

25/00486/OUT Land East of Knowsley Lane

Stockbridge Lane/Knowsley Lane Junction Summary

A25007 September 2026

1. Introduction

- 1.1. Astute Transport Planning Limited is appointed by Hallam Land Management Ltd to support the current outline planning application (ref. 25/00486/OUT) for residential development on land to the east of Knowsley Lane. Following submission of the planning application there has been regular correspondence and a number of meetings to discuss remaining transport issues.
- 1.2. A key issue for discussion has been the future operation of the Knowsley Lane/Stockbridge Lane priority junction. This junction has been shown to operate over capacity and with significant peak hours queueing in 2030, with or without the proposed development traffic being added onto the network. The Transport Assessment that supported the planning application included an improvement to the priority junction, focusing on the provision of a ghost-island right turn lane, improving access for drivers on Knowsley Lane who want to turn right into Stockbridge Lane.
- 1.3. A Technical Note was also submitted to the Highway Authority in July 2026, which argued that the mitigation provided by the enhanced priority junction was sufficient to meet the severity test as outlined in the NPPF as per paragraph 4 of Policy TR6: Assessing transport impacts.

'Development proposals should be refused if they would have a severe adverse impact on the transport network (in terms of capacity and congestion, including cumulative impacts), or an unacceptable impact on highway safety; taking into account any mitigation measures proposed as well as any wider network improvements, including measures to support sustainable patterns of movement.'
- 1.4. Following the submission of the July Technical Note, Knowsley Highways maintained a preference to signalise the junction, with their expectation being that this would adequately remove the severe impacts that they associated with the proposals.
- 1.5. This Technical Note considers the issue further, by comparing the cost and benefits of the previous priority scheme against a signalisation scheme. However, it then continues by considering a further priority option, that provides further capacity enhancements to the junction by creating a second lane on Stockbridge Lane, improving the capacity for drivers wishing to access Knowsley Lane.
- 1.6. This report begins by outlining the capacity assessment results of the existing junction layout, before each of the junction improvement schemes are discussed in turn, with a comparison between the three, including cost, then being made.

2. Existing Stockbridge Lane Junction

- 2.1. The Stockbridge Lane junction with Knowsley Lane is currently a simple priority junction, with Stockbridge Lane forming the minor arm. Each of the three arms operates with a single approach lane and vehicles wishing to turn right into Stockbridge Lane from the eastbound Knowsley Lane block through traffic while they are waiting to turn.
- 2.2. There is currently a level of queuing at this junction, such that some drivers choose to rat run along Park Way, avoiding the junction. The Highway Authority has requested that the closure of Park Way should form part of any junction improvement scheme, removing the opportunity for rat running to occur. However, the closure of Park Way would require the creation of a turning head which would in turn require the use of Council-owned third party land.
- 2.3. This report has been written on the basis that this land can be made available to the applicant and would in the future become adopted highway.
- 2.4. The existing junction was assessed using the JUNCTIONS software, allowing for a 2030 future year assessment and a list of agreed committed development schemes. The model results were presented in Table 7.10 of the supporting Transport Assessment report, as copied below.

Table 2.1: Knowsley Lane / Stockbridge Lane- 2030 Future Year

Arm	'Without Development'				'With Development'			
	AM		PM		AM		PM	
	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC
Stockbridge Lane	140	1.72	100	1.65	222	2.39	179	2.29
Knowsley Lane	59	1.13	97	1.21	112	1.26	137	1.30

- 2.5. As can be seen, the existing junction layout was shown to operate over its theoretical capacity during both the morning and evening peak periods, with material queuing and delay on both Stockbridge Lane and Knowsley Lane. It was considered that increases in queuing across the junction of 135 additional vehicles in the AM peak and 119 additional vehicles in the PM peak could be considered a severe impact. Therefore, a mitigation scheme to increase the junction's capacity was deemed to be appropriate.

Proposed Priority Junction Mitigation

- 2.6. Astute therefore proposed the introduction of a ghost-island right turn lane on Knowsley Lane. A copy of the relevant results table, taken from the supporting Transport Assessment, is provided below.

Table 2.2: Knowsley Lane / Stockbridge Lane - 2030 Future Year (Proposed Mitigation)

Arm	'With Development'			
	AM		PM	
	Queue	RFC	Queue	RFC
Stockbridge Lane	175	1.90	119	1.68
Knowsley Lane	12	0.92	12	0.92

- 2.7. A plan of this capacity improvement scheme can be seen on drawing **A25007-0102-001 Rev. P01** at **Appendix A**.

- 2.8. The results in **Table 2.2** show that the proposed mitigation scheme provides a material improvement to the operation of the junction, with increases in queuing on Stockbridge Lane when compared to the 'Baseline Assessment' but with significant reductions in queuing on Knowsley Lane, as a result of the ghost-island right turn lane allowing straight ahead traffic to pass queuing right turning traffic.
- 2.9. It should of course also be remembered that the mitigation proposal also brings a number of other safety benefits, including a clear route for eastbound ahead traffic that approaches the junction via a bend in the road that restricts forward visibility, plus the provision of a pedestrian refuge, aiding people crossing Knowsley Lane and wishing to access Council-owned recreational land to the north.
- 2.10. However, the Highway Authority remain concerned about the level of queueing that is predicted on Stockbridge Lane. They specifically requested that a signalised option be considered.

Proposed Signalised Junction Mitigation

- 2.11. A signalised junction option has been developed, with a single approach lane on each arm but with a right turning lane from Knowsley Lane into Stockbridge Lane. As with all of these junction improvement options, it has been assumed that Park Way will be closed to through traffic, removing the ability for drivers to avoid the junction by rat-running along Park Way instead. A plan of this capacity improvement scheme can be seen on drawing **A25007-0103-001 Rev. P01** at **Appendix A**.
- 2.12. The proposed design of the junction has been tested for capacity using a LinSig model, the results of which are summarised in **Table 2.3**.
- 2.13. LinSig expresses capacity using Degree of Saturation (DoS) values and also provides Mean Maximum Queue (MMQ) values for lanes and approaches to a junction. LinSig also calculates a Practical Reserve Capacity (PRC) for the junction as a whole to indicate the level of available capacity across the lanes of the junction.

Table 2.3: Knowsley Lane / Stockbridge Lane - 2030 Future Year (Proposed Signalised Mitigation)

Arm	'With Development'			
	AM		PM	
	MMQ (PCU)	DoS (%)	MMQ (PCU)	DoS (%)
Stockbridge Lane	42	106.5%	24	99.3%
Knowsley Lane (West)	53	107.7%	27	98.8%
Knowsley Lane (East)	15	65.7	13	60.8
PRC	-19.6%		-10.3	

- 2.14. The model was built with a maximum cycle time of 100 seconds. The model has four stages:
- an all-red pedestrian phase;
 - a dedicated green phase for traffic exiting from Stockbridge Lane; and
 - a dedicated green phase for all traffic on Knowsley Lane, with right turning vehicles giving priority to conflicting ahead movements; and

- an dedicated green phase for eastbound traffic on Knowsley Lane including right turning traffic into Stockbridge Lane.

- 2.15. A double cycle has been applied when running the model so that the pedestrian phase was called after every two cycles of signal phases.
- 2.16. The assessment found that the additional of signals to the junction would significantly reduce the volume of queuing on Stockbridge Lane although it would result in the creation of queues on Knowsley Lane due to vehicles now having to stop and wait whereas the majority of traffic currently passes through the junction.
- 2.17. Overall, it is still considered that this scheme adequately mitigates the impacts of the development proposals, with the signalised junction predicted to operate better than the existing junction in 2030 without the development proposals.
- 2.18. However, a third option consisting of an enhanced priority junction has also been considered, as outlined below.

Proposed Enhanced Priority Junction Mitigation

- 2.19. Whilst either of the previous schemes are considered to provide sufficient mitigation to meet the severity test as outline in the NPPF, a third mitigation scheme has been prepared for the junction. This scheme, which would require Council-owned land to be implemented, allows for the provision of a secondary northbound lane on Stockbridge Lane, meaning that the capacity to exit Stockbridge Lane onto Knowsley Lane is effectively doubled. This scheme also allows for the provision of the ghost-island right turn lane from Knowsley Lane into Stockbridge Lane. A plan of this capacity improvement scheme can be seen on drawing **A25007-0102-002 Rev. P0** at **Appendix A**.
- 2.20. This layout has been assessed by a JUNCTIONS 11 modelling exercise, the results of which are summarised in **Table 2.4**.

Table 2.4: Knowsley Lane / Stockbridge Lane- 2030 Future Year (Proposed Enhanced Mitigation)

Arm	'With Development'			
	AM		PM	
	Queue	RFC	Queue	RFC
Stockbridge Lane (West)	6	0.88	2	0.69
Stockbridge Lane (East)	31	1.39	26	1.31
Knowsley Lane	12	0.92	12	0.92

- 2.21. The results provided in **Table 2.4** highlight that this enhanced priority scheme, consisting of two traffic lanes on Stockbridge Lane, would result in significantly less queueing across the junction when compared to both the base situation in 2030 as well as any of the other mitigation schemes that have been outlined in this note.

3. Funding & Cost Estimates

- 3.1. It is understood that the Highway Authority will seek to secure these mitigation works via a Section 106 payment, as a result of the schemes requiring third party land which means that they cannot be secured via a S278 agreement.

- 3.2. Astute has completed a cost estimate for each mitigation scheme. For ease of reference, the cost estimates can be summarised as below:

Proposed Priority Mitigation

- Construction Cost - £156,195.37
- Construction plus Prelims, Overheads, Profit, Inflation - £226,639.48

Proposed Signalised Mitigation

- Construction Cost - £369,882.65
- Construction plus Prelims, Overheads, Profit, Inflation - £536,669.72

Proposed Enhanced Priority Mitigation

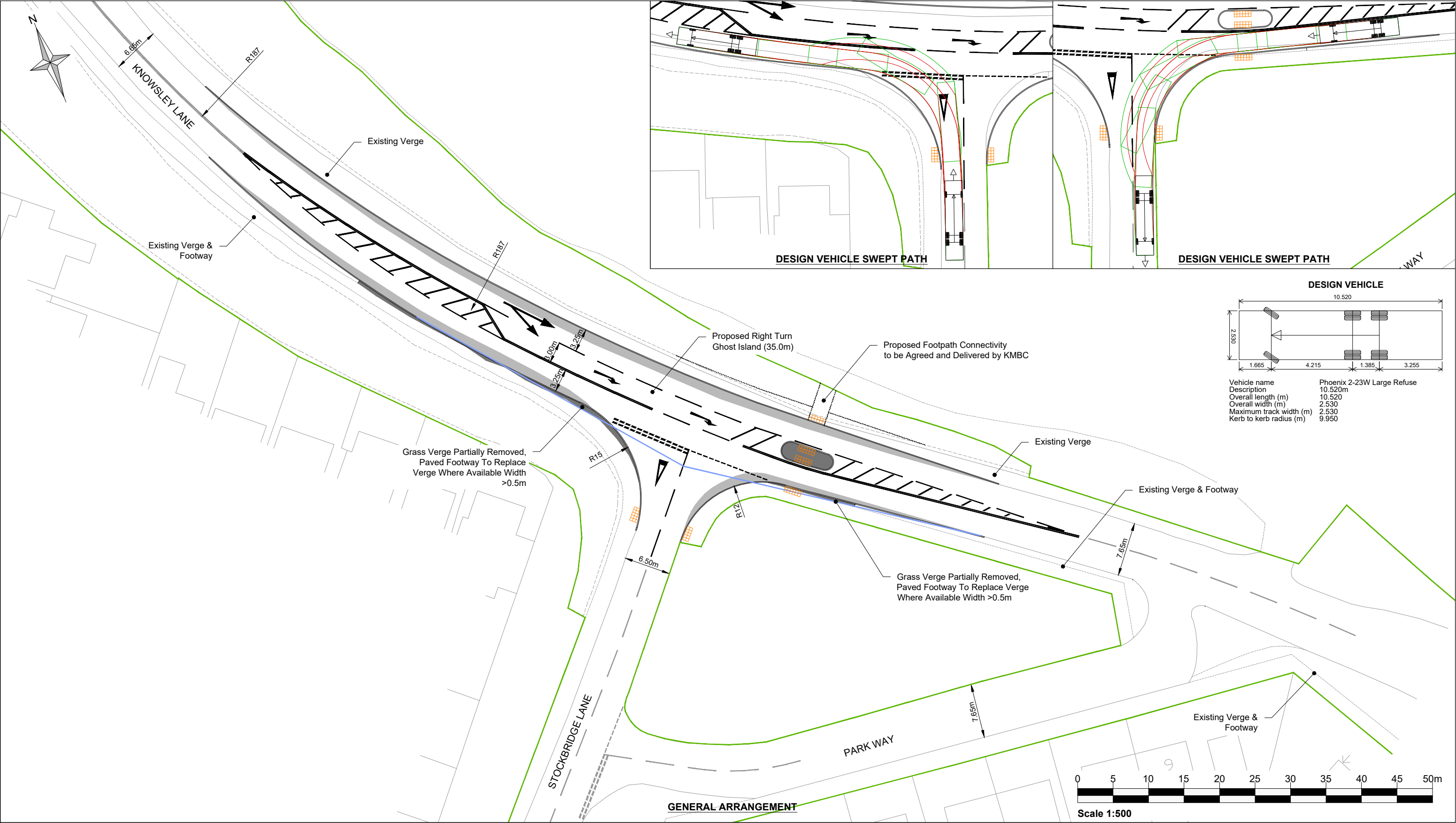
- Construction Cost - £249,798.90
- Construction plus Prelims, Overheads, Profit, Inflation - £362,458.20

- 3.3. Were the Council to prefer the implementation of an alternative but more costly scheme, which provides further capacity or road safety improvements, then they would be able to use the funding provided by the applicant to part fund their preferred works.

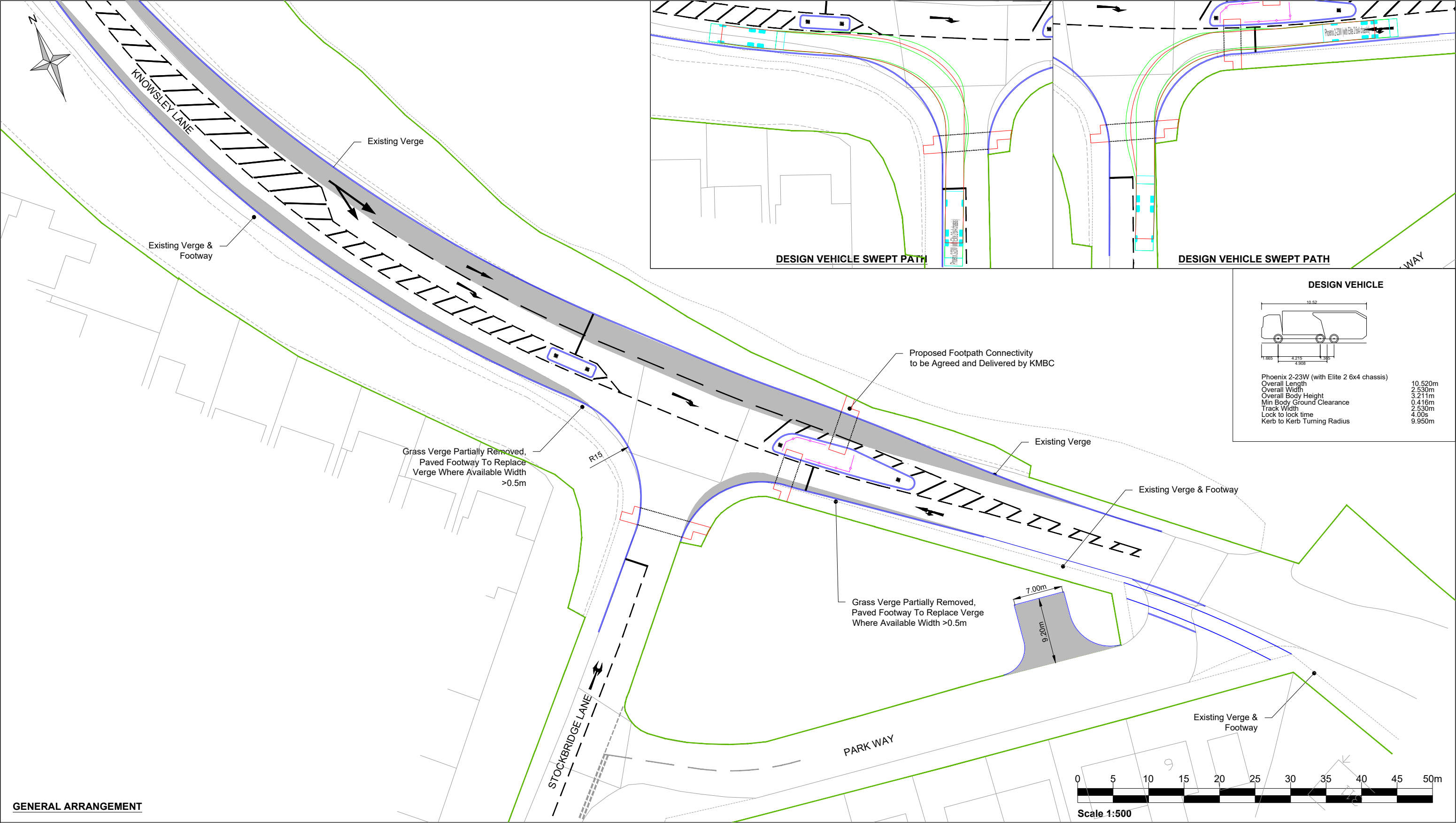
4. Conclusion

- 4.1. Having completed a comparative assessment of three mitigation schemes, it has been concluded that an enhanced priority improvement scheme, consisting of a ghost-island right turn lane on Knowsley Lane and a second northbound lane for traffic on Stockbridge Lane, provides the best improvement in terms of additional capacity on Knowsley Lane and Stockbridge Lane.
- 4.2. This additional capacity is sufficient to mitigate any worsening of traffic conditions as a result of the development proposals, to below any severe impacts. Therefore, the preferred mitigation scheme can be seen to be policy compliant.
- 4.3. Furthermore, the enhanced priority scheme is considered to provide better value for money than the other two schemes, providing better operation at the junction when compared to the signalised junction and at reduced cost. It is proposed therefore that a Section 106 contribution of £362,458.20 be made to the Council to mitigate the impact of the development proposals at this junction.

Appendix A Stockbridge Lane Mitigation Schemes

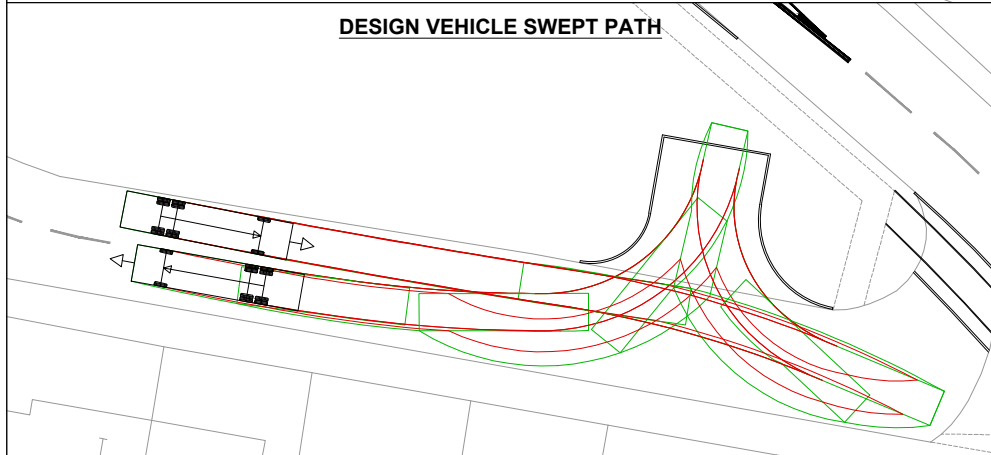
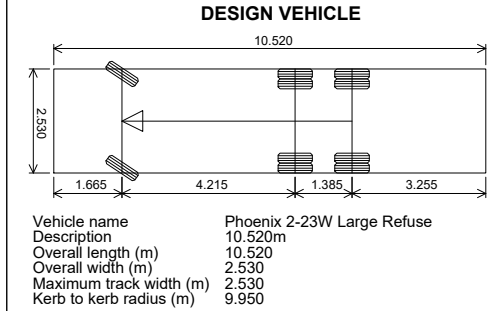
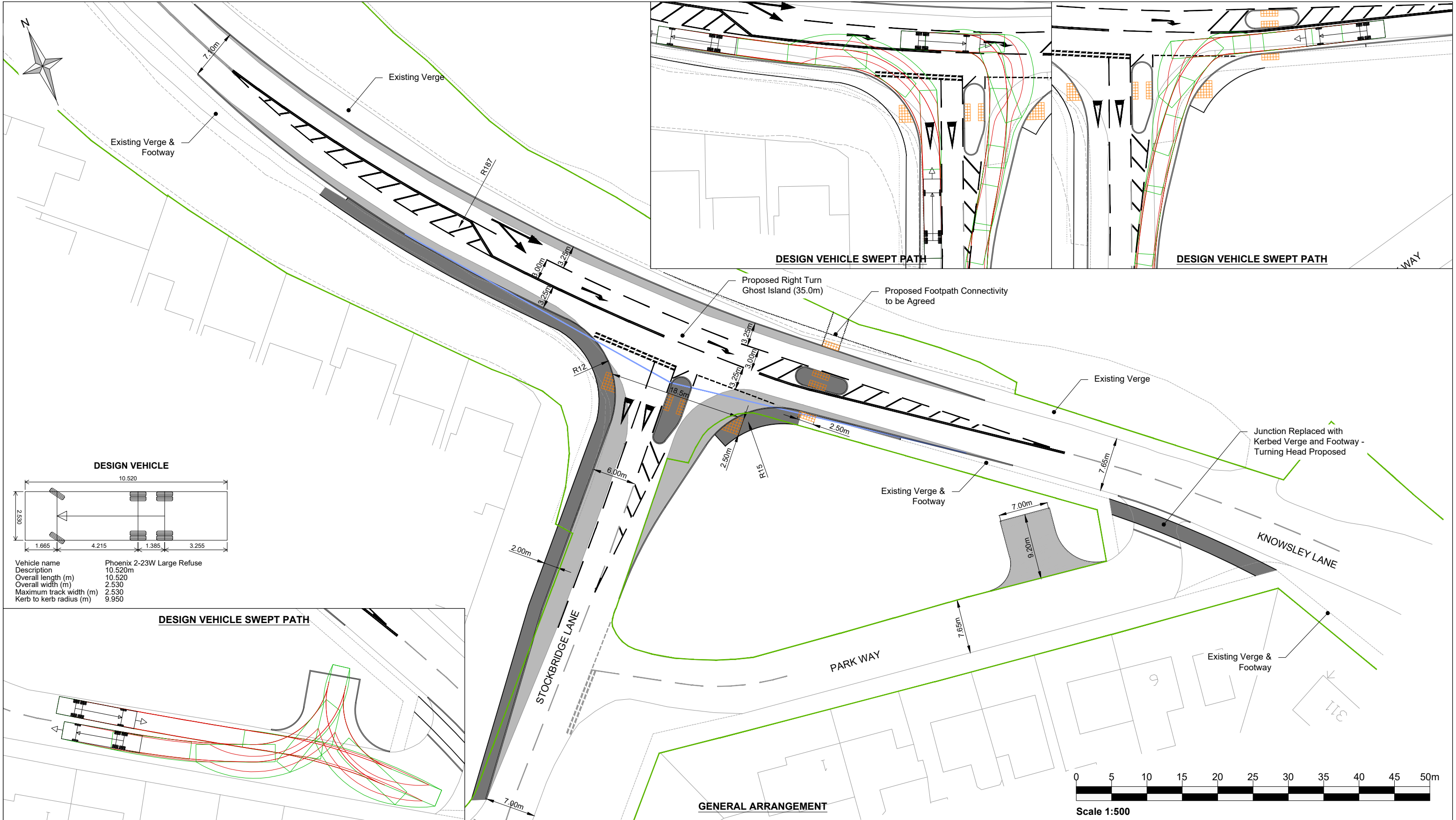


		Client HALLAM LAND MANAGEMENT LTD		Legend: PROPOSED NEW CARRIAGEWAY PROPOSED NEW FOOTWAY PROPOSED UNCONTROLLED CROSSING POINT JUNCTION VISIBILITY SPLAY (2.4m x 43m) APPROXIMATE HIGHWAY BOUNDARY Notes: 1. This is not a construction drawing and is intended for illustrative purposes only. 2. White lining is indicative only. 3. Design speed is 30mph.				
www.astutetransport.com		Project LAND EAST OF KNOWSLEY LANE, KNOWSLEY						
Drawing Status & Suitability Code		Drawing Title STOCKBRIDGE LANE JUNCTION PROPOSED ALTERATIONS GENERAL ARRANGEMENT						
Drawn AR	Checked OM	Drawing Title STOCKBRIDGE LANE JUNCTION PROPOSED ALTERATIONS GENERAL ARRANGEMENT		P01 Minor design team alterations. 24.07.25 AR OM OM P0 First issue. Rev Amendments Date By Chk Auth				
Date 14.07.25	Date 14.07.25	Drawing Title STOCKBRIDGE LANE JUNCTION PROPOSED ALTERATIONS GENERAL ARRANGEMENT						
Drawing Number A25007-0102-001		Rev. P01	Scale 1:500 @ A3 Astute Project No. A25007					



GENERAL ARRANGEMENT

		Client HALLAM LAND MANAGEMENT LTD		Legend: APPROXIMATE HIGHWAY BOUNDARY		Notes: 1. This is not a construction drawing and is intended for illustrative purposes only. 2. White lining is indicative only. 3. Design speed is 30mph.
--	--	--------------------------------------	--	--	--	---



		Client HALLAM LAND MANAGEMENT LTD							Legend:  PROPOSED NEW CARRIAGEWAY  PROPOSED NEW FOOTWAY  PROPOSED UNCONTROLLED CROSSING POINT  JUNCTION VISIBILITY SPLAY (2.4m x 43m)  APPROXIMATE HIGHWAY BOUNDARY		Notes: 1. This is not a construction drawing and is intended for illustrative purposes only. 2. White lining is indicative only. 3. Design speed is 30mph.	
www.astutetransport.com		Project LAND EAST OF KNOWSLEY LANE, KNOWSLEY										
Drawing Status & Suitability Code		Drawing Title STOCKBRIDGE LANE JUNCTION PROPOSED ALTERATIONS GENERAL ARRANGEMENT										
Drawn AR	Checked OM	Rev Amendments Date By Chk Auth										
Date 14.07.25	Date 14.07.25											
Drawing Number A25007-0102-002	Rev. P0											
Scale 1:500 @ A3		Astute Project No. A25007										

