

Our Reference: 64076/PSN1

12th September 2019

Mr Alan Shepherd
Divisional Director
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Highways England
North West Region

By Email Only

Re: P/2019/34799 - Highways England Post Submission Note 1

This letter has been prepared to address the various comments raised by Highway England's (HE) in their response to Planning Application Reference P/2019/34799, dated 13th June 2019, but received 17th July 2019.

Many of the comments in the response confirm acceptance of the submitted information and parameters whilst also acknowledging that the general principles and details set out in the Transport Assessment and Environmental Statement are considered acceptable.

However, there are some comments that require a response or clarification and each of these is set out below as a heading with Curtins' response underneath this. For ease of reading, the headings reference the bullet points contained in the summary and recommendations section of the HE response, albeit in a slightly different order.

Curtins has also met with Atkins (HE Advisors) to discuss our response and the below captures these matters.

1. Design Year

Curtins adopted a design year of 2029 in the Transport Assessment, whereby the HE response suggests 2031. Whilst 2031 was mentioned in correspondence in March 2018, discussions later in the year led Curtins to the conclusion that 2029 was more appropriate and acceptable. This was on the basis that:

- 2029 is 10 years after the application and was the year Warrington Highways were requesting. It therefore ensured a level of consistency.
- Ten years after application is the criteria that we are normally asked to adopt by HE.
- The adjacent Stobart development used an assessment year of 2028 which is ten years after the application and we note HE had no objection to this. They were not asked to do a 2031 assessment and it seems that this application should be treated in a comparable manner.
- The only difference between 2029 and 2031 is a small amount of background growth. However, the TA already provides an exceptionally robust assessment via the implementation of growth and consideration of all committed development in the area (which is extensive) at the opening year of 2021. There is an argument that the assessment already has an element of double counting in the figures.
- The assessment year was discussed with Andy Beel of Atkins (HE Advisors) after March 2018 in various meetings and he confirmed 10 years after application was acceptable.

On the above basis 2029 is considered to be acceptable, in accordance with other applications in the vicinity of the site and in accordance with HE guidance. Atkins confirmed this was reasonable at the recent meeting.

2. Warrington Multi Modal Traffic Model.

The HE response identifies some concerns with the WMMTM regarding a potential overestimation of westbound traffic and underestimation of eastbound traffic towards the M6 J20. Curtins would respond as follows to this point:

- Curtins were aware of some concern with the WMMTM from pre-application discussions with Atkins/HE. On this basis it was agreed that Curtins would not use WMMTM for the operational assessment of HE junctions and HE were likely to attach limited weight to that part of the documentation.
- Curtins instead used conventional flow data which HE acknowledge in their response as being robust (significantly higher flows than the WMMTM at M6 J20) and adequately considering cumulative impacts. The operational assessment using LinSig and conventional flows is the key test for impacts on the HE network and this test is in no way reliant on the WMMTM.
- The WMMTM was used at the request of WBC to determine indicative percentage impacts at each junction. If higher flows for the M6 J20 were obtained (by re-running the WMMTM) the base traffic may increase but this would result a lower percentage impact.
- The adjacent Stobarts site used the WMMTM in their assessment and no additional testing was requested for the HE junctions.

On the above basis, re-running the WMMTM is excessive and would have no real benefit in that it is likely to reduce the percentage impact of the development at the HE junction and percentage impacts is all Curtins have used the model data for. Atkins confirmed this was reasonable at the recent meeting.

3. Proposed Mitigation

The HE response includes a review of the mitigation suggested at the M6 Junction 20 and the adjacent Grappenhall Lane/A50 roundabout.

The response acknowledges that the repositioning of the Grappenhall Lane/A50 roundabout to the west is welcomed. This is something that the Stobart application was unable to offer due to land constraints, but it was agreed by WBC Highways and HE during the pre-application stage that it would result in a significant betterment to the mitigation proposed by Stobart.

The response also acknowledges that closing off the circulatory carriageway on the western side of the eastern roundabout would be beneficial.

However, the response raises some concerns and these are summarised in the below table with Curtins corresponding response:

HE Comment	Curtins Response
There is a single lane exit on the A50 northbound and therefore two circulatory lanes at this point is unnecessary.	The Linsig has been amended to reflect a single exit lane.

Lane markings at the M6 J20 require a review;	Some of the lane markings have been reviewed and updated to better match the model. A slightly amended drawing is included at the rear of this response in Appendix A.
The signalised approach to the western dumb-bell roundabout could cause queuing on the circulatory carriageway; and	The modelling in the TA and the revised modelling considered later in this note does not show this as an issue.
The link capacity of the carriageway between the M6 Junction 20 and the Grappenhall Lane/A50 roundabout.	The mitigation package for the M6 J20 and Grappenhall Lane/A50 roundabout was developed to address this concern, which is why the link has been extended and traffic signals introduced to better control the flow of traffic onto the link. The mitigation proposed is a betterment of the Stobart scheme in this regard, and that application was recently approved.

Table 1 - Comments on Mitigation

In summary, the mitigation is considered to be a betterment of the scheme proposed by Stobart and it is clear from the modeling the TA and the following sections that the scheme offers benefits beyond nil detriment.

4. M6 Junction 20 Base Modelling

The HE response states that the 'submitted base model could be made to be sufficiently robust that it could be used to draw broad conclusions as to the appropriateness of the proposed mitigation.' Curtins would welcome this comment and note that a similar approach was accepted by HE for the adjacent Stobart application.

The HE response then sets out four queries/comments with the base model and each is addressed below:

- Arm J1:13 – Amended to reflect existing operation
- Link J2:3/2 - Amended
- The model is based on counted throughput and validated with the observed queues. This is the same methodology applied for the Stobart application which HE have approved.
- The modelled queues have been compared to the observed queues and evidence of this is included in the TA and the following section.

The base model has been updated on the above basis and the raw model will be forwarded by email separate to this note. The results are summarised below:

Arm / Description		2017 AM Peak Observed			2017 PM Peak Observed		
		DoS	Modeled Queue	Observed Queue	DoS	Modeled MMQ	Observed Queue
J1 M6 Junction 20							
1/1	M6 Southbound Offslip Ahead Left	99.3%	20.0	21	96.1%	14.9	14
1/2	M6 Southbound Offslip Ahead	99.6%	17.5	19	98.3%	17.1	17
2/1+2/2	B5158 Cherry Lane Ahead Left	79.1 : 99.3%	6.9	20	92.8 : 92.8%	6.0	6
3/1	Cliff Lane Westbound Left	87.3%	6.1	4	67.3%	1.0	3
3/2+3/3	Cliff Lane Westbound Ahead Right	98.0 : 98.0%	13.0	11	99.6 : 99.6%	17.7	19
4/1	M6 Northbound Offslip Ahead Left	74.4%	7.8	8	97.3%	22.2	21
4/2	M6 Northbound Offslip Ahead	87.4%	11.6	8	91.8%	17.1	20
5/2+5/1	Cliff Lane Eastbound Ahead Left	67.3 : 48.3%	2.2	3	63.7 : 51.4%	3.0	4
5/3	Cliff Lane Eastbound Ahead	93.1%	13.0	9	91.3%	9.5	11
6/1	Westbound Internal Circulatory Road Ahead	53.4%	5.3	n/a	91.6%	12.7	n/a
6/2	Westbound Internal Circulatory Road Right	53.0%	6.4	n/a	63.8%	7.4	n/a
8/1	Eastbound Internal Circulatory Road Ahead	46.6%	0.0	n/a	40.3%	0.0	n/a
8/2	Eastbound Internal Circulatory Road Ahead	41.6%	0.0	n/a	24.4%	0.0	n/a
12/1	Westbound Left	25.4%	0.0	n/a	13.7%	0.0	n/a
12/2	Westbound Ahead Left	44.6%	0.0	n/a	37.7%	0.0	n/a
J2 A50 Cliff Lane Grappenhall Lane							
1/1+1/2	A50 Knutsford Rd Left Ahead	99.9 : 99.9%	14.7	20	99.3 : 99.3%	10.2	10
2/1+2/2	A50 Cliff Lane Ahead Right	56.5 : 58.4%	0.7	1	79.6 : 79.6%	1.9	2
3/1+3/2	B5356 Grappenhall Lane Left Ahead	97.1 : 97.1%	8.9	8	99.4 : 99.4%	12.1	19
J3 Lymm Services							
1/2+1/1	Cliff Lane East Ahead Left	28.2 : 28.2%	0.2	5	59.1 : 59.1%	0.7	5.3
2/1+2/2	Services Access Ahead Left	77.9 : 77.9%	1.7	3	68.4 : 68.4%	1.1	2.7
3/1+3/2	A50 Cliff Lane West Ahead Ahead2	56.5 : 56.5%	0.6	6	41.6 : 41.6%	0.4	1.8
Cycle Time		58			61		
PRC		-11.0			-10.7		
Total		85.76			96.51		

Table 2 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2017-Survey Scenario

It is evident from Table 2 that the observed queues are broadly similar to the modelled queues on majority of the links within the network. On the above basis it is considered that the base model is fit for purpose and therefore provides an effective tool to assess the impact of the Proposed Development. It should also be borne in mind that the results are comparable to those presented in the TA and the requested amends have no material impact.

The validated existing scenario model has been used to assess the capacity of the highway network for the opening year of 2021 and future year of 2029 as summarised in the tables below. The base flows include all committed development set out in Section 6 of the Transport Assessment.

		Weekday AM Peak (07:30 – 08:30)		Weekday PM Peak (16:30 – 17:30)	
Lane Number / Description		Deg Sat (%)	Mean Max Queue	Deg Sat (%)	Mean Max Queue
J1 – M6 Junction 20 Existing Junction					
2021 Base					
1/1	M6 Southbound Offslip Ahead Left	109.3%	52.4	101.2%	38.7
1/2	M6 Southbound Offslip Ahead	111.6%	46.6	108.5%	53.1
2/1+2/2	B5158 Cherry Lane Ahead Left	81.3 : 101.6%	16.0	102.3 : 102.3%	15.8
3/1	Cliff Lane Westbound Left	90.0%	7.3	69.5%	1.4
3/2+3/3	Cliff Lane Westbound Ahead Right	103.0 : 103.0%	28.6	105.2 : 105.2%	48.1
4/1	M6 Northbound Offslip Ahead Left	73.0%	7.8	101.3%	30.7
4/2	M6 Northbound Offslip Ahead	84.6%	11.0	95.4%	20.6
5/2+5/1	Cliff Lane Eastbound Ahead Left	71.1 : 51.9%	3.8	66.0 : 54.7%	3.2
5/3	Cliff Lane Eastbound Ahead	98.9%	19.4	95.2%	11.7
6/1	Westbound Internal Circulatory Road Ahead	52.9%	4.9	93.0%	12.9
6/2	Westbound Internal Circulatory Road Right	51.6%	5.9	60.7%	6.9
8/1	Eastbound Internal Circulatory Ahead	48.7%	0.0	41.5%	0.0
8/2	Eastbound Internal Circulatory Ahead	44.4%	0.0	25.4%	0.0
12/1	Westbound Left	26.3%	0.0	14.2%	0.0
12/2	Westbound Ahead Left	44.0%	0.0	37.8%	0.0
J2 A50 Cliff Lane Grappenhall Lane Existing Junction					
1/1+1/2	A50 Knutsford Rd Left Ahead	103.0 : 103.0%	64.3	101.2 : 101.2%	36.9
2/1+2/2	A50 Clifl Lane Ahead Right	59.5 : 59.8%	0.7	80.1 : 81.3%	2.1
3/1+3/2	B5356 Grappenhall Lane Left Ahead	111.8 : 111.8%	80.1	106.4 : 106.4%	61.8
J3 Lymm Services					
1/2+1/1	Cliff Lane East Ahead Left	29.0 : 29.0%	0.2	60.6 : 60.6%	0.8
2/1+2/2	Services Access Ahead Left	80.0 : 80.0%	1.9	70.5 : 70.5%	1.2
3/1+3/2	A50 Cliff Lane West Ahead Ahead2	57.9 : 57.9%	0.7	42.5 : 42.5%	0.4
Cycle Time		58		61	
PRC		-24.2		-20.6	
Total		190.47		176.65	
2029 Base					
1/1	M6 Southbound Offslip Ahead Left	124.3%	96.2	113.3%	74.3
1/2	M6 Southbound Offslip Ahead	123.0%	75.3	116.6%	78.1
2/1+2/2	B5158 Cherry Lane Ahead Left	84.2 : 104.7%	21.7	100.8 : 100.8%	16.3
3/1	Cliff Lane Westbound Left	89.5%	7.3	71.9%	1.3
3/2+3/3	Cliff Lane Westbound Ahead Right	103.3 : 103.3%	34.2	110.3 : 110.3%	67.2
4/1	M6 Northbound Offslip Ahead Left	78.0%	8.8	107.9%	52.9
4/2	M6 Northbound Offslip Ahead	90.2%	13.2	101.8%	33.6
5/2+5/1	Cliff Lane Eastbound Ahead Left	76.9 : 62.9%	4.8	70.6 : 52.1%	3.5
5/3	Cliff Lane Eastbound Ahead	106.4%	50.4	102.4%	31.8
6/1	Westbound Internal Circulatory Road Ahead	52.5%	4.8	94.7%	13.4
6/2	Westbound Internal Circulatory Road Right	49.2%	5.6	57.8%	6.4
8/1	Eastbound Internal Circulatory Ahead	52.0%	0.0	43.7%	0.0
8/2	Eastbound Internal Circulatory Ahead	44.9%	0.0	26.5%	0.0
12/1	Westbound Left	23.8%	0.0	13.1%	0.0
12/2	Westbound Ahead Left	43.2%	0.0	37.4%	0.0
J2 A50 Cliff Lane Grappenhall Lane Existing Junction					
1/1+1/2	A50 Knutsford Rd Left Ahead	109.5 : 109.5%	91.1	106.7 : 106.7%	48.5
2/1+2/2	A50 Clifl Lane Ahead Right	63.5 : 64.0%	0.9	86.3 : 86.9%	3.2
3/1+3/2	B5356 Grappenhall Lane Left Ahead	120.8 : 120.8%	107.9	116.9 : 116.9%	93.2
J3 Lymm Services					

1/2+1/1	Cliff Lane East Ahead Left	31.6 : 31.6%	0.2	65.4 : 65.4%	0.9
2/1+2/2	Services Access Ahead Left	86.2 : 86.2%	2.9	76.9 : 76.9%	1.6
3/1+3/2	A50 Cliff Lane West Ahead Ahead2	62.0 : 62.0%	0.8	45.4 : 45.4%	0.4
Cycle Time		58		61	
PRC		-38.1		-29.9	
Total		333.57		333.92	

Table 3 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2021 and 2029 Base

		Weekday AM Peak (07:30 – 08:30)		Weekday PM Peak (16:30 – 17:30)	
Lane Number / Description		Deg Sat (%)	Mean Max Queue	Deg Sat (%)	Mean Max Queue
J1 – M6 Junction 20 Existing Junction					
2021 Base plus Development					
1/1	M6 Southbound Offslip Ahead Left	121.9%	87.3	116.1%	84.0
1/2	M6 Southbound Offslip Ahead	147.5%	131.4	124.3%	102.1
2/1+2/2	B5158 Cherry Lane Ahead Left	80.3 : 99.3%	7.0	102.2 : 102.2%	14.6
3/1	Cliff Lane Westbound Left	82.7%	3.7	64.1%	0.9
3/2+3/3	Cliff Lane Westbound Ahead Right	103.7 : 103.7%	32.1	89.0 : 103.3%	39.5
4/1	M6 Northbound Offslip Ahead Left	64.1%	8.2	111.4%	66.8
4/2	M6 Northbound Offslip Ahead	56.4%	7.2	104.8%	43.5
5/2+5/1	Cliff Lane Eastbound Ahead Left	66.1 : 57.9%	2.3	63.4 : 52.2%	3.2
5/3	Cliff Lane Eastbound Ahead	110.1%	69.6	130.8%	93.1
6/1	Westbound Internal Circulatory Road Ahead	83.5%	10.2	101.2%	20.4
6/2	Westbound Internal Circulatory Road Right	60.9%	6.2	51.9%	5.6
8/1	Eastbound Internal Circulatory Ahead	49.0%	0.0	40.9%	0.0
8/2	Eastbound Internal Circulatory Ahead	47.4%	0.0	28.8%	0.0
12/1	Westbound Left	22.0%	0.0	10.0%	0.0
12/2	Westbound Ahead Left	44.2%	0.0	38.1%	0.0
J2 A50 Cliff Lane Grappenhall Lane Existing Junction					
1/1+1/2	A50 Knutsford Rd Left Ahead	103.0 : 103.0%	65.0	101.2 : 101.2%	37.1
2/1+2/2	A50 Cliff Lane Ahead Right	99.3 : 99.3%	16.4	90.8 : 90.8%	4.7
3/1+3/2	B5356 Grappenhall Lane Left Ahead	146.6 : 146.6%	203.8	170.0 : 170.0%	294.1
J3 Lymm Services					
1/2+1/1	Cliff Lane East Ahead Left	30.7 : 30.7%	0.2	62.3 : 62.3%	0.8
2/1+2/2	Services Access Ahead Left	81.6 : 81.6%	2.1	73.2 : 73.2%	1.3
3/1+3/2	A50 Cliff Lane West Ahead Ahead2	60.7 : 60.2%	0.8	48.0 : 47.3%	0.5
Cycle Time		58		61	
PRC		-63.9		-88.9	
Total		472.77		612.47	

Table 4 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2021 with Development

		Weekday AM Peak (07:30 – 08:30)		Weekday PM Peak (16:30 – 17:30)	
Lane Number / Description		Deg Sat (%)	Mean Max Queue	Deg Sat (%)	Mean Max Queue
J1 – M6 Junction 20 Existing Junction					
2029 Base plus Development					
1/1	M6 Southbound Offslip Ahead Left	136.2%	122.3	126.1%	112.0
1/2	M6 Southbound Offslip Ahead	161.0%	159.6	131.3%	122.7
2/1+2/2	B5158 Cherry Lane Ahead Left	83.1 : 102.6%	20.1	103.5 : 103.5%	16.4
3/1	Cliff Lane Westbound Left	82.4%	4.1	69.8%	1.1
3/2+3/3	Cliff Lane Westbound Ahead Right	104.0 : 104.0%	35.6	99.7 : 118.3%	68.5
4/1	M6 Northbound Offslip Ahead Left	75.8%	10.1	118.1%	94.7
4/2	M6 Northbound Offslip Ahead	67.6%	8.9	111.0%	69.3
5/2+5/1	Cliff Lane Eastbound Ahead Left	71.2 : 61.2%	3.0	65.1 : 54.9%	3.4
5/3	Cliff Lane Eastbound Ahead	117.2%	91.7	133.4%	101.2
6/1	Westbound Internal Circulatory Road Ahead	71.5%	7.6	103.3%	30.5
6/2	Westbound Internal Circulatory Road Right	50.0%	5.1	48.5%	5.1
8/1	Eastbound Internal Circulatory Ahead	52.2%	0.0	41.9%	0.0
8/2	Eastbound Internal Circulatory Ahead	47.5%	0.0	29.5%	0.0
12/1	Westbound Left	19.3%	0.0	11.2%	0.0
12/2	Westbound Ahead Left	43.5%	0.0	38.0%	0.0
17/1	Cliff Lane Westbound Ahead	70.1%	1.2	38.6%	0.0
J2 A50 Cliff Lane Grappenhall Lane Existing Junction					
1/1+1/2	A50 Knutsford Rd Left Ahead	109.5 : 109.5%	92.8	106.7 : 106.7%	49.0
2/1+2/2	A50 Cllif Lane Ahead Right	103.4 : 103.4%	76.8	95.7 : 95.7%	9.2
3/1+3/2	B5356 Grappenhall Lane Left Ahead	156.1 : 156.1%	236.7	182.5 : 182.5%	331.4
J3 Lymm Services					
1/2+1/1	Cliff Lane East Ahead Left	33.2 : 33.2%	0.2	67.2 : 67.2%	1.0
2/1+2/2	Services Access Ahead Left	87.7 : 87.7%	3.3	79.6 : 79.6%	1.9
3/1+3/2	A50 Cliff Lane West Ahead Ahead2	64.3 : 63.8%	0.9	50.9 : 49.7%	0.5
Cycle Time		58		61	
PRC		-78.9		-102.8	
Total		640.85		817.10	

Table 5 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2029 with Development

As concluded in the TA, the above results suggest that mitigation would be beneficial to mitigate the impact of the proposed development traffic on the highway network.

5. M6 Junction 20 'With Mitigation' Modelling

The HE response raises a number of comments with regard to the 'With Mitigation' model. Many of these are very minor and have no material impact on the model. A summary of the action taken in response to each comment is provided below

- Arm J2:4 – The LinSig model has been amended.
- Arm 2:1 – Drawing has been updated.
- Arm J2.2 - Drawing has been updated.
- Arm J1:7 - The LinSig model has been amended.

- Arm J1:9 - The LinSig model has been amended.
- Arm J1:10 - The LinSig model has been amended.
- Arm J1:11 - The LinSig model has been amended.
- Arm J1:8 This arm has been deleted from the LinSig model.
- Give Way Values – The changes in the give way parameters for arm J1:3 is as result of the improvements proposed in this location as part of the development proposals. With regards J1:2 this has been amended to replicate the base.
- Saturation Flows – Radius has been included for all arms.

The base model has been updated on the above basis and the raw models will be forwarded by email separate to this note. The results are summarised below:

		Weekday AM Peak (07:30 – 08:30)		Weekday PM Peak (16:30 – 17:30)	
Lane Number / Description		Deg Sat (%)	Mean Max Queue	Deg Sat (%)	Mean Max Queue
2021 Base plus Development					
J1 – M6 Junction 20 Proposed Mitigation					
1/1	M6 Offslip Ahead Left	96.2%	18.0	97.6%	20.5
1/2	M6 Offslip Ahead	96.5%	18.3	97.3%	20.1
2/1+2/2	B5158 Cherry Lane Ahead Left	92.5 : 81.1%	7.0	64.8 : 60.6%	2.1
3/1	Cliff Lane Westbound Left	52.1%	2.3	35.1%	0.7
3/2+3/3	Cliff Lane Westbound Ahead Right	56.4 : 56.4%	3.1	67.1 : 67.1%	4.8
4/2+4/1	M6 Northbound Offslip Ahead Left	48.0 : 48.0%	4.0	96.0 : 96.0%	19.4
4/3	M6 Northbound Offslip Ahead	65.6%	8.4	72.2%	9.6
5/2+5/1	Cliff Lane eastbound Ahead Left	88.9 : 88.9%	10.9	88.3 : 88.3%	9.1
5/3	Cliff Lane eastbound Ahead	52.9%	6.5	62.5%	6.2
6/1	Westbound Internal Circulatory Road Ahead	43.4%	3.9	63.2%	7.8
6/2+6/3	Westbound Internal Circulatory Road Right	77.5 : 72.5%	9.3	77.5 : 76.8%	7.9
7/2+7/1	Northbound Circulatory Ahead	55.1 : 55.1%	5.8	80.2 : 80.2%	7.4
7/3	Northbound Circulatory Right	69.0%	0.9	42.5%	1.3
8/2+8/1	Eastbound Internal Road Ahead	96.0 : 96.0%	15.8	79.4 : 79.4%	10.5
8/3	Eastbound Internal Road Ahead	55.1%	8.9	40.0%	6.8
J2 A50 Cliff Lane Grappenhall Lane-Proposed Mitigation					
1/1+1/2	A50 Knutsford Rd Left Ahead	74.5 : 74.5%	11.5	90.0 : 90.0%	8.8
2/1+2/2	A50 Clif Lane Ahead Ahead2	69.9 : 69.9%	7.8	91.4 : 91.4%	12.8
3/1+3/2	B5356 Grappenhall Lane Left Ahead	97.5 : 97.3%	18.9	89.4 : 89.2%	13.0
7/1	Westbound Circulatory Right	15.7%	0.6	6.9%	0.2
7/2	Westbound Circulatory Right	15.3%	0.6	6.9%	0.2
8/1	Northbound Circulatory	42.5%	6.1	78.9%	6.7
9/1	Eastbound Circulatory Ahead	85.8%	2.5	51.9%	1.5
9/2	Eastbound Circulatory Ahead	92.8%	2.9	60.7%	1.8
Cycle Time		60		60	
PRC		-8.4		-8.5	
Total		93.95		99.27	
2029 Base plus Development					
J1 – M6 Junction 20 Proposed Mitigation					
1/1	M6 Offslip Ahead Left	107.2%	40.3	98.6%	22.7
1/2	M6 Offslip Ahead	107.2%	40.3	98.4%	22.4
2/1+2/2	B5158 Cherry Lane Ahead Left	104.3 : 90.9%	22.9	81.0 : 76.0%	4.0
3/1	Cliff Lane Westbound Left	56.3%	2.8	37.8%	1.0
3/2+3/3	Cliff Lane Westbound Ahead Right	59.6 : 59.8%	3.6	71.0 : 71.0%	5.6
4/2+4/1	M6 Northbound Offslip Ahead Left	50.6 : 50.6%	4.2	96.6 : 96.6%	21.7
4/3	M6 Northbound Offslip Ahead	69.9%	9.3	70.3%	9.7
5/2+5/1	Cliff Lane eastbound Ahead Left	96.0 : 96.0%	20.9	92.4 : 92.4%	11.2
5/3	Cliff Lane eastbound Ahead	58.2%	7.3	65.9%	6.6

6/1	Westbound Internal Circulatory Road Ahead	43.8%	3.9	72.3%	9.2
6/2+6/3	Westbound Internal Circulatory Road Right	76.9 : 73.5%	9.5	86.2 : 81.5%	9.2
7/2+7/1	Northbound Circulatory Ahead	54.2 : 54.1%	5.9	83.1 : 83.0%	7.5
7/3	Northbound Circulatory Right	70.5%	1.0	45.3%	1.3
8/2+8/1	Eastbound Internal Road Ahead	98.8 : 98.8%	19.7	86.7 : 86.7%	10.5
8/3	Eastbound Internal Road Ahead	56.4%	9.4	43.5%	7.1
J2 A50 Cliff Lane Grappenhall Lane-Proposed Mitigation					
1/1+1/2	A50 Knutsford Rd Left Ahead	79.4 : 79.4%	13.4	96.2 : 96.2%	12.6
2/1+2/2	A50 Cllif Lane Ahead Ahead2	73.4 : 73.4%	8.5	96.3 : 96.3%	18.6
3/1+3/2	B5356 Grappenhall Lane Left Ahead	101.9 : 101.8%	30.9	93.1 : 92.9%	15.5
7/1	Westbound Circulatory Right	16.0%	0.6	7.3%	0.2
7/2	Westbound Circulatory Right	16.0%	0.6	7.3%	0.2
8/1	Northbound Circulatory	45.4%	6.7	84.3%	7.2
9/1	Eastbound Circulatory Ahead	88.2%	2.9	54.0%	1.9
9/2	Eastbound Circulatory Ahead	95.3%	3.5	63.3%	2.2
Cycle Time		60		60	
PRC		-19.2		-9.5	
Total		171.57		122.44	

Table 6 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2021 and 2029 with Development

Lane Number / Description		Weekday AM Peak (07:30 – 08:30)		Weekday PM Peak (16:30 – 17:30)	
		Deg Sat (%)	Mean Max Queue	Deg Sat (%)	Mean Max Queue
J1 – M6 Junction 20 Proposed Mitigation					
2021 Base plus Development + Stobarts					
1/1	M6 Offslip Ahead Left	101.1%	26.0	104.9%	35.5
1/2	M6 Offslip Ahead	101.1%	26.0	104.9%	35.5
2/1+2/2	B5158 Cherry Lane Ahead Left	98.2 : 85.9%	8.7	63.6 : 59.5%	2.0
3/1	Cliff Lane Westbound Left	52.6%	2.4	35.3%	0.8
3/2+3/3	Cliff Lane Westbound Ahead Right	58.6 : 58.7%	3.6	68.4 : 68.5%	5.4
4/2+4/1	M6 Northbound Offslip Ahead Left	49.9 : 49.9%	4.2	99.7 : 99.7%	28.2
4/3	M6 Northbound Offslip Ahead	65.6%	8.4	76.3%	10.2
5/2+5/1	Cliff Lane eastbound Ahead Left	91.6 : 91.6%	13.8	92.5 : 92.5%	11.3
5/3	Cliff Lane eastbound Ahead	54.3%	6.7	65.2%	6.5
6/1	Westbound Internal Circulatory Road Ahead	46.1%	4.2	61.1%	7.6
6/2+6/3	Westbound Internal Circulatory Road Right	77.3 : 71.0%	9.1	72.6 : 75.5%	7.3
7/2+7/1	Northbound Circulatory Ahead	53.4 : 53.4%	5.5	80.4 : 80.4%	7.7
7/3	Northbound Circulatory Right	69.0%	0.9	42.5%	1.5
8/2+8/1	Eastbound Internal Road Ahead	97.2 : 97.2%	16.0	78.6 : 78.6%	11.1
8/3	Eastbound Internal Road Ahead	56.5%	9.2	40.2%	7.1
J2 A50 Cliff Lane Grappenhall Lane-Proposed Mitigation					
1/1+1/2	A50 Knutsford Rd Left Ahead	76.5 : 76.5%	12.2	90.0 : 90.0%	8.8
2/1+2/2	A50 Cllif Lane Ahead Ahead2	77.2 : 77.2%	10.0	94.0 : 94.0%	15.8
3/1+3/2	B5356 Grappenhall Lane Left Ahead	98.3 : 98.1%	21.2	97.8 : 97.6%	22.4
7/1	Westbound Circulatory Right	14.2%	0.6	7.3%	0.2
7/2	Westbound Circulatory Right	13.9%	0.6	6.9%	0.2
8/1	Northbound Circulatory	43.7%	6.5	78.9%	6.7
9/1	Eastbound Circulatory Ahead	86.8%	2.6	57.3%	2.3
9/2	Eastbound Circulatory Ahead	93.5%	3.0	66.5%	2.7
Cycle Time		60		60	
PRC		-12.4		-16.6	
Total		116.09		151.68	

Table 7 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2021 with Development and Stobarts

Lane Number / Description		Weekday AM Peak (07:30 – 08:30)		Weekday PM Peak (16:30 – 17:30)	
		Deg Sat (%)	Mean Max Queue	Deg Sat (%)	Mean Max Queue
J1 – M6 Junction 20 Proposed Mitigation					
2029 Base plus Development + Stobarts					
1/1	M6 Offslip Ahead Left	112.4%	55.6	105.6%	39.0
1/2	M6 Offslip Ahead	112.1%	54.6	105.7%	39.4
2/1+2/2	B5158 Cherry Lane Ahead Left	104.5 : 91.5%	23.7	77.2 : 72.5%	3.3
3/1	Cliff Lane Westbound Left	56.7%	2.9	38.1%	1.1
3/2+3/3	Cliff Lane Westbound Ahead Right	61.4 : 62.0%	4.0	72.4 : 72.5%	6.1
4/2+4/1	M6 Northbound Offslip Ahead Left	52.3 : 52.3%	4.5	100.1 : 100.1%	31.5
4/3	M6 Northbound Offslip Ahead	69.9%	9.3	73.9%	10.3
5/2+5/1	Cliff Lane eastbound Ahead Left	96.9 : 96.9%	23.5	96.6 : 96.6%	17.1
5/3	Cliff Lane eastbound Ahead	57.3%	7.3	68.4%	7.1
6/1	Westbound Internal Circulatory Road Ahead	45.4%	4.1	69.3%	8.9
6/2+6/3	Westbound Internal Circulatory Road Right	74.4 : 73.7%	9.5	80.0 : 80.4%	8.5
7/2+7/1	Northbound Circulatory Ahead	55.7 : 55.6%	5.9	83.5 : 83.4%	7.8
7/3	Northbound Circulatory Right	73.6%	1.0	45.3%	1.4
8/2+8/1	Eastbound Internal Road Ahead	100.0 : 100.0%	20.2	85.6 : 85.6%	11.1
8/3	Eastbound Internal Road Ahead	57.7%	9.7	43.6%	7.4
J2 A50 Cliff Lane Grappenhall Lane-Proposed Mitigation					
1/1+1/2	A50 Knutsford Rd Left Ahead	81.7 : 81.7%	14.3	96.2 : 96.2%	12.6
2/1+2/2	A50 Clif Lane Ahead Ahead2	79.0 : 79.0%	10.3	98.9 : 98.9%	26.7
3/1+3/2	B5356 Grappenhall Lane Left Ahead	102.4 : 102.4%	34.6	101.3 : 101.3%	34.2
7/1	Westbound Circulatory Right	16.4%	0.7	7.3%	0.2
7/2	Westbound Circulatory Right	16.4%	0.7	7.3%	0.2
8/1	Northbound Circulatory	46.7%	7.0	84.3%	7.2
9/1	Eastbound Circulatory Ahead	88.4%	2.9	58.6%	2.5
9/2	Eastbound Circulatory Ahead	95.3%	3.5	68.1%	2.9
Cycle Time		60		60	
PRC		-24.9		-17.5	
Total		209.64		195.24	

Table 8 – The A50 Cliff Lane / B5356 Grappenhall Lane Roundabout and the M6 J20 Roundabouts 2029 with Development and Stobarts

As concluded in the TA, the above results demonstrate that even with the addition of the Stobart scheme, the proposed improvements provide a betterment when compared with the do nothing scenario for both the opening year 2021 and future year 2029. The modelling amends suggested by HE have no material impact on this conclusion.

Finally, the response also raises some general comments on the modeling which are summarised below:

The HE response states that the model 'cannot accurately reflect the impact of the merges between the two junctions and any knock on consequences for the M6 northbound off slip.' Curtins disagree with this statement and note that a very similar LinSig model was used for the Stobart development which is now approved.

The HE response states that traffic is being held back at the A50/Grappenhall roundabout and if it was released it may impact on the M6 Junction 20. Curtins would state the control of traffic arriving at the junction is one of the key principles behind the mitigation and the modelling demonstrate this could work effectively.

Circulatory queuing – It is Curtins view that the queues on the circulatory lanes can be contained within the available space.

6. Merge/Diverge Assessments

The HE response suggests that mitigation should be considered at the M6 Junction 20 as a result of the merge/diverge assessment. It also requests clarity on why a 2022 and 2032 assessment was undertaken.

Curtins can confirm that 2022 and 2032 assessments were used as Curtins were provided with growth factors by Atkins/HE for the mainline for these years. This was discussed at the recent meeting and Atkins confirmed that use of these years was acceptable.

The assessment confirms that the existing arrangement for the northbound on-slip does not meet the required standard based on existing traffic flows during the PM peak. This is mainly due to significant number of northbound through traffic using the slip road to avoid congestion on the mainline. The survey data used to inform the assessment confirms that in the PM peak there were 415 vehicles undertaking this movement.

The assessment also shows that in 2022 the current provision at the north bound on-slip is not sufficient for both the AM and PM peaks even without the addition of the development traffic. For the southbound off-slip the existing arrangement does not meet the requirement in the AM peak base scenario.

With regard to the requirement for mitigation, Curtins would point out that the arrangements do not meet the required standards in the 2022 and 2032 base years. It is therefore not the development traffic that creates the concern but increases in background traffic and traffic from committed developments.

Curtins does not believe that the requirement to upgrade the links should fall on the applicant and it is noted that the adjacent Stobart application has not been asked to upgrade the merge/diverge arrangements, despite comparable results.

7. Conclusion

It is Curtin's view that the above does not alter the conclusions on the previously submitted Transport Assessment and we trust that the above alleviates the concerns raised in the consultation response.

Appendix A – Grappenhall Lane/A50 and M6 Junction 20 Mitigation Scheme



GENERAL NOTES:

- KEY:
- INDICATIVE LAND OWNERSHIP BOUNDARY
 - INDICATIVE EXTENTS OF PUBLIC HIGHWAY
 - PROPOSED KERB LINE
 - PROPOSED FOOTWAY
 - PROPOSED ROAD MARKINGS
 - PROPOSED TRAFFIC SIGNAL

P04	Road markings updated	29/07/19	DD	AV
P03	Footways updated	08/01/19	DD	AV
P02	Cliff Lane Roundabout: Northern arm entry updated	28/11/18	DD	AV
Rev:	Description:	Date:	By:	Chkd:



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Status: PRELIMINARY

Project: WARRINGTON SIX 56

Orig Title: POTENTIAL IMPROVEMENTS

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	15/11/18	DD	DD	AV			
Scale:	1:1,000						
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
64076 - CUR - 00 - XX - DR - TP - 75011 - P04							

\\media2\Projects\64001 - 06000064076 - Warrington Interchange TPMAE - Drawings\2.0\W075

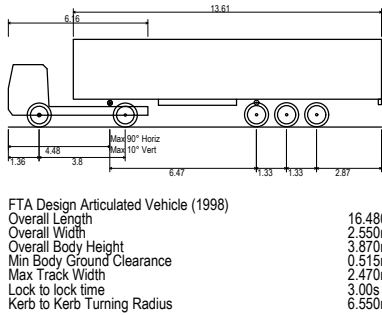
M6 J20 WESTERN ROUNDABOUT ARRANGEMENT

GENERAL VIEW

GENERAL NOTES:

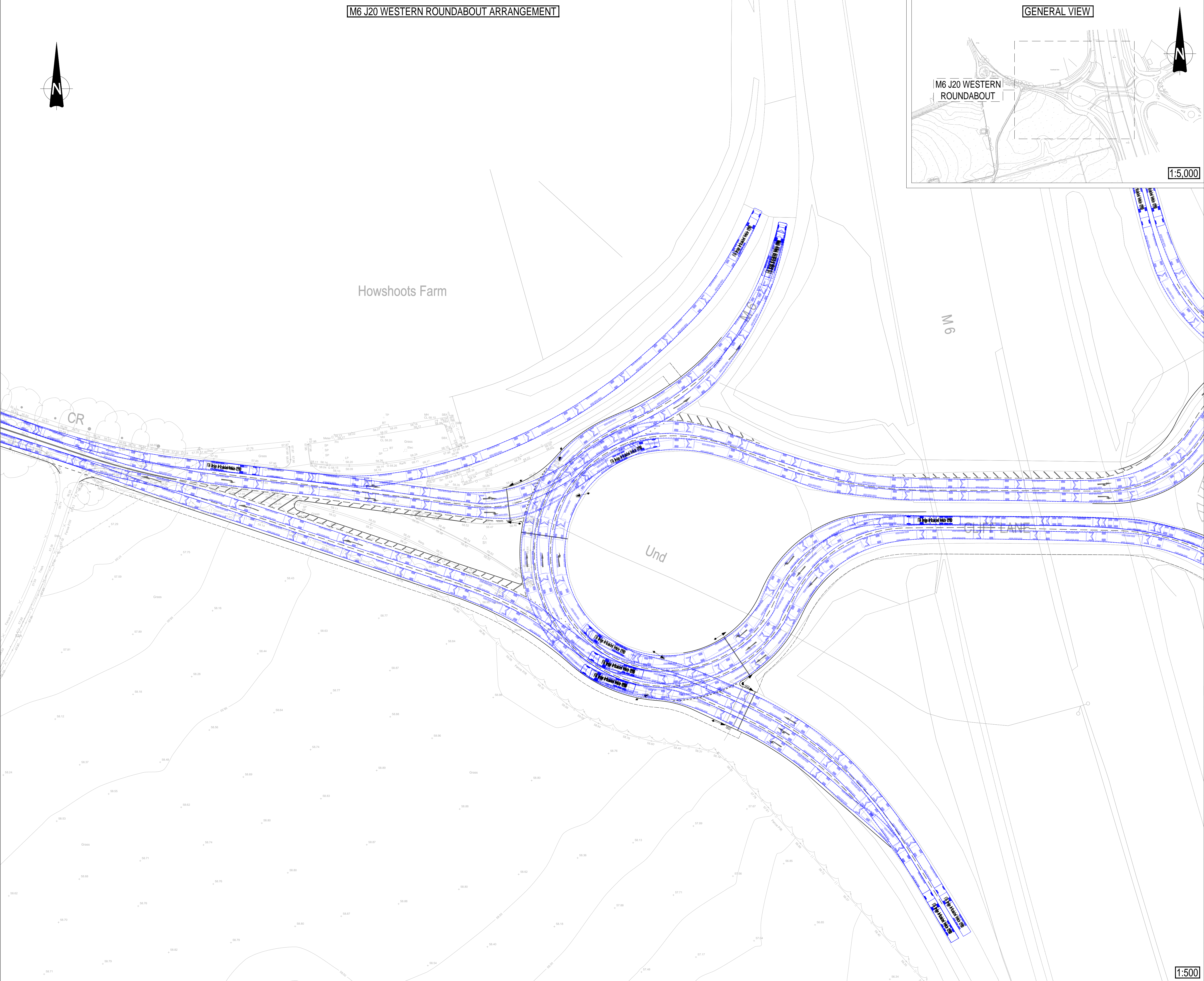
KEY: — PROPOSED KERB LINE
- - - PROPOSED FOOTWAY
- - - - - PROPOSED ROAD MARKINGS

VEHICLE PROFILE:



1:5,000

1:500



P02	Layout updated	12/09/19	DD	FF
Rev:	Description:	Date:	By:	Chkd:



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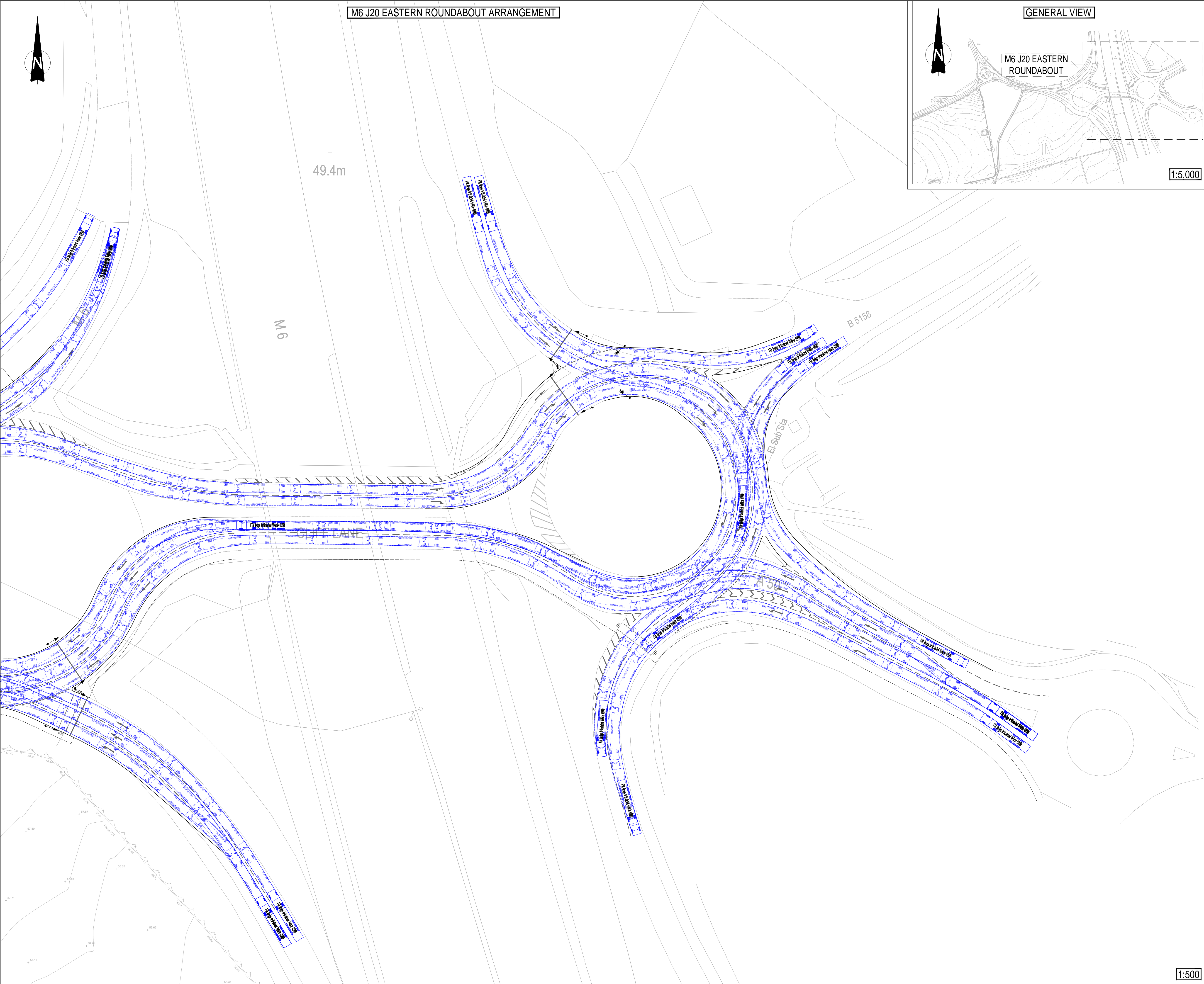
Status: PRELIMINARY

Project: WARRINGTON INTERCHANGE

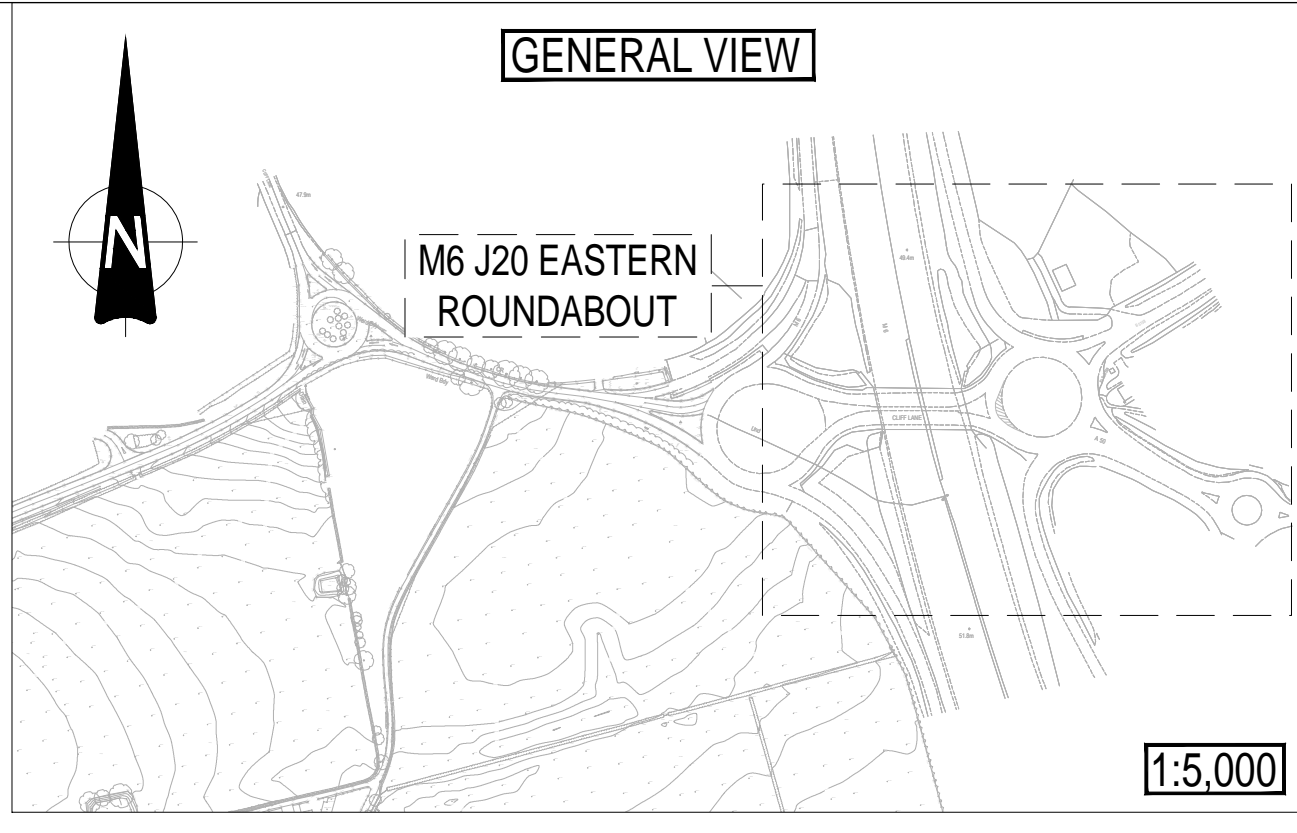
Orig Title: M6 J20 - WESTERN ROUNDABOUT
POTENTIAL IMPROVEMENTS
SWEPT PATH ANALYSIS
16.5m ARTICULATED HGV

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	23/10/18	DD	DD	AV			
Scale: AS STATED							
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:

64076 - CUR - 00 - XX - DR - TP - 05003 - P02



M6 J20 EASTERN ROUNDABOUT ARRANGEMENT



GENERAL VIEW

GENERAL NOTES:

KEY: ——— PROPOSED KERB LINE
----- PROPOSED FOOTWAY
----- PROPOSED ROAD MARKINGS

VEHICLE PROFILE:

FTA Design Articulated Vehicle (1998)

Overall Length	18.450m
Overall Width	2.950m
Overall Height	3.870m
Min Body Ground Clearance	0.110m
Max Tyre Width	2.40m
Lock to Lock Time	3.00s
Wheel to Wheel Turning Radius	6.500m

P02	Layout updated	12/09/19	DD	FF
Rev:	Description:	Date:	By:	Chkd:

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Status: PRELIMINARY

Project: WARRINGTON INTERCHANGE

Orig Title: M6 J20 - EASTERN ROUNDABOUT
POTENTIAL IMPROVEMENTS
SWEEP PATH ANALYSIS
16.5m ARTICULATED HGV

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	23/10/18	DD	DD	AV			
Scale: AS STATED							
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
64076 - CUR - 00 - XX - DR - TP - 05004 - P02							

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