DAVID WILSON HOMES

PROPOSED RESIDENTIAL DEVELOPMENT
LAND WEST OF BARKBY ROAD, QUENIBOROUGH

TRANSPORT ASSESSMENT

ADC Infrastructure Limited
Suite 3a, King Edward Court
King Edward Street
Nottingham
NG1 1EW
Tel: 0115 941 4817

www.ADCinfrastructure.com

project number: ADC1659			report reference: ADC1659-B
version	date	author\reviewer	comments
5	18/06/2021	Keith Gamblen\David Cummins	updated following LCC comments

EXECUTIVE SUMMARY

David Wilson Homes commissioned ADC Infrastructure to advise on transport matters in support of an outline planning application for residential development of up to 160 houses on land to the west of Barkby Road in Queniborough.

ADC Infrastructure produced a Transport Assessment (ADC1659-RP-v4) and Travel Plan (ADC1659-C-v3) in support of the planning application (reference: P/20/2380/2) that was submitted to Charnwood Borough Council in February 2021. Leicestershire County Council provided highway comments on both reports in April 2021 and, therefore, this updated Transport Assessment and an accompanying Travel Plan have been prepared to address the comments raised.

The proposed development will be accessed via a new priority-controlled T-junction on Barkby Road, designed to standard and with appropriate visibility. The design of the junction has been amended following an independent Stage One Road Safety Audit.

The development site is accessible by sustainable travel modes. As part of the development proposals, the internal layout will include a footway that will connect to the existing footway network on Barkby Road. The local pedestrian infrastructure is good and all the amenities within Queniborough and Syston would be within walking distance. There are opportunities for cycle travel between the site and local attractions, and there are good opportunities for bus travel due to the number 5 bus route that runs along Syston Road every twenty minutes between East Goscote and Leicester.

The proposed dwellings would generate 9 pedestrian journeys, 4 cycle journeys, and 6 bus journeys in a peak hour. This additional demand can be accommodated by the existing infrastructure and the proposed measures. Those measures include the provisions of a Travel Plan, which is a separate report. The Travel Plan includes the appointment of a Travel Plan Co-ordinator, travel packs for residents, and free bus passes.

The proposed dwellings would generate up to 116 two-way traffic movements in a peak hour. Most journeys from the development will route to and from the north, via Barkby Road and Rearsby Road to the Queniborough Roundabout. The Queniborough Roundabout would operate with spare capacity with the development in place.

Only three vehicles would route through the Melton Road/Syston Road priority controlled T-junction in a worst case peak hour. Hence there would not be a material change to the operation of that junction.

The Syston Road/Rearsby Road/Queniborough Road/Barkby Road crossroads (Queniborough crossroads) is already over capacity. As a result of the development, the worst delays that occur on Rearsby Road would increase by 43 seconds per vehicle, and the longest queue would extend by 10 vehicles. That is not a severe impact. Nevertheless, a mitigation scheme is proposed that involves widening the Rearsby Road approach to the crossroads, and providing a traffic island to prevent conflict with other movements. The scheme achieves better than nil-detriment mitigation to the traffic increases. The scheme can be conditioned to be implemented prior to the 100th occupation.

Overall, the proposed development would accord with the aims of the NPPF. The opportunities for sustainable travel would be taken up, safe and suitable access can be provided, and the proposed mitigation scheme to the crossroads would improve the performance of the junction compared to the existing layout. The development should not be prevented on highways grounds.

CONTENTS

DRAWINGS

APPENDICES

1.0 INTRODUCTION

1.1 David Wilson Homes commissioned ADC Infrastructure to provide transport and highways advice in support of their outline planning application (reference: P/20/2380/2) for a development of up to 160 dwellings on land to the west of Barkby Road in Queniborough (**Figure 1**). The vehicular access would be on Barkby Road. An illustrative masterplan is in **Appendix A**.

1.2 ADC Infrastructure produced a Transport Assessment (ADC15659-RP-v4) and Travel Plan (ADC1659-C-v3) in support of the planning application that was submitted to Charnwood Borough Council in February 2021. Leicestershire County Council provided highway comments on the reports in April 2021, which are in **Appendix B**. This updated Transport Assessment and an accompanying Travel Plan have been prepared to address the comments raised.

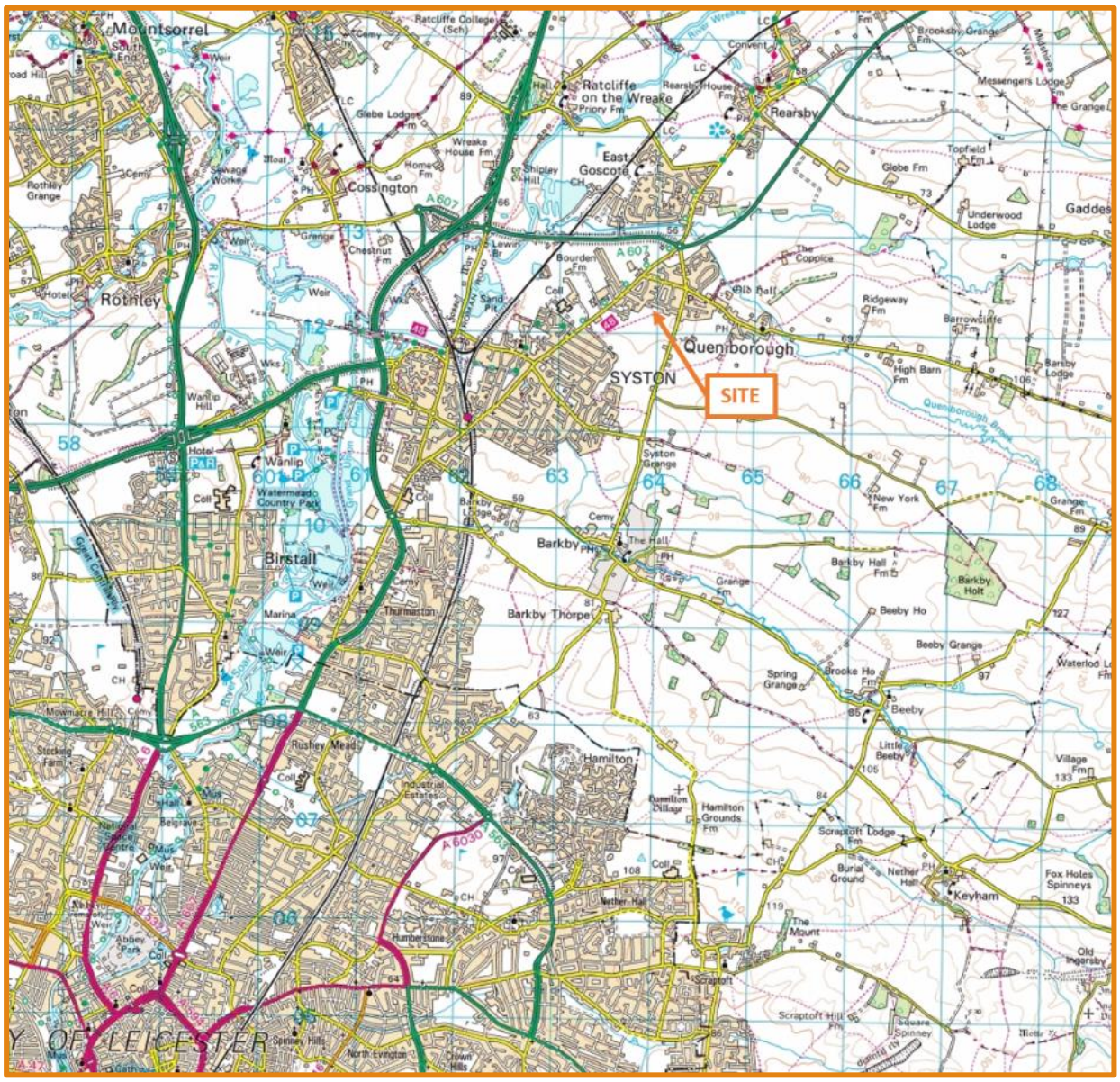


Figure 1: general site location

1.3 The development site is approximately 9 miles northeast of Leicester. It is bound by Queniborough Industrial Estate to the west, residential properties to the north, and open land to the south (**Figure 2**). Opposite the development site, on the eastern side of Barkby Road, construction is nearly complete on a residential development that gained outline consent for 165

dwellings (P/14/0708/2), and was purchased by Davidsons who gained reserved matters consent for 101 dwellings in February 2017 (P/16/2090/2).

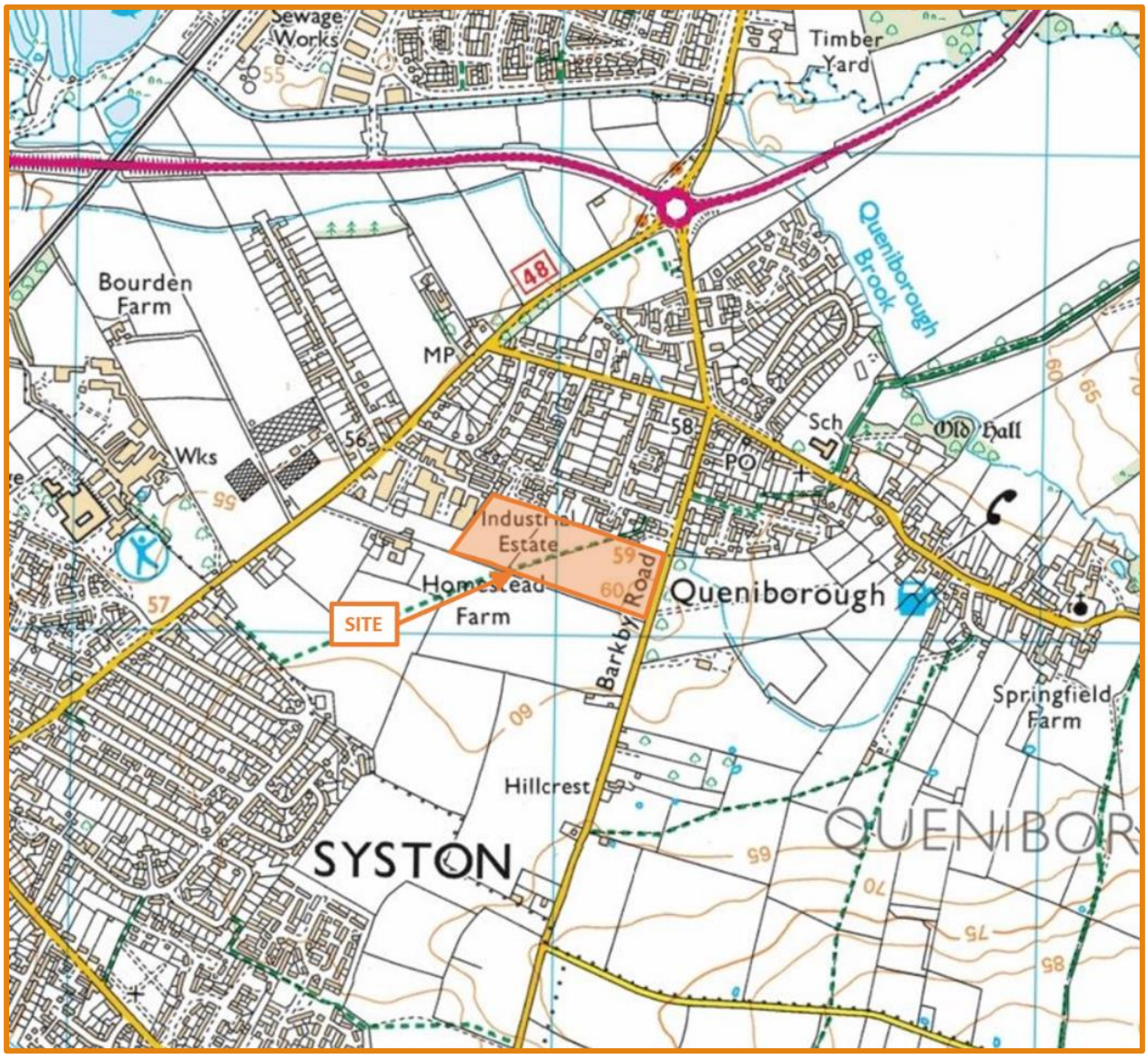


Figure 2: detailed site location

1.4 This report has been produced with reference to *Guidance on Transport Assessment*[1], and in accordance with *Travel plans, transport assessments and statements in decision-taking*[2]. It examines the transport implications of the proposed development taking into account the following objectives from paragraph 32 of the National Planning Policy Framework (NPPF):

- *"the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure*
- *safe and suitable access to the site can be achieved for all people, and*
- *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*

[1] Guidance on Transport Assessment, Department for Transport, March 2007
[2] Travel plans, transport assessments and statements in decision-taking, National Planning Practice Guidance, March 2014

2.0 EXISTING CONDITIONS

Highway network

2.1 To the immediate northwest of the site, Chestnut Close is a residential road that provides access to 15 residential properties including two bungalows. It has a 5.5m wide carriageway with 2m wide footways on both sides (**Figure 3**). At its northern end, Chestnut Close meets with Beechwood Avenue at a priority controlled T-junction. Beechwood Avenue adjoins with Avenue Road at a priority controlled T-junction and runs parallel to the northern boundary of the site. Avenue Road has a 5.5m wide carriageway with a 2m wide footway along its northern side and 2.2m footway along its southern side. Avenue Road meets with Barkby Road at a priority controlled T-junction.

Figure 3: aerial photograph of site and local highway network

2.2 Barkby Road runs along the eastern boundary of the site. It is subject to a 30mph speed limit on the approach to Queniborough, which changes to 40mph once out of the built-up area. Barkby Road provides access to the northeast of Leicester via Thorpe Lane and Barkbythorpe Road.

2.3 At its northern end, Barkby Road connects with Syston Road, Queniborough Road, and Rearsby Road at a priority controlled crossroads. Queniborough Road, which becomes Main Street, forms the principal route through Queniborough in a west to east direction and is subject to a 7.5t

weight restriction (except for loading) and a 30mph speed limit. Syston Road and Queniborough Road are traffic calmed with speed humps for 700 metres.

2.4 North of the crossroads, Rearsby Road links with Queniborough roundabout, providing access to the A607. The A607 provides connections to the A46 and beyond.

2.5 The site is therefore well located for access to the local roads within Queniborough, and the wider network via the A607.

Accident record

2.6 The previous version of the Transport Assessment examined the accident record using the Crashmap database. LCC requested that Personal Injury Accident (PIA) data be obtained and analysed for the last five year period for the study area assessed in the Transport Assessment. Therefore, accident data was purchased from LCC for the period between 1 January 2016 and 28 February 2021, and the reports of the accidents are in **Appendix C.** The locations of the accidents are shown in **Figure 4** below.

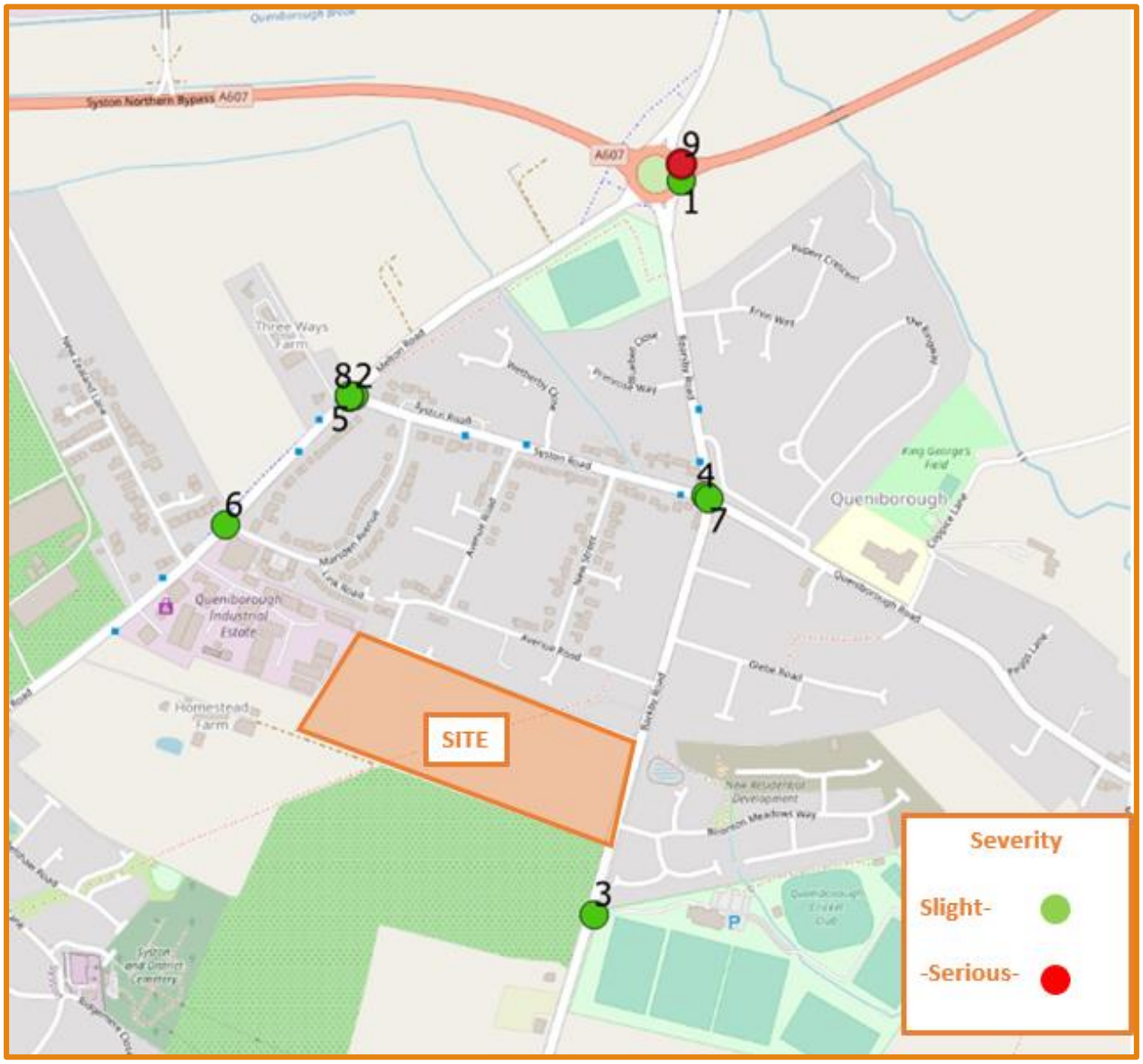


Figure 4: accident record

2.7 Nine accidents were recorded during the study period, eight of which were slight in nature and the remaining accident was of serious severity.

- 0 accidents were recorded along the site frontage on Barkby Road.
- 2 accidents were recorded at the Barkby Road/Queniborough Road/Rearsby Road/Syston Road crossroads.
- 2 accidents were recorded at the Queniborough roundabout.
- 3 accidents were recorded at the Melton Road/ Syston Road T-junction.

2.8 In addition, one accident was recorded outside the study area, as detailed below.

Site access

2.9 As shown in **Figure 4**, no recorded accidents occurred along the site frontage on Barkby Road. A recorded PIA did occur approximately 200m south of the proposed site access. This accident was slight in nature and involved a car that was turning right into the Syston Rugby Club entrance, and collided with a car travelling south on Barkby Road.

Barkby Road/Queniborough Road/ Rearsby Road/ Syston Road crossroads

2.10 There have been two recorded accidents (4 and 7) at the crossroads, both of which were slight in nature. One of the PIAs (4) occurred when a car that was travelling straight ahead from Rearsby Road to Barkby Road collided into a car that was travelling straight ahead in the opposite direction. The remaining PIA (7) involved a car travelling south along Rearsby Road turning right at the junction onto Syston Road colliding with a car that was travelling east on Syston Road.

Queniborough roundabout

2.11 There were two recorded accidents (1 and 9) at the Queniborough roundabout, one of which was slight in nature (1) and the other serious (9). The accident of serious severity involved a car travelling north along Rearsby Road and entering the roundabout. There was wet/damp road conditions at the time of the accident and it was dark (street lights present and lit). The PIA that was slight in nature (1) involved a car turning left from the A607 E towards Rearsby Road into the path of a cyclist who was on the circulatory carriageway of the roundabout.

Melton Road/ Syston Road T-junction

2.12 There were three recorded accidents (2, 5, and 8) at the Melton Road/Syston Road T-junction, all of which were slight in nature. One of the PIAs (2) occurred as a car was turning right from Syston Road onto Melton Road and collided with a car that was travelling south on Melton Road. Another accident (5) involved a car which was turning left from Syston Road onto Melton Road and a collision occurred with a car that was travelling south on Melton Road and a car that was travelling north on Melton Road but was in the process of stopping. The remaining PIA (8) involved a car shunting into the rear of a vehicle waiting to turn right from Melton Road onto Syston Road.

Remaining accident

2.13 The remaining PIA (6), which was slight in nature, occurred at the Melton Road/Marsden Avenue T-junction as a car turned right into the path of a coming vehicle.

Opportunities for pedestrian travel

2.14 For commuters and school pupils, up to 500 metres is the desirable walking distance, up to 1,000 metres is an acceptable walking distance, and up to 2,000 metres is the preferred maximum walking distance[3]. A 2km pedestrian catchment covers Queniborough, East Goscote and most of Syston (**Figure 5**).

2.15 **Figure 5** also shows the Public Rights of Way (PRoW) network. Footpath I84/1 runs through the heart of the site in a southwest to northeast direction, connecting Melton Road with Barkby Road via Millstone Lane and Avenue Road.

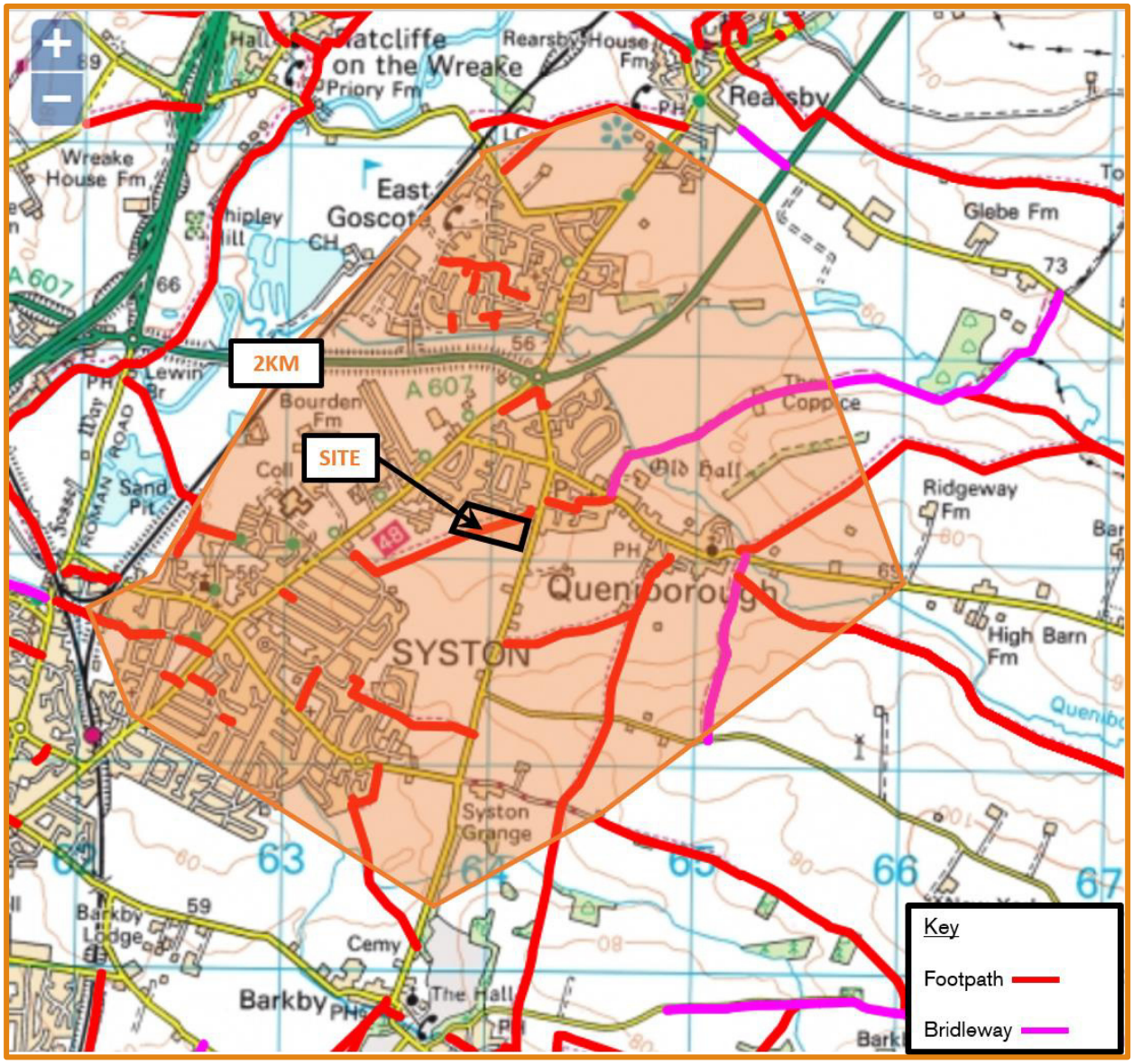


Figure 5: 2km pedestrian catchment and local PRoW network

2.16 **Figure 6** shows the key local facilities that are within the preferred maximum walking distance from the site. To the northeast, there is a cluster of local facilities along Queniborough Road and the adjoining Main Street, which includes Queniborough Methodist Church, Queniborough CofE Primary School, St Mary's Church and the local post office and convenience store. In addition, there is also a cluster of local amenities to the southwest of the site notably Wreake Valley

[3] Guidelines for Providing for Journeys on Foot, Institution of Highways and Transportation, 2000

Academy, St. Peter and St. Paul Primary School, Jubilee Medical Practice plus Aldi and Tesco supermarkets along Melton Road.

Figure 6: local facilities in vicinity of site

2.17 With regards to pedestrian infrastructure, there are street-lit footways on both sides of Beechwood Avenue and the adjoining Avenue Road, running parallel to the northern boundary of the site. There are also street-lit footways along both sides of Barkby Road to the northeast of the site as well as pedestrian crossing opportunities in the form of tactile paving at Queniborough crossroads.

Opportunities for cycle travel

2.18 Cyclists are typically prepared to cycle up to 5km for non-leisure journeys, such as those to school or work. As **Figure 7** shows, the 5km cycle catchment from the centre of the site includes Sileby, Thrussington, Birstall and the northern part of Thurmaston.

2.19 As shown in LCC's cycle map (**Figure 8**), Barkby Road is a recommended on-road cycle route and adjoins with Queniborough Road, Thorpe Lane and Barkbythorpe Road to provide cycle access to northeast Leicester. In addition, Syston Road is an on-road cycle route that provides cycle access through the heart of Queniborough.

2.20 Melton Road, to the west of the site, provides a shared footway/cycleway which is also utilised as National Cycle Network (NCN) route 48. NCN48 provides cyclists with good connectivity to Syston and Birstall both of which are within the 5km cycle catchment, whilst adjoining with NCN route 6, providing direct access to the centre of Leicester.

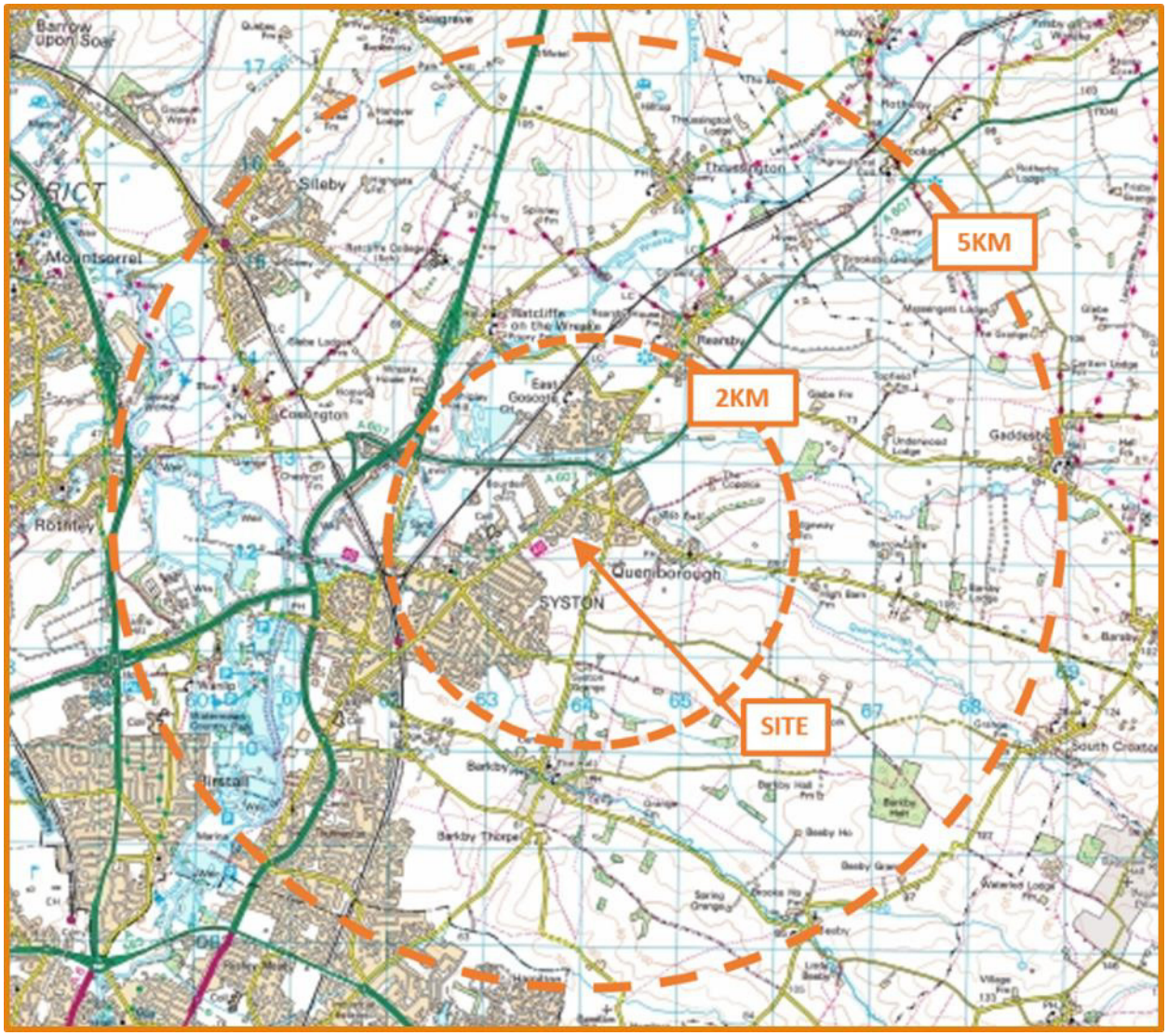


Figure 7: 2km and 5km cycle catchments

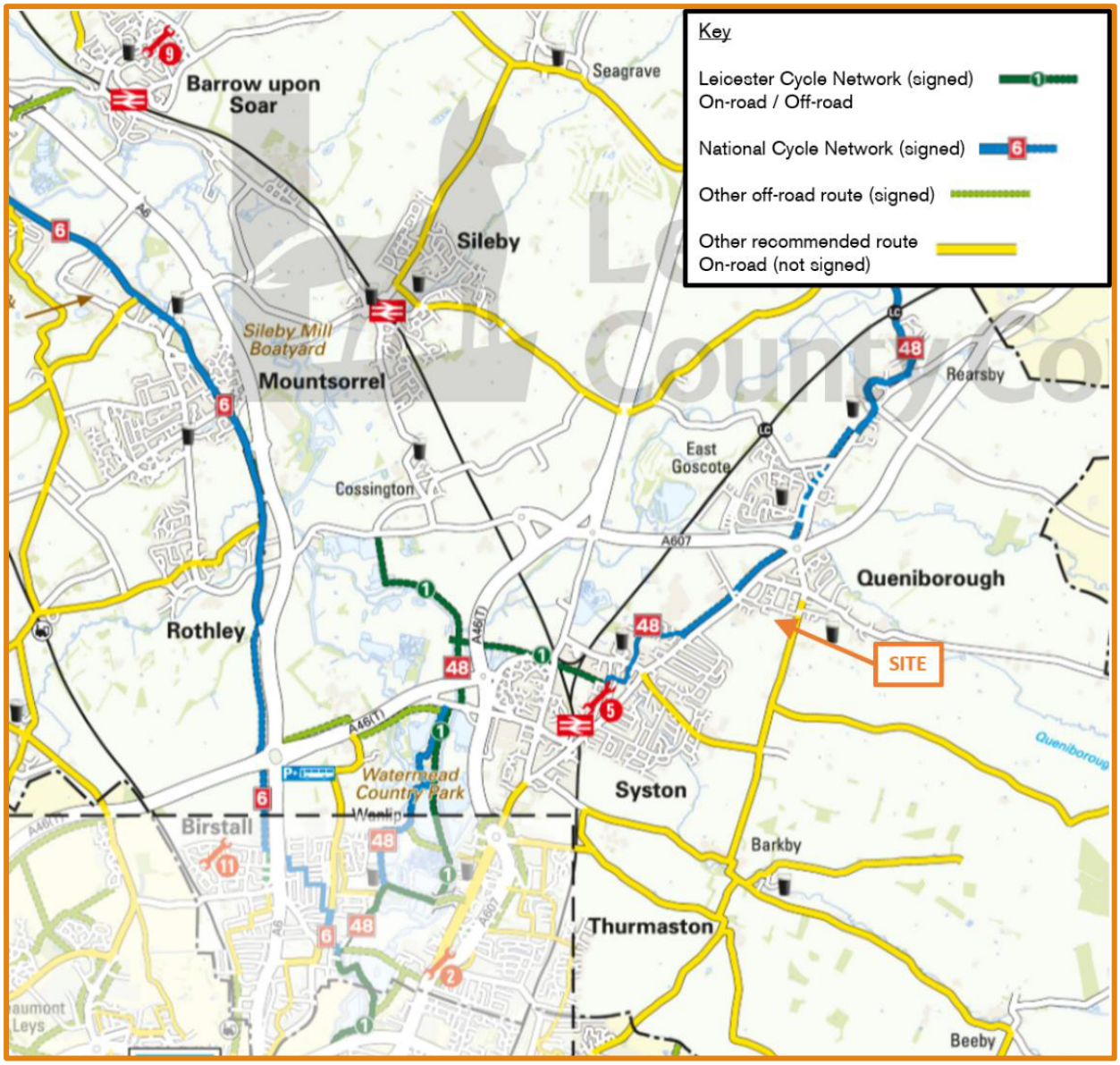


Figure 8: local cycle facilities (extract from LCC cycle map)

Opportunities for bus travel

2.21 As shown in LCC's bus map **(Figure 9)**, the nearest bus stops (illustrated by orange dots) to the site are on Melton Road and Syston Road, the latter being within 400 metres walking distance of the site.

2.22 The bus stop on Syston Road (adjacent to Barkby Road) is approximately 320 metres from the centre of the site and consists of a flag and pole arrangement and timetabled information. The stop provides access to the number 5 service which runs from East Goscote to the centre of Leicester via Syston. The number 5 service runs every 30 minutes from Monday to Friday between 0603 and 1843, every 30 minutes on Saturdays between 0616 and 2351 and every Sunday between 0916 and 2250.

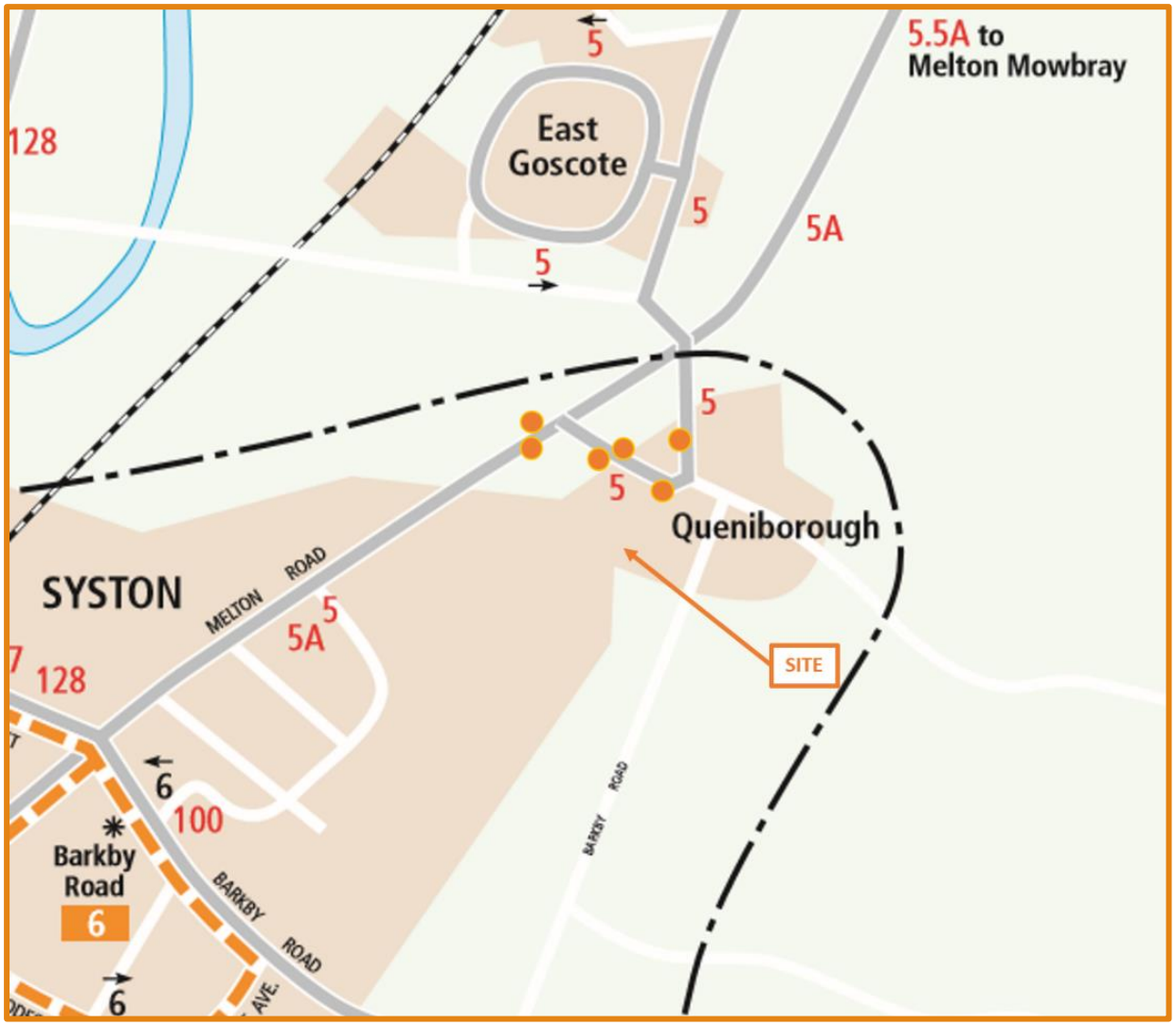


Figure 9: local bus services and closest bus stops to site (extract from LCC bus map)

Opportunities for rail travel

2.23 With regards to rail accessibility, the nearest train station to the site is Syston Railway Station, approximately 2.4 km from the site and therefore well within the acceptable cycling distance.

2.24 Notably, Syston Railway Station provides 24 trains per day on a typical weekday to Leicester with an average journey time of seven minutes.

2.25 Rail journeys from Syston Railway Station can form part of a multi-modal journey from the site as the station provides six cycle spaces. Additionally, the number 5 bus route provides regular access to the train station from the site, stopping 160m from the station.

3.0 PROPOSED DEVELOPMENT

Development proposals

3.1 The development proposals comprise up to 160 residential dwellings with associated parking. The illustrative masterplan is in **Appendix A** and an extract is shown below (**Figure 10**).

Figure 10: extract of illustrative masterplan

Access

3.2 The development access on Barkby Road is shown in **Drawing ADC1659-DR-001-P3**. It would be a new T-junction with a 5.5m wide carriageway, 2m wide footways either side of the carriageway, and 6m kerb radii, all in accordance with the 6Cs Design Guide.

3.3 The location of the proposed access is subject to a 30mph speed limit. Hence visibility splays of 2.4 x 43m are demonstrated. However, the existing gateway feature where the limit changes from 30mph to 40mph is to the immediate south of the proposed site access. Hence, visibility splays of 2.4 x 120m are also demonstrated. The longer visibility splays demonstrate that there would be sufficient visibility even if vehicles entering and exiting Queniborough were travelling significantly above 30mph. Sufficient visibility is achievable in both directions without obstruction.

3.4 As part of LCC's highways comments, it was requested that an independent Stage 1 Road Safety Audit (RSA) be undertaken of the proposed access. Therefore, the site access has been subject to a road safety audit, carried out in accordance with GG119. The audit found three problems with the initial design. A Response Report has been produced, which is in **Appendix D**. Where necessary, changes to the design of the junction have been incorporated within the drawing presented within this Transport Assessment.

Internal layout

3.5 The internal layout of the development will be designed to adoptable standard. Service vehicles will be able to enter, manoeuvre, and exit the development in a forward gear, with the provision of appropriate turning heads. In the comments provided by LCC, they suggested undertaking a swept path analysis to demonstrate whether a refuse vehicle can enter and exit the site in a forward's gear. Hence, **Drawing ADC1659-DR-003-P1** proves that a refuse vehicle can enter and exit the site in all directions.

3.6 To encourage pedestrian travel, the PRoW footpath I84/1 that runs through the site will be retained and a pedestrian link will also be provided to facilitate access to the footpath for residents living in the eastern side of the development, as shown in **Figure 10**. Also shown in **Figure 10**, there is the potential for a further pedestrian link enabling pedestrian connectivity between the site and Chestnut Close. At the site access junction, 2m wide footways either side of the carriageway are proposed with the northern footway continuing along Barkby Road to create a continuous link with the existing footway network.

4.0 TRIP GENERATION

Proposed traffic generation

4.1 To determine the likely traffic generation of the proposed development, the 'privately owned houses' category of the TRICS database was examined. All sites in England, outside Greater London, were selected, and all weekend surveys were deselected. As part of highway comments, LCC accepted the trip rates set out in the table below. The TRICS outputs are in **Appendix E**, and the 85th percentile trip rates and resultant traffic generation are shown in the table below. The proposed residential development will result in an increase of up to 116 two-way vehicle trips in a peak hour

		arrive	depart	two-way
trip rates (per dwelling)	AM peak hour	0.177	0.523	0.700
	PM peak hour	0.478	0.248	0.726
vehicle trips (160 dwellings)	AM peak hour	28	84	112
	PM peak hour	76	40	116

Modal split and person trip generation

4.2 The proportion of trips by each mode was calculated using the 2011 National Census 'Method of travel to Work' data (dataset QS701EW). The site is in the parish of Queniborough and data for this parish was examined. The resultant modal split and person trip generation is shown in the table below.

	walk	cycle	bus	train	m/cycle	car driver	passenger
	6.0%	3.0%	4.2%	0.4%	0.6%	79.2%	5.0%
AM Peak	9	4	6	2	1	112	7
PM Peak	9	4	6	2	1	116	7

4.3 The proposed residential development would generate approximately nine pedestrian trips, four bicycle trips, and six bus trips in the peak hours.

4.4 This report details the existing accessibility of the site, including a description of the existing pedestrian, cycle, and public transport infrastructure. The report also details the proposed measures to further enable sustainable travel. The existing and proposed infrastructure has the capacity to accommodate the additional trips, and no further infrastructure is required as part of the development.

5.0 VEHICHLE DISTRIBUTION AND ASSIGNMENT

5.1 As part of the previous Transport Assessment, the traffic counts turning in and out of the proposed development were assigned at the access junction in the same proportions as recorded in the traffic count at the Barkby Road/Glebe Road junction. At the remaining three junctions that form the study area, development traffic was assigned in the same proportions as recorded in the November 2017 traffic counts. However, LCC have requested that the distribution be based on Census data.

5.2 Therefore, to determine the likely distribution pattern of the proposed development traffic, reference was made to the National Census 'Location of Usual Residence and place of work method of travel to work' dataset (reference WU03EW). The data provides information on the in moves and out moves to and from each MSOA associated with journeys to work.

5.3 The development site is within the 'Charnwood 15' MSOA. Therefore, the data was examined to identify where people living within the 'Charnwood 15' MSOA travel to for work. Their travel routes were estimated using Google Maps, and the proportion using each highway route was identified. This approach is appropriate given that it is likely that new residents within the development would display similar travel patterns to existing residents in the area. A copy of the Census data is in **Appendix F**, and the resultant traffic distribution is shown on **Figure 11**.

Figure 11: vehicle distribution pattern of proposed development traffic to/from site

5.4 As shown in Figure 11, 43% of the development traffic will route to/from the south via Barkby Road, whilst 57% of traffic will route north to/from the Barkby Road/Queniborough Road/Syston Road/Rearsby Road crossroads.

5.5 Of the 57% of development traffic routing to/from the crossroads, 2% will route west along Syston Road, 51% will route north to/from the Queniborough roundabout, and 4% will route east along Queniborough Road.

6.0 ASSESSMENT TRAFFIC FLOWS

Study area

6.1 Based on the increase in traffic as a result of the proposed development, the study area for assessment consists of the following junctions:

- Proposed site access
- Rearsby Road/Queniborough Road/Barkby Road/Syston Road crossroads
- Queniborough Roundabout
- Syston Road/Melton Road T-junction

Observed traffic flows

6.2 Traffic flows at the junctions were obtained from traffic counts undertaken on Tuesday 7 November 2017. The surveyed morning and evening peak hour traffic flows are shown in **Diagrams 1 and 2 in Appendix G**.

Growth factors

6.3 As part of the previous Transport Assessment, an assessment year of 2023 was used. In accordance with guidance the required assessment year for the local road network is five years after the registration of the planning application. Therefore, the observed traffic flows were growthed to 2026 levels using TEMPRO (version 7.2, dataset 72). TEMPRO gives the following growth rates for 'all roads' in the Charnwood 015 MSOA:

- 2017 to 2026 AM = 1.1097 PM = 1.1105

6.4 These growth rates were applied to the observed traffic flows. The '2026 base' traffic flows are shown in **Diagrams 7 and 8 in Appendix G** for the morning and evening peak hours.

Committed development

6.5 In accordance with guidance, traffic flows associated with any committed developments should be included within the 2023 assessment year traffic flows. The NPPG states that *"it is important to give appropriate consideration to the cumulative impacts arising from other committed development (i.e. development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next three years). At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval."*

6.6 In pre-application advice for the previous Transport Assessment, LCC requested the developments listed below be considered as committed developments, to understand the cumulative impacts on the local highway network.

- Queniborough Lodge – Shield Engineering Ltd (planning application P/13/1696/2)
- The Millstones – David Wilson Homes (P/14/0393/2)
- Barley Fields – Davidsons Homes (P/14/0708/2) and (P/15/1799/2)
- North East of Leicester Sustainable Urban Extension (SUE) (P/13/2498/2)

6.7 The Queniborough Lodge development was granted consent in January 2015 for the erection of 125 dwellings, on land to the west of Melton Road. **Appendix H** shows the traffic flows forecast of the Queniborough Lodge development. The application has lapsed. Nevertheless, its traffic flows are included, to present a robust worst case.

6.8 The Millstones was granted consent in October 2014 for the erection of 101 dwellings and cemetery, on land to the north of Millstone Lane. **Appendix H** shows the traffic flows forecast for the Millstones development. They do not show traffic increases at the study area junctions for this Transport Assessment. That is because the traffic increases were not material and so those junctions were not considered. Hence, the traffic from that development is accounted for by the TEMPRO growth factors. Moreover, that development was largely occupied when the traffic counts were carried out in November 2017, and so the traffic movements by its residents would already be included.

6.9 Davidsons' Barley Fields development gained reserved matters consent in February 2017 for 101 dwellings, on land to the east of Barkby Road. The forecast amount of traffic generated by the development at the study area junctions is in **Appendix H**. Again, that development was partially developed at the time of the traffic counts in November 2017, and thus there is an element of double counting.

6.10 The North East of Leicester SUE was granted consent in August 2016 for an SUE consisting of up to 4500 dwellings, up to 13ha of employment land, two local centres and a school. **Appendix H** shows the traffic flows forecast for that development. Delivery of that development has been slow, and no houses are yet occupied. Including all its traffic produces a robust worst case assessment.

6.11 The traffic flows generated by these committed developments for the morning and evening peak hours are shown in **Diagrams 9 and 10 in Appendix G**.

2026 Without Development traffic flows

6.12 The flows generated by the committed developments (Diagrams 9 and 10) were added to the '2026 base' flows (Diagrams 7 and 8) to give the '2026 Without Development' traffic flows (**Diagrams 11 and 12 in Appendix G**).

2026 With Development traffic flows

6.13 The traffic flows generated by the proposed development (**Diagrams 5 and 6**) were combined with the '2026 Without Development flows' (Diagrams 11 and 12) to give the '2026 With Development' traffic flows shown on **Diagrams 13 and 14 in Appendix G**.

7.0 HIGHWAY IMPACT

Proposed site access

7.1 The proposed site access will be a priority-controlled T-junction on Barkby Road (**Figure 13**). A model of the junction was built using Junctions 8 PICADY software with geometries from OS mapping. The model was tested using the 2026 traffic flows. The results are summarised in the table below and the PICADY outputs are in **Appendix I**.

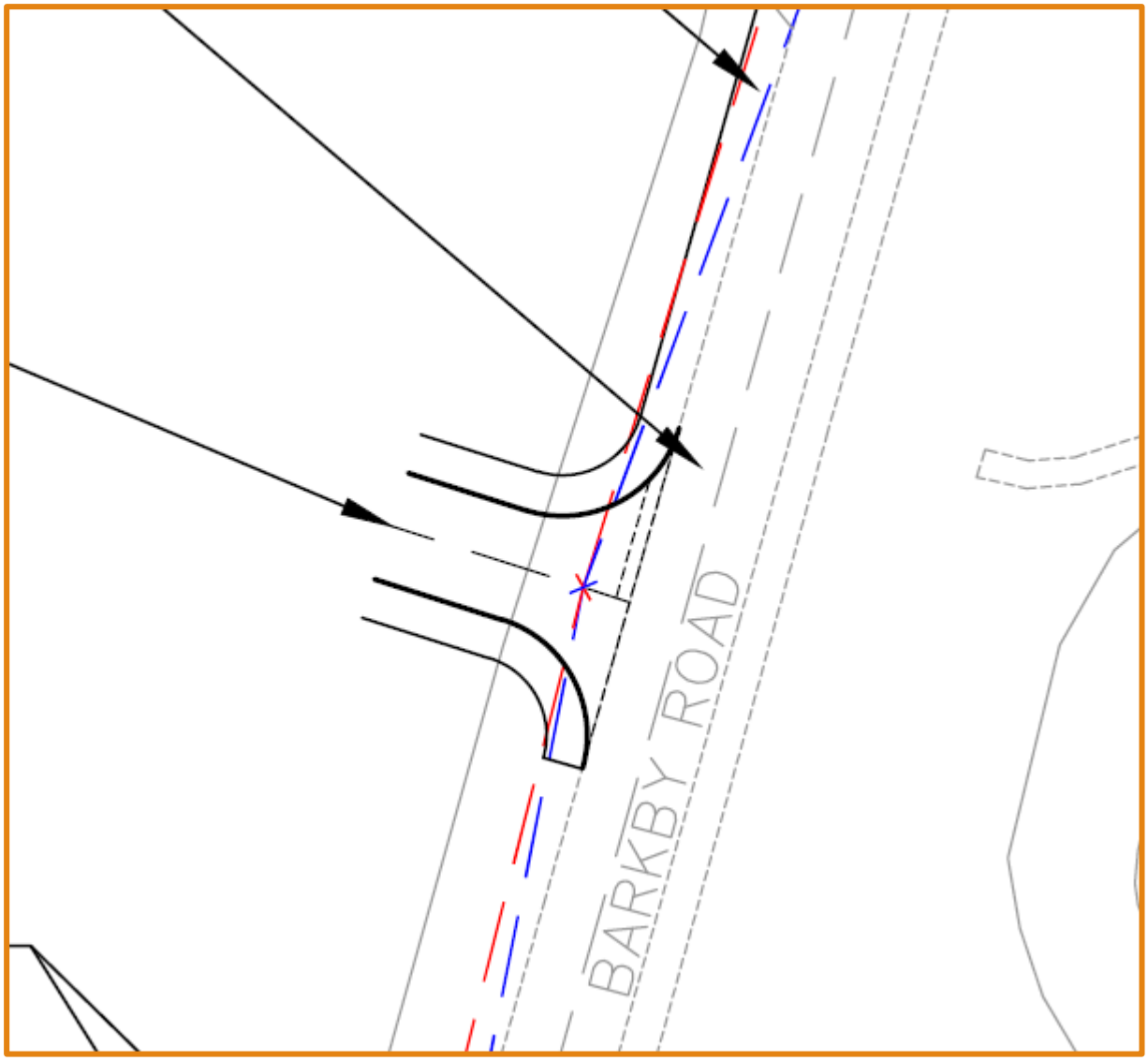


Figure 13: proposed site access (extract of **Drawing ADC1659-DR-001-P3**)

peak		Site Access (left turn)	Site Access (right turn)	Barkby Road (right turn)
2026 With Development				
AM	RFC	8%	9%	3%
	max queue (veh)	0.09	0.09	0.03
	max delay (secs)	6.11	8.51	6.32
PM	RFC	4%	4%	8%
	max queue (veh)	0.04	0.04	0.08
	max delay (secs)	6.01	8.49	7.02

7.2 The junction will operate at 9% of capacity with the development in place, with minimal queuing and delay. In section 2 it was shown that there have been no accidents along the site frontage in the five years from January 2016 to February 2021. The junction will be designed to standard with adequate visibility. Thus, there would be no adverse capacity or safety impacts as a result of introducing the junction, which would provide a safe and suitable access for all people.

Rearsby Rd/Queniborough Rd/Barkby Rd/Syston Rd crossroads - existing layout

7.3 The Rearsby Road/Queniborough Road/Barkby Road/Syston Road junction is a priority-controlled crossroads (**Figure 14**).

7.4 A model of the crossroads was built using Junctions 8 PICADY software with geometries for the existing junction layout, and was tested using the 2026 traffic flows, with and without the proposed developments. The results are summarised in the table below and the PICADY outputs are in **Appendix J**.

Figure 14: Rearsby Road/Queniborough Road/Barkby Road/Syston Road priority controlled crossroads

peak	Stream	Max queue (veh)	Max delay (secs)	RFC (%)
2026 Without Development				
AM	Barkby Road (left turn and straight ahead)	2.00	29.92	68%
	Barkby Road (right turn and straight ahead)	1.55	35.65	62%
	Queniborough Road (right turn)	0.70	9.85	41%
	Rearsby Road (left turn and straight ahead)	23.09	185.03	108%
	Rearsby Road (right and straight ahead)	10.32	239.76	105%
	Syston Road (right turn)	0.18	7.72	15%
PM	Barkby Road (left turn and straight ahead)	1.84	28.54	66%
	Barkby Road (right turn and straight ahead)	1.53	31.44	62%
	Queniborough Road (right turn)	0.63	9.55	38%
	Rearsby Road (left turn and straight ahead)	10.52	96.70	97%
	Rearsby Road (right and straight ahead)	6.00	142.57	95%
	Syston Road (right turn)	0.16	7.43	13%
2026 With Development				
AM	Barkby Road (left turn and straight ahead)	5.69	76.02	90%
	Barkby Road (right turn and straight ahead)	4.35	92.59	87%
	Queniborough Road (right turn)	0.71	9.90	41%
	Rearsby Road (left turn and straight ahead)	29.89	231.55	113%
	Rearsby Road (right and straight ahead)	12.73	283.14	109%
	Syston Road (right turn)	0.18	7.76	15%
PM	Barkby Road (left turn and straight ahead)	2.78	41.11	76%
	Barkby Road (right turn and straight ahead)	2.25	45.47	71%
	Queniborough Road (right turn)	0.63	9.55	38%
	Rearsby Road (left turn and straight ahead)	23.02	185.68	108%
	Rearsby Road (right and straight ahead)	10.94	234.89	105%
	Syston Road (right turn)	0.16	7.45	14%

7.5 As shown in the table above, in the worst case AM peak hour, the existing junction layout will operate at 108% of capacity without the development, deteriorating to 113% with the development in place. The delay on Rearsby Road would deteriorate from 239 seconds per vehicle to 283 seconds, a change of 44 seconds per vehicle. The longest queues would also occur on Rearsby Road, and be 33 vehicles without the development, extending to 43 vehicles with the development, an increase of 10 vehicles. There is a length of 360m from the Queniborough crossroads to the A607 roundabout, a distance capable of accommodating 63 cars. Therefore, the queue would not block back to the roundabout.

7.6 Thus the crossroads is already over capacity due to background traffic, a situation that is not caused by the development. An increase in the worst delay of 44 seconds could not be considered severe. An increase in the worst queue of 10 vehicles could also not be considered severe. Nevertheless, mitigation should be explored to determine whether these adverse impacts can be mitigated, as explained below.

Rearsby Rd/Queniborough Rd/Barkby Rd/Syston Rd crossroads – proposed layout

7.7 The crossroads is already on a speed table and there are further humps along Syston Road and Queniborough Road. No suitable place could be found near to the crossroads to introduce a controlled pedestrian crossing that might create breaks in the traffic. Gladman's outline consent for the Barkby Fields development now being built by Davidsons examined the same issue and looked at various alternatives, including the introduction of signal control, all of which were

rejected by LCC. In the end, the application was conditioned, by the 100th occupation, to introduce a scheme of works on Rearsby Road that widened the southbound approach to the give-way line to two lanes.

7.8 As part of the previous Transport Assessment, the scheme was again proposed. However, LCC reviewed the scheme as part of their highway comments and had "*concerns over the junction design, as it would appear that traffic going ahead from Rearsby Road to Barkby Road will be lined up with traffic waiting to turn right from Barkby Road*".

7.9 In response to these comments, **Drawing ADC1659-DR-002-P2** has been produced, which shows a 1.2m wide traffic island on the southbound approach to provide separation from the straight ahead movement for southbound traffic and the right turn movement from Barkby Road. The island has been designed in accordance with an LCC standard detail for a non-pedestrian island. The eastern footway would be rerouted behind the existing row of trees to provide pedestrian connectivity between Rearsby Road and Queniborough Road. A new section of footway would also be provided on the western side of Rearsby Road to facilitate pedestrian connectivity to the existing zebra crossing, to the north of the junction. The road widening has been purposefully minimised to avoid damaging impact on the root protection areas of the trees.

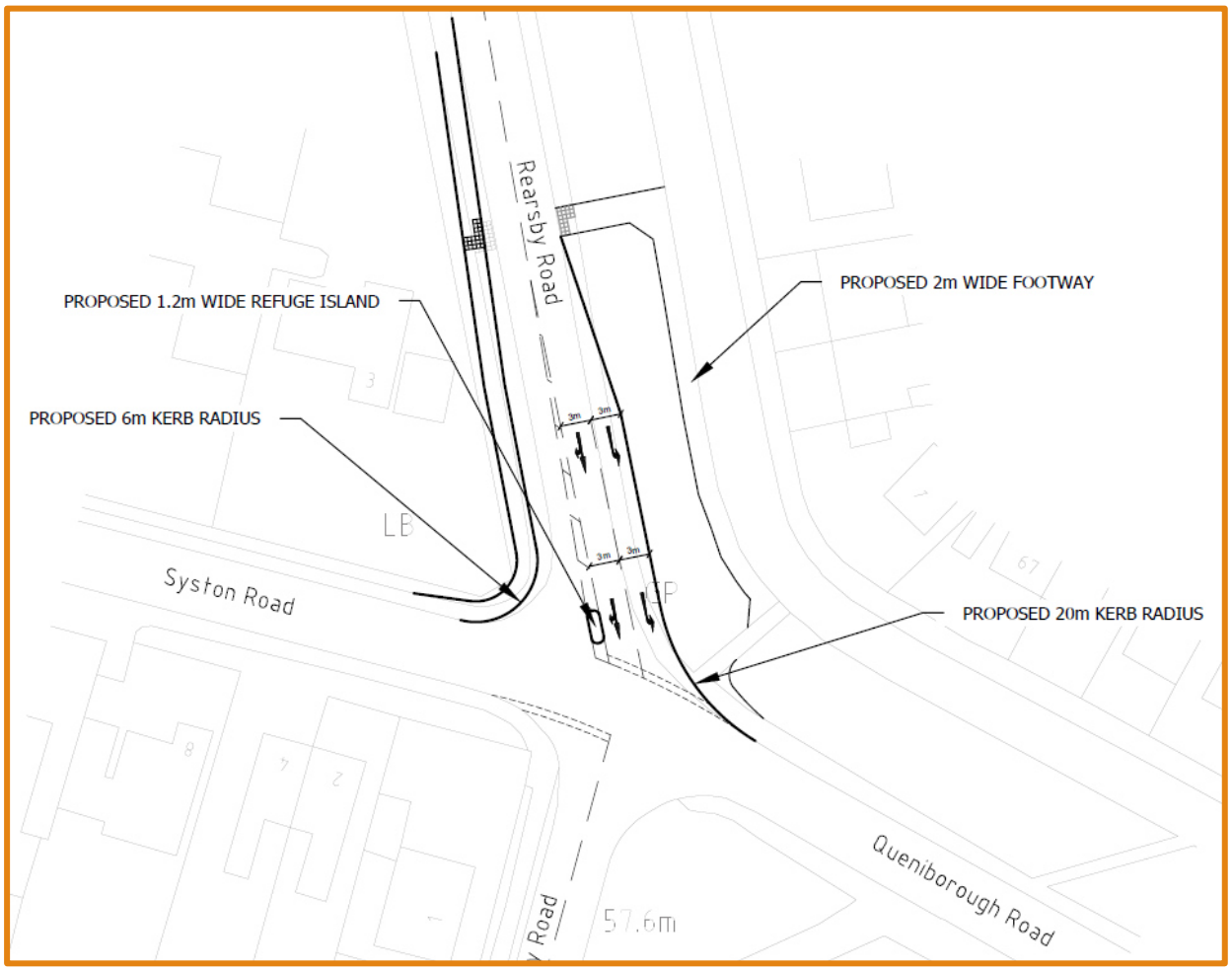


Figure 15: proposed mitigation scheme at the Queniborough crossroads **(ADC1659-DR-002-P2)**

7.10 A model of the proposed crossroads with the mitigation scheme in place was built using Junctions 8 PICADY software with geometries extracted from the design and was tested using the 2026 With Development traffic flows. The results are summarised in the table below and the PICADY outputs are in **Appendix J**.

peak	Stream	Max queue (veh)	Max delay (secs)	RFC (%)
2026 With Development				
AM	Barkby Road (left turn and straight ahead)	5.61	75.21	90%
	Barkby Road (right turn and straight ahead)	4.29	91.24	87%
	Queniborough Road (right turn)	0.71	9.90	41%
	Rearsby Road (left turn and straight ahead)	26.22	203.75	110%
	Rearsby Road (right turn and straight ahead)	11.49	257.32	108%
	Syston Road (right turn)	0.18	7.76	15%
PM	Barkby Road (left turn and straight ahead)	2.76	40.79	76%
	Barkby Road (right turn and straight ahead)	2.23	44.99	71%
	Queniborough Road (right turn)	0.63	9.55	38%
	Rearsby Road (left turn and straight ahead)	18.38	151.14	104%
	Rearsby Road (right turn and straight ahead)	9.29	196.87	103%
	Syston Road (right turn)	0.16	7.46	14%

7.11 As shown in the table above, the mitigation scheme produces a greater than nil-detriment mitigation. In the worst case morning peak hour, the delay on Rearsby Road reduces from 283 seconds per vehicle without the development, to 257 seconds with the development and the mitigation scheme. The queue on Rearsby Road reduces from 43 vehicles to 37 vehicles.

7.12 It is therefore recommended that the mitigation scheme be conditioned to be implemented prior to the 100th occupation.

Queniborough Roundabout

7.13 Queniborough Roundabout is a five-arm priority controlled roundabout (**Figure 15**).

Figure 15: Queniborough roundabout

7.14 A model of the roundabout was built using Junctions 8 ARCADY software with geometries extracted from Appendix 7 of the Transport Assessment for the Davidsons development (P/14/0708/2). The model was tested using the 2026 traffic flows. The results are summarised in the table below and the ARCADY outputs are in **Appendix K**.

peak		Melton Rd (north) (Arm 1)	A607 (east) (Arm 2)	Rearsby Rd (Arm 3)	Melton Rd (south) (Arm 4)	A607 (west) (Arm 5)
2026 Without Development						
AM	RFC	53%	59%	71%	32%	66%
	max queue (veh)	1.13	1.43	2.33	0.48	1.92
	max delay (secs)	7.91	5.47	13.52	3.99	6.16
PM	RFC	32%	56%	61%	33%	67%
	max queue (veh)	0.47	1.24	1.52	0.49	1.98
	max delay (secs)	5.15	4.74	9.72	3.82	6.15
2026 With Development						
AM	RFC	54%	59%	76%	33%	67%
	max queue (veh)	1.15	1.45	2.99	0.49	1.99
	max delay (secs)	8.06	5.55	16.28	4.11	6.32
PM	RFC	33%	56%	63%	33%	69%
	max queue (veh)	0.49	1.29	1.67	0.50	2.19
	max delay (secs)	5.31	4.90	10.31	3.87	6.59

7.15 As shown in the table above, the roundabout operates at 71% of capacity without the development in place and 76% of capacity with the development in place. Therefore, the roundabout has spare capacity and mitigation is not necessary.

Melton Road/Syston Road T-junction

7.16 The Syston Road/Melton Road T-junction is a priority controlled T-junction (**Figure 16**). As **Diagrams 5 and 6** highlight, the development would only add three vehicles to the junction in a peak hour and there would not be a material increase in traffic. Hence conditions would not materially alter, and no further assessment of the junction's capacity is necessary.

Figure 16: Syston Road/Melton Road T-junction

8.0 SUMMARY AND CONCLUSIONS

8.1 David Wilson Homes commissioned ADC Infrastructure to advise on transport matters in support of an outline planning application associated with the potential residential development of up to 160 houses on land to the west of Barkby Road in Queniborough.

8.2 The proposed development will be accessed via a new priority-controlled T-junction on Barkby Road, designed to standard and with appropriate visibility.

8.3 The development site is accessible by sustainable travel modes. As part of the development proposals, the internal layout will include a footway that will connect to the existing footway network on Barkby Road. The local pedestrian infrastructure is good and all the amenities within Queniborough and Syston would be within walking distance. There are opportunities for cycle travel between the site and local attractions, and there are good opportunities for bus travel due to the number 5 bus route that runs along Syston Road every twenty minutes between East Goscote and Leicester.

8.4 The proposed dwellings would generate 9 pedestrian journeys, 4 cycle journeys and 6 bus journeys in a peak hour. This additional demand can be accommodated by the existing infrastructure and the proposed measures. Those measures include the provisions of a Travel Plan, which is a separate report. The Travel Plan includes the appointment of a Travel Plan Co-ordinator, travel packs for residents, and free bus passes.

8.5 The proposed dwellings would generate up to 116 two-way traffic movements in a peak hour. Most journeys from the site will route to and from the north, via Barkby Road and Rearsby Road to the Queniborough Roundabout. The Queniborough Roundabout would operate with spare capacity with the development in place.

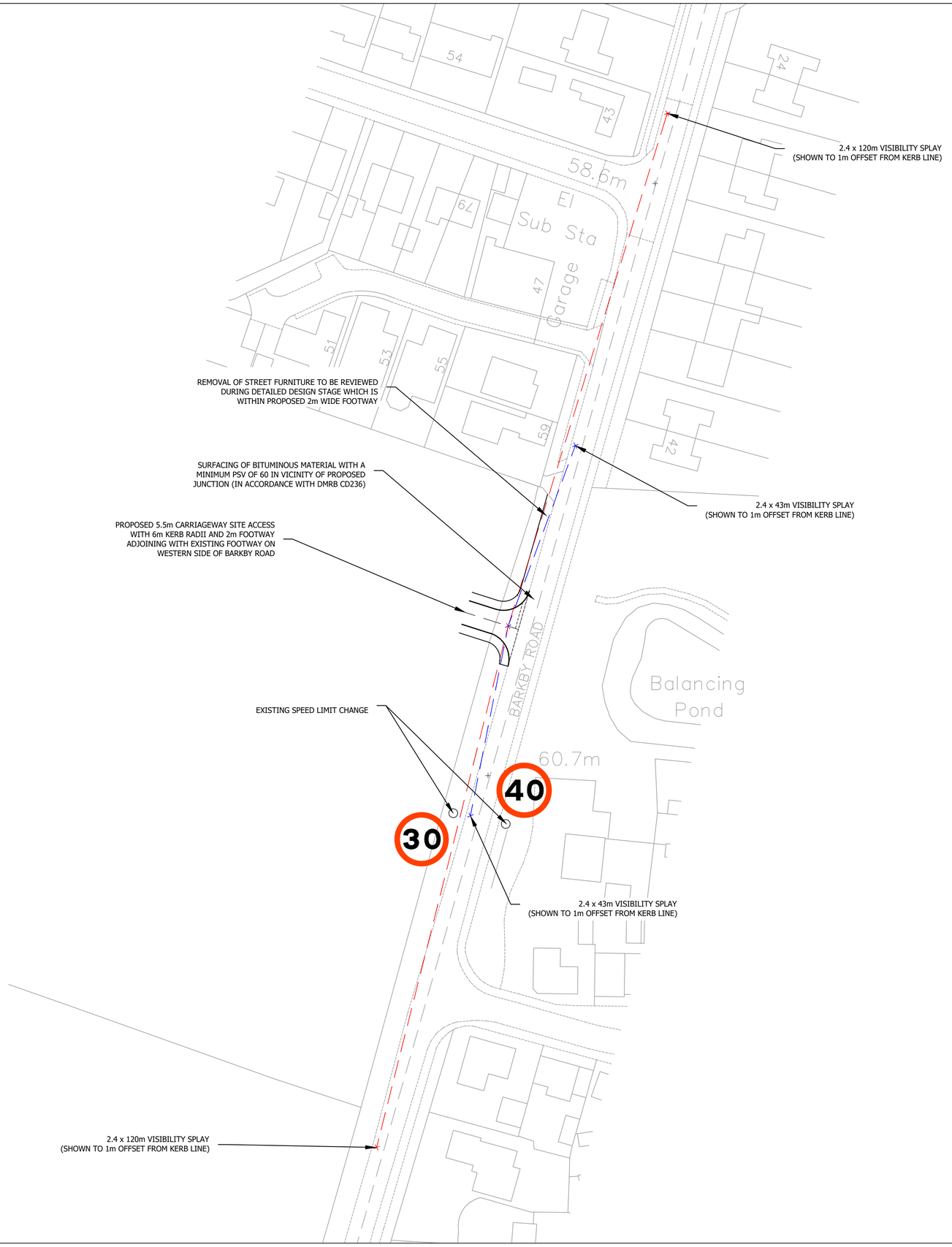
8.6 Only three vehicles would route through the Melton Road/Syston Road priority controlled T-junction in a worst case peak hour. Hence there would not be a material change to the operation of that junction.

8.7 The Syston Road/Rearsby Road/Queniborough Road/Barkby Road crossroads (Queniborough crossroads) is already over capacity. As a result of the development, the worst delays that occur on Rearsby Road would increase by 44 seconds per vehicle, and the longest queue would extend by 10 vehicles. That is not a severe impact.

8.8 Nevertheless, a mitigation scheme has proposed which involves the widening of the Rearsby Road approach to the crossroads whilst also providing a traffic island to prevent conflict with other movements. The scheme achieves a better than nil-detriment mitigation. The scheme can be conditioned to be implemented prior to the 100th occupation.

8.9 Overall, the proposed development would accord with the aims of the NPPF. The opportunities for sustainable travel would be taken up, safe and suitable access can be provided, and the proposed mitigation scheme to the crossroads would improve the performance of the junction compared to the existing layout. The development should not be prevented on highways grounds.

DRAWINGS



Rev	Description	Date
P3	Addresses RSA comments	14/06/21
P2	Updated access location	20/01/21
P1	Preliminary Issue	08/01/18

Client:

DAVID WILSON HOMES
WHERE QUALITY LIVES

Project:

Barkby Road, Queniborough

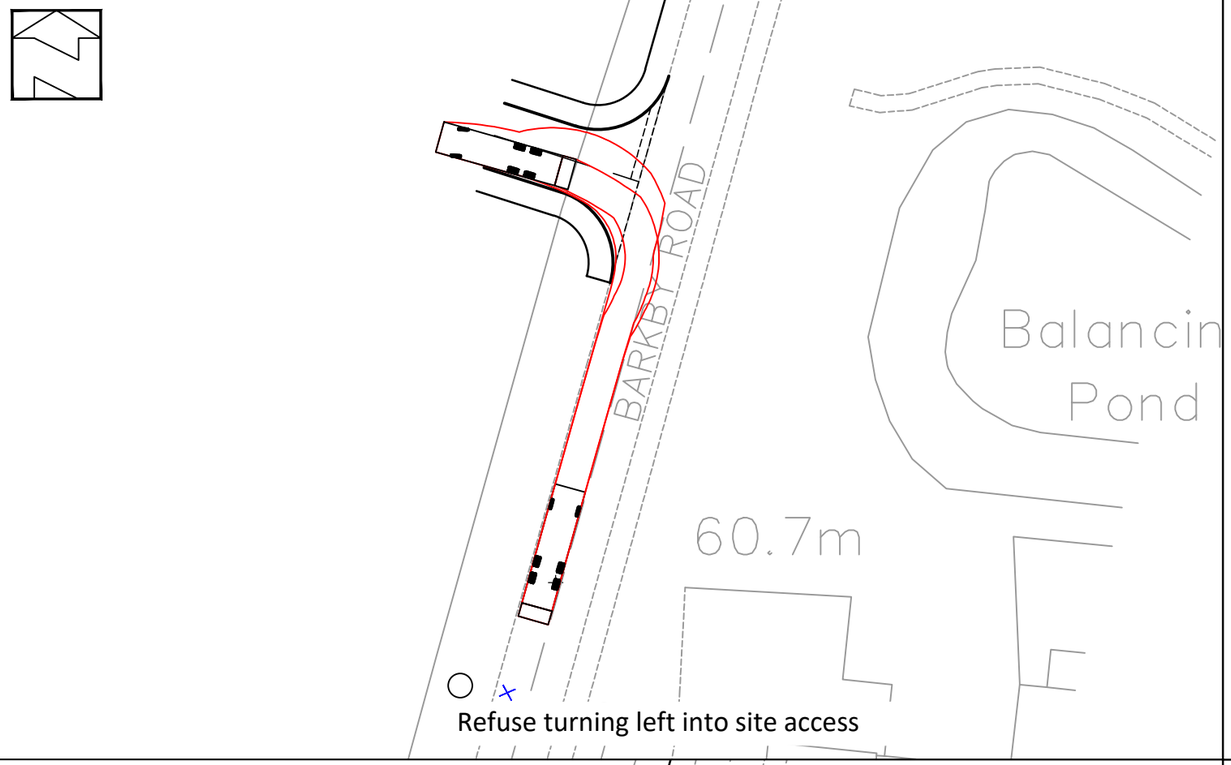
Title:

Proposed Access Junction Layout

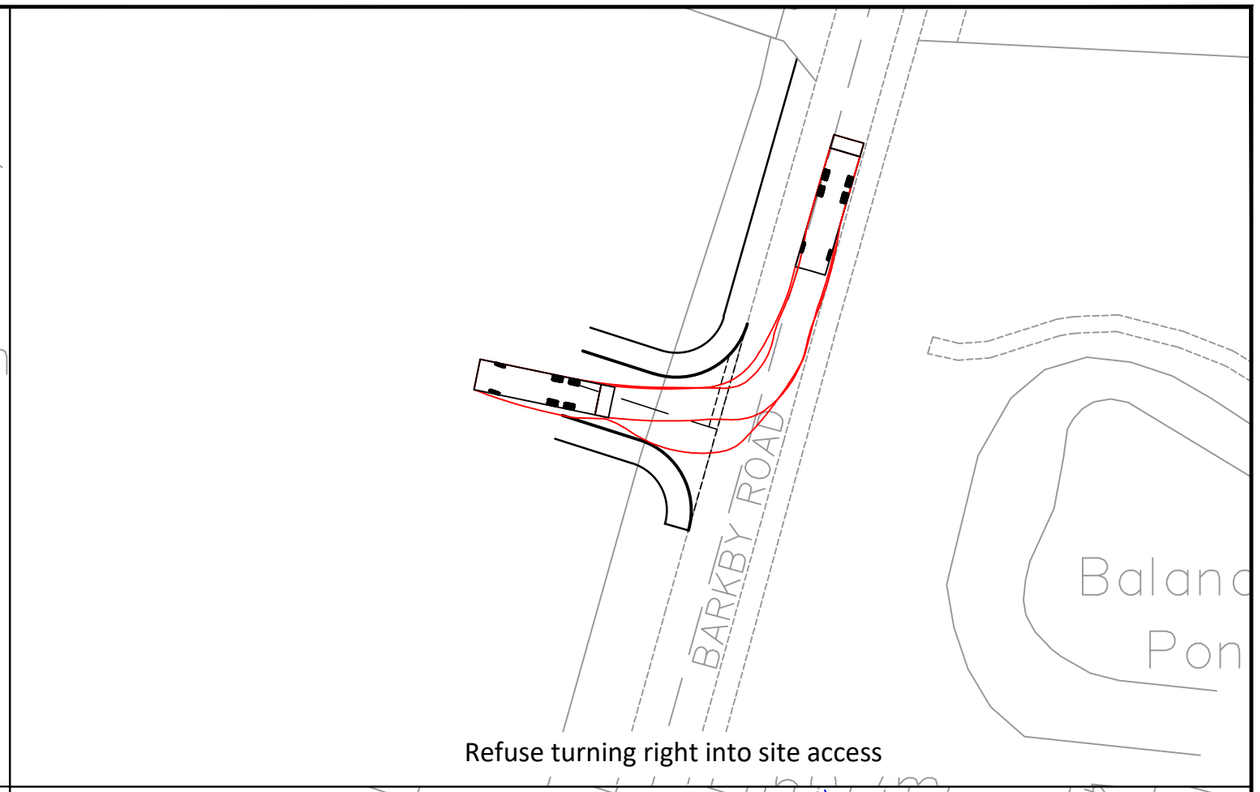
ADC INFRASTRUCTURE

Drg Size:	Scale:	Date:
A1	1:500	08/01/2018

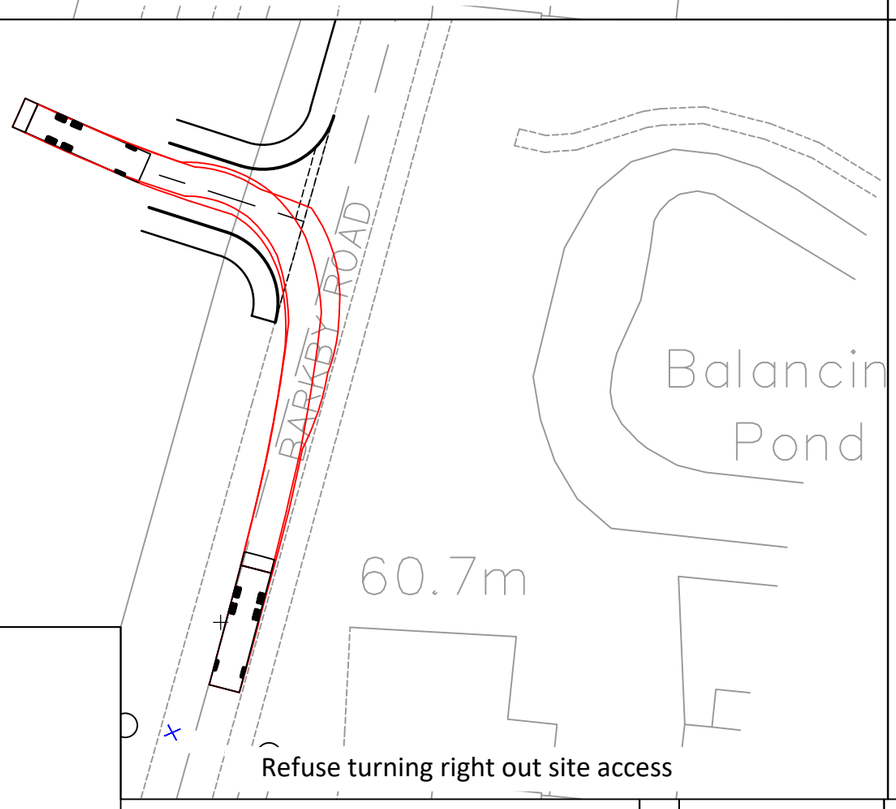
Drg No:	Rev:
ADC1659-DR-001	P3



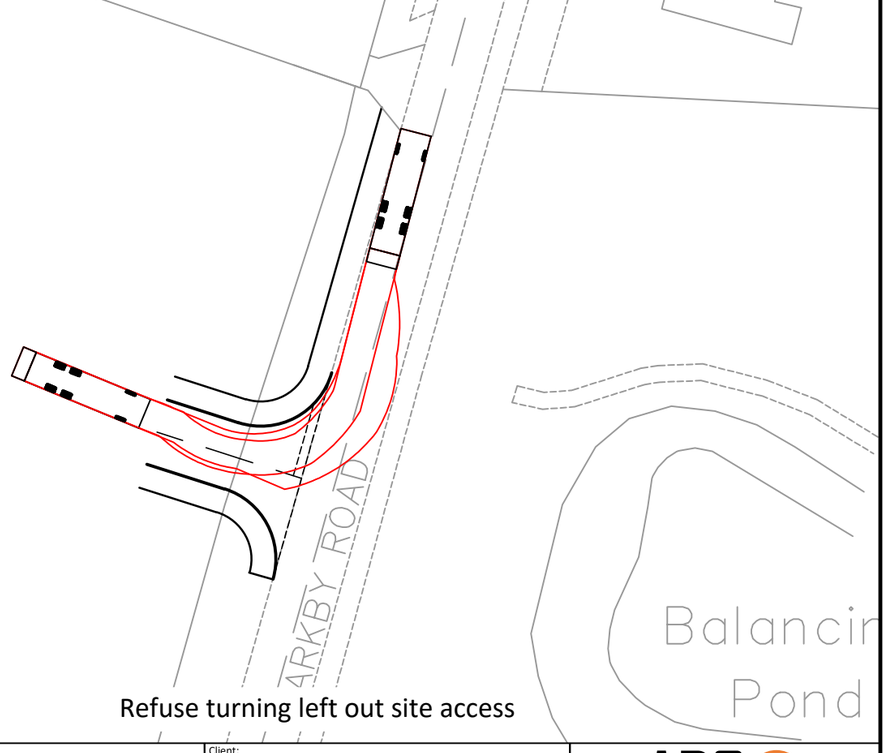
Refuse turning left into site access



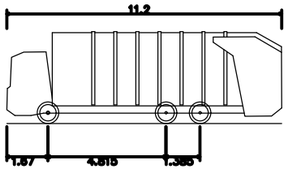
Refuse turning right into site access



Refuse turning right out site access



Refuse turning left out site access



Phoenix 2 Duo (P2–15W with Elite 6x4 chassis	
Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

Rev	Description	Date

Project:
Proposed Residential Development
Barkby Road, Queniborough

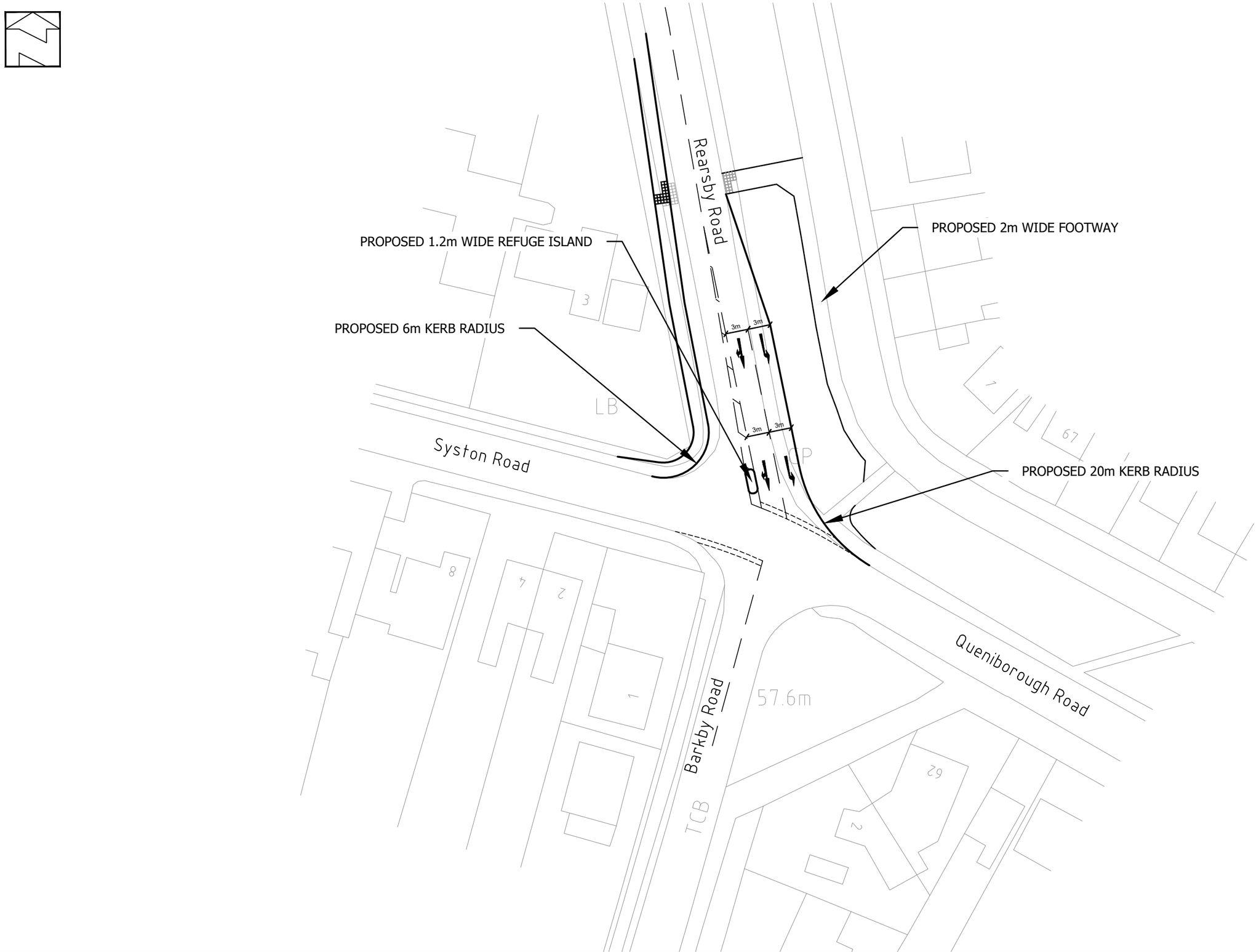
Title:
Swept Path Assessment of
Proposed Access Junction Layout

Client:
DAVID WILSON HOMES
WHERE QUALITY LIVES

ADC INFRASTRUCTURE

Drg Size:	Scale:	Date:
A3	1:500	04/05/2021

Drg No: ADC1659-DR-003
Rev: P1



			Project: Proposed Residential Development Barkby Road, Queniborough	Client: DAVID WILSON HOMES WHERE QUALITY LIVES	ADC INFRASTRUCTURE
P2	Updated layout	17/06/2021	Title: Proposed Access Junction Layout		Drg Size: A3 / Scale: 1:500 / Date: 18/03/2021
Rev	Description	Date			Drg No: ADC1659-DR-002 / Rev: P2