

Title: DMURS QUALITY AUDIT

INCLUDING

**Road Safety Audit Stage 1, Access Audit, Cycle Audit and
Walking Audit.**

For;

**Ratoath Outer Relief Road, Including R155 Signalised
Junction and Internal Development.**

Client: OCSC Consulting Engineers/BEO Properties Ltd.

Date: May 2022

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VERSION: FINAL

Prepared By:

Bruton Consulting Engineers Ltd

Glaspistol

Clogherhead

Drogheda

Co. Louth.

Tel: 041 9881456

Mob: 086 8067075

E: admin@brutonceng.ie

W: www.bruntonceng.ie

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1.0 Introduction

This report was prepared in response to a request from, Ms. Lismary Alfirs, OCSC Consulting Engineers, for a Quality Audit for the proposed Ratoath Outer Relief Road (RORR) including the R155 junction and internal development.

The Quality Audit has been carried out in accordance with the guidance in the Design Manual for Urban Roads and Streets (DMURS), produced by Department of Transport Tourism and Sport in March 2013 and as updated in June 2019.

This portion of the Quality Audit is a design stage audit and includes a Stage 1 Road Safety Audit (in accordance with TII Publication GE-DTY-01024, dated December 2017), an access audit, a walking audit and a cycling audit. (i.e. aspects of a Quality Audit carried out independent of the Design Team and generally included as appendices to the overall Audit)

The Road Safety and Quality Audit Team comprised of;

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

TII Road safety Auditor approval number: NB 168446

Team Member: **Owen O'Reilly**, B.SC. Eng Dip Struct. Eng NCEA Civil Dip Civil. Eng CEng MIEI

TII Auditor Approval no. OO 1291756

This portion of the Quality Audit involved the examination of drawings and other material and a site visit by the Audit Team, on the 15th of November 2021. The weather at the time of the latest site visit was dry and the road surface was also dry.

The problems raised in this Quality Audit may belong to more than one of the categories of Audit named above. A table has been provided at the start of Section 3 of this report detailing which category of audit each problem is associated with.

Recommendations have been provided to help improve the quality of the design with regard to the areas described above. A feedback form has also been provided for the designer to complete indicating whether or not he/she will accept those recommendations or provide alternative recommendations for implementation.

The information supplied to the Audit Team is listed in **Appendix A**.

A feedback form for the Designer to complete is contained in **Appendix B**.

A plan drawing showing the problem locations is contained in **Appendix C**.

The same Audit Team carried out a Stage 1 Road Safety Audit on the RORR in 2020 however the tie in position at the R155 was further west than the location shown on the current drawings. A draft Stage 1 Road Safety Audit was carried out on this scheme in December 2021. Many of the recommendations suggested in that audit report have been taken into account in the current design which is subject to this review.

2.0 Background

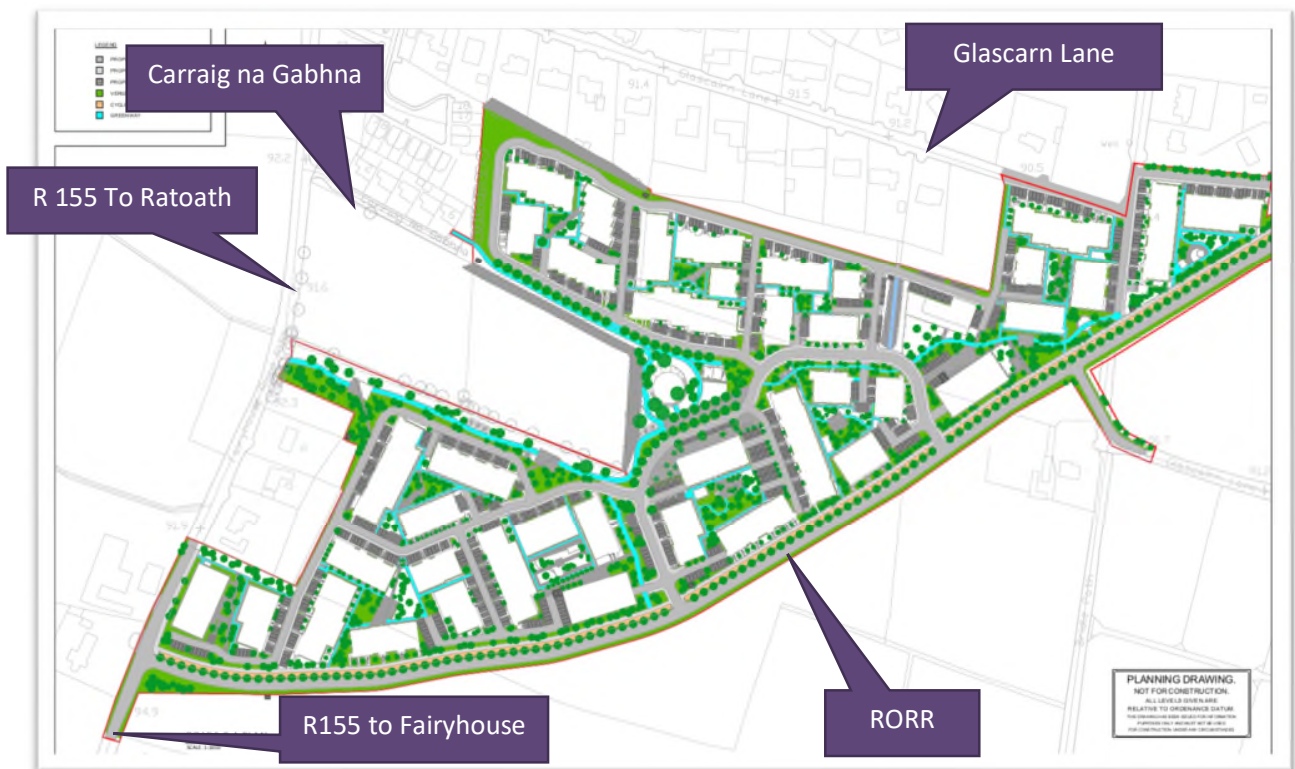
It is proposed to provide an outer relief road in Ratoath, Co. Meath (RORR) from the R155 Fairyhouse Road to the Ballybin Road.

The scope of this Stage 1 Road Safety Audit includes a section of the RORR, the junction on the R155 and the internal development roads, pedestrian and cyclists infrastructure.

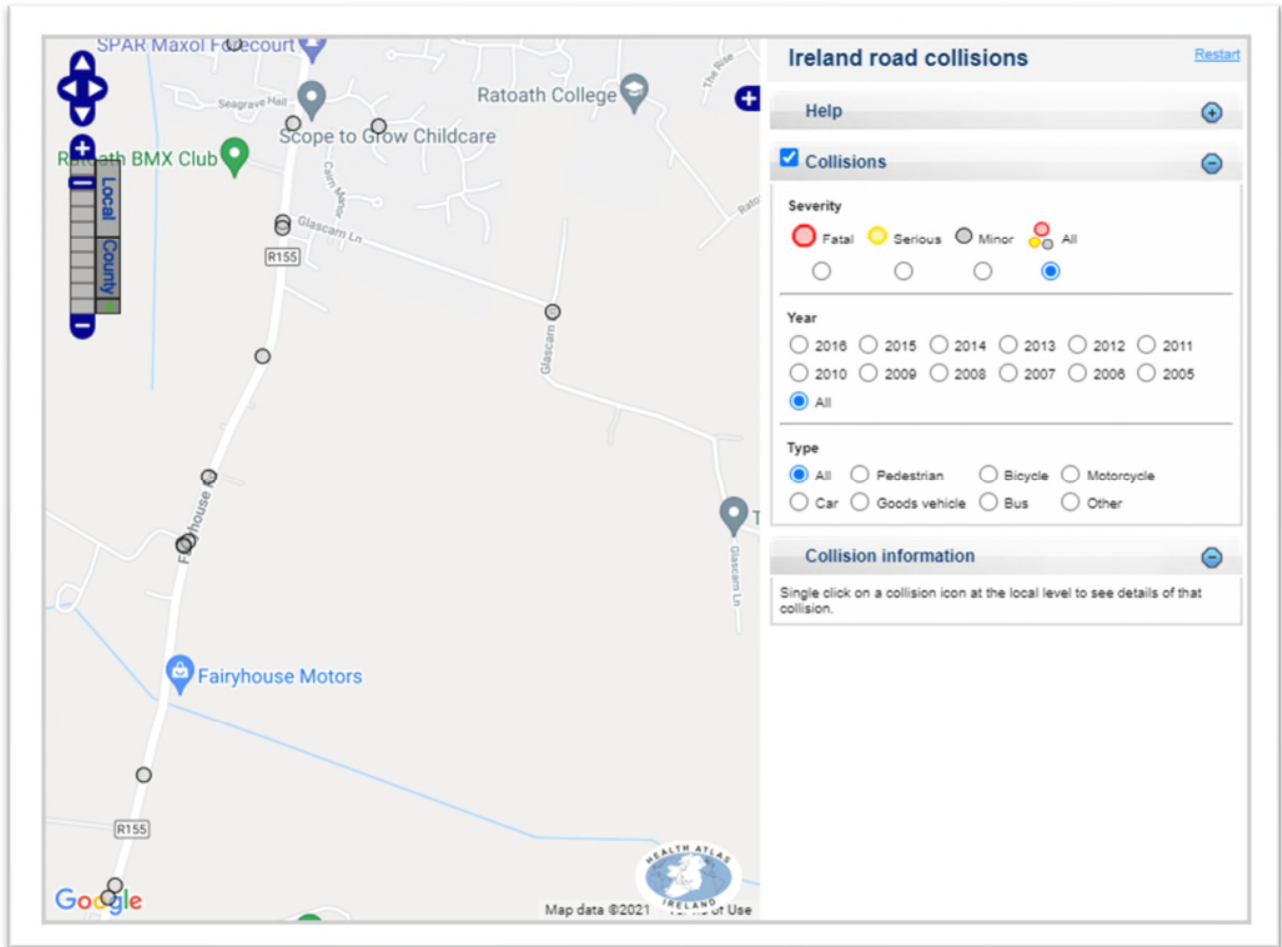
The tie-in point on the R155 is within the 80km/hr speed limit zone of Ratoath. It is proposed however in accordance with the drawings that the speed limit will be reduced to 60km/hr on Fairyhouse Road and along the RORR.

The R155 is a single carriageway road with no dedicated facilities for pedestrians or cyclists and it is a bus route.

The site location map is shown below.



The Road Safety Authority’s website www.rsa.ie shows that there were a number of minor injury collisions recorded adjacent to the R155 tie-in between the years 2005 and 2016. One occurred in 2006 and involved a motorbike, one in 2009 and was a rear-end -right turn and the third was in 2015 and was a rear-end straight. There was also one minor injury collision on Glascarn Lane and two minor injury collisions at the junction of the R155 and Glascarn Lane.



3.0 Issues Identified in This Quality Audit.

Summary Table of Problem Categories

Problem Reference	Access Audit	Walking Audit	Cycling Audit	Road Safety Audit	Quality Audit
3.1		✓	✓	✓	✓
3.2				✓	✓
3.3			✓	✓	✓
3.4				✓	✓
3.5				✓	✓
3.6		✓	✓	✓	✓
3.7				✓	✓
3.8	✓			✓	✓
3.9				✓	✓
3.10				✓	✓
3.11		✓	✓	✓	✓

3.1 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-0112 S4, P04, R155 Junction.

PROBLEM

The drawing shows a 60km/hr speed limit on the R155 northbound approach to the junction. The current speed limit is 80km/hr and the area is rural in nature. There is a risk that drivers will not slow to 60km/hr due to the presence of the 60km/hr sign alone, and will not expect an urban type junction in an otherwise rural area. This could lead to collisions with queuing traffic or crossing vulnerable road users on the R155.



RECOMMENDATION

It is recommended that a gateway treatment and transition zone be provided on the R155 on approach to the extended urban area.

3.2 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-0112 S4, P04 & Site observation, R155 Junction

PROBLEM

There is a vertical crest in the R155 South of the proposed junction. There is a risk that a driver travelling eastbound will not realise that there is a queue of traffic ahead and may not slow in sufficient time leading to rear-end collisions.



RECOMMENDATION

It is recommended that the stopping sight distance be checked for vehicles approaching the rear of the longest predicted queue from the traffic signals. The stopping sight distance should be calculated for the actual speed rather than the speed limit if speeds cannot be reduced to the speed limit as outlined in Problem 3.1 above.

3.3 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-0112 S4, P04, R155 Junction.

PROBLEM

It is proposed to provide a footpath and cycle track along the northern verge of the RORR. There are however no proposed crossing facilities or pedestrian and cyclists facilities towards the town centre along the R155. Without a safe crossing location vulnerable road users could be struck by through traffic. Without facilities towards the town centre vulnerable road users will be led to an unsafe location.



RECOMMENDATION

It is recommended that pedestrian and cycle facilities be provided on approach to the junction and that crossings be provided on each arm. In addition continuous facilities should be provided towards the town centre to cater for vulnerable road users.

3.4 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-0112 S4, P04, R155 Right turning lane.

PROBLEM

The proposed right turning lane on the R155 to the relief road appears to be too short to be able to cater for the volume of traffic that would be turning right onto the RORR when it is fully complete and the speed that traffic would be approaching the junction. This could lead to excessive queuing on the R155 which would result in rear-end shunts.



RECOMMENDATION

It is recommended that the right turning lane be extended to cater for the future traffic demand.

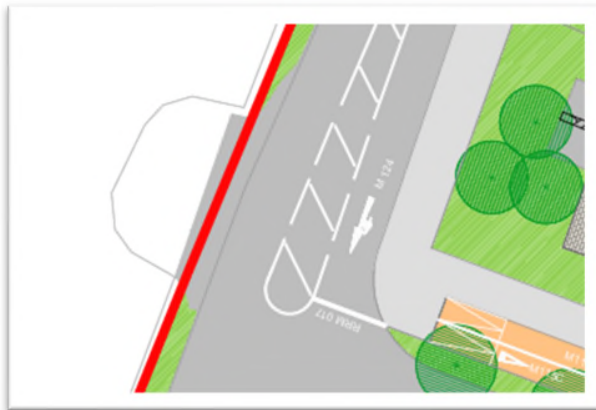
3.5 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-0112 S4, P04 , R155 access from dwelling at the proposed signalised junction.

PROBLEM

There is a risk that drivers exiting the private dwelling north of the junction may exit at an inappropriate time when a green signal is provided for right turning traffic from the RORR or for northbound traffic on the R155. This could lead to side-impact or rear-end collisions.



RECOMMENDATION

It is recommended that the private access be part of the signalised junction for exiting vehicles.

3.6 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-0111 S4, P04

PROBLEM

It is proposed that some new residential units at the eastern end of the scheme will be accessed off Glascarn Lane and not the RORR. Glascarn Lane has very poor facilities for vulnerable road users and the intensification of use would lead to an increased likelihood of collisions.



RECOMMENDATION

It is recommended that pedestrian and cyclist facilities be provided along the entire length of Glascarn Lane between the proposed units and the R155 or that the units be accessed off the RORR.

3.7 Problem

LOCATION

RORR Verge.

PROBLEM

Tree are shown in the 1.5m verge between the RORR carriageway and the two-way cycle track. There is a risk that some of the trees, either singularly or cumulatively, may obscure visibility at junctions and to crossing pedestrians and cyclists.



RECOMMENDATION

It is recommended that trees are chosen with suitable girths when mature, canopy heights and spacings to ensure that they do not obscure a drivers visibility.

3.8 Problem

LOCATION

General, Perpendicular parking along 5m wide carriageways.

PROBLEM

There are areas within the development where it is proposed to provide perpendicular parking with standard sized parking bays along shared use streets with 5m wide carriageways. This may lead to material damage of vehicles as drivers try to negotiate the tight parking spaces



Example only

RECOMMENDATION

It is recommended that buffer zones be provided or wider spaces be provided.

3.9 Problem

LOCATION

Drawing L308-OCSC-XX-XX-DR-C-01203 S4, P04, Glascarn Lane (South)

PROBLEM

It was observed during the site visit that there is a commercial premises on Glencarn lane to the East of the development which utilises large heavy goods vehicles. It is unclear if the realigned road can cater for stopping sight distance around the sharp bend at Ch 50 approx and if the junction with the RORR can cater for the swept paths of such vehicles. A lack of space to accommodate such vehicles could lead to head-on collisions.



RECOMMENDATION

Ensure that vehicles using the commercial premises are adequately catered for in the design.

3.10 Problem

LOCATION

RORR and R155

PROBLEM

There are no proposed warning signs on the RORR of the R155 for the side roads ahead. This could lead to sudden braking and rear-end collisions.

RECOMMENDATION

It is recommended that junction ahead warning signage be provided for each junction on the RORR and on both approaches to the signalised R155 junction.

3.11 Problem

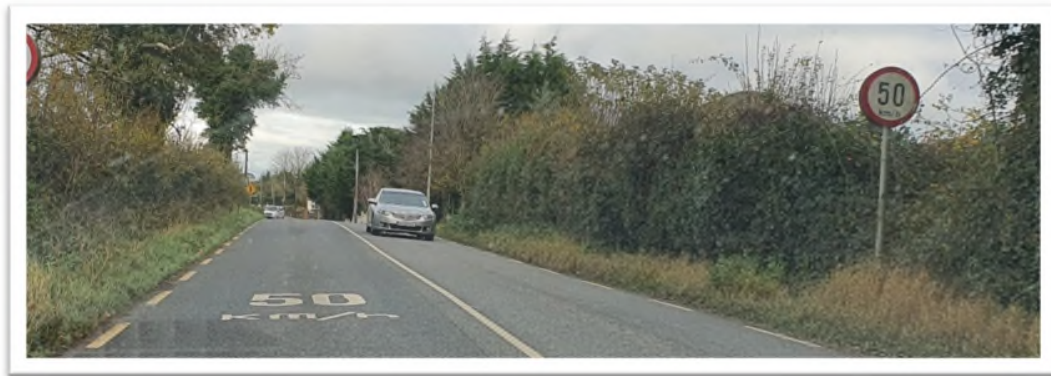
LOCATION

R155 Pedestrian /cyclist link.

PROBLEM

There is a proposed greenway joining the R155 South of the Carraig Na Gabhna residential development. There is no footpath or cycle track along the R155 for this greenway to connect to. This may lead pedestrians and cyclists entering the carriageway where they would be at greater risk of being struck by passing vehicles.





RECOMMENDATION

It is recommended that a footpath be provided along the R155 from the signalised junction to the existing footpath North of Carraig na Gabhna. A crossing facility of the R155 should be provided at the greenway tie-in to allow cyclists get to the opposite side of the R155 and continue towards the town centre.

4.0 Observations

4.1 Observation

Drainage, lighting and swept path details have not been provided to the Audit Team.

4.2 Observation

It is assumed that the speed limit within the residential areas will be 30km/hr or less.

5.0 Quality Audit Statement

This portion of the Quality Audit has been carried out in accordance with the guidance given in DMURS and takes into consideration the principles approaches and standards of that Manual.

The quality 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: *Norman Bruton*

(Quality Audit Team Leader) Dated: 17/5/2022

Owen O'Reilly

Signed: *Owen O'Reilly*

(Quality Audit Team Member) Dated: 17/5/2022

Appendix A

List of Material Supplied for this Quality Audit;

Drawing L308-OCSC-XX-XX-DR-C-1201-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-1202-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-1203-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-1204-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-1250-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-1251-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-0110-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-0111-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-0112-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-0120-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-0121-S4-P04
Drawing L308-OCSC-XX-XX-DR-C-0130-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0131-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0132-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0133-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0134-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0135-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0136-S4-P03
Drawing L308-OCSC-XX-XX-DR-C-0700-S4-P05
Drawing L308-OCSC-XX-XX-DR-C-0701-S4-P05
Drawing L308-OCSC-XX-XX-DR-C-1200-S4-P04

Appendix B

Feedback Form

QUALITY AUDIT FORM – FEEDBACK ON QUALITY AUDIT REPORT

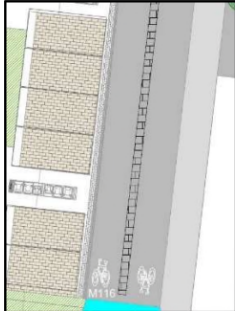
Scheme: RORR and Proposed Residential Development, Ratoath.


Quality Audit- Stage 1 (Planning)

Date Audit (site visit) Completed 15-11-2021


Paragraph No. in Quality Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.1	Y	N	Additional development is currently in planning to the south of the site. A gateway option that can easily be relocated will therefore be implement. This will entail setting up gateway signs on both sides of the roadway and including transverse yellow lines.	Yes
3.2	Y	Y	Speeds will be reduced to 60km/h. Vertical sight distance checked and compliant for 60km/h.	Yes
3.3	Y	N	<p>There is a part 8 Ratoath Pedestrian and cycle scheme issued. We are tying into the proposed infrastructure as planned in the scheme and following the same implementation. This part 8 application is currently active and on Meath County Council's website. We were instructed by Meath County council to incorporate it into our design.</p> <p>Their scheme provides for a 3m shared path only provided along the Eastern side of the carriageway.</p> <p>We will therefore provide a 3m shared facility to the north but no crossing facility to the south, as no cyclist or pedestrian facility is in planning till the development of the Loblolly land, and pedestrians are accommodated into the RORR as</p>	Yes

			planned for in the Part 8 planning scheme.	
3.4	N	N	<p>A traffic analysis has been performed and the queue length calculated.</p> <p>Peak max queue length has been calculated for in 2039 and 15m has been allowed for. Storage capacity is sufficient.</p>	Yes
3.5	Y	N	<p>As it is only an entrance to one dwelling, our proposal is to provide an appropriate all red time at the signalised junction, to provide the opportunity for the owner to enter his/her residence safely. The position of the junction was provided by Meath county council as the proposed location of the junction and cannot be shifted to the north to allow for a 4 way junction to include the 1 residence.</p>	Yes
3.6	Y	N	<p>We will implement a walkway for the residents planned for in our scheme as far as our boundary allows on the southern side of Glascarn lane.</p> <p>The rest of Glascarn lane including the northern edge is outside the scope of our project and redline boundary, we cannot include infrastructure on it.</p> <p>The site's internal road network is set up in such a way that additional traffic will run through the RORR and not through Glascarn lane.</p>	Yes
3.7	Y	Y	Suitable greenery will be implemented as recommended	Yes
3.8	Y	Y	Vehicle tracking has been run through the site for a large passenger vehicle, fire tender and refuse vehicle to ensure adequate drivability through the site. Buffers	Yes

			<p>have been added in areas that show issues.</p> 	
3.9	Y	Y	<p>Glascarn lane has been widened and a 50km/h compliant curve has been introduced. Visibility has also been addressed</p>	Yes
3.10	Y	Y	<p>Warning signs have been provided for on the R155 for the signalised junction ahead. Additional warning signs will be added for the two priority junctions.</p>	Yes
3.11	Y	N	<p>We are bringing the proposed greenway up to a shared facility planned for in the different Part 8 application that is providing for a shared pedestrian and cyclist facility that only runs on the Eastern side of the RORR. We are tying into this Eastern Boundary. The crossing is not being implemented as pedestrian and cyclist infrastructure will only be provided for on the eastern side of the R155 in this area.</p>	Yes

Signed 
Design Team Leader

Date 17/05/2022

Signed 
Audit Team Leader

Date: 17-5-2022

Appendix C

Problem Location Plan.

LEGEND

- PROPOSED ROAD
- PROPOSED FOOTPATH
- PROPOSED PARKING
- VERGE
- CYCLE LANE
- GREENWAY



PLANNING DRAWING.
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P01	15/09/21	SUITABLE FOR INFORMATION	RM	SMcG					
P02	04/10/21	SUITABLE FOR STAGE APPROVAL	RM	DR					
P03	22/10/21	SUITABLE FOR STAGE APPROVAL	RM	DR					
P04	04/04/22	SUITABLE FOR STAGE APPROVAL	RB	LA					



Head Office,
 9 Prussia Street,
 Dublin 7,
 D07 KT57

TEL +353 (0)1 8682000

e: contactus@ocsc.ie
 w: www.ocsc.ie

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Client: BEO PROPERTIES LIMITED
 Project: RATOATH RESIDENTIAL DEVELOPMENT
 SHD PLANNING APPLICATION
 Title: ROADS GENERAL ARRANGEMENT PLAN
 SHEET 1 OF 2

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
L308-OCSC	XX	XX	DR	C	0110	S4	P04	

Date: 01.04.20 Scale: 1:1000@ A1 Drn by: RM Chkd by: DR Aprvd by: AH