

Our Reference: 64076/PSN2

14th November 2019

Mr Alan Shepherd
Divisional Director
Operations Division
Highways England
North West Region

By Email Only

Re: P/2019/34799 - Highways England Post Submission Note 2

This letter has been prepared to address the comments raised by Highway England's (HE) in their response to Planning Application Reference P/2019/34799, dated 16th October 2019.

The response is the second response from HE. It confirms that many of the points raised in the first response and addressed by Curtins Post Submission note 1, are now resolved. For example, the response states that the base modelling of the M6 J20 'can now be regarded as robust at a broad level'.

The two primary matters that remain outstanding are agreement on the M6 J20 mitigation model and the merge/diverge assessment.

These matters are considered in detail below:

1. M6 Junction 20 Mitigation Model

The latest HE response acknowledges that number of comments were made on the proposed mitigation modelling in the last HE review and the developer has either amended the design or the model to account for these comments. HE states that this process has introduced a number of new issues which require addressing. These are summarised below with Curtins response underneath in red.

Arm J1:1 is modelled with both the nearside and offside lanes accommodating the movement to the downstream middle of three lanes. The drawing shows only the offside feeding the downstream middle lane.

The model has been amended.

Arm J1:3 there appear to be significant differences in the maximum flow whilst giving-way values used between the base and proposed models without obvious justification.

The maximum flow for J1:3 has been increased to take account of the proposed improvements to this roundabout as shown in Drawing 64076-7501-P06. The ARCADY model for the proposed improvements is attached.

Arm J1:4 has a weave from the offside lane to the downstream middle and nearside lanes. This reflects the base but is not needed to accommodate the movement from M6-M6 due to the provision of a connector from the middle to downstream middle and nearside lanes and should be removed. The lane markings on this part of the network should also be reviewed.

Drawing 64076-7501-P04 and the model have both been amended. The amended drawing (ref: 64076-7501-P06 is provided at the rear of this note.

Arm J1:9 is modelled with both the nearside and middle lanes feeding the nearside immediately downstream and the offside lane feeding the middle and offside downstream lanes. The drawing shows a continuation of all three lanes

The model has been amended.

Arm J1:10 the model shows the middle lane feeding the nearside and middle lanes of the downstream circulatory whereas the drawing shows this lane feeding the offside exit lane and nearside downstream circulatory lane

The model has been amended.

Arm J2:1 is not marked to allow the movement from offside to both downstream lanes on the circulatory although the model allows this.

The model and the lane markings (see Drawing 64076-7501-P06) has been amended.

Arm J2:2 is modelled and drawn with the offside lane being right only but the design allows for it to also be left.

The model and lane markings (see Drawing 64076-7501-P06) has been amended.

Arm J2:3 is drawn with a left only and right only but the nearside is actually left and right.

The model and lane markings (see Drawing 64076-7501-P06) been amended.

In addition, Given the nature of traffic flows on a roundabout, all lanes should be coded as being 'nearside' unless there is strong justification not to do so.

The model and drawing of the proposed mitigation has been updated on the above basis and the drawing is included as Appendix A. The raw model will be forwarded by email separate to this note.

In addition to the above comments, the HE response states that there are some concerns regarding the suitability of the model and its ability to consider merges between the two junctions and/or possible queuing on the circulatory carriageway.

Curtins is of the view that the modelling package is entirely appropriate and would point out that HE offered no objection to the adjacent Stobart scheme which modelled the junction using the same software. If the software was acceptable to draw a conclusion on that scheme the same must apply here.

It should also be noted that previous responses from HE have clearly stated that the 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.'

With regard to the benefits of the mitigation, Curtins has compared the overall network performance for the 'base scenario' with the 'base plus development plus mitigation'. A summary of the results is provided in Table 1 below.

Scenario	AM Peak		PM Peak	
	PRC (%)	Delay	PRC (%)	Delay
2021 Base Existing Junction	-24.2	190.47	-20.6	176.65
2021 Base with Proposed Development + Mit	-16.6	131.12	-16.1	131.78
2021 Base with Development plus Stobart + Mit	-23.0	164.61	-17.3	168.02
2029 Base Existing Junction	-38.1	333.57	29.9	333.92
2029 Base with Proposed Development + Mit	-24.3	209.58	17.5	184.76
2029 Base with Development plus Stobart + Mit	-25.9	262.31	-20.8	245.02

Table 1 - Network Performance

It is evident from Table 2 that the network performs better in the development plus mitigation scenario than in the base scenario. It is therefore considered that the conclusions of the TA remain valid and the proposed improvements mitigate the impact of the development.

It is also important to note that MOVA is likely to be installed as part of the junction improvements. Research has identified that installation of MOVA increases throughput and minimise delay by dynamic optimization. The impact of MOVA has not been considered as part of this assessment and therefore it is considered that the above results presents a worse case scenario.

2. Merge/Diverge Assessments

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

In Post Submission Note 1 Curtins confirmed 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 a meeting with Atkins who confirmed that use of these years was acceptable. This matter is therefore considered to be resolved.

With regard to the assessments, Curtis Post Submission Note 1 stated that that the merge/diverge arrangements on certain arms 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 did not believe that the requirement to upgrade the links should fall on the applicant and noted that the adjacent Stobart applicant was not been asked to upgrade the merge/diverge arrangements, despite comparable results.

The latest HE response states that:

It was clear from our review as set out in our previous correspondence that the development increases the required standard of arrangement for the northbound on-slip. Whilst Curtins contest this in their latest note, no supporting analysis is provided for review.

Curtins would again point out that the evidence submitted as part of the adjacent Stobart application showed that the standard of arrangement for the northbound off-slip did not meet the necessary requirements and the development exacerbated this as per Table 5.7 extracted from the TA and reproduced below:

Table 5.7 – M6/J20 Northbound On-slip Merge Assessment

Period	Mainline flow		Merge Flow		Junction Form Exceeded?	
	Without Dev	With Dev	Without Dev	With Dev	Without Dev	With Dev
AM Peak	7,388	7,388	1,164	1,288	Yes	Yes
PM Peak	5,888	5,888	1,566	1,700	Yes	Yes

The with development flow of 1288 and 1700 in the AM and PM peak periods are comparable with the Six:56 assessment contained in the TA.

HE made no request for the Stobart applicant to mitigate or contribute to any enhancements and given the comparable values it is not clear why the Six:56 applicant should be expected to provide mitigation where other developments supported in the last 6 months have not had to do so.

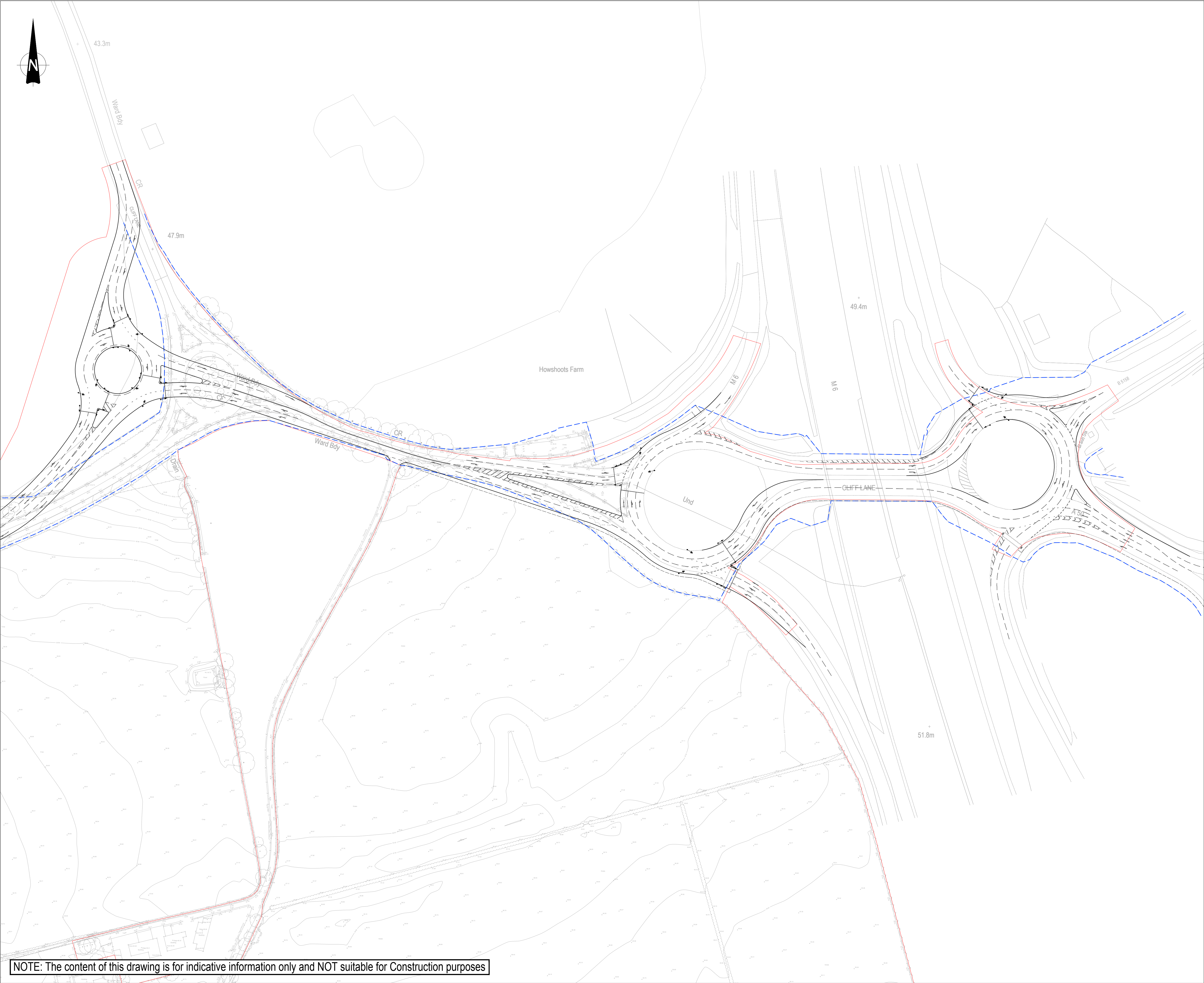
It must also be noted that the merge/diverge PM issue at the northbound on-slip is partly due to a significant number of northbound vehicles using the slip road to avoid congestion on the mainline. The survey data used to inform the assessment confirms that in the PM peak there were 415 vehicles undertaking this movement. If these vehicles were removed from the slip road and added to the mainline, it would alleviate the issue to a

degree but the junction form would still be exceeded. It is therefore Curtins view that the issue with the merge/diverge in this location is the mainline flows rather than the merge/diverge itself.

3. Conclusion

It is Curtin's view that the above does not alter the conclusions of 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

P06	Road markings updated	08/11/19	JM	AV
P05	Road markings updated	06/11/19	DD	AV
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:
64076	- CUR - 00	- XX	- DR	- TP -
75011	- P06			

\\msd2\Projects\64076 - Warrington Six 56 - Warrington Interchange (P)MAE - Drawings\2.0\W075

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