

Title: **STAGE 1 QUALITY/SAFETY AUDIT**

For;

Proposed Residential Development at Waterfall Road, Cork

Client: **NRB Consulting Engineers Ltd.**

Date: **March 2021**

Report reference: **0952R01 Rev 2**

VERSION: **FINAL**

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1.0 Introduction

This report was prepared in response to a request from Mr. Eoin Reynolds of NRB Consulting Engineers Ltd for a Quality/Safety Audit of the proposed residential development at Waterfall Road, Cork.

The Quality/Safety 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 updated in June 2019.

This Quality Audit includes a road safety audit, an access audit, a walking audit and a cycling audit.

The Road Safety and Quality Audit Team comprised of;

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

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

The Quality/Safety Audit involved the examination of drawings and other material provided by NRB. A site visit was carried out by the Audit Team on the 1st March 2021.

The problems raised in this Quality/Safety 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**.

2.0 Background

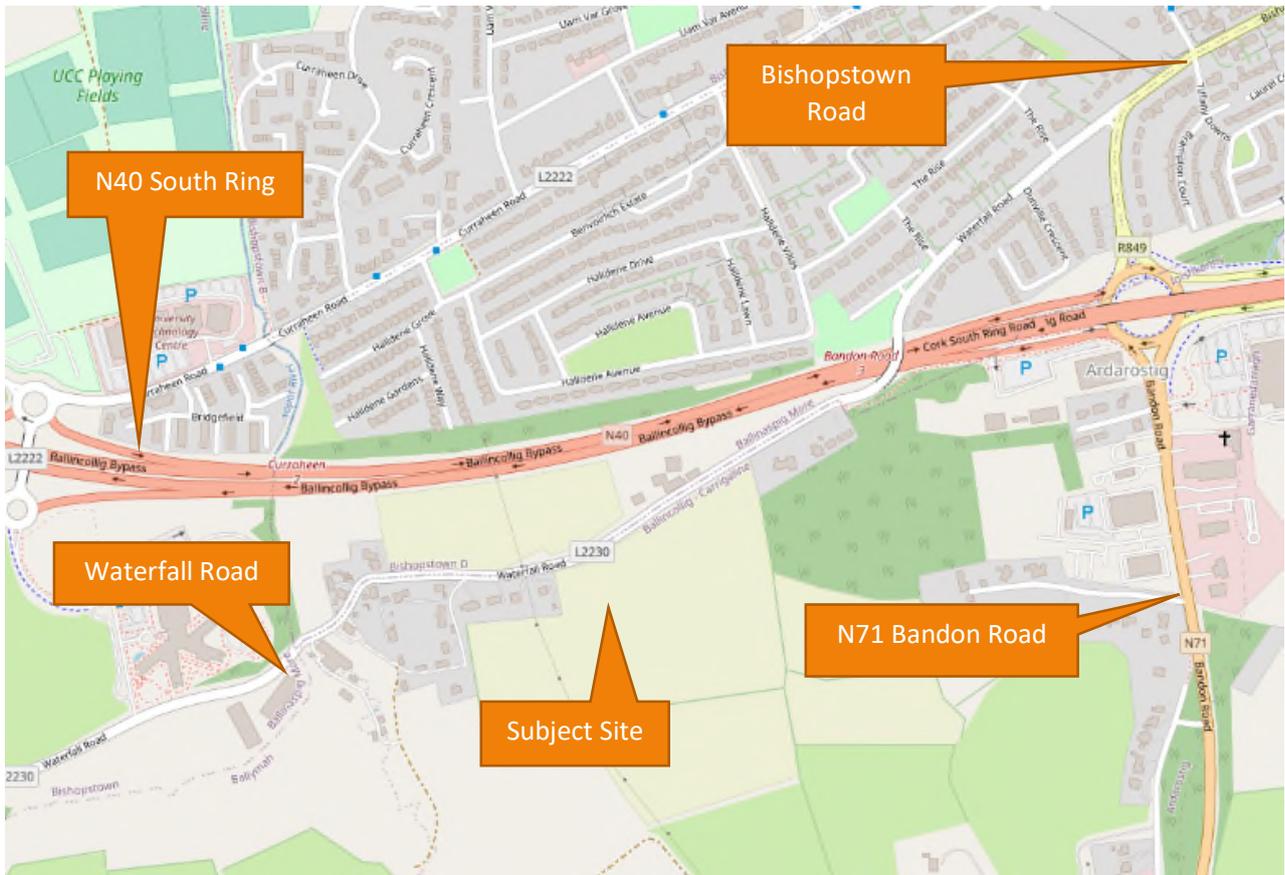
It is proposed to construct a residential development of 276 units comprising 137 houses and 139 apartments/duplexes with support services off Waterfall Road (L2230) in Cork City.

As part of the development it is proposed to construct a pedestrian /cycle link to Bandon Road and pedestrian crossing facilities at Waterfall Road/The Rise and the Audi Garage towards Bishopstown.

Waterfall Road is a single carriageway road currently without any footpaths or cycle tracks in the vicinity of the site. We note that the footpath is being extended along the site and is being connected to the existing pathway to the north east, which leads over the N40 bridge. We also note the significant improvements in cycling connectivity.

The speed limit on Waterfall Road is 50km/hr

The location of the site is shown below.



Site Location Map (courtesy of openstreetmap.org).

A review of the Road Safety Authority’s website shows that between the years 2005 and 2016 there has been no recorded collisions along the section of Waterfall Road where the development will be accessed.

The screenshot shows the Ireland Road Collisions website interface. On the left is a map of the area around Waterfall Road, with a yellow circle indicating a specific location. The right sidebar contains the following sections:

- Ireland road collisions** (with a Restart link)
- Help** (with a plus icon)
- Collisions** (checked, with a minus icon)
- Severity**: Radio buttons for Fatal (red), Serious (yellow), Minor (grey), and All (blue). 'All' is selected.
- Year**: Radio buttons for years from 2016 to 2005, and 'All'. 'All' is selected.
- Type**: Radio buttons for All (blue), Pedestrian, Bicycle, Motorcycle, Car, Goods vehicle, Bus, and Other. 'All' is selected.
- Collision information** (with a minus icon): A table showing details for a specific collision.

Severity	Serious
Year	2005
Vehicle	undefined
Circumstances	Head-on conflict
Day of week	Friday
Time	1000-1600
Speed limit	80 KPH
No. casualties - serious	2
No. casualties - total	2

3.0 Main Report

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	✓	✓		✓	✓

3.1 Problem

LOCATION

Drawing NRB-TA-001-02

PROBLEM

It is proposed to provide a pelican crossing at the north eastern tie in of Waterfall Road. It is understood that the exact location is to be agreed with CCC. There is a risk that the location of the signals may be too close to a private access or that there may not be enough footpath space for waiting pedestrians if it is located where there is a pinch-point. This could lead to passing pedestrians entering the carriageway where they could be struck by passing vehicles.



RECOMMENDATION

It is recommended that the pelican crossing include buildouts into the existing relatively wide carriageway so that there is extra refuge area for pedestrians waiting to cross, there is a shorter crossing distance and that the signals also act as a traffic calming feature. Crossing specific public lighting will be required.

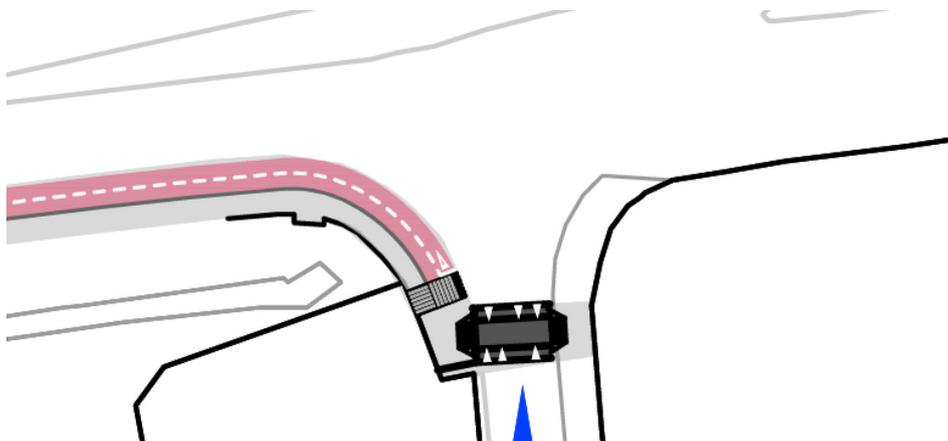
3.2 Problem

LOCATION

Drawing NRB-TA-001-02

PROBLEM

It is proposed to provide a raised uncontrolled crossing at the entrance to the Audi Garage/Heiton Buckley. There is an existing uncontrolled crossing at a similar location. There is a risk that if the crossing is brought closer to the junction with the N40 ramp that vehicles turning at relatively high speed may not be able to stop before the crossing point.



RECOMMENDATION

It is recommended that the crossing be suitably set back from the junction mouth.

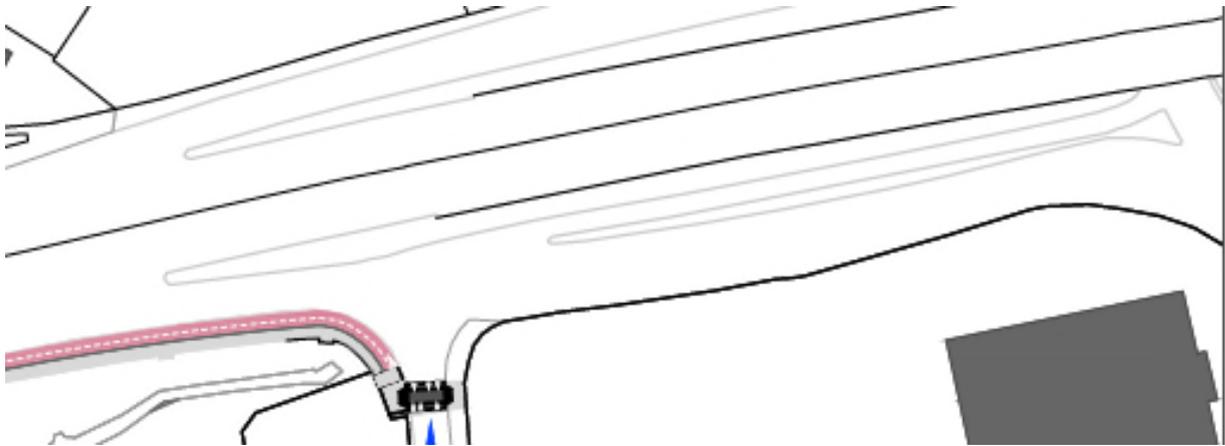
3.3 Problem

LOCATION

Drawing NRB-TA-001-02

PROBLEM

The existing cycle track along the N40 ramp from the N71 roundabout is only one-way and is also available to pedestrians. This could lead to conflict between cyclists that will be travelling contra flow when the new facility is opened.



RECOMMENDATION

It is recommended that the existing one way cycle track be made a shared use facility in both directions from the access to the Audi Garage/Heiton Buckley to the Dunnes Stores pedestrian crossing on the N71.

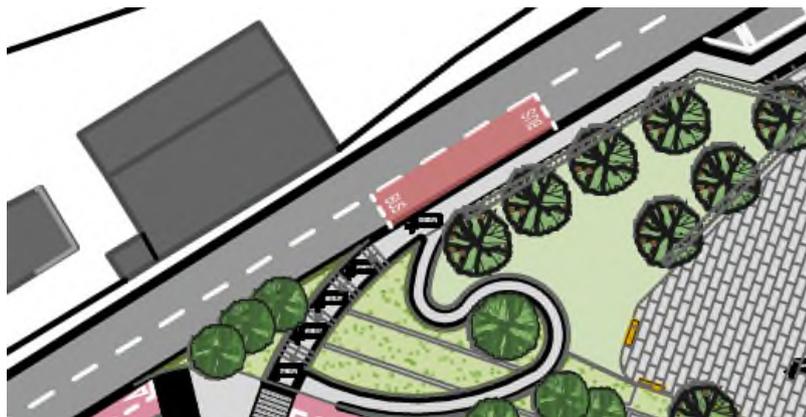
3.4 Problem

LOCATION

Drawing NRB-TA-001-01

PROBLEM

There is a proposed on-road bus stop for westbound buses on Waterfall road along the development. There is no corresponding stop for eastbound buses. This may lead to buses stopping where there is no safe place for passengers to wait which may increase the risk of them being struck by passing traffic.



RECOMMENDATION

It is recommended that an eastbound bus stop with hardstanding/kassel kerb etc. be provided with a suitable pedestrian crossing to the proposed development.

4.0 Observations

4.1 Observation

We are in receipt of the typical details and cross sections showing the road widths, the cycle path and footpath cross sections - and we understand that the Waterfall Road alignment is relatively flat past the site – however at detailed design stage it will be important to re-check that there are no conflicts with drainage, signage or road markings, matters which can generally be easily addressed at that stage.

Quality Audit Statement

This 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: 
(Quality Audit Team Leader) Dated: 01/3/2021

Owen O'Reilly Signed: 
(Quality Audit Team Member) Dated: 01/3/2021

Appendix A

List of Material Supplied for this Quality Audit;

- Transport Assessment Report NRB Jan 2021 including
- Drawing NRB-TA-001-01
- Drawing NRB-TA-001-02
- Drawing NRB-TA-002
- Drawing NRB-TA-003-01
- Drawing NRB-TA-003-02
- Drawing NRB-TA-004
- Drawing NRB-TA-005
- Drawing NRB-SK-007
- Drawing NRB-SK-008
- Drawing NRB-SK-009

Appendix B

Feedback Form

SAFETY/QUALITY AUDIT FORM – FEEDBACK ON REPORT

Scheme: Waterfall Road, Cork

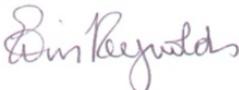
Quality Audit- Planning

Date Audit (site visit) Completed: 1/3/2021

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 - Pelican Crossing	Yes	Yes	<i>NRB Comment</i> – the location & outline design was agreed in Principle with Cork County Council (CCC).	Yes
3.2 – Raised Platform At Audi	Yes	Yes	<i>NRB Comment</i> – A ramp warning sign has been incorporated and the crossing is to be as far back as possible (to match the existing crossing).	Yes
3.3 – Existing Cycle Facility on the N40 Ramp	Yes	Yes	<i>NRB Comment</i> – the existing concrete apron area to the southern boundary of the ‘ramp’ (identified in the RS Audit Report) is a shared surface, used by cyclists and pedestrians, and has operated as same for many years without any issues arising we understand. It is currently very infrequently used. There is an historic push button controlled crossing provided immediately at the Audi Garage, which, when in operation, previously allowed the safe crossing of dismounted cyclists. Notwithstanding the crossing status, at some point, eastbound cyclists must currently eventually dismount to cross at the busy N40 Bandon Road roundabout.	Yes
3.4 – Eastbound Buses	Yes	Yes	<i>NRB Comment</i> – the illustrated westbound bus stop is shown to illustrate how a bus stop is facilitated and can be provided in the future. In a similar way a bus stop can be provided in future for eastbound buses on the opposite side of the road.	Yes

Observations – NRB Comments

4.1 – Road Levels/Drainage/Road Markings/Signage – Conscious that it is a Stage 1 Audit, these details are not considered material in terms of affecting the Stage 1 audit.

Signed 
Design Team Leader

Date: 23 Feb 2021

Signed... 
Audit Team Leader

Date: 23/2/2021

Appendix C

Problem Location Plan.

