

Title: STAGE 1 ROAD SAFETY AUDIT

For;

Capdoo Link Road, Clane Co. Kildare.

Client: DBFL Consulting Engineers.

Date: April 2019

Report reference: 0572R01

VERSION: FINAL

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1.0 Introduction

This report was prepared in response to a request from Mr. Dan Reilly of DBFL Consulting Engineers for a Stage 1 Road Safety Audit of the proposed Capdoo Link road, junctions and link streets in Clane, Co. Kildare.

The Road Safety Audit Team comprised of;

Team Leader: **Norman Bruton**, BE CEng FIEI, Cert Comp RSA, MSoRSA

TII approval number: NB 168446

Team Member: **Jane Hennaghan** BEng (Hons) MIEI

TII approval number: JH 1343493

The Road Safety Audit comprised an examination of the information provided and a site visit by the Audit Team, together on the 10th April 2019.

The weather at the time of the site visit was dry and the road surface was dry.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of TII Publication Number GE-STY-01024, dated December 2017.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety. It has not been examined or verified for compliance with any other standards or criteria.

The problems identified in this report are considered to require action in order to improve the safety of the scheme for road users.

If any of the recommendations within this safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observation are intended to be for information only. Written responses to Observations are not required.

The information supplied is listed in **Appendix A**.

A problem location map is contained in **Appendix B**.

The feedback form to be completed by the Design Team Leader is contained in **Appendix C**.

2.0 Background

It is proposed to construct approximately 366 residential units at Capdoo, Clane Co. Kildare. To facilitate this, it is intended to construct the Capdoo Link Road as outlined in the Clane Local Area Plan plus an internal road network.

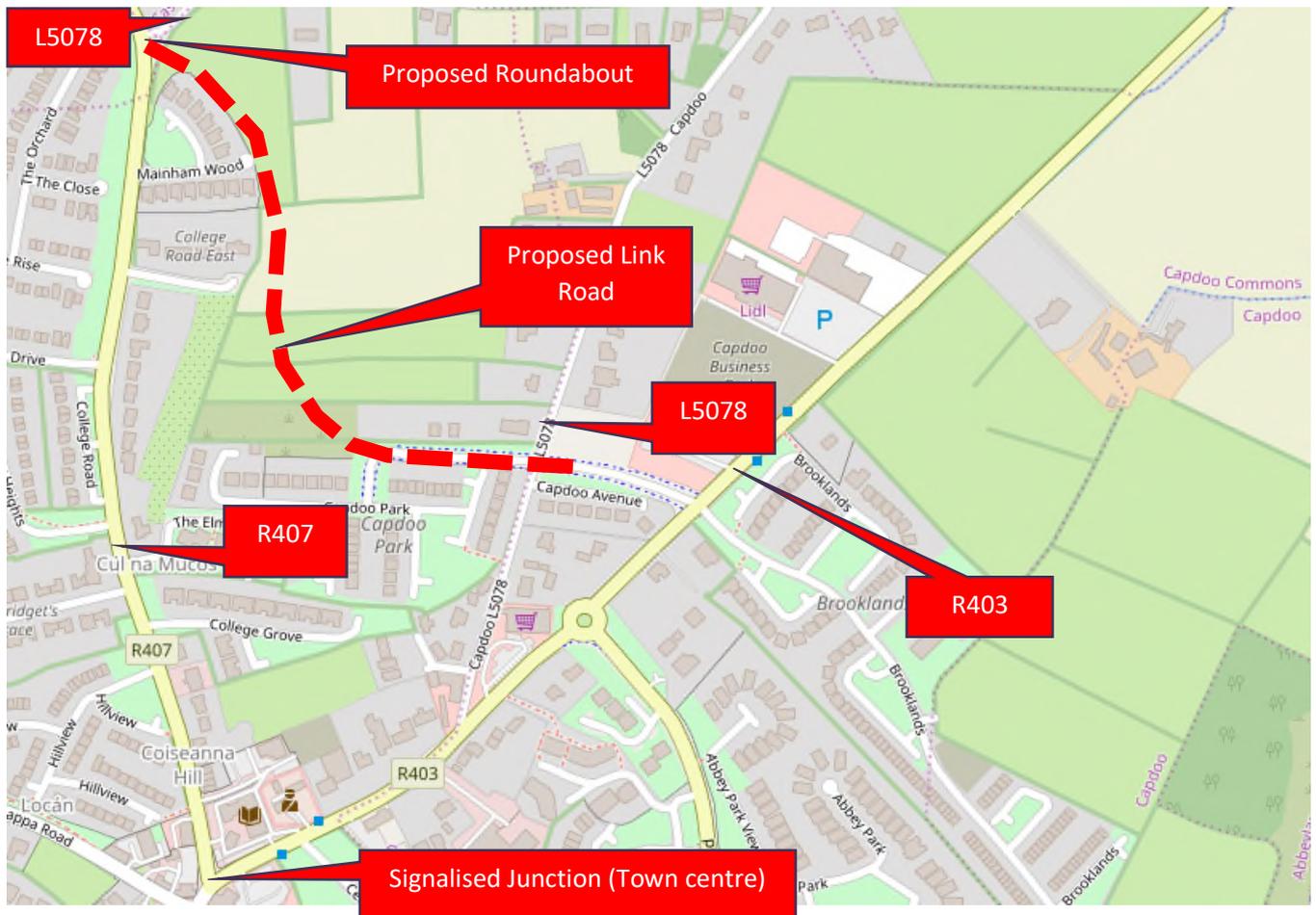
This road safety audit covers the proposed Capdoo Link Road, the junctions along that route and the connections with the R403 and R407 regional roads but not the internal residential streets.

The proposed link road has a 7m carriageway with segregated footways and cycle tracks on both sides.

The Link road will take traffic, including heavy goods vehicles, from the town centre signalised junction for journeys from/to both regional roads.

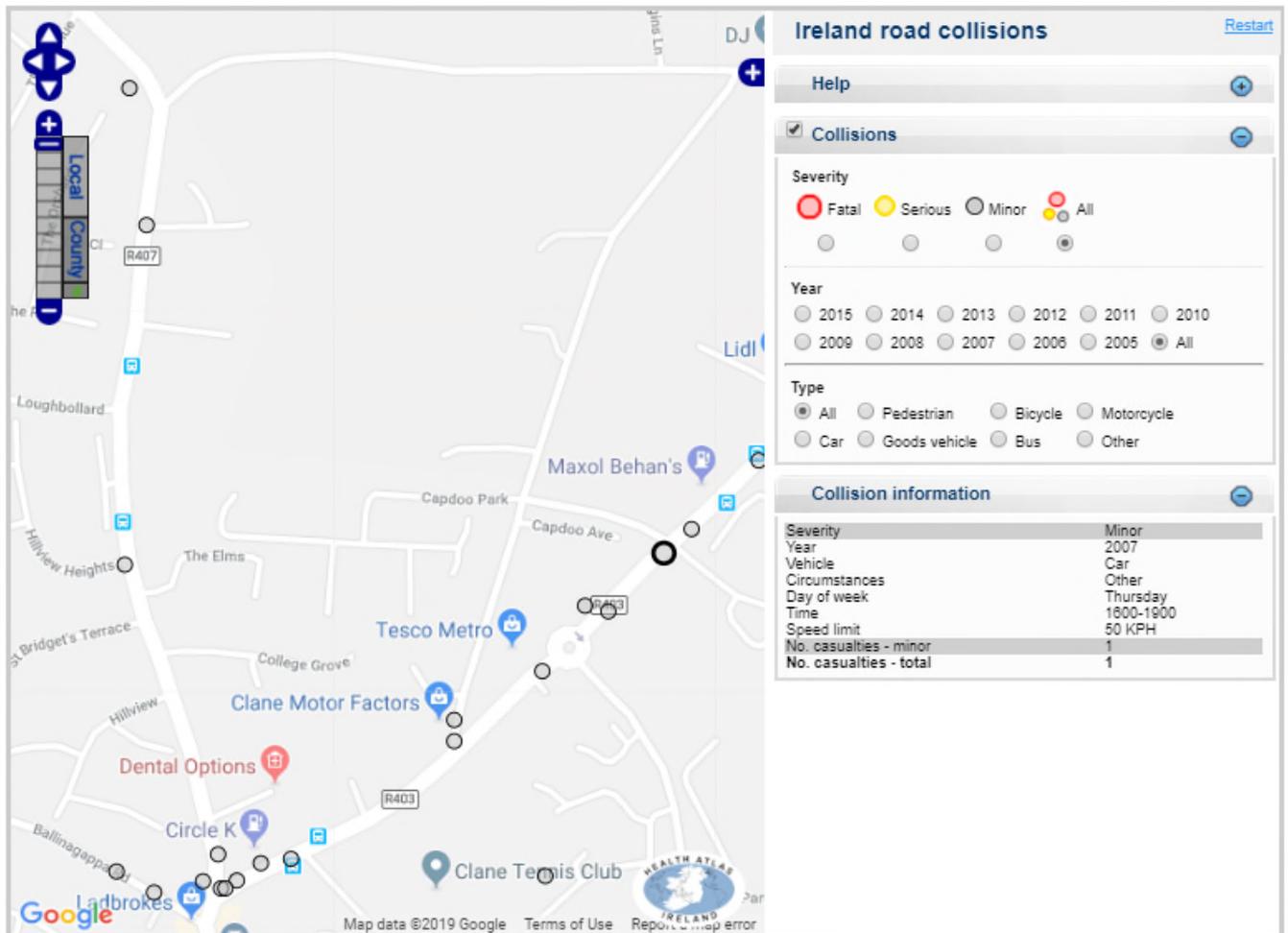
The junction with the R407 will be a new roundabout and the link will tie in with the existing Capdoo Road on approach to the junction with the R403. The R403 junction is signalised however the signals are not in operation and a priority junction arrangement is in operation. It is assumed that the signals will be made operational before the new Link road is opened to traffic.

A site location map is provided below.



Scheme Location Plan (Image courtesy of Openstreetmap.org)

The Road Safety Authority’s website www.rsa.ie shows the recorded injury collisions between 2005 and 2015. There was one minor injury collision adjacent to the proposed roundabout on the R407 and two minor injury collisions adjacent to the signalised/priority junction on the R403. The number and severity of the collisions over the 10-year period does not suggest any patterns or collision clusters.



3.0 Main Report

3.1 Problem

LOCATION

Drawing 162074-2001

PROBLEM

It is unclear if the proposed roundabout on the R407 will be able to cater for the swept path of heavy goods vehicles. The regional road routes have a high percentage of heavy goods vehicles and without sufficient space to accommodate the swept path of these vehicles they could overrun into the areas for vulnerable road users or cause material damage to roadside furniture.



RECOMMENDATION

It is recommended that a swept path analysis is carried out at the roundabout for heavy goods vehicles including u-turns. If the vehicles cannot undertake the movements at reasonable speed and with adequate clearance to roadside furniture such as directional signage then the geometry of the roundabout should be modified.

3.2 Problem

LOCATION

Drawing 162074-2001

PROBLEM

It is unclear if the design caters for access to the premises on the north-east corner of the proposed roundabout. There is a risk that the revised access detail may lead to conflict with vulnerable road users on the footpath/cycle tracks or at the controlled crossings.



RECOMMENDATION

It is recommended that the access to the private property be included in the design and located where it does not have a negative impact of the safety of vulnerable road users.

3.3 Problem

LOCATION

Drawing 162074-2001

PROBLEM

The carriageway width of the L5078 appears narrow for two vehicles to meet. If a give take system has to be used drivers may stop on the circulating carriageway of the roundabout which could result in rear end collisions.



RECOMMENDATION

Ensure the carriageway width of the L5078 on approach to the roundabout can accommodate two passing vehicles. A swept path analysis should be carried out.

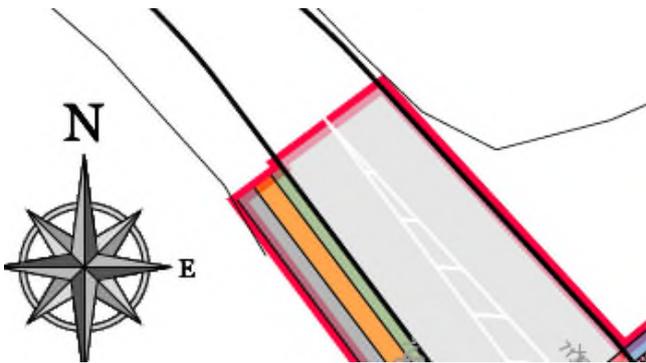
3.4 Problem

LOCATION

Drawing 162074-2001

PROBLEM

The existing cycling facilities on the R407 are on-road and the proposed cycle facilities are off-road. It is unclear how it is proposed to provide a transition from on to off-road and vice versa. Sudden changes in cyclists location on the carriageway could lead to drivers being unable to react resulting in collisions.



RECOMMENDATION

It is recommended that the transition details be developed during the detailed design such that cyclists can safely travel on the R407 and the new link road.

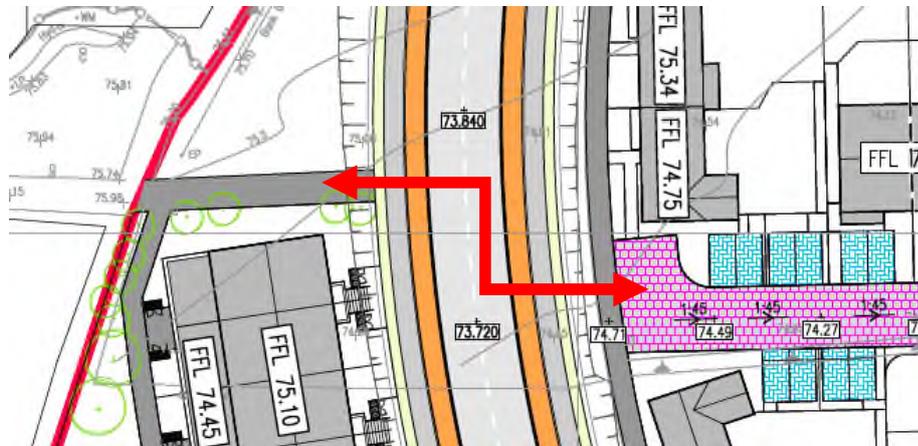
3.5 Problem

LOCATION

Drawing 162074-2003

PROBLEM

There are potential desire lines for pedestrians from College Road East to the internal cul-de-sac on the eastern side of the Link Road and similarly from Mainham Woods. There is however no provision for pedestrians or cyclists to cross at these locations. Without crossing facilities there is an increased risk of a collision with vulnerable road users.



RECOMMENDATION

It is recommended that formal pedestrian crossings of the Link Road are provided at the desire lines.

3.6 Problem

LOCATION

Drawing 162074-2003

PROBLEM

The signalised toucan crossing at the mid-point of the Link Road is located where there is an on-road cycle lane. This could lead to drivers inadvertently travelling over the areas where pedestrians cross resulting in damage to the vulnerable road user infrastructure.



RECOMMENDATION

It is recommended that the crossing be located where there is off road cycle track leading into a shared use area.

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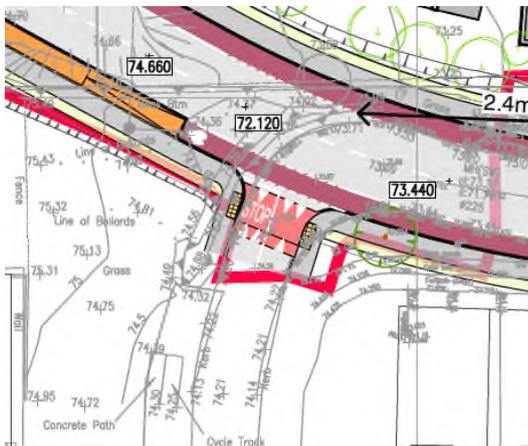
3.7 Problem

LOCATION

Drawing 162074-2003

PROBLEM

There are existing segregated footway and cycle way facilities in Capdoo Park residential estate. The proposed Link Road vulnerable road user facilities do not tie in with these segregated facilities. This may result in cyclists having to travel on the carriageway where they would be at greater risk of being struck by passing vehicles and it would be a step down from the current facilities.



RECOMMENDATION

It is recommended that the design be modified to maintain segregated footway and cycleway facilities in Capdoo Park.

4.0 Observations

4.1 Observation

There is a pedestrian desire line across the grassed area from the turning head at The Orchard housing estate to the R407. A more formal path may be incorporated into future design stages.

4.2 Observation

It is assumed that the signals at the R403 end of the Capdoo Road will be made operational before the Link Road is opened to through traffic. It should be noted that the road markings, tactile paving and dropped kerbs at the junction need to be upgraded to comply with best practice.

5.0 Audit Statement

We certify that we have examined the information provided and the site on the 10th April 2019. The examination has been carried out with the sole purpose of identifying any features of the design which could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions which we would recommend should be studied for implementation. The audit has been carried out by the persons named below who have not been involved in any design work on this scheme as a member of the Design Team.

Norman Bruton **Signed:** _____

(Audit Team Leader) **Dated:** _____

Jane Hennaghan **Signed:** _____

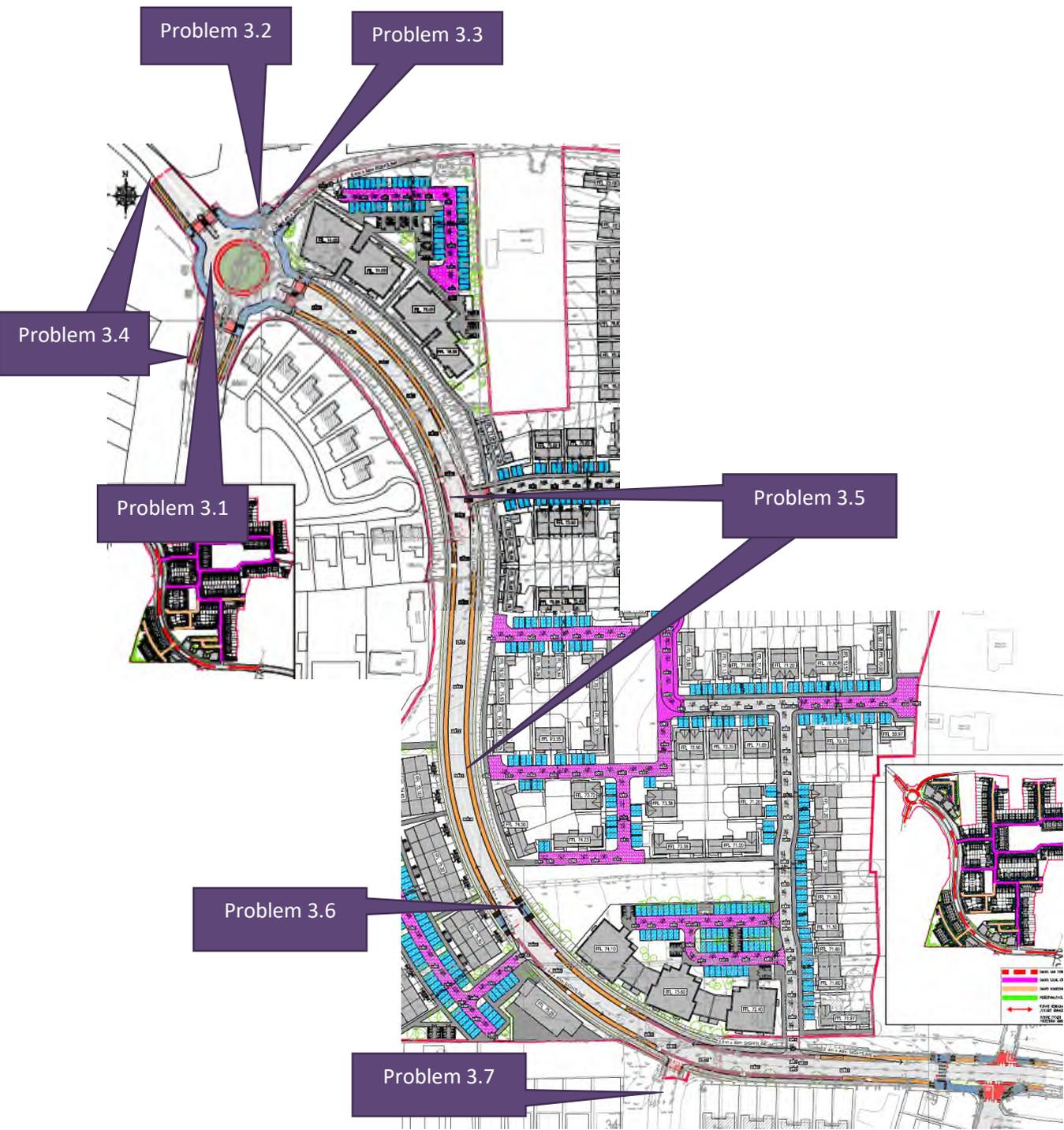
(Audit Team Member) **Dated:** _____

Appendix A

List of material Supplied for this Stage 1 Road Safety Audit;

- Drawing 162074-2001
- Drawing 162074-2003
- Draft Traffic and Transport Assessment, DBFL

Appendix B – Problem Location Map.



Appendix C

Feedback Form

SAFETY AUDIT FORM – FEEDBACK ON AUDIT REPORT

Scheme: Capdoo Link Road

Stage: 1 Road Safety Audit

Date Audit (Site visit) Completed: 10th April 2019

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.1	Y	Y		
3.2	Y	Y	<p>The existing access for the private dwelling is now shown on the roundabout layout plan drawing 162074-2001 Rev A.. We note that the Capdoo Inner Relief Road included a DMRB style roundabout at this location when it received Part VIII Planning from Kildare Co Co previously and the existing access location was retained in that arrangement. The provision of a DMURs style roundabout with this revised scheme enhances safety by reducing entry speeds and improving crossing facilities etc for vulnerable road users. As per drawing 162074-2001 Rev A there is sufficient setback distance from the dwelling entrance to back of shared path to allow the driver & vulnerable road user adequate visibility on approach. The bollards provided on the access also highlight to the pedestrian / cyclist on the shared path that an entrance exists at that location. The driver entering the property will yield to pedestrians / cyclists on the shared path and will be visible to all slow moving vehicles entering / exiting the roundabout.</p>	Yes

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
			<p>Finally we would note that the provision of the new DMURs style roundabout provides enhanced road safety at this existing intersection where currently there is a risk to the person exiting the property from drivers turning left into Capdoo Lane at speed and also in terms of the driver exiting the property to turn left or right out of Capdoo Lane onto the R407.</p> <p>On balance the new arrangement provides enhanced safety for all existing road users.</p>	
3.3	Y	Y		
3.4	Y	Y		
3.5	N	N	<p>The proposed toucan crossing has been located to maximize connectivity between the western and eastern portion of the development (i.e. between the duplex units in the south-west corner / the creche and open space areas on the eastern side of the Capdoo Link Road).</p> <p>Connectivity from College Road East to destinations such as the creche, the open space area on the eastern side of the Capdoo Link Road and the general town center (south of the site via Capdoo Lane) are easily facilitated without provision of a second pedestrian crossing on Capdoo Link Road.</p> <p>Introduction of a second crossing adjacent to College Road East as recommended would result in two signalized crossings within 80m along the Capdoo Link Road.</p>	Yes

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
			We note there is no proposal to facilitate connectivity between Mainham Woods and the Capdoo Link Road (due to significant level differences).	
3.6	Y	Y	The cycle lanes (or road / off road) have been amended so that the crossing is sited where the cyclists are on road. Tactile paving & signal poles have been relocated to the edge of the pedestrian footpath (i.e. clear of the on road cycle lane)	Yes
3.7	Y	Y/N	Proposed works at the Capdoo Link Road / Capdoo Park junction extend to the existing public ownership boundary line. Capdoo Park has not yet been taken in charge by KCC and it is not possible at this stage to modify the existing segregated footway / cycleway within Capdoo Park. We will advise this item to Kildare Co Co and they can extend to meet existing path / cycle path when Capdoo Park is taken in charge.	Yes

Signed.....
Design Team Leader

Date22/5/2019

Signed.....
Audit Team Leader

Date: ...23/5/2019.....

Signed.....
Employer

Date:24/5/2019