

Client:
Richborough Estates Ltd/Mr & Mrs Adcock

Project:
**Land East of Stoke Road
Hinckley**

Project No:
T19595
Report Title:
Technical Response Report

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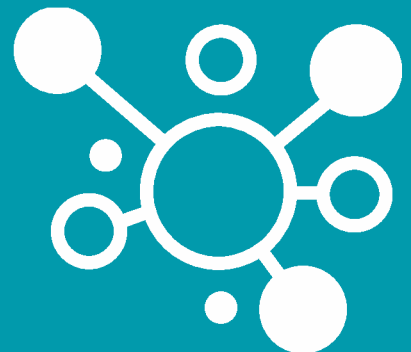


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APPENDICES

Appendix A	ATE Response and Appraiser Report Including Comments from Hub
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Appendix C	Multi Modal TRICS Outputs
Appendix D	Site Access ARCADY results
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1.0 Introduction

Background

- 1.1 Hub Transport Planning Ltd has been commissioned by Richborough Estates Ltd and Mr and Mrs Adcock, to provide transport advice for a proposed residential development on land to the north of Hinckley. The land in question is located to the north of the A47 and east of Stoke Road.
- 1.2 The development proposals are for up to 475 dwellings and single-form entry Primary School. A planning application was submitted in June 2023 (ref. 23/00432/OUT) and was accompanied by a Transport Assessment (T19595 Transport Assessment rev A – 27/06/23) and Travel Plan (T19595 Travel Plan rev A – 27/06/23). This report should be read in conjunction with the TA and TP reports. It should be noted that the planning application is a re-submission related to application 22/00318/OUT.

Purpose of the Report

- 1.3 The purpose of this report is to address comments raised in the consultation responses received from Active Travel England (ATE) and Leicestershire County Council (LCC). The full response from ATE (dated 30/06/2023), along with the Application Assessment Tool - Appraiser Report is provided in **Appendix A**. The Appraiser report has been updated to include brief responses from Hub Transport Planning but this should be read in conjunction with this report. Consultation comments received from LCC which relate to the design of the site access junction and off-site mitigation proposals are provided in **Appendix B**. The purpose of this report is to address the comments raised in these responses and set out the active travel strategy for the site, giving consideration to pedestrians, cyclists and wheelers.
- 1.4 Following this introduction, the report is set out as follows:
 - Section 2.0 – Multi Modal Trip Forecasts
 - Section 3.0 – Existing facilities for pedestrians, cyclists and wheelers;
 - Section 4.0 – Response to LCC comments; and
 - Section 5.0 – Active Travel Strategy.

Limitations of the Report

- 1.5 This report has been undertaken at the request of Richborough Estates Ltd/Mr and Mrs Adcock, thus should not be entrusted to any third party without written permission from Hub Transport Planning Ltd. However, should any information contained within this report be used by any unauthorised third party, it is done so entirely at their own risk and shall not be the responsibility of Hub Transport Planning Ltd.
- 1.6 This report has been compiled using data from several external sources (such as TRICS); these sources are considered trustworthy and therefore the data provided is considered accurate and relevant at the time of preparing this report.

2.0 Multi Modal Trip Forecasts

Introduction

- 2.1 This section sets out the forecast multi-modal trips for the development. The trip rates have been derived from the TRICS database for both the residential and educational uses proposed. The TRICS criteria used in the search is consistent with that used for the vehicular trip generation used within the TA.

Residential Multi Modal Trip Rates

- 2.2 The multi modal trips rates for pedestrians, cyclists, buses and trains are provided in **Table 1** below. This sets out the trip rates and resulting trips. For robustness the trip generation figures consider a residential development of 500 dwellings, as this is consistent with the level of development considered in the TA report. Full TRICS outputs are included in **Appendix C**.

Table 1 – Development Trip Generation – 500 Units

Peak Period	Trip Rates per dwelling		Vehicle Trips (500 Dwellings)		Total
	Arriving	Departing	Arriving	Departing	
Pedestrians					
AM	0.025	0.085	13	43	56
PM	0.038	0.036	19	18	37
12 hr	0.342	0.355	171	178	349
Cyclists					
AM	0.002	0.018	1	9	10
PM	0.008	0.006	4	3	7
12 hr	0.046	0.048	23	24	47
Bus					
AM	0	0.016	0	8	8
PM	0.011	0.002	6	1	7
12 hr	0.064	0.069	32	35	67
Trains					
AM	0	0.005	0	3	3
PM	0.003	0	2	0	2
12 hr	0.009	0.013	5	7	11

*NB: AM peak is 08:00-09:00, PM peak is 17:00-18:00; 12hr – 107:00-19:00, trips have been rounded.

- 2.3 **Table 1** indicates that the residential element of the site would generate approximately 77 two-way multi modal trips in the AM peak and 53 two-way multi modal trips in the PM peak. It is expected that some of these trips would be associated with educational trips which would be served by the proposed primary school on site, therefore not all of these trips would result in external trips from the site.

Primary School Multi Modal Trip Rates

- 2.4 **Table 2** sets out the multi modal trips associated with the proposed primary school. It should be noted that as part of the TA that was prepared to support the application, it was agreed with LCC, as local highway authority, that 50% of vehicular trips generated by the school would be internal to the site, and 50% external. The same percentage has therefore been applied to the multi modal trips. Full TRICS outputs are included in **Appendix C**.

Table 2 – Multi Modal Trip Rates – Primary School (210 Pupils)

Peak Period	Trip Rates per Pupil		Total Vehicle Trips (210 Pupils)			50% External Trips		
	Arriving (In)	Departing	Arriving	Departing	Total	Arriving	Departing	Total
Pedestrians								
AM	0.025	0.11	101	30	131	50	15	65
PM	0.003	0.014	1	3	4	0	1	2
12hr	0.752	0.766	158	161	319	78	80	159
Cyclists								
AM	0.023	0.003	5	1	6	2	0	2
PM	0.002	0.003	0	1	1	0	0	0
12hr	0.029	0.028	6	6	12	3	3	6
Bus								
AM	0.069	0.03	14	6	20	7	3	10
PM	0	0	0	0	0	0	0	0
12hr	0.109	0.11	23	23	46	11	12	23
Train								
AM	0.005	0.003	1	1	2	1	0	1
PM	0	0	0	0	0	0	0	0
12hr	0.011	0.013	2	3	5	1	1	2

*NB: AM peak is 08:00-09:00, PM peak is 17:00-18:00; 12hr – 10:00-19:00, trips have been rounded.

- 2.5 **Table 2** indicates that in the AM peak the proposed primary school would generate 159 two-way multi modal trips, however only 50% of these are likely to result in external trips to and from the site. During the PM peak, the number of multi modal trips is predicted to be negligible.
- 2.6 Overall, the proposed development is predicted to generate 248 two-way multi modal trips in the AM peak, 167 of which are predicted to be external to the development. In the PM peak the site is predicted to generate 58 two-way multi modal trips, 55 of which are likely to be external to the development site.

Desire Lines

- 2.7 The main desire lines from the site are likely to be to the south of the development towards local facilities within Hinckley.
- 2.8 Whilst a primary school will be provided on site, existing schools are available to the south the of the A47 and can be accessed off Stoke Road. Redmoor Academy, the local secondary school, is also accessed off Stoke

Road therefore there is likely to be a significant desire for multi-modal trips to travel south along Stoke Road from the development.

- 2.9 The nearest local shop is the Morrisons Supermarket located to the south of the A47, this is also likely to be a significant trip attractor in the local area.
- 2.10 The centre of Hinckley is located approximately 2.3km from the centre of the site and is therefore well within cycling distance. A natural desire line to reach the centre of Hinckley is along Stoke Road to the south of the site. An alternative route through Richmond Park is also available.
- 2.11 There are also significant employment opportunities to the southwest of the site as part of Harrow Brook and Dodwells Bridge Industrial Estates. These can be accessed along the A47 so this may form a desire line for some residents. Trips in an easterly direction along the A47 towards Barwell and Earl Shilton are likely to be less common although there are some employment and retail opportunity within these towns.
- 2.12 St Martin's Catholic Voluntary Academy is located to the north of the site and will be on the desire line for some residents.

3.0 Existing Facilities for Pedestrians, Cyclists and Wheelers

Introduction

- 3.1 The TA report provided a summary of the existing sustainable travel facilities available within the vicinity of the site. This section provides additional information with regarding the existing facilities, and where appropriate, sets out how the existing infrastructure compare to guidance set out in LTN 1/20.

Existing Facilities for Pedestrians, Cyclists and Wheelers

- 3.2 The proposed development site benefits from frontage with the A47 to the south and Stoke Road to the west. Existing pedestrian facilities along the northern side of the A47 are limited. An uncontrolled pedestrian crossing is provided approximately 90m west of Clover Fields. This takes the form of a dropped kerb crossing with a central splitter island. The splitter island is approximately 1.0m wide (see **Image 1**). The crossing location runs along the line of the existing Public Right of Way (PRoW) which travels north to south through the site. The existing crossing facility is considered sub-standard to serve the proposed development and will therefore be upgraded to a Toucan Crossing as part of the development proposals. The existing PRoW leading directly into the site from the crossing is stepped, therefore it is proposed to improve the connection by re-grading the link to remove the steps. Further details are provided later in this report.

Image 1



- 3.3 Approximately 40m west of the crossing, a ramped and stepped access to Morrisons Car Park is provided directly from the A47 – see **Image 2**.

Image 2



- 3.4 To the south of the site a PRoW links Cloverfield to Tudor Way. The PRoW routes through Richmond Park and takes the form of an off-road track, between 2.5 – 3.0m in width. The track has street lighting along its length – see **Image 3**.

Image 3



- 3.5 The PRoW provides a link to the existing shared use footway/cycleway that runs along both sides of Tudor Road. The shared use facility is 3.0m in width and is considered in line with guidance set out in LTN 1/20 with regard to shared use facilities. The shared use facility runs between Stoke Road and Ashby Road where it joins the existing shared use facilities providing links towards Hinckley Town Centre.
- 3.6 Stoke Road runs north to south along the eastern side of the site. On the eastern side of Stoke Road, an existing off-road segregated footway/cycleway is provided extending approximately 50m north of the A47/Stoke Road roundabout junction. This facility is approximately 3.0m wide and the footway and cycleway are segregated using

a kerb which provides a level difference between the two facilities – see **Image 4**. A 0.5m wide verge is provided between the cycleway and the carriageway providing physical protection to cyclists and pedestrians.

Image 4



- 3.7 On the western side of Stoke Road, north of the A47, a segregated footway/cycleway is provided. This provides the same layout as the facility provided on the eastern side of the road. This extends approximately 100m north of the A47/Stoke Road roundabout. When the cycleway ends, cyclists are directed onto the carriageway, however the footway provision continues in a northerly direction towards Stoke Golding – see **Image 5**.

Image 5



- 3.8 The existing footway provision continues along the eastern side of Stoke Road and provides a connection to Stoke Golding. The existing footway provision varies in width but for the most part measures less than 1.0m. Proposals to improve this are set out later in this report.
- 3.9 Street lighting is provided on Stoke Road immediately north of its roundabout with the A47. The last lighting column is located approximately 70m north of the roundabout. As part of the access proposals, there will be a need to undertake a lighting assessment on Stoke Road, and this will determine the need for the existing street lighting to be extended.
- 3.10 At the A47/Stoke Road Roundabout, dropped kerb crossings are provided across all arms of the roundabout with the exception of the Stoke Road northern arm. Give way markings for cyclists are provided at the crossings – see **Image 6**. No tactile paving is provided at the crossing points however proposals to provide tactile paving at all crossing points at the A47/Stoke Road roundabout are set out later in this report.

Image 6



- 3.11 According to Table 10-2 of LTN 1/20, based on the existing traffic flows and speed limits on the A47, the existing dropped kerb uncontrolled crossings will exclude most potential users and could result in safety concerns. As a result, improvements to the crossing facilities, particularly across the A47 have been proposed and further details are provided later in this report.
- 3.12 To the south of the Stoke Road/A47 junction the segregated footway/cycleway continues along the Stoke Road towards Hinckley. On the eastern side of Stoke Road the segregated element extends approximately 60m south of the roundabout junction, after which point it becomes a shared use facility approximately 3.0m in width – see **Image 7**. Approximately 70m further south the cyclists are instructed to continue on road, whilst the footway continues south towards Hinckley. The off-road shared use footway/cycleway starts again, just north of Tudor Road where it continues to Lismore Drive where cyclists are directed to join the carriageway again.

Image 7



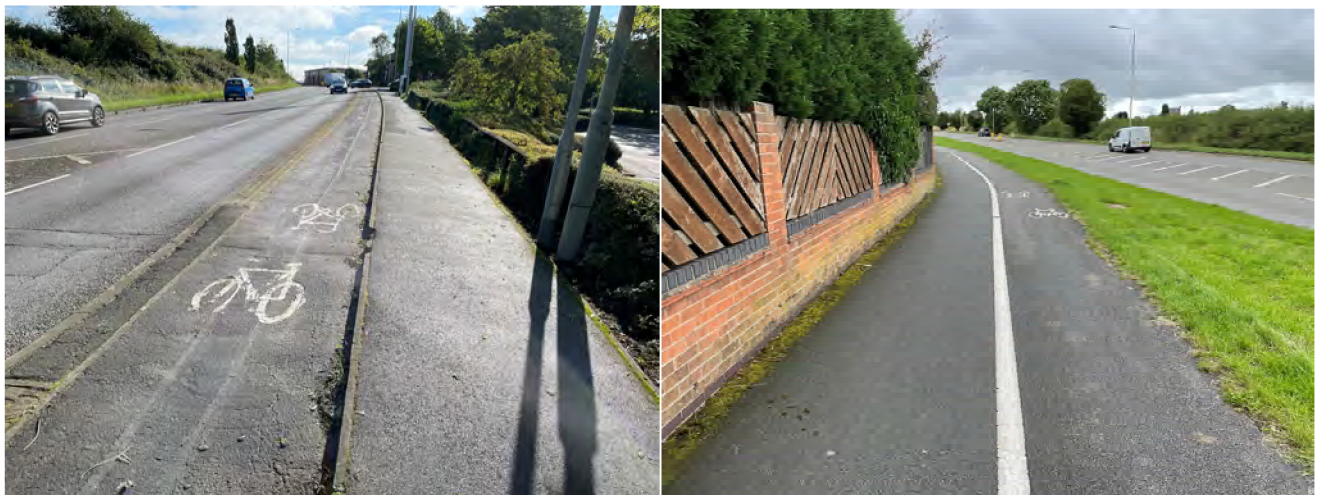
- 3.13 On the western side of Stoke Road, a share use footway/cycleway continues in a southerly direction towards Hinckley Town Centre. A continuous off-road link is provided along the length of Stoke Road and Hollycroft, between the A47 roundabout and Westray Drive. This route provides a link to Hollycroft Park. The route is predominantly 3.0m wide, however some sections are slightly narrower.
- 3.14 All side road junctions along Stoke Road and Hollycroft are equipped with tactile paving and dropped crossing to facilitate pedestrian and cycle movements across side roads – see **Image 8**. Stoke Road (south of A47) and Hollycroft are trafficked calmed using speed cushions and raised table junctions. On site observations indicate that a large proportion of cyclists continue to travel within the carriageway despite the off-road provision being available.

Image 8



- 3.15 Table 6-3 of LTN 1/20 states that the minimum width for shared routes carrying up to 300 pedestrians and 300 cyclists per hour is 3.0m. Even with the development in place, pedestrian and cycle flows along Stoke Road and Hollycroft are not expected to exceed this level, as a result, the existing provision along this corridor is generally considered to be in line with guidance set out in LTN 1/20.
- 3.16 Controlled pedestrian crossings are provided at regular intervals along Stoke Road. A puffin crossing is located on Stoke Road approximately 20m north of Towers Drive and this assists access to Dorothy Goodman School. A zebra crossing is provided on Stoke Road approximately 20m north of Tudor Road. Further south a toucan crossing is provided approximately 20m north of Lismore Drive.
- 3.17 In the vicinity of the site, an off-road segregated footway/cycleway is provided along the southern side of the A47. The segregated footway/cycleway runs from Dodwells Roundabout to the southwest to the Ashby Road/A47 junction to the northeast, with street lighting provided along the whole length. For the most part the footway/cycleway measures 3.0m in width and is segregated by a kerb which provides a level difference between the two. Small sections of the route are segregated by white lining whilst other sections take the form of shared use provision with no segregation – see **Image 9**.

Image 9



- 3.18 The A47 is subject to a 40mph speed limit, as such Figure 4.1 of LTN 1/20 indicates that fully kerbed cycle track provision is recommended and would be suitable for most people. As a result, the cycle provision is considered in line with LTN 1/20 guidance. On site observations have indicated that pedestrian and cycle activity along the A47 is very light.
- 3.19 All side road crossings on the A47 between Dodwells Roundabout and the Ashby Road have dropped kerbs, with the majority also having tactile paving – see **Image 10**.

Image 10



- 3.20 At the A47/Ashby Road signal junction, located to the east of the site, dropped kerb crossings with tactile paving are provided across all of the junction. However, the junction operates without a pedestrian call facility and does not have an all red phase, therefore pedestrians have to cross uncontrolled.
- 3.21 Overall, the existing pedestrian, cycle and wheeler facilities in the vicinity of the site are considered to be in good condition and offer opportunities for pedestrians, cyclists and wheelers to access the site. However, opportunities to improve active travel links between the site and local facilities within the local area have been explored and are presented in the following sections. This builds upon the proposals set out in the TA.

4.0 Response to LCC Comments

Introduction

- 4.1 An email was received from LCC on 31st July 2031 which requested clarification and additional information related to the proposed site access junction and off-site mitigation set out in revision A of the TA. Each of LCC's comments have been addressed in turn, with the original comment shown in *italics* followed by Hubs response. The full consultation response received from LCC is included in **Appendix B**.

Dwg No T19595-001 Rev C Proposed Site Access Layout Stoke Road

'Additional information is required to be added to the drawing to indicate design layout dimensions, and these are required to enable comments on the acceptability of the roundabout design.'

- 4.2 Additional dimensions have been added to the proposed site access layout and these are presented in drawing **T19595.001 Rev D**.

'No information has been shown for a proposed highway boundary, and land currently within private ownership will need to be taken for the new highway layout (including requirements for visibility splays, earthworks, drainage, traffic signs, lighting etc..). This will need to be transferred into ownership of the Local Highway Authority.'

- 4.3 The extent of the highway boundary and land in the applicants control is shown on drawing **T19595.001 rev D**. This demonstrates that the proposed site access can be delivered using land within the existing highway boundary or land in the applicants control.

'It is proposed to extend the existing stepped cycleway/footway provision to continue to the new roundabout. A width of 3.5m has been shown for this, and this would need to be reviewed for compliance with the requirements of LTN1/20 for cycleways. No additional information nor revised drawing provided for this, and although an overall width of 3.5m is shown, it is unclear as to how this would comply with LTN1/20 requirements for aspects such as buffer zone width, cycle lane and footway widths.'

- 4.4 Additional information has been added to drawing **T19595.001 rev D** indicating the proposed footway/cycle links to the site.

- 4.5 On the eastern side of Stoke Road, to the south of the access, a 3.0m wide off-road shared use footway/cycleway is proposed. A 0.5m wide buffer will be provided between the shared use facility and the carriageway. Table 6-3 of LTN 1/20 states that the minimum width for shared routes carrying up to 300 pedestrians and 300 cyclists per hour is 3.0m. Even with the development in place, pedestrian and cycle flows along Stoke Road will not exceed these thresholds therefore the shared use facility is deemed appropriate.

- 4.6 Table 6-1 of LTN 1/20 suggests that for speed limits of 40mph an absolute minimum horizontal separation between the cycle track and the carriageway is 0.5m. Whilst it is acknowledged that Stoke Road is subject to the national speed limit, speeds along Stoke Road, between the Stoke Road/A47 roundabout and the proposed site access will naturally be constrained by the roundabout junctions, and are unlikely to exceed 40mph. Therefore the proposed buffer is considered appropriate.

- 4.7 The existing segregated footway/cycleway provision on the eastern side of Stoke Road will be converted to a 3.0m wide shared use footway/cycleway, with 0.5m buffer, and will be extended along the A47 to the proposed Toucan Crossing located approximately 100m east of the A47/Stoke Road roundabout as shown on Drawing **T19595.002 rev E**. It should be noted that due to constraints related to unregistered land and an existing ditch

that runs to the back of the verge, the buffer cannot be accommodated over a section of approximately 35m, however the consistent width of 3.0m for the shared use footway/cycleway is maintained.

- 4.8 On the western side of Stoke Road to the south of the proposed access, the existing segregated footway/cycleway will become a 3.0m wide shared use footway/cycleway with a 0.5m wide buffer. This is considered in line with guidance set out in LTN 1/20. The existing segregated facility will remain in place however improved crossing facilities that involve the provision of tactile paving will be provided at all existing crossing points at the A47/Stoke Road Roundabout. Given that the site is located on the eastern side of Stoke Road, and the proposed Toucan Crossing is also proposed to the east of the A47/Stoke Road junction, it is envisaged the majority of pedestrian/cycle trips using Stoke Road will travel along the eastern side of the road.
- 4.9 At the site access, pedestrian refuge islands are in place that will enable pedestrians and cyclists to cross Stoke Road. The refuge islands are wide enough to accommodate cyclists and accord with guidance in LTN 1/20.

Dwg No T19595-010 Proposed Site Access Layout Stoke Road Swept Path Analysis

'The LHA has concerns that the swept path for the articulated vehicle would conflict with a vehicle in the adjacent lane as they both manoeuvre through the circulatory carriageway. CD116 requires vehicle swept paths to be assessed using the largest design vehicle that is anticipated to use each lane, and that swept paths for multi lane entries to be assessed to ensure sufficient width is provided for each entry lane. This concern would require amendments to the layout design to cater for multi lane manoeuvres involving the largest design vehicle shown.'

- 4.10 A review of the proposed site access roundabout has been undertaken and the swept path analysis has been updated to utilise the max legal articulated vehicle included in the AutoTrack library.
- 4.11 HGV movements along Stoke Road are modest, therefore, the likelihood of a HGV heading northbound whilst another vehicle turns right into the site is low. If it was to occur and sufficient space on the circulatory was not available, drivers would undertake the manoeuvre in turn. This is a common situation that occurs at roundabouts across the country.
- 4.12 Nevertheless, a review of the junction layout and capacity analysis indicated that a two lane entry on the Stoke Road southern arm is not required to provide sufficient capacity to accommodate the development. In order to overcome LCC's concerns, the proposed roundabout junction has been amended so that the southern arm is limited to a one lane entry. The swept path analysis has been updated to show that a max legal articulated vehicle can undertake all manoeuvres at the proposed roundabout junction.
- 4.13 The ARCADY assessment has been updated to indicate that the proposed site access will provide sufficient capacity if the southern arm is limited to one lane entry. The results are provided in **Table 3** and full ARCADY outputs are included as **Appendix D**. The results cover all scenarios included within the TA, including the 2036 sensitivity test.

Table 3 – Site Access ARCADY Summary Results

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2026 Base + Committed + Development						
Site Access	0.27	0	5	0.12	0	4
Stoke Road South	0.47	1	5	0.49	1	5
Stoke Road North	0.62	2	8	0.38	1	5
2032 Base + Committed + Development						
Site Access	0.28	0	5	0.12	0	4
Stoke Road South	0.52	1	6	0.53	1	6
Stoke Road North	0.67	2	10	0.41	1	6

2036 Base + Committed + Development						
Site Access	0.67	2	12	0.33	1	4
Stoke Road South	0.67	2	8	0.74	3	11
Stoke Road North	0.79	4	19	0.47	1	7
2026 Base + Committed + Development with Wykin Road Diverted Traffic Sensitivity						
Site Access	0.28	0	6			
Stoke Road South	0.47	1	5			
Stoke Road North	0.67	2	10			
2032 Base + Committed + Development with Wykin Road Diverted Traffic Sensitivity						
Site Access	0.29	0	6			
Stoke Road South	0.52	1	6			
Stoke Road North	0.72	3	12			
2036 Base + Committed + Development with Wykin Road Diverted Traffic Sensitivity						
Site Access	0.70	2	13			
Stoke Road South	0.67	2	8			
Stoke Road North	0.85	5	26			

RFC – Ratio of Flow to Capacity, Queue – Max Mean Queue, Delay – Seconds per vehicle

- 4.14 **Table 3** demonstrates that the proposed site access would be suitable to provide sufficient capacity to serve the proposed development.

'The tracking for the articulated vehicle has used the FTA Design Articulated vehicle and this should be updated for the current Maximum Legal Length (UK) Articulated Vehicle. The tracking should be undertaken for a minimum vehicle speed of 15kph and provide a 0.5m clearance. The vehicle tracking analysis should be revisited to take into account the above requirements, and the geometry for the roundabout amended where required.'

- 4.15 The swept path analysis has been updated as requested and is presented in drawing **T19595.010 rev A**.

Dwg No T19595-002 Rev D Stoke Road/A47 Proposed Junction Improvements Roundabout

'On the A47 exits from the roundabout, it is proposed to widen the exits to enable a two-lane exit, with traffic then required to merge after exiting the roundabout. Sufficient distance will need to be provided to enable the merge to take place in a safe and efficient manner. No information has been shown regarding the distances provided and more details will need to be provided for review.'

- 4.16 Paragraph 3.28.3 of CD 116 (DRMB) indicates *'Where the downstream link is a single carriageway road, the exit width should reduce at a taper of 1:15 to 1:20, starting at the end of the exit from the roundabout, ensuring 6 metres at end of traffic island, to avoid exiting vehicles encroaching onto the opposing lane at the end of the traffic island.'*

- 4.17 The westbound exit taper is 1:29 with a merge provided over 100m in length. The eastbound exit taper is 1:21 and extends over a length of approximately 90m. Both merge lengths are considered to be acceptable and in line with DMRB guidance and consistent with existing roundabout junctions along the A47 in the vicinity of the site.

'It is proposed to provide a toucan crossing located approximately 100m to the east of the existing roundabout, and justification for the proposed controlled crossing would need to be reviewed by LCC. This does not appear to have been provided, and a PV2 analysis would normally be required in support of this. It should be noted that provision of a signalised junction would attract a commuted sum payment to cover the additional maintenance liability.'

- 4.18 It is generally accepted that a more holistic approach is applied when deciding if formal crossings provision is required or justified at specific locations. In this instance, it is recognised that the A47 is a busy A-road and

accommodates in excess of 20,000 two-way traffic flows across the day. In the future of 2032, when development traffic is added to the network, two-way peak hour flows are over 2,500 vehicles.

- 4.19 Table 10-2 of LTN 1/20 suggests that for roads of 40mph and traffic flows greater than 10,000 PCUs, a signalled arrangement would be appropriate. Therefore, the proposed Toucan Crossings are considered to be in line with guidance set out in LTN 1/20 and will ensure the development site is well connected to local facilities south of the A47.

'The existing cycleway/footway to the north-east of the roundabout will be extended along the A47 eastwards to the proposed toucan crossing located approximately 100m from the roundabout. No widths have been shown, and again these would need to comply with the LTN1/20 guidance for cycleways.'

- 4.20 As stated earlier in this note the existing segregated footway/cycleway to the northeast of the A47/Stoke Road roundabout will be upgraded to a 3.0m wide shared use facility with a 0.5m buffer to the carriageway. This is dimensioned on drawing **T19595.002 rev E**.

- 4.21 In addition, it is also proposed to convert the existing segregated footway/cycleway on the southeast side of the roundabout to a 3.0m wide shared use footway/cycleway, with 0.5m wide buffer. This will run from the proposed Toucan Crossing to the existing shared use footway/cycleway on Stoke Road which starts approximately 60m south of the roundabout. The shared use provision is considered to be in line with guidance set out in LTN 1/20 and will provide a link to existing footway/cycleway provision in the area.

'No information has been shown for existing and proposed highway boundaries. It would appear that the widening on the exits would require land currently within private ownership to be transferred into ownership of the Local Highway Authority. Additional land would also be required for the new cycleway/footway provision, earthworks/drainage, and relocated signage and lighting provision.'

- 4.22 The extent of the adopted highway and land in the applicants control is shown on drawing **T19595.002 rev E**. This demonstrates that the proposed mitigation scheme can be delivered using land within the existing highway boundary or land in the applicants control.

Dwg No T19595-011 Stoke Road/A47 Proposed Junction Improvements Swept Path Analysis

'Vehicle tracking has been shown to take account of multi lane entries manoeuvring around the circulatory carriageway. However, this has been only done for a large car in the central and right-hand lanes adjacent to the HGV articulated vehicle in the left lane. CD116 requires vehicle swept paths to be assessed using the largest design vehicle that is anticipated to use each lane. The vehicle tracking should therefore be updated to take account of other likely scenarios where HGVs are also using the adjacent lanes.'

- 4.23 It is considered overly robust to ensure that all design vehicles could negotiate the circulatory of the roundabout simultaneously. It is noted that most junctions roundabout junctions along the A47 in close vicinity of the site would not allow large articulated vehicles to travel side by side through the junction. Nevertheless, this does not result in an unsafe arrangement as drivers will simply wait to enter the roundabout if there is insufficient space available.

- 4.24 Nevertheless, the proposed arrangement has been reviewed which has resulted in the lane designations on the A47 eastern arm being amended. Drawing **T19595.002 rev E** shows that it is now proposed to convert the outside lane to a straight ahead and right lane, whilst the inside lane remains as a left only. This means the capacity benefit of allowing two straight ahead lanes is still provided, however the number of vehicles travelling around the circulatory is reduced to two rather than three.

- 4.25 Drawing **T19595.011 rev A** indicates that two max legal articulated vehicles can travel around the roundabout in both directions simultaneously. On the A47 eastern arm, it is noted that it is unlikely a third vehicle would be able to get into the inside lane to turn left onto Stoke Road if two articulated vehicles were in the centre and outside lane. However, a vehicle waiting to turn left would simply wait until the larger vehicles had pulled away before entering the near side lane. This is no different from the existing situation, because under the current arrangement it would be possible for two HGVs to be sitting in the straight ahead and right turn lanes simultaneously.

- 4.26 Drawing **T19595.011 rev A** also demonstrates that three Box Vans could site side by side and negotiate the roundabout simultaneously. The proposed layout is considered acceptable.

'On the widened exits on the A47, the vehicle tracking should be extended to demonstrate that the merge can be safely undertaken, and account should be made for use of the right hand by vehicles larger than a car'.

- 4.27 The swept path analysis has been amended to demonstrate two max legal articulated vehicles can exit the roundabout on the A47 simultaneously and can merge within the space provided.

'The swept path analysis would need to show a clearance of 0.5m and be undertaken for a minimum vehicle speed of 15kph. The swept path analysis would therefore need to be updated to demonstrate that these requirements have been taken into account.'

The swept path analysis has been undertaken based on a 15kph vehicle speed. It is considered sufficient clearance is available around the junction for the manoeuvres to be undertaken safely.

Dwg No T19595-007 Rev B Ashby Road/A47 Proposed Junction Improvements

'For the exit from the junction onto Normandy Way Westbound, two lanes of traffic would be required to merge into one, and the drawing indicates carriageway widening and a tapered tie-in to the existing road width to cater for this. However, no design dimensions have been shown on the drawing for this, and this need to be added to the drawing to enable a review for compliance with CD123 requirements.'

- 4.28 The westbound exit merge on the A47 is 117m long and therefore exceeds the recommended distance of 100m as set out in paragraph 7.12.1 of CD 123 (DMRB). This has been annotated on drawing **T19595.007 rev C**.

'For the widening on Ashby Road Northbound, again no design dimensions have been provided for review, and these need to be added to the drawing to demonstrate compliance with CD123. The existing highway boundary needs to be shown on the drawing to confirm that where widening works are being proposed, these can be accommodated with the existing highway boundary.'

- 4.29 As requested, additional design dimensions have been added to drawing **T19595.007 rev C**. In addition, the extent of the adopted highway is shown on the drawing. This demonstrates that the proposed mitigation scheme can be delivered using land within the existing highway boundary.

'There is concern that the proposed modifications to the central islands would not be sufficient to cater for the NMU crossing movements, and designer dimensions need to be added for these.'

- 4.30 Dimensions have been added to the drawing indicating the proposed width of the central islands. On Ashby Road north and the A47 west arm the central islands are 2.5m wide. This is a considerable improvement on the existing situation. In the annex to CD 143 (DMRB) Table E/4.7 states that the desirable minimum width for pedestrian refuges is 2.0m, therefore the proposed provision on this arm is considered suitable.

- 4.31 On Ashby Road south, it is noted that the existing off-road footway cycleway travels along the southern side of the A47 and across the junction. As a result, the splitter island has been increased to 3.0m, as this is in line with the Table E/4.7 which states the desirable minimum shared use refuge islands should be 3.0m in width, or 2.5 absolute minimum. It should be noted that the 3.0m width also aligns with guidance set out in LTN 1/20. The proposed central islands proposed at this location are therefore considered acceptable.

'It is noted that no works are shown to the existing central refuge island on the Normandy Way Eastern Arm. This appears to be quite narrow (1.5m width approx.) and consideration should be given to improving this to provide at least 1.8m wide refuge.'

- 4.32 As requested, the existing splitter island on the A47 eastern arm will be widened to 1.8m in width and this has been indicated on drawing **T19595.007 rev C**.

'It is noted that no advanced stop lines for cyclists are shown (as is the case for the existing situation), but clarification should be provided from the designer as to whether these would be required to meet LTN 1/20 guidance.'

- 4.33 LTN 1/20 states that 'Advanced Stop Lines (ASLs) are unlikely to be adequate by themselves to encourage most people to cycle through major junctions.' It goes on to say 'ASLs do not remove conflict with motor vehicles and are therefore unattractive to less confident cyclists. Moreover, they do not resolve all problems at traffic signals even for more confident cyclists. ASLs only provide benefit to cyclists on a signal approach when the traffic signals are on red. They have little value on approaches that are free-flowing for most of the cycle, and/or with multiple lanes, as cyclists will find it difficult to manoeuvre themselves into an offside lane to make a right turn. ASLs should therefore only be considered to meet the full accessibility needs of most people on a junction approach which meets the following criteria:

- a traffic flows of less than 5,000 PCUs per day;
- there are no more than two traffic lanes;
- the approach is on green for no more than 30% of the cycle time; and
- there is a nearside protected route to the ASL that is of sufficient width to accommodate the cycle design vehicle.'

- 4.34 Existing traffic flows through the junction are well in excess of 5,000 PCUs per day and the Ashby Road southern arm exceeds two traffic lanes. As a result, ASLs are not considered appropriate at this location. Nevertheless, off-road shared use facilities are available along the southern side of the A47 and on the Ashby Road southern arm.

'The amendments to the signalised junction would potentially increase the queue lengths, and stopping sight distance to the rear of the queuing traffic would need to be checked.'

- 4.35 The minor amendments to the proposed mitigation scheme will not result in a material impact on the operation of the junction as set out in the TA. Nevertheless, the drawing has been updated to show stopping sight distances to the estimated back of queue on all approaches. The stopping sight distances has been based on the existing speed limit on each approach. Drawing **T19595.007 rev C** clearly shows adequate visibility is available on all approaches.

'Although the TA Rev A includes a Stage 1 RSA, this RSA does not include an audit of the proposed improvements to this junction, and an RSA1 should also be carried out for these proposals.'

- 4.36 A stage 1 Road Safety Audit (RSA) for the proposed scheme was provided as part of the TA report and included as Appendix AE. The RSA was based on drawing **T19595.002 rev B**. Given that revision C only involves minor amendments, the RSA is considered valid and is included in **Appendix E**.

Dwg No T19595-008 and 009 Rev B Ashby Road/A47 Improvements Swept Path Analysis 01 and 02

'For two of the left turn manoeuvres (Ashby Road Northbound to Normandy Way, and Normandy Way Eastbound to Ashby Road), the vehicle tracking indicates that the vehicle would encroach into the adjacent lane, and this raises concern regarding side swipe collisions at the junction. The vehicle tracking should be revisited to demonstrate that this would not take place and where required the design layout should be amended.'

The tracking for the articulated vehicle has used the FTA Design Articulated vehicle and this should be updated for the current Maximum Legal Length (UK) Articulated Vehicle. The tracking should be undertaken for a minimum vehicle speed of 15kph.

On the widened exits onto Normandy Way Westbound, the vehicle tracking should be extended to demonstrate that the merge can be safely undertaken, and account should be made for use of the right-hand lane by vehicles larger than a car.'

- 4.37 As requested, the swept path analysis has been updated using a max legal articulated vehicle using a 15kph vehicle speed. The revised analysis indicates that the vehicle would not encroach into adjacent lanes when making left turns at the junction.

Dwg Nos T19595-014, 015, 016 and 017 Proposed Stoke Road Footway Sheets 01, 02, 03 and 04

'These drawings indicate the provision of a widened footway within the South-Western verge of Stoke Road, that would improve the pedestrian link between the proposed new roundabout and the St Martins School Academy in Stoke Golding. It is noted that the drawing indicates long lengths of footway of less than 2.0m width, and this should be provided as a 2.0m width to comply with LHDG Table DG9 requirements. Reductions in width to 1.2m would be acceptable where obstacles are present, but this should not exceed lengths of 6m where possible. Where existing constraints mean that a 2.0m width cannot be provided, these need to be justified and advised on the drawing.'

- 4.38 The DfT Inclusive Mobility guidance states that 2.0m is the minimum width that should be provided, however, *'If this is not feasible due to physical constraints, then a minimum width of 1500mm could be regarded as the minimum acceptable under most circumstances, as this should enable a wheelchair user and a walker to pass each other.'*
- 4.39 The proposals indicate that the majority of the route provides a width well in excess of 1.5m and is therefore considered acceptable. It is noted that certain sections are constrained but this is due to land ownership constraints or physical constraints such as ditches and hedge lines. The two areas where the footway drops below 1.5m have been identified on plan **T19595.016 rev A**. This demonstrates that the narrowing's would be over a relatively short distance and would narrow gradually before widening out. The minimum width proposed is 1.21m which is wider than the minimum width of 1.0m specified in the Inclusive Mobility guidance.
- 4.40 Furthermore, it should be recognised that the existing footway provision is currently sub-standard and for the most part is less than 1.0m in width. As a result, the proposed provision will provide a significant improvement over the existing situation and will encourage sustainable trips between the site and Stoke Golding.

'Kerbing is currently present to the existing footway to the South-West verge, although there will be locations where kerbing works would be necessary to make it suitable for the new footway surfacing works. It is noted that

there are locations where existing dropped kerbs are present to what appears to be disused field accesses, and consideration would need to be given to replacing these with full height HB kerbing.'

- 4.41 As part of the detailed design, consideration will be given to replacing dropped kerb accesses with full height kerbs where the field access is disused. This will take account of access rights, as this will influence where access needs to be maintained.

'Sheet 1 indicates that it is proposed to provide a length of new footway to the Eastern verge near to the St Martins Academy, along with an uncontrolled crossing to link with the improved footway on the opposite side. This new footway length would require kerbing works to replace the existing SP kerbs with HB kerbing. Consideration would also need to be given to providing a 2.0m wide footway here.'

- 4.42 Due to land ownership constraints, a 2.0m wide footway could not be accommodated in this location. Nevertheless, a width of 1.8m is considered suitable to accommodate the need of pedestrians in this area.

'For the proposed uncontrolled crossing location, the visibility of the crossing for vehicles approaching in the Northbound direction would be potentially obscured by the horizontal bend, the mature tree and existing signage at this location. 85th % ile speed measurements would need to be obtained to check the visibility requirements, and this may require the proposed crossing point to be relocated further North.'

- 4.43 Following a review of the proposed dropped kerb crossing location, it is now proposed to locate the crossing further north to improve forward visibility to it. The location of the crossing is shown in drawing **T19595.014 rev A**. The drawing shows that from the south, 90m forward visibility can be achieved to the eastern crossing location and 86m to the western crossing location. 90m is equivalent to a speed limit of 30mph in accordance with DMRB guidance. The proposed crossing lies well within the existing 30mph speed limit and within the 20mph school safety zone, therefore the level of forward visibility from the south is considered suitable.

- 4.44 To the north of the crossing forward visibility can be achieved from the exit arm of the upstream junction.

5.0 Proposed Active Travel Strategy

Site Access

- 5.1 A plan indicating the Active Travel Strategy for the site is provided in **Figure TN 1.1**.
- 5.2 Main vehicular access to the site is proposed from Stoke Road via a new three arm roundabout junction as shown in drawing **T19595.001 rev D** and this has been updated based on LCC most recent comments. The proposed improvements to the footway/cycle network are described in the previous chapter and are considered to be in line with guidance set out in LTN 1/20.
- 5.3 At the proposed access roundabout dropped kerb crossing with tactile paving are proposed across Stoke Road and the site access arm of the junction. However, it is likely that the main desire line from the site will be along the path of the existing PROW that runs through the site and connects directly to the A47 approximately 100m east of the Stoke Road/A47 roundabout. This route will provide a more direct route to local facilities to the south of the site, when compared to the alternative of travelling via the proposed vehicular access on Stoke Road.
- 5.4 As a result, a toucan crossing is proposed in line with the existing PROW. Given the traffic flows along the A47 are in excess of 10,000 per day, and is subject to a 40mph speed limit, Table 10-2 of LTN 1/20 suggests that signalled provision is appropriate.
- 5.5 It is recognised that the existing link to the A47 from the site along the PROW is stepped, and therefore would not be suitable for cyclists and wheelers. As a result, it is proposed that the PROW is regraded on approach to the A47. It should be noted that the PROW currently runs through land not under the control of the applicant, therefore such improvements would need to be secured through a suitable mechanism, such as financial contributions related to a Section 106 agreement.
- 5.6 An additional toucan crossing is proposed across the A47 in between Cornfield and Nelson Drive. This will connect to an additional pedestrian/cycle link into the site. It is envisaged that this proposed crossing would serve the natural desire line of pupils attending the proposed primary school who originate from residential areas to the east of the site (e.g. Nelson Drive/Drake Way).
- 5.7 Following consultation with Stoke Golding Parish Council, it is also proposed to improve the existing footway provision along the western side of Stoke Road between the proposed site access and Stoke Golding, a distance of around 2km. It is understood that this route is utilised by pedestrians accessing St Martin's Catholic Voluntary Academy from Hinckley. The improvements involve widening the existing footway provision to 2.0m in width for the majority of the route. Due to land ownership constraints, certain sections of the footway are limited to minimum of 1.2m in width, nevertheless this is still a significant improvement over the existing situation. The proposed footway improvements are indicated in **Drawing T19595.014 to 017** included in the TA.
- 5.8 The improved route would provide an opportunity for pedestrians to travel from the site to St Martin's Catholic Voluntary Academy which is approximately 2.0km from the proposed site access roundabout. This is in line with the preferred maximum walking distance for school travel included in the IHT Guidelines. Furthermore, it will bring wider benefits to the existing pedestrians that travel between Hinckley and the school. The proposals have been discussed with Leicestershire County Council as local highway authority and are welcomed.
- 5.9 The TA set out proposed junction improvements at the A47/Ashby Road traffic signal junction to the east of the site. As part of the mitigation scheme controlled pedestrian crossings, with push button facilities, will be incorporated into the junction. This will provide a significant improvement over and above the existing situation

which currently has no controlled crossing facilities. The proposed central refuge islands provide at the junction are considered to be in line with LTN 1/20 and DMRB.

5.10 During consultation discussions with LCC, they stated;

'There are currently bus services operating within close proximity of this site. Therefore, no additional provision is sought. However, the recommended walking distance for residents of new developments is 400m. Based on the current bus network, residents would need to walk in excess of this distance in order to access services. It is therefore, suggested that the developer fund the installation of a pair of new stops at a suitable location on Stoke Road to the north of the A47 Normandy Way and a pair at a suitable location on A47 Normandy Way to the east of the roundabout with Stoke Road. The latter will offer an incentive for bus operators to consider routing buses along the A47 to capitalize on potential passenger growth from the site.'

5.11 The applicant has agreed to the provision of new bus stops on Stoke Road and the A47 and this will be secured through an appropriate mechanism. This will reduce walking distances from the site to the local bus stops.

Route to schools and shops

5.12 The proposed development includes a 1 Form Entry Primary School, therefore it is expected that the majority of primary aged children on site will attend the new school. Nevertheless, it is accepted that residents will also have the opportunity to attend existing schools in the area.

5.13 The nearest primary schools are Dorothy Goodman School located directly off Stoke Road, and Richmond Primary School located off Towers Drive. From the site, pedestrians and cyclists can access the school by utilising the proposed Toucan Crossing on the A47 and travelling along the proposed shared use footway/cycleway which connects the A47 to Stoke Road. On the western side of Stoke Road the existing shared use footway/cycleway provides direct access to Dorothy Goodman School. A signalled pedestrian crossing is also located on Stoke Road in the immediate vicinity of the Dorothy Goodman School entrance and this provides safe access across the road for pedestrians.

5.14 Towers Drive, which is a lightly trafficked residential road provides direct access to Richmond Primary School and is considered suitable to accommodate pedestrian and cycle trips.

5.15 The nearest secondary school is Redmoor Academy and pedestrian/cycle access to the school is available directly off Stoke Road adjacent to Dorothy Goodman School.

5.16 The nearest shop in the vicinity of the site is Morrisons supermarket located immediate south of the development. Access to the store for pedestrians and cyclists is available directly from the A47 via a stepped and ramped access approximately 40m west of the proposed Toucan Crossing. The proposed crossing will therefore assist pedestrian and cycle access to the supermarket.

Internal Site Layout

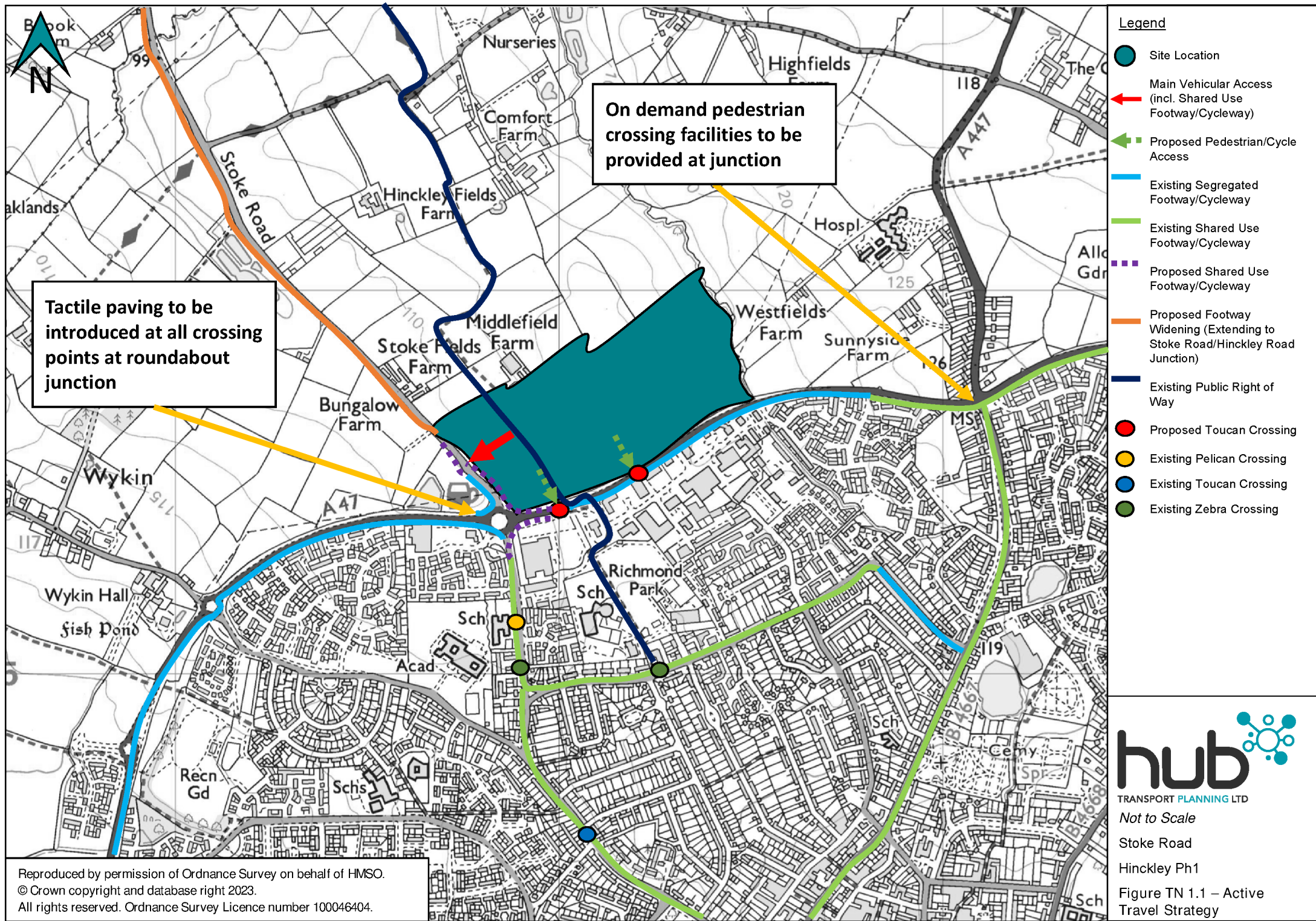
5.17 It should be recognised that the planning application is outline only with all matters reserved apart from access. As a result the detailed layout of the site will be confirmed at reserve matters stage. Nevertheless, an outline illustrative masterplan has been included as part of the application.

5.18 The illustrative masterplan indicates a 3.5m wide shared use footway/cycleway along the main spine road that runs west to east through the site. The proposed shared use facility is in line with guidance set out in LTN 1/20 which states 3.0m wide shared use facilities can accommodate 300 pedestrian and cyclists per hour. The multi-

modal trip generation presented earlier in this report shows that the level of pedestrian and cycle movements generated from the site will not exceed these thresholds.

- 5.19 The spine road will also be subject to a 30mph speed limit, therefore Table 6-1 of LTN 1/20 suggests that the desirable minimum separation is 0.5m and the absolute minimum required is 0m. Nevertheless, the masterplan indicates a tree lined verge between the footway/cycleway along the main spine road, therefore the suggested buffer between is likely to exceed the requirements of LTN 1/20.
- 5.20 Consideration will also be given to priority cycle access across all side road that meet the main spine road.
- 5.21 Lower order roads within the vicinity of the site will be subject to a 20mph design speed. Traffic flows along these routes are very likely to be below 2,000 PCUs per day, therefore Figure 4.1 of LTN 1/20 suggests that mixed traffic will be suitable for most people. As a result, off-road cycle provision is not proposed along residential streets.
- 5.22 Overall, the proposed internal site layout is deemed to be in line with guidance set out in LTN 1/20.

Figures

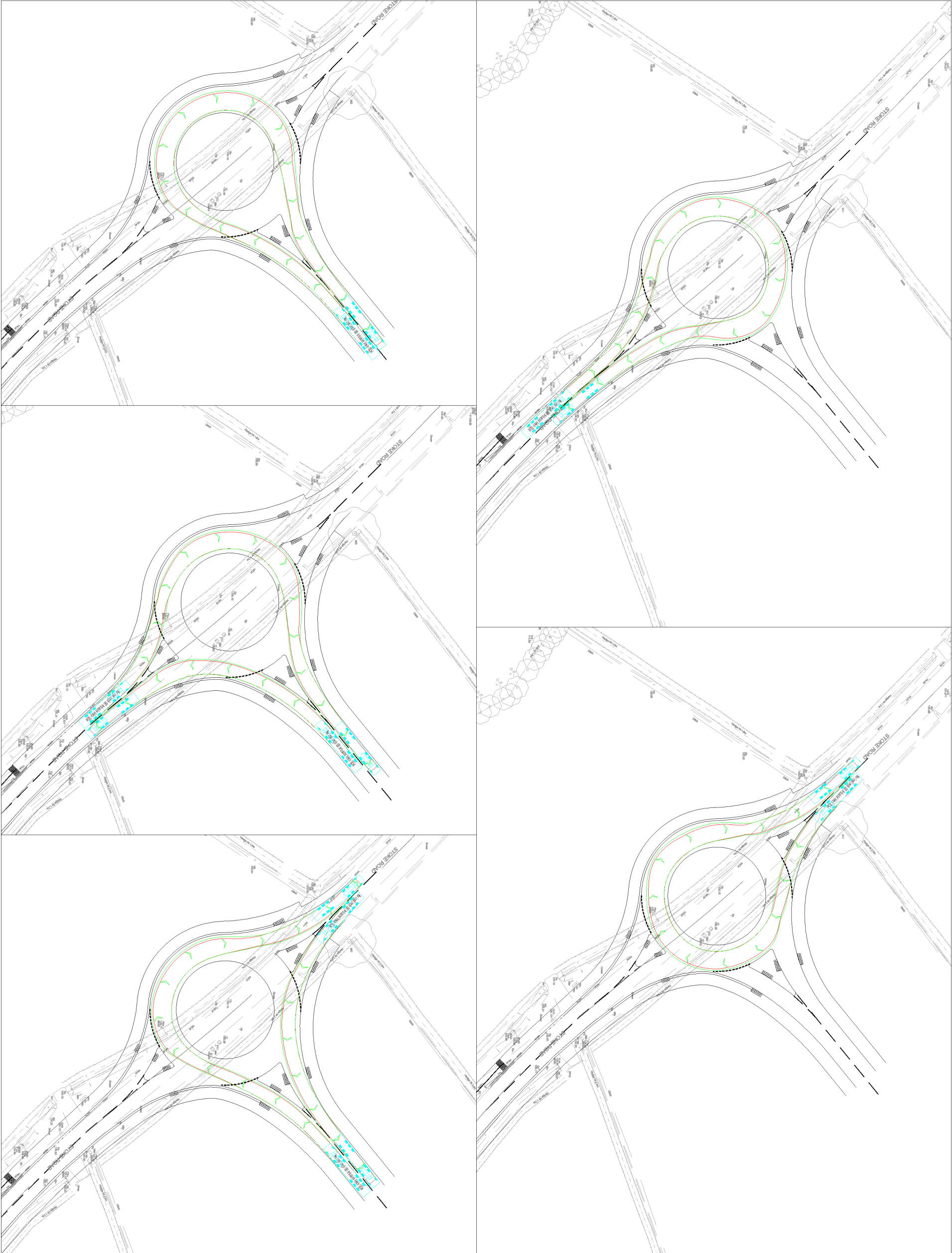
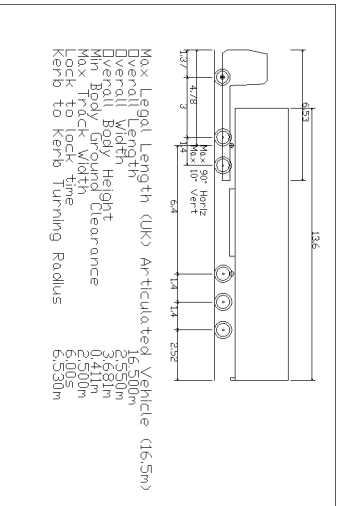


T19595
North Hinckley



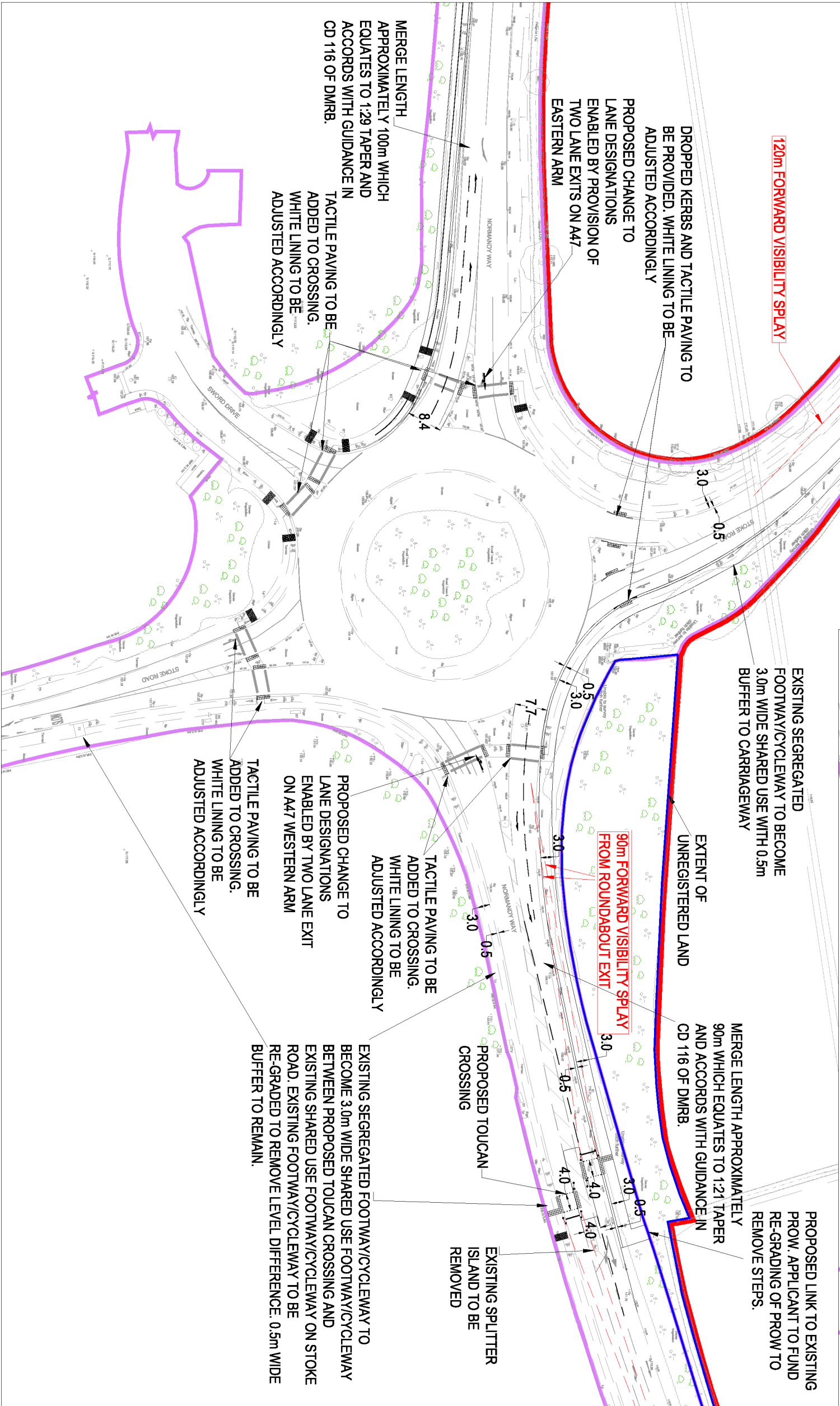
Drawings

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CLIENT RICHBOROUGH ESTATES							
PROJECT NORTH HINCKLEY							
TITLE PROPOSED SITE ACCESS LAYOUT STOKE ROAD - SWEPT PATH ANALYSIS							
DRAWN	AUTHORISED	SCALE	SHEET SIZE		DATE		
JC	GM	1:1000	A3		17.12.19		
PROJECT NO.		DRAWING NO.			REV		
T19595		010			A		

- KEY**
- APPLICANT'S LAND OWNERSHIP
EXTENT OF ADOPTED HIGHWAY
INTERPOLATED FROM PLANS
PROVIDED BY LCC



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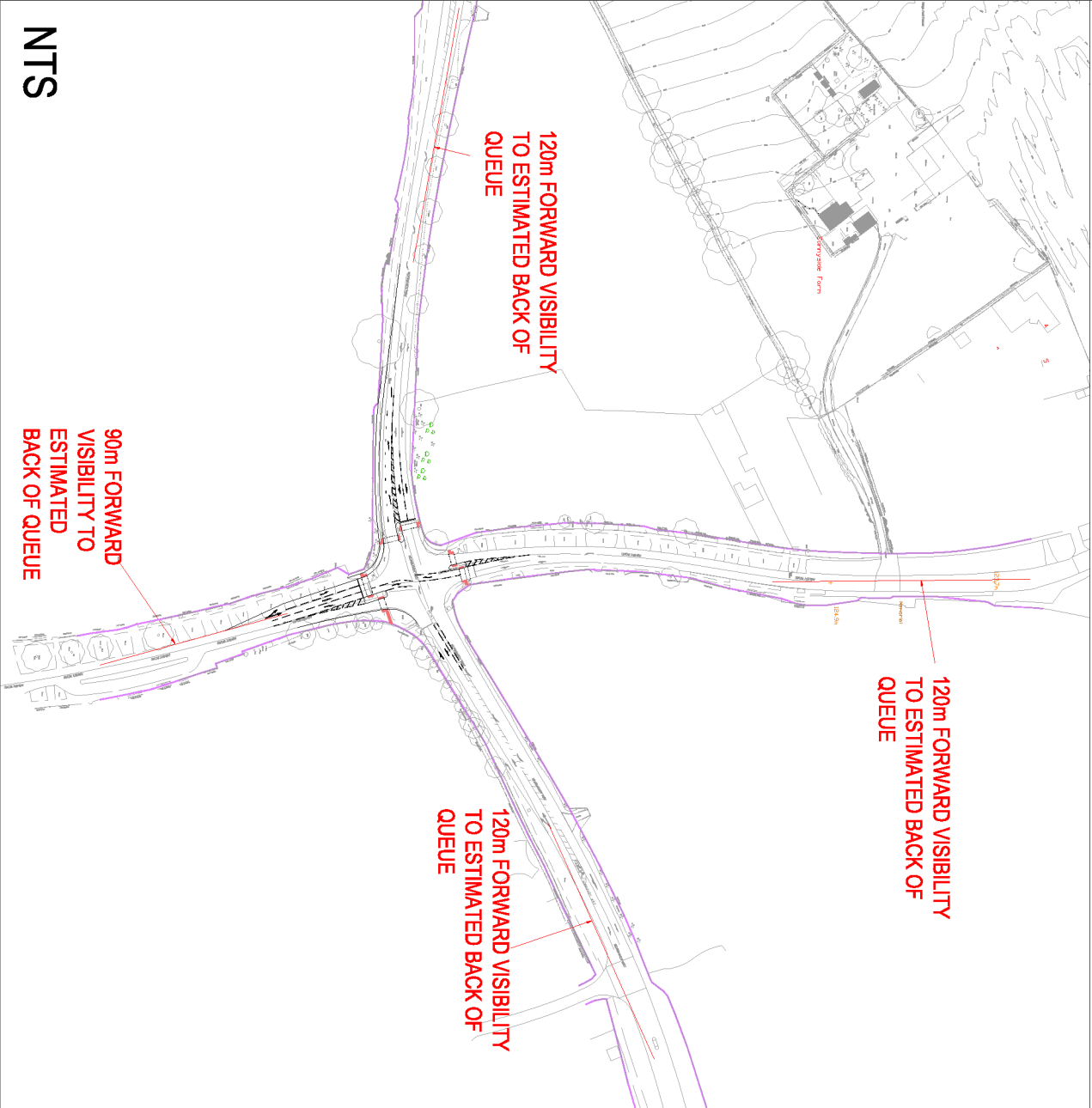
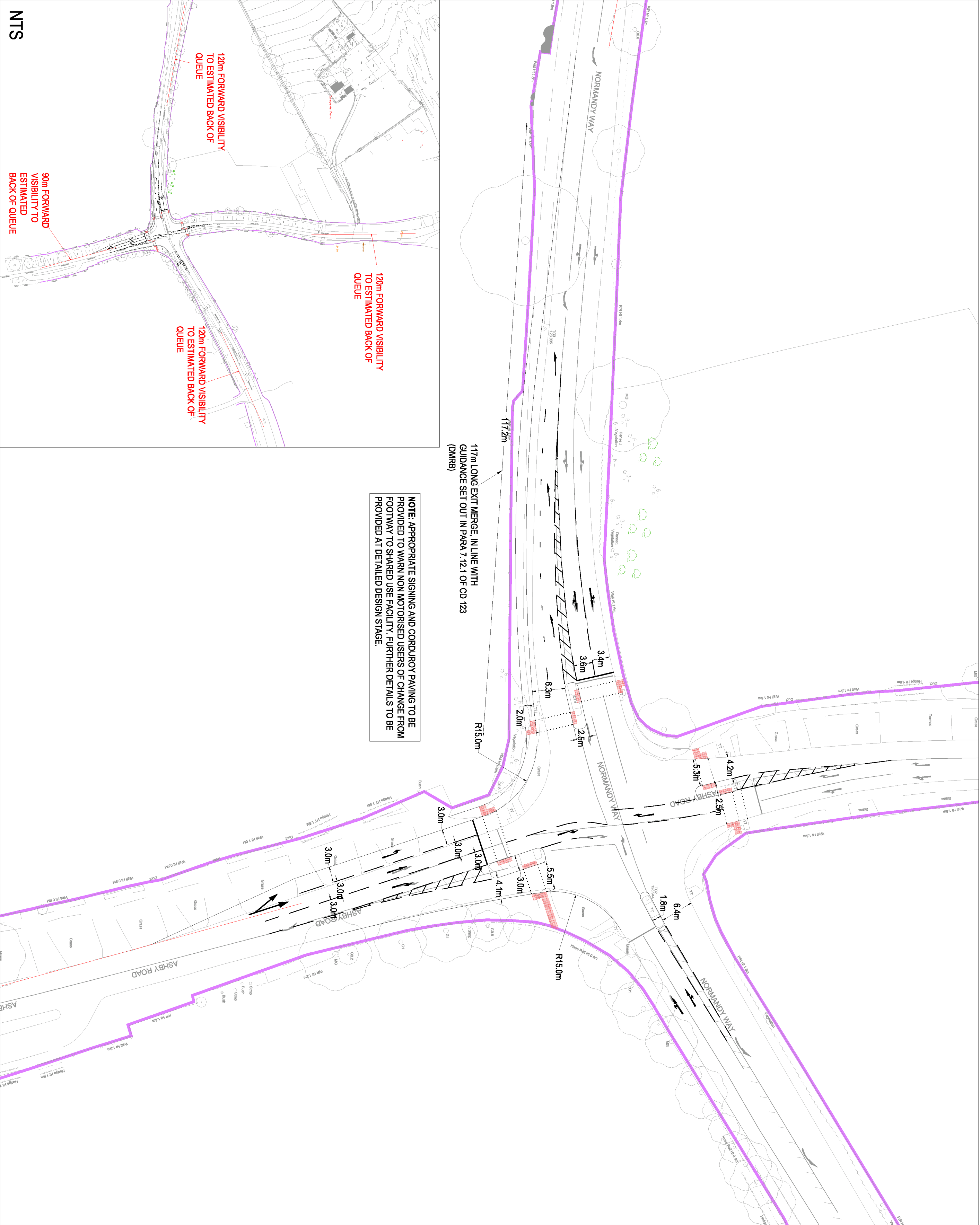
PROJECT NORTH HINCKLEY

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PROJECT NO.		DRAWING NO.		
T19595		002		REV E

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KEY

EXTENT OF ADOPTED HIGHWAY INTERPOLATED FROM PLANS RECEIVED FROM LCC



NTS

CLIENT				PROJECT			
RICHBOROUGH ESTATES				NORTH HINCKLEY			
TITLE				ASHBY ROAD/A47 PROPOSED JUNCTION IMPROVEMENTS			
DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE			
ML	JC	1:500	A2	15.02.22			
PROJECT NO.	DRAWING NO.		REV				
T19595	007		C				

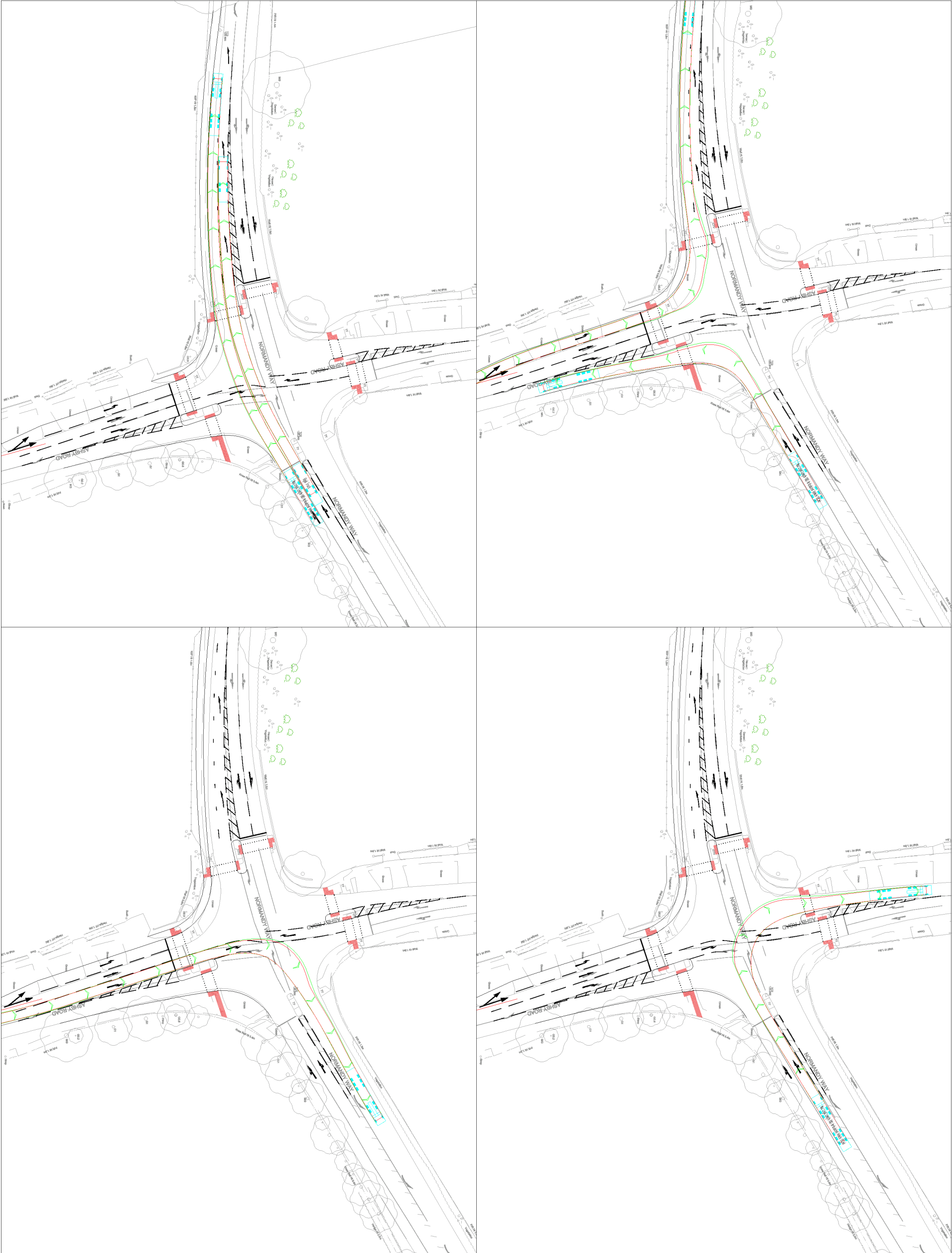
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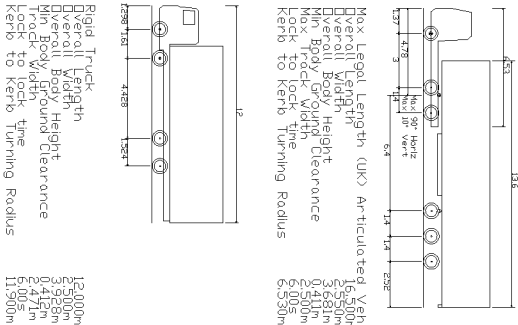
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B	MINOR AMENDMENTS FOLLOWING STAGE 1 ROAD SAFETY AUDIT	26.06.23	JC	JP
A	SCHEME AMENDED TO ALLOW FOR TWO-LANE EXIT ONTO A47 (WEST)	23.05.23	ML	JC

REV	DESCRIPTION	DATE	BY	AUTH



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	LCC AND ATE			
B	MINOR AMENDMENTS FOLLOWING STAGE 1	28.08.23	JC	JP
	ROAD SAFETY AUDIT			
A	SCHEME AMENDED TO ALLOW FOR TWO-LANE	23.05.23	ML	JC
	EXIT ONTO A47 (WEST)			
REV	DESCRIPTION	DATE	BY	AUTH

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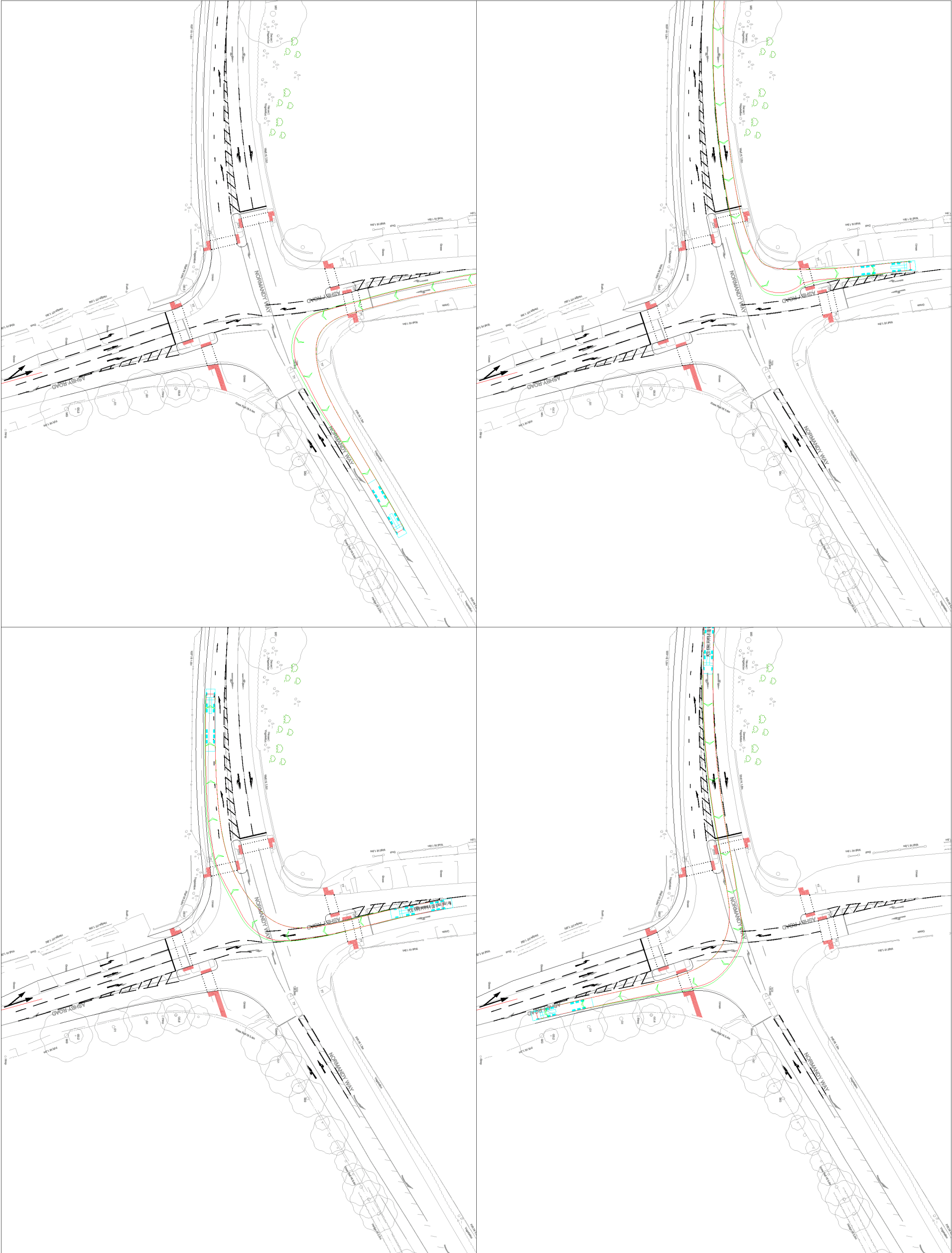
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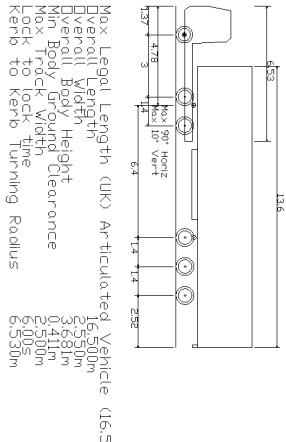
PROJECT
NORTH HINCKLEY

TITLE
ASHBY ROAD/A47 IMPROVEMENTS
SWEPT PATH ANALYSIS 01

DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE
ML	JC	1:1000	A3	15.02.22
PROJECT NO.	DRAWING NO.	REV		
T19595	008	C		



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C	MINOR AMENDMENTS FOLLOWING COMMENTS LOC AND ATE	08.08.23	JC	JP
B	MINOR AMENDMENTS FOLLOWING STAGE 1 ROAD SAFETY AUDIT	26.06.23	JC	JP
A	SCHEME AMENDED TO ALLOW FOR TWO-LANE EXIT ONTO A47 (WEST)	23.05.23	ML	JC
REV	DESCRIPTION	DATE	BY	AUTH

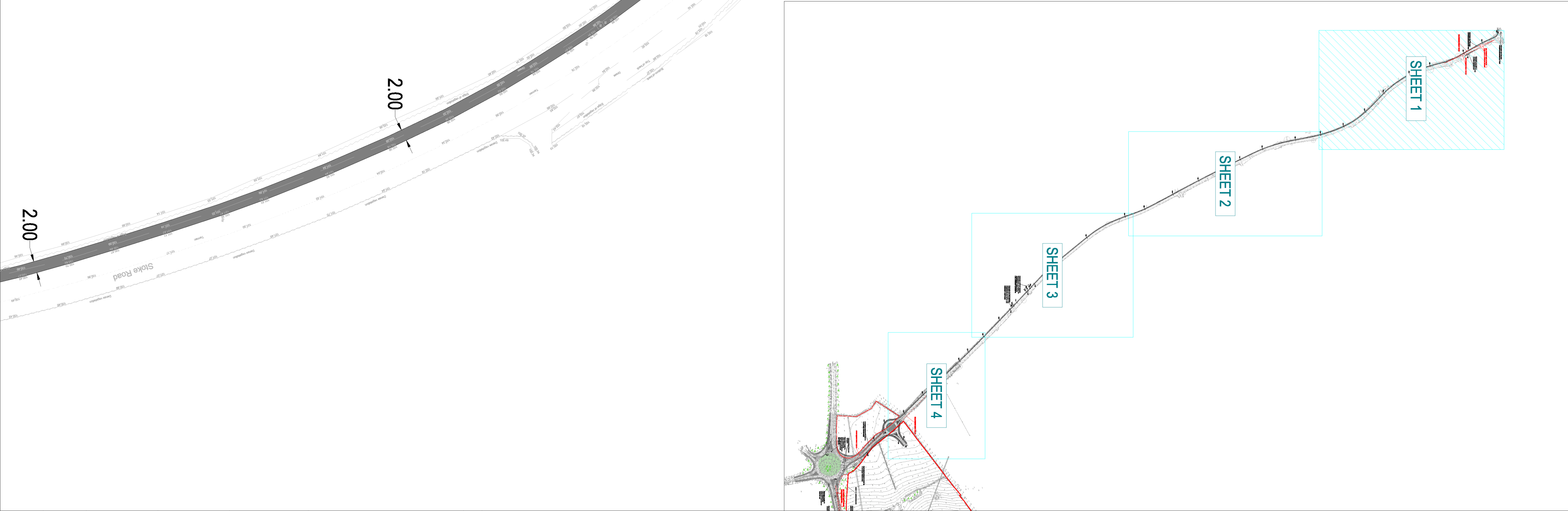
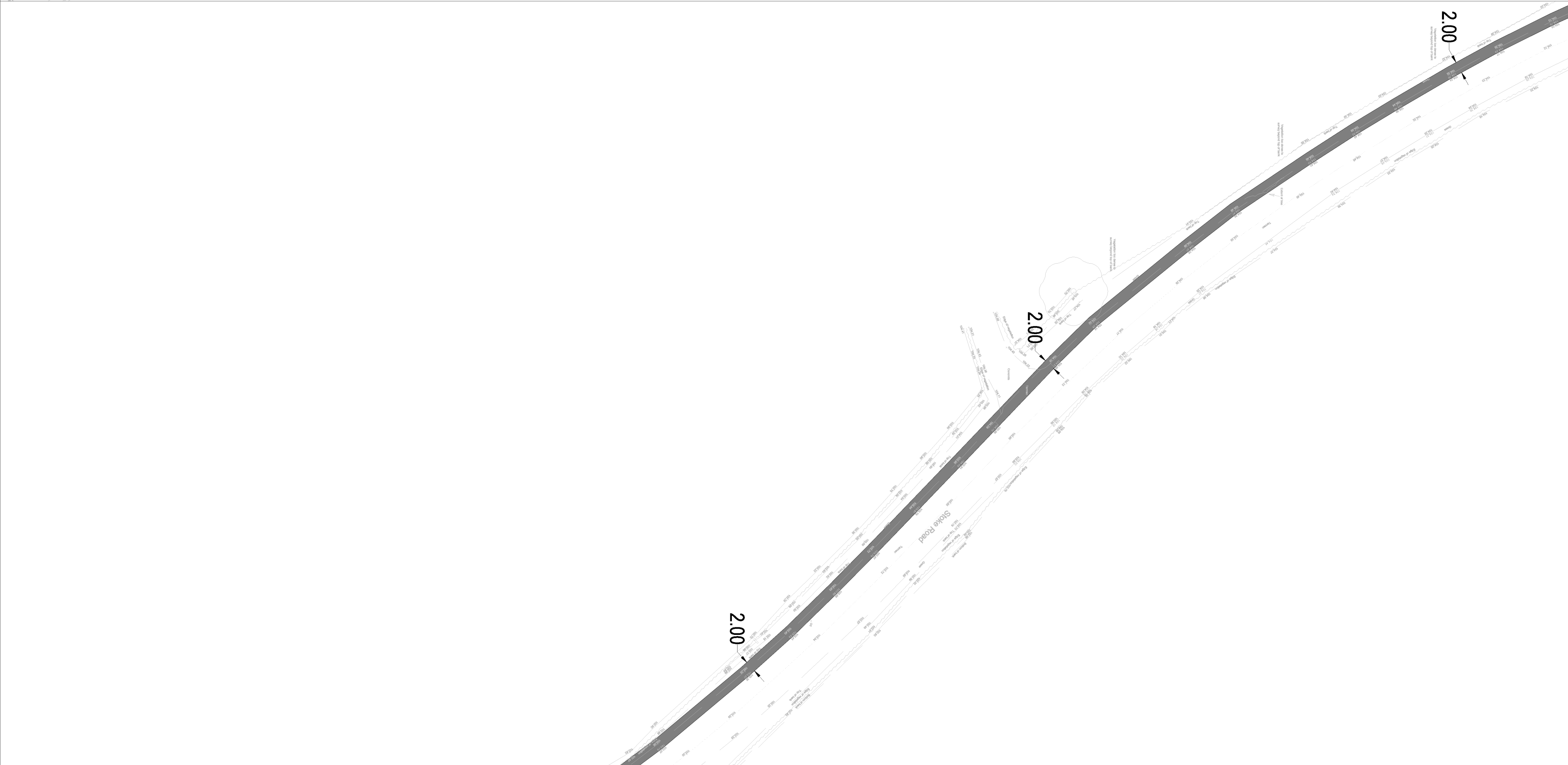
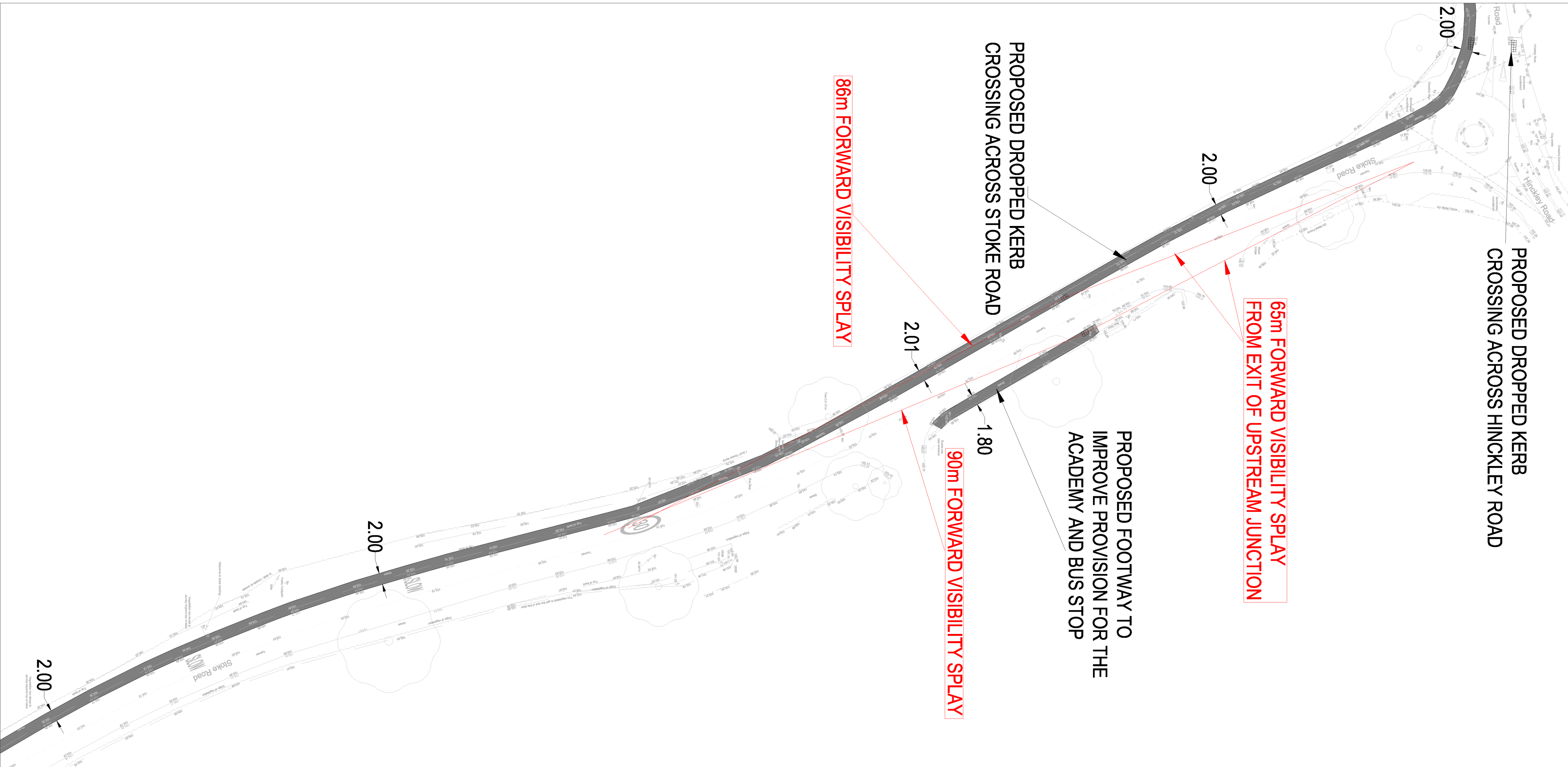


CLIENT
RICHBOROUGH ESTATES

PROJECT
NORTH HINCKLEY

TITLE
ASHBY ROAD/A47 IMPROVEMENTS
SWEEP PATH ANALYSIS 02

DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE
ML	JC	1:1000	A3	15.02.22
PROJECT NO.	DRAWING NO.	REV		
T19595	009	C		



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ALL PROPOSED FOOTWAY PROVISION IS WITHIN THE ASSUMED EXTENT OF HIGHWAY

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PROJECT

NORTH HINCKLEY

TITLE

PROPOSED STOKE ROAD FOOTWAY - SHEET 01

DRAWN

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AUTHORISED

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SCALE

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SHEET SIZE

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DATE

15.08.22

PROJECT NO.

T19936

DRAWING NO.

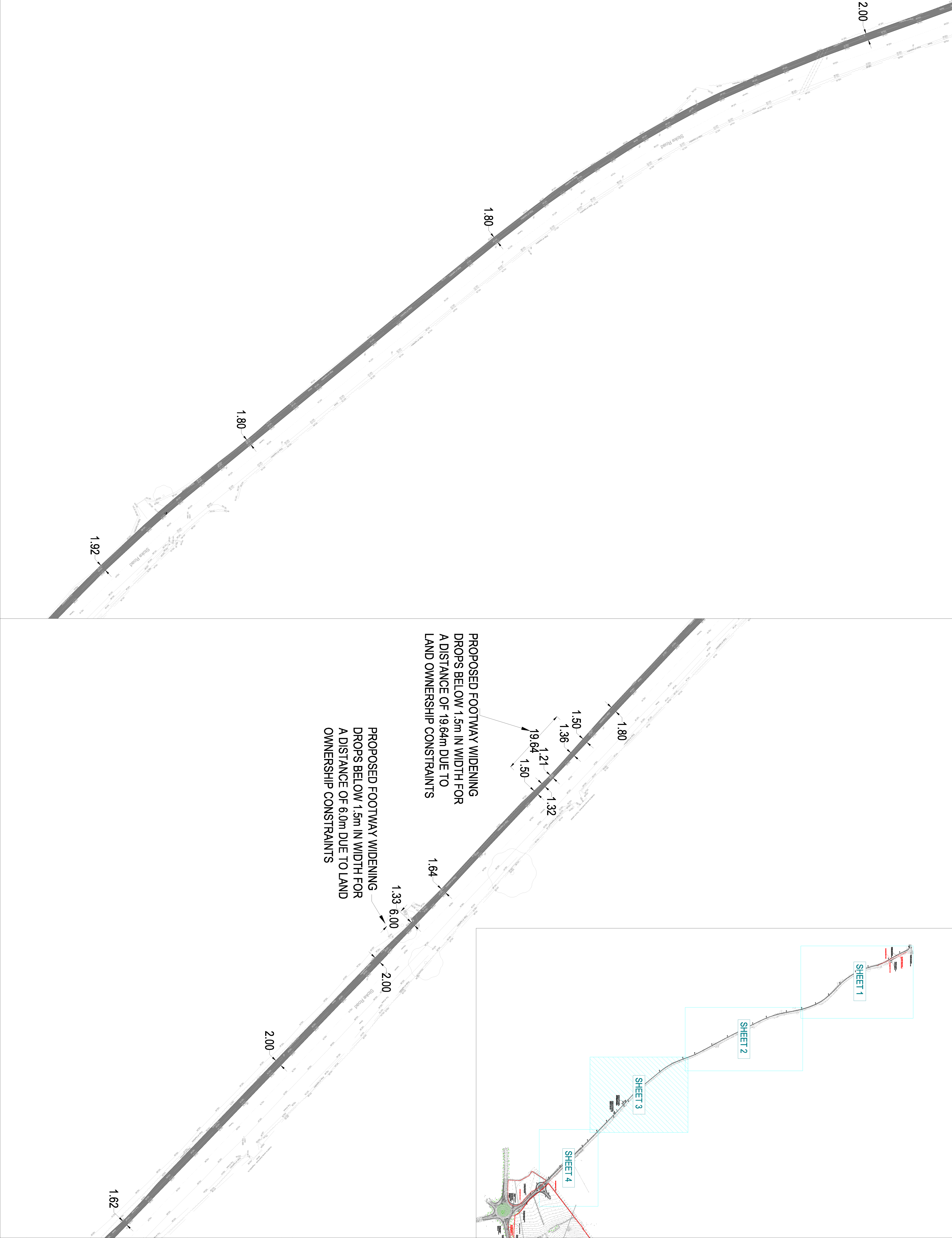
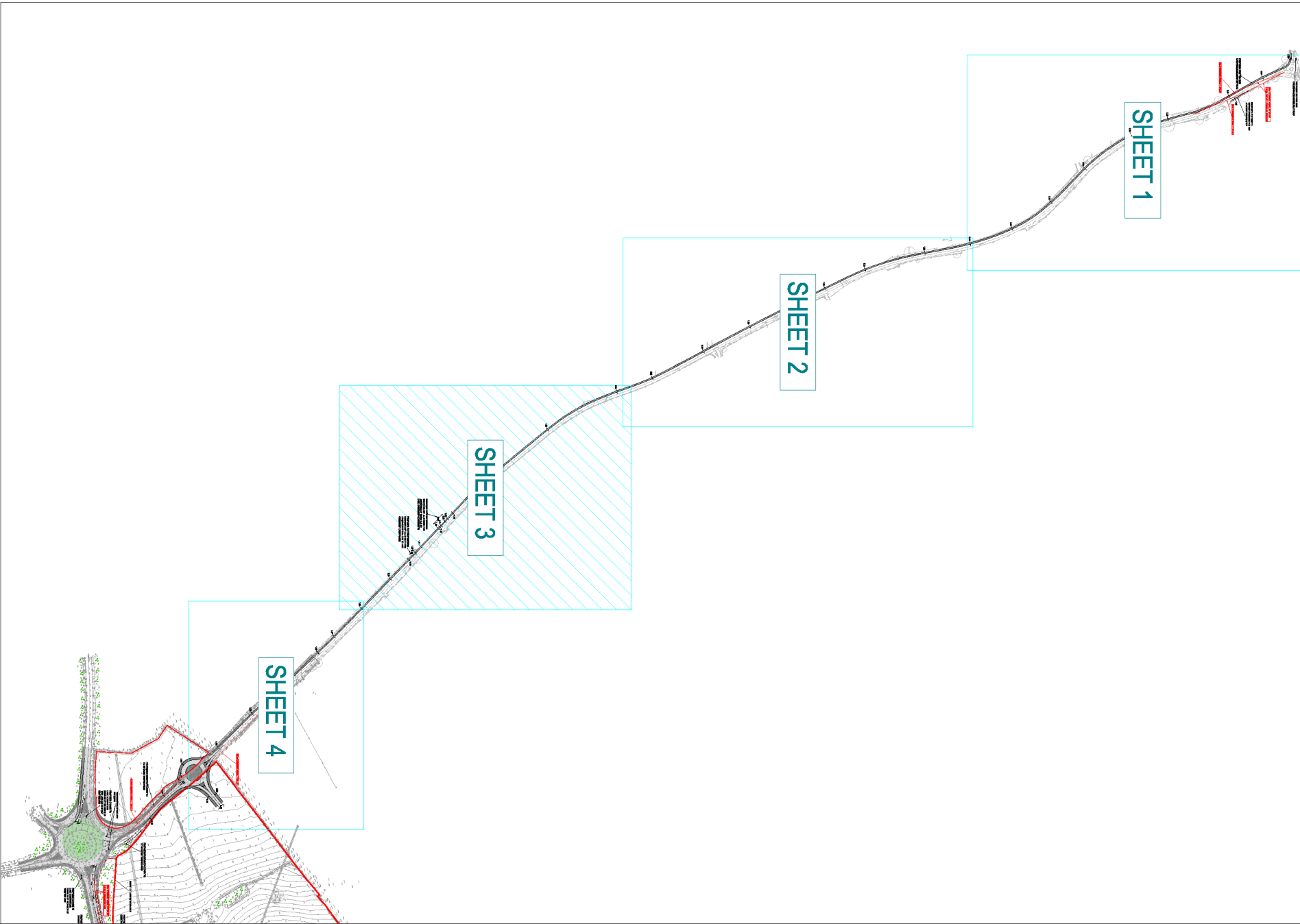
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ALL PROPOSED FOOTWAY PROVISION IS WITHIN THE ASSUMED EXTENT OF HIGHWAY



A		MINOR AMENDMENTS FOLLOWING COMMENTS FROM LCC		10.08.23	JC	JP
REV	DESCRIPTION	DATE	BY	AUTH		
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CLIENT						
RICHBOROUGH ESTATES						
PROJECT						
NORTH HINCKLEY						
TITLE						
PROPOSED STOKE ROAD FOOTWAY						
- SHEET 03						
DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE		
ML	JC	1:500	A1	15.08.22		
PROJECT NO.		DRAWING NO.		REV		
T19595		016		A		

1.62

1.77

1.98

1.81

2.00

2.00

3.50

3.50

6.75

SHEET 1

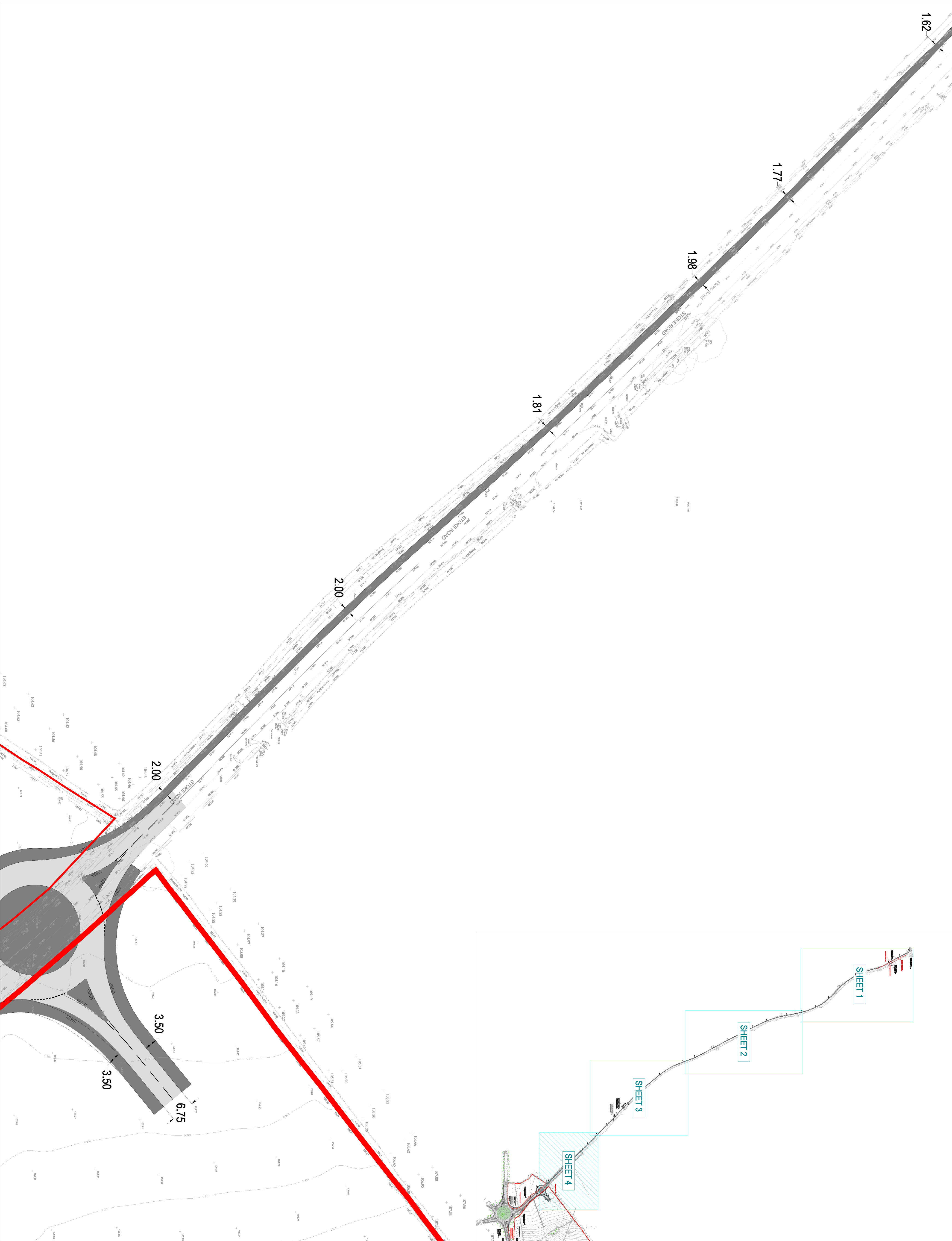
SHEET 2

SHEET 3

SHEET 4

1. THIS DRAWING IS NOT TO BE SCALED FOR CONSTRUCTION PURPOSES.
2. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND LEVELS ON SITE.

ALL PROPOSED FOOTWAY PROVISION IS WITHIN THE ASSUMED EXTENT OF HIGHWAY



REV	A	MINOR AMENDMENTS FOLLOWING COMMENTS FROM LDC	10.08.23	JC	JP
DESCRIPTION	DATE	BY	AUTH		



Hub Transport Planning Ltd
Floor 18
4 Temple Row
B2 5HG
T: 0121 454 5530

CLIENT
RICHBOROUGH ESTATES

PROJECT
NORTH HINCKLEY

TITLE
PROPOSED STOKE ROAD FOOTWAY
- SHEET 04

DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE
ML	JC	1:500	A1	15.08.22
PROJECT NO.		DRAWING NO.		
T19595		017		
				REV
				A

Appendix A

ATE Response and Appraiser Report Including Comments from Hub



Active
Travel
England

Active Travel England
West Offices
Station Rise
York
YO1 6GA
Tel: 0300 330 3000

Your Ref: 23/00432/OUT
Our Ref: ATE/23/00101/OUT
Date: 05 July 2023

Active Travel England Planning Response Detailed Response to an Application for Planning Permission

From: Planning & Development Division, Active Travel England

To: Alex Jelley, Hinckley and Bosworth Borough Council

Application Ref: 23/00432/OUT

Site Address: Land North Of A47 Normandy Way And East Of Stoke Road,
Hinckley

Description of development: Outline planning application for the erection of up to 475 dwellings, including public open space, land reserved for a primary school together with future expansion land (Use Class F1(a)), drainage, landscaping and associated infrastructure

Notice is hereby given that Active Travel England's formal recommendation is as follows:

- a. ~~**No Objection:** ATE has undertaken a detailed assessment of this application and is content with the submission.~~
- b. ~~**Conditional approval:** ATE recommends approval of the application, subject to the agreement and implementation of planning conditions and/or obligations as set out in this response.~~
- c. **Deferral:** ATE is not currently in a position to support this application and requests further assessment, evidence, revisions and/or dialogue as set out in this response.
- d. ~~**Refusal:** ATE recommends that the application be refused for the reasons set out in this response.~~

1.0 Background

The site is on the edge of Hinckley separated from the existing built-up area by the A47 road. To the south west is the existing A47/Stoke Road roundabout and directly to the north on the Stoke Road a new roundabout is proposed from which vehicular access is proposed into the site from the east.

It is noted there is a strong relationship to the directly adjoining site to the south which is also under consideration as a full application (23/00573/FUL) for 153 units. Both applications follow a previous outline application made in 2018 for 850 units and a primary school. Also noted is that this site was also subject to a recent refusal (ref 22/00318/OUT) in May 2023, which had 3 reasons for refusal including a failure to show safe and suitable access for all users.

There has been no Active Travel England involvement previously.

2.0 National policy and guidance

The *National Planning Policy Framework* (NPPF) states:

104. Transport issues should be considered from the earliest stages of... development proposals, so that:

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

110. In assessing... specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location; [and]

b) safe and suitable access to the site can be achieved for all users;

112...applications for development should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas...;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport; [and]

c) create places that... minimise the scope for conflicts between pedestrians, cyclists and vehicles...;

113 All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

Local Transport Note 1/20 (LTN 1/20) provides guidance to local authorities on delivering high quality, cycle infrastructure, while paragraph 2.2.2 identifies the potential for travel behaviour change, with three quarters of children living within a 15-minute cycle ride of a secondary school.

Gear change: a bold vision for cycling and walking is the Government's cycling and walking plan for England. This sets the Government's vision for cycling and walking to be the natural first choice for many journeys with half of all journeys in towns and cities being cycled or walked by 2030, while also recognising that that school active travel can play a greater role in preventing obesity and supporting healthier weight. Active Travel England's responsibilities for walking also extend to "wheeling", such as the use of wheelchairs (self-propelled or powered) and mobility scooters.

Inclusive mobility: making transport accessible for passengers and pedestrians provides guidance on designing and improving the accessibility and inclusivity of public transport and pedestrian infrastructure.

Active Design (Sport England, supported by Active Travel England and the Office for Health Improvement & Disparities) sets out how the design of our environments can help people to lead more physically active and healthy lives. It states that school routes should be safe and usable through, inter alia, reductions in vehicle traffic and physically segregated cycling routes (p23), and that appropriate cycling parking should be provided at schools in prominent and convenient locations (p40).

3.0 Summary

The application is submitted in outline with access for consideration and proposes a largely residential scheme of up to 475 units alongside land reserved for a 1 form entry primary school plus expansion space with public open space and associated landscaping, drainage and infrastructure. An illustrative masterplan has been submitted that shows a central spine road from the new roundabout to the east with a series of looping side roads and cul de sacs within a wider street hierarchy of primary and secondary streets. Two points of pedestrian access points are proposed to the south onto the A47, the eastern point would include a toucan crossing although there is no reference to adjoining cycle infrastructure. There is a public footpath that runs north to south centrally through the site which is protected and lines up with the toucan crossing. It is noted this currently includes a stile and steps down towards the A47 road and this, as well as it not being a public bridleway, would prevent it presently being used by cyclists and wheelers (wheel chair users).

4.0 Opportunities

It has been identified previously that this site would benefit from an additional crossing over the A47 to enable access the wide range of local services. This is vital to tap into the facilities close by and make use of and develop the existing active travel infrastructure within Hinckley. To fully embed the opportunities for active travel, further research is needed by way of a quality audit of existing surrounding walking, wheeling and cycling provision and an understanding of the new active trips this development could generate; both should be supported by addendums to the transport assessment and travel plan to this ends. The toucan crossing may just be one gateway to enabling more trips outside the site to be made by active modes.

5.0 Areas of Concern

As the site lies beyond the A47 road this, and its existing limited crossings and primarily vehicle serving junctions and roundabouts, have the potential to be a significant barrier to active travel modes. There is a lack of information about walking, wheeling and cycling within the site and in the surrounding areas. The illustrative site masterplan scores well in terms of permeability with two pedestrian access points to the south but could be enhanced by additional cycling and wheeling provision at these points. Further enhancement where necessary outside the site may be required to resolve any infrastructure, or gaps in infrastructure, that fail to meet design standards of LTN 1/20, Inclusive Mobility, Manual for Streets and Active Design.

6.0 Next Steps

Accompanying this written response is the appraiser report from Active Travel England's planning application assessment toolkit to help explain our findings in more detail. ATE

would welcome comment and response from the agent/applicant on the detail provided in order to inform our final position.

[Ends]

Active Travel England Planning Application Assessment Tool - Appraiser Report

Site address	Land North Of A47 Normandy Way And East Of Stoke Road, Hinckley
Local authority reference	23/00432/OUT
ATE Scheme reference	
Local Planning Authority	Hinckley and Bosworth
Local Highway Authority	Leicestershire County Council
Completed by - name	H Ledger
Date (DD/MM/YY)	30.06.2023
Application stage	Application
Application type	Outline
Model version	1.5
Assessment outcome	FAIL
Decision (appraiser)	Are not in a position to make a recommendation

Policy Background / Wider Context

The site is part of a wider area of land allocated on the western and northern edges of Hickley and allocated for mixed use in the 2016 Hickley adopted Site Allocation Development Plan. There has been no Aactive Travel England involvement previously. This is a strong relationship to the directly adjoining site to the south which is also under consideration as a full application (23/00573/FUL) for 153 units, which follows a previous outline application made in 2018 for 850 units and a primary school. A more recent recent refusal ref 22/00318/OUT on this application site in May 2023 is noted, which had 3 reasons for refusal including, a failure to show safe and suitable access for all users would be provided to the development.

Appraiser - General Comments

The site is an urban extension which requires routing across the A47 to be able access necessary amenities beyond the new primary school and public open space that are also included in the proposal. Whilst these amenities would in theory be provided on site there is no certainty how and when they will be delivered, thus access to the established amenities beyond, including primary school and bus routes is important to access in detail if active travel modes can be maximised. The quality of the existing walking cycling and wheeling infrastructure is vital to understand and missing from the supporting assessments and documents. Details of a new continious footway to the village of Stoke Golding 3.6km to the north are also included with little explanation. The village facilities are limited and at this distance offers only limited benefit to the new residents likely to live on site.

Appraiser - Next Steps

The assessment raises key failures and detailed information on cycling and disabled access (wheeling) is missing as well as understanding of these modes within the supporting documents. ATE would seek more information to help resolve this shortfall. It is noted that the application is submitted in outline and so details are only illustrative on site layout however access is a matter for consideration and active modes should be reflected in the plans at this stage.

	Count	Summary of Detailed Assessment
Excluded criteria	0	Given the proposal includes both residential and educational uses no criteria have been exluded. The on site school will also employ staff who should be able to access the school site by active modes just as residents would like to leave the site.
Recommendation for condition / financial contribution	0	At this stage no recommendations made. However ATE would consider providing further recommendations should more information be supplied in sufficient detail to do so.
Fail flags	9	It is noted several fail flags may have a arisen due to the lack on information supplied on walking, wheeling and cycling within the site due to the outline application. If more information can be supplied or condition wording proposed ATE would be happy to reconsider these findings. However it is important the failings in the Transport Assessment and the Travel Plan are noted and resolved at outline stage.



Active Travel England Planning Application Assessment Tool - Appraiser Report

Site address	Land North Of A47 Normandy Way And East Of Stoke Road, Hinckley				
Local authority reference	23/00432/OUT				
ATE Scheme reference					
Local Planning Authority	Hinckley and Bosworth				
Local Highway Authority	Leicestershire County Council				
Criterion	Outcome	Appraiser Comments	Relevant Policy	Reason for potential refusal	Hub Response
TRANSPORT ASSESSMENT: Quantitative analysis	FAIL	No multi modal forecast, some high level information provided on accessibility and the wider plans outside this application to provide a Toucan crossing on the A47.	NPPF 113 Planning Policy Guidance: Travel Plans, Transport Assessments and Statements; Leicester County Council LTP policy LTP3 - Encourage people to walk and cycle	The applicant has failed to demonstrate and quantify the impact of the development in the absence of a robust or credible analysis of the future movement demands of the development	Multi Modal trip generation estimates have been provided as part of the Technical Response Report
TRANSPORT ASSESSMENT: Qualitative analysis	FAIL	Very limited assessment with reference to drop kerbs and tactile paving not detailed information of routes to key destinations. However review of google street view would indicate cycle routes around the southern edge of the site, towards Morrisons. Query whether the widths and junctions would be fully LTN 1/20 compliant.	NPPF 113 Planning Policy Guidance: Travel Plans, Transport Assessments and Statements; Leicester County Council LTP policy LTP3 - Encourage people to walk and cycle	The applicant has failed to assess the quality and capacity of the surrounding movement network to accommodate the demands that would be placed on	A detailed review of the existing facilities for pedestrians, cyclists and wheelers has been provided in the Technical Response Report
Local Amenities	PASS	Yes there are amenities, morrisons, gym, primary schools within the thresholds however no quality information on the route to these amenities is provided. Lighting is limited to the roundabouts. Major A47 to cross with no controlled crossing point.			Agreed.
Walking routes to a primary school	More info needed	The site would include land available on which to build a primary school (plus expansion), however as this is submitted at outline stage and the detail is only illustrative and requires an S106. Local primary schools are also available to the south of the site beyond but it is noted lighting is limited to the roundabouts, major A47 to cross with no controlled crossing point. More information required to assess this, refer to manual for streets walking audit recommendations.			The Technical Response Report indicates safe access can be provided to off-site primary schools using the proposed and existing facilities for pedestrians, cyclists and wheelers.
Walking routes to a food shop	More info needed	Site is directly opposite morrisons which could provide full food shopping range. Details within the site illustrative only, but it is noted lighting is limited to the roundabouts, major A47 to cross with no controlled crossing point. More information required to assess this, refer to manual for streets walking audit recommendations.			The Technical Response Report indicates safe access can be provided to the nearest Morrisons supermarket using the proposed and existing facilities for pedestrians, cyclists and wheelers.
Suitability for walking and wheeling (external to the site)	More info needed	Google streetview would indicate that drop kerbs/tactile paving are present on the Stoke Rd crossing with A47. Provision for walking with cycle path adjacent to the south A47. Ashby Rd/A47 traffic controlled 4 way junction with no provision for pedestrian control. No routing advice given to assist a wider strategy beyond the site, where would people be likely to want to go. More information on this would benefit understanding. Note that external bus			A detailed review of the existing facilities for pedestrians, cyclists and wheelers has been provided in the Technical Response Report. The existing area benefits from excellent facilities within the vicinity of the site and the active travel strategy provides good links to these facilities to enable residents to access local facilities within the vicinity of the site. Furthermore, the applicant has indicated that they are willing to provide

		stops with highest frequency of service well beyond the site.			new bus stops on Stoke Road and the A47 in the vicinity of the site and this will be secured through a suitable mechanism.
Safety at junctions (off-site)	More info needed	Note A47 toucan crossing aspiration. Overall more detailed information required to help support this			The proposed Toucan crossings are clearly set out in the TA and Technical Response Report. The proposals are in line with LTN 1/20. Furthermore, improvements to the existing stepped PROW that provides more direct access to the western most Toucan Crossing will be secured through a suitable mechanism.
Cycle routes to key destinations	More info needed	Local routes are noted but will they meet the design requirements in LTN 1/20?			A full review of local cycle routes has been provided in the Technical Response Report.
Cycle Safety on links (off-site)	More info needed	Some provision along Stoke rd and A47. not clear if this meets the required standards.			A full review of local cycle routes has been provided in the Technical Response Report. Furthermore, improvements to these routes are proposed in the vicinity of the proposed site access and A47/Stoke Road junction.
Crossings (external to the site)	More info needed	Some broad illustrative information provided but not specifics at this stage. Second crossing adjacent Wheatfield Way doesn't appear to route onto anywhere useful save paths east/west either side of the A47. Pedestrian routes only no cycle provision.			Further details have been provided in Technical Response Report
Shared use routes (external to the site)	More info needed	It is important to understand the walking and cycling traffic levels anticipated to appreciate whether the shared routes and shared crossings on sections without dedicated cycle provision can support the movements in compliance with LTN 1/20			The multi modal analysis indicates that the proposed shared use facilities will be suitable to accommodate the anticipated pedestrian/cycle demand and is in line with thresholds set out in LTN 1/20 Table 6-3. On site observation indicate that existing shared use facilities in the local area are also lightly trafficked, therefore these are considered suitable to accommodate demand from the proposed development.
Physical barriers for cycle users (on and off-site)	More info needed	There is no apparently no cycle movement strategy is proposed. Cycle routes should also be drawn to create a permeable development along desire lines to key destinations. Note existing PROW which is a footpath and toucan crossing, however this transition is currently stepped with stile. Not useful for wheelers and cyclists.			Improvements to the existing stepped PROW that provides more direct access to the western most Toucan Crossing will be secured through a suitable mechanism.
Lighting (on and off site)	FAIL	On site unknown. Lighting on off site routes appears to be limited to junctions and roundabouts.	NPPF 112c	The proposed development fails to ensure the safety of pedestrians and cyclists	Street lighting is provided along the whole length of the A47 and part way along Stoke Road to the north of the A47/Stoke Road roundabout. A lighting assessment will be undertaken when the access proposals reach the detailed design stage. If required improvements will be provided.

Walking routes to nearest transport nodes	More info needed	No quality information supplied. It is noted that the stops with the best bus frequency are on the Ashby Road the furthest location from the site, 1km plus. No details on bus service changes to support new stops within or closer to the site.			New bus stops on Stoke Road (north of the A47) and the A47 will be secured as part of the application.
Access and provision of public transport	FAIL	All current stops are very close to or beyond this distance. No new stops are proposed at this stage.	NPPF 112a; National Model Design Code: 50, 59i / M.1.ii; CIHT Buses in urban developments A.4.5	The proposed development is located in an area where sustainable travel patterns cannot be achieved as a result of the distance from existing public transport facilities and/or the lack of viability of promotion of new public transport services	New bus stops on Stoke Road (north of the A47) and the A47 will be secured as part of the application. This will significantly reduce walking distances to bus stops.
Active Travel infrastructure enabling use of public transport	More info needed	Some stretches of cycle lane but large junctions to cross external to site. Note A47 is upto 40mph. No new on site cycle strategy or infrastructure proposed despite toucan crossing. Central spine road would also serve connected development to the east in time it does deviate from full straight route in places with attempts to calm junction with side roads.			Active travel strategy is set out in the Technical Response Report
TRANSPORT ASSESSMENT: Proposed Infrastructure	FAIL	No new infrastructure proposed or investigated to support modal shift.	NPPF 113 Planning Policy Guidance: Travel Plans, Transport Assessments and Statements	The proposed development has not provided / offered a sufficient level of detail / funding / infrastructure necessary to actively enable and encourage trips within and/or to/from the site by alternative modes to the private car.	Significant infrastructure improvements are proposed to connect pedestrians, cyclists and wheelers to local facilities within Hinckley and Stoke Golding. This is set out in the Active Travel Strategy included in the Technical Response Report. This includes active travel improvements at off-site junctions
Site permeability	FAIL	There would be two pedestrian access points to south but cycling would be as the vehicle route.	NPPF: 112a, 92a; National Model Design Code: 59i / M.1, 59ii / M.2; National Design Guide M2 82; LTN 1/20 para 4.2.8 & 14.3.11	The proposed development, by way of its internal masterplanning fails to facilitate and prioritise convenient access by active travel modes and instead is likely to lead to greater reliance on private car trips than would otherwise be the case.	There will be three cycle access points provided to the site. One via the main vehicular access off Stoke Road, and two off the A47 close to the proposed Toucan Crossings. The PROW will be upgraded to remove steps.
Walking and cycling access	FAIL	Walking routes would be more than for vehicles, but cycling is not. No quality audit on existing or proposed infrastructure.	NPPF 112a, 92a; National Model Design Code: 59i; National Design Guide: M2 82; LTN 1/20 para 4.2.8 & 14.3.11	The proposed development, by way of its internal masterplanning fails to facilitate and prioritise convenient access by active travel modes and instead is likely to lead to greater reliance on private car trips than would otherwise be the case.	The planning application is outline only, therefore the masterplan is illustrative at this time and will be confirmed at reserve matters stage. Nevertheless, the proposals include three points of access for pedestrians, cyclist and wheelers. The main spine road will provide shared use facilities in line with guidance set out in LTN 1/20. The lower order roads within the site will be subject to a 20mph design speed and be suitable for mixed traffic. The masterplan is therefore considered to accord with guidance set out in LTN 1/20.
Future-proofing and safeguarding	FAIL	Some connectivity for walkers noted on the site masterplan, however no details of cycling or wheeling provision.	NPPF: 88, 92a, 110a, 112c; National Model Design Code: 45 (Figure 11);	The proposed development prejudices the existing and future development of potential adjoining sites and/or fails to progress a comprehensive and co-ordinated approach that maximises connectivity by active travel modes	The proposed cycling facilities within the development have been set out in the Technical Response Report. The proposed spine road that runs west to east through the site will be extended up to the eastern boundary of the development. This provides potential for the off-road shared use footway/cycleway that will run along both sides of the spine road to connect to potential development parcels to the east of the site.

Through traffic	PASS	At this stage based on masterplan this is unlikely. However noted the same care is required for future development.			Agreed
Safety at junctions (internal to the site, including site accesses)	FAIL	New roundabout proposed with no indication of the movement hierarchy and no proposals to specifically support cyclists in line with the guidance in LTN 1/20.	NPPF 112a, 112c National Model Design Code: 59ii / M.2.ii; MfS, LTN 1/20; Local plan policy SSS k;	The proposed development fails to ensure the safety of pedestrians and cyclists	The proposed access roundabout provides off-road shared use footway/cycleway provision in line with guidance set out in LTN 1/20. Furthermore, shared use facilities are proposed along the eastern side of Stoke Road which will provide a link to new Toucan Crossing which will facilitate safe crossing of the A47.
Design speed of new streets		More info needed	No details provided at this stage only illustrative. Potential for a condition to secure this at RM stage.		Design speeds will be confirmed at reserve matter stage, however it is envisaged the main spine road will be subject to 30mph speed limit and lower order roads will be subject to a 20mph design speed.
Crossings (internal to the site)	More info needed	No details provided at this stage only illustrative. Potential for a condition to secure this at RM stage.			The masterplan is illustrative at present, however consideration will be given at the reserve matters stage to the provision of priority cycle crossings across all side road along the main spine road.
Suitability for walking and wheeling (internal to the site)	More info needed	Pedestrian routes are supported inside including some segregation but surfacing and lighting and step free are key requirements.			Further consideration will be given at the reserve matters stage. This includes details of internal crossing types (priority crossing, dropped kerbs, tactile paving etc) along with requirements for lighting.
Cycle safety on links (Internal to the site)	More info needed	No obvious cycle route strategy on the masterplan.			See earlier responses and Technical Response Report.
Shared use routes (internal to the site)	More info needed	The decision on new infrastructure to be designed should be informed by analysis on likely traffic levels and routing strategy through the TA and TP. Both documents require more information to be supplied			Additional information has been provided in the Technical Response Report.
Car parking layout	More info needed	No details on vehicle parking at this stage.			The masterplan is illustrative at this stage, however it is intended that parking will be provided in line with the local authority guidance.
Cycle Parking	More info needed	Space should be made available with dwellings to enable secure parking in line with the requirements in LTN 1/20 or local policy. Cycle parking will also be required for education uses on site.			Suitable on plot cycle parking will be provided as part of the development proposals.
Trip end facilities for cycling (Destinations)	More info needed	Provision required for staff at the proposed primary school			At this stage the development proposals are required to safeguard land for the proposed primary school. Further details of the facilities provided for staff will be given at the reserve matters stage.

TRAVEL PLAN	More info needed	Although census info is provided and the anticipated aim to reduce car trips, by 5%, no new modal share target is proposed. Some monitoring by Modeshift STARS but lack of real targets for active travel weakens the whole approach. No remedial actions are proposed for failure to meet the targets. No quality or audit information in the TA for active travel means there are no infrastructure improvement recommended to assist in delivering mode shift. No recognition of distance problems to bus routes and other barriers to shift to bus use.			The revised Travel Plan (Rev B) has been provided. The revised TP provides specific targets for walking, cycling and public transport and sets out how these targets will be met. Remedial measures which will be employed should the targets not be met have also been set out. A detailed audit of existing pedestrian/cycle infrastructure has been set out in the Technical Response Report as has the proposed infrastructure that will be provided as part of the development proposals. The TP also refers to the provision of additional bus stops to minimise walking distances for residents.
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Appendix B

LCC Consultation Response

James Corbett

From: Suraj Dave <Suraj.Dave@leics.gov.uk>
Sent: 31 July 2023 16:47
To: James Corbett
Cc: Harry Horsley
Subject: FW: 2023/0432/04/H - Land North Of A47 Normandy Way And East Of Stoke Road Hinckley

Good Afternoon James,

We have considered the access and mitigation proposals associated with Stoke Road application and would comment as below.

Dwg No T19595-001 Rev C Proposed Site Access Layout Stoke Road

Additional information is required to be added to the drawing to indicate design layout dimensions, and these are required to enable comments on the acceptability of the roundabout design. Also refer to comments made regarding the swept path analysis which would require amendment to the roundabout layout design based on the SPA's shown.

It is noted from the TA that 85th %ile Southbound speeds were recorded as 49.35 mph for which the 160m forward visibility splay would be acceptable.

No information has been shown for a proposed highway boundary, and land currently within private ownership will need to be taken for the new highway layout (including requirements for visibility splays, earthworks, drainage, traffic signs, lighting etc..). This will need to be transferred into ownership of the Local Highway Authority.

It is proposed to extend the existing stepped cycleway/footway provision to continue to the new roundabout. A width of 3.5m has been shown for this, and this would need to be reviewed for compliance with the requirements of LTN1/20 for cycleways. No additional information nor revised drawing provided for this, and although an overall width of 3.5m is shown, it is unclear as to how this would comply with LTN1/20 requirements for aspects such as buffer zone width, cycle lane and footway widths.

It is proposed to extend the existing stepped cycleway/footway provision to continue to the new roundabout. A width of 3.5m has been shown for this, and this would need to be reviewed for compliance with the requirements of LTN1/20 for cycleways. No additional information nor revised drawing provided for this, and although an overall width of 3.5m is shown, it is unclear as to how this would comply with LTN1/20 requirements for aspects such as buffer zone width, cycle lane and footway widths.

Dwg No T19595-010 Proposed Site Access Layout Stoke Road Swept Path Analysis

The LHA has concerns that the swept path for the articulated vehicle would conflict with a vehicle in the adjacent lane as they both manoeuvre through the circulatory carriageway. CD116 requires vehicle swept paths to be assessed using the largest design vehicle that is anticipated to use each lane, and that swept paths for multi lane entries to be assessed to ensure sufficient width is provided for each entry lane. This concern would require amendments to the layout design to cater for multi lane manoeuvres involving the largest design vehicle shown.

The tracking for the articulated vehicle has used the FTA Design Articulated vehicle and this should be updated for the current Maximum Legal Length (UK) Articulated Vehicle. The tracking should be undertaken for a minimum vehicle speed of 15kph and provide a 0.5m clearance. The vehicle tracking analysis should be revisited to take into account the above requirements, and the geometry for the roundabout amended where required.

Dwg No T19595-002 Rev D Stoke Road/A47 Proposed Junction Improvements Roundabout

On the A47 exits from the roundabout, it is proposed to widen the exits to enable a two-lane exit, with traffic then required to merge after exiting the roundabout. Sufficient distance will need to be provided to enable the merge to take place in a safe and efficient manner. No information has been shown regarding the distances provided and more details will need to be provided for review. Also refer to comment below regarding the vehicle tracking for this.

It is proposed to provide a toucan crossing located approximately 100m to the east of the existing roundabout, and justification for the proposed controlled crossing would need to be reviewed by LCC. This does not appear to have been provided, and a PV2 analysis would normally be required in support of this. It should be noted that provision of a signalised junction would attract a commuted sum payment to cover the additional maintenance liability.

The existing cycleway/footway to the north-east of the roundabout will be extended along the A47 eastwards to the proposed toucan crossing located approximately 100m from the roundabout. No widths have been shown, and again these would need to comply with the LTN1/20 guidance for cycleways.

No information has been shown for existing and proposed highway boundaries. It would appear that the widening on the exits would require land currently within private ownership to be transferred into ownership of the Local Highway Authority. Additional land would also be required for the new cycleway/footway provision, earthworks/drainage, and relocated signage and lighting provision.

Dwg No T19595-011 Stoke Road/A47 Proposed Junction Improvements Swept Path Analysis

Vehicle tracking has been shown to take account of multi lane entries manoeuvring around the circulatory carriageway. However, this has been only done for a large car in the central and right-hand lanes adjacent to the HGV articulated vehicle in the left lane. CD116 requires vehicle swept paths to be assessed using the largest design vehicle that is anticipated to use each lane. The vehicle tracking should therefore be updated to take account of other likely scenarios where HGVs are also using the adjacent lanes.

On the widened exits on the A47, the vehicle tracking should be extended to demonstrate that the merge can be safely undertaken, and account should be made for use of the right hand by vehicles larger than a car.

The swept path analysis would need to show a clearance of 0.5m and be undertaken for a minimum vehicle speed of 15kph. The swept path analysis would therefore need to be updated to demonstrate that these requirements have been taken into account.

Dwg No T19595-007 Rev B Ashby Road/A47 Proposed Junction Improvements

For the exit from the junction onto Normandy Way Westbound, two lanes of traffic would be required to merge into one, and the drawing indicates carriageway widening and a tapered tie-in to the existing road width to cater for this. However, no design dimensions have been shown on the drawing for this, and this need to be added to the drawing to enable a review for compliance with CD123 requirements.

For the widening on Ashby Road Northbound, again no design dimensions have been provided for review, and these need to be added to the drawing to demonstrate compliance with CD123.

The existing highway boundary needs to be shown on the drawing to confirm that where widening works are being proposed, these can be accommodated with the existing highway boundary.

There is concern that the proposed modifications to the central islands would not be sufficient to cater for the NMU crossing movements, and designer dimensions need to be added for these.

It is noted that no works are shown to the existing central refuge island on the Normandy Way Eastern Arm. This appears to be quite narrow (1.5m width approx.) and consideration should be given to improving this to provide at least 1.8m wide refuge.

It is noted that no advanced stop lines for cyclists are shown (as is the case for the existing situation), but clarification should be provided from the designer as to whether these would be required to meet LTN 1/20 guidance.

The amendments to the signalised junction would potentially increase the queue lengths, and stopping sight distance to the rear of the queuing traffic would need to be checked.

Although the TA Rev A includes a Stage 1 RSA, this RSA does not include an audit of the proposed improvements to this junction, and an RSA1 should also be carried out for these proposals.

Dwg No T19595-008 and 009 Rev B Ashby Road/A47 Improvements Swept Path Analysis 01 and 02

For two of the left turn manoeuvres (Ashby Road Northbound to Normandy Way, and Normandy Way Eastbound to Ashby Road), the vehicle tracking indicates that the vehicle would encroach into the adjacent lane, and this raises concern regarding side swipe collisions at the junction. The vehicle tracking should be revisited to demonstrate that this would not take place and where required the design layout should be amended.

The tracking for the articulated vehicle has used the FTA Design Articulated vehicle and this should be updated for the current Maximum Legal Length (UK) Articulated Vehicle. The tracking should be undertaken for a minimum vehicle speed of 15kph.

On the widened exits onto Normandy Way Westbound, the vehicle tracking should be extended to demonstrate that the merge can be safely undertaken, and account should be made for use of the right-hand lane by vehicles larger than a car.

Dwg Nos T19595-014, 015, 016 and 017 Proposed Stoke Road Footway Sheets 01, 02, 03 and 04

These drawings indicate the provision of a widened footway within the South-Western verge of Stoke Road, that would improve the pedestrian link between the proposed new roundabout and the St Martins School Academy in Stoke Golding. It is noted that the drawing indicates long lengths of footway of less than 2.0m width, and this should be provided as a 2.0m width to comply with LHDG Table DG9 requirements. Reductions in width to 1.2m would be acceptable where obstacles are present, but this should not exceed lengths of 6m where possible. Where existing constraints mean that a 2.0m width cannot be provided, these need to be justified and advised on the drawing.

Kerbing is currently present to the existing footway to the South-West verge, although there will be locations where kerbing works would be necessary to make it suitable for the new footway surfacing works. It is noted that there are locations where existing dropped kerbs are present to what appears to be disused field accesses, and consideration would need to be given to replacing these with full height HB kerbing.

Sheet 1 indicates that it is proposed to provide a length of new footway to the Eastern verge near to the St Martins Academy, along with an uncontrolled crossing to link with the improved footway on the opposite side. This new footway length would require kerbing works to replace the existing SP kerbs with HB kerbing. Consideration would also need to be given to providing a 2.0m wide footway here.

For the proposed uncontrolled crossing location, the visibility of the crossing for vehicles approaching in the Northbound direction would be potentially obscured by the horizontal bend, the mature tree and existing signage at this location. 85th % ile speed measurements would need to be obtained to check the visibility requirements, and this may require the proposed crossing point to be relocated further North.

Kind Regards,

Suraj Dave
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Highway Development Management
Leicestershire County Council

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Appendix C

Multi Modal TRICS Outputs

Calculation Reference: AUDIT-141301-230724-0705

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	2 days
	KC KENT	1 days
	SC SURREY	1 days
	SP SOUTHAMPTON	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	NF NORFOLK	5 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 212 to 1146 (units:)
Range Selected by User: 200 to 1500 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/15 to 27/09/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	4 days
Wednesday	5 days
Thursday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	12 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	12
--------------	----

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	9
Out of Town	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	6 days - Selected
Servicing vehicles Excluded	10 days - Selected

Secondary Filtering selection:

Use Class:

C3 12 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	6 days
10,001 to 15,000	3 days
15,001 to 20,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	3 days
25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5	11 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	10 days
No	2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	12 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	HC-03-A-24 STONEHAM LANE EASTLEIGH	MIXED HOUSES & FLATS	HAMPSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 243 Survey date: WEDNESDAY 10/11/21		Survey Type: MANUAL
2	HC-03-A-26 BOTLEY ROAD WHITELEY	MIXED HOUSES & FLATS	HAMPSHIRE
	Edge of Town Out of Town Total No of Dwellings: 270 Survey date: THURSDAY 24/06/21		Survey Type: MANUAL
3	KC-03-A-07 RECULVER ROAD HERNE BAY	MIXED HOUSES	KENT
	Edge of Town Residential Zone Total No of Dwellings: 288 Survey date: WEDNESDAY 27/09/17		Survey Type: MANUAL
4	NF-03-A-23 SILFIELD ROAD WYMONDHAM	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Out of Town Total No of Dwellings: 514 Survey date: WEDNESDAY 22/09/21		Survey Type: MANUAL
5	NF-03-A-28 ATLANTIC AVENUE NORWICH SPROWSTON	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings: 1146 Survey date: THURSDAY 22/09/22		Survey Type: MANUAL
6	NF-03-A-30 BRANDON ROAD SWAFFHAM	MIXED HOUSES	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings: 266 Survey date: THURSDAY 23/09/21		Survey Type: MANUAL
7	NF-03-A-39 HEATH DRIVE HOLT	MIXED HOUSES	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings: 212 Survey date: TUESDAY 27/09/22		Survey Type: MANUAL
8	NF-03-A-46 BURGH ROAD AYLSHAM	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings: 300 Survey date: TUESDAY 14/09/21		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9	SC-03-A-08 REIGATE ROAD HORLEY	MIXED HOUSES		SURREY
	Edge of Town Residential Zone Total No of Dwellings:		790	
	Survey date: WEDNESDAY		04/05/22	Survey Type: MANUAL
10	SP-03-A-02 BARNFIELD WAY NEAR SOUTHAMPTON HEDGE END	MIXED HOUSES & FLATS		SOUTHAMPTON
	Edge of Town Out of Town Total No of Dwellings:		250	
	Survey date: TUESDAY		12/10/21	Survey Type: MANUAL
11	ST-03-A-07 BEACONSIDE STAFFORD MARSTON GATE	DETACHED & SEMI-DETACHED		STAFFORDSHIRE
	Edge of Town Residential Zone Total No of Dwellings:		248	
	Survey date: WEDNESDAY		22/11/17	Survey Type: MANUAL
12	WS-03-A-11 ELLIS ROAD WEST HORSHAM S BROADBRIDGE HEATH	MIXED HOUSES		WEST SUSSEX
	Edge of Town Residential Zone Total No of Dwellings:		918	
	Survey date: TUESDAY		02/04/19	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 1.62

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.084	12	454	0.308	12	454	0.392
08:00 - 09:00	12	454	0.156	12	454	0.394	12	454	0.550
09:00 - 10:00	12	454	0.131	12	454	0.152	12	454	0.283
10:00 - 11:00	12	454	0.111	12	454	0.130	12	454	0.241
11:00 - 12:00	12	454	0.123	12	454	0.138	12	454	0.261
12:00 - 13:00	12	454	0.143	12	454	0.140	12	454	0.283
13:00 - 14:00	12	454	0.146	12	454	0.136	12	454	0.282
14:00 - 15:00	12	454	0.147	12	454	0.165	12	454	0.312
15:00 - 16:00	12	454	0.248	12	454	0.157	12	454	0.405
16:00 - 17:00	12	454	0.269	12	454	0.159	12	454	0.428
17:00 - 18:00	12	454	0.360	12	454	0.150	12	454	0.510
18:00 - 19:00	12	454	0.286	12	454	0.154	12	454	0.440
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		2.204			2.183			4.387	

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 212 - 1146 (units:)
 Survey date range: 01/01/15 - 27/09/22
 Number of weekdays (Monday-Friday): 12
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL CYCLISTS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.002	12	454	0.006	12	454	0.008
08:00 - 09:00	12	454	0.002	12	454	0.016	12	454	0.018
09:00 - 10:00	12	454	0.003	12	454	0.003	12	454	0.006
10:00 - 11:00	12	454	0.002	12	454	0.001	12	454	0.003
11:00 - 12:00	12	454	0.001	12	454	0.001	12	454	0.002
12:00 - 13:00	12	454	0.001	12	454	0.002	12	454	0.003
13:00 - 14:00	12	454	0.002	12	454	0.001	12	454	0.003
14:00 - 15:00	12	454	0.002	12	454	0.003	12	454	0.005
15:00 - 16:00	12	454	0.008	12	454	0.001	12	454	0.009
16:00 - 17:00	12	454	0.008	12	454	0.004	12	454	0.012
17:00 - 18:00	12	454	0.008	12	454	0.006	12	454	0.014
18:00 - 19:00	12	454	0.007	12	454	0.004	12	454	0.011
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.046			0.048			0.094

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.012	12	454	0.029	12	454	0.041
08:00 - 09:00	12	454	0.025	12	454	0.085	12	454	0.110
09:00 - 10:00	12	454	0.023	12	454	0.021	12	454	0.044
10:00 - 11:00	12	454	0.019	12	454	0.017	12	454	0.036
11:00 - 12:00	12	454	0.016	12	454	0.015	12	454	0.031
12:00 - 13:00	12	454	0.019	12	454	0.017	12	454	0.036
13:00 - 14:00	12	454	0.021	12	454	0.020	12	454	0.041
14:00 - 15:00	12	454	0.024	12	454	0.025	12	454	0.049
15:00 - 16:00	12	454	0.074	12	454	0.034	12	454	0.108
16:00 - 17:00	12	454	0.036	12	454	0.019	12	454	0.055
17:00 - 18:00	12	454	0.038	12	454	0.036	12	454	0.074
18:00 - 19:00	12	454	0.035	12	454	0.037	12	454	0.072
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.342			0.355			0.697

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL BUS/ TRAM PASSENGERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.001	12	454	0.020	12	454	0.021
08:00 - 09:00	12	454	0.000	12	454	0.016	12	454	0.016
09:00 - 10:00	12	454	0.001	12	454	0.005	12	454	0.006
10:00 - 11:00	12	454	0.002	12	454	0.004	12	454	0.006
11:00 - 12:00	12	454	0.003	12	454	0.005	12	454	0.008
12:00 - 13:00	12	454	0.002	12	454	0.003	12	454	0.005
13:00 - 14:00	12	454	0.001	12	454	0.003	12	454	0.004
14:00 - 15:00	12	454	0.004	12	454	0.004	12	454	0.008
15:00 - 16:00	12	454	0.013	12	454	0.003	12	454	0.016
16:00 - 17:00	12	454	0.014	12	454	0.001	12	454	0.015
17:00 - 18:00	12	454	0.011	12	454	0.002	12	454	0.013
18:00 - 19:00	12	454	0.012	12	454	0.003	12	454	0.015
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.064			0.069			0.133

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.000	12	454	0.004	12	454	0.004
08:00 - 09:00	12	454	0.000	12	454	0.005	12	454	0.005
09:00 - 10:00	12	454	0.000	12	454	0.001	12	454	0.001
10:00 - 11:00	12	454	0.000	12	454	0.000	12	454	0.000
11:00 - 12:00	12	454	0.000	12	454	0.000	12	454	0.000
12:00 - 13:00	12	454	0.000	12	454	0.001	12	454	0.001
13:00 - 14:00	12	454	0.000	12	454	0.001	12	454	0.001
14:00 - 15:00	12	454	0.000	12	454	0.000	12	454	0.000
15:00 - 16:00	12	454	0.002	12	454	0.001	12	454	0.003
16:00 - 17:00	12	454	0.001	12	454	0.000	12	454	0.001
17:00 - 18:00	12	454	0.003	12	454	0.000	12	454	0.003
18:00 - 19:00	12	454	0.003	12	454	0.000	12	454	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.013			0.022

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.001	12	454	0.024	12	454	0.025
08:00 - 09:00	12	454	0.000	12	454	0.021	12	454	0.021
09:00 - 10:00	12	454	0.001	12	454	0.006	12	454	0.007
10:00 - 11:00	12	454	0.002	12	454	0.004	12	454	0.006
11:00 - 12:00	12	454	0.003	12	454	0.005	12	454	0.008
12:00 - 13:00	12	454	0.003	12	454	0.004	12	454	0.007
13:00 - 14:00	12	454	0.002	12	454	0.004	12	454	0.006
14:00 - 15:00	12	454	0.005	12	454	0.004	12	454	0.009
15:00 - 16:00	12	454	0.015	12	454	0.003	12	454	0.018
16:00 - 17:00	12	454	0.015	12	454	0.001	12	454	0.016
17:00 - 18:00	12	454	0.014	12	454	0.002	12	454	0.016
18:00 - 19:00	12	454	0.015	12	454	0.003	12	454	0.018
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.076			0.081			0.157

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.62

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	12	454	0.116	12	454	0.474	12	454	0.590
08:00 - 09:00	12	454	0.221	12	454	0.770	12	454	0.991
09:00 - 10:00	12	454	0.191	12	454	0.234	12	454	0.425
10:00 - 11:00	12	454	0.168	12	454	0.199	12	454	0.367
11:00 - 12:00	12	454	0.186	12	454	0.209	12	454	0.395
12:00 - 13:00	12	454	0.212	12	454	0.203	12	454	0.415
13:00 - 14:00	12	454	0.220	12	454	0.196	12	454	0.416
14:00 - 15:00	12	454	0.231	12	454	0.242	12	454	0.473
15:00 - 16:00	12	454	0.519	12	454	0.254	12	454	0.773
16:00 - 17:00	12	454	0.471	12	454	0.247	12	454	0.718
17:00 - 18:00	12	454	0.568	12	454	0.256	12	454	0.824
18:00 - 19:00	12	454	0.453	12	454	0.275	12	454	0.728
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.556			3.559			7.115

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP \times FACT$. Trip rates are then rounded to 3 decimal places.

Calculation Reference: AUDIT-141301-230724-0722

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : A - PRIMARY
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

03	SOUTH WEST	
	SM SOMERSET	1 days
	WL WILTSHIRE	1 days
06	WEST MIDLANDS	
	WK WARWICKSHIRE	1 days
08	NORTH WEST	
	BP BLACKPOOL	1 days
09	NORTH	
	TV TEES VALLEY	3 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of pupils
Actual Range: 126 to 538 (units:)
Range Selected by User: 120 to 450 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/15 to 15/11/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	2 days
Wednesday	2 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	4
Village	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	6 days - Selected
Servicing vehicles Excluded	1 days - Selected

Secondary Filtering selection:

Use Class:

F1(a) 7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	1 days
50,001 to 100,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	BP-04-A-01	PRIMARY SCHOOL	BLACKPOOL
	SEVERN ROAD		
	BLACKPOOL		
	SOUTH SHORE		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total Number of pupils:	449	
	Survey date: TUESDAY	27/09/16	Survey Type: MANUAL
2	SM-04-A-01	PRIMARY SCHOOL	SOMERSET
	BRIDGWATER ROAD		
	NEAR TAUNTON		
	BATHPOOL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of pupils:	407	
	Survey date: THURSDAY	27/09/18	Survey Type: MANUAL
3	TV-04-A-01	PRIMARY SCHOOL	TEES VALLEY
	CLIFTON AVENUE		
	BILLINGHAM		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total Number of pupils:	538	
	Survey date: WEDNESDAY	25/05/22	Survey Type: MANUAL
4	TV-04-A-02	PRIMARY SCHOOL	TEES VALLEY
	WOLVISTON MILL LANE		
	BILLINGHAM		
	Edge of Town		
	Residential Zone		
	Total Number of pupils:	232	
	Survey date: MONDAY	23/05/22	Survey Type: MANUAL
5	TV-04-A-03	PRIMARY SCHOOL	TEES VALLEY
	THE GREEN		
	BILLINGHAM		
	WOLVISTON		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of pupils:	126	
	Survey date: THURSDAY	26/05/22	Survey Type: MANUAL
6	WK-04-A-01	C OF E JUNIOR SCHOOL	WARWICKSHIRE
	PLANTAGENET DRIVE		
	RUGBY		
	Edge of Town		
	Residential Zone		
	Total Number of pupils:	420	
	Survey date: TUESDAY	15/11/22	Survey Type: MANUAL
7	WL-04-A-02	C OF E PRIMARY ACADEMY	WILTSHIRE
	HIGH STREET		
	ROWDE		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of pupils:	199	
	Survey date: WEDNESDAY	03/04/19	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 1.89

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.071	7	339	0.032	7	339	0.103
08:00 - 09:00	7	339	0.383	7	339	0.334	7	339	0.717
09:00 - 10:00	7	339	0.026	7	339	0.023	7	339	0.049
10:00 - 11:00	7	339	0.015	7	339	0.011	7	339	0.026
11:00 - 12:00	7	339	0.024	7	339	0.021	7	339	0.045
12:00 - 13:00	7	339	0.022	7	339	0.019	7	339	0.041
13:00 - 14:00	7	339	0.015	7	339	0.029	7	339	0.044
14:00 - 15:00	7	339	0.056	7	339	0.049	7	339	0.105
15:00 - 16:00	7	339	0.240	7	339	0.283	7	339	0.523
16:00 - 17:00	7	339	0.073	7	339	0.111	7	339	0.184
17:00 - 18:00	6	362	0.012	6	362	0.026	6	362	0.038
18:00 - 19:00	6	362	0.009	6	362	0.006	6	362	0.015
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.946			0.944			1.890

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	126 - 538 (units:)
Survey date range:	01/01/15 - 15/11/22
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL CYCLISTS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.002	7	339	0.000	7	339	0.002
08:00 - 09:00	7	339	0.023	7	339	0.003	7	339	0.026
09:00 - 10:00	7	339	0.000	7	339	0.000	7	339	0.000
10:00 - 11:00	7	339	0.000	7	339	0.000	7	339	0.000
11:00 - 12:00	7	339	0.000	7	339	0.000	7	339	0.000
12:00 - 13:00	7	339	0.000	7	339	0.000	7	339	0.000
13:00 - 14:00	7	339	0.000	7	339	0.000	7	339	0.000
14:00 - 15:00	7	339	0.000	7	339	0.000	7	339	0.000
15:00 - 16:00	7	339	0.001	7	339	0.019	7	339	0.020
16:00 - 17:00	7	339	0.001	7	339	0.003	7	339	0.004
17:00 - 18:00	6	362	0.002	6	362	0.003	6	362	0.005
18:00 - 19:00	6	362	0.000	6	362	0.000	6	362	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.029			0.028			0.057

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.013	7	339	0.007	7	339	0.020
08:00 - 09:00	7	339	0.479	7	339	0.144	7	339	0.623
09:00 - 10:00	7	339	0.009	7	339	0.016	7	339	0.025
10:00 - 11:00	7	339	0.003	7	339	0.003	7	339	0.006
11:00 - 12:00	7	339	0.009	7	339	0.012	7	339	0.021
12:00 - 13:00	7	339	0.014	7	339	0.019	7	339	0.033
13:00 - 14:00	7	339	0.004	7	339	0.013	7	339	0.017
14:00 - 15:00	7	339	0.072	7	339	0.056	7	339	0.128
15:00 - 16:00	7	339	0.121	7	339	0.410	7	339	0.531
16:00 - 17:00	7	339	0.023	7	339	0.071	7	339	0.094
17:00 - 18:00	6	362	0.003	6	362	0.014	6	362	0.017
18:00 - 19:00	6	362	0.002	6	362	0.001	6	362	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.752			0.766			1.518

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL BUS/ TRAM PASSENGERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.001	7	339	0.000	7	339	0.001
08:00 - 09:00	7	339	0.069	7	339	0.030	7	339	0.099
09:00 - 10:00	7	339	0.002	7	339	0.002	7	339	0.004
10:00 - 11:00	7	339	0.001	7	339	0.000	7	339	0.001
11:00 - 12:00	7	339	0.001	7	339	0.000	7	339	0.001
12:00 - 13:00	7	339	0.000	7	339	0.000	7	339	0.000
13:00 - 14:00	7	339	0.000	7	339	0.002	7	339	0.002
14:00 - 15:00	7	339	0.005	7	339	0.002	7	339	0.007
15:00 - 16:00	7	339	0.025	7	339	0.051	7	339	0.076
16:00 - 17:00	7	339	0.005	7	339	0.023	7	339	0.028
17:00 - 18:00	6	362	0.000	6	362	0.000	6	362	0.000
18:00 - 19:00	6	362	0.000	6	362	0.000	6	362	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.109			0.110			0.219

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
 MULTI-MODAL TOTAL RAIL PASSENGERS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.000	7	339	0.000	7	339	0.000
08:00 - 09:00	7	339	0.005	7	339	0.003	7	339	0.008
09:00 - 10:00	7	339	0.001	7	339	0.000	7	339	0.001
10:00 - 11:00	7	339	0.000	7	339	0.000	7	339	0.000
11:00 - 12:00	7	339	0.000	7	339	0.000	7	339	0.000
12:00 - 13:00	7	339	0.000	7	339	0.000	7	339	0.000
13:00 - 14:00	7	339	0.000	7	339	0.000	7	339	0.000
14:00 - 15:00	7	339	0.000	7	339	0.000	7	339	0.000
15:00 - 16:00	7	339	0.002	7	339	0.009	7	339	0.011
16:00 - 17:00	7	339	0.003	7	339	0.001	7	339	0.004
17:00 - 18:00	6	362	0.000	6	362	0.000	6	362	0.000
18:00 - 19:00	6	362	0.000	6	362	0.000	6	362	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.011			0.013			0.024

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.003	7	339	0.000	7	339	0.003
08:00 - 09:00	7	339	0.079	7	339	0.045	7	339	0.124
09:00 - 10:00	7	339	0.003	7	339	0.035	7	339	0.038
10:00 - 11:00	7	339	0.013	7	339	0.000	7	339	0.013
11:00 - 12:00	7	339	0.006	7	339	0.000	7	339	0.006
12:00 - 13:00	7	339	0.000	7	339	0.000	7	339	0.000
13:00 - 14:00	7	339	0.000	7	339	0.002	7	339	0.002
14:00 - 15:00	7	339	0.005	7	339	0.002	7	339	0.007
15:00 - 16:00	7	339	0.055	7	339	0.065	7	339	0.120
16:00 - 17:00	7	339	0.008	7	339	0.027	7	339	0.035
17:00 - 18:00	6	362	0.000	6	362	0.000	6	362	0.000
18:00 - 19:00	6	362	0.000	6	362	0.000	6	362	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.172			0.176			0.348

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP* FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 1.89

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	339	0.112	7	339	0.029	7	339	0.141
08:00 - 09:00	7	339	1.116	7	339	0.244	7	339	1.360
09:00 - 10:00	7	339	0.041	7	339	0.064	7	339	0.105
10:00 - 11:00	7	339	0.033	7	339	0.014	7	339	0.047
11:00 - 12:00	7	339	0.034	7	339	0.033	7	339	0.067
12:00 - 13:00	7	339	0.035	7	339	0.035	7	339	0.070
13:00 - 14:00	7	339	0.019	7	339	0.049	7	339	0.068
14:00 - 15:00	7	339	0.096	7	339	0.119	7	339	0.215
15:00 - 16:00	7	339	0.216	7	339	0.878	7	339	1.094
16:00 - 17:00	7	339	0.065	7	339	0.256	7	339	0.321
17:00 - 18:00	6	362	0.014	6	362	0.048	6	362	0.062
18:00 - 19:00	6	362	0.012	6	362	0.008	6	362	0.020
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.793			1.777			3.570

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT / TRP * FACT$. Trip rates are then rounded to 3 decimal places.

Appendix D

Site Access ARCADY Results

Junctions 10	
ARCADY 10 - Roundabout Module	
Version: 10.0.1.1519	
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Filename: Jcn1 - Stoke Rd Site Access_TT v2.j10

Path: C:\Users\JamesCorbett\Hub Transport Planning Ltd\Hub Transport Planning - General\Projects\2019\T19595 North Hinckley\Junction Assessments\Arcady\Phase 1 PRTM Flows

Report generation date: 14/08/2023 13:02:56

- »2026 + Dev (Difference), AM
- »2026 + Dev (Difference), PM
- »2032 + Dev (Difference), AM
- »2032 + Dev (Difference), PM
- »2036 + Dev (Difference), AM
- »2036 + Dev (Difference), PM
- »2026 + Dev + Wykin Rd Sensitivity (Difference) [D7], AM
- »2032 + Dev + Wykin Rd Sensitivity (Difference) [D8], AM
- »2036 + Dev + Wykin Rd Sensitivity (Difference) [D9], AM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2026 + Dev (Difference)										
Arm 1	D1	0.4	5.13	0.27	A	D2	0.1	3.58	0.12	A
Arm 2		0.9	5.25	0.47	A		0.9	5.36	0.49	A
Arm 3		1.6	8.37	0.62	A		0.6	5.34	0.38	A
2032 + Dev (Difference)										
Arm 1	D3	0.4	5.43	0.28	A	D4	0.1	3.66	0.12	A
Arm 2		1.1	5.79	0.52	A		1.1	5.66	0.53	A
Arm 3		2.1	9.81	0.67	A		0.7	5.66	0.41	A
2036 + Dev (Difference)										
Arm 1	D5	2.0	11.56	0.67	B	D6	0.5	4.84	0.33	A
Arm 2		2.0	8.31	0.67	A		2.8	10.55	0.74	B
Arm 3		3.7	18.79	0.79	C		0.9	7.25	0.47	A
2026 + Dev + Wykin Rd Sensitivity (Difference) [D7]										
Arm 1	D7	0.4	5.40	0.28	A					
Arm 2		0.9	5.25	0.47	A					
Arm 3		2.0	9.68	0.67	A					
2032 + Dev + Wykin Rd Sensitivity (Difference) [D8]										
Arm 1	D8	0.4	5.73	0.29	A					
Arm 2		1.1	5.79	0.52	A					
Arm 3		2.6	11.60	0.72	B					
2036 + Dev + Wykin Rd Sensitivity (Difference) [D9]										
Arm 1	D9	2.2	12.91	0.70	B					
Arm 2		2.0	8.31	0.67	A					
Arm 3		5.4	26.04	0.85	D					

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Stoke Road Site Access (Base)
Location	North Hinckley
Site number	
Date	16/03/2023
Version	
Status	(new file)
Identifier	
Client	Richborough Estates
Jobnumber	T19595
Enumerator	Azure\MaxLaw
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2026 + Dev (Difference)	AM	ONE HOUR	07:45	09:15	15
D2	2026 + Dev (Difference)	PM	ONE HOUR	16:45	18:15	15
D3	2032 + Dev (Difference)	AM	ONE HOUR	07:45	09:15	15
D4	2032 + Dev (Difference)	PM	ONE HOUR	16:45	18:15	15
D5	2036 + Dev (Difference)	AM	ONE HOUR	07:45	09:15	15
D6	2036 + Dev (Difference)	PM	ONE HOUR	16:45	18:15	15
D7	2026 + Dev + Wykin Rd Sensitivity (Difference) [D7]	AM	ONE HOUR	07:45	09:15	15
D8	2032 + Dev + Wykin Rd Sensitivity (Difference) [D8]	AM	ONE HOUR	07:45	09:15	15
D9	2036 + Dev + Wykin Rd Sensitivity (Difference) [D9]	AM	ONE HOUR	07:45	09:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2026 + Dev (Difference), AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	6.63	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.63	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Site Access		
2	Stoke Road South		
3	Stoke Road North		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.38	4.50	21.0	40.0	40.0	28.0		
2	3.10	4.50	15.0	40.0	40.0	23.0		
3	3.00	4.50	7.0	40.0	40.0	33.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.588	1364
2	0.582	1328
3	0.545	1195

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2026 + Dev (Difference)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	236	100.000
2		✓	552	100.000
3		✓	639	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	200	36
	2	89	0	463
	3	16	623	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	0
	2	0	0	2
	3	0	2	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:45-08:00	1	178	178
	2	416	416
	3	481	481
08:00-08:15	1	212	212
	2	496	496
	3	574	574
08:15-08:30	1	260	260
	2	608	608
	3	704	704
08:30-08:45	1	260	260
	2	608	608
	3	704	704
08:45-09:00	1	212	212
	2	496	496
	3	574	574
09:00-09:15	1	178	178
	2	416	416
	3	481	481

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.27	5.13	0.4	A
2	0.47	5.25	0.9	A
3	0.82	8.37	1.6	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	178	488	1091	0.163	177	0.2	3.937	A
2	416	27	1312	0.317	414	0.5	4.067	A
3	481	67	1159	0.415	478	0.7	5.370	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	212	559	1036	0.205	212	0.3	4.366	A
2	496	32	1309	0.379	496	0.6	4.498	A
3	574	80	1152	0.499	573	1.0	6.333	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	260	684	963	0.270	259	0.4	5.112	A
2	608	40	1305	0.466	607	0.9	5.237	A
3	704	98	1142	0.616	701	1.6	8.262	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	260	686	962	0.270	260	0.4	5.128	A
2	608	40	1305	0.466	608	0.9	5.252	A
3	704	98	1142	0.616	703	1.6	8.370	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	212	562	1034	0.205	213	0.3	4.383	A
2	496	32	1309	0.379	497	0.6	4.517	A
3	574	80	1151	0.499	577	1.0	6.412	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	178	470	1088	0.163	178	0.2	3.957	A
2	416	27	1312	0.317	416	0.5	4.089	A
3	481	67	1159	0.415	482	0.7	5.435	A

2026 + Dev (Difference), PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	5.14	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.14	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2026 + Dev (Difference)	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	127	100.000
2		✓	579	100.000
3		✓	374	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1	2	3
	1	0	106	21
	2	172	0	407
	3	34	340	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1	2	3
	1	0	0	0
	2	0	0	1
	3	0	1	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	1	96	96
	2	436	436
	3	282	282
17:00-17:15	1	114	114
	2	521	521
	3	336	336
17:15-17:30	1	140	140
	2	637	637
	3	412	412
17:30-17:45	1	140	140
	2	637	637
	3	412	412
17:45-18:00	1	114	114
	2	521	521
	3	336	336
18:00-18:15	1	96	96
	2	436	436
	3	282	282

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.12	3.58	0.1	A
2	0.49	5.36	0.9	A
3	0.38	5.34	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	96	255	1215	0.079	95	0.1	3.216	A
2	436	16	1318	0.331	434	0.5	4.089	A
3	282	129	1125	0.250	280	0.3	4.293	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	114	305	1185	0.096	114	0.1	3.361	A
2	521	19	1317	0.395	520	0.7	4.545	A
3	336	154	1111	0.303	336	0.4	4.684	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	140	374	1145	0.122	140	0.1	3.581	A
2	637	23	1314	0.485	636	0.9	5.339	A
3	412	189	1092	0.377	411	0.6	5.328	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	140	374	1144	0.122	140	0.1	3.582	A
2	637	23	1314	0.485	637	0.9	5.356	A
3	412	189	1092	0.377	412	0.6	5.340	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	114	306	1184	0.096	114	0.1	3.366	A
2	521	19	1317	0.396	522	0.7	4.567	A
3	336	155	1111	0.303	337	0.4	4.700	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	96	256	1214	0.079	96	0.1	3.219	A
2	436	16	1318	0.331	437	0.5	4.113	A
3	282	130	1124	0.250	282	0.3	4.315	A

2032 + Dev (Difference), AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.55	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.55	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2032 + Dev (Difference)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	238	100.000
2		✓	610	100.000
3		✓	698	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		1	2	3
	1	0	201	37
	2	88	0	522
	3	17	681	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		1	2	3
	1	0	0	0
	2	0	0	2
	3	0	2	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:45-08:00	1	179	179
	2	459	459
	3	525	525
08:00-08:15	1	214	214
	2	548	548
	3	627	627
08:15-08:30	1	262	262
	2	672	672
	3	769	769
08:30-08:45	1	262	262
	2	672	672
	3	769	769
08:45-09:00	1	214	214
	2	548	548
	3	627	627
09:00-09:15	1	179	179
	2	459	459
	3	525	525

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.28	5.43	0.4	A
2	0.52	5.79	1.1	A
3	0.67	9.81	2.1	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	179	509	1065	0.168	178	0.2	4.058	A
2	459	28	1311	0.350	457	0.5	4.275	A
3	525	66	1159	0.453	522	0.8	5.732	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	214	611	1006	0.213	214	0.3	4.544	A
2	548	33	1308	0.419	548	0.7	4.808	A
3	627	79	1152	0.545	626	1.2	6.957	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	262	747	926	0.283	262	0.4	5.413	A
2	672	41	1304	0.515	670	1.1	5.764	A
3	769	97	1142	0.673	765	2.0	9.642	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	282	750	924	0.283	282	0.4	5.434	A
2	872	41	1304	0.515	872	1.1	5.790	A
3	789	97	1142	0.673	788	2.1	9.808	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	214	615	1003	0.213	214	0.3	4.569	A
2	548	33	1308	0.419	550	0.7	4.837	A
3	627	79	1152	0.545	631	1.2	7.085	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	179	514	1062	0.169	179	0.2	4.079	A
2	459	28	1311	0.350	460	0.6	4.305	A
3	525	68	1159	0.453	527	0.9	5.823	A

2032 + Dev (Difference), PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	5.55	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.55	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2032 + Dev (Difference)	PM	ONE HOUR	18:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	126	100.000
2		✓	632	100.000
3		✓	411	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1	2	3
From	1	0	106	20
	2	169	0	463
	3	37	374	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1	2	3
From	1	0	0	0
	2	0	0	1
	3	0	1	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	1	95	95
	2	476	476
	3	309	309
17:00-17:15	1	113	113
	2	568	568
	3	369	369
17:15-17:30	1	139	139
	2	696	696
	3	453	453
17:30-17:45	1	139	139
	2	696	696
	3	453	453
17:45-18:00	1	113	113
	2	568	568
	3	369	369
18:00-18:15	1	95	95
	2	476	476
	3	309	309

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.12	3.66	0.1	A
2	0.53	5.86	1.1	A
3	0.41	5.66	0.7	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	95	280	1200	0.079	95	0.1	3.257	A
2	476	15	1319	0.361	474	0.6	4.278	A
3	309	127	1126	0.275	308	0.4	4.432	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	113	336	1167	0.097	113	0.1	3.415	A
2	568	18	1317	0.431	567	0.8	4.831	A
3	369	152	1112	0.332	369	0.5	4.883	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	139	411	1123	0.124	139	0.1	3.666	A
2	696	22	1315	0.529	694	1.1	5.830	A
3	453	188	1094	0.414	452	0.7	5.650	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	139	412	1123	0.124	139	0.1	3.658	A
2	696	22	1315	0.529	696	1.1	5.857	A
3	453	188	1094	0.414	453	0.7	5.665	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	113	337	1186	0.097	113	0.1	3.418	A
2	568	18	1317	0.431	570	0.8	4.861	A
3	369	152	1112	0.332	370	0.5	4.903	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	95	282	1199	0.079	95	0.1	3.263	A
2	476	15	1319	0.361	477	0.6	4.309	A
3	309	127	1126	0.275	310	0.4	4.455	A

2036 + Dev (Difference), AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	12.67	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	12.67	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2036 + Dev (Difference)	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	578	100.000
2		✓	788	100.000
3		✓	667	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1	2	3
From	1	0	541	37
	2	446	0	342
	3	21	646	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1	2	3
From	1	0	0	0
	2	0	0	2
	3	0	2	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:45-08:00	1	435	435
	2	593	593
	3	502	502
08:00-08:15	1	520	520
	2	708	708
	3	600	600
08:15-08:30	1	636	636
	2	868	868
	3	734	734
08:30-08:45	1	636	636
	2	868	868
	3	734	734
08:45-09:00	1	520	520
	2	708	708
	3	600	600
09:00-09:15	1	435	435
	2	593	593
	3	502	502

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.67	11.56	2.0	B
2	0.67	8.31	2.0	A
3	0.79	18.79	3.7	C

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	483	1081	0.403	432	0.7	5.529	A
2	593	28	1312	0.452	590	0.8	5.009	A
3	502	334	1013	0.496	498	1.0	7.075	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	520	578	1025	0.507	518	1.0	7.086	A
2	708	33	1308	0.541	707	1.2	6.023	A
3	600	400	977	0.614	597	1.6	9.603	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	636	704	951	0.669	633	1.9	11.164	B
2	868	40	1304	0.665	864	2.0	8.201	A
3	734	489	926	0.791	727	3.5	17.531	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	636	711	947	0.672	636	2.0	11.555	B
2	868	41	1304	0.665	868	2.0	8.314	A
3	734	491	927	0.792	734	3.7	18.792	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	520	589	1019	0.510	523	1.1	7.319	A
2	708	34	1308	0.542	711	1.2	6.115	A
3	600	403	976	0.615	608	1.7	10.184	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	489	1077	0.404	437	0.7	5.633	A
2	593	28	1311	0.452	595	0.8	5.078	A
3	502	337	1012	0.496	505	1.0	7.278	A

2036 + Dev (Difference), PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	8.53	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	8.53	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2036 + Dev (Difference)	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	337	100.000
2		✓	878	100.000
3		✓	410	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1	2	3
	1	0	308	29
	2	404	0	474
	3	24	386	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1	2	3
	1	0	0	0
	2	0	0	1
	3	0	1	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:45-17:00	1	254	254
	2	661	661
	3	309	309
17:00-17:15	1	303	303
	2	789	789
	3	369	369
17:15-17:30	1	371	371
	2	967	967
	3	451	451
17:30-17:45	1	371	371
	2	967	967
	3	451	451
17:45-18:00	1	303	303
	2	789	789
	3	369	369
18:00-18:15	1	254	254
	2	661	661
	3	309	309

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.33	4.84	0.5	A
2	0.74	10.55	2.8	B
3	0.47	7.25	0.9	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	254	289	1195	0.212	253	0.3	3.819	A
2	661	22	1315	0.503	657	1.0	5.468	A
3	309	302	1030	0.300	307	0.4	5.008	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	303	346	1161	0.261	303	0.4	4.192	A
2	789	26	1312	0.601	787	1.5	6.865	A
3	369	362	998	0.369	368	0.6	5.765	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	371	424	1115	0.333	370	0.5	4.832	A
2	967	32	1309	0.738	962	2.7	10.273	B
3	451	443	954	0.473	450	0.9	7.198	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	371	425	1115	0.333	371	0.5	4.840	A
2	987	32	1309	0.738	988	2.8	10.546	B
3	451	445	953	0.474	451	0.9	7.249	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	303	348	1160	0.261	304	0.4	4.206	A
2	789	26	1312	0.601	794	1.5	7.051	A
3	369	365	996	0.370	370	0.6	5.817	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	254	291	1193	0.213	254	0.3	3.836	A
2	681	22	1315	0.503	683	1.0	5.571	A
3	309	305	1029	0.300	309	0.4	5.056	A

2026 + Dev + Wykin Rd Sensitivity (Difference) [D7], AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.35	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.35	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2026 + Dev + Wykin Rd Sensitivity (Difference) [D7]	AM	ONE HOUR	07:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	236	100.000
2		✓	552	100.000
3		✓	693	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	1	2	3
From	1	0	200
	2	89	0
	3	18	677
			0

Vehicle Mix

Heavy Vehicle Percentages

	To		
	1	2	3
From	1	0	0
	2	0	0
	3	0	2
			0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:45-08:00	1	178	178
	2	416	416
	3	522	522
08:00-08:15	1	212	212
	2	496	496
	3	623	623
08:15-08:30	1	260	260
	2	608	608
	3	763	763
08:30-08:45	1	260	260
	2	608	608
	3	763	763
08:45-09:00	1	212	212
	2	496	496
	3	623	623
09:00-09:15	1	178	178
	2	416	416
	3	522	522

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.28	5.40	0.4	A
2	0.47	5.25	0.9	A
3	0.67	9.68	2.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	178	506	1067	0.167	177	0.2	4.041	A
2	416	27	1312	0.317	414	0.5	4.067	A
3	522	67	1159	0.450	518	0.8	5.705	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	212	607	1008	0.211	212	0.3	4.521	A
2	496	32	1309	0.379	496	0.6	4.498	A
3	623	80	1152	0.541	622	1.2	6.904	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	280	742	929	0.280	259	0.4	5.375	A
2	608	40	1305	0.466	607	0.9	5.237	A
3	763	98	1142	0.668	760	2.0	9.523	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	280	745	927	0.280	280	0.4	5.396	A
2	608	40	1305	0.466	608	0.9	5.252	A
3	763	98	1142	0.668	763	2.0	9.679	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	212	612	1005	0.211	213	0.3	4.546	A
2	496	32	1309	0.379	497	0.6	4.515	A
3	623	80	1151	0.541	626	1.2	7.028	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	178	511	1064	0.167	178	0.2	4.064	A
2	416	27	1312	0.317	416	0.5	4.089	A
3	522	67	1159	0.450	523	0.8	5.792	A

2032 + Dev + Wykin Rd Sensitivity (Difference) [D8], AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	8.51	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	8.51	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2032 + Dev + Wykin Rd Sensitivity (Difference) [D8]	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	238	100.000
2		✓	810	100.000
3		✓	751	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	1	2	3
From	1	0	201
	2	88	0
	3	17	734

Vehicle Mix

Heavy Vehicle Percentages

	To		
	1	2	3
From	1	0	0
	2	0	0
	3	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:45-08:00	1	179	179
	2	459	459
	3	565	565
08:00-08:15	1	214	214
	2	548	548
	3	675	675
08:15-08:30	1	262	262
	2	672	672
	3	827	827
08:30-08:45	1	262	262
	2	672	672
	3	827	827
08:45-09:00	1	214	214
	2	548	548
	3	675	675
09:00-09:15	1	179	179
	2	459	459
	3	565	565

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.29	5.73	0.4	A
2	0.52	5.79	1.1	A
3	0.72	11.60	2.6	B

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	179	549	1042	0.172	178	0.2	4.164	A
2	459	28	1311	0.350	457	0.5	4.275	A
3	565	66	1159	0.488	562	1.0	6.102	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	214	658	978	0.219	214	0.3	4.709	A
2	548	33	1308	0.419	548	0.7	4.808	A
3	675	79	1152	0.586	673	1.4	7.636	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	262	804	893	0.294	262	0.4	5.698	A
2	672	41	1304	0.515	670	1.1	5.764	A
3	827	97	1142	0.724	822	2.6	11.300	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	262	808	890	0.294	262	0.4	5.730	A
2	672	41	1304	0.515	672	1.1	5.790	A
3	827	97	1142	0.724	827	2.6	11.604	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	214	664	974	0.220	214	0.3	4.740	A
2	548	33	1308	0.419	550	0.7	4.835	A
3	675	79	1152	0.586	680	1.5	7.845	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	179	555	1039	0.172	179	0.2	4.192	A
2	459	28	1311	0.350	460	0.6	4.305	A
3	565	66	1159	0.488	567	1.0	6.226	A

2036 + Dev + Wykin Rd Sensitivity (Difference) [D9], AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	15.70	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	15.70	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2036 + Dev + Wykin Rd Sensitivity (Difference) [D9]	AM	ONE HOUR	07:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	578	100.000
2		✓	788	100.000
3		✓	719	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	1	2	3
From	1	0	541
	2	446	0
	3	21	698

Vehicle Mix

Heavy Vehicle Percentages

	To		
	1	2	3
From	1	0	0
	2	0	0
	3	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
07:45-08:00	1	435	435
	2	593	593
	3	541	541
08:00-08:15	1	520	520
	2	708	708
	3	646	646
08:15-08:30	1	636	636
	2	868	868
	3	792	792
08:30-08:45	1	636	636
	2	868	868
	3	792	792
08:45-09:00	1	520	520
	2	708	708
	3	646	646
09:00-09:15	1	435	435
	2	593	593
	3	541	541

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.70	12.91	2.2	B
2	0.67	8.31	2.0	A
3	0.85	28.04	5.4	D

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	521	1058	0.411	432	0.7	5.725	A
2	593	28	1312	0.452	590	0.8	5.009	A
3	541	334	1013	0.534	537	1.1	7.632	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	520	624	998	0.521	518	1.1	7.480	A
2	708	33	1308	0.541	707	1.2	6.023	A
3	646	400	977	0.662	643	1.9	10.894	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	636	756	920	0.691	632	2.1	12.303	B
2	868	40	1304	0.665	864	2.0	8.201	A
3	792	489	928	0.853	779	5.0	22.887	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	636	767	914	0.696	636	2.2	12.910	B
2	868	41	1304	0.665	868	2.0	8.314	A
3	792	491	927	0.854	790	5.4	26.043	D

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	520	641	988	0.528	524	1.1	7.825	A
2	708	34	1308	0.542	711	1.2	6.118	A
3	646	403	976	0.663	660	2.1	12.079	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	435	529	1054	0.413	437	0.7	5.852	A
2	593	28	1311	0.452	595	0.8	5.078	A
3	541	337	1012	0.535	545	1.2	7.919	A

Appendix E

A47/Ashby Road Stage 1 Road Safety Audit

**LAND EAST OF STOKE ROAD,
HINCKLEY,
LEICESTERSHIRE**

**A47 NORMANDY WAY/
ASHBY ROAD JUNCTION
UPDATED SCHEME**

STAGE 1

ROAD SAFETY AUDIT REPORT

REQUESTED BY:

HUB TRANSPORT PLANNING

JUNE 2023



RKS
Associates

Project: Land East of Stoke Road, Hinckley, Leicestershire
A47 Normandy Way/Ashby Road junction Updated Scheme

Client: HUB Transport Planning

Document: Stage 1 Road Safety Audit

RKS Associates Ref: VRP1593- RSA 1

Issue date: 23rd June 2023

Status: Final

Authorised by: VP/WP

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3 Audit Team Statement 6

Appendices

Appendix A: Location of Problems Identified During Stage 1 Road Safety Audit

Appendix B: Designers Response

1 INTRODUCTION

1.1 This report results from a Stage 1 Road Safety Audit carried out on the updated highway works at the A47 Normandy Way/Ashby Road traffic signal-controlled junction. The proposed highway works are associated with a proposed development of up to 500 residential dwellings and a single form primary school accommodating up to 210 pupils on land to the east of Stoke Road directly north of the A47, Hinkley in Leicestershire.

1.2 The updated highway mitigation works at the A47 Normandy Way/Ashby Road traffic signal-controlled junction include the following:

- Widening Ashby Road southern arm to provide a short left turn lane on the approach to junction;
- Widening of the A47 Normandy Way western arm of the junction to allow a two-lane exit onto the A47 western arm; and
- Provision of staggered pedestrian crossing facilities across the A47 western arm and on Ashby Road (both arms).

1.3 The A47 Normandy Way/Ashby Road is a four-arm traffic signal-controlled junction where the A47 Normandy Way forms the eastern and western arms and Ashby Road forms the northern and southern arms. The four-arm traffic signal-controlled junction is lit and subject to a 40mph speed limit. All approaches to the traffic signal controlled junction comprise of two lanes with a central refuge islands that incorporate pedestrian crossing facilities.

1.4 Hub Transport Planning has supplied the following information upon which this Stage 1 RSA is based:

- Hub Drawing Number: T19595-007 Revision A – Ashby Road/A47 Proposed Junction Improvements;
- Hub Drawing Number: T19595-008 Revision A – Ashby Road/A47 Improvements Swept Path Analysis 01;
- Hub Drawing Number: T19595-009 – Ashby Road/A47 Improvements Swept Path Analysis 02; and
- LINSIG Traffic Signal Analysis undertaken by Hub Transport Planning.

1.5 The main parties to the Audit of this Road Safety Audit include the following:

Road Safety Audit Team Leader	Vimal Patel BEng (Hons), GMICE, FIHE, HE Cert Comp, Reg RSA (IHE)
Road Safety Audit Team Member	Wendy Palmer MCIHT, MSoRSA, FIHE, HE Cert Comp
Overseeing Organisation	Leicestershire County Council
Design Organisation	Hub Transport Planning

- 1.6 The Safety Audit Team consisted of Vimal Patel and Wendy Palmer. The Audit was undertaken following examination of the submitted documents and a site visit undertaken on Monday 19th June 2023 between the hours of 11am and midday. The weather at the time of the site inspection was sunny, and the road surface was dry. Observations during the site inspection noted moderate traffic flows and a low number of pedestrians and cyclists. Traffic queues that readily dissipated were observed on all approaches to the junction.

Terms of Reference

- 1.7 The Audit Team is independent of the project design team and has no other involvement with the project apart from undertaking a Stage 1 RSA for the original improvement scheme in March 2022. This updated Stage 1 RSA has been undertaken in accordance with the relevant sections of GG-119, part of the Design Manual for Roads and Bridges (DMRB). The Audit Team have been informed that there are no departures from standards.
- 1.8 The Safety Audit Team has examined only matters relating to road safety implications of the scheme and has not verified compliance of the design to any other criteria. All of the problems identified in this report are considered by the Audit Team to require action in order to improve the safety of the scheme and to minimise accident occurrence for all users.
- 1.9 The locations of the problems identified are shown on the respective plans included in **Appendix A** where the reference numbers relate to the problems identified in this report.
- 1.10 The recommendations in this report are aimed at addressing the identified road safety problems; however, there may be other alternative acceptable ways to overcome a specific problem, when other practical issues are considered. The recommendations contained herein do not absolve the Designer of his/her responsibilities. The Auditors would be pleased to discuss the acceptability of alternative solutions to problems identified during the Audit and would encourage the Designer to consult them on this matter.
- 1.11 The LHA response to the RSA should be formally recorded and reported to the Designer and the RSA Team so that a record of the Audit process is contained in the 'As Built' design pack to be provided and retained by the Local Highway Authority on final completion.

Personal Injury Collision Data

- 1.12 Publicly available Personal Injury Collision (PIC) information has been obtained from the Crashmap UK website (www.crashmap.co.uk) for the 5-year period up to December 2021. The data indicates that 5 slight severity collisions occurred, all involving vehicles and resulting in 11 slight severity injuries, occurred at the A47 Normandy Way/Ashby Road four arm traffic signal-controlled junction:



Traffic Generation

- 1.13** The Design Engineers have provided details of the likely traffic generation associated with the development proposals. It is anticipated that the proposed residential element of the development is forecast to generate 278 two-way vehicle movements in the morning peak and 265 two-way vehicle movements in the evening peak. The proposed single form entry school is likely to generate 32 two-way trips during the AM peak hour and negligible trips during the PM peak hour period.



2 ITEMS RAISED AT STAGE 1 ROAD SAFETY AUDIT

2.1 Problem:

Summary: Potential collisions due to standing water or service covers

Location: *Throughout*

No details have been provided in respect of surface water drainage or other services and it is therefore not possible to ascertain whether or not there will be any safety implications. Observations during the site inspection noted surface water drainage gullies may need to be relocated as a result of the carriageway widening. The absence of appropriate surface water drainage may lead collisions associated with localised ponding.

Recommendation:

When preparing the detailed design, ensure adequate surface water drainage is provided, proposed drainage gullies should be relocated away from pedestrian crossing desire lines.

2.2 Problem:

Summary: Potential risk of collisions associated with poor lane

Location: *A47 Normandy Way/Ashby Road junction*

There is concern that the internal carriageway markings at the A47 Normandy Way/Ashby Road junction depicting the right turn storage areas within the junction are poorly aligned. Consequently, there is a risk that vehicles waiting to turn right within the junction particularly from Ashby Road southern arm may encroach into the path of vehicles travelling straight ahead. This may potentially increase the risk of side-swipe collisions between vehicles traveling ahead and vehicles waiting to turn right onto the A47 Normandy Way eastern arm.

Recommendation:

Review and amend the internal layout of the junction to ensure that the right turn storage area within the junction does not impede the path of vehicles travelling ahead through the junction.

2.3 Problem:

Summary: Potential risk of collisions associated with poor alignment

Location: *Proposed central refuge island on Ashby Road northern arm*

The alignment of the proposed central refuge island on Ashby Road northern arm directs traffic towards the kerb/verge along the western side of Ashby Road (northern arm). Consequently, there is a risk of loss of control collisions associated with vehicles striking the island, kerbs or overrunning the verge.

Recommendation:

Review and amend the layout, if possible the central refuge island on Ashby Road northern arm should be moved closer to the junction and realigned to mitigate the risk of vehicles striking the island, kerb or overrunning the verge.



2.4

Problem:

Summary: Potential risk of cycle collisions

Location: A47 Normandy Way/Ashby Road junction

Observations during the site inspection noted that a continuous shared use pedestrian/cycle facility is located along the southern side of the A47 Normandy Way. The shared use facility crosses Ashby Road (southern arm) via the proposed staggered pedestrian crossing facility. There is concern that the absence of corduroy paving informing non-motorised users of the changes from footway to a shared use facility may increase the risk of collisions between non-motorised users.

Recommendation:

Corduroy paving and signs should be provided to inform non-motorised users of the changes from footway to a shared use facility.



3 AUDIT TEAM STATEMENT

- 3.1** We certify that this Road Safety Audit has been carried out in accordance with document GG-119. Its sole purpose being to identify features of the scheme that could be removed or modified to improve safety. No member of the Audit Team has been involved in the scheme design.

Audit Team Leader

Vimal Patel
BEng (Hons), FIHE, RegRSA, HE Cert Comp

Signed:

Date: 23rd June 2023

Audit Team Member

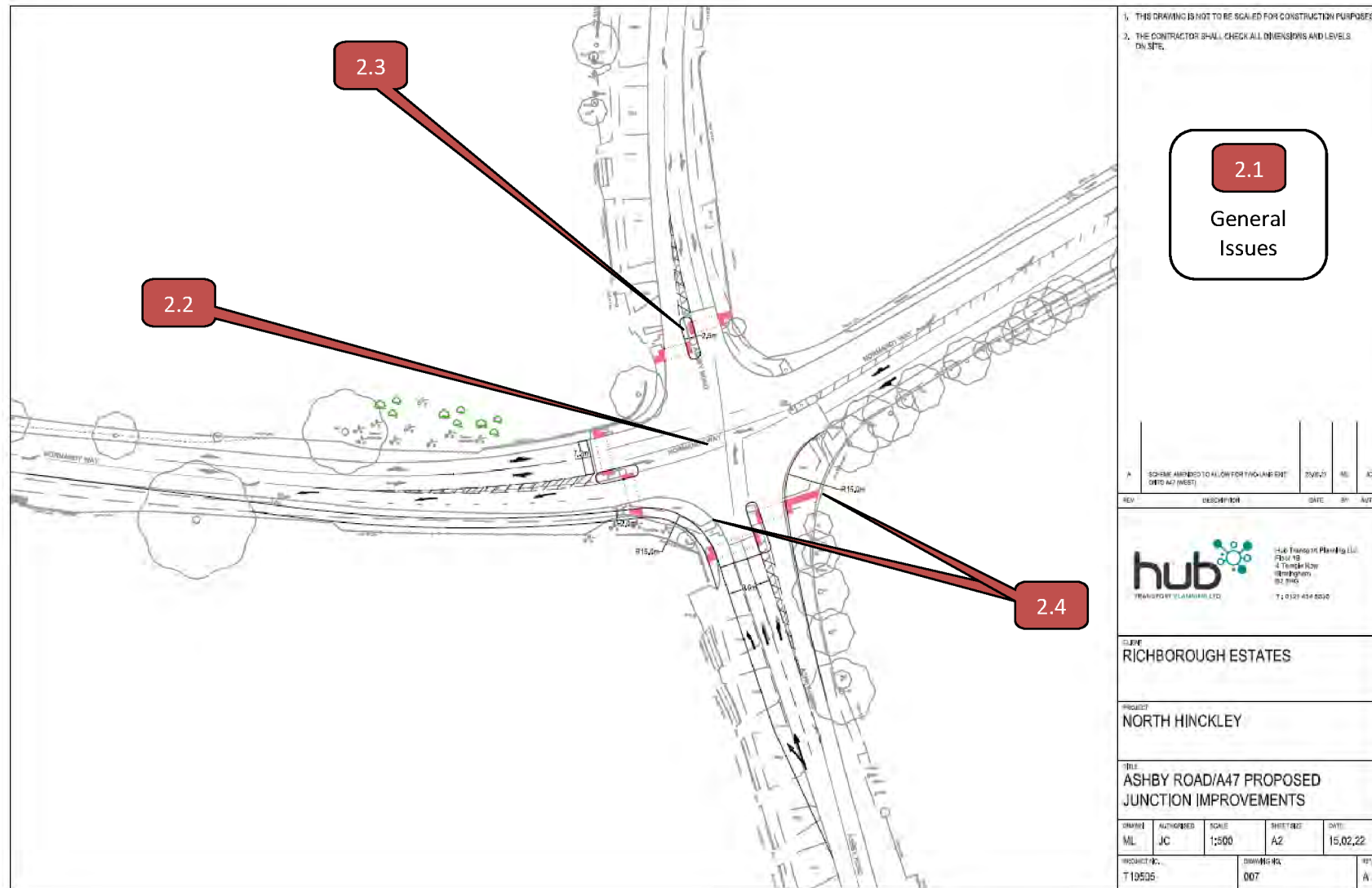
Wendy Palmer
MCIHT, MSoRSA, FIHE, HE Cert Comp

Signed:

Date: 23rd June 2023



Appendix A





Appendix B



Item No.	Audit Team Recommendation(s)	Designer's Response
2.1	When preparing the detailed design, ensure adequate surface water drainage is provided, proposed drainage gullies should be relocated away from pedestrian crossing desire lines.	Recommendation accepted. The drainage requirements will be considered at the detailed design stage.
2.2	Review and amend the internal layout of the junction to ensure that the right turn storage area within the junction does not impede the path of vehicles travelling ahead through the junction.	Recommendation accepted. The proposed layout drawing has been revised to amend the white lining within the junction to ensure right turning traffic from Ashby Road south does not impede straight ahead traffic, see Drawing T19595.007 rev B
2.3	Review and amend the layout, if possible the central refuge island on Ashby Road northern arm should be moved closer to the junction and realigned to mitigate the risk of vehicles striking the kerb or overrunning the verge.	Recommendation accepted. The alignment of the splitter island on the Ashby Road north arm has been amended, see Drawing T19595.007 rev B
2.4	Corduroy paving and signs should be provided to inform non-motorised users of the changes from footway to a shared use facility.	Recommendation accepted. Details of appropriate corduroy paving and signage to be provided at detailed design stage.

Designer's Statement:

I certify that I have considered the items that have arisen in the Stage 1 Road Safety Audit Report and my response to its recommendations are set out above.

.....
Designer

Date:

Project Sponsor/ Client Organisation Statement:

I accept/do not accept the Designer's Response (please delete as appropriate)

.....

Date:



RKS
Associates

RKS Associates Limited
11 Falconer Road
Bushey Village
Bushey
Herts
WD23 3AQ

Our Ref: VRP1593-01-L1

E-mail: [REDACTED]

27th June 2023

James Corbett

Hub Transport Planning Ltd
Floor 1B
4 Temple Row
Birmingham
B2 5HG

Dear James,

Stage 1 RSA Land North of A47 & East of Stoke Road Hinckley - Updated Scheme Designer's Response

Thank you for sending us a copy of your Designer's Response to our recent Stage 1 Road Safety Audit for the updated highway scheme for the A47 Normandy Way/Ashby Road traffic signal-controlled junction. The proposed highway works are associated with a proposed residential and primary school on land to the east of Stoke Road directly north of the A47, Hinkley in Leicestershire.

The Audit Team can confirm the acceptance of the Designers Response to the Stage 1 Road Safety Audit.

In any event we recommend that the Designers Response together with the respective drawings are forwarded to the Local Highway Authority for their approval and sign off in accordance with highway standards.

Please contact me if you require any further assistance.

Yours sincerely

[REDACTED]

Vimal Patel,
BEng (Hons), GMICE, FIHE, HE Cert Comp, Reg RSA (IHE)

Enc.

Designers Response to Stage 1 RSA - A47 Normandy Way/Ashby Road Junction Updated Scheme;
Hub Drawing Number: T19595-007 Revision B – Ashby Road/A47 Proposed Junction Improvements;
Hub Drawing Number: T19595-008 Revision B – Ashby Road/A47 Improvements Swept Path Analysis 01; and
Hub Drawing Number: T19595-009 Revision B – Ashby Road/A47 Improvements Swept Path Analysis 02.



RKS
Associates