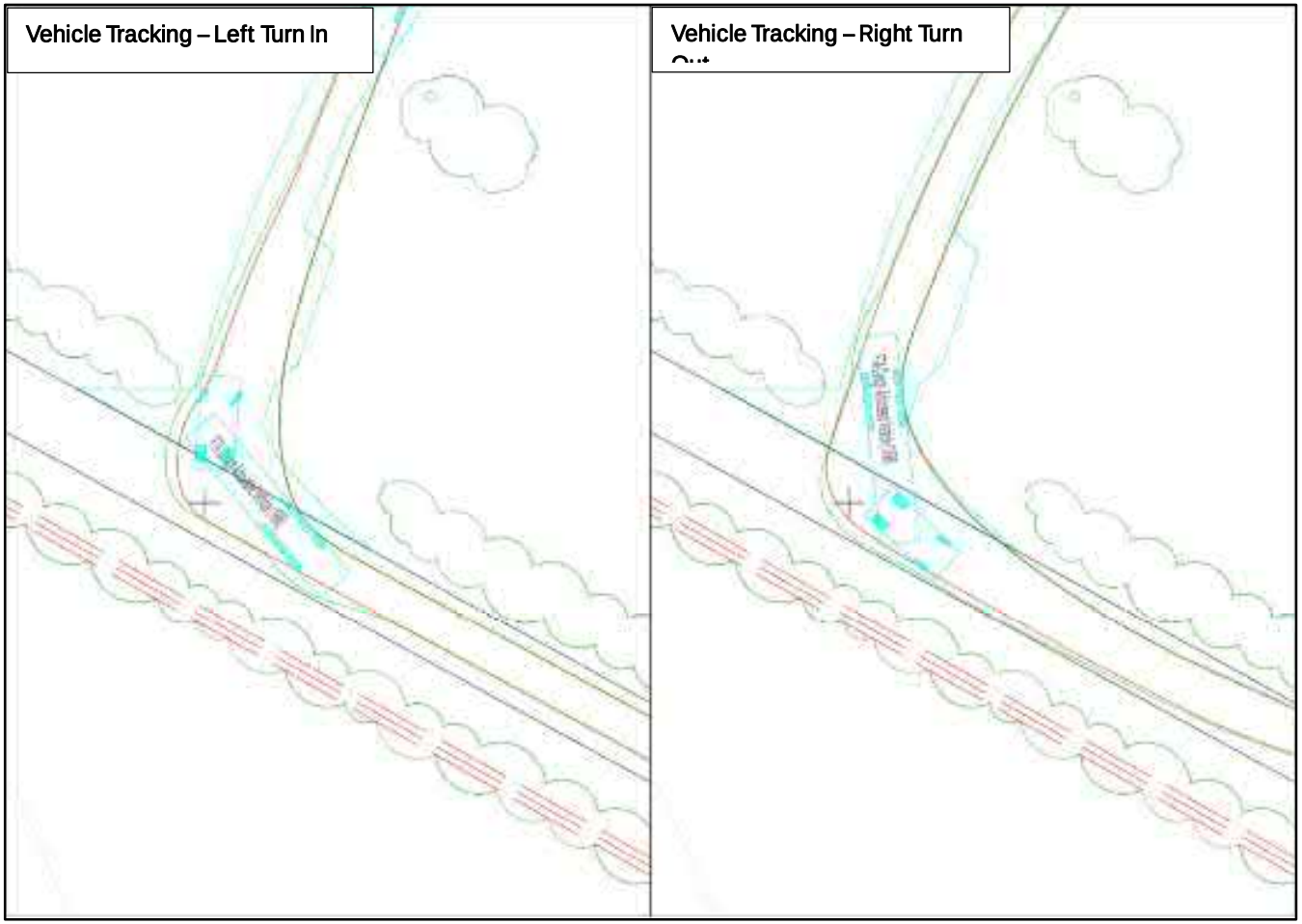


Figure 10: Sunnica East – Access C – Junction Work

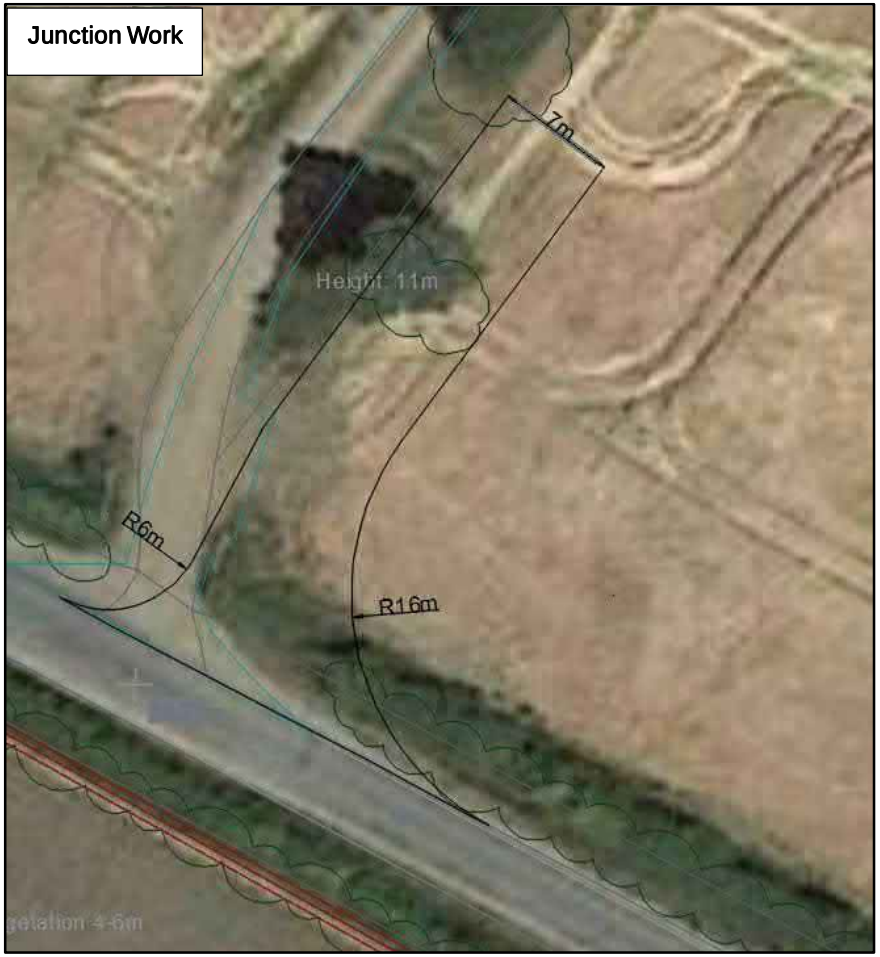


Table 4: Sunnica East – Access D

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	D	Newmarket Road	• 3.5m wide gravel access used by agricultural vehicles. • Newmarket Road provides two-way vehicle movements and is generally a straight section of road providing good forward visibility between Red Lodge and Worlington with some minor bends in the road.	• Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 12. This illustrates the site access requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (left turn in) and will egress the access to the south (right turn out).

Figure 11: Sunnica East – Access D – Visibility Splay and Site Visit Photos

Figure 12: Sunnica East – Access D – Vehicle Tracking

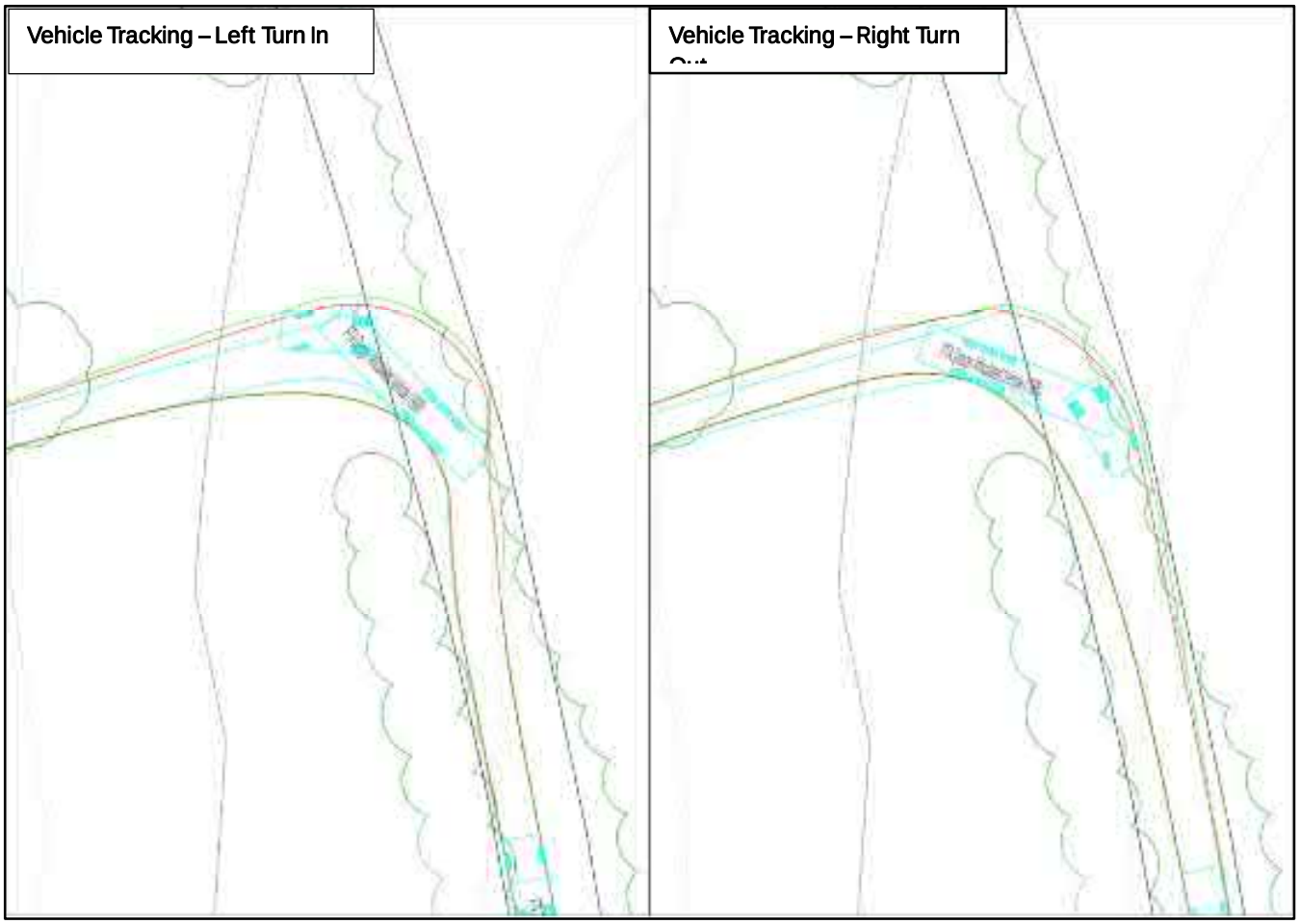


Figure 13: Sunnica East – Access D – Junction Work

Table 5: Sunnica East – Access E

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	E	Ferry Lane	• 4.5m wide gravel farm access road, including triangular 'island'.	• The visibility can be achieved, and no significant removal of vegetation required, although some cutting back and reduction in height of hedgerow to be undertaken. This includes the tree adjacent to the access shown in Figure 14. The visibility splay has been based on the use of the southernmost of the two access points as the visibility of to the right from the other access is constrained by the bend in the road and consideration should be given to temporally closing that part of the junction. • The photos shown in Figure 14 illustrate the vegetation / hedgerow to be cut back / reduced in height in line with the visibility splay. • Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 15 which indicates no adjustments are required to the access junction to accommodate a 16.5m artic. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (left turn in) and will egress the access to the south (right turn out).

Figure 14: Sunnica East – Access E – Visibility Splay and Site Visit Photos

Site Access View: Left

Site Access View: Right

Figure 15: Sunnica East – Access E – Vehicle Tracking

View of the access

Figure 16: Sunnica East – Access E – Junction Work

Table 6: Sunnica East – Access F

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	F	Beck Road	• 6m wide unmade access track used by agricultural vehicles, bounded by concrete slab. • The access is located on the straight section of Beck Road providing good forward visibility.	• The visibility can be achieved, and no significant removal of vegetation required, although some cutting back and reduction in height of hedgerow to be undertaken. • The photos shown in Figure 17 illustrate the vegetation / hedgerow to be cut back / reduced in height in line with the visibility splay. • Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 18 which indicates no adjustments are required to the access junction to accommodate a 16.5m artic although hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (right turn in) and will egress the access to the south (left turn out).

Figure 17: Sunnica East – Access F – Visibility Splay and Site Visit Photos

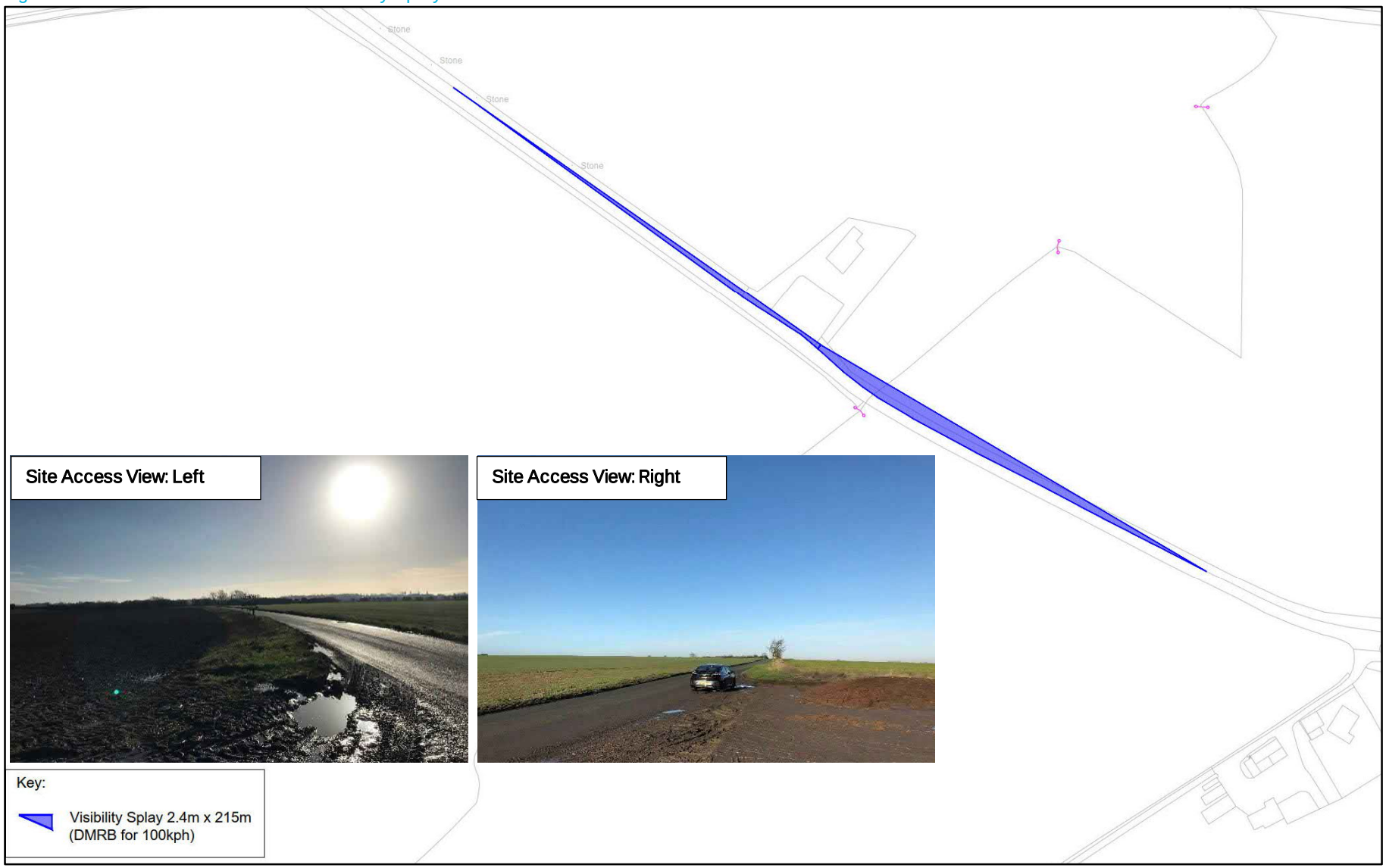
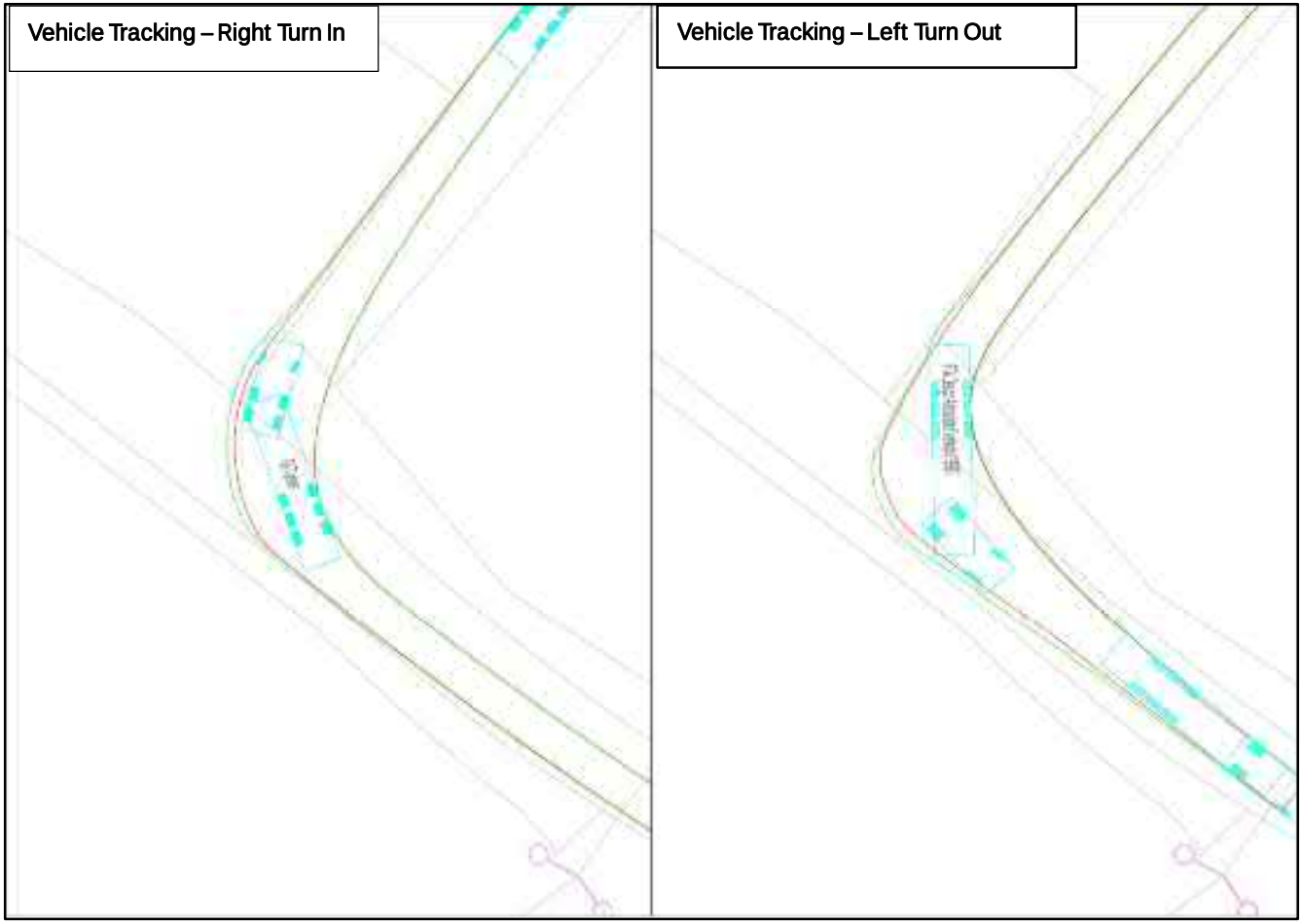


Figure 18: Sunnica East – Access F – Vehicle Tracking



View of the

Figure 19: Sunnica East – Access F – Junction Work

Table 7: Sunnica East – Access H

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	-	Newmarket Road	• Currently no existing access shown in Google Street View. • Newmarket Road provides two-way vehicle movements and is generally a straight section of road providing good forward visibility between Red Lodge and Worlington with some minor bends in the road.	• To be located opposite Site Access D forming a crossroad junction during the construction phase. • Site visit photos of the existing access to be used during the operational phase are shown below which is accessed from Golf Links Road.

Figure 20: Sunnica East – Access H – Junction Work

Table 8: Sunnica East – Access I

Authority	Ref.	Road	Description of Existing Access	Comments
SCC	I	Golf Links Road	• 3.5m wide unmade field access used by agricultural vehicles. • Golf Links Road is narrow carriageway not suitable for two-way HGV movements. • Limited passing places along Golf Links Road.	• Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 23. This illustrates the site access should be able to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the north (right turn in) and will egress the access to the north (left turn out), as to avoid the A11/Newmarket Road junction. • Vehicle movements along Golf Links Road to be managed to facilitate safe access and egress of vehicles along this road due to its narrow nature which is not considered able to accommodate two-way HGV movements.

Figure 21: Sunnica East – Access J Operational Phase – Site Visit Photos (to be used during the operational phase)

View Left

View Right

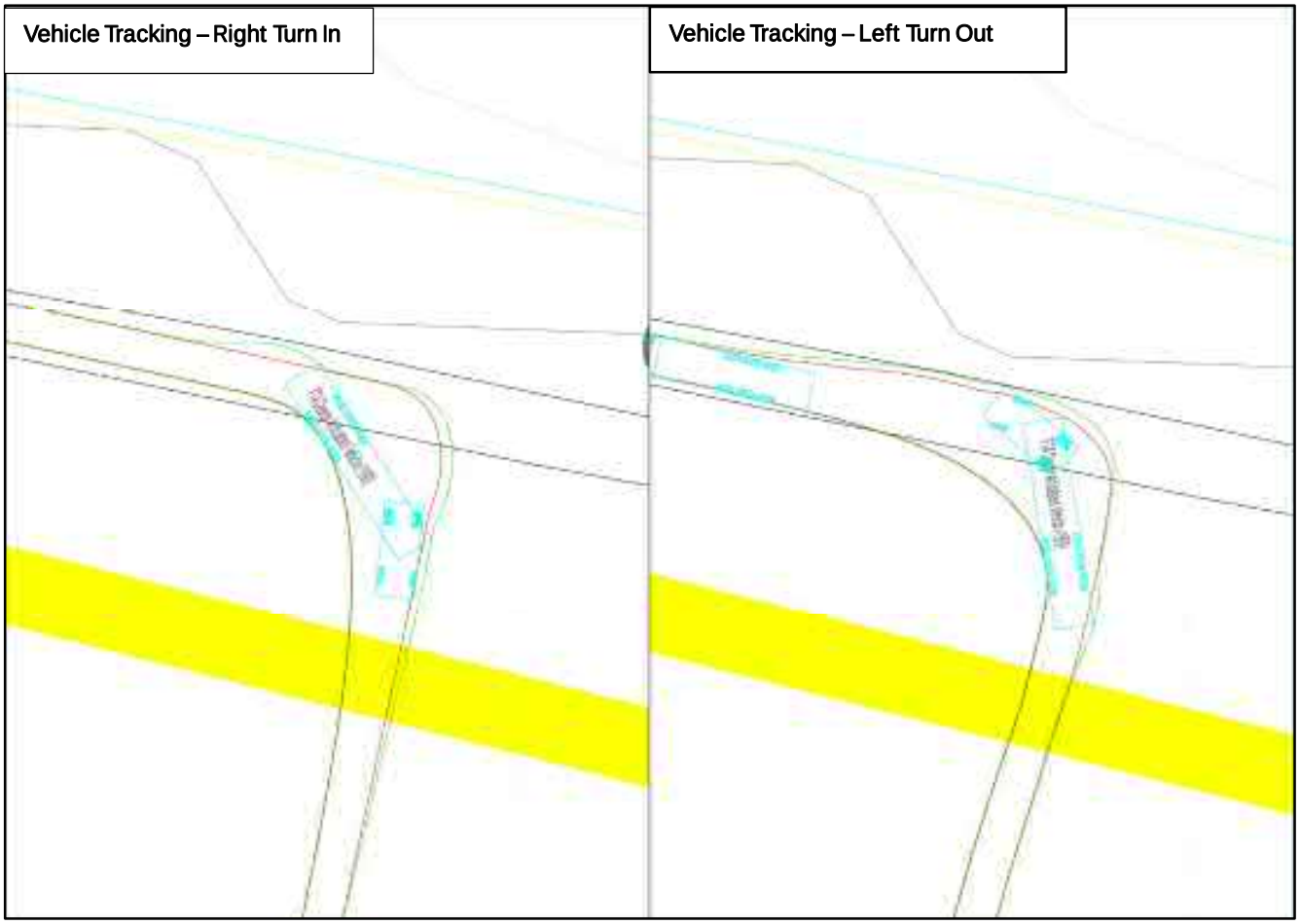
Access

Access

Figure 22: Sunnica East – Access I – Visibility Splay and Site Visit Photos
Site access not to be used during the construction phase and only to be used in the operational phase

Figure 23: Sunnica East – Vehicle Tracking for Golf Links Road Site Access

Site access not to be used during the construction phase and only to be used in the operational phase. See Stage 1 Road Safety Audit for further details of the proposed site access location during the construction phase.



View of the access

View of the access

Figure 24: Sunnica East – Junction Works for Golf Links Road Site Access
Site access not to be used during the construction phase and only to be used in the operational phase. See Stage 1 Road Safety Audit for further details of the proposed site access location during the construction phase.

Table 9: Sunnica West – Access A

Authority	Ref.	Road	Description of Existing Access	Comments
CCC	A	La Hogue Road	• 3.5m wide farm access packed gravel and dirt used by agricultural vehicles. • Forms a crossroad with La Hogue farm shop access. • This will form the main access for West Site and will provide access to the West Site parking for workers.	• The photos shown in Figure 25 illustrate the vegetation / hedgerow to be removed / cut back in line with the visibility splay. • Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 26. This illustrates the site access can accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • It should be noted that this is the main site access for Sunnica West and is where the construction staff will park their vehicles. It is therefore anticipated that the access would be sufficiently sized to provide two-way movement for cars/light vehicles. • Based on the vehicle routes identified in the access strategy vehicles will enter the access from the south (left turn in) and will egress the access to the south (right turn out). • The main Sunnica West staff car park is accessed via Access A would be expected to be managed through a Travel Plan however a Travel Plan has not been commissioned at this stage.

Figure 25: Sunnica West– Access A – Visibility Splay and Site Visit Photos

Figure 26: Sunnica West– Access A – Vehicle Tracking

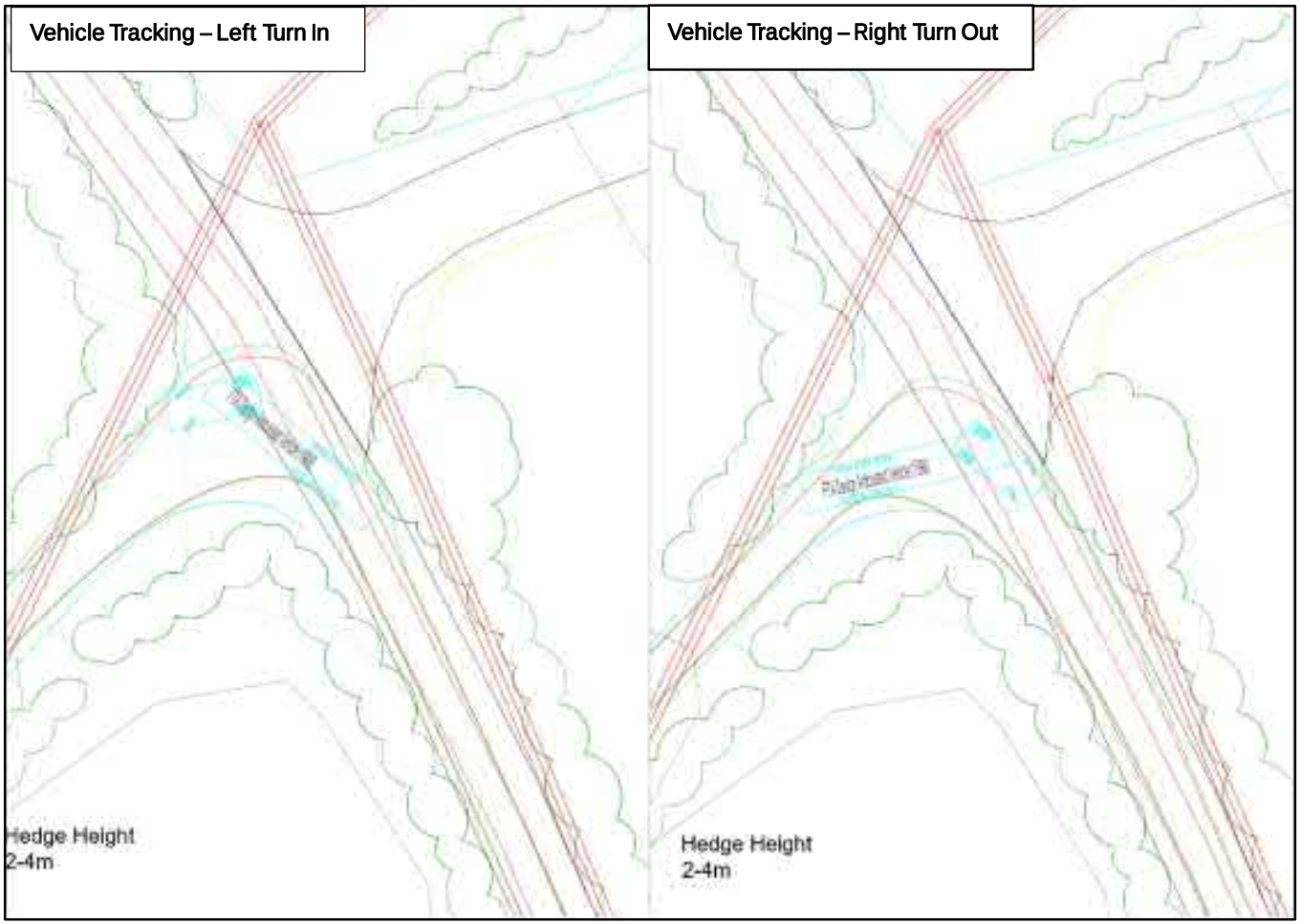


Figure 27: Sunnica West – Access A – Junction Work

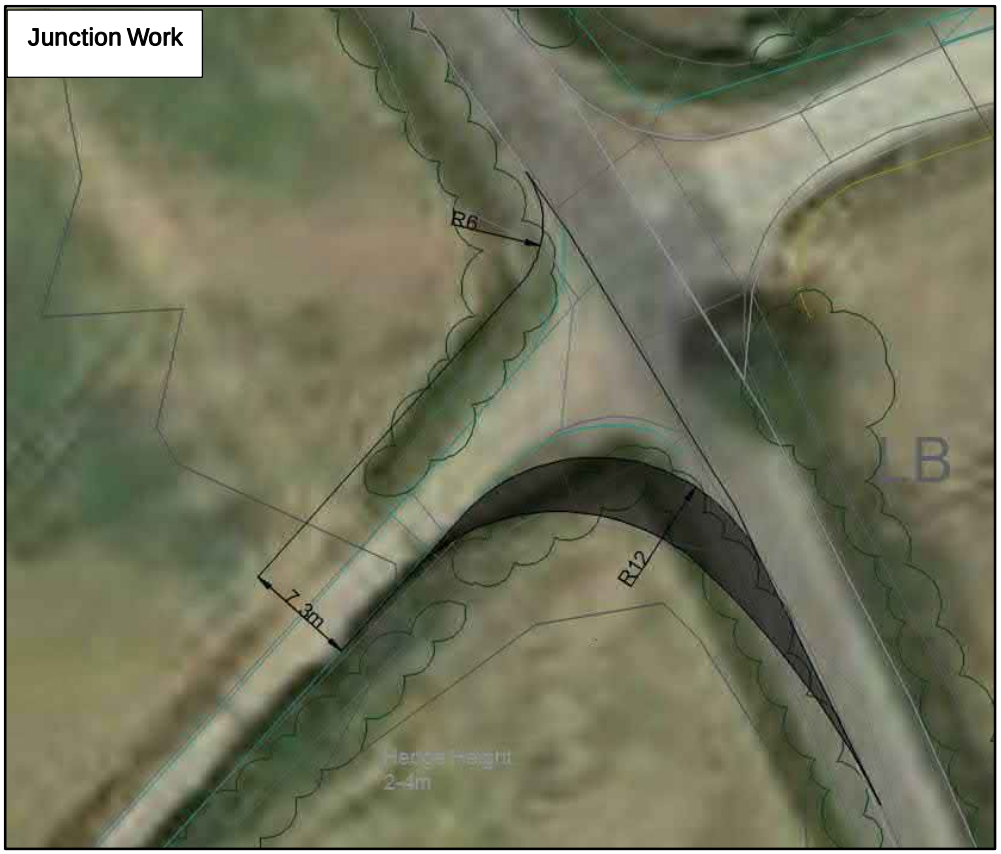


Table 10: Sunnica West– Access B and Cable Route Site Access M

Authority	Ref.	Road	Description of Existing Access	Comments
CCC	B	Chippenham Road	• 2.4m wide unmade track used by agricultural vehicles. • Chippenham Road is a long straight road with very good forward visibility. • Row of trees lined on either side of the carriageway edge.	• The trees which are lined along both sides of the Chippenham Road carriageway are much more established than in the Google Map imagines. As the site visit was undertaken in February 2021 the tree canopies are without leaves whereas in spring and summer the tree canopies will be full and could obstruct visibility for HGVs egressing the site access. It is also considered the likely vehicle speeds along Chippenham Road to potentially be close to the national speed limit given the straight nature of the road with very good forward visibility. • Junction arrangement has been considered for access B based on the vehicle tracking and base mapping as shown in Figure 25. This illustrates the site access requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Junction arrangement has been considered for access G based on the vehicle tracking and base mapping as shown in Figure 27. This illustrates the site access likely requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. Particular consideration should be given to the trees directly adjacent to site access G as illustrated in Figure 32 as no topographical survey information was available to assess the impact of the size of the tree canopy has on the width of the access. • Based on the vehicle routes identified in the access strategy, for both access B and H, vehicles will enter the access from the south-west (right turn in) and will egress the access to the south-west right turn out).
CCC	Cable Route Site Access M		• 3.5m dirt tracked by agricultural vehicles. • Chippenham Road is a long straight road with very good forward visibility. • Row of trees lined on either side of the carriageway edge.	

It is noted that when the site access review was undertaken, cable route site access M was part of the Sunnica West site access strategy.

Figure 28: Sunnica West– Access B – Visibility Splay and Site Visit Photos

Site Access View: Left

Site Access View: Right

Figure 29: Sunnica West– Access B – Vehicle Tracking

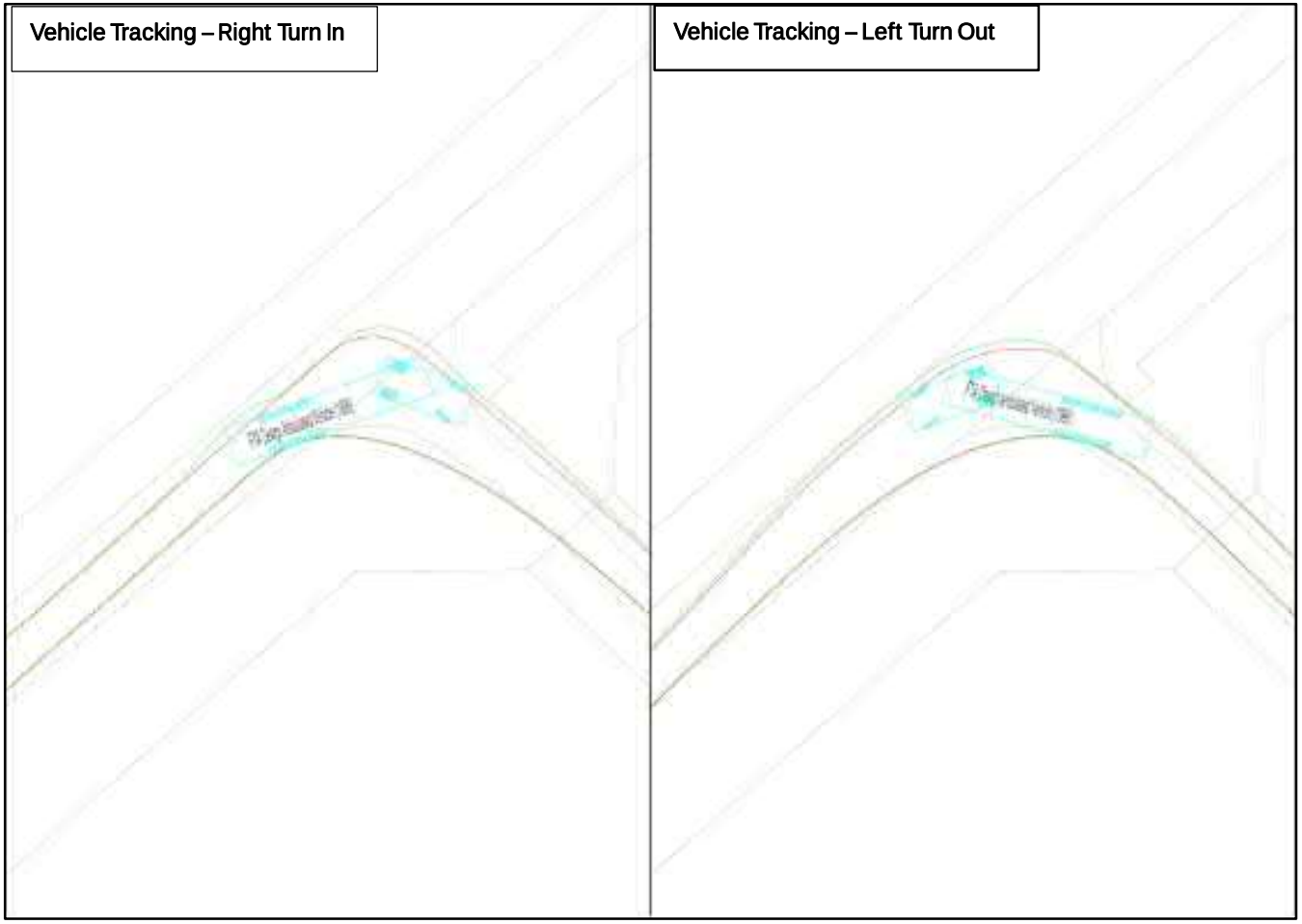
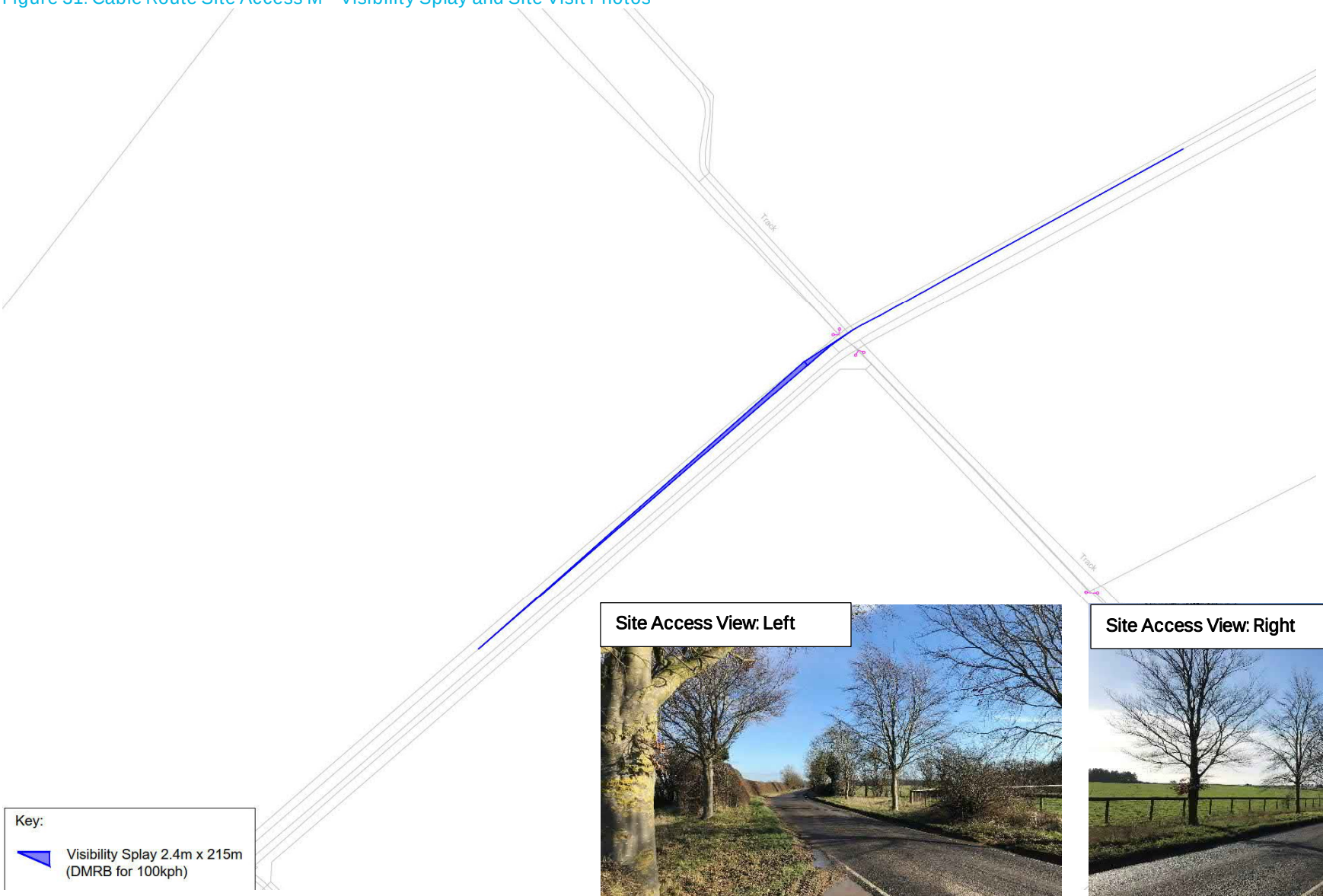


Figure 30: Sunnica West – Access B – Junction Work

Figure 31: Cable Route Site Access M – Visibility Splay and Site Visit Photos



Site Access View: Left

Site Access View: Right

Figure 32: Cable Route Site Access M – Vehicle Tracking

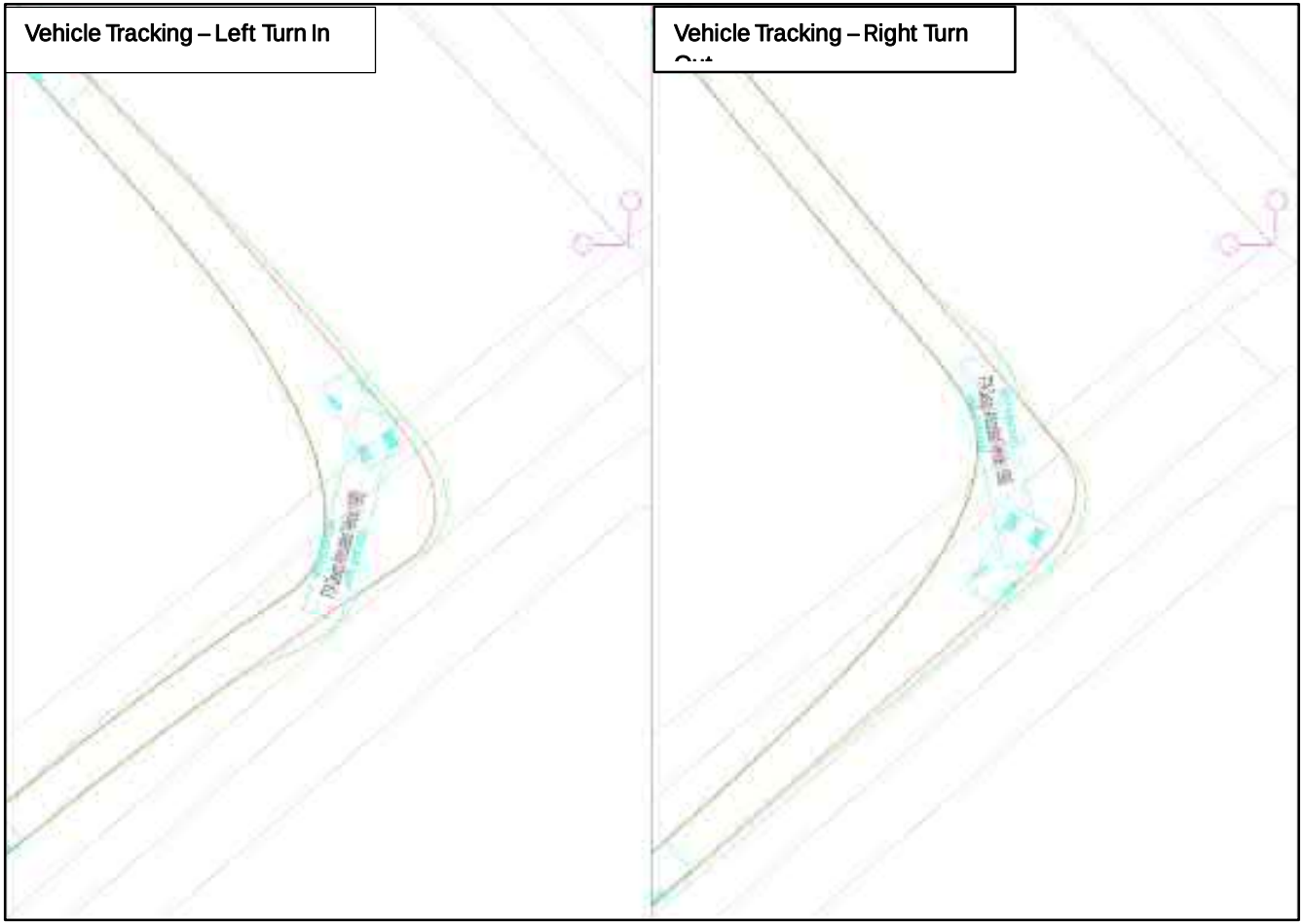


Figure 33: Cable Route Site Access M – Junction Work

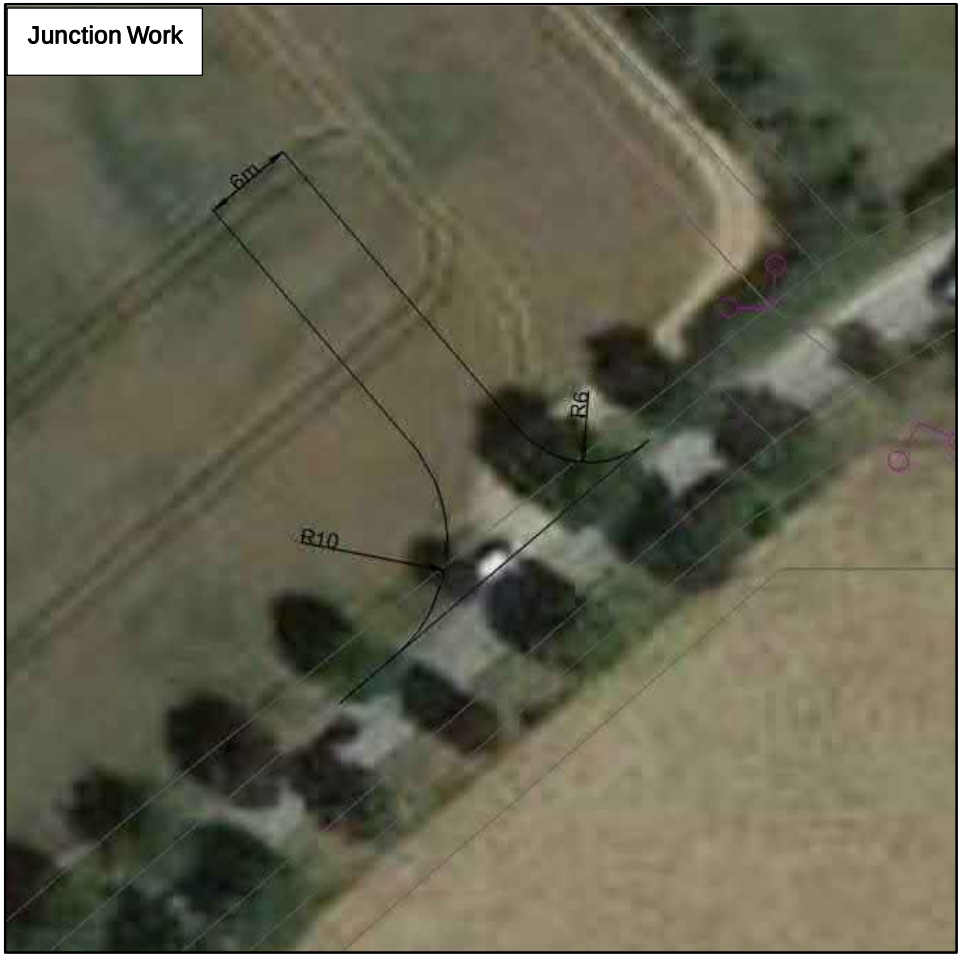


Table 11: Sunnica West– Access C

Authority	Ref.	Road	Description of Existing Access	Comments
CCC	E	Dane Hill Road	• Existing 5.5m gated access to farm. • Established trees on both side of the access. • Dane Hill Road increases in elevation to the west of the site access on the approach to the roundabout. • The site access is located on the curvature of the road opposite a small number of residential properties.	• Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 35. This illustrates the access likely requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy, vehicles will enter the access from the north (right turn in) and will egress the access to the north left turn out).

Figure 34: Sunnica West– Access C – Visibility Splay and Site Visit Photos

Key:

Visibility Splay 2.4m x 215m (DMRB for 100kph)

Site Access View: Left

Site Access View: Right

Figure 35: Sunnica West– Access C – Vehicle Tracking (Entry and Egress)

View of the access

View of the access

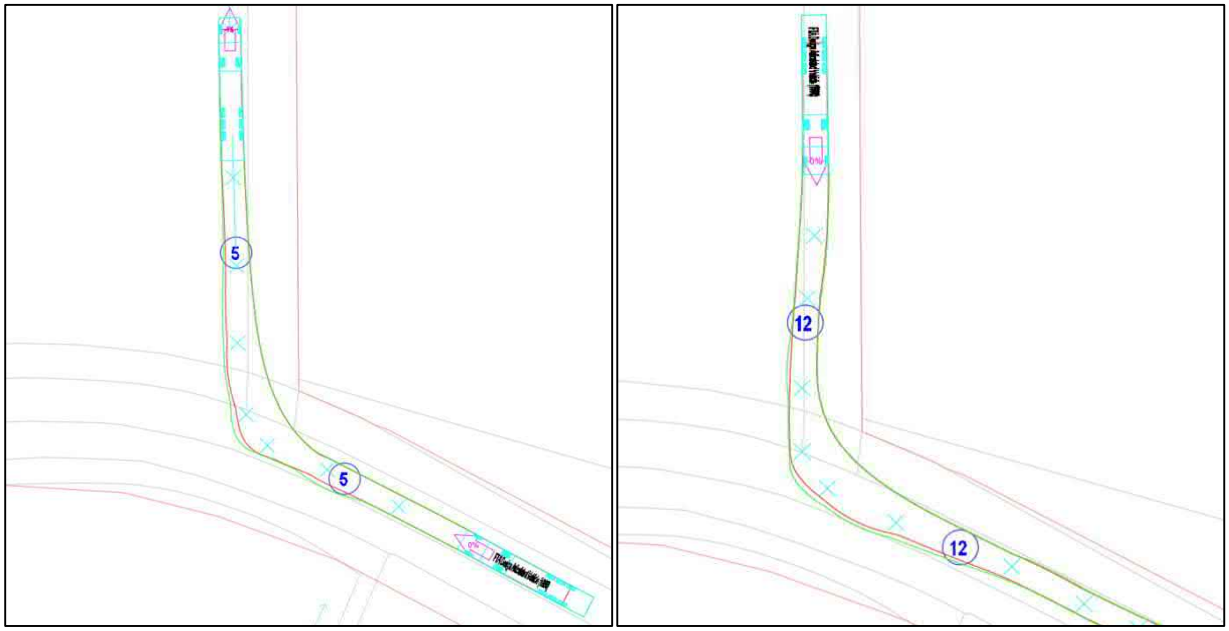
Figure 36: Sunnica West – Access C – Junction Work

Table 12: Sunnica West– Access D

Authority	Ref.	Road	Description of Existing Access	Comments
CCC	F	Fordham Road	• 5.5m unmade field access. • Fordham Road in the location characterised by successive sharp bends with mature trees and hedgerow. on both sides of the road. • Narrow bridge with weight restriction of 7.5T located on Fordham Road to the north of the site access.	• Junction arrangement has been considered based on the vehicle tracking and base mapping as shown in Figure 38. This illustrates the access likely requires widening to accommodate a 16.5m artic with hard surfacing to be provided. This is based on a single vehicle accessing/egressing at any one time. • Based on the vehicle routes identified in the access strategy and considering the nearly bridge with a weight limit, vehicles will enter the access from the south (right turn in) and will egress the access to the south left turn out).

Figure 37: Sunnica West– Access D – Visibility Splay and Site Visit Photos

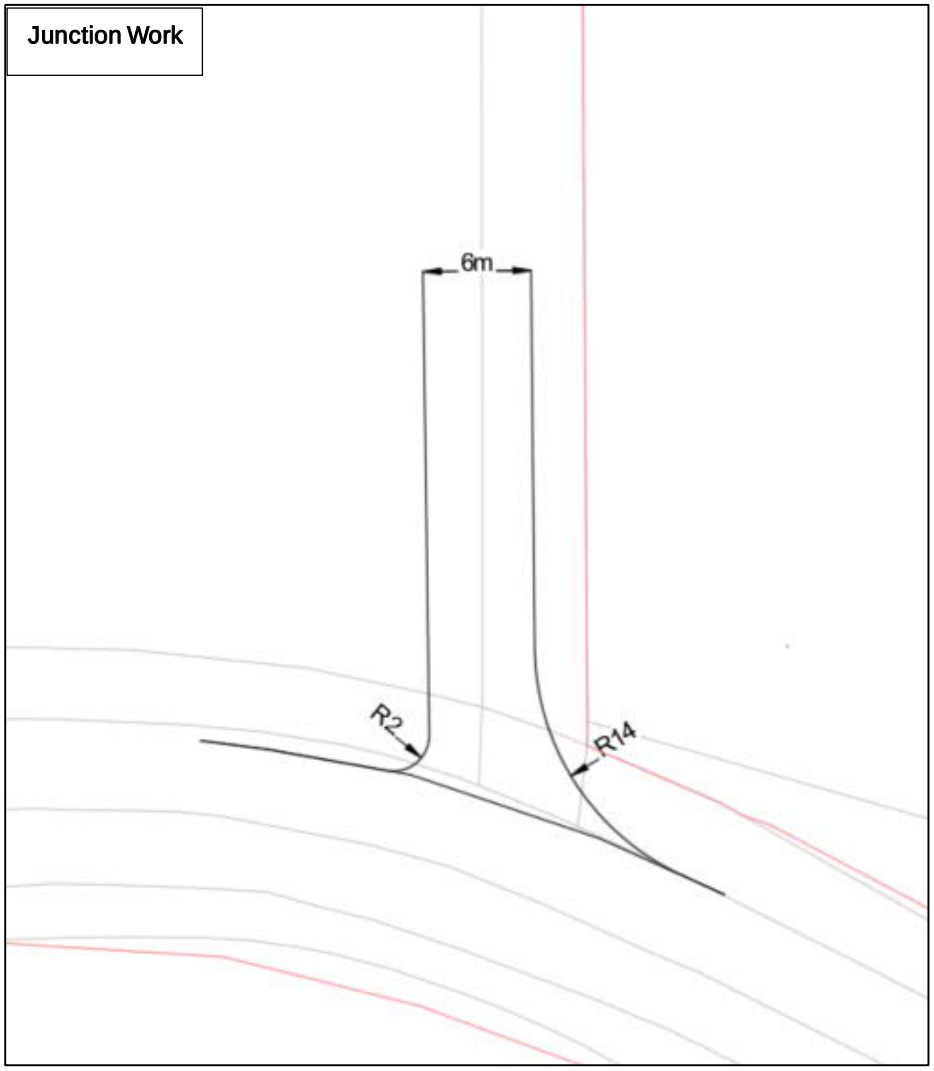
Figure 38: Sunnica West– Access D – Vehicle Tracking (Entry and Egress)



View of the access

View of the nearby narrow bridge with weight restriction

Figure 39: Sunnica West – Access D – Junction Work



Annex C2: Grid Connection Route A and Grid Connection Route B Site Access Review

Table 1: Burwell National Grid Substation Extension Option 1

A previously site access location was originally considered as part of the Grid Connection Route A and Grid Connection Route B site access review for vehicles to enter and egress the Burwell National Grid Substation Extension Option 1 location. As information is provided within the Framework CTMP and TP document regarding the proposed site access for Burwell National Grid Substation Extension Option 1 location, the previous review of the site access has been removed for clarity.

Table 2: Burwell National Grid Substation Extension Option 2

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Newnham Drove (East)	• The site access is 5m wide into via an unmade field access (previously gated). • Established vegetation surrounding the access. • Newham Drove is approximately 3m wide. • Newham Drove is a straight no through road with hedgerows and mature trees on both sides of the road. • During the site visit the access was viewed to have a lot of mud along Newham Drove and at the access point.	• 16.5m artic • Left in, Right out	• 60mph (2.4m x 215m)

Figure 1: Option 2 – Visibility Splay and Site Visit Photos

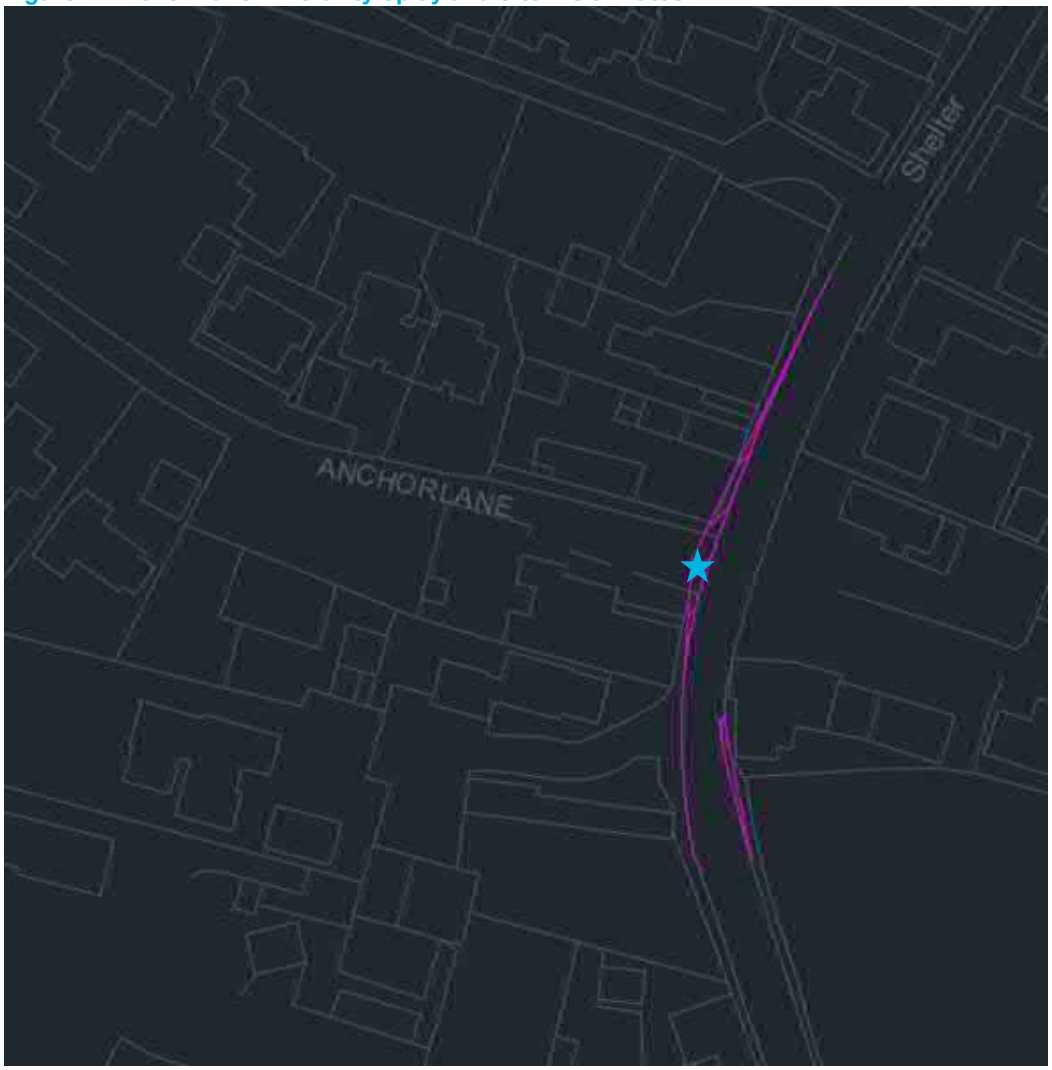
Figure 2: Option 2– Vehicle Tracking (Entry and Egress)

Figure 3: Option 2 – Indicative Junction Works Area

Table 3: Anchor Lane

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Anchor Lane	• The site access is located via a farm access from Anchor Lane behind the Anchor Pub. • Anchor Lane is a narrow road behind The Anchor pub with a building and fencing on either side of the road. • There are mature trees present along the south side of Anchor Lane. • There is a narrow bridge crossing from Anchor Lane to Weirs Drove and the farm access. • The route through Anchor Lane Farm is characterised by successive sharp turns over the bridge and through the farm.	• 16.5m artic • 10m rigid • 8m rigid • Left in, Right out	• 30mph 2.4m x 43m based on Manual for Streets guidance for 30mph within a residential area

Figure 4: Anchor Lane – Visibility Splay and Site Visit Photos



Site Access View: Left

Site Access View: Right

Figure 5: Anchor Lane – Vehicle Tracking (Entry)

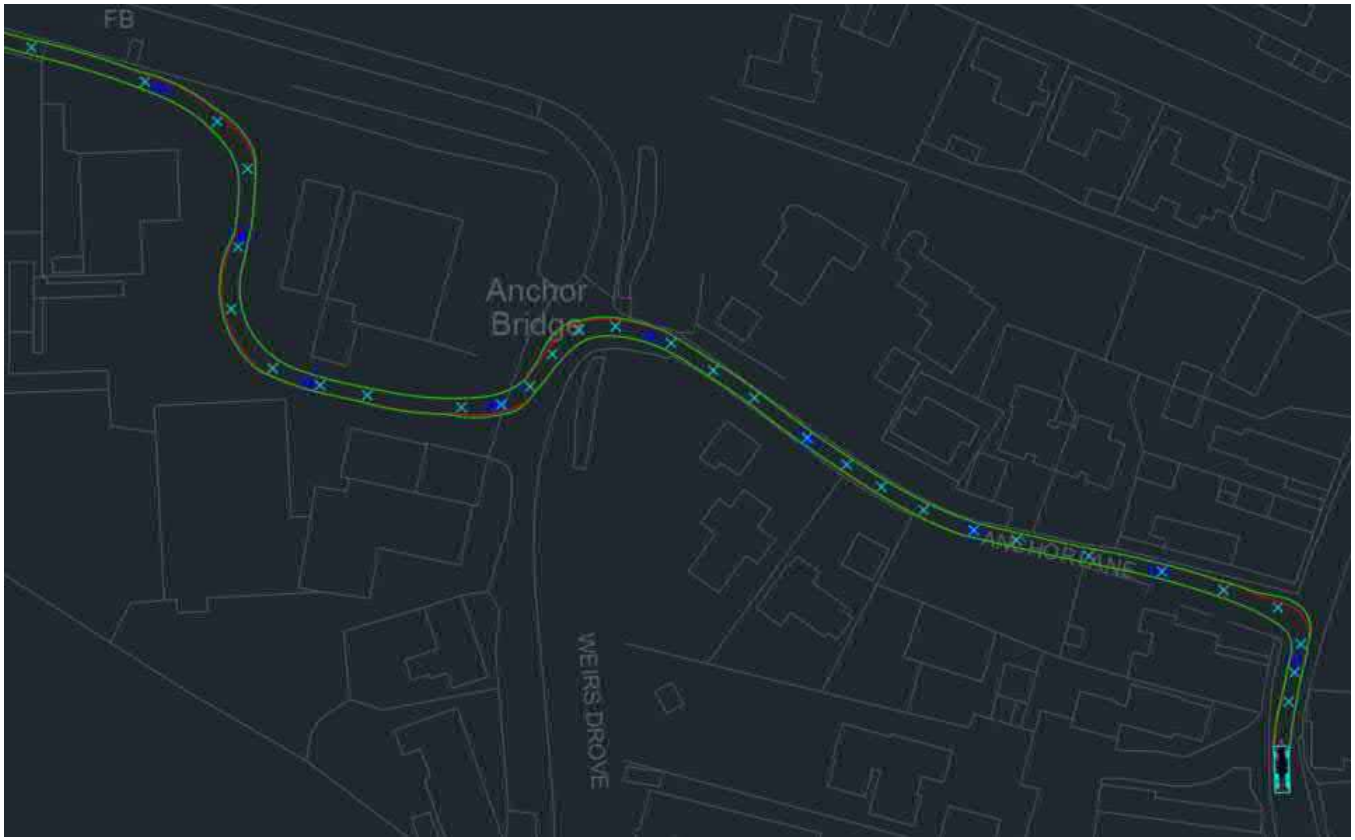


Figure 6: Vehicle Tracking Profile – 8m Rigid

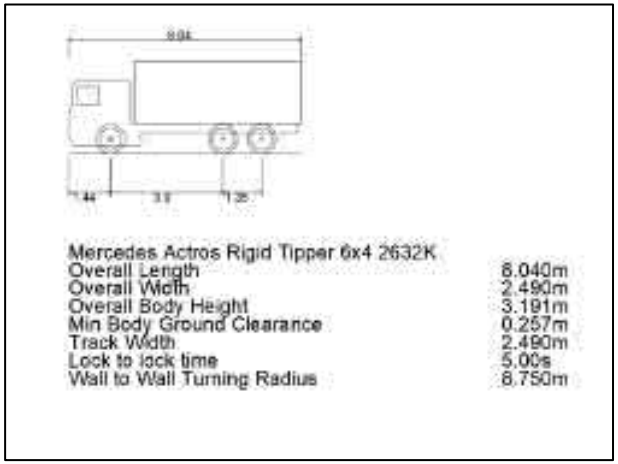
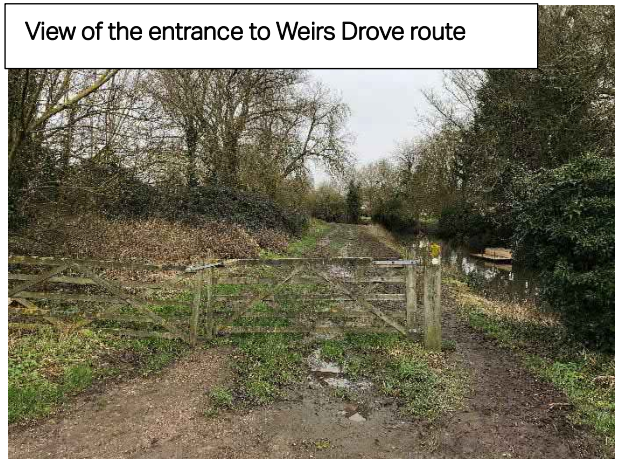


Figure 7: Photos taken on Site Visit

View of the entrance to Weirs Drove route



View of Weirs Drove route

View of the bridge to the farm from Anchor Lane

View of along Anchor Lane from the bridge

Table 4: Little Fen Drove

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Little Fen Drove (South)	• Unmade field access. • The access goes over a ditch. • An electricity pole is located adjacent to the access. • The site accesses are opposite each other. • Little Fen Drove is a relatively straight road with good visibility with no vegetation adjacent to the site access to the north.	• 16.5m artic • Left in, Right out	• 60mph (2.4m x 215m)
CCC	Little Fen Drove (North)	• Unmade field access. • Access goes over a ditch. • The site accesses are opposite each other. • Vegetation located to the north of the access point. • Little Fen Drove is a relatively straight road with good visibility with no vegetation adjacent immediately to the site access to the south.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)

Figure 8: Little Fen Drove – Visibility Splay and Site Visit Photos

Site Visit Photo Access North

Site Visit Photo West/North

Site Visit Photo: Site Access South

Site Visit Photo Site East/South

Figure 9: Little Fen Drove – Vehicle Tracking (Entry and Egress)

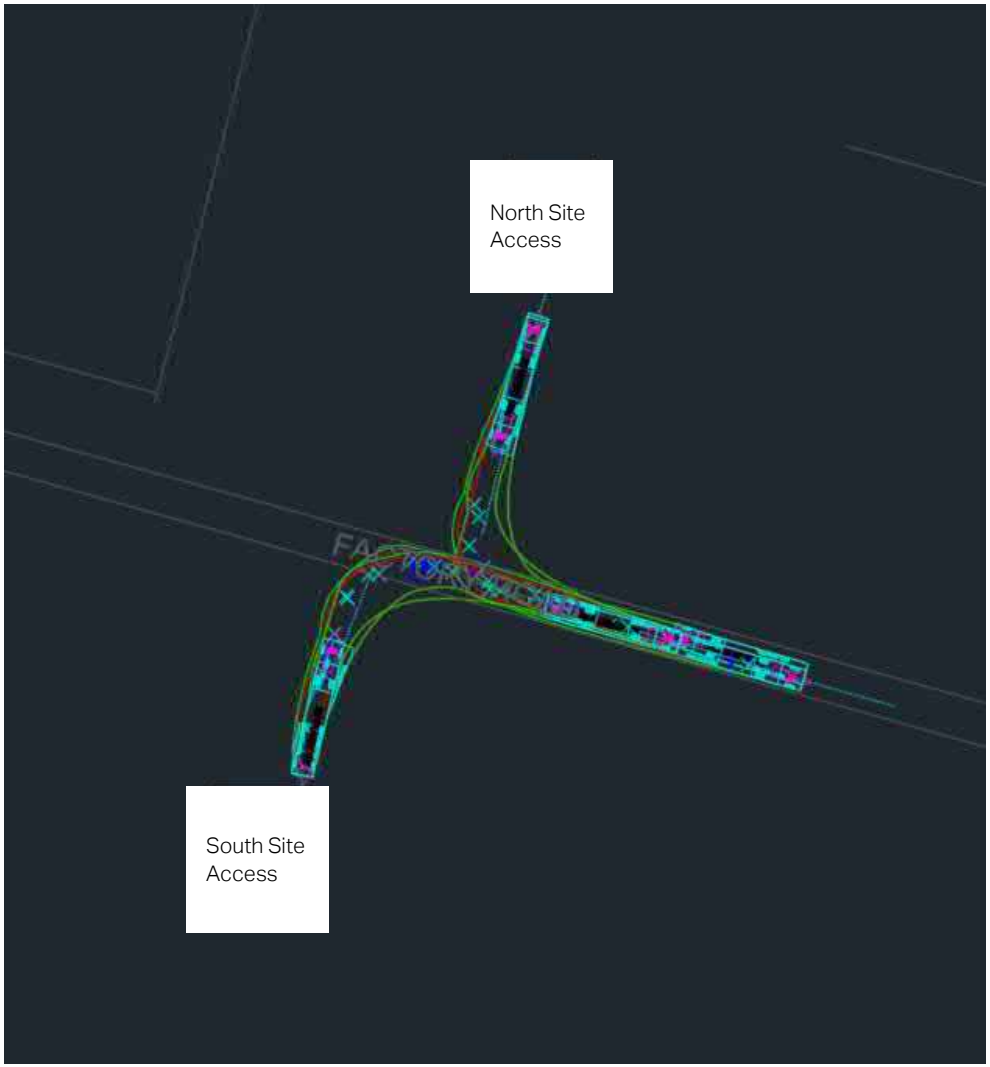


Figure 10: Little Fen Drove – Indicative Junction Works Area

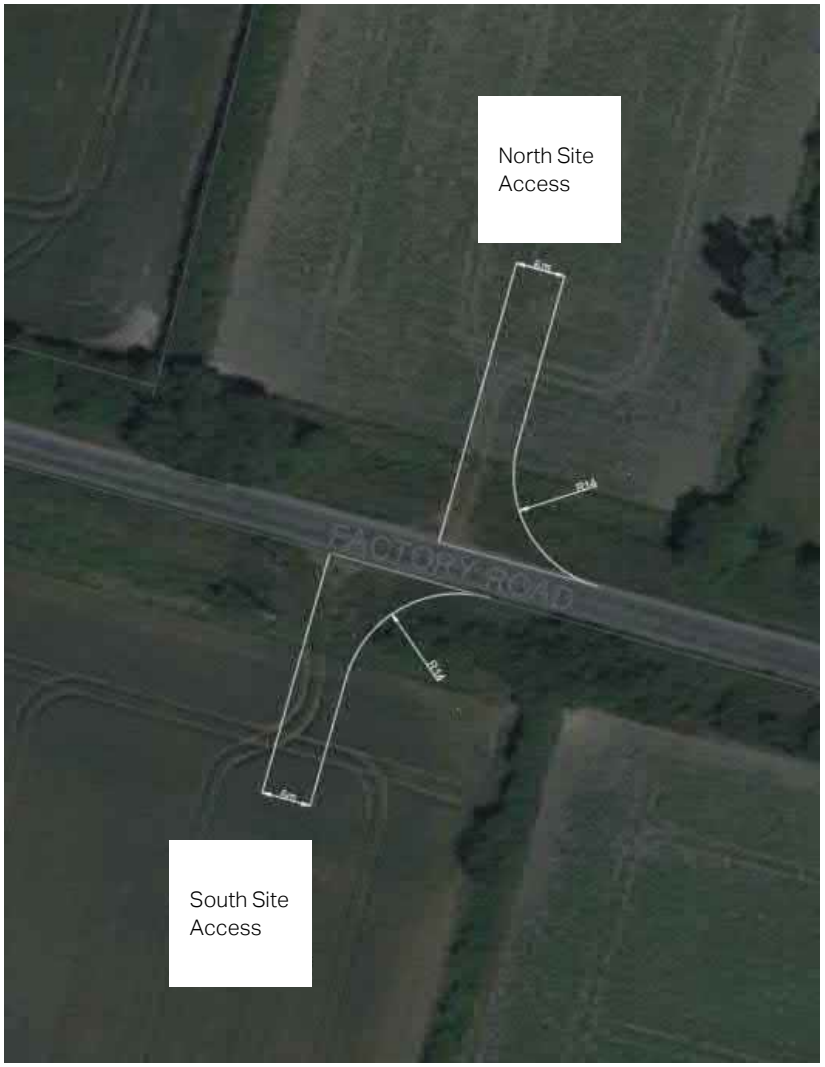


Table 5: Broads Road

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Broads Road	• Currently no existing access shown in Google Street View. • No vegetation present on the south side of the carriageway. • Broads Road is a 3m single carriageway road.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)

Figure 11: Boards Road – Visibility Splay and Visit Photos

Figure 12: Boards Road – Vehicle Tracking

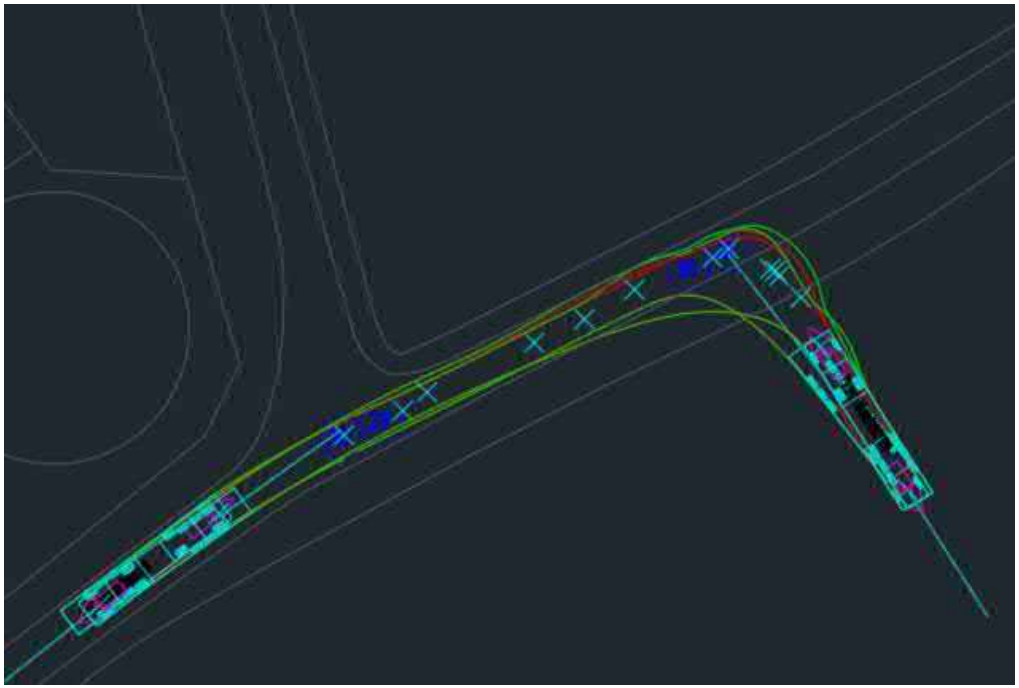


Figure 13: Broads Road – Indicative Junction Works Area

Table 6: Ness Road (South)

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	B1102 Ness Road	• Existing 5m wide gated road access, while the access road is circa 3.2m wide. • An electricity cable pole is located adjacent to the southern side of the access. • B1102 Ness Road is a relatively straight road with no tall vegetation near the access providing good visibility. • B1102 Ness Road is a single carriageway road providing two-way vehicle movements between Burwell and Fordham.	• 16.5m artic • Left in, Right out	• 60mph (2.4m x 215m)

Figure 14: Ness Road – Visibility Splay and Site Visit Photo

Site Visit Photo: View Left

Site Visit Photo: View Right

Figure 15: Ness Road – Vehicle Tracking (Entry and Egress)

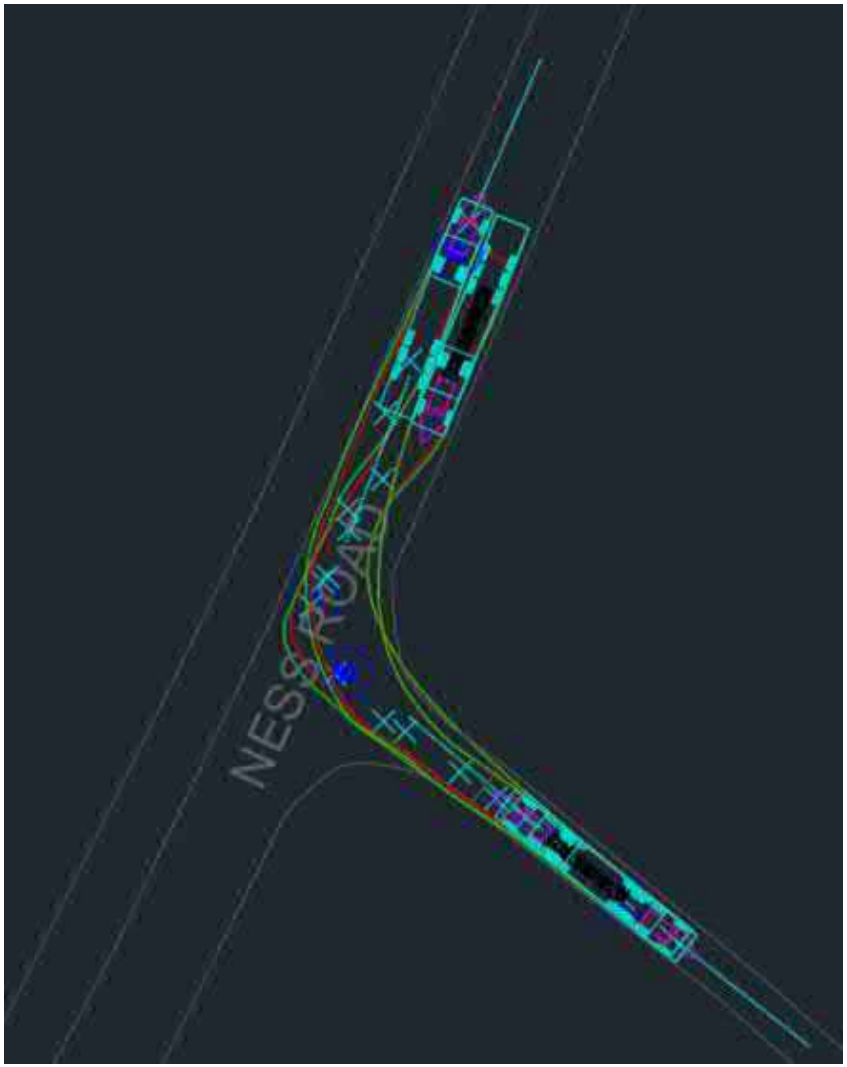
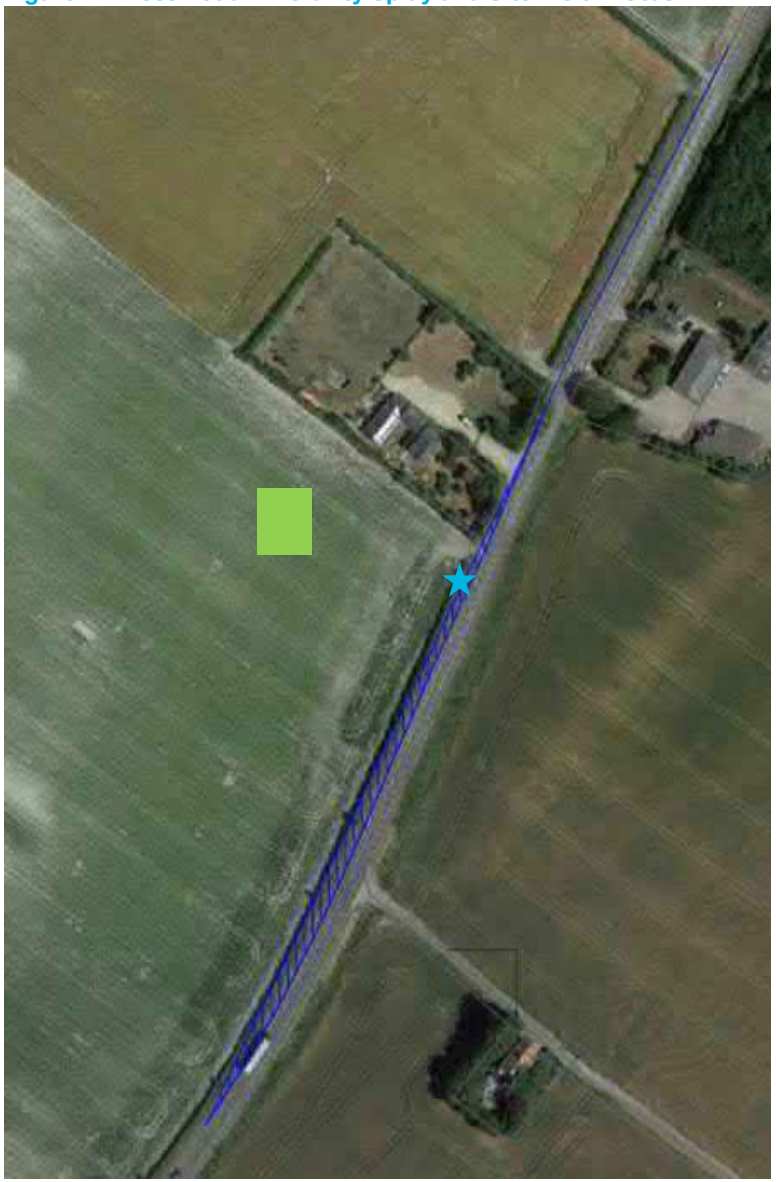


Figure 16: Ness Road – Indicative Junction Works Area

Table 7: Ness Road (North)

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	B1102 Ness Road	• Existing gap in the hedging provided via an unmade track access used by agricultural vehicles. • Established and tall vegetation to the north of the access with a short hedgerow provided to the south of the access. • B1102 Ness Road is a single carriageway road providing two-way vehicle movements between Burwell and Fordham.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)

Figure 17: Ness Road – Visibility Splay and Site Visit Photos



Site Visit Photo: Existing Site Access View: Left

Site Visit Photo Existing Site Access View: Right

Site Visit Photo Existing View of Site Access

Figure 18: Ness Road – Vehicle Tracking (Entry and Egress)

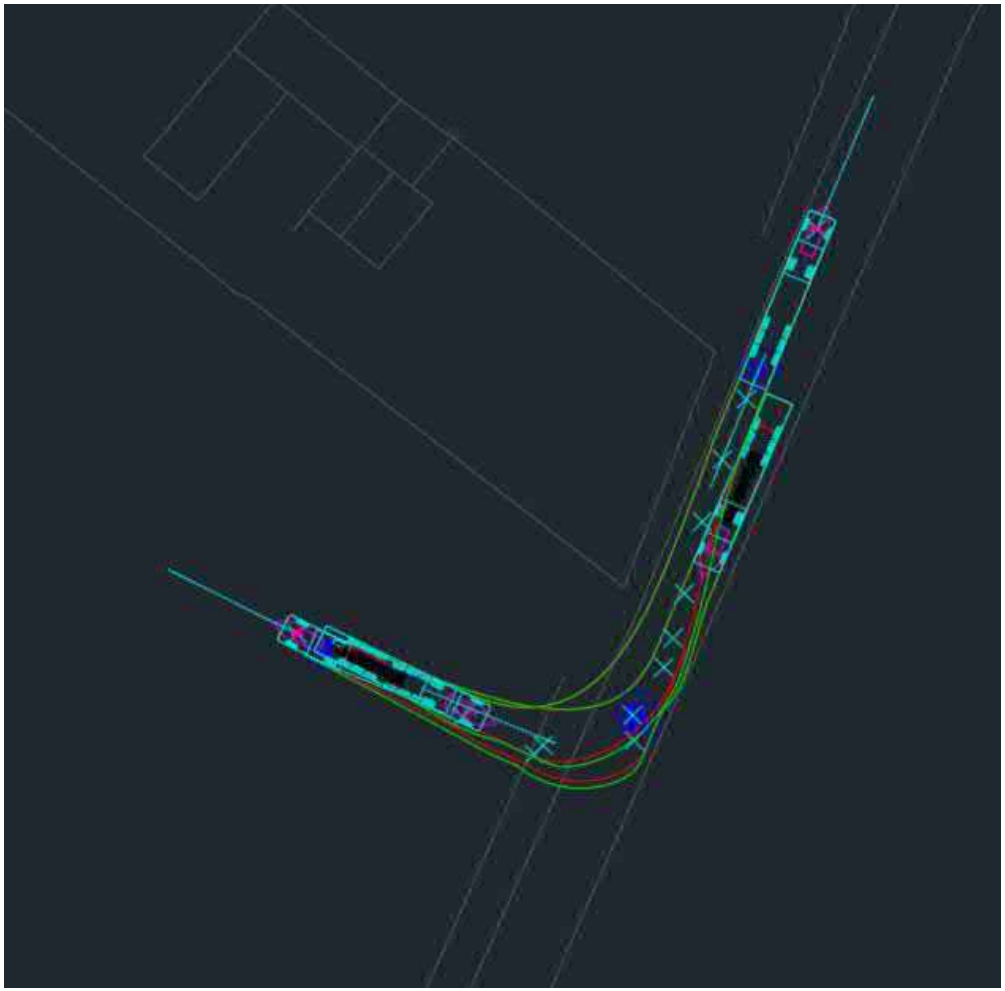
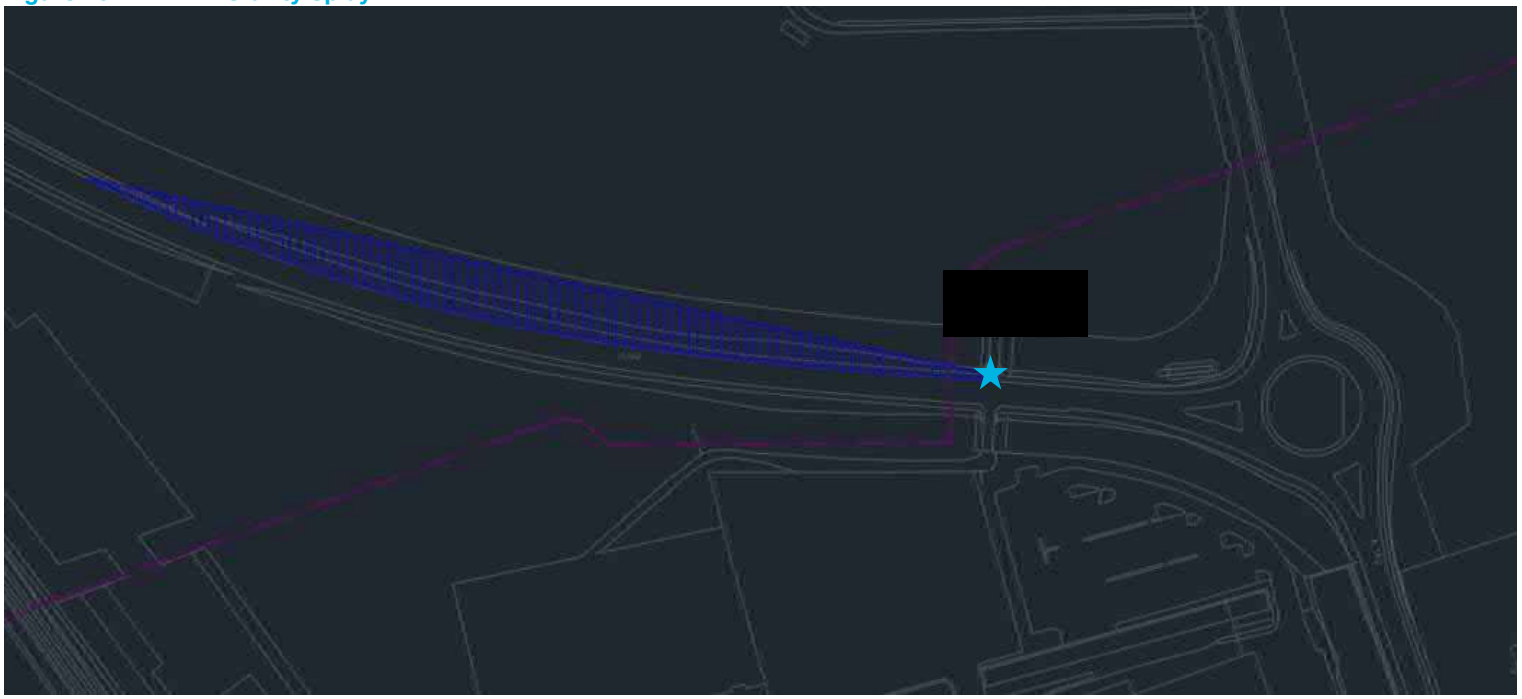


Figure 19: Ness Road – Indicative Junction Works Area

Table 8: A142

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	A142	• The access is circa 4m wide with some hard-standing surface provided. • A gate is provided circa 20m from the main carriageway into the field. • A142 provides two-way vehicle movements and is approximately 100m west of a roundabout.	• 16.5m artic • Left in, Left out	• 60mph (2.4m x 215m)

Figure 20: A142 – Visibility Splay



Vehicles require visibility to the west as vehicles will turn left out of the site access.
Sunnica vehicles will be required to turn left in and left out of this site access.

Figure 21: Access J – Vehicle Tracking (entry and Egress)

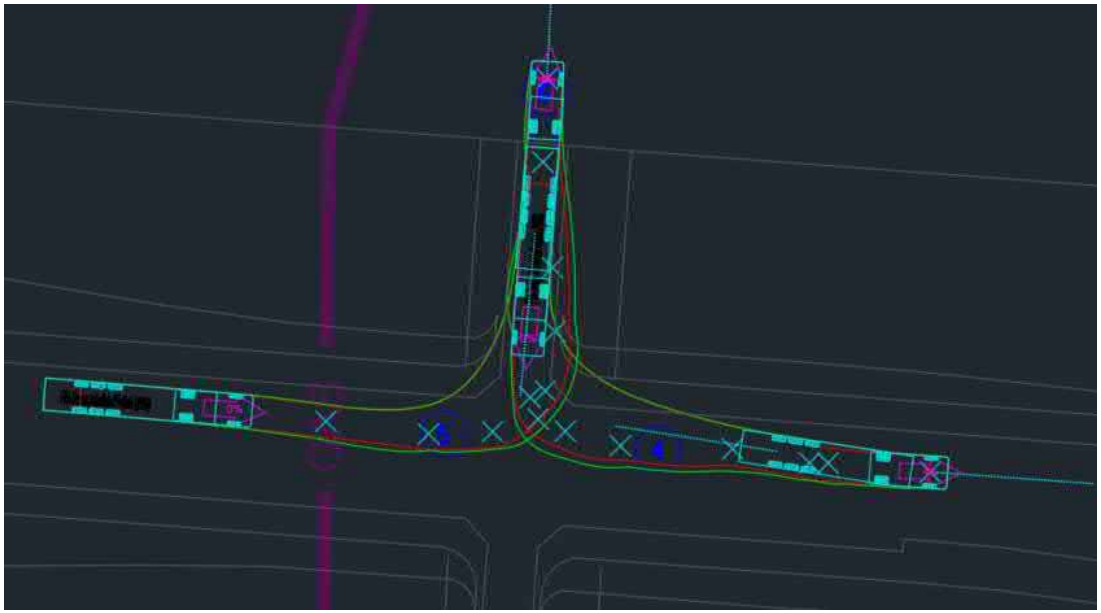


Figure 22: Access J – Indicative Junction Works Area

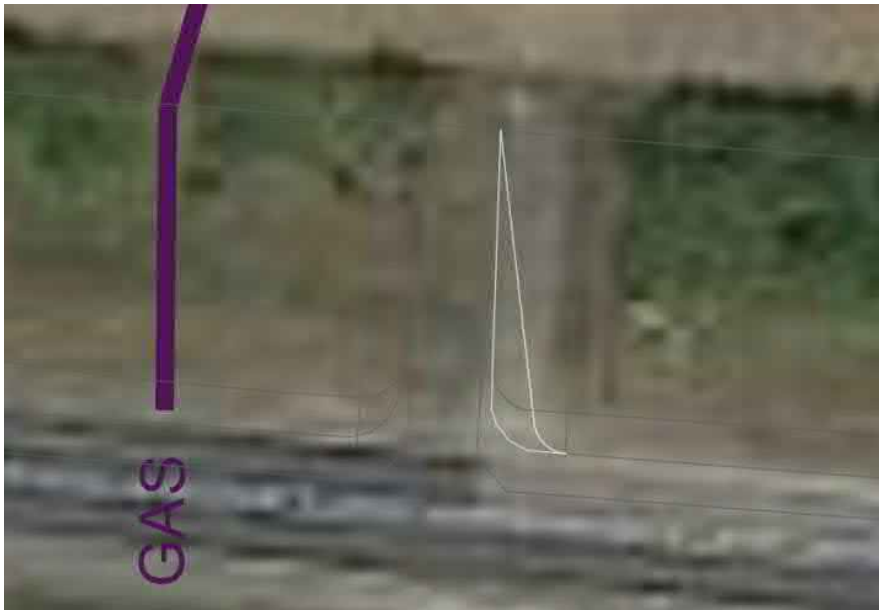
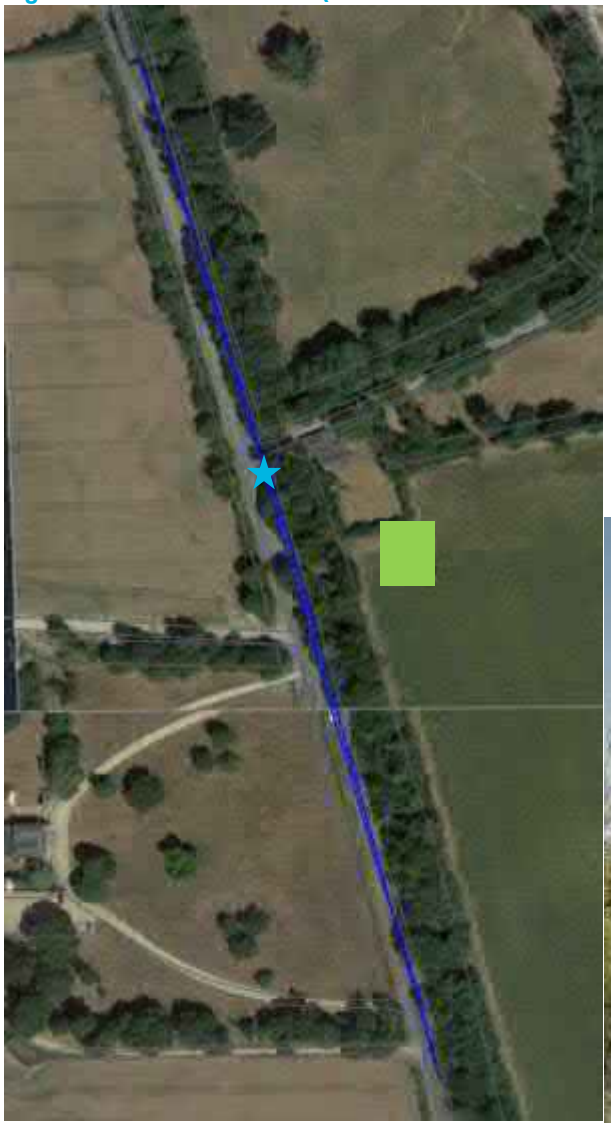


Table 9: Newmarket Road (North of A142 Roundabout)

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Newmarket Road	• Unmade field access with a small opening within the hedgerow and vegetation. • Mature trees and vegetation are located at both sides of the access. • Newmarket Road is a straight single carriageway road providing two-way vehicle movements.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)

Figure 23: Newmarket Road (North of A142 Roundabout) – Visibility Splay



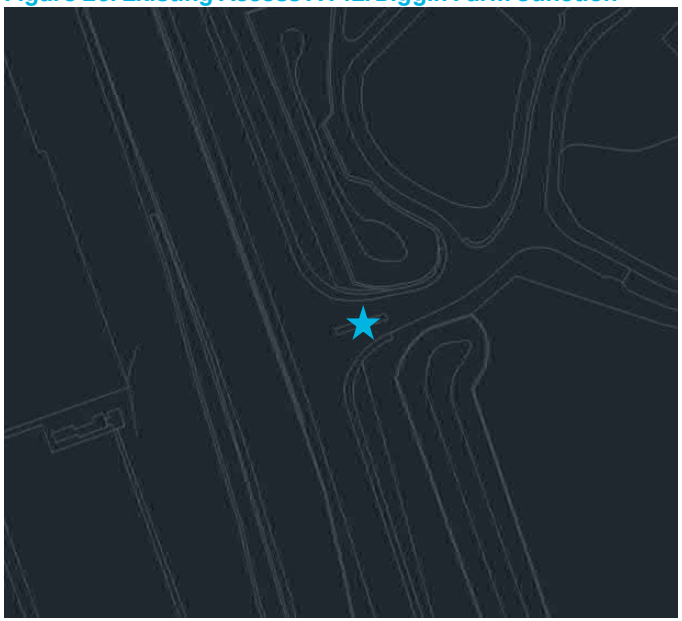
Google Street View: Proposed Site Access

Figure 24: Newmarket Road – Vehicle Tracking (Entry and Egress)

Figure 25: Newmarket Road – Indicative Junction Works Area

The site access is proposed via the existing Biggin Farm Shop/A142 T-Junction. The existing T-Junction provides a right turn ghost island into the Biggin Farm Shop with the expected vehicle routes be to/from the A14 to the south via Fordham Road, resulting in a right turn in and left turn out vehicle movements. The junction can accommodate the entry and egress movements of a 16.5m artic. Therefore, no alterations are proposed at this access and no traffic management is proposed during the construction or operational phase.

Figure 26: Existing Access A142/Biggin Farm Junction



Google Street View: Existing Site Access

Table 10: Chippenham Road (West)

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Chippenham Road	• Unmade gated track. • Access is circa 3.8m wide used by agricultural vehicles. • Mature tree located along the eastern side of the access route, which overgrow the route with a fence located along the western side of the access route. • Chippenham Road is generally a straight single carriageway road with good forward visibility where trees and hedgerows are located along both sides of the carriageway.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)

Figure 27: Chippenham Road – Visibility Splay

Figure 28: Chippenham Road – Vehicle Tracking (Entry and Egress)

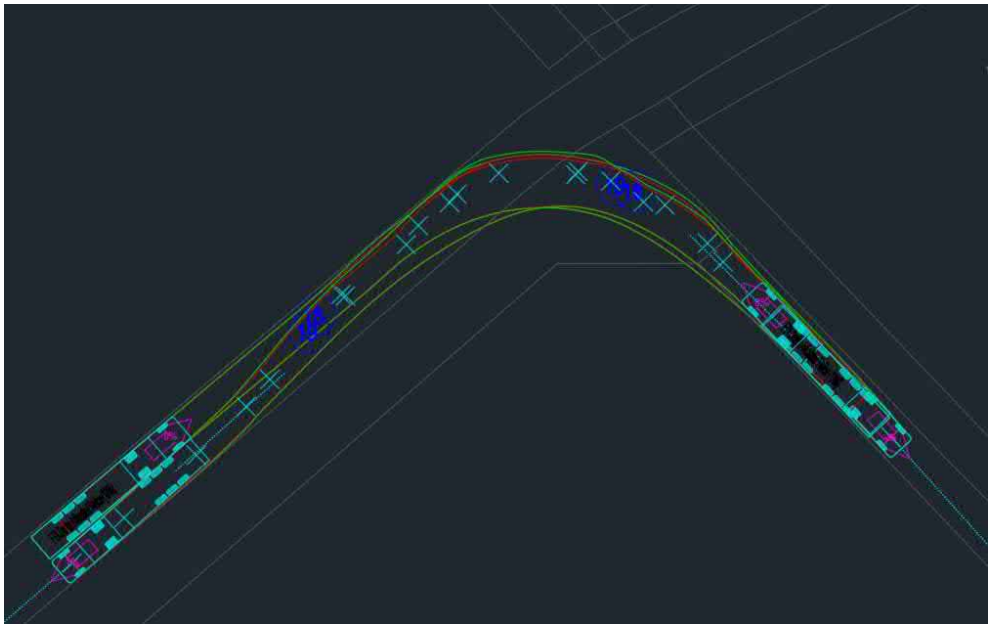


Figure 29: Chippenham Road – Indicative Junction Works Area

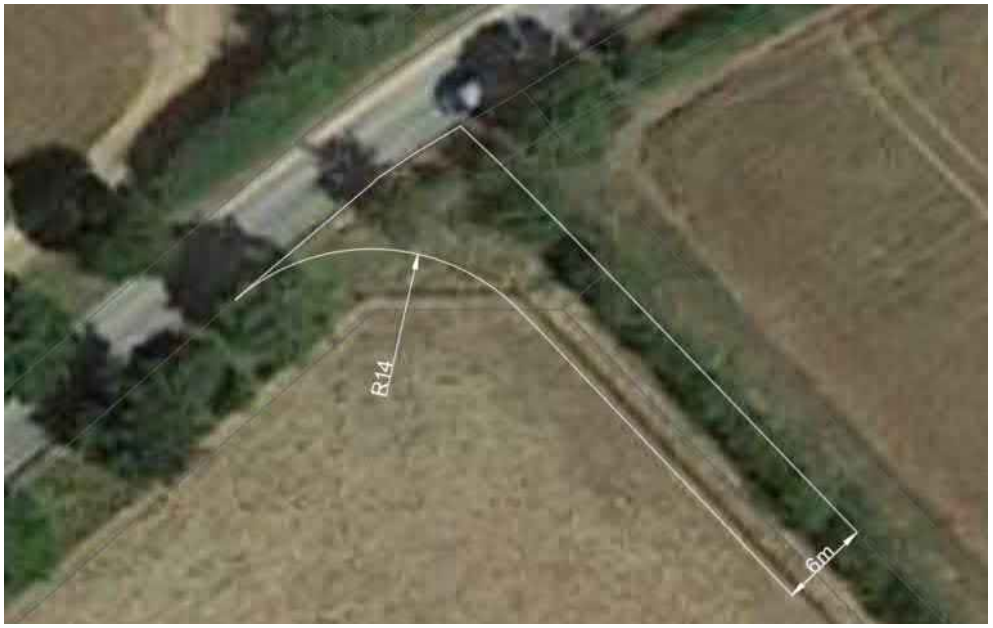


Table 11: La Hogue Road

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	La Houge Road	• Currently no existing access shown in Google Street View. • Requires the removal of vegetation to create access. • La Hogue Road is a relatively straight single carriageway road with good forward visibility. • La Hogue Road provides movement between the A11 located to the south.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)

Figure 30: La Hogue Road – Visibility Splay

Google Street View: Proposed Site Access (Right side of carriageway / view to the north)

Figure 31: La Hogue Road – Vehicle Tracking (Entry and Egress)

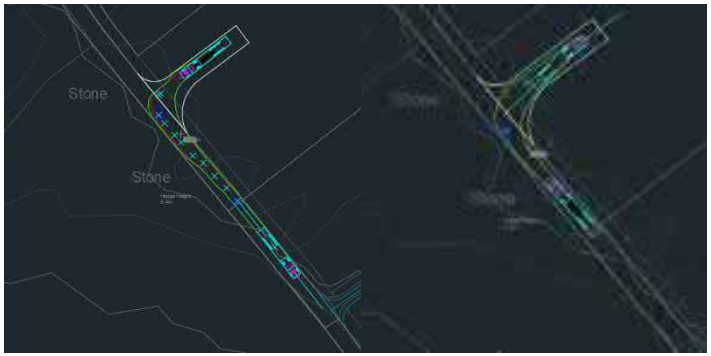


Figure 32: La Hogue Road – Indicative Junction Works Area

Topographical survey information showing the existing hedgerow not available along the eastern side of La Houge Road

Table 12: B1085

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	B1085 (North)	• The north site access is a 3.5m gated field access but does not appear to be in frequent use as the gate is blocked off. • The south site access is a 2.4m gated field access. • Established trees to east of both site accesses. B1085 is generally a straight section of road between La Hogue Road and the A11 providing good forward visibility with minor bends.	• 16.5m artic • Right in, Left out	• 60mph (2.4m x 215m)
	B1085 (South)		• 16.5m artic • Left in, Right out	• 60mph • (2.4m x 215m)

Figure 33: B1085 – Visibility Splay and Site Visit Photos

Site Access South View: Left

Site Access South View: Right

Figure 34: B1085 – Vehicle Tracking (Entry and Egress)

Figure 35: B1085 – Indicative Junction Works Area

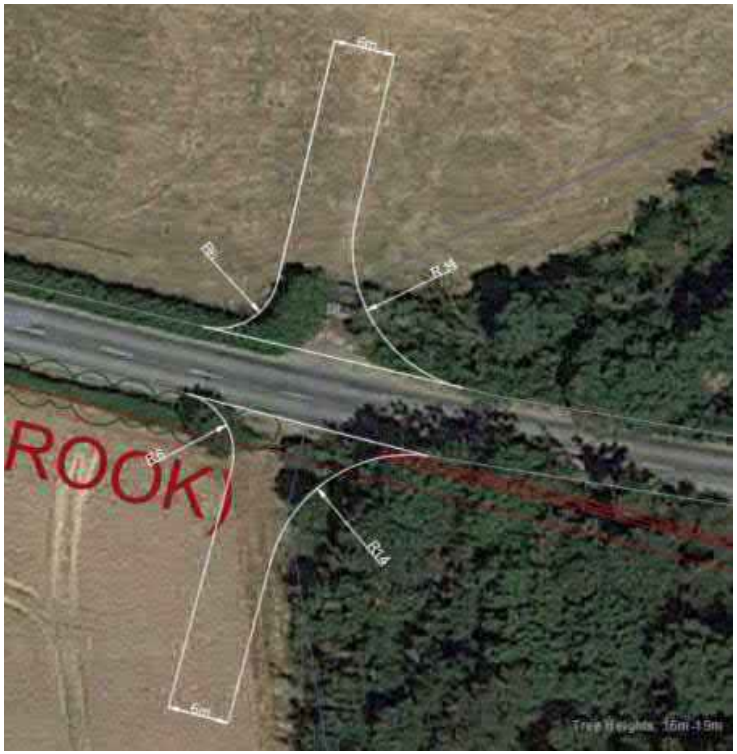


Table 13: B1002 Freckenham Road

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
SCC	B1102 Freckenham Road (South)	• Currently no existing accesses shown in Google Street View. • Both site accesses would require the removal of hedgerow. • B1102 is generally a straight single carriageway road providing two-way vehicle movements, including large vehicles between Freckenham and Worlington. • Mature trees and hedgerow are present on both sides of the road.	• 16.5m artic • Left in, Right out	• 60mph (2.4m x 215m)
	B1102 Freckenham Road (North)		• 16.5m artic • Right in, • Left out	• 60mph • (2.4m x 215m)

Figure 36: B1102 Freckenham Road – Visibility Splay

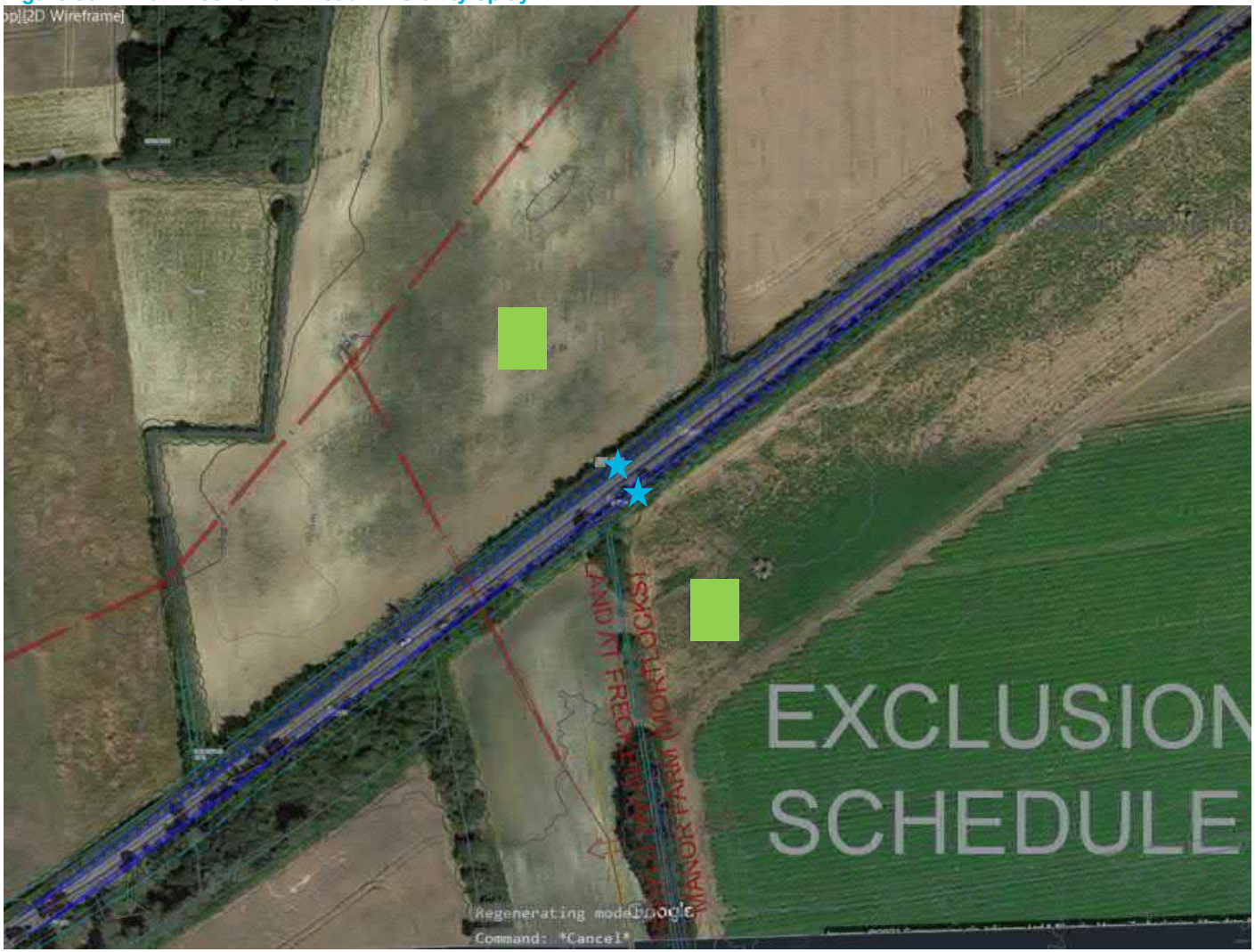


Figure 37: B1102 Freckenham Road – Vehicle Tracking (Entry and Egress)

Figure 38: B1102 Freckenham Road – Indicative Junction Works Area

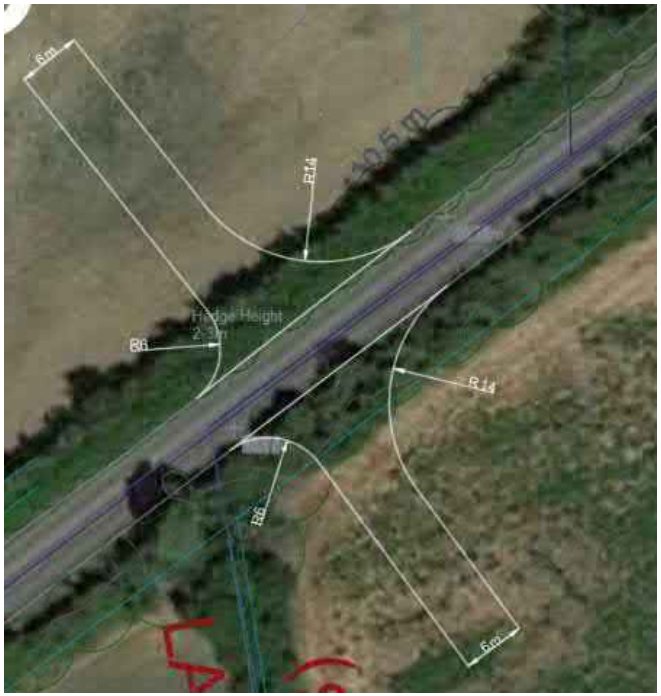


Table 14: Isleham Road

Authority	Road	Description of Existing Access	Vehicle Type and Movements	Visibility Splay
CCC	Isleham Road	• Unmade gated track used by agricultural vehicles. • The access is circa 6.7m wide at the point of the gate. • Mature trees and hedgerow are present on both sides of the road. • Isleham Road is generally a straight single carriageway road with good forward visibility.	• 16.5m artic • 10m rigid • Left in, Right out	• 60mph (2.4m x 215m)

Figure 39: Isleham Road – Visibility Splay and Google Street View

Figure 40: Isleham Road – Vehicle Tracking (Entry and Egress)

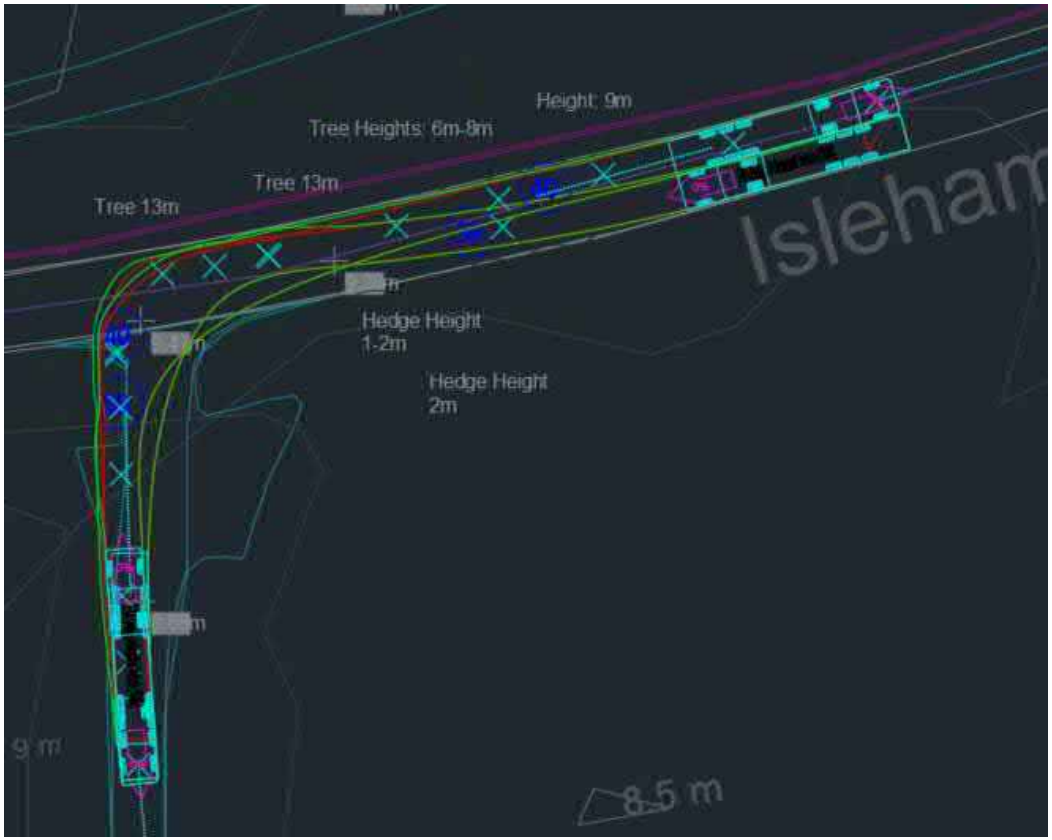


Figure 41: Isleham Road – Indicative Junction Works Area

Annex C3: Sunnica East and Sunnica West Site Accesses Review

Elms Road Widening

Sunnica East
Site Access C

3

2

Sunnica East
Site Access B

Sunnica East
Site Access A

1

A11 Slip /
Elms Road
T-Junction

Sunnica East
Site Access A

Widening is required for up
to 0.6m for the length of 60m

Widening is required for up
to 0.4m for the length of 25m

17.2m

ELMS ROAD

Drain

Widening is required for up
to 0.2m for the length of 25m

Elms Road 1 - Sunnica Site East Access A

Widening is required for up
to 0.3m for the length of 40m

Widening is required for up to
0.8m for the length of 200m

18.6m

ELMS ROAD

Elms Road 2 - Sunnica Site East Section A-B Access

Sunnica East
Site Access C

Widening is required for up
to 0.3m for the length of 40m

18.7m

Widening is required for up
to 0.2m for the length of 40m

Sunnica East
Site Access B

Elms Road 3 - Sunnica Site East Access B&C

Annex D – Crane Routes Reviews

Annex D1: Crane Routes Review 1

Cable Route – Access A – Weirs Drove

Description of Route from the SRN

1.1 The nearest part of the SRN to the Weirs Drove site access is the A14 J37. The route is from the A14 to Weirs Drove along Windmill Hill Road, Oxford Street, B1103 (Burwell Road/Newmarket Road), B1102 (Isaacson Road), High Street, and Reach Road. Below is the swept path analysis and Google Maps and Google Street View images of the constraints that have been considered along this route.

Swept path analysis has been undertaken for all other manoeuvres along this route for a 1000T crane and the key constraints identified are discussed below.

A142 Fordham Road/Windmill Hill Road Junction

1.2 **Entry Route**: Based on the swept path analysis, the 1000T crane can make the left-turn manoeuvre from Fordham Road onto Windmill Hill Road. However, this will require the temporary removal of the street furniture within the central refuge island. The 650T and 400T cranes can negotiate this turn without the removal of the street furniture. The temporary removal of the street furniture is not considered a significant constraint to the use of this route. Overall, at this stage this route is considered appropriate for all three cranes.

Figure 1: Swept Path Analysis: 1000T Crane

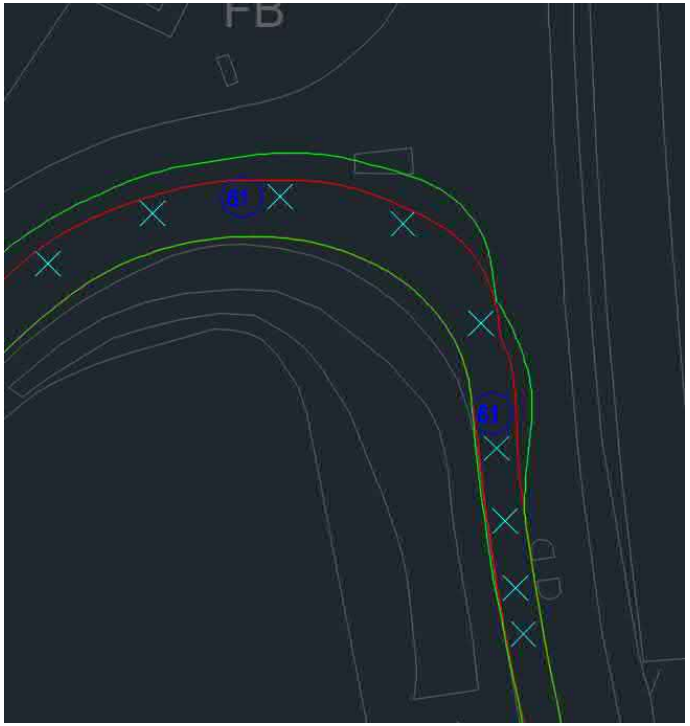


Figure 2: Google Maps of A142 Fordham Road/Windmill Hill Road T-Junction

Figure 3: Google Street View of A142 Fordham Road/Windmill Hill Road T-Junction

Figure 4: Swept Path Analysis: 650T Crane Entry

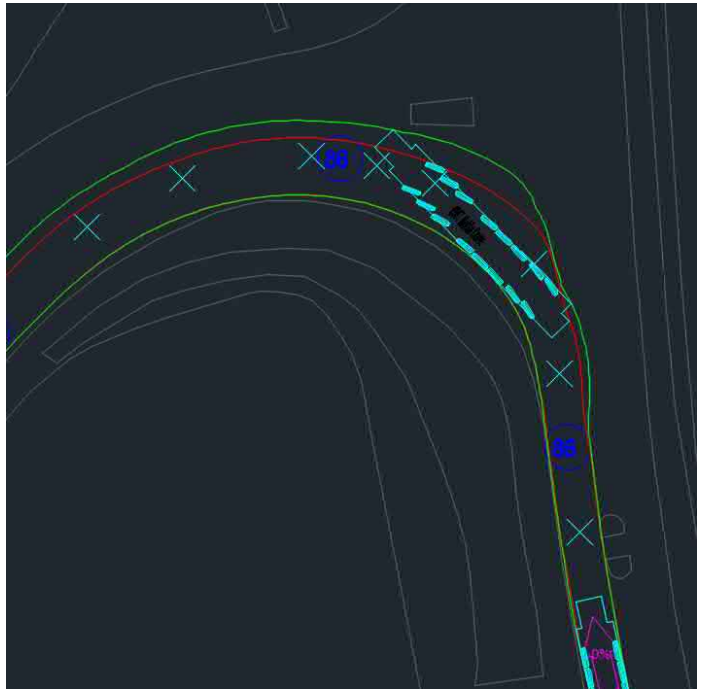
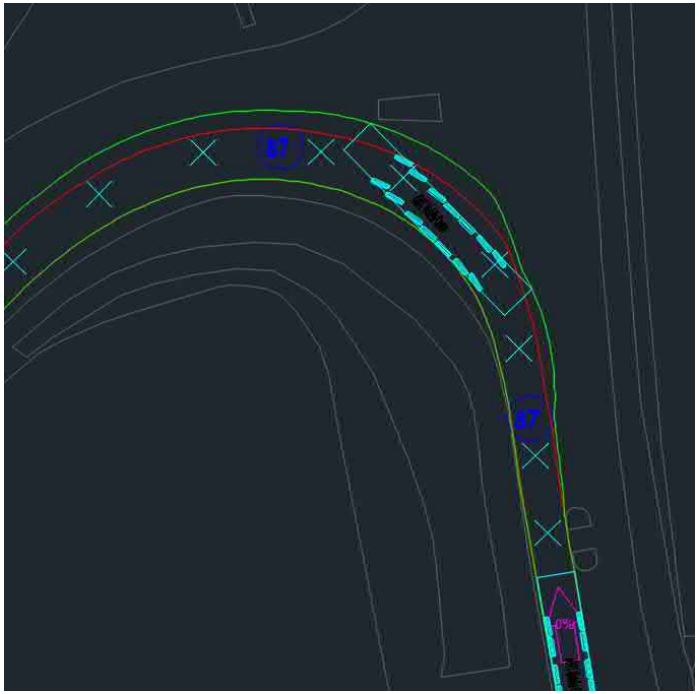


Figure 5: Swept Path Analysis: 400T Crane Entry



1.3 **Egress Route:** The 1000T crane can manoeuvre the right turn from Windmill Hill Road onto A142 Fordham Road. However, the crane overhang with the body over the eastern side of the main road, but wheels are within the carriageway, and there appears to be no street furniture/signage which requires removal. The 650T and 400T cranes can perform the manoeuvre without street furniture/signage removal. The temporary removal of the street signage is not considered a significant constraint to the use of this route. Overall, this junction is considered appropriate for all three cranes.

Figure 6: Swept Path Analysis: 1000T Crane Egress

Figure 7: Google Street View Windmill Hill Road/A142 Fordham Road T-Junction

Swan Road/Oxford Street/Chapel Street Junction

1.4 **Entry Route**: Windmill Hill becomes Swan Lane then Oxford Street. Swan Lane forms a T-Junction with Chapel Street and Oxford Street. As per the direction of travel for the entry route the Google Street View image below shows the point of view from Swan Lane looking towards Chapel Street and Oxford Street. The 1000T crane cannot negotiate the bend outside of The White Swan Pub without significant overrunning the footpath which may result in damage to the footway, utilities contained in the footway and/or the kerbs depending on the weight limit of the footpath. The 650T and 400T cranes can manoeuvre this turn without the removal of the street furniture, with body overhang but wheels are within the carriageway. As well as the road closure the footpath will also be required to be closed while the crane makes the manoeuvre. The temporary removal of the street signage is not considered a significant constraint to the use of this route. Overall, at this stage this route is considered appropriate for the 650T and 400T cranes however further clarification is required to the potential impact of the 1000T crane overrunning the footpath.

Figure 8: Swept Path Analysis: 1000T Crane Entry

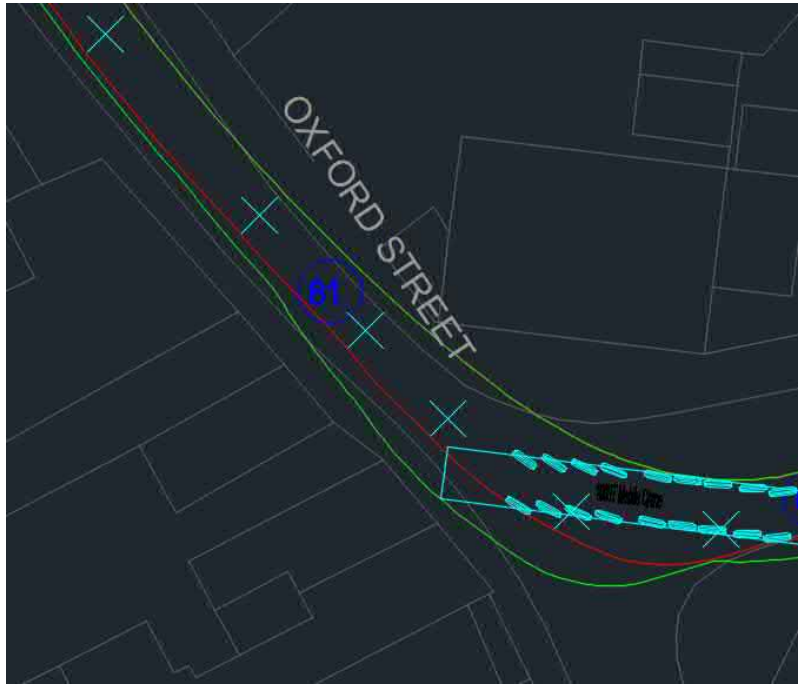


Figure 9: Swan Lane Google Street View Swan Lane

Figure 10: Swept Path Analysis: 650T Crane Entry

Figure 11: Swept Path Analysis: 400T Crane Entry

1.5 **Egress Route**: As per the direction of travel for the egress route the Google Street View image below shows the point of view from Oxford Street towards Chapel Street and Swan Lane. The 1000T, 650T and 400T cranes can manoeuvre this junction without the removal of street furniture however they would overhang the footpath but do not overrun the footpath. The temporary removal of the street signage is not considered a significant constraint to the use of this route. Overall, at this stage this route is considered appropriate for all three cranes for the egress route. However, further clarification is required for the potential impact of the 1000T crane overrunning the footpath on entry to the site access.

Figure 12: Swept Path Analysis: 1000T Crane Egress

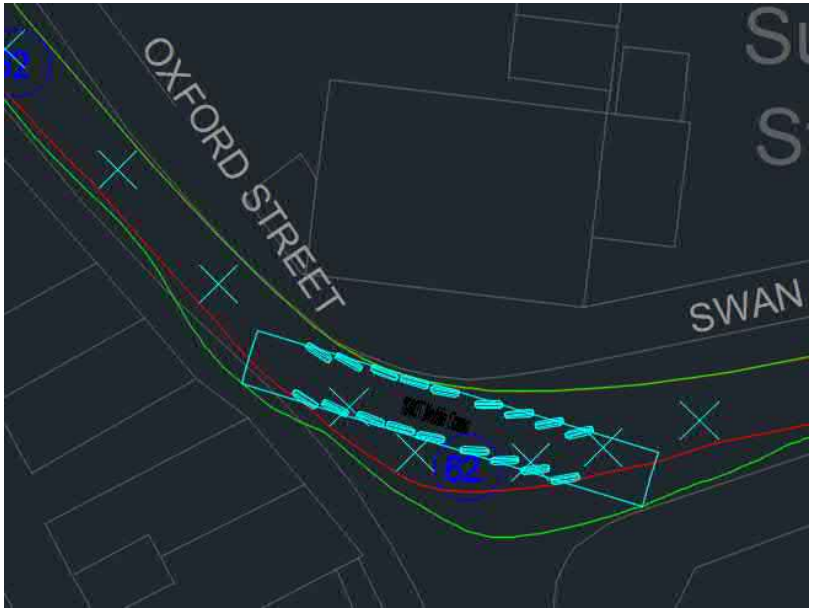


Figure 13: Oxford Street Google Street View

Figure 14: Swept Path Analysis: 650T Crane Egress

Figure 15: Swept Path Analysis: 400T Crane Egress

B1103 Oxford Street and B1103 Burwell Road

1.6 **Entry and Egress Route**: Oxford Street becomes Burwell Road B1103. Google Street View indicates there are parked vehicles along the B1103 Oxford Street and B1103 Burwell Road. The two Google Street View images illustrate the parked cars along the edges of the carriageway. To manoeuvre the crane along this link it is likely that the carriageway will need to be kept clear of parked cars potentially via temporary parking restrictions. If the carriageway is kept clear of parked cars as not to impede the crane along the highway or temporary parking restrictions are implemented, then it is not considered a significant constraint to the use of this route. The overhang of the trees are to be checked prior to the crane undertaking the route. Overall, at this stage this route is considered appropriate for all three cranes.

Figure 16: Oxford Street Google Street View

Figure 17: Burwell Road Google Street View

B1102 Isaacson Road

1.7 **Entry and Egress Route:** Newmarket Road forms a T-Junction with B1102 Isaacson Road. The three cranes have had their swept path analysis undertaken for this T-Junction for entry and egress routes and can perform the manoeuvre and as did not raised a concern are not included in this TN. Google Street View indicates there is the potential for vehicles to parked along the B1102 Isaacson Road. To manoeuvre the crane along this link it is likely that the carriageway will need to be kept clear of parked cars potentially via temporary parking restrictions. If the carriageway is kept clear of parked cars as not to impede the crane along the highway or temporary parking restrictions are implemented, then it is not considered a significant constraint to the use of this route. Overall, at this stage this route is considered appropriate for all three cranes. The Google Street View is an example of a parked car along the highway.

Figure 18: Isaacson Road Google Street View

Weirs Drove

1.8 **Entry and Egress Route:** The proposed site access is located on Weirs Drove close to the Burwell substation entrance. To negotiate the 'S' bends on Weirs Drove adjacent to the Burwell substation and the proposed site access, the 1000T crane would require the carriageway widening by circa 2.5m on the first 'S' bend, whereas the 650T and 400T cranes require the carriageway to be widened by circa 1.5mIt is noted that Weirs Drove is also close to the watercourse which is a factor in why the carriageway requires widening on the northern side. Widening of the carriageway could impact on the vegetation along the northern side of the carriageway as shown in the Google Street View images below. For the 1000T crane to egress from the site access, the second 'S' bend would require widening by circa 1m whereas the 650T and 400T cranes do not require the second 'S' bend to be widened. The weight limit of the road will also need to be confirmed to ensure it is capable of carrying the weight of the crane that is used. Further discussions required with project director and client to discuss the impact of the required highway works. The tree adjacent to the second 'S' bend could also need trimming back to allow for the crane to manoeuvre the bend without contacting the tree, however this is not considered a significant constraint to the use of this route. The Figures below show the swept path analysis of the cranes to (entry) and from (egress) the site access.

Figure 19: 1000T Crane Entry (First 'S' Bend)

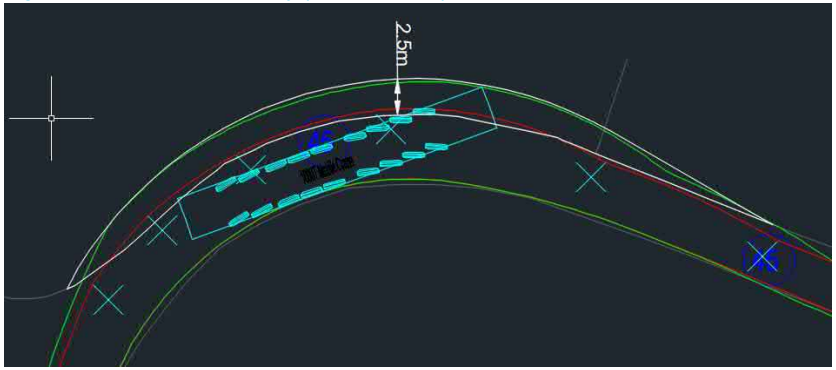


Figure 20: Weirs Drove Google Street View (First 'S' Bend)

Figure 21: 1000T Crane Egress (Second 'S' Bend)

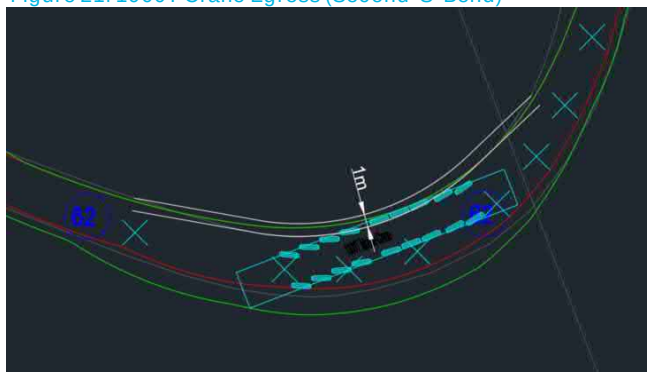


Figure 22: Weirs Drove Google Street View (Second 'S' Bend)

Figure 23: 650T Crane Entry (First 'S' Bend)

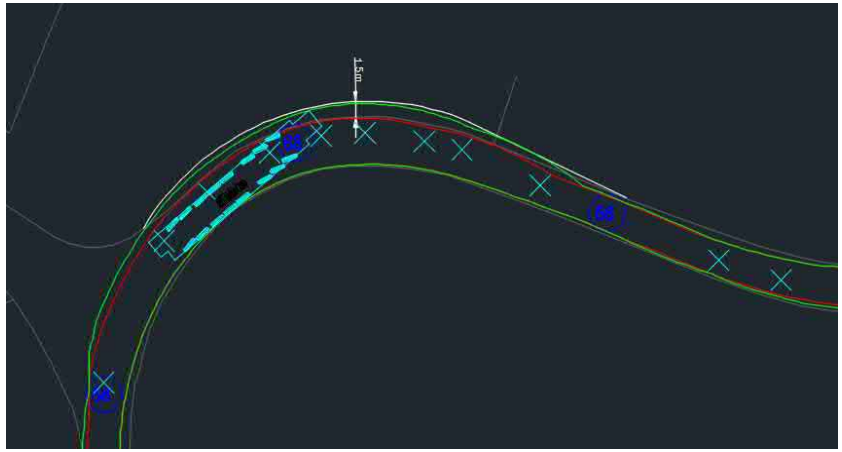


Figure 24: 650T Crane Egress (First 'S' Bend)

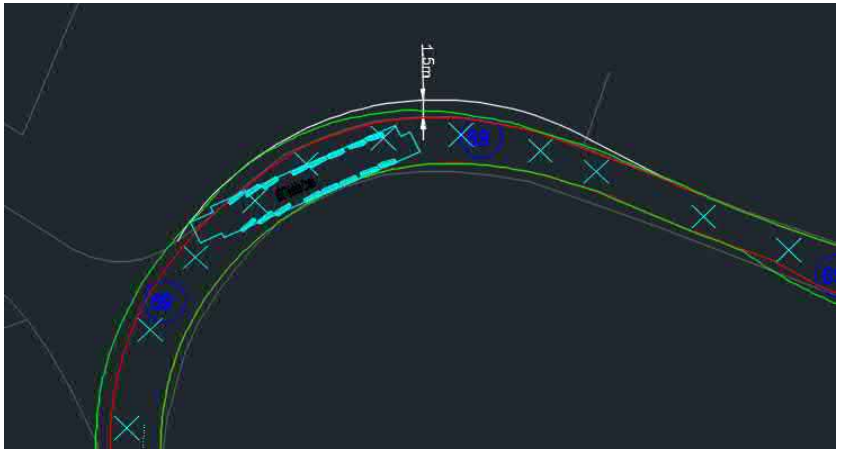


Figure 25: 400T Crane Entry (First ‘S’ Bend)

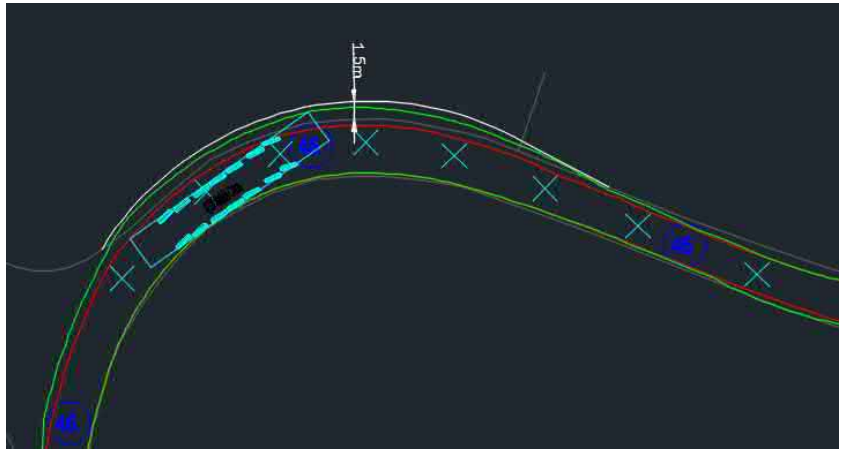
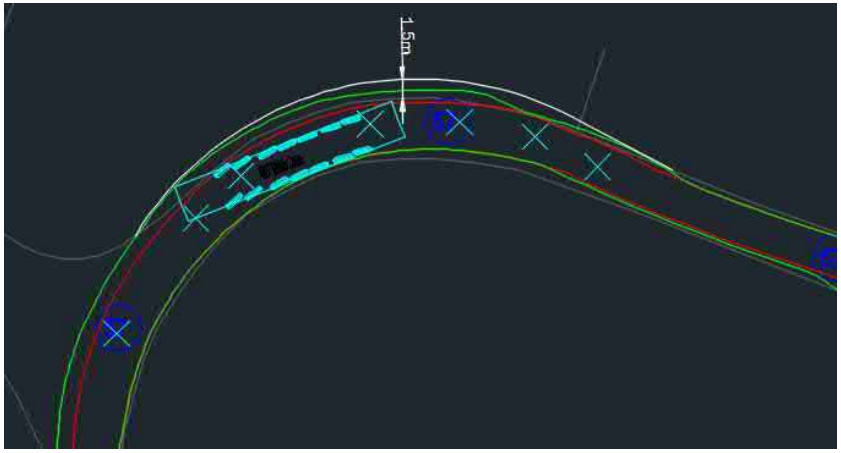


Figure 26: 400T Crane Egress (First ‘S’ Bend)



Hythe Bridge

1.9 **Entry and Egress Route:** An alternative route was considered to Weirs Drove 'S' bends via The Causeway, Hythe Lane and Hythe Lane bridge. The dashed red box in the figure below indicates the approximate location of the bridge. This route would require the crane to travel through the residential area of Burwell and enter and egress the access from the north. The weight restriction of the bridge is unknown. However, given the width restrictions of the bridge, the cranes are unable to manoeuvre over the bridge as shown below. The frontend of the crane also overhangs the northern verge of the junction, with the height of the verge unknown in relation to the front end of the crane. Therefore, this is considered a significant constraint to the use of this route and is not considered appropriate for all three cranes.

Figure 27: 1000T Crane Entry Hythe Bridge

Figure 28: 400T Crane Entry Hythe Bridge

Figure 29: 1000T Crane Entry Hythe Bridge

Figure 30: Google Street View Hythe Bridge

Sunnica East Site A – Access E – Ferry Lane

Ferry Lane – Route 1 (Chippenham and Freckenham)

Description of Route from the SRN

1.10 The nearest part of the SRN to Ferry Lane site access is the A11. This route from the A11 to Ferry Lane is via the B1085 (High Street) through Chippenham, B1104 and B1102 Fordham Road through Freckenham to Ferry Lane. The red box on the Google aerial image below indicates the approximate location of the bridge on Ferry Lane/Isleham Road junction and the orange box the Ferry Lane site access.

Bridge on Ferry Lane adjacent to Isleham Road

1.11 **Entry Route**: Along Ferry Lane, is located a bridge as shown in the two figures below, which could have a weight limit restriction effecting the size crane that can use this route. The swept path analysis indicates the vehicle can manoeuvre over the bridge and as a result as not been included. Based on the information available on the Suffolk County (SCC) council website[1], that bridges within Suffolk have been assessed if they have the capacity to carry 40 tonne. If road bridges are not up to strength then SCC may have imposed a weight restriction, monitor the bridge for signs of damage, replace the bridge or strength the bridge. Further confirmation on the actual weight limit of this bridge is required before identifying the crane which is expected to be required at Sunnica East Site A Access E on Ferry Lane. Information is currently being sought regarding the weight restriction of the bridge to identify if this route is viable, otherwise additional routes would need to be investigated which is outside of this TN scope of work. The red dashed box on the following figure identifies the approximate location of the bridge discussed.

1.12 Route 1 avoids the constraints described in Route 2 (Worlington) and Route 3 (Elms Road/Church Lane and Freckenham) in the following paragraphs.

[1] https://www.suffolk.gov.uk/roads-and-transport/roads-pavements-and-verges/bridges-and-highway-structures/

Figure 31: Google Aerial of the Bridge

Figure 32: Google Street View of the Bridge

Ferry Lane – Route 2 (Worlington)

Description of Route from the SRN

1.13 The nearest part of the SRN to Sunnica East Site A Access E on Ferry Lane is the A11. This route from the A11 to Ferry Lane is via the A11 northbound off-slip junction at Red Lodge, Newmarket Road, The Street/Frechenham Road through Worlington and Isleham Road.

Newmarket Road /The Street/Mildenhall Road

1.14 **Entry Route**: All three cranes are unable to perform the left turn manoeuvre to access the Sunnica East Site A Access E on Ferry Lane via the Newmarket Road/The Street/Mildenhall Road T-junction. This is due to the building on the junction's northern side and a wall on the western side of the junction which results in the crane being unable to make this manoeuvre. Google Street View images are below showing the existing layout of the Newmarket Road/The Street/Mildenhall Road T-Junction with the swept path analysis also provided below. The use of this T-Junction It is not considered appropriate for use for the three cranes identified.

Figure 33: Google Street View along Newmarket Road

Figure 34: Google Street View along The Street

Figure 35: Google Aerial

1.15 The three figures below show the swept path analysis of the 1000T, 650T and 400T cranes. The swept path analysis shows the three cranes are unable to perform the manoeuvre and therefore this route is not considered appropriate based on the three cranes identified.

Figure 36: 1000T Crane

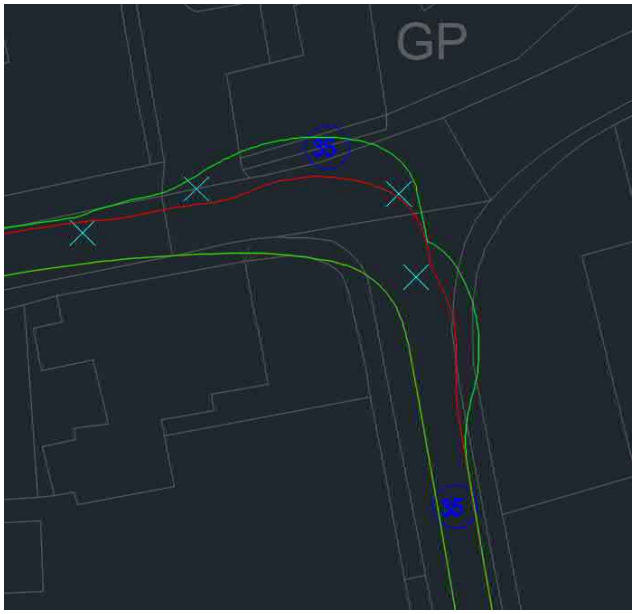
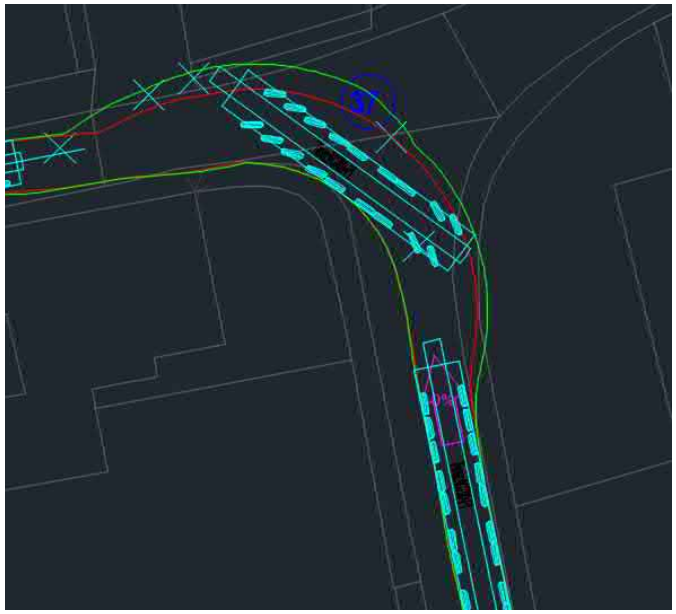


Figure 37: 650T Crane

Figure 38: 400T Crane



Ferry Lane – Route 3 (Elms Road/Church Lane and Freckenham)

Description of Route from the SRN

1.16 The nearest part of the SRN to Sunnica East Site A Access E on Ferry Lane is the A11. This route from the A11 to Ferry Lane is via Elms Road, Church Lane through Freckenham, B1102 (Mildenhall Road) and Ferry Lane.

Elms Road/Church Lane Junction

1.17 **Entry Route**: All three cranes require the street furniture to be removed at this junction. Furthermore, a verge on the junction's western side could require lowering dependant on the height of the front end of the crane with the vehicle restricted in its body overhang on the eastern side of the junction due to the wall. In addition, there is a telephone and gas infrastructure to consider if any junction works were required at this junction. Google Street View images and the swept path analysis for the 1000T, 650T and 400T cranes at the Elms Road/Church Lane T-junction. It is not considered at this stage the temporary removal of street furniture to be a major concern. However, the location of the telegraph pole will be in the path of the body overhang of the cranes. Additional checks would be required to ensure the height of the power lines and trees do not impact on the cranes at this junction.

1.18 Overall, due to the concerns regarding the verge height, location of the telegraph pole and the overall narrow size of the junction, with additional checks of the height of the trees and requiring the removal of the street furniture, manoeuvring the three cranes identified through the Elms Road/Church Street junction is not considered appropriate.

Figure 39: Elms Road Google Street View

Figure 40: Church Street Google Street View

Figure 41: Elms Road/Church Street Google Aerial

1.19 The three figures below show the swept path analysis of the 1000T, 650T and 400T cranes preforming the right turn from Elms Road to Church Lane which shows the front overhang of the crane along the northern verge of the T-junction.

Figure 42: 1000T Crane

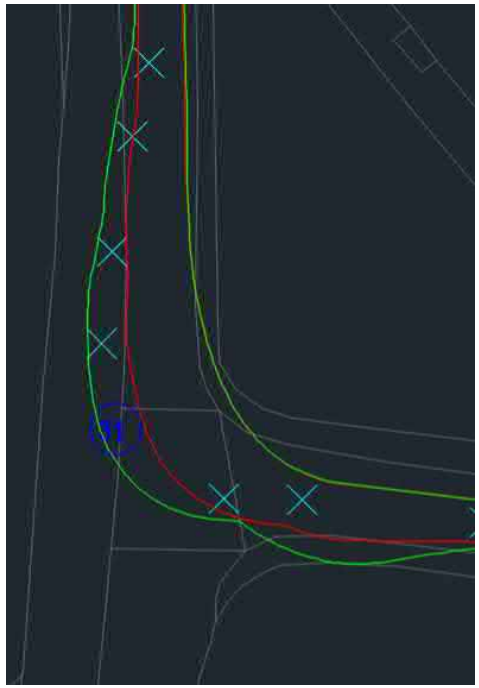


Figure 43: 650T Crane

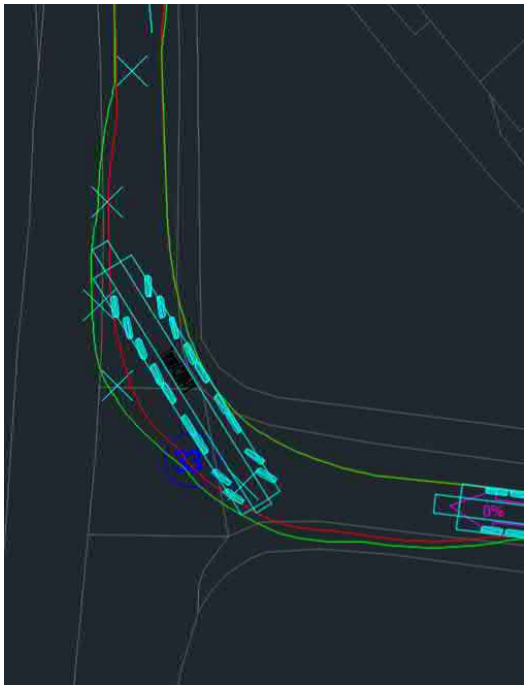


Figure 44: 400T Crane

Sunnica East Site B – Access C – Elms Road

Description of Route from the SRN

1.20 The nearest part of the SRN to Elms Road site access is the A11 via the A11 northbound off-slip/Elms Road T-Junction (entry) or the Red Lodge Dumbbell Roundabouts (egress).

Entry: A11/Elms Road Junction

1.21 The site access is accessed via Elms Road and is located a short distance from the A11/Elms Road T-Junction. The 1000T crane can manoeuvre the left turn from A11 Northbound off-slip onto Elms Road. However, the body of the crane overhangs the northern edge of the junction, while wheels are within the carriageway. From Google Street View there is a street sign located on the northern carriageway which could require temporary removal for the crane to perform the turn. Below is swept path analysis and Google Street View of the A11 Northbound Off-Slip/Elms Road T-Junction. It is not considered a major concern to temporarily remove the street signage for the crane to make this manoeuvre. The 650T and 400T cranes can manoeuvre this turn without the overhang and therefore do not need any street signage to be removed. Overall, this junction is considered appropriate for all three cranes.

Figure 45: Swept Path Analysis: 1000T Crane

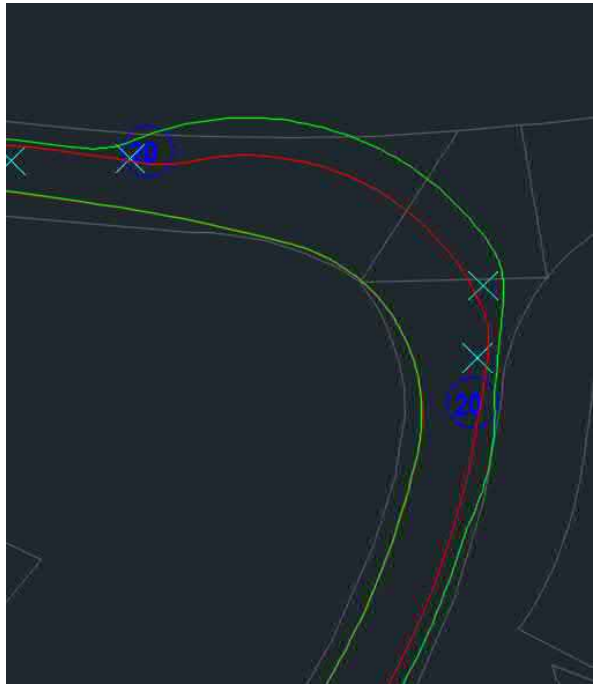


Figure 46: Google Aerial A1/Elms Road T-Junction

Figure 47: Swept Path Analysis: 650T Crane A11/Elms Road

Figure 48: Swept Path Analysis: 400T Crane A11/Elms Road

Egress: Red Lodge Dumbbell Roundabouts

1.22 For the egress route the 1000T crane is expected to use the Red Lodge Dumbbell Roundabouts. The swept path analysis shows the crane performing the manoeuvre from Elms Road to the A11 southbound while remaining within the carriageway. The swept path analysis below also helps to indicate that the 1000T should be able to manoeuvre the Red Lodge Dumbbell roundabouts for any direction of travel to/from the A11. The swept path analysis below shows the 1000T crane can manoeuvre the Red Lodge Dumbbell Roundabouts and therefore it is assumed the 650T and 400T cranes can also perform the manoeuvre. Overall, this junction is considered appropriate for all three cranes.

Figure 49: Swept Path Analysis: 1000T Crane Red Lodge Dumbbell Roundabouts

Figure 50: Google Aerial Red Lodge Dumbbell Roundabouts

Sunnica West Site A – Access A – La Hogue Road

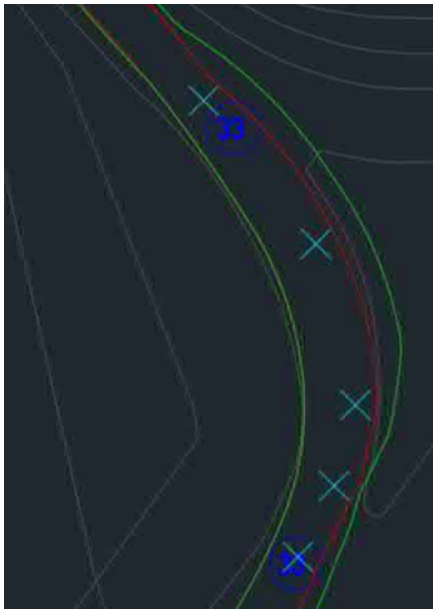
Description of Route from the SRN

1.23 The nearest part of the SRN to La Hogue Road site access is the A11 via the A11 northbound off-slip/northbound on-slip/La Hogue Road junction. Below identifies the swept path analysis and Google Street View of the A11 northbound off-slip.

A11/ La Hogue Road Junction

1.24 **Entry Route**: The site access is accessed via La Hogue Road a short distance from the A11 slip roads. The required cranes can manoeuvre the left turn from A11 onto La Hogue Road. However, this requires the traffic signage to be temporarily removed as shown in the Google Street View image. It is not considered to be a concern to temporarily remove the street signage. Overall, at this stage this route is considered appropriate for all three cranes.

Figure 51: Swept Path Analysis: 1000T Crane Figure 52: Google Street View A11 Northbound Off-Slip onto La Hogue Road



1.25 **Egress Route:** The three cranes tested can negotiate the left turn from La Hough Road onto the A11 while maintaining the wheels within the carriageway. However, based on the swept path analysis and Google Street View there is the potential requirement for the traffic signage to be temporarily removed for the 1000T crane. It appears from the swept path analysis and Google Street View that the 650T and 400T cranes may not need the street signage to be removed to perform the La Hogue Road to A11 manoeuvre even though there is a small body overhang. The temporary removal of the street signage is not considered a significant constraint to the use of this route. Overall, at this stage this route is considered appropriate for all three cranes.

Figure 53: Swept Path Analysis: 1000T Crane

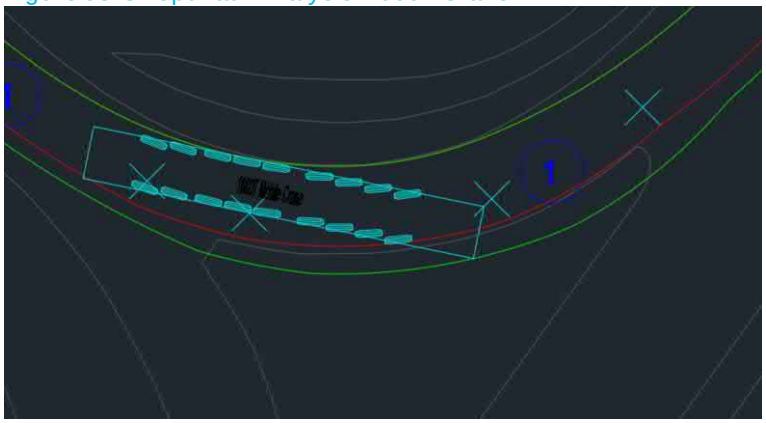


Figure 54: Google Street View A11 Northbound On-Slip from La Hogue Road

Figure 55: Swept Path Analysis: 650T Crane

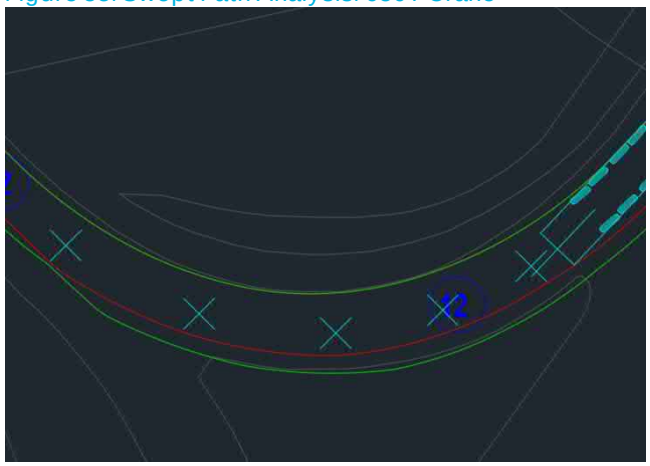
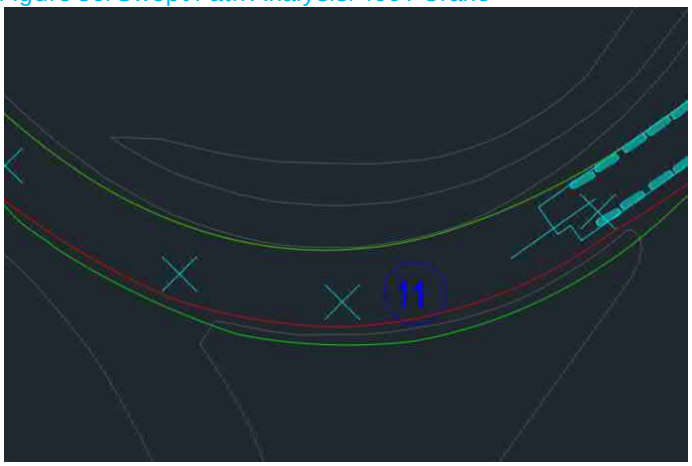


Figure 56: Swept Path Analysis: 400T Crane



Annex D2: Crane Route Review 2

Ferry Lane/Beck Road Alternative Access Options

Option 1 – Gated Access

1.1 The access is located on Beck Road which is a two-way road with a national speed limit (60mph). The existing access to the farm consists of hard surfacing (tarmac) with gates and a brick wall on both sides of the access road. The existing access to the farm is shown in Figure 1, with the cranes swept path analysis shown below.

1.2 The swept path analysis shows that to accommodate the cranes the existing site access requires widening with the removal of the gates and part of the brick wall. The existing site access will require additional hard surfacing to be provided as the existing hard surfacing cannot accommodate the cranes as the vehicle tracking overrun the grass verge.

Figure 1: Gated Site Access Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Figure 2: 1000T Crane Entry

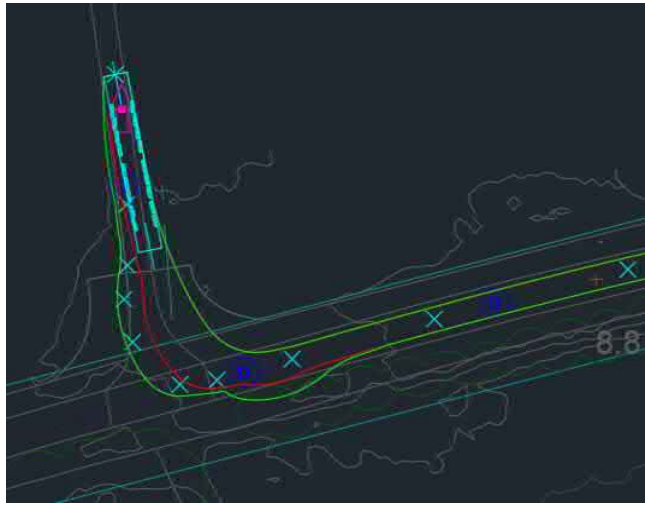


Figure 3: : 1000T Crane Egress

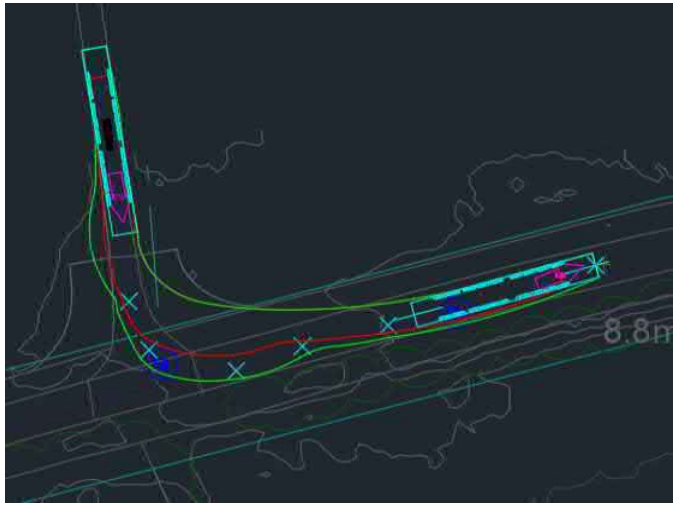


Figure 4: 650T Crane Entry

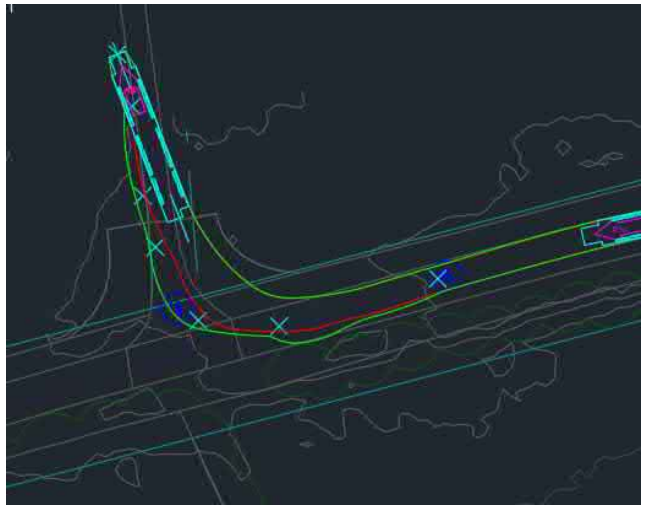


Figure 5: 650T Crane Egress

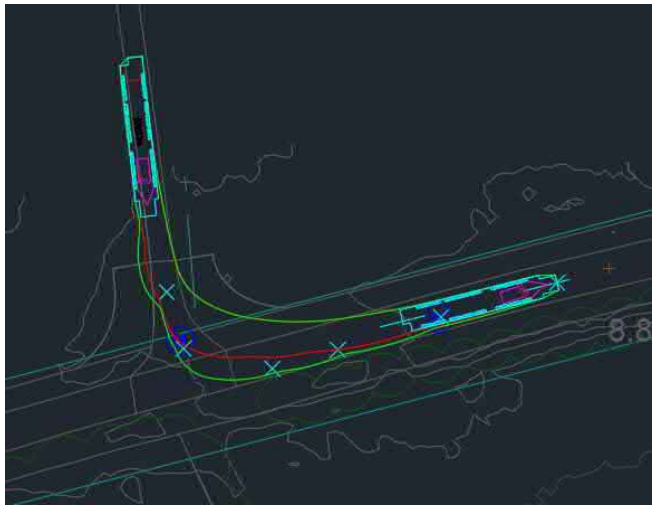


Figure 6: 400T Crane Entry

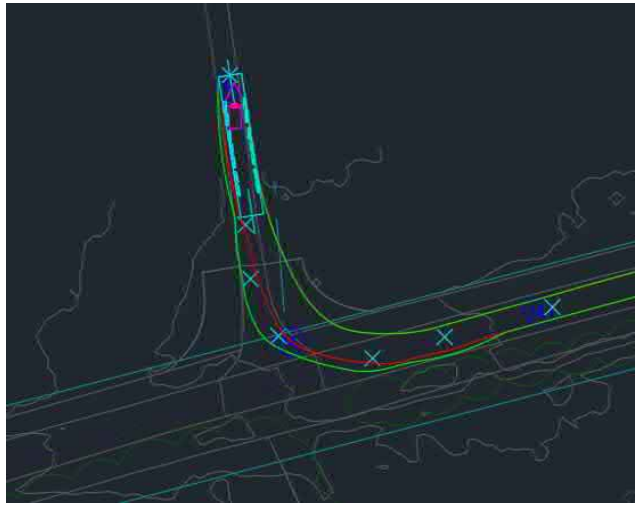
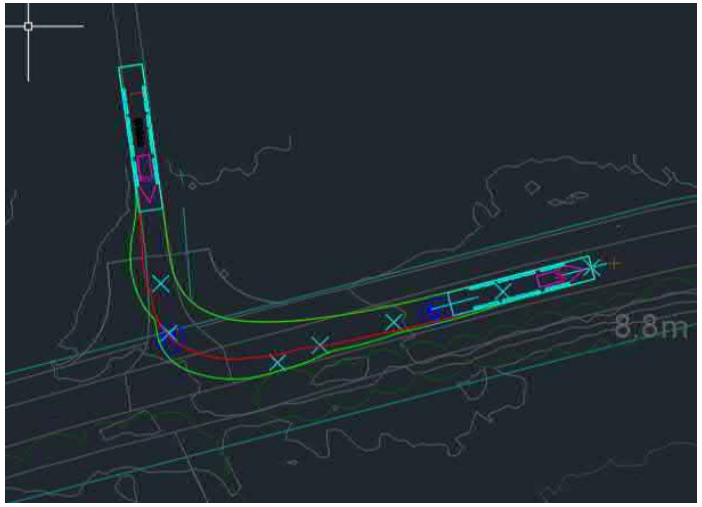


Figure 7: 400T Crane Egress



Option 2 – Farm Access

1.3 This site access is also located on Beck Road approximately 320m to the east of the gated access. There is an existing farm access with a gap in the hedgerow connected to an internal track which runs in a north-south direction. The existing site access is narrow and is an unmade access which is bounded by hedgerow on either side. This access, approximately 4.0m to 4.5m wide, is used by agricultural vehicles to access the farmland. The existing farm site access is shown below. The swept path analysis have been undertaken for 1000T, 650T and 400T cranes and shown below. The swept path analysis indicates the existing access requires widening to accommodate the cranes. This results in the removal of hedgerow for the cranes to enter and egress the site access. The junction work area to accommodate the cranes is identified below.

Figure 8: Farm Site Access (View Westbound) Google Earth Street View*

Figure 9: Farm Site Access (View Eastbound) Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Figure 10: 1000T Crane Entry

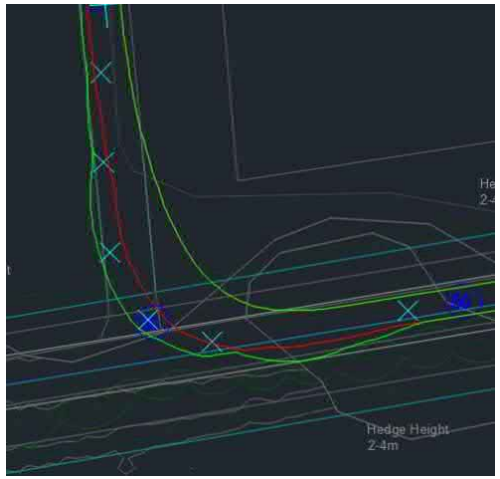


Figure 11: 1000T Crane Egress

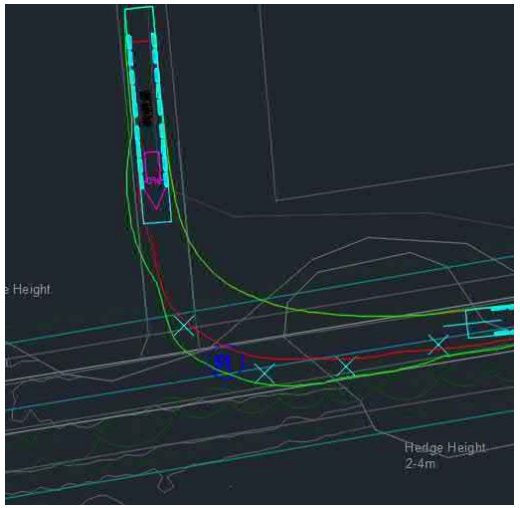


Figure 12: 650T Crane Entry

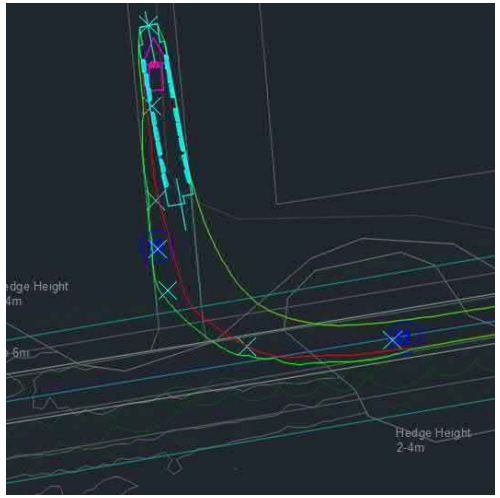


Figure 13: 650T Crane Egress

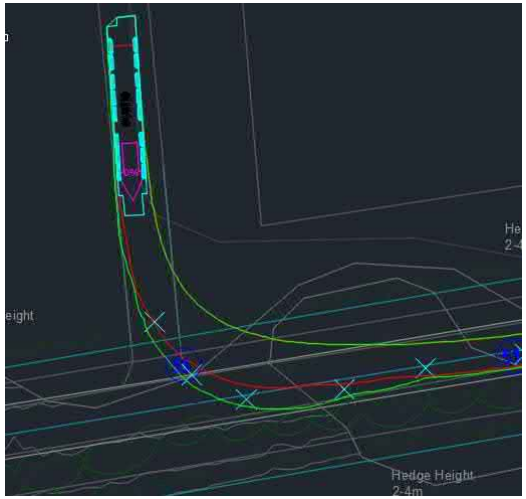


Figure 14: 400T Crane Entry

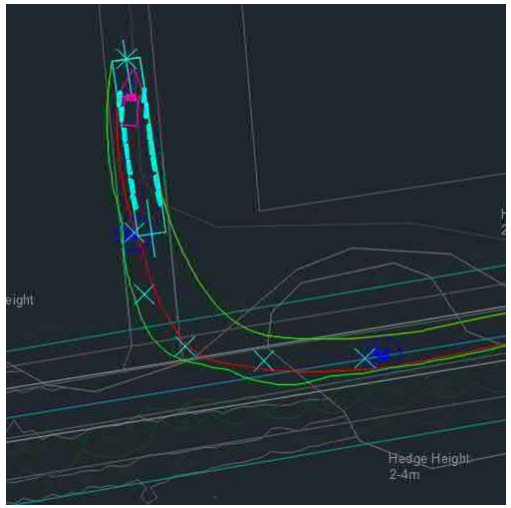


Figure 15: 400T Crane Egress

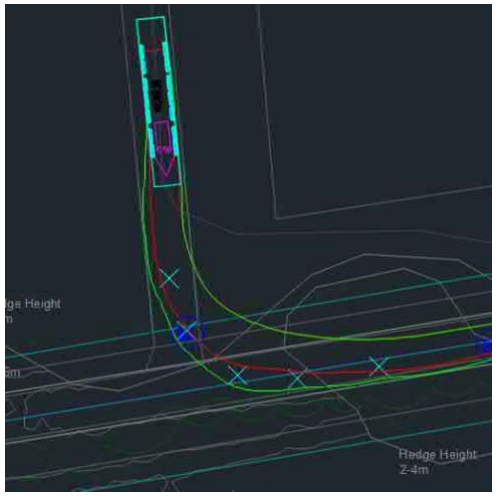


Figure 16: Crane Entry Option 2 – Junction Works Area*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

2. Route to/from the A11

Description of Route from the SRN

2.1 The A11 has been identified as the nearest access from the SRN to Beck Road. The route from the A11 to Beck Road is via the B1085 (High Street) through Chippenham, B1104 and B1102 Fordham Road through Freckenham to Beck Road. This route (blue line) is identified below, with the number 1 identifying the approximate location of site access option 1 and the number 2 the approximate location of site access option 2. Swept path analysis has been undertaken for all manoeuvres along the egress route from Beck road to the A11 for a 1000T crane, with the key constraints identified and discussed below. Where the 1000T crane can perform the manoeuvre without any street furniture / sign removal, the 650T and 400T cranes have not had their swept path analysis undertaken as it is assumed the smaller cranes have will have no additional constraints than those discussed below. In addition, the swept path analysis has been undertaken for the entry route manoeuvre from Ferry Lane left turn to Beck Road as this had not been previously undertaken as it was not part of the route, this analysis has been undertaken for all three cranes.

Figure 17: Egress Route

Beck Road to Ferry Lane

2.2 **Egress Route:** The 1000T crane can manoeuvre the right turn from Back Road to Ferry Lane. However, the cranes body overhangs the central island with the wheels within the carriageway. The figures below identify the swept path analysis undertaken for the 1000T, 650T and 400T crane undertaking the right turn from Beck Road to Ferry Lane along with the Google Earth Street View.

2.3 As a result of the swept path analysis, a road traffic sign within the central island on Beck Road would require temporary removal while the crane egresses the site back to the SRN. In addition, give the close proximity of the second road traffic sign on the opposite side of the carriageway, it is recommended that this is also temporarily removed to ensure the wingmirrors do not make contract with the road traffic sign, which is also recommended for a 650T and 400T cranes. The temporary removal of the road traffic signage is not considered a significant constraint to use this route. Overall, at this stage, this egress route is considered appropriate for all three cranes.

Figure 18: 1000T Crane Egress

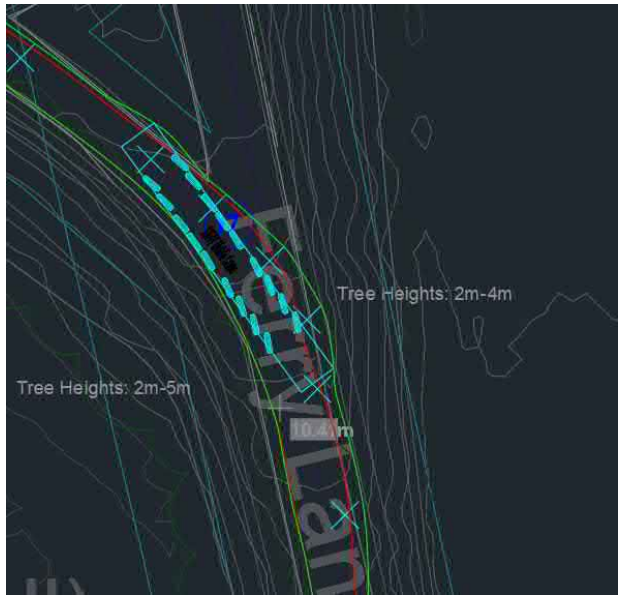


Figure 19: Beck Road Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Figure 20: 650T Crane Egress

Figure 21: 400T Crane Egress

2.4 **Entry Route**: The 1000T crane can make the left-turn manoeuvre from Ferry Lane onto Beck Road based on the swept path analysis undertaken for a 1000T, 650T and 400T cranes. However, this will require the temporary removal of the road traffic sign within the central island. Given the close proximity of the two road traffic signs to the edge of the carriageway, the temporary removal of the road traffic signs is recommended for the 1000T, 650T and 400T cranes. The temporary removal of the road traffic sign is not considered a significant constraint to the use of this route. Overall, at this stage, this entry route is considered appropriate for all three cranes.

Figure 22: 1000T Crane Entry

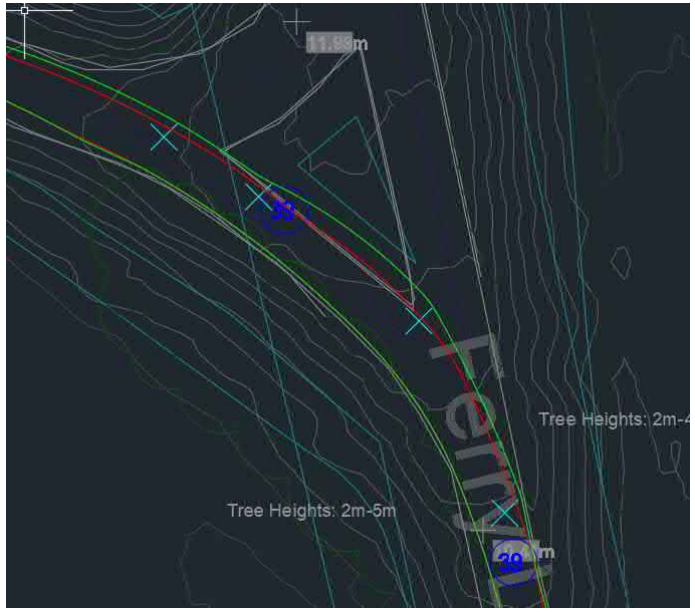


Figure 23: Beck Road Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Figure 24: 650T Crane Entry

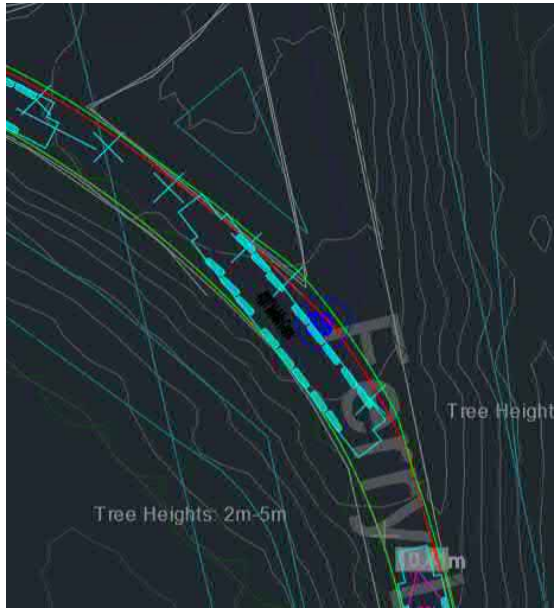


Figure 25: 400T Crane Entry

Ferry Lane to B1102 Mildenhall Road

2.5 The 1000T crane can manoeuvre the right turn from Ferry Lane to B1102 Mildenhall Road. However, the crane overhangs the verge with the rear part of the body overhanging the eastern side of the verge on Ferry Lane, however the wheels remain within the carriageway. Road traffic signs on Ferry Road are required to be temporarily removed. The 650T and 400T cranes do not require the removal of the road traffic sign. Overall, this junction is considered appropriate for all three cranes.

Figure 26: 1000T Crane Egress

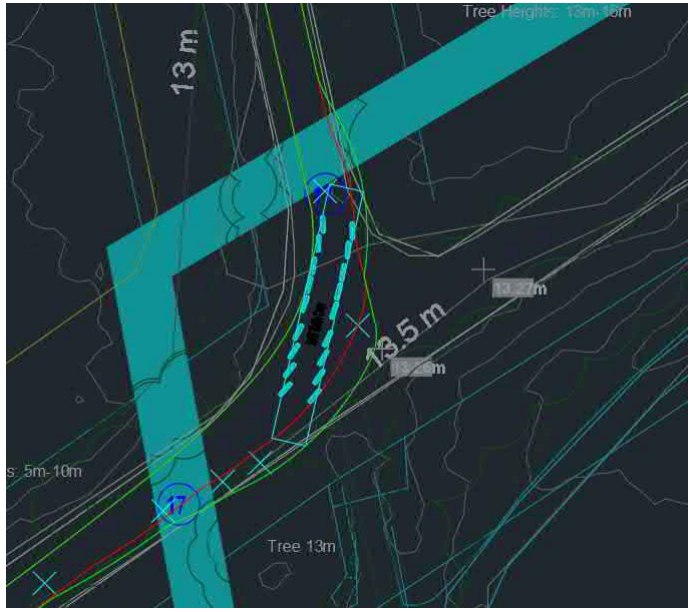
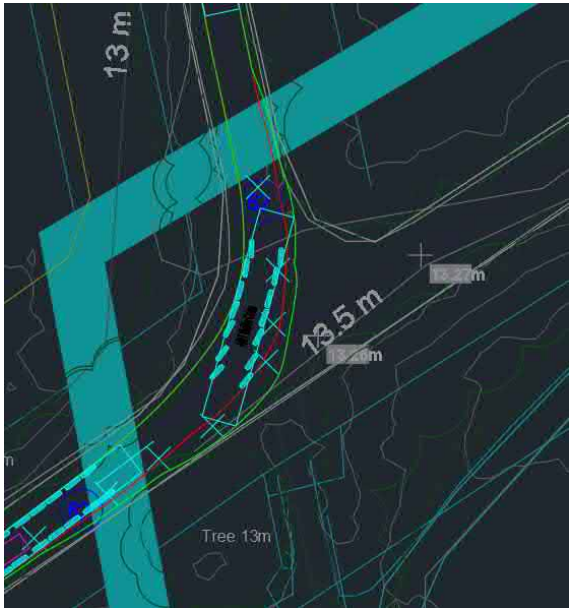


Figure 27: Ferry Lane to B1102 Mildenhall Road Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Figure 28: 650T Crane Egress

Figure 29: 400T Crane Egress



B1102 Mildenhall Road to The Street

2.6 The Mildenhall Road/The Street/Church Lane is a T-Junction with a central traffic island as shown in the Google Earth Street View image below. The 1000T crane can manoeuvre the right turn from Mildenhall Road onto The Street. This manoeuvre could require the tree in the central island to be trimmed back in order not to make contact with the crane, but this would need to be confirmed prior to construction. Overall, this junction is considered appropriate for all three cranes.

Figure 30: 1000T Crane Egress

Figure 31: B1102 Mildenhall Road Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

B1102 Fordham Road to B1104

2.7 Based on the swept path analysis, the 1000T crane can make the manoeuvre from B1102 Fordham Road onto B1104. In both directions the crane would require the full width of the road.

Figure 32: 1000T Crane Egress

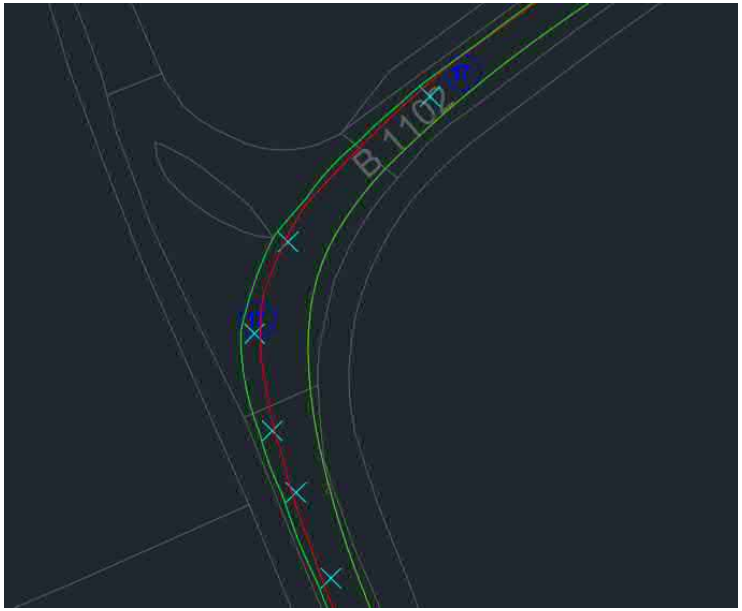


Figure 33: B1102 Fordham Road to B1104 Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

B1104 to B1085 High Street

2.8 The 1000T crane can manoeuvre the right turn from B1104 onto B1085 High Street. However, the crane will overhang with the rear part of the body over the eastern side of B1085 High Street, but the wheels remain within the carriageway. There are road traffic signs on B1085 High Street that would require temporary removal. The 650T and 400T cranes do not require traffic sign removal. Overall, this junction is considered appropriate for all three cranes.

Figure 34: 1000T Crane Entry

Figure 35: 1000T Crane Egress

Figure 36: B1104/B1085 Google Earth Aerial Photo*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Chippenham

2.9 The figures below identify the three cranes swept path analysis and the Google Earth Street View of the 'S' bends in Chippenham. Based on the swept path analysis no street furniture or road traffic signs are required to be temporarily removed. Overall, this route is considered appropriate for all three cranes.

Figure 37: 1000T Crane West 'S' Bend Egress

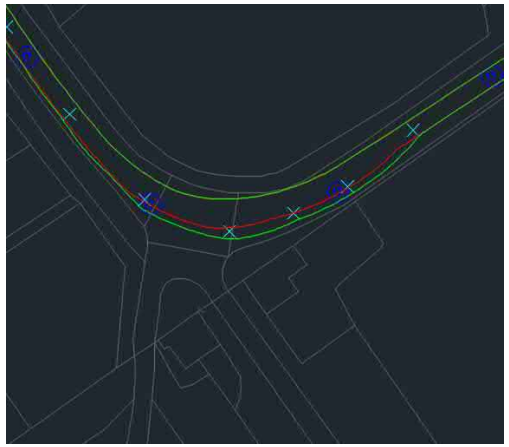


Figure 38: Chippenham West 'S' Bend High Street Google Earth Street View

Figure 39: 1000T Crane West 'S' Bend Egress

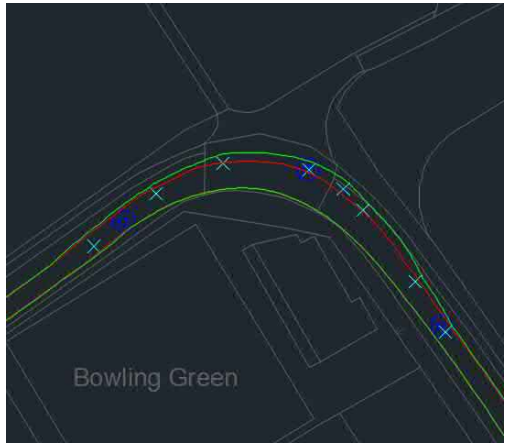
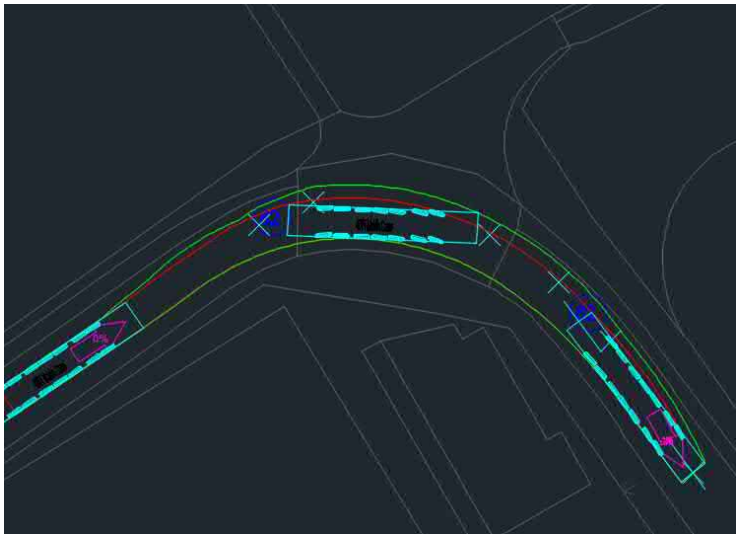


Figure 40: Chippenham West 'S' Bend High Street Google Earth Street View*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Figure 41: 650T Crane East ‘S’ Bend Egress

Figure 42: 400T Crane East ‘S’ Bend



Dane Hill Roundabout

2.10 The swept path analysis below identifies the 1000T crane undertaking the manoeuvre at the Dane Hill Roundabout from the B1085 to onto the A11 southbound on-slip. The swept path analysis shows the 1000T crane can manoeuvre the Dane Hill Roundabout, and therefore it is assumed the smaller 650T and 400T cranes can also undertake the manoeuvre. Overall, this junction is considered appropriate for all three cranes.

Figure 43: 1000T Crane Dane Hill Roundabout

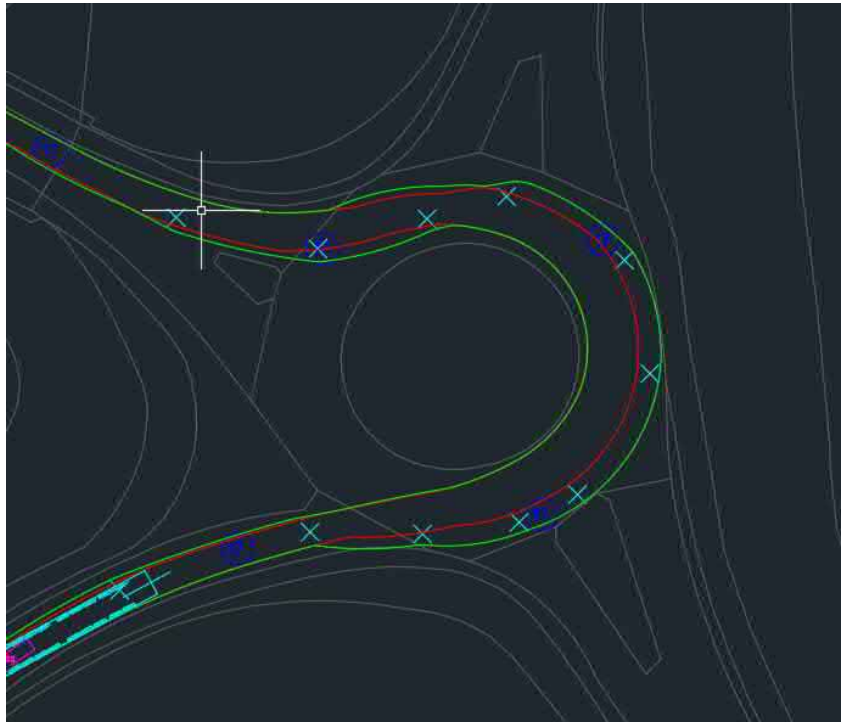


Figure 44: Dane Hill Roundabout Google Earth Aerial Photo*

* *"Google Earth Pro™ imagery in the form of Google Map™ and Google Streetview™ have been used, unmodified, within this document. This imagery has been used within the extents of the AECOM license agreement with Google Inc."*

Annex E – Stage 1 Road Safety Audit

Sunnica Solar Farm: Newmarket Road/ Site Access Junction

Stage 1 Road Safety Audit

Sunnica Energy

Project number: 60589004

October 2021

FINAL

Quality information

Prepared by	Checked by	Approved by
MW Associate Director, AECOM	KP Principal Transport Planner, AECOM	MW Associate Director, AECOM

Revision History

Revision	Revision date	Details	Authorised	Name	Position
-	30/09/21	DRAFT	MRW	MW	Associate Director
	05/10/21	FINAL	MRW	MW	Associate Director

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

Sunnica Energy

Prepared by:

AECOM Limited
Saxon House
27 Duke Street
Chelmsford CM1 1HT
United Kingdom

Table of Contents

1. Introduction

This report results from a Stage 1 Road Safety Audit carried out for the proposed solar farm site access on Newmarket Road, near Mildenhall, Suffolk. The Audit has been carried out at the request of the AECOM St Albans Development Planning team on behalf of the client: Sunnica Energy.

The Road Safety Team consisted of the following members:

MW

BA (Hons) MCIHT MSoRSA CoC

Audit Team Leader AECOM Limited

KP

BSc (Hons) CMILT MSoRSA CoC

Audit Team Member AECOM Limited

The Road Safety Audit was undertaken in accordance with the instruction to proceed and the RSA brief. The RSA brief was prepared by AECOM's St Albans Development Planning team and issued to the Audit Team on 15th September 2021. The Audit Team confirm that they are happy with the brief provided.

The Road Safety Audit comprised of an examination of the documents provided by the design team, which are listed in **Appendix A**, and an examination of the site during daylight hours.

The Road Safety Audit took place during September and October 2021 and the site was examined during the hours of daylight on the 20th September 2021. The weather during the site visit was overcast and the road surface was wet. The Audit was undertaken between the off-peak hours of 09:30 and 10:45 when traffic on the network in the vicinity of the works was flowing freely.

The locations of problems are shown in conjunction with the scheme proposals in **Appendix B** where the reference numbers relate to the problems identified in this report.

The Terms of Reference of the Audit are as described in GG 119 'Road Safety Audit' of Highways England's Design Manual for Roads and Bridges (DMRB). The advice issued in the GG 119 applies to trunk road and motorway highway improvement schemes, as well as highway schemes on the Trans-European Road Network (TERN) but has been used in this report to define the scope of this Audit.

The scheme has been examined, and this report compiled, only with regards to the safety implications to road users of the scheme as presented. It has not been examined or verified for compliance with any other standards, best practice guidance or criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Road Safety Audit Team may, on occasion, have referred to a design standard without touching on technical audit.

The RSA does not consider structural safety or cover health and safety issues concerning road users during the construction, maintenance and operation of the road.

An absence of comment relating to specific road users/ modes in **Section 4** of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.

This Road Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they are not raised in **Section 4** of this report as they fall outside the remit of Road Safety Audit in general.

Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.

All traffic sign and road marking diagram number references are made to the Traffic Signs Regulations and General Directions, 2016 (TSRGD).

2. Scheme Description

The proposed priority T-junction that forms the scope of this audit is to be located on Newmarket Road approximately 2km south of Mildenhall town centre and 2.5km north east of Red Lodge village. The A11(T) runs in a northeast to southwest direction in the vicinity of the junction; Newmarket Road forms the minor arm of an all-movements priority junction with the dual carriageway A11(T) approximately 70-80m south of the proposed new junction location. At a similar distance north of the proposed junction Newmarket Road forms the two major arms of a 'crossroads' junction, with the minor arms consisting of Golf Links Road to the west and a private access to the east.

Newmarket Road, at the location of the proposed junction, is a single carriageway road with a single running lane in each direction. Newmarket Road has no street lighting and is derestricted in terms of speed limit at this location. There are no footways, pedestrian crossings or marked cycle routes in the immediate vicinity.

The location of the proposed T-junction that forms the scope of this audit is at that of a prior (now blocked up) bell-mouth junction. The purpose of the proposed junction is to provide HGV access to/ from a proposed solar farm site during its construction phase, over a period of 13 months. Following the construction of the solar farm the site access is to be removed with vegetation replanted, as it is not to be used during the operational phase.

In terms of junction usage an average of between 9-12 HGVs (18-24 movements) daily are expected within the first five months of the 13-month construction programme; this figure will be reduced to between 2-3 HGVs (4-6 movements) daily for months six to thirteen.

Vehicles will only be permitted to turn left into and right out of the site access, ultimately taking access and egress routes via the A11(T) junction to the south. Although outside of the scope of this audit it is understood that development related vehicles will be restricted to left in/ left out turns only at the A11(T)/Newmarket Road Junction.

Visibility splays of 215m to the north and 100m to the south (extending to the A11(T) junction) have been shown on the plans provided (drawing reference: TRA_005).

The scope of this RSA covers the site access junction only, as shown on drawing reference TRA_003.

3. Matters Outstanding from Previous Road Safety Audits

The audit team are not aware of any other Road Safety Audits having been undertaken on the proposed scheme.

4. Matters Arising from the Stage 1 Road Safety Audit

The following problems have been identified from the documents submitted:

A GENERAL

No comments.

B LOCAL ALIGNMENT

No comments.

C NON-MOTORISED USER PROVISION

No comments.

D JUNCTIONS

D1 PROBLEM

Location: Proposed construction access junction.

Drawing: TRA_003_Golf_Links_Road_Option_2

Summary: Slow moving HGVs turning right from access may be at risk of being struck by northbound vehicles on Newmarket Road.

The proposed construction access is located close to the A11(T) junction. Construction vehicles turning right out of the site will do so relatively slowly and vehicles heading north on Newmarket Road, having turned from the A11 may collide with the slow turning construction vehicles.

RECOMMENDATION

Although it is acknowledged that the RSA brief states that warning signs are proposed along Newmarket Road warning motorists of the site access and HGVs turning, it is recommended that, at detailed design stage, a suitable clear warning signage strategy is designed (and reviewed as part of the Stage 2 Road Safety Audit) to ensure that drivers joining Newmarket Road from the A11 are aware of the construction access and potential for slow turning vehicles ahead. It is advised that the signage is provided as a ‘gateway’ on entry to Newmarket Road so that it is clearly seen by both right turning and left turning traffic from the A11.

E ROAD SIGNS, CARRIAGEWAY MARKINGS & LIGHTING

No comments.

5. Audit Team Statement

We certify that this Audit has been carried out in accordance with Road Safety Audit Standard (GG119).

AUDIT TEAM LEADER:

MW

BA (Hons) MCIHT MSoRSA CoC

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Signed:

Date: 05/10/2021

AUDIT TEAM MEMBER:

KP

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AECOM
Saxon House
27 Duke Street
Chelmsford, Essex
CM1 1HT
UK

Signed:

Date: 05/10/2021

Appendix A Document copies

The following documents were submitted as part of the Road Safety Audit:

Drawings

Drawing Title	Drawing Number
Swept path analysis for 16.5m articulated vehicle	TRA_003_Golf_Links_Road_Option_2.pdf (brief states dated 03.08.21)
Swept path analysis for 16.5m articulated vehicle - with topographical information	TRA_004_Golf_Links_Road_Option_2.pdf (brief states dated 03.08.21)
Visibility Splays	TRA_005_Golf_Links_Road_Option_2_Visibility_Splay_v2.pdf (brief states dated 03.08.21)
Swept path analysis for 16.5m articulated vehicle (A11 junction)	TRA_006_A11_Swept_Path_16.5m_Artic.pdf (brief states dated 03.08.21)*
Proposed site access layout, swept path analysis and visibility splays	210803_Golf_Links_Road_Site_Access_Option_2.dwg (brief states dated 03.08.21)

*out of RSA scope

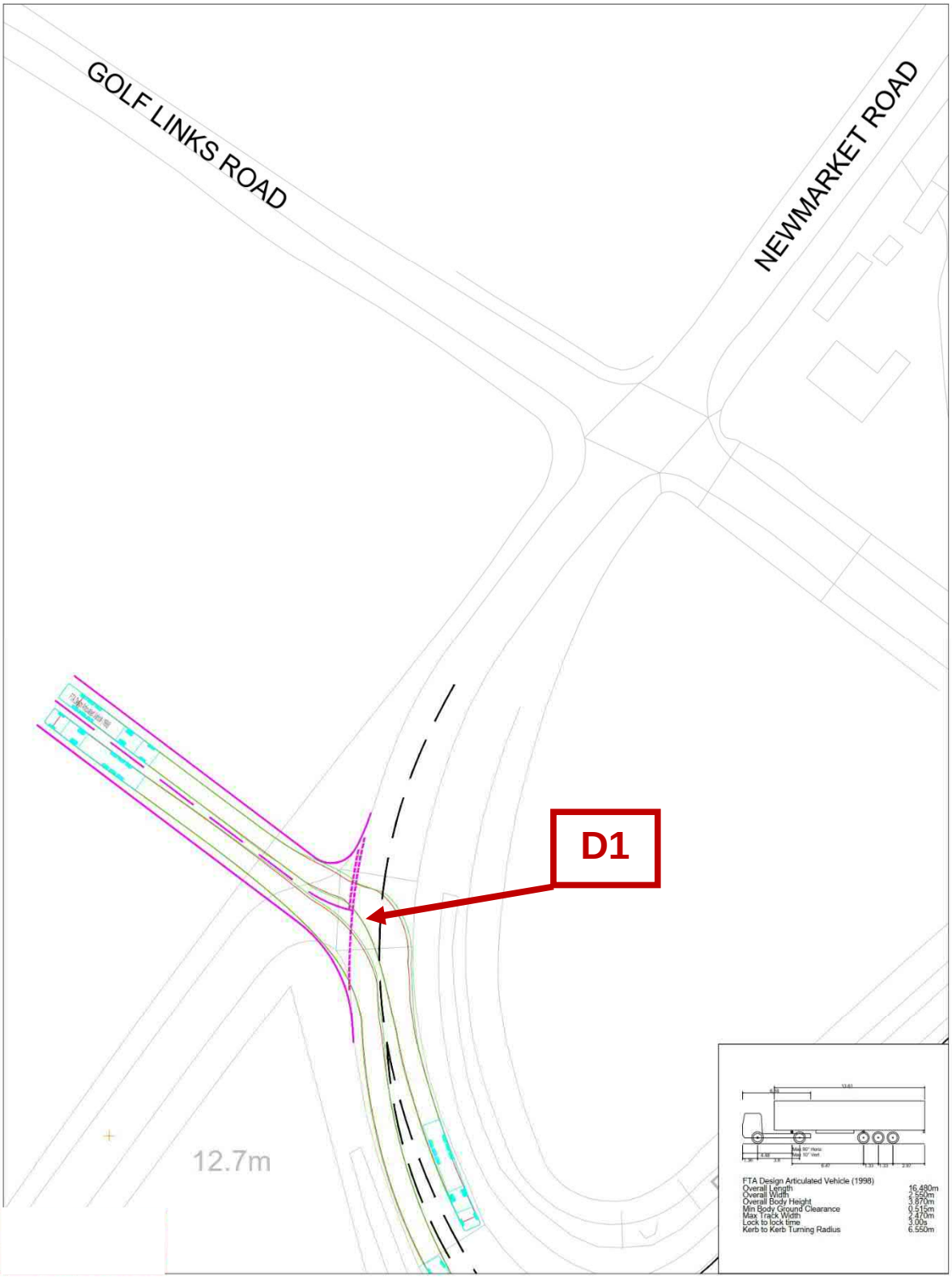
Documents

RSA Brief – dated 15.09.21

Departures from Standards

The RSA brief states that the fully 215m visibility to the north can be achieved along Newmarket Road however based on the existing visibility an approximate 100m visibility splay is achievable towards the A11. It is proposed to undertake a speed survey on Newmarket Road between its junctions with Golf Links Road and the A11.

Appendix B Locations of Problems


GOLF LINKS ROAD
NEWMARKET ROAD
D1
12.7m
FTA Design Articulated Vehicle (1998)
Overall Length 16.480m
Overall Width 2.550m
Overall Body Height 3.870m
Min Body Ground Clearance 0.515m
Max Track Width 2.470m
Lock to lock time 3.00s
Kerb to Kerb Turning Radius 6.550m

aecom.com

Annex F – Speed Surveys

ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-001 - Newmarket Road
LOC. DESC.	Newmarket Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Newmarket Road, commencing Fri 15 Oct 2021, recorded a total of 29,854 vehicles. The posted speed limit of 60mph was exceeded by 4.3% of vehicles, and the seasonally adjusted, combined AADT value is 4,476 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**29,854**
Avg daily volume (based on 7 days)	4,264.9
Average daily speed (7 days)	46.3mph
Average daily 85%ile (7 days)	53.8mph
AADT (annual average daily traffic)	4,476
Avg weekday volume (Mon-Fri, 24hrs)	4,603.8
Avg weekday speed (Mon-Fri, 24hrs)	45.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	3,942.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	45.5mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

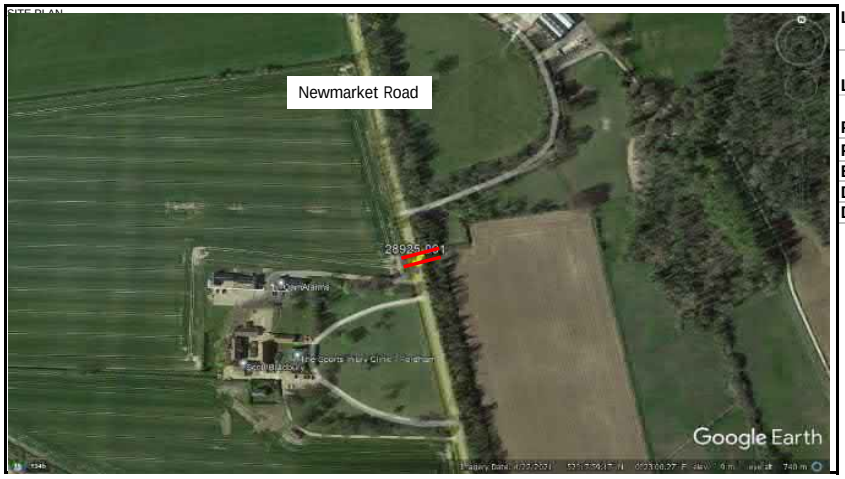
NORTHBOUND ↑

Total recorded volume	**14,952**
Avg daily volume (based on 7 days)	2,136.0
Average daily speed (7 days)	47.0mph
Average daily 85%ile (7 days)	54.3mph
% of vehicles exceeding 60mph	4.8%
Avg weekday volume (Mon-Fri, 24hrs)	2,294.0
Avg weekday speed (Mon-Fri, 24hrs)	46.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,975.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	46.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	53.3mph

SOUTHBOUND ↓

Total recorded volume	**14,902**
Avg daily volume (based on 7 days)	2,128.9
Average daily speed (7 days)	45.7mph
Average daily 85%ile (7 days)	53.2mph
% of vehicles exceeding 60mph	3.8%
Avg weekday volume (Mon-Fri, 24hrs)	2,309.8
Avg weekday speed (Mon-Fri, 24hrs)	45.3mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,966.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	44.9mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	52.1mph

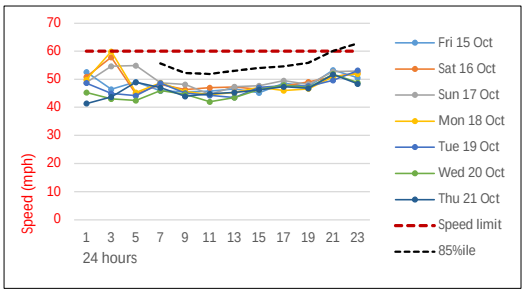
SITE LOCATION



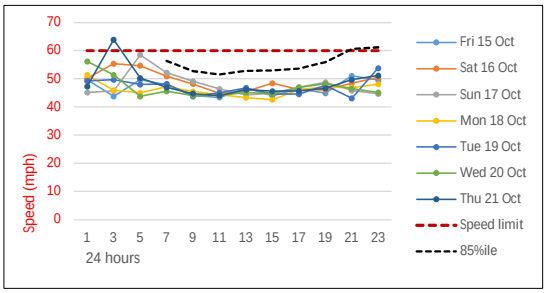
Location	Newmarket Road
Lat, lng.	52°17'52.24"N,0°23'17.30"E
Project & site	28925-001
PSL	60mph
Bus route	Yes
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

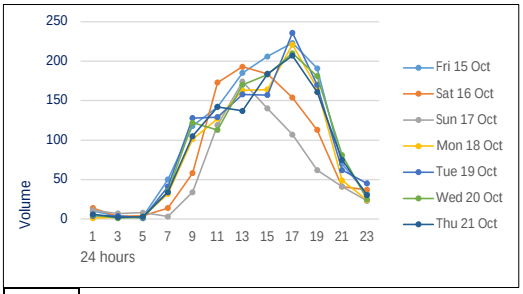


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 56.1mph at 18:15 on Sun 17 Oct, whilst the peak average southbound speed was 57.5mph at 07:00 on Sun 17 Oct (based on 15min averages between 0700 & 1900).

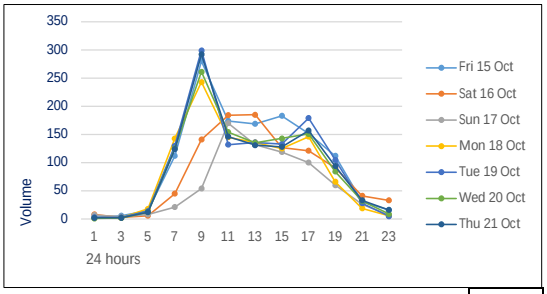
HOURLY VOLUMES

NORTHBOUND ↑



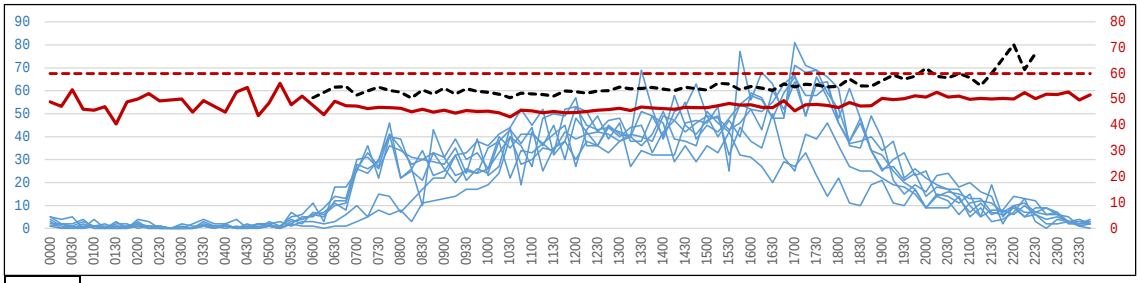
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

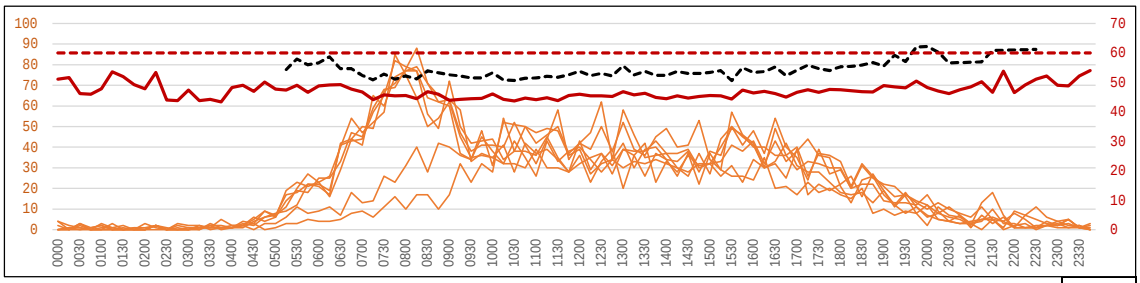


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



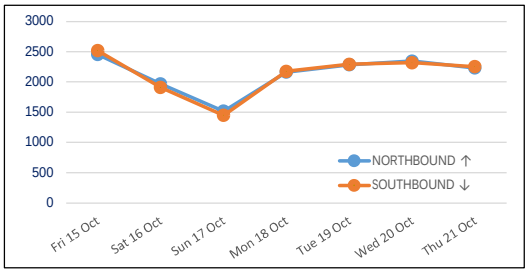
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

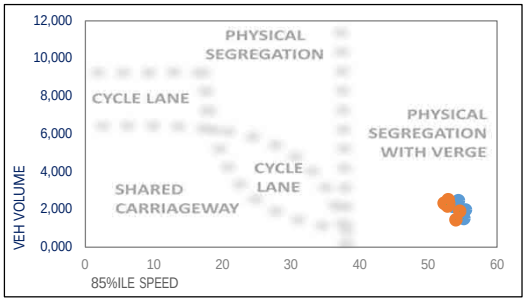
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.1	7.1	0.0	0.0	0.0	**7.3**
0100	0.1	3.0	0.0	0.0	0.0	**3.1**
0200	0.0	3.1	0.0	0.0	0.0	**3.1**
0300	0.0	3.1	0.4	0.0	0.0	**3.6**
0400	0.0	2.6	0.6	0.3	0.0	**3.4**
0500	0.7	8.4	0.0	0.1	0.0	**9.3**
0600	0.3	26.4	1.3	1.4	0.4	**29.9**
0700	0.1	90.7	5.1	1.9	0.6	**98.4**
0800	0.1	85.1	5.1	2.7	2.0	**95.1**
0900	0.9	96.4	5.4	3.6	0.6	**106.9**
1000	1.7	123.6	5.7	2.9	1.1	**135.0**
1100	0.7	145.7	6.9	3.0	0.3	**156.6**
1200	1.4	156.4	5.4	4.6	0.7	**168.6**
1300	1.3	158.3	4.1	2.7	0.7	**167.1**
1400	1.4	164.4	5.0	2.7	0.4	**174.0**
1500	0.7	168.1	5.0	5.0	1.1	**180.0**
1600	1.6	183.3	3.0	4.4	1.7	**194.0**
1700	3.0	209.0	2.4	2.7	0.7	**217.9**
1800	1.0	142.7	2.0	3.1	0.3	**149.1**
1900	0.6	89.3	1.0	2.0	0.0	**92.9**
2000	0.1	58.1	1.0	0.1	0.4	**59.9**
2100	0.3	35.9	0.4	0.3	0.3	**37.1**
2200	0.6	29.7	0.6	0.0	0.0	**30.9**
2300	0.3	12.4	0.1	0.0	0.0	**12.9**
12hr TTL	**14.0**	**1723.9**	**55.3**	**39.3**	**10.3**	**1842.7**
24hr TTL	**17.1**	**2003.1**	**60.7**	**43.6**	**11.4**	**2136.0**
	1%	94%	3%	2%	1%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	3.6	0.1	0.0	0.0	**3.7**
0100	0.0	2.1	0.3	0.1	0.0	**2.6**
0200	0.0	3.0	0.0	0.1	0.0	**3.1**
0300	0.0	3.4	0.4	0.7	0.0	**4.6**
0400	0.0	8.7	0.6	2.9	0.0	**12.1**
0500	0.9	40.4	1.7	6.4	0.0	**49.4**
0600	1.4	89.9	1.7	6.0	1.0	**100.0**
0700	0.9	178.4	4.7	3.9	1.4	**189.3**
0800	1.3	214.0	5.0	3.6	0.4	**224.3**
0900	1.1	161.1	4.7	3.9	1.0	**171.9**
1000	0.6	147.1	5.7	2.9	1.6	**157.9**
1100	0.9	141.6	7.0	3.3	0.4	**153.1**
1200	1.0	136.4	5.7	2.6	0.6	**146.3**
1300	1.3	141.3	4.0	2.1	0.4	**149.1**
1400	1.0	127.7	5.0	2.0	1.1	**136.9**
1500	0.7	139.7	4.6	2.6	0.7	**148.3**
1600	0.6	138.3	3.3	1.4	0.1	**143.7**
1700	0.6	114.6	2.0	0.6	0.3	**118.0**
1800	0.7	84.6	1.3	0.7	0.1	**87.4**
1900	0.0	54.7	0.4	0.4	0.0	**55.6**
2000	0.0	29.6	0.3	0.1	0.0	**30.0**
2100	0.4	19.6	0.3	0.0	0.3	**20.6**
2200	0.0	13.0	0.1	0.0	0.0	**13.1**
2300	0.1	7.1	0.3	0.3	0.0	**7.9**
12hr TTL	**10.6**	**1724.9**	**53.0**	**29.4**	**8.3**	**1826.1**
24hr TTL	**13.4**	**2000.0**	**59.3**	**46.6**	**9.6**	**2128.9**
	1%	94%	3%	2%	0%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

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Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
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These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

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Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

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Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-002 - Fordham Road
LOC. DESC.	Fordham Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Fordham Road, commencing Fri 15 Oct 2021, recorded a total of 5,568 vehicles. The posted speed limit of 60mph was exceeded by 0.2% of vehicles, and the seasonally adjusted, combined AADT value is 848 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**5,568**
Avg daily volume (based on 7 days)	795.4
Average daily speed (7 days)	29.6mph
Average daily 85%ile (7 days)	33.6mph
AADT (annual average daily traffic)	848
Avg weekday volume (Mon-Fri, 24hrs)	930.2
Avg weekday speed (Mon-Fri, 24hrs)	29.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	845.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	29.7mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**2,791**
Avg daily volume (based on 7 days)	398.7
Average daily speed (7 days)	28.8mph
Average daily 85%ile (7 days)	32.9mph
% of vehicles exceeding 60mph	0.1%
Avg weekday volume (Mon-Fri, 24hrs)	470.8
Avg weekday speed (Mon-Fri, 24hrs)	29.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	426.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	28.9mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	32.6mph

SOUTHBOUND ↓

Total recorded volume	**2,777**
Avg daily volume (based on 7 days)	396.7
Average daily speed (7 days)	30.4mph
Average daily 85%ile (7 days)	34.3mph
% of vehicles exceeding 60mph	0.2%
Avg weekday volume (Mon-Fri, 24hrs)	459.4
Avg weekday speed (Mon-Fri, 24hrs)	30.5mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	418.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	30.5mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	34.1mph

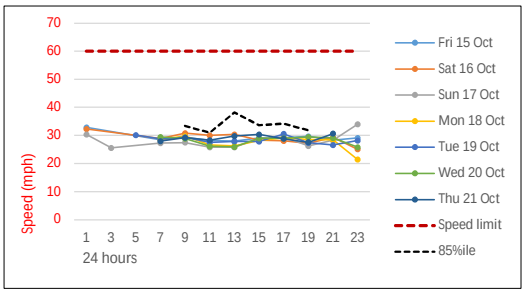
SITE LOCATION

SITE PLAN

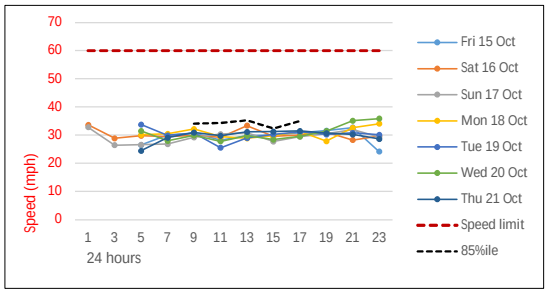
Location	Fordham Road
Lat, lng.	52°17'11.31"N,0°24'21.68"E
Project & site	28925-002
PSL	60mph
Bus route	Yes
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

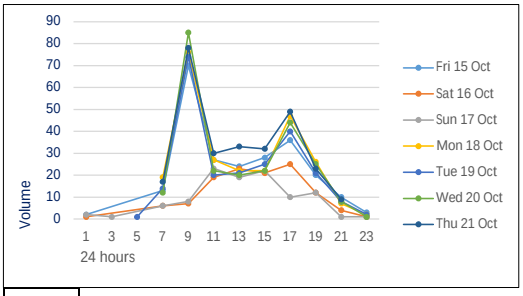


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 36.8mph at 09:15 on Sat 16 Oct, whilst the peak average southbound speed was 39.5mph at 15:00 on Fri 15 Oct (based on 15min averages between 0700 & 1900).

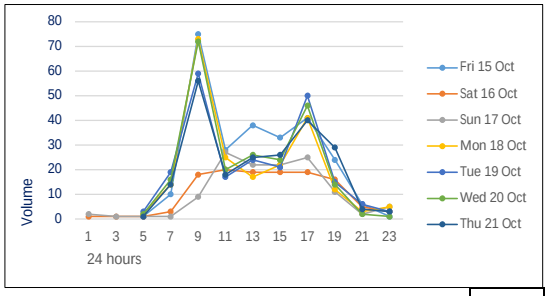
HOURLY VOLUMES

NORTHBOUND ↑



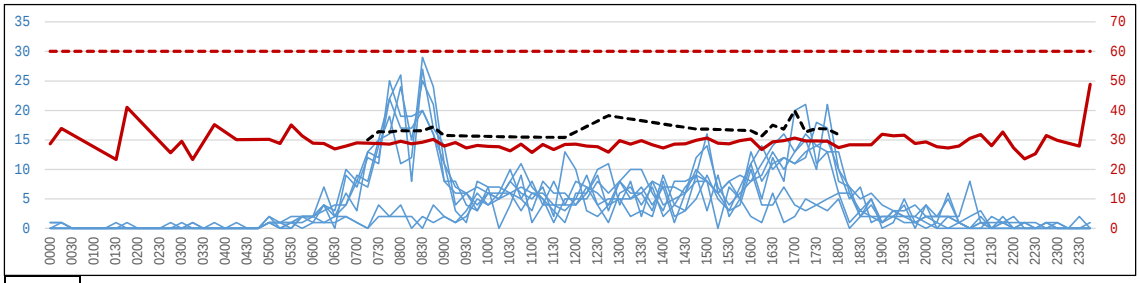
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

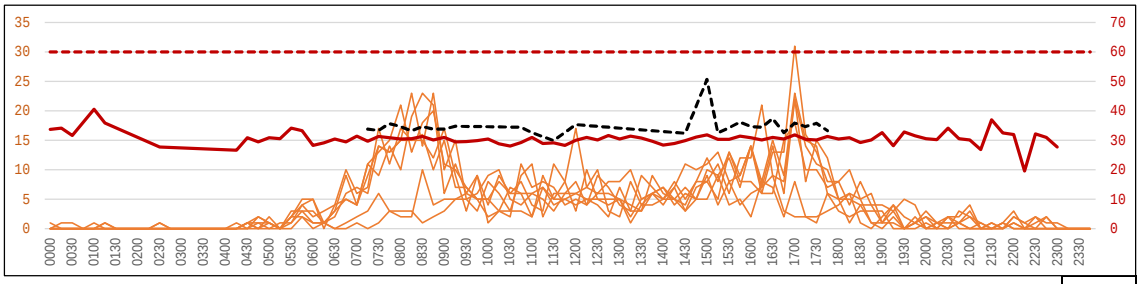


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



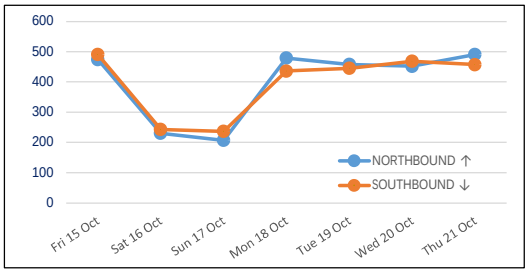
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	0.7	0.0	0.0	0.0	**0.7**
0100	0.0	0.3	0.0	0.0	0.0	**0.3**
0200	0.0	0.1	0.0	0.0	0.0	**0.1**
0300	0.0	0.6	0.0	0.0	0.0	**0.6**
0400	0.0	0.1	0.0	0.0	0.0	**0.1**
0500	0.3	4.0	0.0	0.0	0.0	**4.3**
0600	0.4	12.0	0.0	0.0	0.0	**12.4**
0700	1.1	37.3	0.3	0.0	0.0	**38.7**
0800	0.9	55.0	0.9	0.1	0.0	**56.9**
0900	0.3	20.4	0.7	0.0	0.0	**21.4**
1000	1.4	20.7	1.4	0.4	0.0	**24.0**
1100	1.3	18.0	0.4	0.1	0.0	**19.9**
1200	1.0	21.6	0.4	0.1	0.0	**23.1**
1300	1.0	21.0	1.1	0.1	0.0	**23.3**
1400	0.9	22.7	0.7	0.3	0.0	**24.6**
1500	0.0	25.1	0.6	0.0	0.1	**25.9**
1600	0.9	34.6	0.4	0.0	0.0	**35.9**
1700	0.4	45.1	0.3	0.0	0.0	**45.9**
1800	0.1	19.4	0.1	0.1	0.0	**19.9**
1900	0.0	7.9	0.1	0.1	0.0	**8.1**
2000	0.0	6.6	0.1	0.0	0.0	**6.7**
2100	0.0	3.9	0.0	0.0	0.0	**3.9**
2200	0.1	1.3	0.0	0.0	0.0	**1.4**
2300	0.0	0.7	0.0	0.0	0.0	**0.7**
12hr TTL	**9.3**	**341.0**	**7.4**	**1.4**	**0.1**	**359.3**
24hr TTL	**10.1**	**379.1**	**7.7**	**1.6**	**0.1**	**398.7**
	3%	95%	2%	0%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	0.4	0.0	0.0	0.0	**0.4**
0100	0.0	0.4	0.0	0.0	0.0	**0.4**
0200	0.0	0.3	0.0	0.0	0.0	**0.3**
0300	0.0	0.0	0.0	0.0	0.0	**0.0**
0400	0.0	1.6	0.0	0.0	0.0	**1.6**
0500	0.1	5.7	0.0	0.0	0.0	**5.9**
0600	0.0	11.0	0.0	0.0	0.0	**11.0**
0700	0.0	30.7	0.1	0.0	0.7	**31.6**
0800	1.1	50.1	0.3	0.1	0.0	**51.7**
0900	0.7	28.1	1.0	0.1	0.0	**30.0**
1000	1.0	19.9	0.9	0.4	0.0	**22.1**
1100	0.9	21.7	0.4	0.0	0.1	**23.1**
1200	1.0	22.9	0.4	0.1	0.0	**24.4**
1300	0.6	19.3	0.7	0.0	0.0	**20.6**
1400	0.6	22.9	0.4	0.0	0.0	**23.9**
1500	0.4	32.9	0.7	0.3	0.0	**34.3**
1600	0.3	36.3	0.7	0.1	0.0	**37.4**
1700	1.4	42.7	0.1	0.1	0.0	**44.4**
1800	0.0	17.1	0.1	0.0	0.0	**17.3**
1900	0.0	6.6	0.0	0.0	0.0	**6.6**
2000	0.1	3.9	0.0	0.0	0.0	**4.0**
2100	0.0	2.6	0.0	0.0	0.0	**2.6**
2200	0.1	2.9	0.0	0.0	0.0	**3.0**
2300	0.0	0.1	0.0	0.0	0.0	**0.1**
12hr TTL	**8.0**	**344.6**	**6.0**	**1.4**	**0.9**	**360.9**
24hr TTL	**8.4**	**380.0**	**6.0**	**1.4**	**0.9**	**396.7**
	2%	96%	2%	0%	0%	

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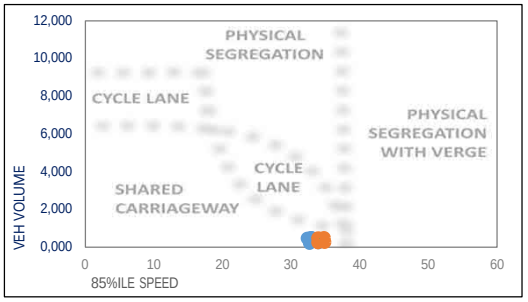

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4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

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Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Norfolk
LOCATION	28925-002 - Elms Road (East)
LOC. DESC.	Elms Road (East)
START DATE	Tue 28 Sep, 2021
END DATE	Mon 04 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Elms Road (East), commencing Tue 28 Sep 2021, recorded a total of 9,366 vehicles. The posted speed limit of 60mph was exceeded by 0.5% of vehicles, and the seasonally adjusted, combined AADT value is 1,317 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**9,366**
Avg daily volume (based on 7 days)	1,338.0
Average daily speed (7 days)	39.7mph
Average daily 85%ile (7 days)	46.8mph
AADT (annual average daily traffic)	1,317
Avg weekday volume (Mon-Fri, 24hrs)	1,461.6
Avg weekday speed (Mon-Fri, 24hrs)	39.8mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,187.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	39.7mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**4,978**
Avg daily volume (based on 7 days)	711.1
Average daily speed (7 days)	40.9mph
Average daily 85%ile (7 days)	48.0mph
% of vehicles exceeding 60mph	0.6%
Avg weekday volume (Mon-Fri, 24hrs)	778.4
Avg weekday speed (Mon-Fri, 24hrs)	41.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	642.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	40.7mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	47.7mph

SOUTHBOUND ↓

Total recorded volume	**4,388**
Avg daily volume (based on 7 days)	626.9
Average daily speed (7 days)	38.5mph
Average daily 85%ile (7 days)	45.6mph
% of vehicles exceeding 60mph	0.3%
Avg weekday volume (Mon-Fri, 24hrs)	683.2
Avg weekday speed (Mon-Fri, 24hrs)	38.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	545.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	38.6mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	45.7mph

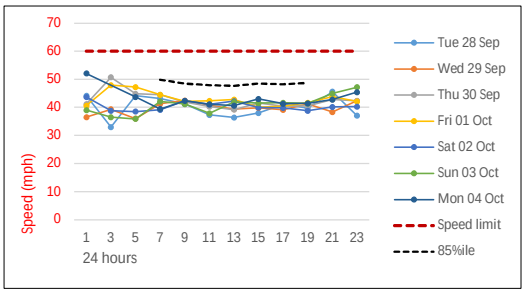
SITE LOCATION

SITE PLAN

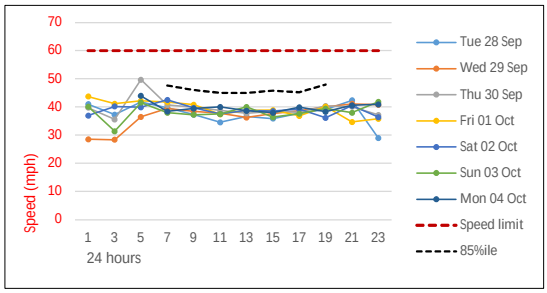
Location	Elms Road (East)
Lat, lng.	52°19'33.68"N/52°19'33.68" N
Project & site	28925-002
PSL	60mph
Bus route	No
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

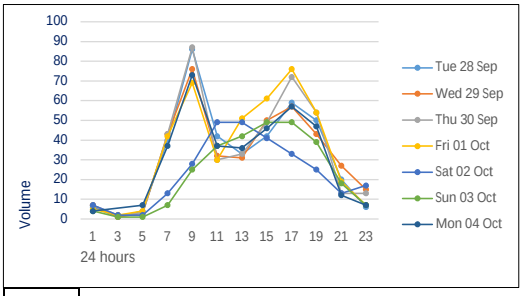


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 47.7mph at 15:00 on Sun 03 Oct, whilst the peak average southbound speed was 50.7mph at 07:30 on Sun 03 Oct (based on 15min averages between 0700 & 1900).

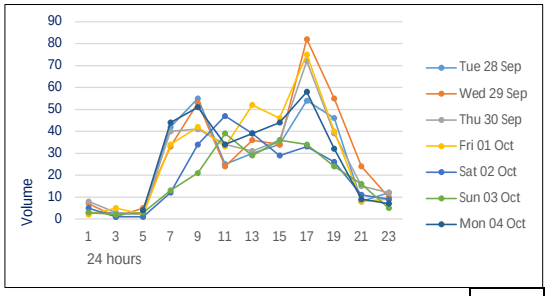
HOURLY VOLUMES

NORTHBOUND ↑



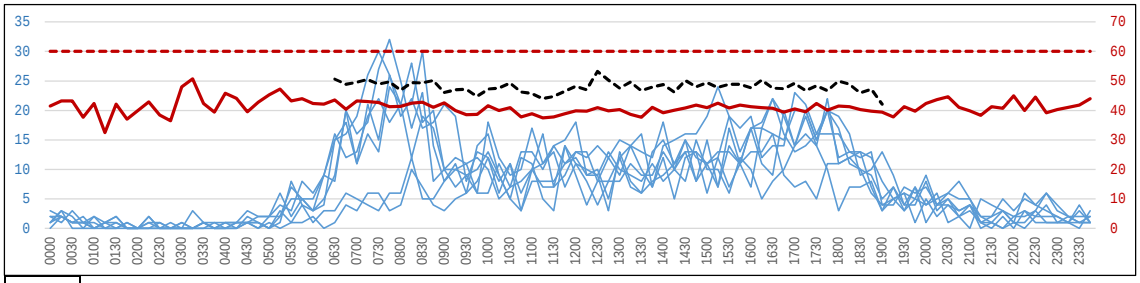
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

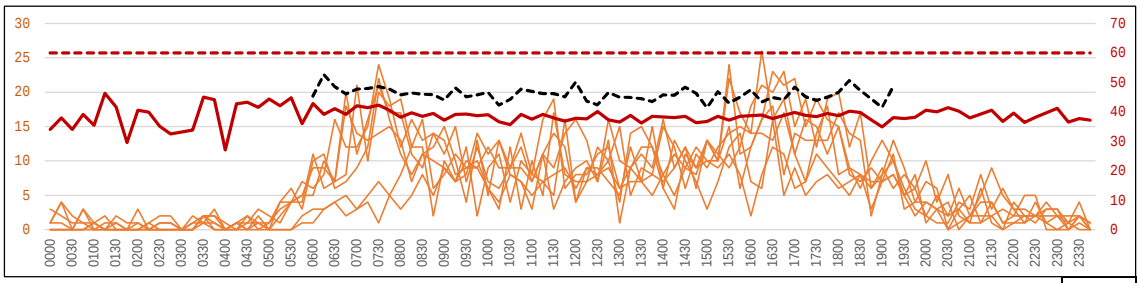


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



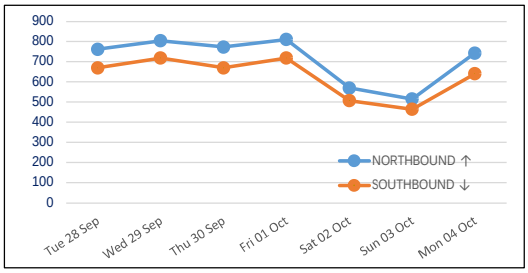
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

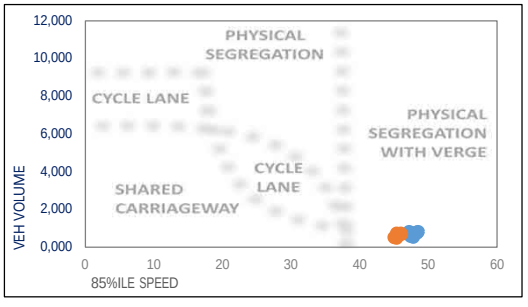
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	5.7	0.0	0.0	0.0	**5.7**
0100	0.0	2.4	0.0	0.0	0.0	**2.4**
0200	0.0	1.0	0.1	0.0	0.1	**1.3**
0300	0.0	1.6	0.0	0.1	0.0	**1.7**
0400	0.0	3.1	0.0	0.3	0.0	**3.4**
0500	0.0	11.3	0.6	0.1	0.0	**12.0**
0600	0.3	30.1	1.1	0.4	0.1	**32.1**
0700	0.3	59.0	3.0	0.4	0.0	**62.7**
0800	0.3	60.9	1.6	0.7	0.0	**63.4**
0900	0.4	37.1	1.1	0.3	0.0	**39.0**
1000	0.6	34.3	1.1	0.6	0.1	**36.7**
1100	1.1	39.0	1.4	0.4	0.0	**42.0**
1200	0.1	37.9	1.0	0.3	0.0	**39.3**
1300	0.7	39.3	1.3	0.3	0.0	**41.6**
1400	0.1	46.1	1.9	0.1	0.0	**48.3**
1500	0.6	48.1	1.0	0.1	0.0	**49.9**
1600	0.1	56.0	0.6	0.4	0.4	**57.6**
1700	1.6	60.3	0.3	0.3	0.0	**62.4**
1800	0.4	43.9	0.3	0.0	0.0	**44.6**
1900	0.1	21.3	0.0	0.0	0.0	**21.4**
2000	0.0	17.3	0.1	0.0	0.0	**17.4**
2100	0.0	9.1	0.0	0.0	0.0	**9.1**
2200	0.0	10.1	0.0	0.1	0.0	**10.3**
2300	0.0	6.6	0.1	0.0	0.0	**6.7**
12hr TTL	**6.4**	**561.9**	**14.6**	**4.0**	**0.6**	**587.4**
24hr TTL	**6.9**	**681.6**	**16.7**	**5.1**	**0.9**	**711.1**
	1%	96%	2%	1%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.1	2.9	0.6	0.4	0.0	**4.0**
0100	0.0	1.6	0.1	0.0	0.0	**1.7**
0200	0.0	2.0	0.1	0.0	0.0	**2.1**
0300	0.0	3.4	0.0	0.0	0.0	**3.4**
0400	0.0	2.7	0.0	0.0	0.0	**2.7**
0500	0.1	9.0	0.4	0.0	0.0	**9.6**
0600	0.0	31.0	0.0	0.1	0.0	**31.1**
0700	1.1	47.0	1.3	0.1	0.7	**50.3**
0800	0.4	40.6	0.9	0.6	0.0	**42.4**
0900	0.4	35.9	1.4	0.6	0.0	**38.3**
1000	0.1	32.1	1.3	0.1	0.0	**33.7**
1100	1.3	34.1	1.3	0.9	0.0	**37.6**
1200	0.3	34.7	1.3	0.3	0.0	**36.6**
1300	0.1	34.3	0.6	0.6	0.0	**35.6**
1400	0.6	35.1	0.6	0.7	0.0	**37.0**
1500	0.1	46.0	0.6	0.4	0.0	**47.1**
1600	0.6	56.7	0.7	0.3	0.0	**58.3**
1700	0.6	50.0	0.1	0.0	0.0	**50.7**
1800	0.1	37.3	0.0	0.0	0.0	**37.4**
1900	0.0	28.3	0.1	0.0	0.0	**28.4**
2000	0.0	12.9	0.0	0.1	0.0	**13.0**
2100	0.0	12.0	0.0	0.0	0.0	**12.0**
2200	0.1	9.0	0.0	0.0	0.0	**9.1**
2300	0.0	4.4	0.1	0.0	0.0	**4.6**
12hr TTL	**5.9**	**483.9**	**10.0**	**4.6**	**0.7**	**505.0**
24hr TTL	**6.3**	**603.0**	**11.6**	**5.3**	**0.7**	**626.9**
	1%	96%	2%	1%	0%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

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ATC SUMMARY REPORT

PROJECT	28925 Norfolk
LOCATION	28925-003 - Elms Road (West)
LOC. DESC.	Elms Road (West)
START DATE	Tue 28 Sep, 2021
END DATE	Mon 04 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Elms Road (West), commencing Tue 28 Sep 2021, recorded a total of 9,203 vehicles. The posted speed limit of 60mph was exceeded by 7.5% of vehicles, and the seasonally adjusted, combined AADT value is 1,294 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**9,203**
Avg daily volume (based on 7 days)	1,314.7
Average daily speed (7 days)	47.6mph
Average daily 85%ile (7 days)	56.3mph
AADT (annual average daily traffic)	1,294
Avg weekday volume (Mon-Fri, 24hrs)	1,436.2
Avg weekday speed (Mon-Fri, 24hrs)	47.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,167.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	47.7mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**4,892**
Avg daily volume (based on 7 days)	698.9
Average daily speed (7 days)	48.9mph
Average daily 85%ile (7 days)	57.7mph
% of vehicles exceeding 60mph	9.5%
Avg weekday volume (Mon-Fri, 24hrs)	764.4
Avg weekday speed (Mon-Fri, 24hrs)	49.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	632.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	48.9mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	57.6mph

SOUTHBOUND ↓

Total recorded volume	**4,311**
Avg daily volume (based on 7 days)	615.9
Average daily speed (7 days)	46.2mph
Average daily 85%ile (7 days)	55.0mph
% of vehicles exceeding 60mph	5.5%
Avg weekday volume (Mon-Fri, 24hrs)	671.8
Avg weekday speed (Mon-Fri, 24hrs)	46.5mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	535.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	46.6mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	55.3mph

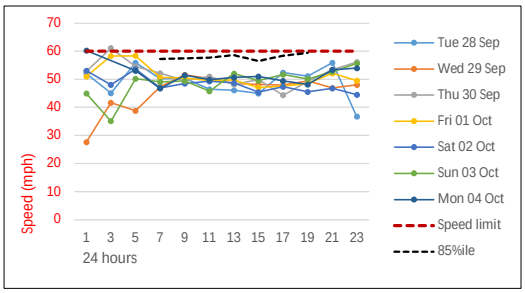
SITE LOCATION

SITE PLAN

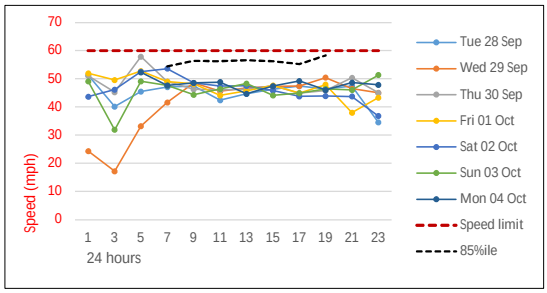
Location	Elms Road (West)
Lat, lng.	52°19'33.68"N/52°19'33.68" N
Project & site	28925-003
PSL	60mph
Bus route	No
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

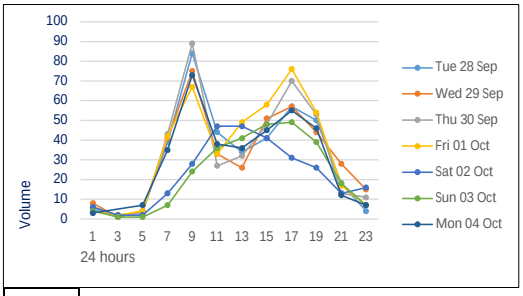


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 60.3mph at 07:15 on Sat 02 Oct, whilst the peak average southbound speed was 56.6mph at 18:15 on Sat 02 Oct (based on 15min averages between 0700 & 1900).

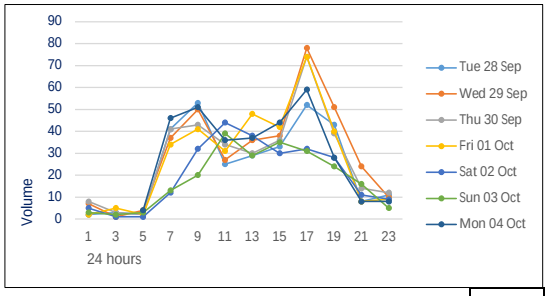
HOURLY VOLUMES

NORTHBOUND ↑



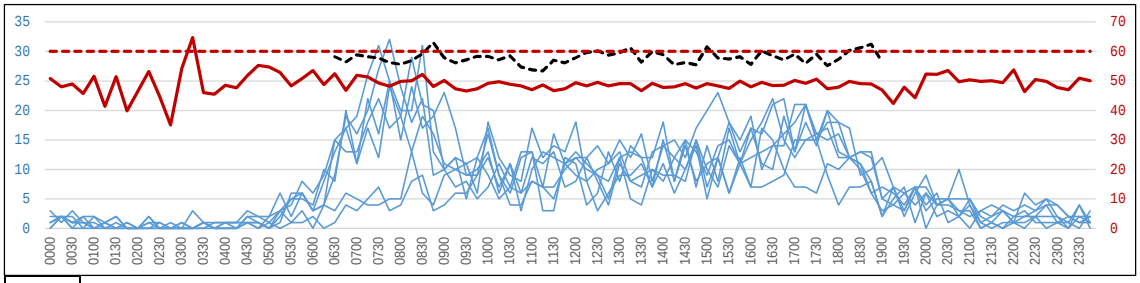
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

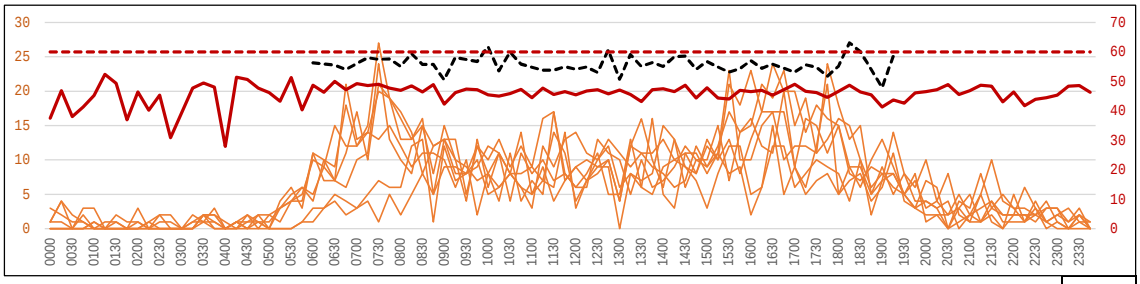


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



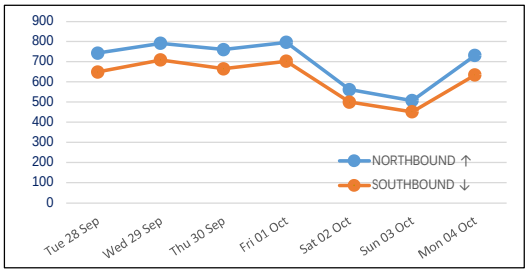
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Wednesday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

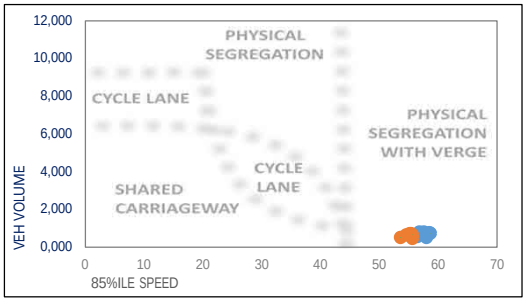
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	5.1	0.0	0.0	0.0	**5.1**
0100	0.0	2.3	0.0	0.0	0.0	**2.3**
0200	0.0	1.0	0.1	0.0	0.1	**1.3**
0300	0.0	1.6	0.0	0.1	0.0	**1.7**
0400	0.0	2.7	0.6	0.3	0.0	**3.6**
0500	0.0	11.3	0.6	0.0	0.0	**11.9**
0600	0.3	29.7	1.4	0.0	0.0	**31.4**
0700	0.3	56.6	4.7	1.1	0.1	**62.9**
0800	0.3	58.1	3.3	1.1	0.0	**62.9**
0900	0.4	35.6	2.4	0.6	0.0	**39.0**
1000	0.7	32.7	2.3	1.0	0.1	**36.9**
1100	0.9	36.1	1.7	1.3	0.9	**40.9**
1200	0.1	34.4	2.7	0.6	0.0	**37.9**
1300	0.6	37.9	2.0	0.4	0.1	**41.0**
1400	0.0	43.9	2.6	0.1	0.9	**47.4**
1500	0.3	46.6	1.9	0.1	0.0	**48.9**
1600	0.1	54.4	0.9	0.3	0.7	**56.4**
1700	1.6	57.4	1.0	0.4	0.1	**60.6**
1800	0.4	43.6	0.6	0.0	0.0	**44.6**
1900	0.1	20.3	0.3	0.1	0.0	**20.9**
2000	0.0	16.7	0.3	0.0	0.0	**17.0**
2100	0.0	8.3	0.0	0.0	0.0	**8.3**
2200	0.0	9.4	0.0	0.1	0.0	**9.6**
2300	0.0	6.6	0.1	0.0	0.0	**6.7**
12hr TTL	**5.7**	**537.3**	**26.0**	**7.1**	**3.0**	**579.1**
24hr TTL	**6.1**	**652.3**	**29.4**	**7.9**	**3.1**	**698.9**
	1%	93%	4%	1%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	2.9	0.6	0.4	0.0	**3.9**
0100	0.0	1.1	0.4	0.0	0.0	**1.6**
0200	0.0	1.9	0.3	0.0	0.0	**2.1**
0300	0.0	3.1	0.3	0.0	0.0	**3.4**
0400	0.0	2.6	0.0	0.0	0.0	**2.6**
0500	0.1	9.1	0.4	0.0	0.0	**9.7**
0600	0.0	31.3	0.4	0.3	0.0	**32.0**
0700	0.6	47.0	1.6	0.4	0.7	**50.3**
0800	0.3	39.1	1.4	0.6	0.0	**41.4**
0900	0.6	35.0	1.4	0.6	0.3	**37.9**
1000	0.3	30.7	2.4	0.1	0.1	**33.7**
1100	0.7	32.7	2.3	0.6	0.0	**36.3**
1200	0.0	33.1	0.9	0.4	0.9	**35.3**
1300	0.4	32.0	1.0	0.7	0.0	**34.1**
1400	0.4	33.9	1.9	0.7	0.0	**36.9**
1500	0.1	44.9	1.3	0.4	0.0	**46.7**
1600	0.3	56.0	0.7	0.1	0.0	**57.1**
1700	0.3	47.9	1.0	0.3	0.0	**49.4**
1800	0.1	36.0	0.0	0.0	0.0	**36.1**
1900	0.0	27.3	0.3	0.0	0.0	**27.6**
2000	0.0	12.6	0.0	0.1	0.0	**12.7**
2100	0.0	11.4	0.1	0.0	0.0	**11.6**
2200	0.1	9.0	0.0	0.0	0.0	**9.1**
2300	0.0	4.0	0.3	0.0	0.0	**4.3**
12hr TTL	**4.1**	**468.3**	**15.9**	**5.0**	**2.0**	**495.3**
24hr TTL	**4.4**	**584.6**	**19.0**	**5.9**	**2.0**	**615.9**
	1%	95%	3%	1%	0%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
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These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

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Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

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ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-003 - Chippenham Road
LOC. DESC.	Chippenham Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Chippenham Road, commencing Fri 15 Oct 2021, recorded a total of 12,163 vehicles. The posted speed limit of 60mph was exceeded by 2.0% of vehicles, and the seasonally adjusted, combined AADT value is 1,848 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**12,163**
Avg daily volume (based on 7 days)	1,737.6
Average daily speed (7 days)	43.4mph
Average daily 85%ile (7 days)	50.5mph
AADT (annual average daily traffic)	1,848
Avg weekday volume (Mon-Fri, 24hrs)	1,938.8
Avg weekday speed (Mon-Fri, 24hrs)	43.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,755.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	43.5mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

EASTBOUND →

Total recorded volume	**6,322**
Avg daily volume (based on 7 days)	903.1
Average daily speed (7 days)	44.1mph
Average daily 85%ile (7 days)	51.0mph
% of vehicles exceeding 60mph	2.0%
Avg weekday volume (Mon-Fri, 24hrs)	989.4
Avg weekday speed (Mon-Fri, 24hrs)	44.3mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	879.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	44.2mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	50.8mph

WESTBOUND ←

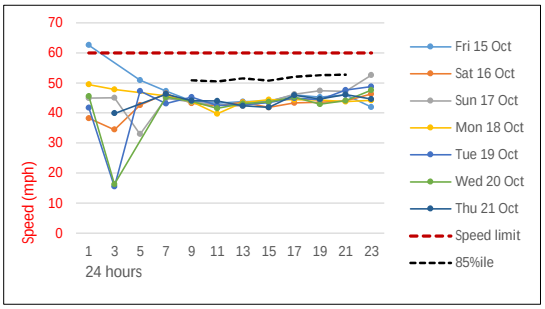
Total recorded volume	**5,841**
Avg daily volume (based on 7 days)	834.4
Average daily speed (7 days)	42.7mph
Average daily 85%ile (7 days)	49.9mph
% of vehicles exceeding 60mph	2.1%
Avg weekday volume (Mon-Fri, 24hrs)	949.4
Avg weekday speed (Mon-Fri, 24hrs)	42.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	876.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	42.7mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	49.6mph

SITE LOCATION

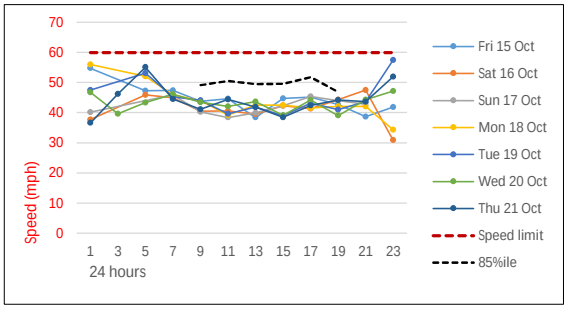
Location	Chippenham Road
Lat, lng.	52°16'56.03"N,0°24'50.85"E
Project & site	28925-003
PSL	60mph
Bus route	Yes
Direction 1	Eastbound→
Direction 2	Westbound←

DAILY SPEEDS

EASTBOUND →



WESTBOUND ←

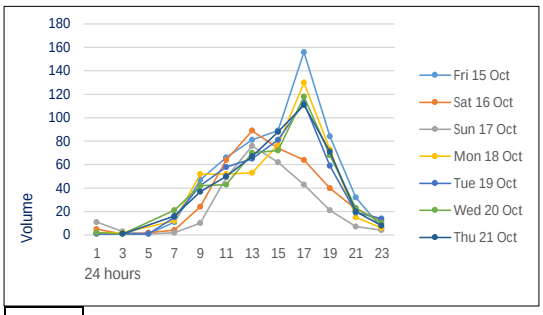


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average eastbound daytime speed was 52.6mph at 07:00 on Fri 15 Oct, whilst the peak average westbound speed was 56.5mph at 17:15 on Sun 17 Oct (based on 15min averages between 0700 & 1900).

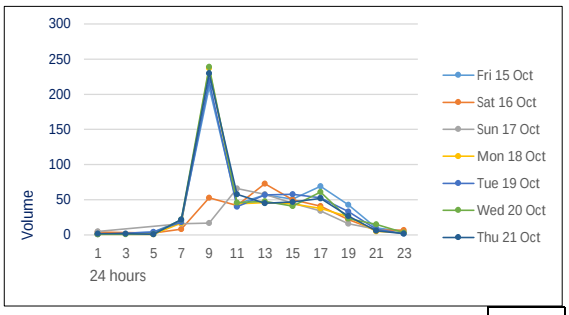
HOURLY VOLUMES

EASTBOUND →



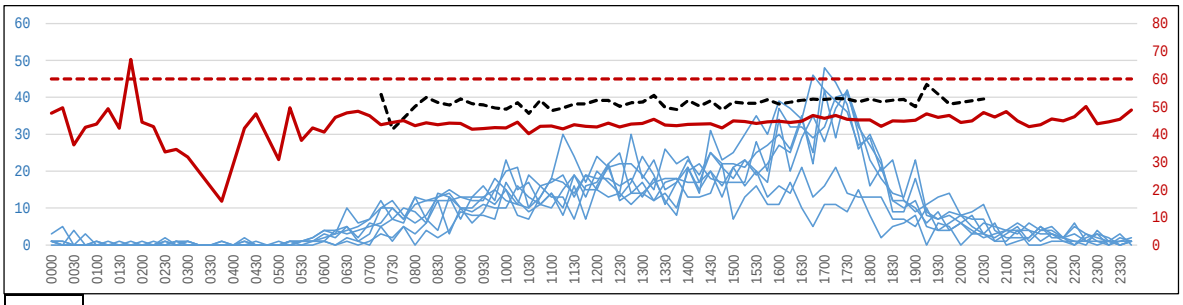
→ Hourly eastbound traffic volumes over each 24hr period for 7 days from all available data.

WESTBOUND ←

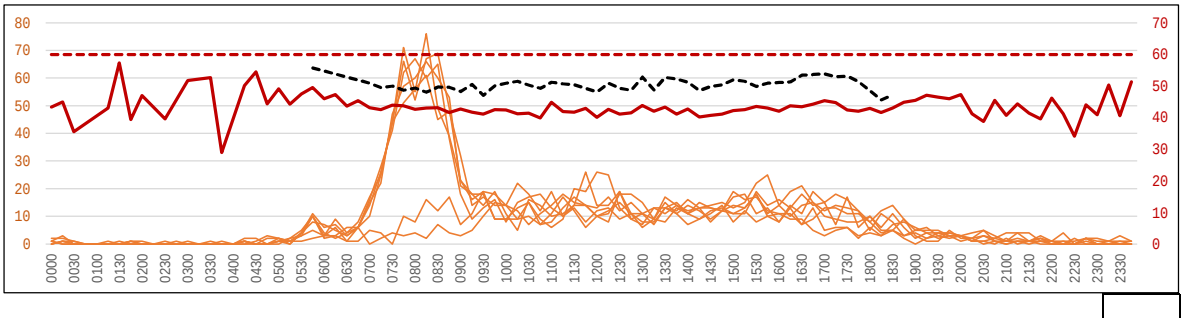


Hourly westbound traffic volumes over each 24hr period for 7 days from all available data. ←

15min VOL & SPEED



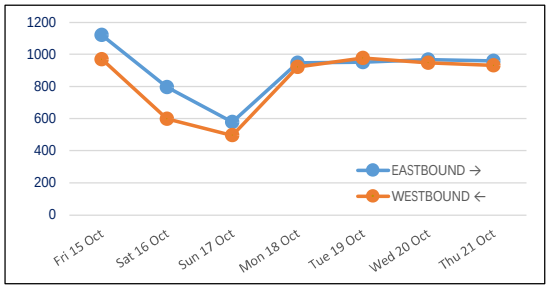
→ 15min daily eastbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily westbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.

DAILY VOLUMES

EAST & WESTBOUND



Total 24hr eastbound (blue) and westbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

EASTBOUND 7-DAY AVG →

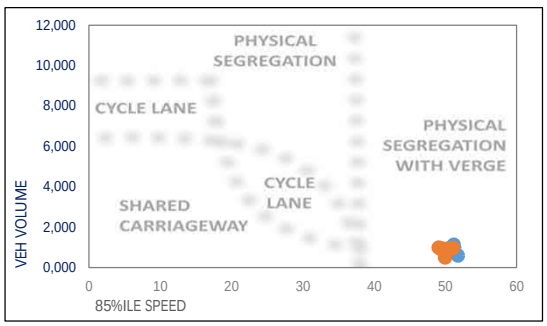
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.1	3.0	0.0	0.0	0.0	**3.1**
0100	0.0	0.7	0.0	0.0	0.0	**0.7**
0200	0.3	0.9	0.1	0.0	0.0	**1.3**
0300	0.4	0.3	0.0	0.0	0.0	**0.7**
0400	0.0	0.4	0.3	0.0	0.0	**0.7**
0500	0.0	2.4	0.0	0.0	0.0	**2.4**
0600	0.0	11.1	0.4	0.0	0.0	**11.6**
0700	0.0	24.6	0.7	0.0	0.0	**25.3**
0800	0.1	34.4	1.7	0.0	0.0	**36.3**
0900	0.7	41.7	2.0	0.3	0.0	**44.7**
1000	1.9	51.0	1.4	0.3	0.0	**54.6**
1100	0.6	61.0	0.3	0.1	0.0	**62.0**
1200	1.6	69.3	0.6	0.1	0.0	**71.6**
1300	0.6	63.6	0.9	0.3	0.1	**65.4**
1400	0.9	75.3	1.3	0.1	0.0	**77.6**
1500	1.3	79.7	1.1	0.1	0.1	**82.4**
1600	0.9	103.0	1.1	0.0	0.0	**105.0**
1700	0.7	118.7	0.3	0.0	0.0	**119.7**
1800	0.9	58.0	0.6	0.0	0.0	**59.4**
1900	0.1	33.1	0.1	0.0	0.0	**33.4**
2000	0.6	19.0	0.1	0.0	0.0	**19.7**
2100	0.0	12.0	0.0	0.0	0.0	**12.0**
2200	0.0	8.6	0.0	0.0	0.0	**8.6**
2300	0.0	4.9	0.0	0.0	0.0	**4.9**
12hr TTL	**10.0**	**780.3**	**12.0**	**1.4**	**0.3**	**804.0**
24hr TTL	**11.6**	**876.7**	**13.1**	**1.4**	**0.3**	**903.1**
	1%	97%	1%	0%	0%	

WESTBOUND 7-DAY AVG ←

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	2.1	0.0	0.0	0.0	**2.1**
0100	0.0	0.7	0.0	0.0	0.0	**0.7**
0200	0.0	0.4	0.0	0.0	0.0	**0.4**
0300	0.0	0.3	0.1	0.0	0.0	**0.4**
0400	0.0	1.4	0.6	0.0	0.0	**2.0**
0500	0.4	13.3	0.0	0.0	0.0	**13.7**
0600	0.0	17.1	0.4	0.1	0.0	**17.7**
0700	0.6	105.4	1.4	0.1	0.0	**107.6**
0800	0.7	168.1	2.1	1.1	0.0	**172.1**
0900	0.0	59.3	1.4	0.4	0.0	**61.1**
1000	1.4	45.6	1.1	0.1	0.3	**48.6**
1100	1.4	50.4	1.3	0.3	0.1	**53.6**
1200	1.4	52.1	1.0	0.3	0.0	**54.9**
1300	1.1	43.6	0.6	0.0	0.0	**45.3**
1400	1.1	46.3	0.3	0.3	0.0	**48.0**
1500	1.0	54.3	1.0	0.6	0.1	**57.0**
1600	0.7	48.3	0.6	0.1	0.0	**49.7**
1700	1.1	37.6	0.4	0.3	0.0	**39.4**
1800	0.3	26.9	0.0	0.0	0.0	**27.1**
1900	0.0	13.1	0.3	0.1	0.0	**13.6**
2000	0.0	8.3	0.1	0.0	0.0	**8.4**
2100	0.0	5.6	0.3	0.0	0.0	**5.9**
2200	0.0	3.1	0.0	0.0	0.0	**3.1**
2300	0.0	1.9	0.0	0.0	0.0	**1.9**
12hr TTL	**11.0**	**737.9**	**11.3**	**3.7**	**0.6**	**764.4**
24hr TTL	**11.4**	**805.3**	**13.1**	**4.0**	**0.6**	**834.4**
	1%	97%	2%	0%	0%	

Average daily eastbound and westbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



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Valid 85%iles are required to plot the graph.

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4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

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ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-004 - Chippenham Road
LOC. DESC.	Chippenham Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Chippenham Road, commencing Fri 15 Oct 2021, recorded a total of 12,147 vehicles. The posted speed limit of 60mph was exceeded by 5.3% of vehicles, and the seasonally adjusted, combined AADT value is 1,844 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**12,147**
Avg daily volume (based on 7 days)	1,735.3
Average daily speed (7 days)	47.9mph
Average daily 85%ile (7 days)	55.2mph
AADT (annual average daily traffic)	1,844
Avg weekday volume (Mon-Fri, 24hrs)	1,939.0
Avg weekday speed (Mon-Fri, 24hrs)	48.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,756.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	47.9mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

EASTBOUND →

Total recorded volume	**6,316**
Avg daily volume (based on 7 days)	902.3
Average daily speed (7 days)	48.4mph
Average daily 85%ile (7 days)	55.7mph
% of vehicles exceeding 60mph	5.7%
Avg weekday volume (Mon-Fri, 24hrs)	989.6
Avg weekday speed (Mon-Fri, 24hrs)	48.5mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	879.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	48.5mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	55.7mph

WESTBOUND ←

Total recorded volume	**5,831**
Avg daily volume (based on 7 days)	833.0
Average daily speed (7 days)	47.3mph
Average daily 85%ile (7 days)	54.7mph
% of vehicles exceeding 60mph	5.0%
Avg weekday volume (Mon-Fri, 24hrs)	949.4
Avg weekday speed (Mon-Fri, 24hrs)	47.4mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	876.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	47.4mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	54.4mph

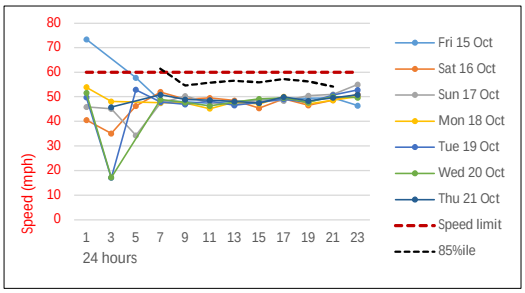
SITE LOCATION

SITE PLAN

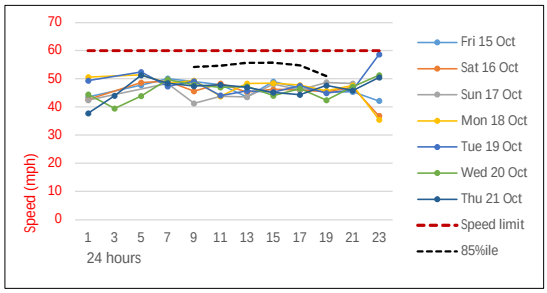
Location	Chippenham Road
Lat, lng.	52°17'9.14"N,0°25'18.85"E
Project & site	28925-004
PSL	60mph
Bus route	Yes
Direction 1	Eastbound→
Direction 2	Westbound←

DAILY SPEEDS

EASTBOUND →



WESTBOUND ←

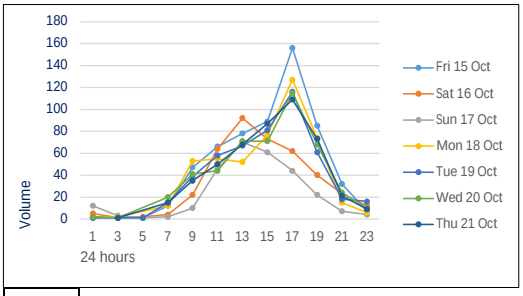


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average eastbound daytime speed was 56.2mph at 07:45 on Mon 18 Oct, whilst the peak average westbound speed was 56.6mph at 18:45 on Thu 21 Oct (based on 15min averages between 0700 & 1900).

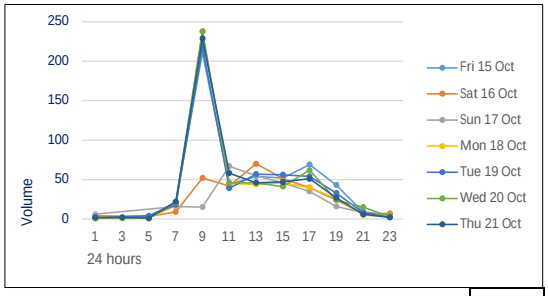
HOURLY VOLUMES

EASTBOUND →



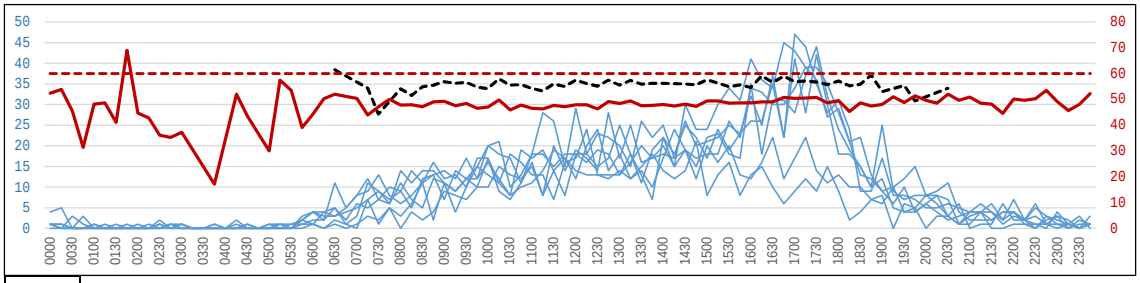
→ Hourly eastbound traffic volumes over each 24hr period for 7 days from all available data.

WESTBOUND ←

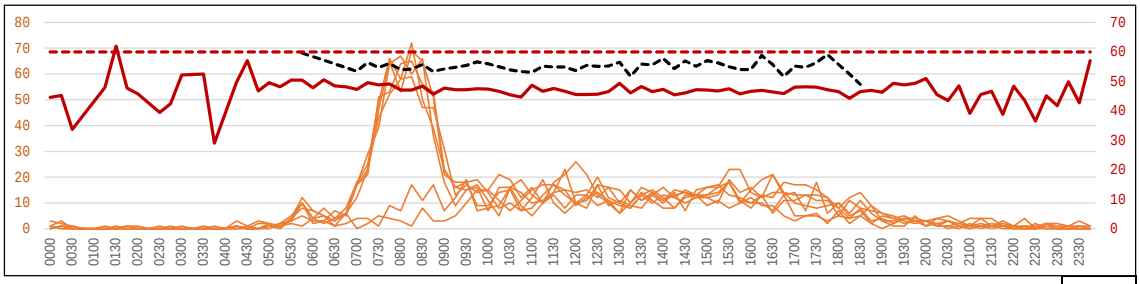


Hourly westbound traffic volumes over each 24hr period for 7 days from all available data. ←

15min VOL & SPEED



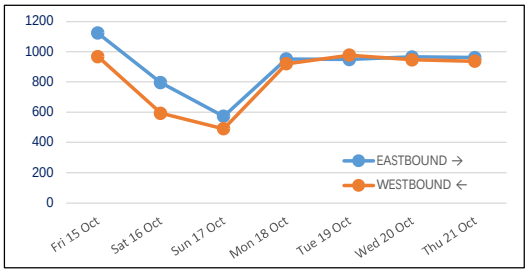
→ 15min daily eastbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily westbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ←

DAILY VOLUMES

EAST & WESTBOUND



Total 24hr eastbound (blue) and westbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

EASTBOUND 7-DAY AVG →

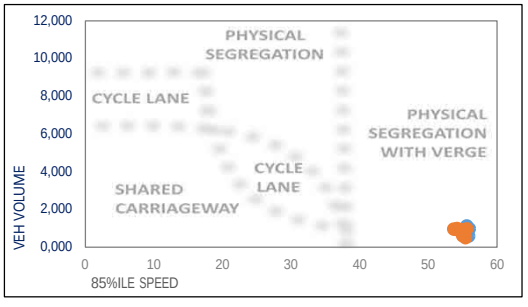
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.1	3.1	0.0	0.0	0.0	**3.3**
0100	0.0	0.7	0.0	0.0	0.0	**0.7**
0200	0.3	0.9	0.1	0.0	0.0	**1.3**
0300	0.4	0.3	0.0	0.0	0.0	**0.7**
0400	0.0	0.4	0.3	0.0	0.0	**0.7**
0500	0.1	2.4	0.0	0.0	0.0	**2.6**
0600	0.0	11.0	0.4	0.0	0.0	**11.4**
0700	0.3	24.6	0.9	0.0	0.0	**25.7**
0800	0.3	33.1	1.7	0.1	0.0	**35.3**
0900	0.9	41.4	2.1	0.6	0.0	**45.0**
1000	2.3	50.7	1.4	0.3	0.0	**54.7**
1100	1.1	60.6	0.3	0.3	0.0	**62.3**
1200	1.9	68.7	0.4	0.1	0.0	**71.1**
1300	0.7	63.6	1.1	0.3	0.1	**65.9**
1400	1.0	74.7	1.1	0.1	0.0	**77.0**
1500	1.1	78.6	1.3	0.4	0.1	**81.6**
1600	1.1	101.6	1.3	0.1	0.0	**104.1**
1700	0.7	118.6	0.3	0.0	0.0	**119.6**
1800	0.9	59.0	0.6	0.0	0.0	**60.4**
1900	0.1	32.9	0.3	0.0	0.0	**33.3**
2000	0.6	19.3	0.1	0.0	0.0	**20.0**
2100	0.0	11.6	0.0	0.0	0.0	**11.6**
2200	0.0	9.1	0.0	0.0	0.0	**9.1**
2300	0.0	4.9	0.0	0.0	0.0	**4.9**
12hr TTL	**12.3**	**775.1**	**12.6**	**2.4**	**0.3**	**802.7**
24hr TTL	**14.0**	**871.7**	**13.9**	**2.4**	**0.3**	**902.3**
	2%	97%	2%	0%	0%	

WESTBOUND 7-DAY AVG ←

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	2.3	0.0	0.0	0.0	**2.3**
0100	0.0	0.7	0.0	0.0	0.0	**0.7**
0200	0.0	0.4	0.0	0.0	0.0	**0.4**
0300	0.0	0.3	0.1	0.0	0.0	**0.4**
0400	0.0	1.4	0.6	0.0	0.0	**2.0**
0500	0.4	13.4	0.0	0.0	0.0	**13.9**
0600	0.0	17.1	0.4	0.1	0.0	**17.7**
0700	0.7	105.1	2.4	0.1	0.0	**108.4**
0800	0.7	168.0	2.0	1.0	0.0	**171.7**
0900	0.0	59.0	1.4	0.1	0.0	**60.6**
1000	1.6	45.6	1.1	0.1	0.3	**48.7**
1100	0.7	50.7	1.3	0.4	0.1	**53.3**
1200	0.6	51.0	1.0	0.6	0.0	**53.1**
1300	1.3	43.4	0.6	0.1	0.0	**45.4**
1400	1.1	46.7	0.4	0.1	0.0	**48.4**
1500	1.1	54.0	1.1	0.3	0.0	**56.6**
1600	0.7	48.7	0.6	0.1	0.0	**50.1**
1700	1.1	37.4	0.4	0.0	0.0	**39.0**
1800	0.4	27.0	0.1	0.0	0.0	**27.6**
1900	0.0	13.0	0.3	0.1	0.0	**13.4**
2000	0.0	8.1	0.1	0.0	0.0	**8.3**
2100	0.0	5.6	0.3	0.0	0.0	**5.9**
2200	0.0	3.1	0.0	0.0	0.0	**3.1**
2300	0.0	1.9	0.0	0.0	0.0	**1.9**
12hr TTL	**10.1**	**736.7**	**12.6**	**3.1**	**0.4**	**763.0**
24hr TTL	**10.6**	**804.1**	**14.4**	**3.4**	**0.4**	**833.0**
	1%	97%	2%	0%	0%	

Average daily eastbound and westbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
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These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

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Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Norfolk
LOCATION	28925-004 - Newmarket Road
LOC. DESC.	Newmarket Road
START DATE	Tue 28 Sep, 2021
END DATE	Mon 04 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Newmarket Road, commencing Tue 28 Sep 2021, recorded a total of 34,325 vehicles. The posted speed limit of 60mph was exceeded by 1.7% of vehicles, and the seasonally adjusted, combined AADT value is 4,944 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**34,325**
Avg daily volume (based on 7 days)	4,903.6
Average daily speed (7 days)	45.9mph
Average daily 85%ile (7 days)	51.9mph
AADT (annual average daily traffic)	4,944
Avg weekday volume (Mon-Fri, 24hrs)	5,462.2
Avg weekday speed (Mon-Fri, 24hrs)	45.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	4,639.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	45.5mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**15,256**
Avg daily volume (based on 7 days)	2,179.4
Average daily speed (7 days)	45.5mph
Average daily 85%ile (7 days)	51.4mph
% of vehicles exceeding 60mph	1.0%
Avg weekday volume (Mon-Fri, 24hrs)	2,416.2
Avg weekday speed (Mon-Fri, 24hrs)	45.2mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,044.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	45.2mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	50.9mph

SOUTHBOUND ↓

Total recorded volume	**19,069**
Avg daily volume (based on 7 days)	2,724.1
Average daily speed (7 days)	46.2mph
Average daily 85%ile (7 days)	52.4mph
% of vehicles exceeding 60mph	2.4%
Avg weekday volume (Mon-Fri, 24hrs)	3,046.0
Avg weekday speed (Mon-Fri, 24hrs)	46.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,594.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	45.7mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	51.7mph

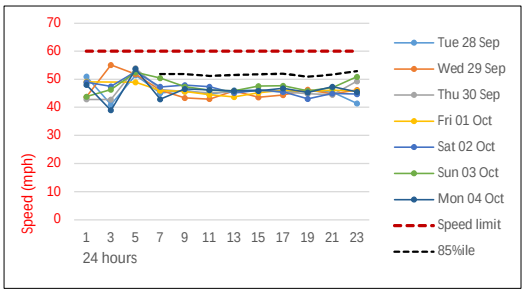
SITE LOCATION

SITE PLAN

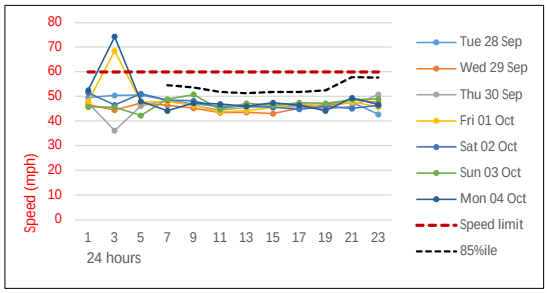
Location	Newmarket Road
Lat, lng.	52°19'33.68"N/52°19'33.68" N
Project & site	28925-004
PSL	60mph
Bus route	No
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

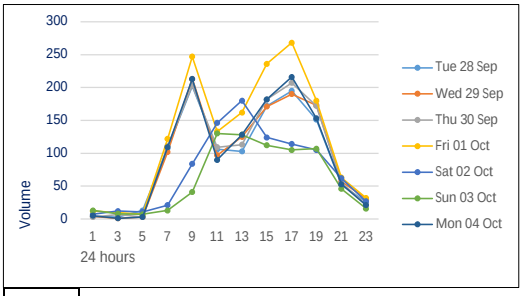


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 51.7mph at 08:15 on Sun 03 Oct, whilst the peak average southbound speed was 53.9mph at 08:45 on Sun 03 Oct (based on 15min averages between 0700 & 1900).

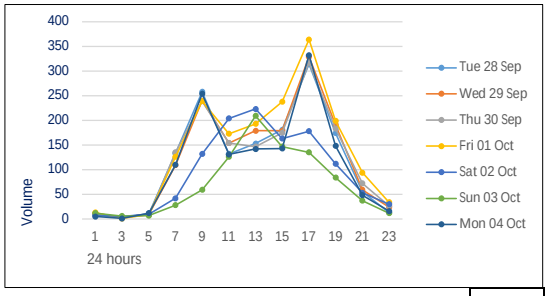
HOURLY VOLUMES

NORTHBOUND ↑



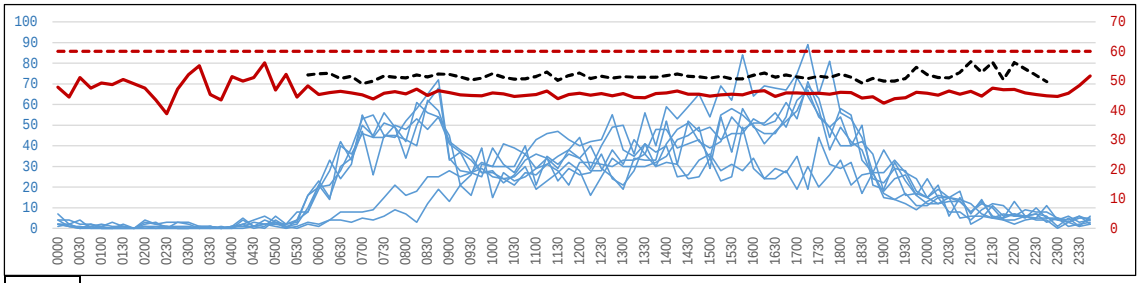
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

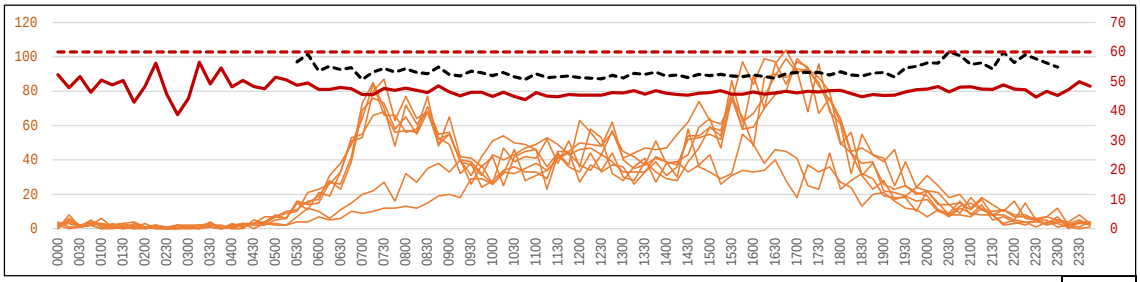


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



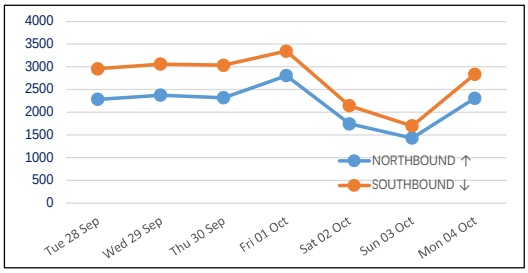
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	6.9	0.0	0.0	0.0	**6.9**
0100	0.0	1.9	0.0	0.0	0.0	**1.9**
0200	0.0	4.6	0.0	0.0	0.0	**4.6**
0300	0.0	1.9	0.0	0.1	0.0	**2.0**
0400	0.0	6.6	0.0	0.1	0.0	**6.7**
0500	0.0	16.0	0.0	0.1	0.1	**16.3**
0600	1.3	82.1	0.3	0.0	0.0	**83.7**
0700	0.4	142.4	2.0	0.7	0.1	**145.7**
0800	0.4	167.9	2.7	0.9	0.0	**171.9**
0900	1.0	116.1	3.3	0.1	0.0	**120.6**
1000	0.9	112.1	2.1	0.7	0.0	**115.9**
1100	1.1	123.0	2.7	0.9	0.0	**127.7**
1200	1.0	130.3	2.3	0.6	0.0	**134.1**
1300	2.0	134.9	2.6	1.0	0.1	**140.6**
1400	0.7	164.6	2.1	1.0	0.0	**168.4**
1500	1.9	176.9	1.1	1.3	0.3	**181.4**
1600	1.6	181.3	1.3	0.9	0.0	**185.0**
1700	1.1	204.9	1.7	0.9	0.0	**208.6**
1800	1.1	146.0	0.7	0.6	0.3	**148.7**
1900	0.4	83.3	0.3	0.4	0.0	**84.4**
2000	0.1	55.0	0.3	0.0	0.0	**55.4**
2100	0.1	29.7	0.0	0.0	0.0	**29.9**
2200	0.0	25.0	0.0	0.0	0.0	**25.0**
2300	0.0	14.1	0.0	0.0	0.0	**14.1**
12hr TTL	**13.3**	**1800.3**	**24.7**	**9.4**	**0.9**	**1848.6**
24hr TTL	**15.3**	**2127.3**	**25.6**	**10.3**	**1.0**	**2179.4**
	1%	98%	1%	0%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	9.7	0.0	0.0	0.0	**9.7**
0100	0.1	6.4	0.0	0.0	0.0	**6.6**
0200	0.0	3.1	0.0	0.0	0.0	**3.1**
0300	0.0	4.3	0.1	0.0	0.0	**4.4**
0400	0.0	8.9	0.3	0.4	0.0	**9.6**
0500	0.7	33.7	0.4	1.0	0.0	**35.9**
0600	1.4	93.7	1.4	1.0	0.0	**97.6**
0700	1.7	204.7	3.6	2.3	0.3	**212.6**
0800	0.4	198.6	2.1	1.7	0.1	**203.0**
0900	1.4	143.4	4.9	1.1	0.0	**150.9**
1000	1.3	146.1	4.6	1.3	0.1	**153.4**
1100	0.9	155.6	6.3	0.9	0.3	**163.9**
1200	1.6	170.3	5.3	0.9	0.0	**178.0**
1300	1.3	144.0	2.7	0.7	0.3	**149.0**
1400	1.6	168.1	4.6	0.9	0.0	**175.1**
1500	1.0	218.4	4.4	2.3	0.3	**226.4**
1600	0.7	275.1	4.4	0.6	0.4	**281.3**
1700	1.6	273.6	4.1	0.3	0.0	**279.6**
1800	0.6	153.6	1.6	0.1	0.0	**155.9**
1900	0.3	91.1	0.6	0.1	0.0	**92.1**
2000	0.6	58.4	0.7	0.0	0.0	**59.7**
2100	0.6	39.6	0.4	0.0	0.0	**40.6**
2200	0.4	21.3	0.6	0.0	0.0	**22.3**
2300	0.1	13.4	0.0	0.0	0.0	**13.6**
12hr TTL	**14.0**	**2251.6**	**48.6**	**13.0**	**1.9**	**2329.0**
24hr TTL	**18.3**	**2635.3**	**53.1**	**15.6**	**1.9**	**2724.1**
	1%	97%	2%	1%	0%	

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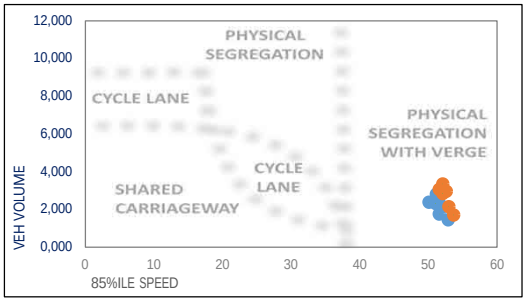

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3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-005 - La Hogue Road
LOC. DESC.	La Hogue Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on La Hogue Road, commencing Fri 15 Oct 2021, recorded a total of 4,584 vehicles. The posted speed limit of 60mph was exceeded by 1.6% of vehicles, and the seasonally adjusted, combined AADT value is 705 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**4,584**
Avg daily volume (based on 7 days)	654.9
Average daily speed (7 days)	43.0mph
Average daily 85%ile (7 days)	50.6mph
AADT (annual average daily traffic)	705
Avg weekday volume (Mon-Fri, 24hrs)	613.0
Avg weekday speed (Mon-Fri, 24hrs)	43.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	573.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	43.6mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**2,994**
Avg daily volume (based on 7 days)	427.7
Average daily speed (7 days)	42.4mph
Average daily 85%ile (7 days)	50.5mph
% of vehicles exceeding 60mph	1.7%
Avg weekday volume (Mon-Fri, 24hrs)	410.4
Avg weekday speed (Mon-Fri, 24hrs)	43.3mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	379.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	43.1mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	51.3mph

SOUTHBOUND ↓

Total recorded volume	**1,590**
Avg daily volume (based on 7 days)	227.1
Average daily speed (7 days)	43.7mph
Average daily 85%ile (7 days)	50.6mph
% of vehicles exceeding 60mph	1.4%
Avg weekday volume (Mon-Fri, 24hrs)	202.6
Avg weekday speed (Mon-Fri, 24hrs)	44.2mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	193.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	44.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	51.2mph

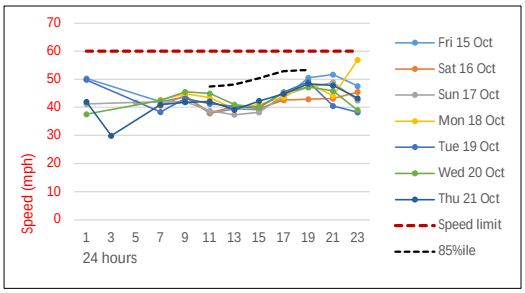
SITE LOCATION

SITE PLAN

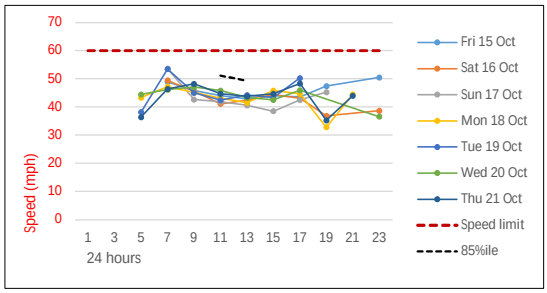
Location	La Hogue Road
Lat, lng.	52°17'7.30"N,0°27'15.49"E
Project & site	28925-005
PSL	60mph
Bus route	Yes
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

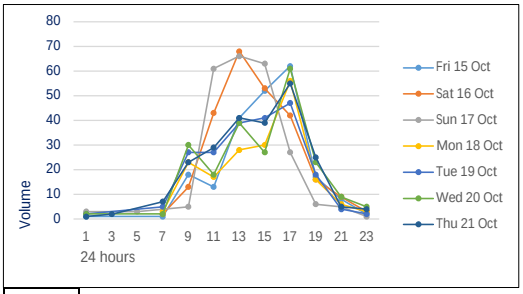


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 61.3mph at 18:45 on Fri 15 Oct, whilst the peak average southbound speed was 61.5mph at 07:45 on Sat 16 Oct (based on 15min averages between 0700 & 1900).

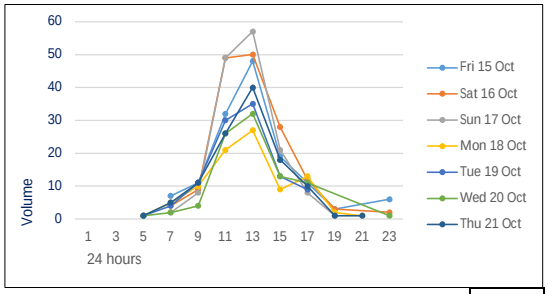
HOURLY VOLUMES

NORTHBOUND ↑



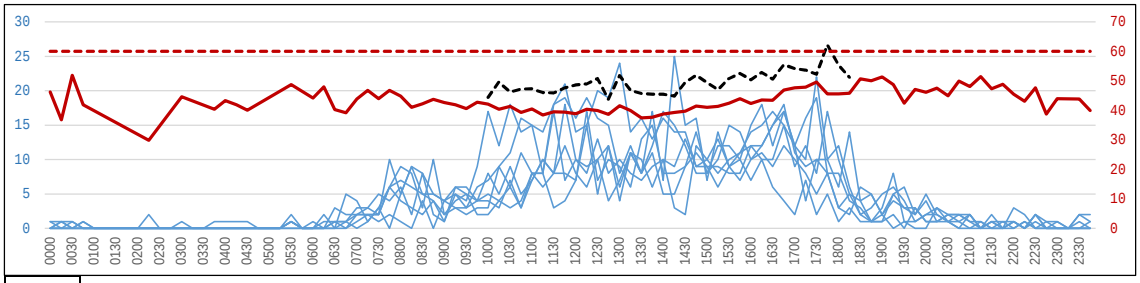
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

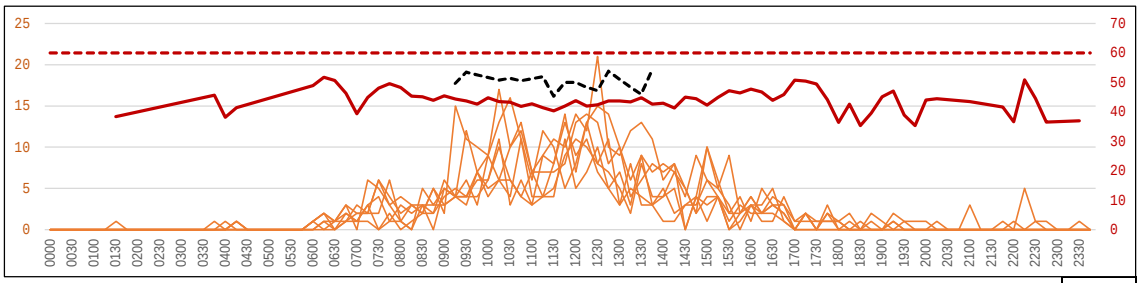


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



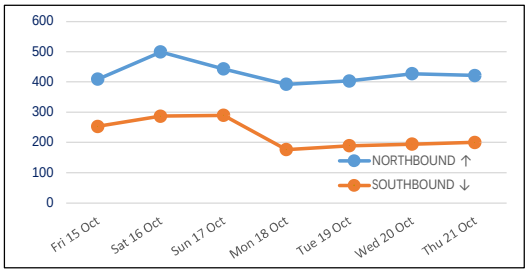
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

Unusually, the lowest volumes were NOT recorded on a Sunday but on the Monday, whilst the highest was on the Saturday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

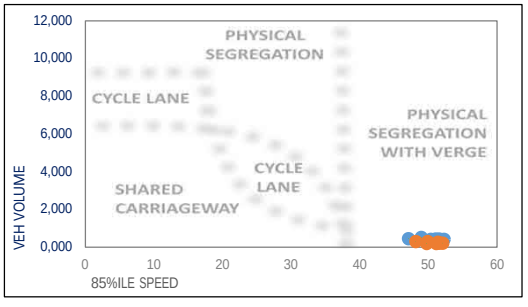
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	1.3	0.0	0.0	0.0	**1.3**
0100	0.0	0.0	0.0	0.0	0.0	**0.0**
0200	0.0	0.3	0.0	0.0	0.0	**0.3**
0300	0.0	0.3	0.0	0.0	0.0	**0.3**
0400	0.0	0.4	0.0	0.0	0.0	**0.4**
0500	0.0	0.9	0.0	0.0	0.0	**0.9**
0600	0.0	2.6	0.3	0.0	0.0	**2.9**
0700	0.0	10.0	1.3	0.1	0.0	**11.4**
0800	0.0	18.3	1.0	0.6	0.0	**19.9**
0900	0.1	14.0	1.3	0.3	0.0	**15.7**
1000	0.6	27.6	1.3	0.3	0.0	**29.7**
1100	0.4	41.3	0.6	0.7	0.0	**43.0**
1200	1.0	43.7	0.4	0.9	0.0	**46.0**
1300	0.1	41.1	0.3	0.4	0.0	**42.0**
1400	0.1	42.0	0.9	0.6	0.0	**43.6**
1500	0.1	37.1	1.0	0.9	0.3	**39.4**
1600	0.3	47.4	0.3	0.7	1.3	**50.0**
1700	0.0	38.9	0.1	0.3	0.1	**39.4**
1800	0.0	17.0	0.3	0.0	0.0	**17.3**
1900	0.0	10.9	0.0	0.0	0.0	**10.9**
2000	0.0	6.6	0.0	0.0	0.0	**6.6**
2100	0.0	2.4	0.0	0.0	0.0	**2.4**
2200	0.0	2.9	0.0	0.0	0.0	**2.9**
2300	0.0	1.6	0.0	0.0	0.0	**1.6**
12hr TTL	**2.9**	**378.4**	**8.7**	**5.7**	**1.7**	**397.4**
24hr TTL	**2.9**	**408.4**	**9.0**	**5.7**	**1.7**	**427.7**
	1%	95%	2%	1%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	0.0	0.0	0.0	0.0	**0.0**
0100	0.0	0.1	0.0	0.0	0.0	**0.1**
0200	0.0	0.0	0.0	0.0	0.0	**0.0**
0300	0.0	0.0	0.1	0.0	0.0	**0.1**
0400	0.0	0.0	0.0	0.6	0.0	**0.6**
0500	0.0	0.0	0.0	0.0	0.0	**0.0**
0600	0.0	3.4	0.4	0.3	0.0	**4.1**
0700	0.4	9.0	0.6	0.3	0.0	**10.3**
0800	0.0	8.9	0.3	0.0	0.0	**9.1**
0900	0.0	21.7	0.3	0.3	0.0	**22.3**
1000	0.9	31.4	0.4	0.6	0.0	**33.3**
1100	0.3	28.7	0.7	0.0	0.1	**29.9**
1200	0.1	41.0	0.1	0.0	0.0	**41.3**
1300	0.0	24.6	0.6	0.3	0.0	**25.4**
1400	0.1	17.0	0.1	0.0	0.0	**17.3**
1500	0.1	14.4	0.1	0.0	0.0	**14.7**
1600	0.0	10.1	0.3	0.1	0.0	**10.6**
1700	0.0	3.1	0.0	0.0	0.0	**3.1**
1800	0.0	1.4	0.0	0.0	0.0	**1.4**
1900	0.0	1.1	0.0	0.0	0.0	**1.1**
2000	0.0	0.3	0.0	0.0	0.0	**0.3**
2100	0.0	0.6	0.0	0.0	0.0	**0.6**
2200	0.0	1.3	0.0	0.0	0.0	**1.3**
2300	0.0	0.1	0.0	0.0	0.0	**0.1**
12hr TTL	**2.0**	**211.4**	**3.6**	**1.6**	**0.1**	**218.7**
24hr TTL	**2.0**	**218.4**	**4.1**	**2.4**	**0.1**	**227.1**
	1%	96%	2%	1%	0%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

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ATC SUMMARY REPORT

PROJECT	28925 Norfolk
LOCATION	28925-005 - Freckenham Road
LOC. DESC.	Freckenham Road
START DATE	Tue 28 Sep, 2021
END DATE	Mon 04 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Freckenham Road, commencing Tue 28 Sep 2021, recorded a total of 17,588 vehicles. The posted speed limit of 60mph was exceeded by 11.5% of vehicles, and the seasonally adjusted, combined AADT value is 2,503 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**17,588**
Avg daily volume (based on 7 days)	2,512.6
Average daily speed (7 days)	49.6mph
Average daily 85%ile (7 days)	58.0mph
AADT (annual average daily traffic)	2,503
Avg weekday volume (Mon-Fri, 24hrs)	2,713.6
Avg weekday speed (Mon-Fri, 24hrs)	49.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,289.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	49.6mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**9,113**
Avg daily volume (based on 7 days)	1,301.9
Average daily speed (7 days)	48.9mph
Average daily 85%ile (7 days)	56.9mph
% of vehicles exceeding 60mph	9.6%
Avg weekday volume (Mon-Fri, 24hrs)	1,409.4
Avg weekday speed (Mon-Fri, 24hrs)	49.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,180.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	49.6mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	57.2mph

SOUTHBOUND ↓

Total recorded volume	**8,475**
Avg daily volume (based on 7 days)	1,210.7
Average daily speed (7 days)	50.2mph
Average daily 85%ile (7 days)	59.1mph
% of vehicles exceeding 60mph	13.5%
Avg weekday volume (Mon-Fri, 24hrs)	1,304.2
Avg weekday speed (Mon-Fri, 24hrs)	49.5mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,108.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	49.6mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	57.6mph

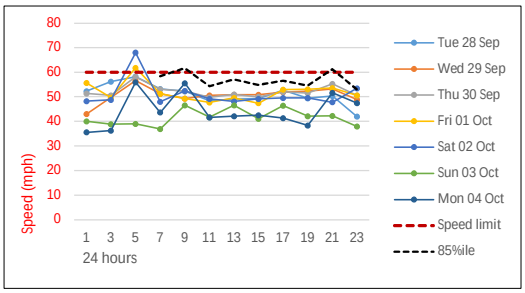
SITE LOCATION

SITE PLAN

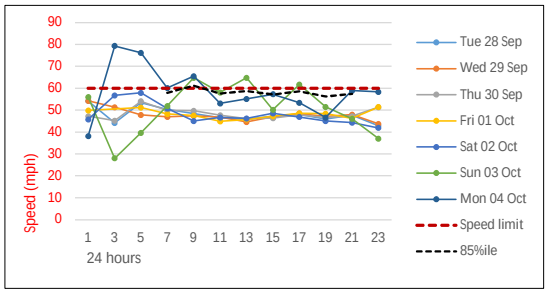
Location	Freckenham Road
	52°19'33.68"N/52°19'33.68"
Lat, lng.	N
Project & site	28925-005
PSL	60mph
Bus route	No
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

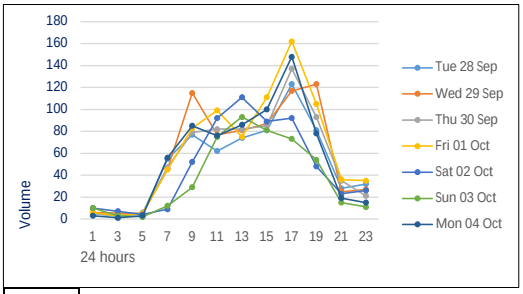


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 64.2mph at 08:00 on Mon 04 Oct, whilst the peak average southbound speed was 84.9mph at 12:00 on Sun 03 Oct (based on 15min averages between 0700 & 1900).

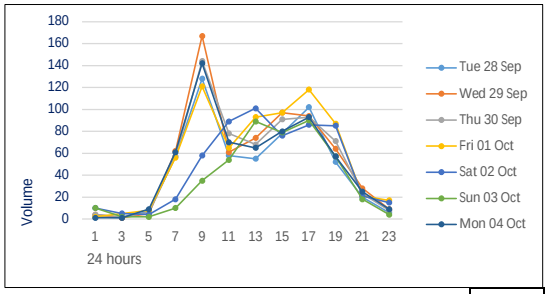
HOURLY VOLUMES

NORTHBOUND ↑



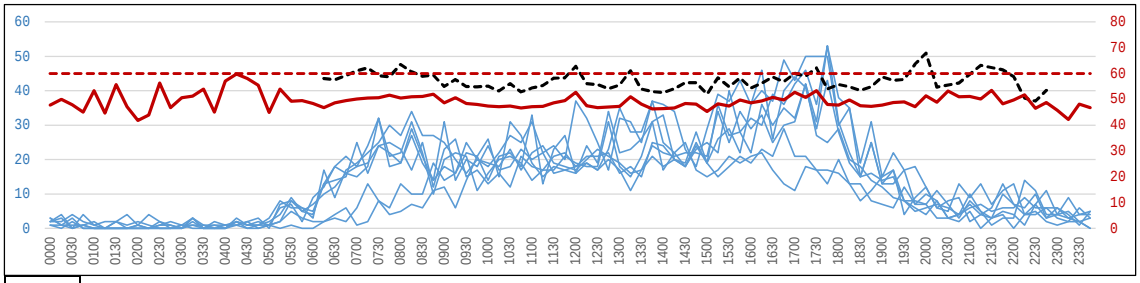
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

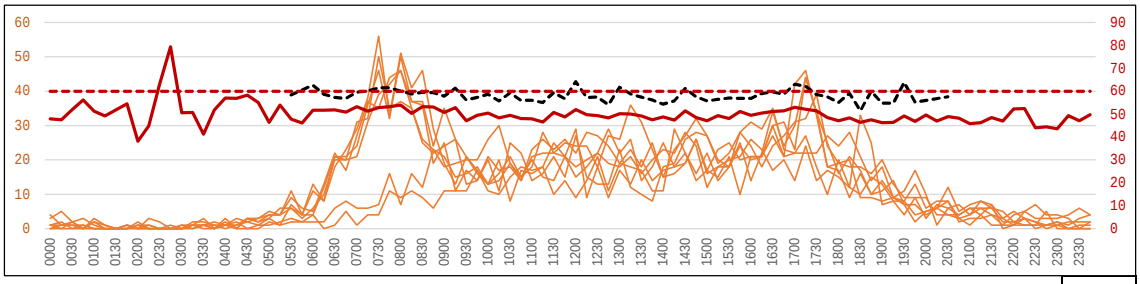


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



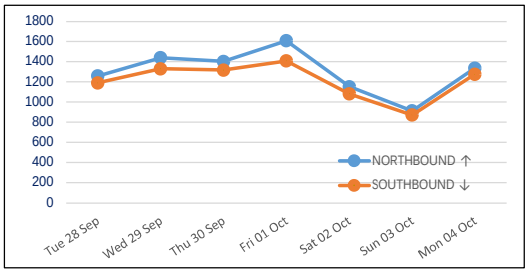
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

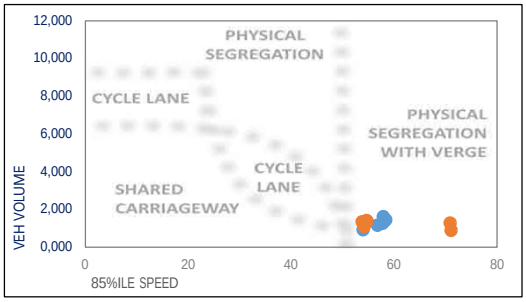
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	6.3	0.0	0.1	0.0	**6.4**
0100	0.0	2.3	0.1	0.0	0.0	**2.4**
0200	0.0	1.9	1.0	0.0	0.0	**2.9**
0300	0.0	2.0	0.7	0.4	0.0	**3.1**
0400	0.0	3.9	0.4	0.0	0.0	**4.3**
0500	0.1	15.3	0.0	0.1	0.0	**15.6**
0600	0.3	36.9	1.0	0.4	0.0	**38.6**
0700	0.1	67.6	2.6	0.4	0.0	**70.7**
0800	1.1	69.6	3.1	0.3	0.1	**74.3**
0900	0.9	69.4	3.6	1.0	0.0	**74.9**
1000	0.7	77.0	2.7	0.0	0.0	**80.4**
1100	2.0	73.7	3.0	1.1	1.1	**81.0**
1200	1.7	81.6	2.0	0.6	0.1	**86.0**
1300	2.3	88.3	2.6	0.3	0.3	**93.7**
1400	1.0	85.6	1.9	1.6	0.6	**90.6**
1500	2.9	96.0	2.3	2.0	0.9	**104.0**
1600	2.1	117.3	1.3	0.4	0.6	**121.7**
1700	2.0	131.6	1.4	0.0	0.0	**135.0**
1800	1.7	80.9	0.6	0.0	0.0	**83.1**
1900	0.3	45.4	0.1	0.1	0.0	**46.0**
2000	0.1	25.3	0.4	0.0	0.0	**25.9**
2100	0.0	23.1	0.1	0.3	0.0	**23.6**
2200	0.4	23.3	0.1	0.0	0.0	**23.9**
2300	0.4	13.0	0.1	0.3	0.0	**13.9**
12hr TTL	**18.6**	**1038.4**	**27.0**	**7.7**	**3.7**	**1095.4**
24hr TTL	**20.3**	**1237.0**	**31.3**	**9.6**	**3.7**	**1301.9**
	2%	95%	2%	1%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	4.7	0.0	0.0	0.0	**4.7**
0100	0.1	1.7	0.0	0.0	0.0	**1.9**
0200	0.0	1.6	0.1	0.0	0.0	**1.7**
0300	0.0	2.7	0.1	0.1	0.0	**3.0**
0400	0.1	5.6	0.1	0.0	0.0	**5.9**
0500	0.3	15.3	0.4	0.1	0.0	**16.1**
0600	0.1	45.0	0.7	0.0	0.0	**45.9**
0700	1.4	105.6	2.3	0.4	0.7	**110.4**
0800	1.0	107.1	4.6	0.9	0.0	**113.6**
0900	0.9	68.9	2.1	0.9	0.0	**72.7**
1000	0.9	65.1	1.4	0.4	0.0	**67.9**
1100	1.0	75.6	1.4	0.7	0.1	**78.9**
1200	1.3	73.4	2.4	0.7	0.0	**77.9**
1300	0.4	73.7	1.7	1.0	0.0	**76.9**
1400	1.4	81.6	1.3	1.0	0.1	**85.4**
1500	0.7	77.6	1.1	0.7	0.3	**80.4**
1600	0.1	94.7	1.0	0.7	0.0	**96.6**
1700	0.7	105.6	1.3	0.3	0.1	**108.0**
1800	1.1	66.3	0.0	0.1	0.0	**67.6**
1900	0.1	39.0	0.3	0.0	0.0	**39.4**
2000	0.0	21.9	0.0	0.3	0.1	**22.3**
2100	0.1	16.9	0.1	0.0	0.0	**17.1**
2200	0.4	9.3	0.0	0.0	0.0	**9.7**
2300	0.0	6.4	0.4	0.0	0.0	**6.9**
12hr TTL	**11.0**	**995.1**	**20.7**	**7.9**	**1.4**	**1036.1**
24hr TTL	**12.4**	**1165.1**	**23.1**	**8.4**	**1.6**	**1210.7**
	1%	96%	2%	1%	0%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-006 - B1085 Dane Hill Road
LOC. DESC.	B1085 Dane Hill Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on B1085 Dane Hill Road, commencing Fri 15 Oct 2021, recorded a total of 30,241 vehicles. The posted speed limit of 60mph was exceeded by 1.8% of vehicles, and the seasonally adjusted, combined AADT value is 4,539 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**30,241**
Avg daily volume (based on 7 days)	4,320.1
Average daily speed (7 days)	44.3mph
Average daily 85%ile (7 days)	50.7mph
AADT (annual average daily traffic)	4,539
Avg weekday volume (Mon-Fri, 24hrs)	4,717.8
Avg weekday speed (Mon-Fri, 24hrs)	44.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	4,087.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	43.7mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

EASTBOUND →

Total recorded volume	**14,470**
Avg daily volume (based on 7 days)	2,067.1
Average daily speed (7 days)	42.8mph
Average daily 85%ile (7 days)	49.0mph
% of vehicles exceeding 60mph	1.2%
Avg weekday volume (Mon-Fri, 24hrs)	2,235.2
Avg weekday speed (Mon-Fri, 24hrs)	42.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,931.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	42.4mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	48.5mph

WESTBOUND ←

Total recorded volume	**15,771**
Avg daily volume (based on 7 days)	2,253.0
Average daily speed (7 days)	45.8mph
Average daily 85%ile (7 days)	52.4mph
% of vehicles exceeding 60mph	2.5%
Avg weekday volume (Mon-Fri, 24hrs)	2,482.6
Avg weekday speed (Mon-Fri, 24hrs)	45.4mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,155.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	45.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	51.5mph

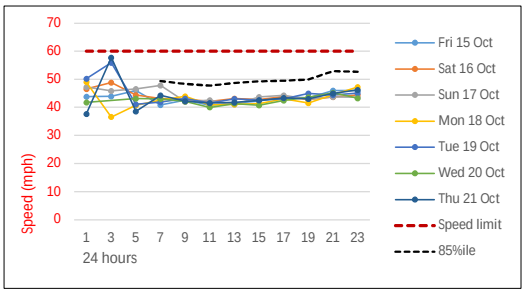
SITE LOCATION

SITE PLAN

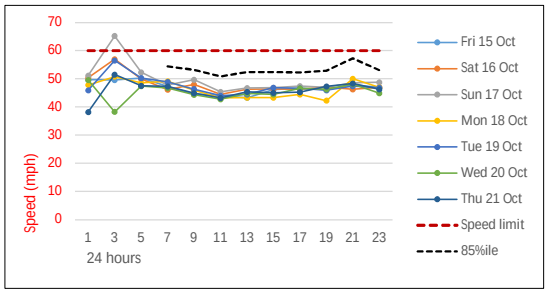
Location	B1085 Dane Hill Road
Lat, lng.	52°17'13.14"N/0°28'28.89"E
Project & site	28925-006
PSL	60mph
Bus route	Yes
Direction 1	Eastbound→
Direction 2	Westbound←

DAILY SPEEDS

EASTBOUND →



WESTBOUND ←

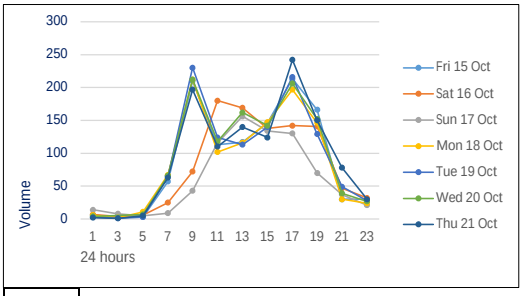


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average eastbound daytime speed was 48.5mph at 18:45 on Tue 19 Oct, whilst the peak average westbound speed was 52.7mph at 07:15 on Sat 16 Oct (based on 15min averages between 0700 & 1900).

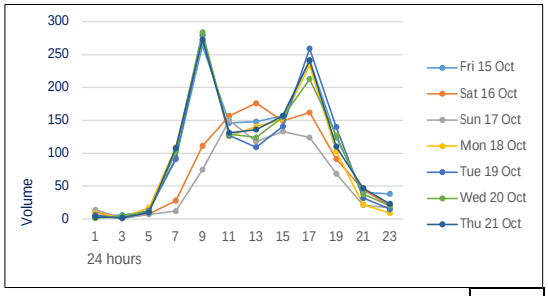
HOURLY VOLUMES

EASTBOUND →



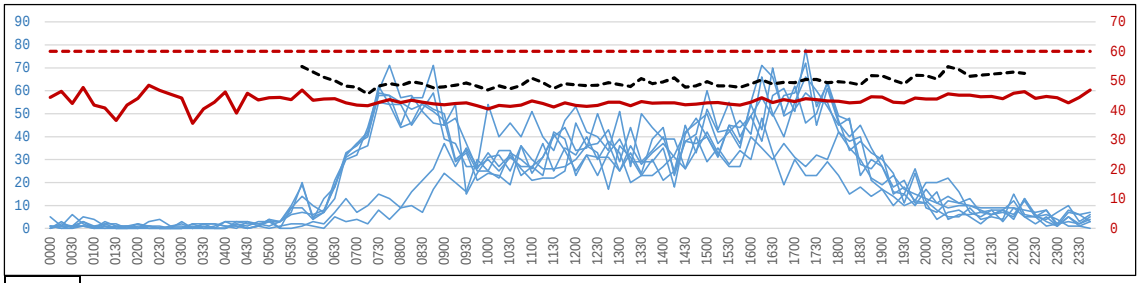
→ Hourly eastbound traffic volumes over each 24hr period for 7 days from all available data.

WESTBOUND ←

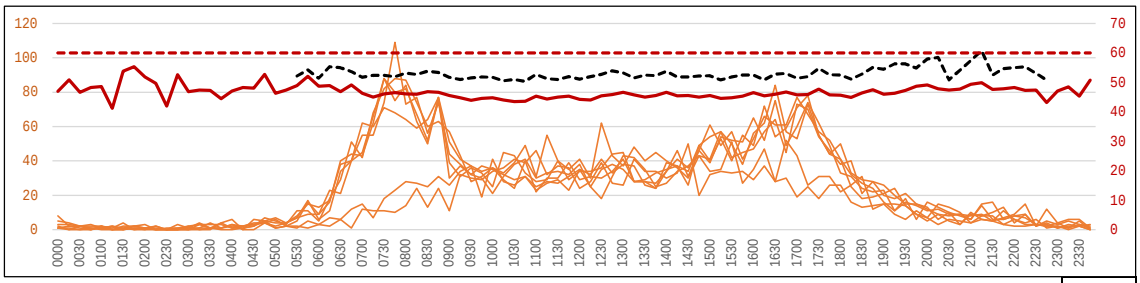


Hourly westbound traffic volumes over each 24hr period for 7 days from all available data. ←

15min VOL & SPEED



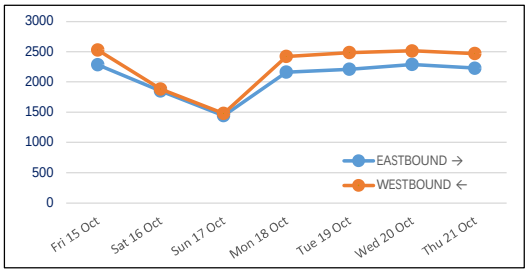
→ 15min daily eastbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily westbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ←

DAILY VOLUMES

EAST & WESTBOUND



Total 24hr eastbound (blue) and westbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

EASTBOUND 7-DAY AVG →

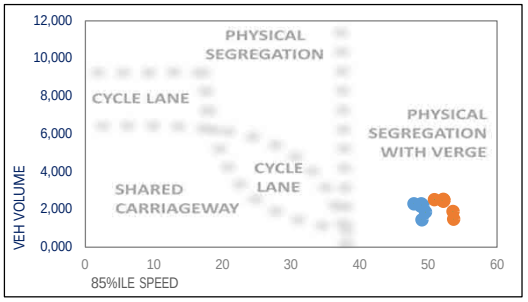
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	5.9	0.0	0.1	0.0	**6.0**
0100	0.0	2.7	0.3	0.1	0.0	**3.1**
0200	0.0	2.6	0.0	0.1	0.0	**2.7**
0300	0.3	2.9	0.1	0.0	0.0	**3.3**
0400	0.1	5.0	0.3	0.3	0.0	**5.7**
0500	0.0	19.4	0.4	1.0	0.0	**20.9**
0600	0.0	48.1	1.4	0.7	0.0	**50.3**
0700	0.1	140.3	3.6	2.4	0.9	**147.3**
0800	0.4	160.9	4.0	2.6	0.1	**168.0**
0900	0.9	121.6	4.9	2.1	0.4	**129.9**
1000	1.1	114.1	6.0	1.4	0.6	**123.3**
1100	1.7	119.1	4.9	2.0	0.4	**128.1**
1200	1.3	127.9	6.9	2.4	0.6	**139.0**
1300	0.9	117.3	6.6	3.0	0.3	**128.0**
1400	0.9	126.3	6.3	5.0	0.3	**138.7**
1500	1.3	151.6	4.0	1.7	0.7	**159.3**
1600	3.0	179.4	6.4	2.9	0.6	**192.3**
1700	0.7	191.7	4.0	1.1	0.1	**197.7**
1800	1.0	131.9	2.4	1.0	0.0	**136.3**
1900	0.6	70.3	0.7	0.6	0.1	**72.3**
2000	0.0	43.0	1.0	0.3	0.0	**44.3**
2100	0.0	27.7	0.1	0.3	0.0	**28.1**
2200	0.0	27.1	0.3	0.0	0.0	**27.4**
2300	0.0	14.3	0.9	0.0	0.0	**15.1**
12hr TTL	**13.3**	**1682.0**	**59.9**	**27.7**	**5.0**	**1787.9**
24hr TTL	**14.3**	**1951.0**	**65.4**	**31.3**	**5.1**	**2067.1**
	1%	94%	3%	2%	0%	

WESTBOUND 7-DAY AVG ←

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	6.6	0.1	0.3	0.0	**7.0**
0100	0.0	4.0	0.0	0.3	0.0	**4.3**
0200	0.0	2.0	0.4	0.1	0.0	**2.6**
0300	0.0	3.0	2.3	0.7	0.1	**6.1**
0400	0.0	8.6	1.6	1.0	0.0	**11.1**
0500	0.0	20.9	0.9	1.4	0.0	**23.1**
0600	0.9	72.9	2.4	1.4	0.1	**77.7**
0700	1.7	201.7	5.6	2.4	1.1	**212.6**
0800	0.3	214.4	6.3	2.4	0.1	**223.6**
0900	0.3	128.4	6.0	2.1	0.1	**137.0**
1000	1.3	127.9	6.0	2.1	0.7	**138.0**
1100	0.7	122.7	3.6	1.0	0.7	**128.7**
1200	0.6	127.0	6.1	2.0	0.3	**136.0**
1300	1.9	125.4	6.6	1.4	0.3	**135.6**
1400	0.4	140.9	5.7	2.0	0.0	**149.0**
1500	1.1	168.1	6.0	3.3	0.9	**179.4**
1600	1.6	201.6	4.9	2.3	0.3	**210.6**
1700	0.6	199.0	3.9	1.1	0.1	**204.7**
1800	0.1	105.6	1.9	1.4	0.1	**109.1**
1900	0.1	59.4	0.7	0.7	0.0	**61.0**
2000	0.0	34.6	0.3	0.3	0.0	**35.1**
2100	0.1	30.3	0.4	0.1	0.0	**31.0**
2200	0.0	19.3	0.3	0.7	0.0	**20.3**
2300	0.0	9.1	0.1	0.0	0.0	**9.3**
12hr TTL	**10.6**	**1862.7**	**62.4**	**23.7**	**4.9**	**1964.3**
24hr TTL	**11.7**	**2133.3**	**72.0**	**30.9**	**5.1**	**2253.0**
	1%	95%	3%	1%	0%	

Average daily eastbound and westbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



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Valid 85%iles are required to plot the graph.

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Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

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These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

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CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

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ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-007 - B1085 Dane Hill Road
LOC. DESC.	B1085 Dane Hill Road
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on B1085 Dane Hill Road, commencing Fri 15 Oct 2021, recorded a total of 30,349 vehicles. The posted speed limit of 60mph was exceeded by 0.5% of vehicles, and the seasonally adjusted, combined AADT value is 4,555 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**30,349**
Avg daily volume (based on 7 days)	4,335.6
Average daily speed (7 days)	42.1mph
Average daily 85%ile (7 days)	47.7mph
AADT (annual average daily traffic)	4,555
Avg weekday volume (Mon-Fri, 24hrs)	4,723.2
Avg weekday speed (Mon-Fri, 24hrs)	41.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	4,087.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	41.7mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

EASTBOUND →

Total recorded volume	**14,559**
Avg daily volume (based on 7 days)	2,079.9
Average daily speed (7 days)	40.7mph
Average daily 85%ile (7 days)	46.0mph
% of vehicles exceeding 60mph	0.4%
Avg weekday volume (Mon-Fri, 24hrs)	2,244.4
Avg weekday speed (Mon-Fri, 24hrs)	40.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,937.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	40.4mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	45.6mph

WESTBOUND ←

Total recorded volume	**15,790**
Avg daily volume (based on 7 days)	2,255.7
Average daily speed (7 days)	43.5mph
Average daily 85%ile (7 days)	49.5mph
% of vehicles exceeding 60mph	0.7%
Avg weekday volume (Mon-Fri, 24hrs)	2,478.8
Avg weekday speed (Mon-Fri, 24hrs)	43.2mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	2,150.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	43.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	48.9mph

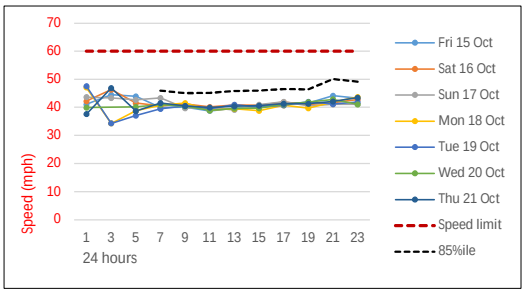
SITE LOCATION

SITE PLAN

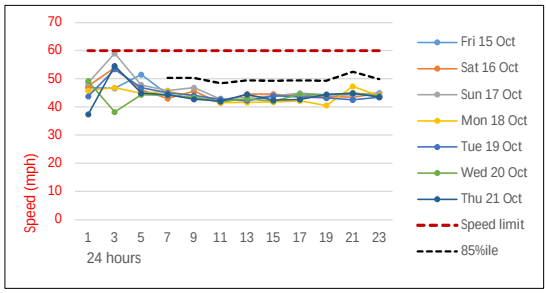
Location	B1085 Dane Hill Road
Lat, lng.	52°17'15.15"N/,0°28'21.81"E
Project & site	28925-007
PSL	60mph
Bus route	Yes
Direction 1	Eastbound→
Direction 2	Westbound←

DAILY SPEEDS

EASTBOUND →



WESTBOUND ←

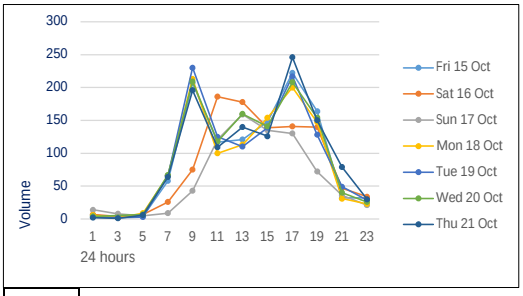


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average eastbound daytime speed was 45.8mph at 07:00 on Sun 17 Oct, whilst the peak average westbound speed was 48.5mph at 18:30 on Wed 20 Oct (based on 15min averages between 0700 & 1900).

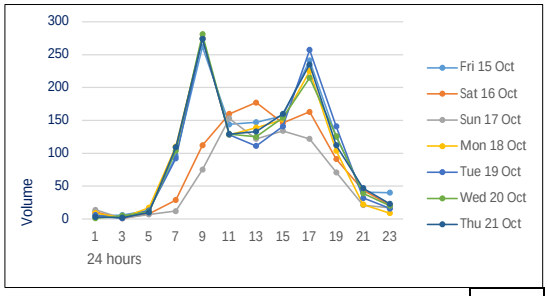
HOURLY VOLUMES

EASTBOUND →



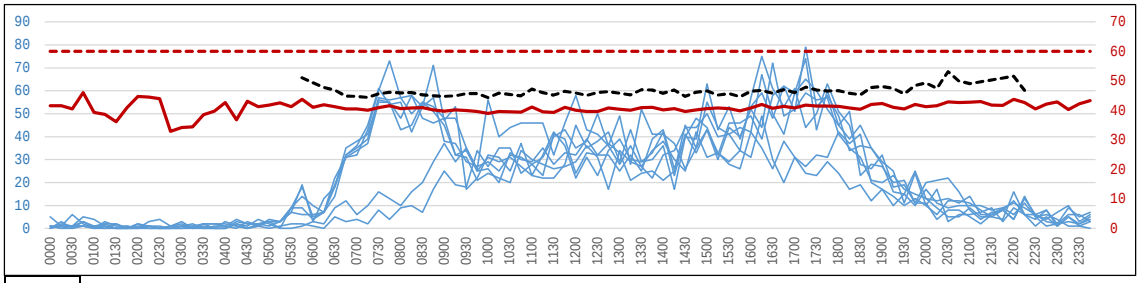
→ Hourly eastbound traffic volumes over each 24hr period for 7 days from all available data.

WESTBOUND ←

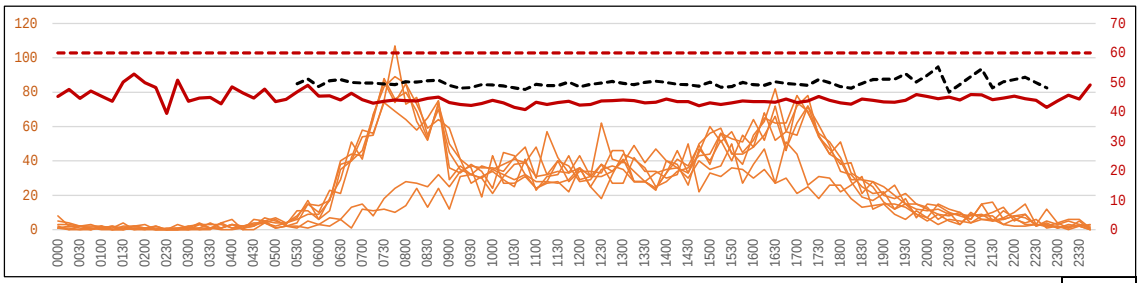


Hourly westbound traffic volumes over each 24hr period for 7 days from all available data. ←

15min VOL & SPEED



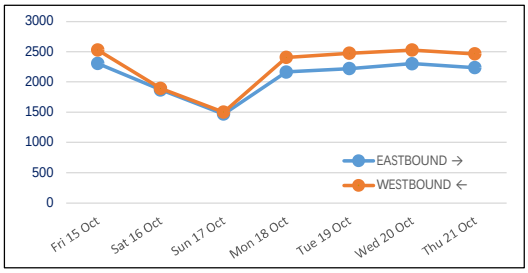
→ 15min daily eastbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily westbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ←

DAILY VOLUMES

EAST & WESTBOUND



Total 24hr eastbound (blue) and westbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

EASTBOUND 7-DAY AVG →

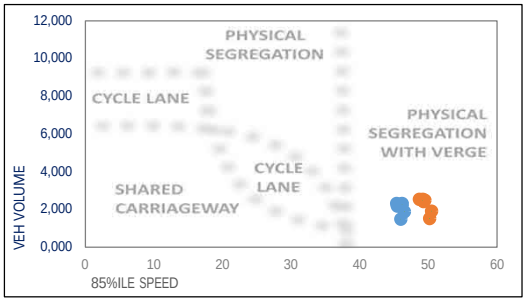
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	5.9	0.0	0.1	0.0	**6.0**
0100	0.0	2.7	0.3	0.1	0.0	**3.1**
0200	0.1	2.6	0.0	0.1	0.0	**2.9**
0300	0.4	2.9	0.0	0.0	0.1	**3.4**
0400	0.3	5.0	0.3	0.3	0.0	**5.9**
0500	0.0	18.4	0.6	1.1	0.0	**20.1**
0600	0.4	48.6	1.1	0.7	0.0	**50.9**
0700	0.4	138.4	4.0	2.9	0.7	**146.4**
0800	0.9	159.6	4.4	2.6	0.1	**167.6**
0900	1.1	121.6	5.3	2.6	0.4	**131.0**
1000	1.6	114.4	6.3	2.1	0.7	**125.1**
1100	2.6	119.7	5.0	1.9	0.4	**129.6**
1200	2.0	127.1	7.0	3.1	0.9	**140.1**
1300	1.6	115.3	7.3	3.1	0.3	**127.6**
1400	1.4	126.7	6.9	4.7	0.6	**140.3**
1500	1.4	153.0	4.6	1.4	0.9	**161.3**
1600	3.4	180.7	6.7	3.6	0.4	**194.9**
1700	0.9	191.0	3.7	1.9	0.1	**197.6**
1800	1.0	131.7	2.6	1.1	0.0	**136.4**
1900	0.6	71.4	0.7	0.4	0.1	**73.3**
2000	0.0	43.6	1.0	0.3	0.0	**44.9**
2100	0.0	28.4	0.0	0.1	0.0	**28.6**
2200	0.0	27.7	0.1	0.0	0.0	**27.9**
2300	0.0	14.3	0.9	0.0	0.0	**15.1**
12hr TTL	**18.3**	**1679.3**	**63.7**	**31.0**	**5.6**	**1797.9**
24hr TTL	**20.1**	**1950.7**	**68.7**	**34.4**	**5.9**	**2079.9**
	1%	94%	3%	2%	0%	

WESTBOUND 7-DAY AVG ←

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	6.7	0.1	0.1	0.0	**7.0**
0100	0.0	4.0	0.0	0.3	0.0	**4.3**
0200	0.0	2.0	0.4	0.1	0.0	**2.6**
0300	0.0	2.9	3.0	0.3	0.0	**6.1**
0400	0.0	8.4	2.4	0.4	0.0	**11.3**
0500	0.0	20.4	0.9	1.4	0.0	**22.7**
0600	0.9	74.0	2.4	1.4	0.1	**78.9**
0700	2.0	201.0	5.4	2.4	0.7	**211.6**
0800	0.3	212.7	6.0	2.7	0.3	**222.0**
0900	1.0	128.0	5.6	2.3	0.1	**137.0**
1000	2.0	127.0	6.0	3.0	0.7	**138.7**
1100	1.0	124.0	3.7	0.7	0.7	**130.1**
1200	1.3	126.7	5.9	2.1	0.3	**136.3**
1300	3.1	123.7	6.7	2.0	0.6	**136.1**
1400	0.7	140.0	5.9	2.1	0.3	**149.0**
1500	2.1	168.7	6.0	3.3	1.0	**181.1**
1600	1.9	199.1	4.4	2.4	0.4	**208.3**
1700	0.6	199.1	3.9	1.4	0.1	**205.1**
1800	0.4	105.7	2.1	1.6	0.1	**110.0**
1900	0.3	59.1	0.7	0.9	0.0	**61.0**
2000	0.0	34.9	0.1	0.1	0.0	**35.1**
2100	0.1	30.6	0.3	0.1	0.0	**31.1**
2200	0.0	20.3	0.1	0.4	0.0	**20.9**
2300	0.0	9.1	0.1	0.0	0.0	**9.3**
12hr TTL	**16.4**	**1855.9**	**61.6**	**26.1**	**5.4**	**1965.4**
24hr TTL	**17.7**	**2128.3**	**72.3**	**31.9**	**5.6**	**2255.7**
	1%	94%	3%	1%	0%	

Average daily eastbound and westbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Norfolk
LOCATION	28925-006 - Isleham Road
LOC. DESC.	Isleham Road
START DATE	Tue 28 Sep, 2021
END DATE	Mon 04 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Isleham Road, commencing Tue 28 Sep 2021, recorded a total of 8,009 vehicles. The posted speed limit of 60mph was exceeded by 3.4% of vehicles, and the seasonally adjusted, combined AADT value is 1,139 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**8,009**
Avg daily volume (based on 7 days)	1,144.1
Average daily speed (7 days)	45.1mph
Average daily 85%ile (7 days)	52.6mph
AADT (annual average daily traffic)	1,139
Avg weekday volume (Mon-Fri, 24hrs)	1,229.4
Avg weekday speed (Mon-Fri, 24hrs)	45.0mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,000.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	45.0mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

EASTBOUND →

Total recorded volume	**4,006**
Avg daily volume (based on 7 days)	572.3
Average daily speed (7 days)	42.6mph
Average daily 85%ile (7 days)	49.6mph
% of vehicles exceeding 60mph	1.0%
Avg weekday volume (Mon-Fri, 24hrs)	616.4
Avg weekday speed (Mon-Fri, 24hrs)	42.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	495.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	42.6mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	49.2mph

WESTBOUND ←

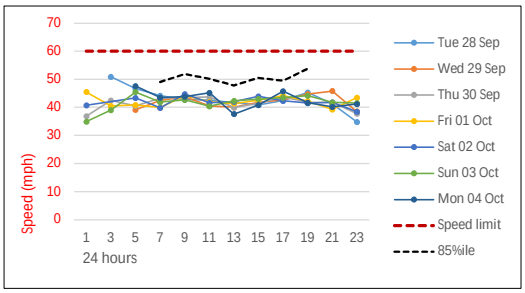
Total recorded volume	**4,003**
Avg daily volume (based on 7 days)	571.9
Average daily speed (7 days)	47.6mph
Average daily 85%ile (7 days)	55.6mph
% of vehicles exceeding 60mph	5.9%
Avg weekday volume (Mon-Fri, 24hrs)	613.0
Avg weekday speed (Mon-Fri, 24hrs)	47.4mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	505.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	47.5mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	55.5mph

SITE LOCATION

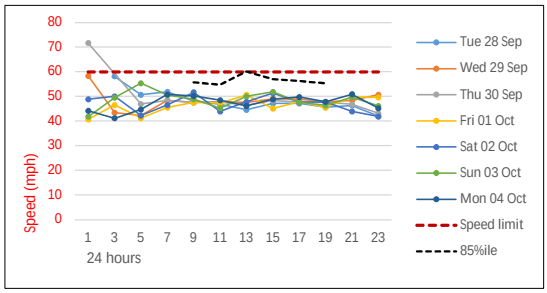
Location	Isleham Road
Lat, lng.	52°19'33.68"N/52°19'33.68" N
Project & site	28925-006
PSL	60mph
Bus route	No
Direction 1	Eastbound→
Direction 2	Westbound←

DAILY SPEEDS

EASTBOUND →



WESTBOUND ←

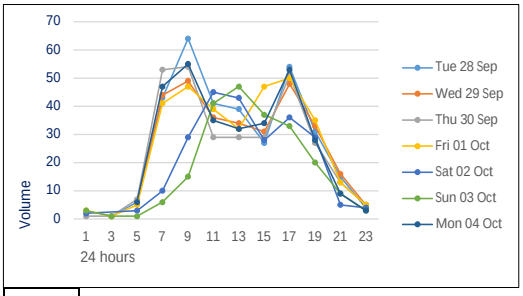


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average eastbound daytime speed was 51.1mph at 07:00 on Sun 03 Oct, whilst the peak average westbound speed was 64.5mph at 07:15 on Sat 02 Oct (based on 15min averages between 0700 & 1900).

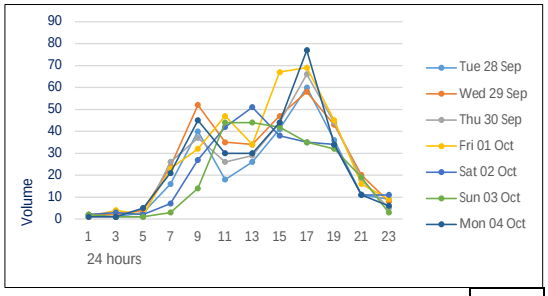
HOURLY VOLUMES

EASTBOUND →



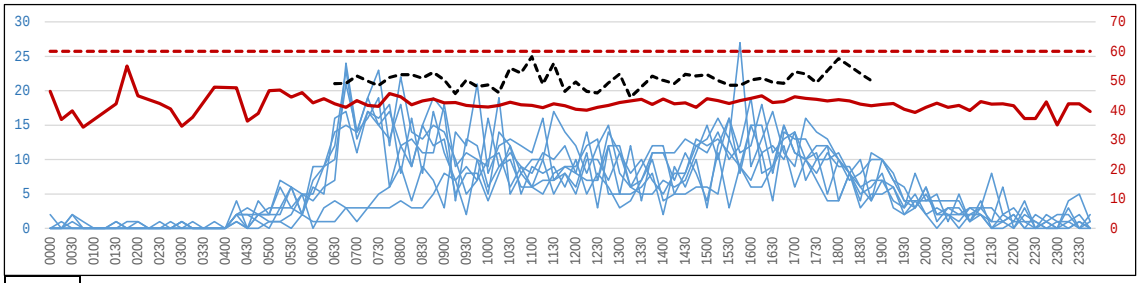
→ Hourly eastbound traffic volumes over each 24hr period for 7 days from all available data.

WESTBOUND ←

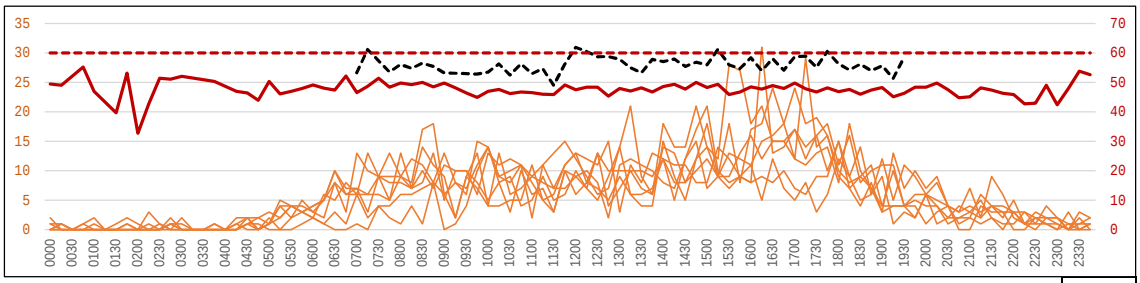


Hourly westbound traffic volumes over each 24hr period for 7 days from all available data. ←

15min VOL & SPEED



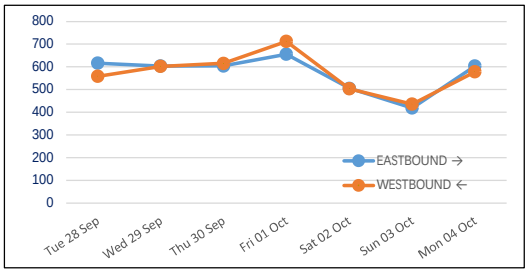
→ 15min daily eastbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily westbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ←

DAILY VOLUMES

EAST & WESTBOUND



Total 24hr eastbound (blue) and westbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

EASTBOUND 7-DAY AVG →

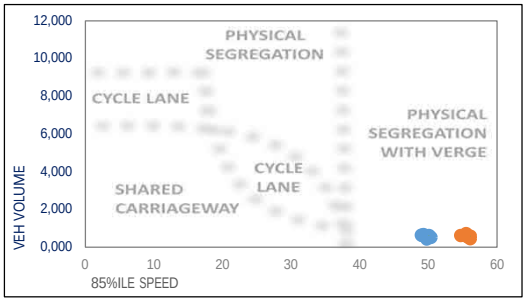
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	1.3	0.0	0.0	0.0	**1.3**
0100	0.0	0.4	0.0	0.0	0.0	**0.4**
0200	0.0	0.6	0.0	0.0	0.0	**0.6**
0300	0.0	0.7	0.0	0.0	0.0	**0.7**
0400	0.0	3.6	0.0	1.3	0.0	**4.9**
0500	0.0	10.4	0.0	1.4	0.0	**11.9**
0600	1.4	30.3	0.6	2.0	0.6	**34.9**
0700	1.3	44.0	0.6	1.0	1.0	**47.9**
0800	1.0	42.3	0.6	0.9	0.0	**44.7**
0900	0.3	37.1	1.4	0.4	0.0	**39.3**
1000	0.7	35.0	1.4	0.9	0.0	**38.0**
1100	0.4	34.6	0.9	0.1	0.0	**36.0**
1200	0.6	34.0	1.3	0.6	0.1	**36.6**
1300	0.0	28.3	1.0	1.0	0.3	**30.6**
1400	0.6	30.7	1.1	0.7	0.1	**33.3**
1500	0.3	43.0	1.0	0.3	0.0	**44.6**
1600	0.3	45.6	0.4	0.1	0.0	**46.4**
1700	0.4	41.3	0.0	0.1	0.0	**41.9**
1800	0.0	29.0	0.0	0.0	0.0	**29.0**
1900	0.4	20.9	0.4	0.0	0.0	**21.7**
2000	0.0	11.1	0.3	0.0	0.0	**11.4**
2100	0.0	8.3	0.0	0.0	0.0	**8.3**
2200	0.0	4.1	0.0	0.0	0.0	**4.1**
2300	0.0	4.0	0.0	0.0	0.0	**4.0**
12hr TTL	**5.9**	**444.9**	**9.7**	**6.1**	**1.6**	**468.1**
24hr TTL	**7.7**	**540.6**	**11.0**	**10.9**	**2.1**	**572.3**
	1%	94%	2%	2%	0%	

WESTBOUND 7-DAY AVG ←

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	1.3	0.0	0.0	0.0	**1.3**
0100	0.0	1.1	0.0	0.0	0.0	**1.1**
0200	0.0	1.6	0.0	0.1	0.0	**1.7**
0300	0.0	0.7	0.0	0.0	0.0	**0.7**
0400	0.0	2.6	0.0	0.0	0.0	**2.6**
0500	0.1	8.9	0.0	0.7	0.0	**9.7**
0600	0.0	16.4	0.3	0.4	0.0	**17.1**
0700	0.1	23.0	0.9	0.4	1.6	**26.0**
0800	0.3	31.3	2.0	1.1	0.6	**35.3**
0900	0.6	27.9	1.9	0.4	0.1	**30.9**
1000	0.6	31.9	1.1	1.0	0.0	**34.6**
1100	0.9	28.7	0.9	1.0	0.0	**31.4**
1200	1.4	32.4	0.7	0.9	0.0	**35.4**
1300	0.4	34.1	1.0	0.7	0.0	**36.3**
1400	0.3	44.0	0.6	0.9	0.4	**46.1**
1500	1.3	44.7	1.6	0.6	1.6	**49.7**
1600	1.9	53.0	0.6	0.9	0.9	**57.1**
1700	2.1	49.6	0.1	1.1	0.0	**53.0**
1800	0.3	36.4	0.7	0.6	0.3	**38.3**
1900	0.0	23.7	0.4	0.0	0.0	**24.1**
2000	0.0	15.1	0.0	0.0	0.0	**15.1**
2100	0.0	13.0	0.0	0.0	0.0	**13.0**
2200	0.0	7.3	0.0	0.0	0.0	**7.3**
2300	0.0	3.9	0.0	0.0	0.0	**3.9**
12hr TTL	**10.1**	**437.0**	**12.0**	**9.6**	**5.4**	**474.1**
24hr TTL	**10.3**	**532.6**	**12.7**	**10.9**	**5.4**	**571.9**
	2%	93%	2%	2%	1%	

Average daily eastbound and westbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



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Valid 85%iles are required to plot the graph.

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Equipment & methodology

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- 20 – 30mph: potential reduction of 9% accuracy in volume values
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- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, A-T-R may not be held liable for errors of fact or interpretation.

ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-008 - B1085
LOC. DESC.	B1085
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on B1085, commencing Fri 15 Oct 2021, recorded a total of 24,148 vehicles. The posted speed limit of 60mph was exceeded by 8.7% of vehicles, and the seasonally adjusted, combined AADT value is 3,648 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**24,148**
Avg daily volume (based on 7 days)	3,449.7
Average daily speed (7 days)	49.7mph
Average daily 85%ile (7 days)	57.2mph
AADT (annual average daily traffic)	3,648
Avg weekday volume (Mon-Fri, 24hrs)	3,740.8
Avg weekday speed (Mon-Fri, 24hrs)	49.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	3,305.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	49.5mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

EASTBOUND →

Total recorded volume	**12,221**
Avg daily volume (based on 7 days)	1,745.9
Average daily speed (7 days)	48.1mph
Average daily 85%ile (7 days)	55.7mph
% of vehicles exceeding 60mph	5.9%
Avg weekday volume (Mon-Fri, 24hrs)	1,863.8
Avg weekday speed (Mon-Fri, 24hrs)	48.2mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,635.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	48.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	55.3mph

WESTBOUND ←

Total recorded volume	**11,927**
Avg daily volume (based on 7 days)	1,703.9
Average daily speed (7 days)	51.2mph
Average daily 85%ile (7 days)	58.7mph
% of vehicles exceeding 60mph	11.5%
Avg weekday volume (Mon-Fri, 24hrs)	1,877.0
Avg weekday speed (Mon-Fri, 24hrs)	51.1mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	1,669.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	51.0mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	58.2mph

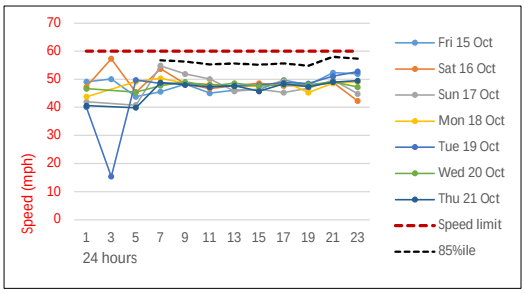
SITE LOCATION

SITE PLAN

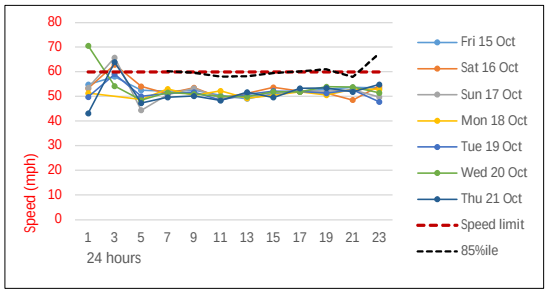
Location	B1085
Lat, lng.	52°17'26.70"N/0°27'38.58"E
Project & site	28925-008
PSL	60mph
Bus route	Yes
Direction 1	Eastbound→
Direction 2	Westbound←

DAILY SPEEDS

EASTBOUND →



WESTBOUND ←

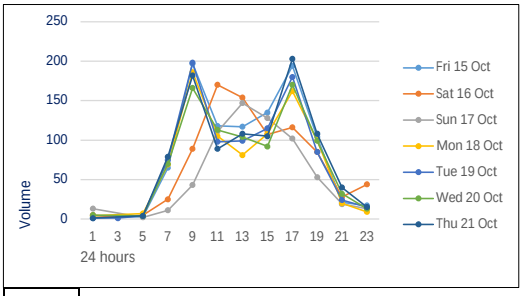


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average eastbound daytime speed was 55.3mph at 07:00 on Sat 16 Oct, whilst the peak average westbound speed was 59.2mph at 08:30 on Sat 16 Oct (based on 15min averages between 0700 & 1900).

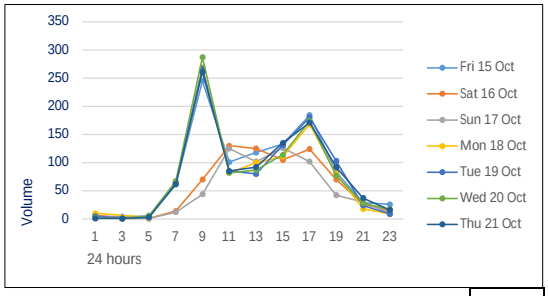
HOURLY VOLUMES

EASTBOUND →



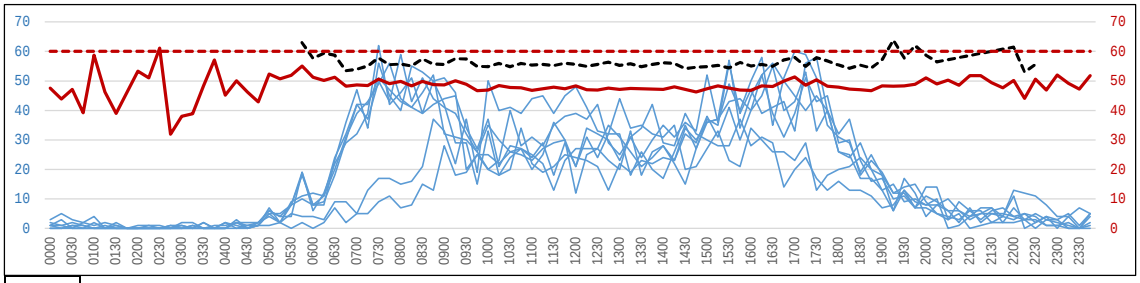
→ Hourly eastbound traffic volumes over each 24hr period for 7 days from all available data.

WESTBOUND ←

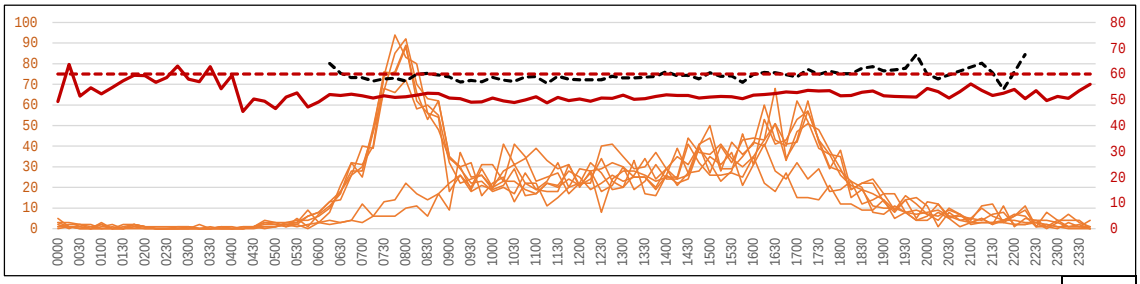


Hourly westbound traffic volumes over each 24hr period for 7 days from all available data. ←

15min VOL & SPEED



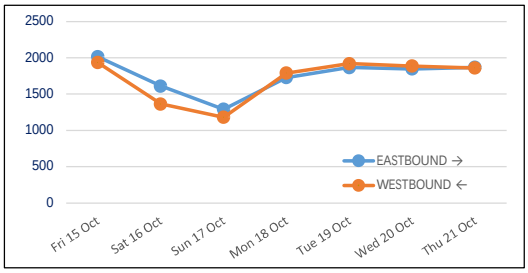
→ 15min daily eastbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily westbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ←

DAILY VOLUMES

EAST & WESTBOUND



Total 24hr eastbound (blue) and westbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

EASTBOUND 7-DAY AVG →

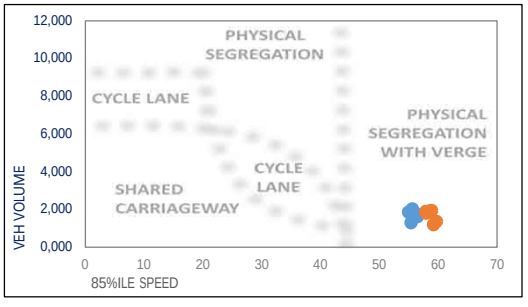
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.1	4.3	0.0	0.0	0.0	**4.4**
0100	0.0	1.9	0.1	0.0	0.0	**2.0**
0200	0.1	0.7	0.0	0.0	0.0	**0.9**
0300	0.3	1.6	0.0	0.0	0.0	**1.9**
0400	0.3	3.6	0.1	0.1	0.0	**4.1**
0500	0.0	24.9	0.7	0.1	0.0	**25.7**
0600	0.1	53.9	1.3	0.6	0.4	**56.3**
0700	0.4	132.6	3.1	1.3	2.6	**140.0**
0800	1.0	145.1	2.6	2.9	0.0	**151.6**
0900	1.7	115.7	4.0	2.0	0.1	**123.6**
1000	0.6	108.9	2.7	2.7	0.0	**114.9**
1100	3.4	103.7	3.7	2.7	0.0	**113.6**
1200	1.3	109.0	2.4	2.7	0.3	**115.7**
1300	1.9	104.0	2.1	1.3	0.1	**109.4**
1400	1.3	104.6	3.4	3.4	0.1	**112.9**
1500	0.6	141.7	2.0	2.4	1.1	**147.9**
1600	2.3	154.4	2.3	1.9	0.1	**161.0**
1700	1.1	148.9	1.6	0.7	0.0	**152.3**
1800	0.6	88.7	0.4	0.9	0.0	**90.6**
1900	0.3	46.3	0.3	0.1	0.1	**47.1**
2000	0.0	25.9	0.3	0.1	0.0	**26.3**
2100	0.0	16.6	0.4	0.1	0.1	**17.3**
2200	0.0	18.0	0.0	0.0	0.0	**18.0**
2300	0.0	8.1	0.4	0.0	0.0	**8.6**
12hr TTL	**16.1**	**1457.3**	**30.4**	**24.9**	**4.6**	**1533.3**
24hr TTL	**17.4**	**1662.9**	**34.1**	**26.1**	**5.3**	**1745.9**
	1%	95%	2%	1%	0%	

WESTBOUND 7-DAY AVG ←

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	5.0	0.0	0.0	0.0	**5.0**
0100	0.0	3.3	0.0	0.1	0.0	**3.4**
0200	0.0	1.3	0.0	0.0	0.0	**1.3**
0300	0.0	1.1	0.1	0.0	0.0	**1.3**
0400	0.0	3.3	0.0	0.0	0.0	**3.3**
0500	0.0	9.4	0.0	0.3	1.0	**10.7**
0600	0.7	45.9	1.1	1.4	0.1	**49.3**
0700	1.1	164.0	3.0	2.1	0.7	**171.0**
0800	0.6	195.0	7.7	2.4	0.4	**206.1**
0900	0.9	93.4	5.3	2.3	0.6	**102.4**
1000	1.1	91.3	3.1	3.0	0.0	**98.6**
1100	1.1	87.4	1.9	1.1	0.3	**91.9**
1200	1.0	94.4	3.3	1.6	0.3	**100.6**
1300	3.0	93.3	3.6	2.9	0.3	**103.0**
1400	0.7	116.0	2.9	2.1	0.4	**122.1**
1500	2.0	124.7	4.1	1.1	1.3	**133.3**
1600	2.1	151.3	1.9	2.1	0.1	**157.6**
1700	0.9	150.4	0.7	1.9	0.1	**154.0**
1800	0.6	76.1	0.9	0.0	0.6	**78.1**
1900	0.3	40.7	0.3	0.4	0.1	**41.9**
2000	0.0	27.4	0.1	0.0	0.0	**27.6**
2100	0.1	19.1	0.4	0.0	0.0	**19.7**
2200	0.0	14.4	0.0	0.0	0.0	**14.4**
2300	0.0	7.3	0.0	0.0	0.0	**7.3**
12hr TTL	**15.1**	**1437.4**	**38.3**	**22.7**	**5.1**	**1518.7**
24hr TTL	**16.3**	**1615.7**	**40.4**	**25.0**	**6.4**	**1703.9**
	1%	95%	2%	1%	0%	

Average daily eastbound and westbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

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4	TB2	2 axle truck / bus		OGV1 & PSV
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6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

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ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-009 - B1102
LOC. DESC.	B1102
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on B1102, commencing Fri 15 Oct 2021, recorded a total of 46,590 vehicles. The posted speed limit of 60mph was exceeded by 23.2% of vehicles, and the seasonally adjusted, combined AADT value is 7,013 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**46,590**
Avg daily volume (based on 7 days)	6,655.7
Average daily speed (7 days)	55.4mph
Average daily 85%ile (7 days)	62.1mph
AADT (annual average daily traffic)	7,013
Avg weekday volume (Mon-Fri, 24hrs)	7,341.0
Avg weekday speed (Mon-Fri, 24hrs)	54.8mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	6,303.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	54.4mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**23,818**
Avg daily volume (based on 7 days)	3,402.6
Average daily speed (7 days)	54.3mph
Average daily 85%ile (7 days)	60.6mph
% of vehicles exceeding 60mph	16.7%
Avg weekday volume (Mon-Fri, 24hrs)	3,766.0
Avg weekday speed (Mon-Fri, 24hrs)	53.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	3,282.2
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	53.3mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	59.5mph

SOUTHBOUND ↓

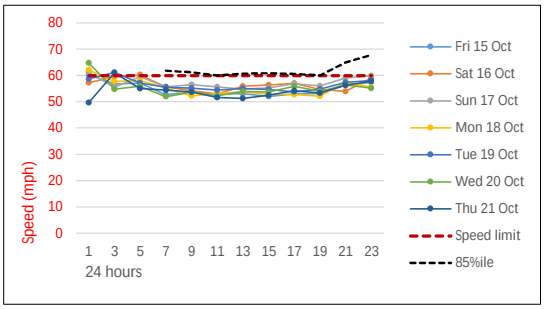
Total recorded volume	**22,772**
Avg daily volume (based on 7 days)	3,253.1
Average daily speed (7 days)	56.5mph
Average daily 85%ile (7 days)	63.6mph
% of vehicles exceeding 60mph	29.7%
Avg weekday volume (Mon-Fri, 24hrs)	3,575.0
Avg weekday speed (Mon-Fri, 24hrs)	55.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	3,021.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	55.4mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	62.4mph

SITE LOCATION

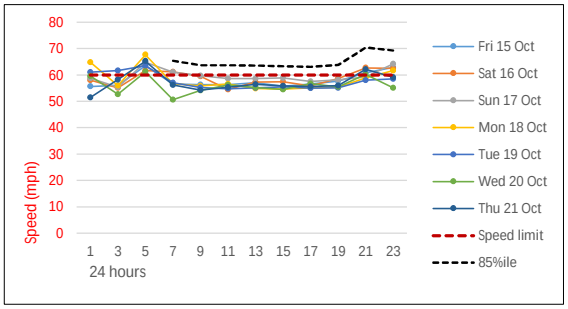
Location	B1102
Lat, lng.	52°17'35.11"N,0°20'55.67"E
Project & site	28925-009
PSL	60mph
Bus route	Yes
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

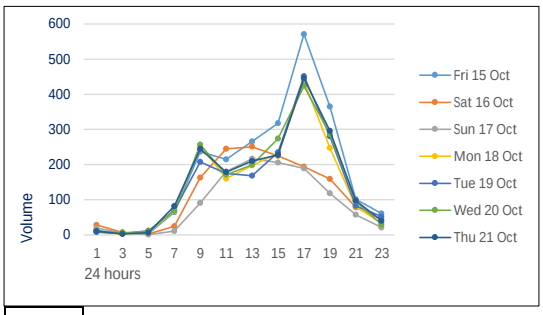


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 61.5mph at 07:15 on Sat 16 Oct, whilst the peak average southbound speed was 64.2mph at 07:00 on Sat 16 Oct (based on 15min averages between 0700 & 1900).

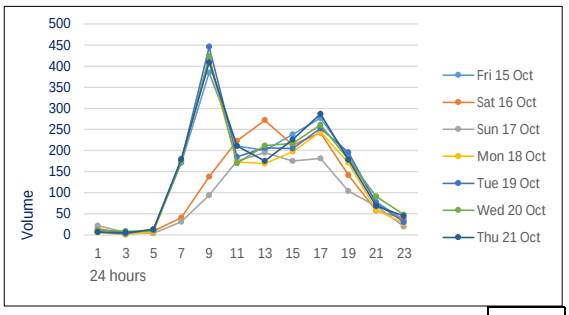
HOURLY VOLUMES

NORTHBOUND ↑



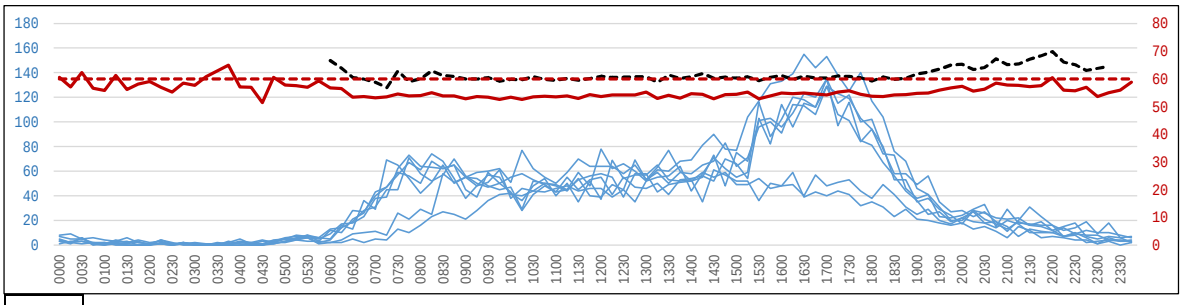
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

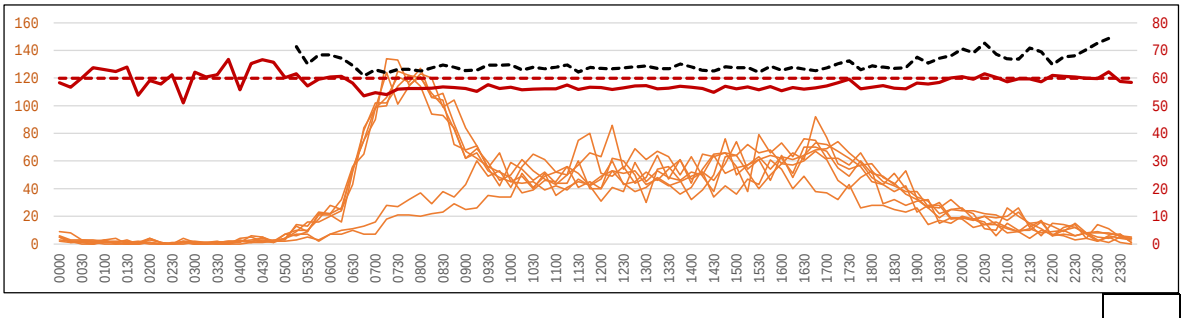


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



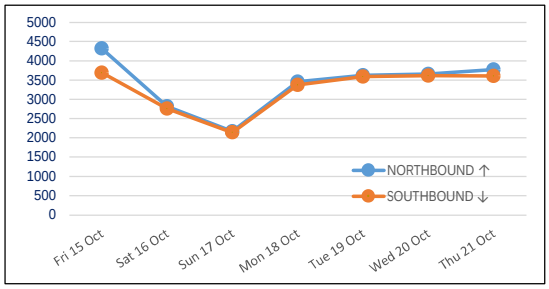
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

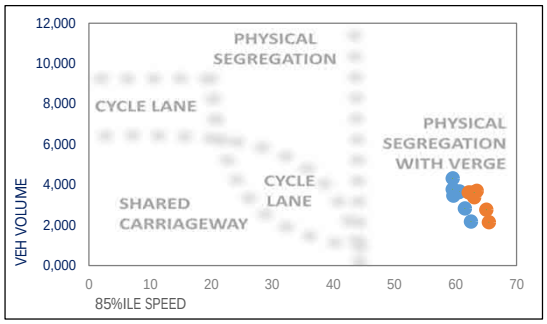
TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	13.3	0.6	0.0	0.0	**13.9**
0100	0.0	6.7	0.3	0.0	0.0	**7.0**
0200	0.1	4.4	0.1	0.0	0.1	**4.9**
0300	0.0	2.4	0.4	0.0	0.0	**2.9**
0400	0.0	6.1	0.1	0.1	0.0	**6.4**
0500	0.0	18.7	0.7	0.3	0.0	**19.7**
0600	2.0	50.3	1.1	2.1	0.0	**55.6**
0700	1.9	155.3	2.7	1.3	1.0	**162.1**
0800	1.7	198.1	3.9	3.0	1.1	**207.9**
0900	1.3	185.9	5.4	3.4	0.1	**196.1**
1000	1.7	178.7	6.0	2.1	0.6	**189.1**
1100	0.9	188.0	5.3	3.1	0.4	**197.7**
1200	0.9	205.4	6.4	2.4	0.4	**215.6**
1300	2.0	211.3	5.9	2.7	1.0	**222.9**
1400	2.0	232.9	6.6	3.1	0.9	**245.4**
1500	1.7	290.1	6.6	3.1	1.0	**302.6**
1600	2.7	376.6	5.0	3.1	0.1	**387.6**
1700	2.1	379.4	3.1	1.9	0.3	**386.9**
1800	1.1	246.1	2.6	0.6	0.0	**250.4**
1900	0.7	116.6	0.9	0.1	0.0	**118.3**
2000	1.4	83.0	0.1	0.0	0.1	**84.7**
2100	2.0	61.6	0.1	0.1	0.1	**64.0**
2200	0.3	39.6	0.3	0.0	0.0	**40.1**
2300	0.4	19.6	0.7	0.0	0.1	**20.9**
12hr TTL	**20.0**	**2847.9**	**59.4**	**30.0**	**7.0**	**2964.3**
24hr TTL	**27.0**	**3270.1**	**65.0**	**32.9**	**7.6**	**3402.6**
	1%	96%	2%	1%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	9.6	0.4	0.4	0.3	**10.7**
0100	0.1	3.9	0.1	0.3	0.0	**4.4**
0200	0.0	3.7	0.0	0.3	0.1	**4.1**
0300	0.0	2.6	0.1	0.1	0.0	**2.9**
0400	0.0	9.7	0.0	0.0	0.0	**9.7**
0500	0.1	36.9	0.1	0.7	0.3	**38.1**
0600	1.0	130.0	2.7	1.4	0.4	**135.6**
0700	4.6	326.7	7.4	2.9	2.3	**343.9**
0800	0.9	317.0	6.9	3.4	1.4	**329.6**
0900	1.3	209.7	6.6	2.0	0.3	**219.9**
1000	1.1	181.4	5.9	3.3	0.9	**192.6**
1100	2.6	182.7	8.3	3.4	0.6	**197.6**
1200	1.4	193.3	6.9	1.9	0.7	**204.1**
1300	2.1	189.6	5.1	2.0	0.7	**199.6**
1400	2.6	198.7	5.6	1.4	1.9	**210.1**
1500	3.7	212.6	7.4	3.0	1.6	**228.3**
1600	2.4	238.9	4.9	2.3	0.9	**249.3**
1700	2.6	219.3	2.4	1.4	0.3	**226.0**
1800	1.1	162.1	1.4	0.4	0.0	**165.1**
1900	1.6	97.7	1.0	1.0	0.3	**101.6**
2000	0.4	69.1	1.1	0.3	0.0	**71.0**
2100	0.0	53.7	0.1	0.3	0.1	**54.3**
2200	0.0	34.1	0.3	0.4	0.1	**35.0**
2300	0.0	18.6	0.7	0.1	0.3	**19.7**
12hr TTL	**26.4**	**2632.0**	**68.7**	**27.4**	**11.4**	**2766.0**
24hr TTL	**29.7**	**3101.6**	**75.6**	**32.9**	**13.4**	**3253.1**
	1%	95%	2%	1%	0%	

Average daily northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 7 days.

CYCLE PROVISION



The diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment will reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4:

Equipment damage & failure

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and A-T-R cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and A-T-R cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, A-T-R cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 7 days before the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA
1	MC	Motorcycle	SHORT Up to 5.5m	N/A
2	SV	Cars, taxis, 4WD, vans		CAR & LGV
3	SVT	Class 2 plus trailer	MEDIUM 5.5m to 14.5m	
4	TB2	2 axle truck / bus		OGV1 & PSV
5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

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ATC SUMMARY REPORT

PROJECT	28925 Cambridge
LOCATION	28925-010 - Weirs Drove
LOC. DESC.	Weirs Drove
START DATE	Fri 15 Oct, 2021
END DATE	Thu 21 Oct, 2021
SPEED LIMIT	60mph
SURVEY TYPE	7-day ATC, 15min periods, 6 veh. classes

OVERVIEW

A 7-day automatic traffic count on Weirs Drove, commencing Fri 15 Oct 2021, recorded a total of 2,300 vehicles. The posted speed limit of 60mph was exceeded by 0.0% of vehicles, and the seasonally adjusted, combined AADT value is 353 (see Equipment & Methodology below).

COMBINED

Total recorded volume	**2,300**
Avg daily volume (based on 7 days)	328.6
Average daily speed (7 days)	19.0mph
Average daily 85%ile (7 days)	22.6mph
AADT (annual average daily traffic)	353
Avg weekday volume (Mon-Fri, 24hrs)	347.8
Avg weekday speed (Mon-Fri, 24hrs)	18.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	314.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	18.7mph

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data. Speeding vehicles are defined as those travelling 61mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

NORTHBOUND ↑

Total recorded volume	**1,174**
Avg daily volume (based on 7 days)	167.7
Average daily speed (7 days)	19.0mph
Average daily 85%ile (7 days)	22.4mph
% of vehicles exceeding 60mph	0.0%
Avg weekday volume (Mon-Fri, 24hrs)	175.4
Avg weekday speed (Mon-Fri, 24hrs)	18.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	156.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	18.7mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	22.1mph

SOUTHBOUND ↓

Total recorded volume	**1,126**
Avg daily volume (based on 7 days)	160.9
Average daily speed (7 days)	18.9mph
Average daily 85%ile (7 days)	22.8mph
% of vehicles exceeding 60mph	0.0%
Avg weekday volume (Mon-Fri, 24hrs)	172.4
Avg weekday speed (Mon-Fri, 24hrs)	18.9mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	158.0
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	18.7mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	22.3mph

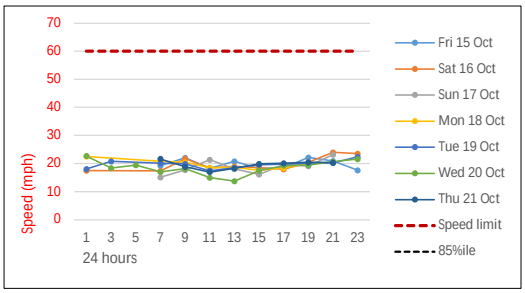
SITE LOCATION

SITE PLAN

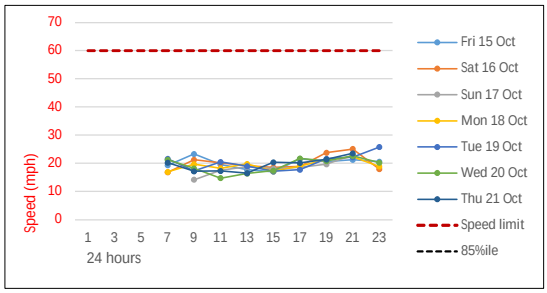
Location	Weirs Drove
Lat, lng.	52°16'44.68"N/0°19'1.33"E
Project & site	28925-010
PSL	60mph
Bus route	Yes
Direction 1	Northbound↑
Direction 2	Southbound↓

DAILY SPEEDS

NORTHBOUND ↑



SOUTHBOUND ↓

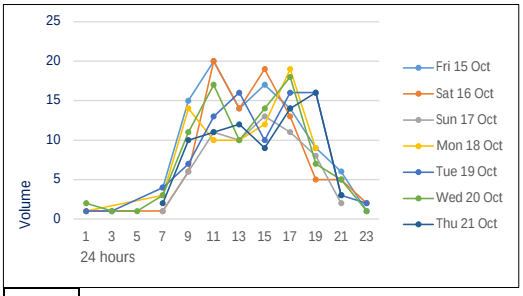


Average daily speeds (solid thin colours) and 85%ile (dashed black) compared against 60mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

The peak average northbound daytime speed was 27.5mph at 11:00 on Fri 15 Oct, whilst the peak average southbound speed was 30.8mph at 08:15 on Fri 15 Oct (based on 15min averages between 0700 & 1900).

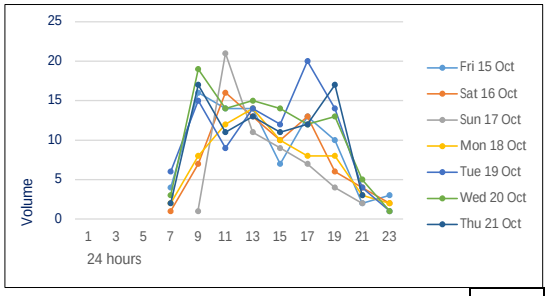
HOURLY VOLUMES

NORTHBOUND ↑



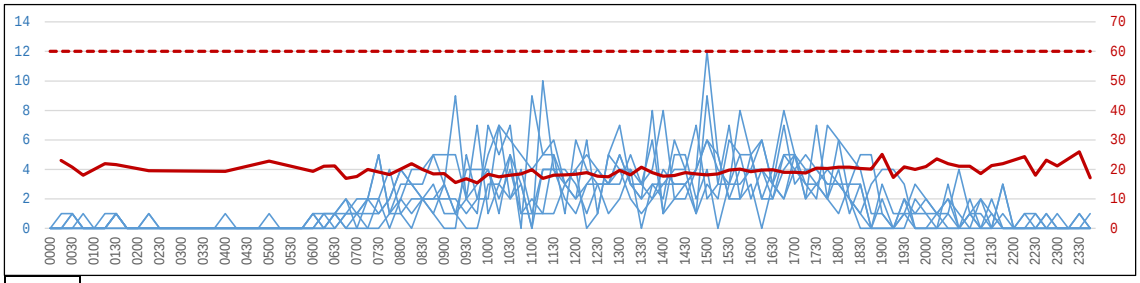
↑ Hourly northbound traffic volumes over each 24hr period for 7 days from all available data.

SOUTHBOUND ↓

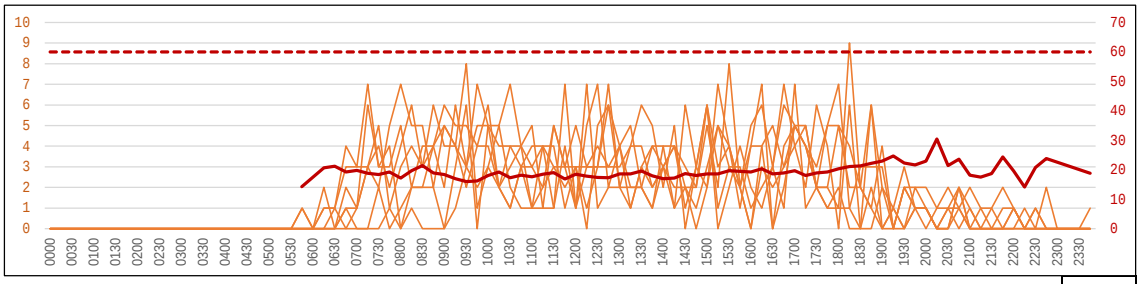


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data. ↓

15min VOL & SPEED



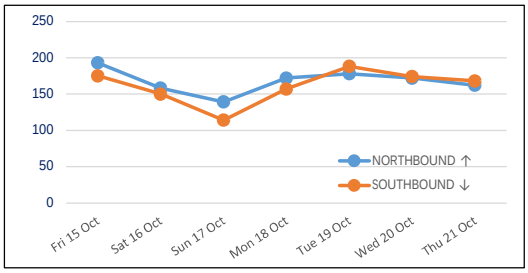
↑ 15min daily northbound flows (blue), against the average speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period.



15min daily southbound flows (orange), against the average weekly speed (red) and 85%ile (dotted black) for each 15min period over the 7-day period. ↓

DAILY VOLUMES

NORTH & SOUTHBOUND



Total 24hr northbound (blue) and southbound (orange) traffic volumes over 7 consecutive days from all available data.

As can be expected, the lowest volumes were recorded on the Sunday, whilst the highest was on the Friday.

7-DAY AVERAGE CLASSES

NORTHBOUND 7-DAY AVG ↑

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	0.7	0.0	0.0	0.0	**0.7**
0100	0.0	0.9	0.0	0.0	0.0	**0.9**
0200	0.0	0.3	0.0	0.0	0.0	**0.3**
0300	0.0	0.0	0.0	0.0	0.0	**0.0**
0400	0.0	0.1	0.0	0.0	0.0	**0.1**
0500	0.0	0.1	0.0	0.0	0.0	**0.1**
0600	0.1	2.4	0.0	0.0	0.0	**2.6**
0700	0.6	5.3	0.0	0.1	0.0	**6.0**
0800	1.4	8.3	0.0	0.1	0.0	**9.9**
0900	1.0	8.4	0.6	0.1	0.0	**10.1**
1000	2.0	11.6	0.6	0.3	0.1	**14.6**
1100	0.9	11.7	0.6	0.4	0.0	**13.6**
1200	1.0	10.9	0.1	0.1	0.1	**12.3**
1300	1.6	11.6	0.3	0.3	0.0	**13.7**
1400	1.6	11.3	0.3	0.3	0.0	**13.4**
1500	1.3	15.3	0.4	0.0	0.0	**17.0**
1600	1.4	13.1	0.3	0.1	0.0	**15.0**
1700	1.1	13.6	0.0	0.0	0.0	**14.7**
1800	1.0	9.0	0.0	0.0	0.0	**10.0**
1900	0.4	4.3	0.0	0.0	0.0	**4.7**
2000	0.0	3.4	0.0	0.0	0.0	**3.4**
2100	0.0	3.1	0.0	0.0	0.0	**3.1**
2200	0.0	0.9	0.0	0.0	0.0	**0.9**
2300	0.0	0.6	0.0	0.0	0.0	**0.6**
12hr TTL	**14.9**	**130.0**	**3.1**	**2.0**	**0.3**	**150.3**
24hr TTL	**15.4**	**146.9**	**3.1**	**2.0**	**0.3**	**167.7**
	9%	88%	2%	1%	0%	

SOUTHBOUND 7-DAY AVG ↓

TIME	MOTOR CYCLES	CARS / LGV	OGV1	OGV2	PSV	TOTAL
0000	0.0	0.0	0.0	0.0	0.0	**0.0**
0100	0.0	0.0	0.0	0.0	0.0	**0.0**
0200	0.0	0.0	0.0	0.0	0.0	**0.0**
0300	0.0	0.0	0.0	0.0	0.0	**0.0**
0400	0.0	0.0	0.0	0.0	0.0	**0.0**
0500	0.3	0.0	0.0	0.0	0.0	**0.3**
0600	0.3	2.3	0.0	0.0	0.0	**2.6**
0700	1.3	8.1	0.0	0.0	0.0	**9.4**
0800	0.7	10.1	0.9	0.1	0.0	**11.9**
0900	1.9	11.9	0.6	0.3	0.0	**14.6**
1000	0.6	12.6	0.4	0.3	0.0	**13.9**
1100	0.3	10.4	0.7	0.1	0.0	**11.6**
1200	1.3	11.6	0.3	0.1	0.1	**13.4**
1300	0.6	10.4	0.4	0.1	0.0	**11.6**
1400	0.7	9.3	0.0	0.3	0.1	**10.4**
1500	0.6	12.6	0.7	0.0	0.0	**13.9**
1600	0.3	11.4	0.3	0.1	0.0	**12.1**
1700	0.4	13.3	0.0	0.4	0.0	**14.1**
1800	0.1	10.1	0.0	0.0	0.0	**10.3**
1900	0.1	4.4	0.0	0.0	0.0	**4.6**
2000	0.0	3.3	0.0	0.0	0.0	**3.3**
2100	0.0	1.6	0.0	0.0	0.0	**1.6**
2200	0.0	1.3	0.0	0.0	0.0	**1.3**
2300	0.0	0.1	0.0	0.0	0.0	**0.1**
12hr TTL	**8.7**	**131.9**	**4.3**	**2.0**	**0.3**	**147.1**
24hr TTL	**9.4**	**144.9**	**4.3**	**2.0**	**0.3**	**160.9**
	6%	90%	3%	1%	0%	

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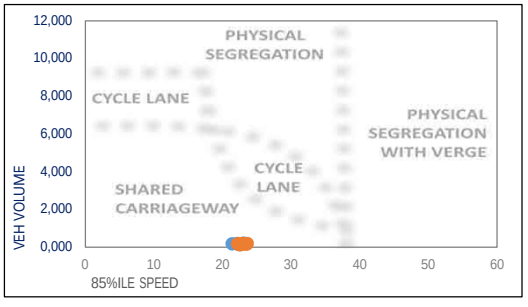

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5	TB3	3 axle truck / bus		OGV1
6	T4	4 axle truck		OGV2
7	ART3	3 axle articulated	LONG 11.5m to 19.0m	
8	ART4	4 axle articulated		
9	ART5	5 axle articulated		
10	ART6	6+ axle articulated		

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