

Problem 2

Location: Adastral Park Road

Summary: Risk of kerb strikes. The tie in at the exit from the signals is acute and could result in vehicles hitting the nearside kerb.

Recommendation: Provide a smoother transition.

BCL Comment: *The transition has now been amended to provide a smoother transition on exit from the junction.*

Problem 3

Location: Adastral Park Road

Summary: Risk of horses being spooked/injury to pedestrians. The current crossing point for horses looks unused, which is probably due to the very busy A12. However, the proposed formal crossing may encourage use of this route. However the route is very convoluted, involving stopping the horse several times in the face of traffic.

Recommendation: Provide a straight-across equestrian crossing point in the direct vicinity of the bridleway.

BCL Response: *This is no longer applicable as a Pegasus crossing is no longer being provided.*

Problem 4

Location: Adastral Park Road horse crossing

Summary: Horses may become spooked and pedestrians may not appreciate oncoming vehicles. The stagger for the crossing is the wrong way round which means that the horses and riders will be approaching the crossing with their back to traffic. This may frighten the horses if they are not expecting vehicles to pass them at speed from behind. It also means that pedestrians will not be observing traffic on approach to the crossing and make errors of judgement if crossing against the lights.

Recommendation: Amend the stagger on the crossing so that the riders and horses are facing oncoming traffic.

BCL Response: *This is no longer applicable as a Pegasus crossing is no longer being provided.*

Problem 5

Location: A12 and Adastral Park Road crossings

Summary: Insufficient space for horses which may result in the horses waiting too close to the traffic or unable to manoeuvre properly, both of which may spook them. The segregated area for horses in the central islands do not appear wide enough for a horse to turn, (particularly as the traffic signal pole will have to be in this area), or provide enough space for them to wait. There are also no holding areas for horses either side of the A12.

Recommendation: Provide a straight across Pegasus Crossing as recommended in Problem 2.3. If this is not done, extend the island to provide sufficient holding space and extend it to ensure that the signal equipment is outside of this area for horses, to reduce the chances of them being spooked. Provide holding areas in all places where the horses are expected to wait. Holding areas should be 10m x 5m.

BCL Response: *This is no longer applicable as a Pegasus crossing is no longer being provided.*

Problem 7

Location: A12, Pegasus crossing

Summary: Horses may become spooked. The path to and from the crossing on the west side of the A12 is adjacent to the carriageway. As much segregation from the traffic as possible should be provided.

Recommendation: Provide a straight across crossing as recommended in Problem 2.3. If this is not done, realign the path so that it follows the back of highway.

BCL Response: *This is no longer applicable as a Pegasus crossing is no longer being provided.*

3 Limitations

Third party information has been used in the preparation of this report, which Brookbanks Consulting Ltd, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks Consulting Ltd accepts no liability for same.

The benefits of this report are provided to Carlyle Land Ltd and Commercial Estates Group for the proposed development on Land at Adastral Park.

Brookbanks Consulting Ltd excludes third party rights for the information contained in the report.

Safety Engineering Services Ltd

Land South and East of Adastral Park, Ipswich
Proposed Western Signalised Access
A12 Dual Carriageway

Stage 1 Road Safety Audit

Stage 1 Road Safety Audit

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Report Number	Client Reference	Report Status
SESL1728	10391	FINAL

1 **INTRODUCTION**

This report presents the findings of a Road Safety Audit carried out on off-site highway mitigation works proposed to enable site access to land to the south and east of Adastral Park, Ipswich, at the request of Brookbanks Consulting Ltd. The development will consist of up to 2000 dwellings, local centres, with facilities to serve recreation and education.

The audit was carried out by the following:

S Hancock

Road Safety Audit Team Leader

Safety Engineering Services Ltd

D Ramsden

Road Safety Audit Team Member

Certificate of Competency
gained in June 2015

Safety Engineering Services Ltd

The audit took place on Tuesday 5 September 2017 and comprised a desktop study of the plans provided and a drive and walk through of the site by both team members. During the site visit, the weather was overcast and the road surfaces were dry. Traffic at the time of the audit was moderate.

The drawings and documents provided for the purpose of audit are listed in Appendix A. The locations of any problems have been identified on an annotated drawing in Appendix B.

The main terms of reference of the audit are as described in HD19/15. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

There are two junctions put forward for this audit with highway mitigation works for this development. This Road Safety Audit report focuses on the proposed signalised junction on the A12, which incorporates an equestrian crossing.

2 ROAD SAFETY AUDIT FINDINGS

2.1 PROBLEM

Location: A12 Ring Road

Summary: Likely excessive speed on approach to signals which can result in a number of accident types.

The signalised junction is positioned on a national speed limit road, which encourages too higher speeds on approach to this type of junction.

RECOMMENDATION

To encourage reduced speed on the approach to the signal junction, a 50mph speed limit should be applied on the A12 between the Barrack Square roundabout to the north and Foxhall Road roundabout to the south.

2.2 PROBLEM

Location: Adastral Park Road

Summary: Risk of kerb strikes.

The tie in at the exit from the signals is acute and could result in vehicles hitting the nearside kerb.

RECOMMENDATION

Provide a smoother transition.

2.3 PROBLEM

Location: Adastral Park Road

Summary: Risk of horses being spooked/injury to pedestrians

The current crossing point for horses looks unused, which is probably due to the very busy A12. However, the proposed formal crossing may encourage use of this route. However the route is very convoluted, involving stopping the horse several times in the face of traffic.

RECOMMENDATION

Provide a straight-across equestrian crossing point in the direct vicinity of the bridleway.

2.4 PROBLEM

Location: Adastral Park Road horse crossing

Summary: Horses may become spooked and pedestrians may not appreciate oncoming vehicles.

The stagger for the crossing is the wrong way round which means that the horses and riders will be approaching the crossing with their back to traffic. This may frighten the horses if they are not expecting vehicles to pass them at speed from behind. It also means that pedestrians will not be observing traffic on approach to the crossing and make errors of judgement if crossing against the lights.

RECOMMENDATION

Amend the stagger on the crossing so that the riders and horses are facing oncoming traffic.

2.5 PROBLEM

Location: A12 and Adastral Park Road crossings

Summary: Insufficient space for horses which may result in the horses waiting too close to the traffic or unable to manoeuvre properly, both of which may spook them.

The segregated area for horses in the central islands do not appear wide enough for a horse to turn, (particularly as the traffic signal pole will have to be in this area), or provide enough space for them to wait. There are also no holding areas for horses either side of the A12.

RECOMMENDATION

Provide a straight across Pegasus Crossing as recommended in Problem 2.3. If this is not done, extend the island to provide sufficient holding space and extend it to ensure that the signal equipment is outside of this area for horses, to reduce the chances of them being spooked. Provide holding areas in all places where the horses are expected to wait. Holding areas should be 10m x 5m.

2.6 PROBLEM

Location: A12, Pegasus crossing

Summary: Horses may become spooked.

The path to and from the crossing on the west side of the A12 is adjacent to the carriageway. As much segregation from the traffic as possible should be provided.

RECOMMENDATION

Provide a straight across crossing as recommended in Problem 2.3. If this is not done, realign the path so that it follows the back of highway.

3 AUDIT STATEMENT

We certify that this audit has been carried out in accordance with HD 19/15.


Signed:



S Hancock
Audit Team Leader
Safety Engineering Services Ltd

Date 6 September 2017

Signed:

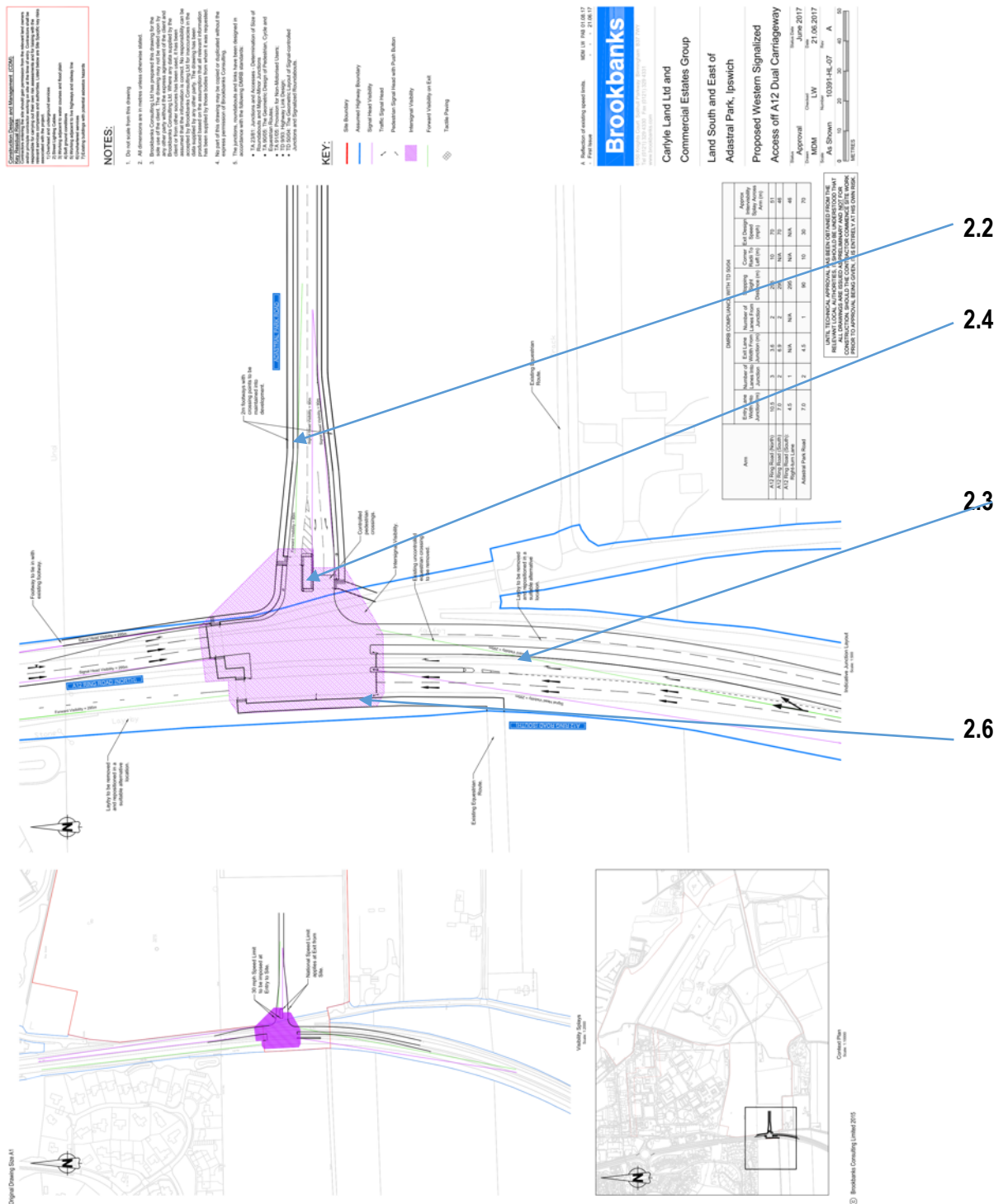


D Ramsden
Audit Team Member
Safety Engineering Services Ltd

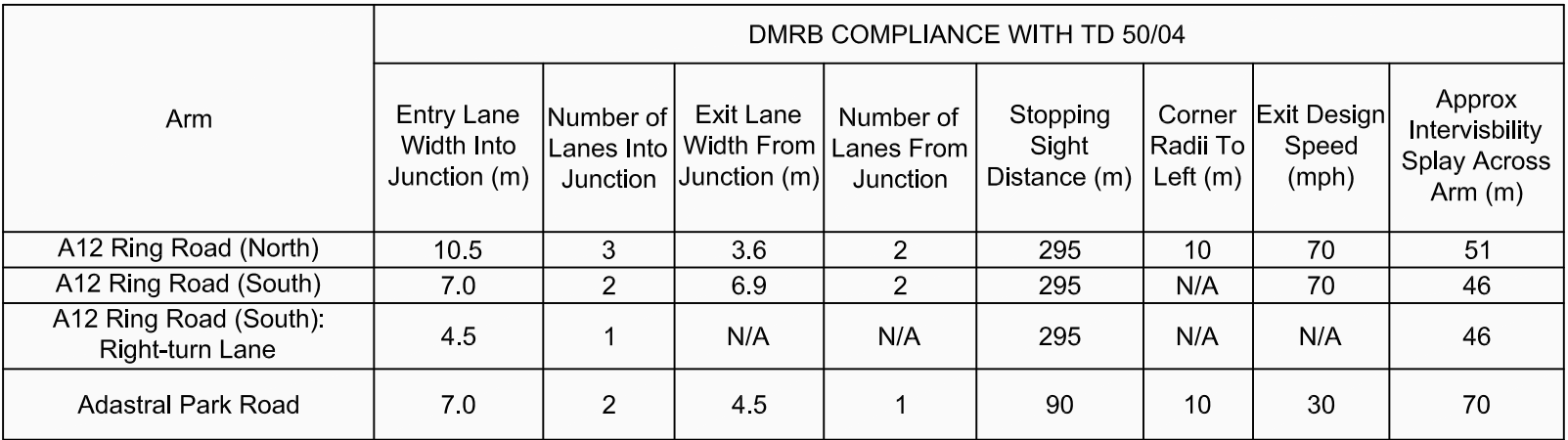
Date: 6 September 2017

DRAWINGS AND DOCUMENTS PROVIDED FOR AUDIT

10391-H-0L-07 rev A	Proposed Western Signalised Access off A12 Dual Carriageway
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Problems 2.1 and 2.5 not identified on drawing.



UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT HIS OWN RISK.

Status		Status Date	
Approval		June 2017	
Drawn	Checked	Date	
MDM	LW	21.06.2017	
Scale	Number	Rev	
As Shown	10391-HL-07	C	

0 10 20 30 40 50

METRES

Adastral Park, Ipswich : Off-site Highway Mitigation to Foxhall Roundabout

Technical Note : Designer's Response to Road Safety Audits at Stage 1

7th September 2017

1 Introduction

Brookbanks Consulting Limited (BCL) is commissioned by Commercial Estates Group (CEG) Ltd to provide technical advice on viability and delivery on a proposed mixed use development at Adastral Park, Martlesham Heath, Suffolk. A Transport Assessment has been produced that has assessed the potential implications. A range of highway interventions has been subsequently identified.

For the Outline Planning Application, the following access strategy was offered:

- Traffic Signals Access off the A12 Dual Carriageway with a dedicated right-turn lane;
- Two simple priority junction accesses off Ipswich Road;
- Simple priority junction access off Gloster Road through the North-west Quadrant.

The Transport Assessment also identified that off-site highway mitigation measures were necessary at the following locations:

- A14 / A12 / A1156 Interchange;
- A12 / Newbourne Rd / Foxhall Road Roundabout;
- A12 / Barrack Square / Eagle Way Roundabout and Gloster Road / Barrack Square Priority Junction;
- A12 / Anson Road / Eagle Way Roundabout;
- A12 / A1214 Roundabout;
- A1189 Heath Road / Foxhall Road Roundabout;
- A1189 Bixley Road / A1156 Felixstowe Road Bixley Roundabout;
- A1214 / A1189 Gyratory Junction.

All design options, at the request of Suffolk County Council, have been subject to a Stage 1 Road Safety Audit. This note sets out the findings of the audit for the A12 / Newbourne Rd / Foxhall Road Roundabout together with a designers response.

2 Designer's Response

The Designers Response should be read in conjunction with the Road Safety Audit (ref SESL1729) as attached in Appendix A and revised Drawing No: 10391-HL-31A with swept path Drawing No: 10391-HL-35 as attached in Appendix B.

Problem 1

Location: A12 north and southbound approaches and Foxhall Road.

Summary: Lack of, or unsuitable direction signing may result in a number of collision types at roundabout. The proposed widening on the above approaches reduces the highway in places to a width which does not appear suitable to accommodate direction signing. Suitably placed advance direction signing is an important factor on approach to roundabout junctions so that drivers are not confused and approach in the correct lane, which is especially important with a multi-lane approach such as that proposed.

Recommendation: Plot the required advance direction signing according to the parameters set out within Appendix A of LTN 1/94 and submit this for further audit to ensure that a suitable signing strategy can be achieved.

BCL response: *The required advance directional signing has been plotted on the revised drawing (10391-HL-31A) and there is space available for it to be suitably implemented. Further to this, a proving layout (10391-HL-16) is attached in Appendix B that shows a larger scope of the roundabout and the exact locations of the signs to be implemented.*

Problem 2

Location: A12 southbound approach

Summary: Inconspicuous traffic splitter island may result in vehicles colliding with it. The splitter island proposed to increase deflection will not be conspicuous on approach, due to its position around a bend.

Recommendation: If possible, increase the approach width to enable the island to be extended further back. If this is not possible then significant detailed design measures must be incorporated to reduce the risk of collision. It is recommended that such measures are incorporated even if the island is extended.

BCL Response: *The splitter island width cannot be extended back as there is not sufficient space within highway land to implement this. Therefore detailed design measures to reduce the risk of collision will be discussed at Reserved Matters stage.*

Problem 3

Location: Newbourne Road

Summary: Transition between existing and proposed alignment is sharp and may result in poor lane discipline or loss of control. The small-scale drawing showing the extent of works indicates a sudden change of alignment on this approach.

Recommendation: Extend the extent of works to allow a smoother transition.

BCL Response: *The alignment of Newbourne Road cannot be extended any further to the south as there is a protected tree in the way. However, the transition alignment has been revised as much as possible to avoid any sudden changes in directional alignment of the kerbs. This is shown in the proving layout (10391-HL-16) that is attached in Appendix B.*

Problem 4

Location: Foxhall Road and Newbourne Road

Summary: Risk of collision with central island and sideswipes. The extension of the arc from the splitter islands guides drivers into the circulatory island and to an extent the resultant alignment of the central lanes also guides drivers towards the central island, risking poor lane discipline.

Recommendation: Realign the splitter islands so the extension of the arc is tangential to the circulatory island and make associated amendments to the central lane markings.

BCL Response: *This is already the case as demonstrated in the screen captures in Figures 2a and 2b for the aforementioned roads.*

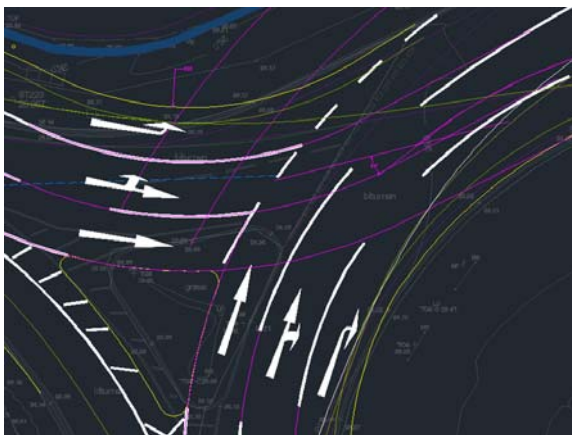


Figure 2a: Approach from Foxhall Road into Roundabout

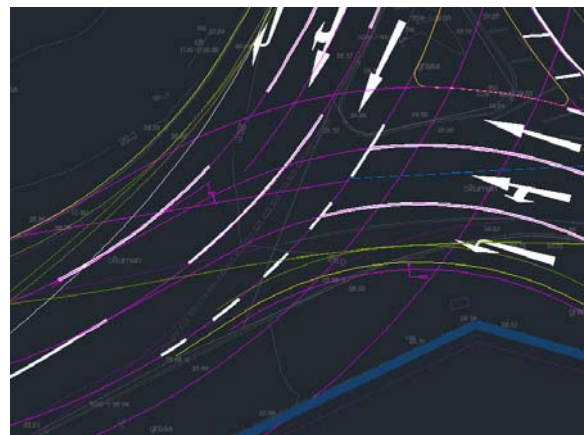


Figure 2b: Approach from Newbourne Road into Roundabout

Problem 5

Location: Circulatory carriageway

Summary: Potential for poor lane discipline with subsequent risk of sideswipes with other circulating vehicles. Straight sections have been proposed on the central island which may result in poor lane discipline as drivers travel around the island. Over time, this risk may increase as detritus builds up adjacent to the central island on the area which may not be overrun.

Recommendation: Reduce the central island opposite the north and southbound splitter islands to provide a smoother transition to the straighter sections, encouraging better lane discipline. This does not appear to have a negative impact on the entry path curvature for the side roads.

BCL Response: *The straight sections of kerbing on the central island are there to remove reverse curvature for left-turning vehicles and ensure that adequate entry deflection is achieved. With the existing entry deflection for the A12 Southbound approach, the radius with the existing alignment is 100m which is the maximum permissible value in accordance with Paragraph 7.56 in TD 16/07. Reducing the central island diameter will cause the approach deflection to fall foul of this mandatory required.*

Problem 6

Location: A12 Northbound entry

Summary: Poor lane alignment may lead to sideswipes. The alignment of the northbound entry lanes and subsequent circulatory layout may result in poor lane discipline with resultant sideswipes due to the relatively sharp deviation created by the left turn lane.

Recommendation: Carry out swept path analysis at a relevant speed and adjust the geometry accordingly to enable good lane discipline on this approach by easing the curve transitions appropriately.

BCL Response: *Swept path analysis has been carried out for all the possible manoeuvres from the A12 Northbound Entry into the roundabout. These are indicated on drawing 10391-HL-35 in Appendix B.*

3 Limitations

Third party information has been used in the preparation of this report, which Brookbanks Consulting Ltd, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks Consulting Ltd accepts no liability for same.

The benefits of this report are provided to Carlyle Land Ltd and Commercial Estates Group for the proposed development on Land at Adastral Park.

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Safety Engineering Services Ltd

Land South and East of Adastral Park, Ipswich
Foxhall Roundabout Mitigation

Stage 1 Road Safety Audit

Stage 1 Road Safety Audit

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Report Number	Client Reference	Report Status
SESL1729	10391	FINAL

1 INTRODUCTION

This report presents the findings of a Road Safety Audit carried out on off-site highway mitigation works proposed to enable site access to land to the south and east of Adastral Park, Ipswich, at the request of Brookbanks Consulting Ltd. The development will consist of up to 2000 dwellings, local centres, with facilities to serve recreation and education.

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The audit took place on Tuesday 5 September 2017 and comprised a desktop study of the plans provided and a drive and walk through of the site by both team members. During the site visit, the weather was overcast and the road surfaces were dry. Traffic at the time of the audit was moderate.

A list of drawings and documents provided for the purpose of audit is in Appendix A. The locations of any problems have been identified on an annotated drawing in Appendix B.

The main terms of reference of the audit are as described in HD19/15. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

This Road Safety Audit focuses on the amendments to the A12/Foxhall Roundabout. Three options have been submitted and have been dealt with individually within this report.

2 ROAD SAFETY AUDIT FINDINGS

Drawing Number 10391-HL-31

2.1 PROBLEM

Location: A12 north and southbound approaches and Foxhall Road.

Summary: Lack of, or unsuitable direction signing may result in a number of collision types at roundabout.

The proposed widening on the above approaches reduces the highway in places to a width which does not appear suitable to accommodate direction signing. Suitably placed advance direction signing is an important factor on approach to roundabout junctions so that drivers are not confused and approach in the correct lane, which is especially important with a multi-lane approach such as that proposed.

RECOMMENDATION

Plot the required advance direction signing according to the parameters set out within Appendix A of LTN 1/94 and submit this for further audit to ensure that a suitable signing strategy can be achieved.

2.2 PROBLEM

Location: A12 southbound approach

Summary: Inconspicuous traffic splitter island may result in vehicles colliding with it.

The splitter island proposed to increase deflection will not be conspicuous on approach, due to its position around a bend.

RECOMMENDATION

If possible, increase the approach width to enable the island to be extended further back. If this is not possible then significant detailed design measures must be incorporated to reduce the risk of collision. It is recommended that such measures are incorporated even if the island is extended.

2.3 PROBLEM

Location: Newbourne Road

Summary: Transition between existing and proposed alignment is sharp and may result in poor lane discipline or loss of control.

The small-scale drawing showing the extent of works indicates a sudden change of alignment on this approach.

RECOMMENDATION

Extend the extent of works to allow a smoother transition.

2.4 PROBLEM

Location: Foxhall Road and Newbourne Road

Summary: Risk of collision with central island and sideswipes.

The extension of the arc from the splitter islands guides drivers into the circulatory island and to an extent the resultant alignment of the central lanes also guides drivers towards the central island, risking poor lane discipline.

RECOMMENDATION

Realign the splitter islands so the extension of the arc is tangential to the circulatory island and make associated amendments to the central lane markings.

2.5 PROBLEM

Location: Circulatory carriageway

Summary: Potential for poor lane discipline with subsequent risk of sideswipes with other circulating vehicles.

Straight sections have been proposed on the central island which may result in poor lane discipline as drivers travel around the island. Over time, this risk may increase as detritus builds up adjacent to the central island on the area which may not be overrun.

RECOMMENDATION

Reduce the central island opposite the north and southbound splitter islands to provide a smoother transition to the straighter sections, encouraging better lane discipline. This does not appear to have a negative impact on the entry path curvature for the side roads.

2.6 PROBLEM

Location: A12 Northbound entry

Summary: Poor lane alignment may lead to sideswipes

The alignment of the northbound entry lanes and subsequent circulatory layout may result in poor lane discipline with resultant sideswipes due to the relatively sharp deviation created by the left turn lane.

RECOMMENDATION

Carry out swept path analysis at a relevant speed and adjust the geometry accordingly to enable good lane discipline on this approach by easing the curve transitions appropriately.

Drawing Number 10391-HL-32

2.7 PROBLEM

Location: A12 north and southbound approaches and Foxhall Road.

Summary: Lack of, or unsuitable direction signing may result in a number of collision types at roundabout.

The proposed widening on the above approaches reduces the highway in places to a width which does not appear suitable to accommodate direction signing. Suitably placed advance direction signing is an important factor on approach to roundabout junctions so that drivers are not confused and approach in the correct lane, which is especially important with a multi-lane approach such as that proposed.

RECOMMENDATION

Plot the required advance direction signing according to the parameters set out within Appendix A of LTN 1/94 and submit this for further audit to ensure that a suitable signing strategy can be achieved.

2.8 PROBLEM

Location: A12 southbound approach

Summary: Inconspicuous traffic splitter island may result in vehicles colliding with it.

The splitter island proposed to increase deflection will not be conspicuous on approach, due to its position around a bend.

RECOMMENDATION

If possible, increase the approach width to enable the island to be extended further back. If this is not possible then significant detailed design measures must be incorporated to reduce the risk of collision. It is recommended that such measures are incorporated even if the island is extended.

2.9 PROBLEM

Location: Newbourne Road

Summary: Transition between existing and proposed alignment is sharp and may result in poor lane discipline or loss of control.

The small-scale drawing showing the extent of works indicates a sudden change of alignment on this approach.

RECOMMENDATION

Extend the extent of works to allow a smoother transition.

2.10 PROBLEM

Location: Foxhall Road and Newbourne Road

Summary: Risk of collision with central island and sideswipes.

The extension of the arc from the splitter islands guides drivers into the circulatory island and to an extent the resultant alignment of the central lanes also guides drivers towards the central island, risking poor lane discipline.

RECOMMENDATION

Realign the splitter islands so the extension of the arc is tangential to the circulatory island and make associated amendments to the central lane markings.

2.11 PROBLEM

Location: Circulatory carriageway

Summary: Potential for poor lane discipline with subsequent risk of sideswipes with other circulating vehicles.

Straight sections have been proposed on the central island which may result in poor lane discipline as drivers travel around the island. Over time, this risk may increase as detritus builds up adjacent to the central island on the area which may not be overrun.

RECOMMENDATION

Reduce the central island opposite the north and southbound splitter islands to provide a smoother transition to the straighter sections, encouraging better lane discipline. This does not appear to have a negative impact on the entry path curvature for the side roads.

Drawing Number 10391-HL-33

2.12 PROBLEM

Location: A12 north and southbound approaches and Foxhall Road.

Summary: Lack of, or unsuitable direction signing may result in a number of collision types at roundabout.

The proposed widening on the above approaches reduces the highway in places to a width which does not appear suitable to accommodate direction signing. Suitably placed advance direction signing is an important factor on approach to roundabout junctions so that drivers are not confused and approach in the correct lane, which is especially important with a multi-lane approach such as that proposed.

RECOMMENDATION

Plot the required advance direction signing according to the parameters set out within Appendix A of LTN 1/94 and submit this for further audit to ensure that a suitable signing strategy can be achieved.

2.13 PROBLEM

Location: Foxhall Road and Newbourne Road

Summary: Risk of collision with central island and sideswipes.

The extension of the arc from the splitter islands guides drivers into the circulatory island and to an extent the resultant alignment of the central lanes also guides drivers towards the central island, risking poor lane discipline.

RECOMMENDATION

Realign the splitter islands so the extension of the arc is tangential to the circulatory island and make associated amendments to the central lane markings.

2.14 PROBLEM

Location: Circulatory carriageway

Summary: Potential for poor lane discipline with subsequent risk of sideswipes with other circulating vehicles.

Straight sections have been proposed on the central island which may result in poor lane discipline as drivers travel around the island. Over time, this risk may increase as detritus builds up adjacent to the central island on the area which may not be overrun.

RECOMMENDATION

Reduce the central island opposite the north and southbound splitter islands to provide a smoother transition to the straighter sections, encouraging better lane discipline. This does not appear to have a negative impact on the entry path curvature for the side roads.

3 AUDIT STATEMENT

We certify that this audit has been carried out in accordance with HD 19/15.


Signed:



S Hancock
Audit Team Leader
Safety Engineering Services Ltd

Date 6 September 2017

Signed:



D Ramsden
Audit Team Member
Safety Engineering Services Ltd

Date: 6 September 2017

DRAWINGS AND DOCUMENTS PROVIDED FOR AUDIT

10391-HL-31	Offsite Highway Mitigation - Foxhall Roundabout Mitigation
10391-HL-32	Offsite Highway Mitigation - Foxhall Roundabout Mitigation A12 (N) 4 lanes; A12(S) 3 lanes
10391-HL-33	Offsite Highway Mitigation - Foxhall Roundabout Mitigation A12(S) 3 lanes; A12 (N) 3 lanes

