

Roughan & O'Donovan

Library Square, Ringsend

Stage 1 Road Safety Audit

Roughan & O Donovan

# Library Square, Ringsend

## Stage 1 Road Safety Audit

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Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	MAH	PJM	PJM	27 <sup>th</sup> March 2023	Final
1.0	MAH	PJM	PJM	16 <sup>th</sup> Feb. 2023	Draft Report

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# 1 Introduction

## 1.1 General

This report results from a Stage 1 Road Safety Audit on the proposed amendments to the existing road layout at Library Square, Ringsend and has been carried out at the request of Mr Eoin O'Catháin of Roughan & O'Donovan.

The members of the Road Safety Audit Team are independent of the design team, and include: -

**Mr. Peter Monahan**  
(BE MSc CEng FIEI RSACert)  
Road Safety Audit Team Leader

**Mr. Mazen Al Hosni**  
(BEng, MSc, MIEI)  
Road Safety Audit Team Member

The Road Safety Audit took place during February 2023 and comprised an examination of the documents provided by the designers (see Appendix B). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 13<sup>th</sup> February 2023. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were moderate, pedestrian and cyclist volumes were moderate and traffic speeds were considered to be generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report and their locations are shown in Appendix D. Where problems are general to the proposals sample drawing extracts are within the main body of the report where considered necessary.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 - Road Safety Audit (December 2017), contained on the Transport Infrastructure Ireland (TII) Publications website.

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 and considers the perspective of all road users. 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 and minimise collision occurrence.

If any of the recommendations within this road 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 Observations are intended to be for information only. Written responses to Observations are not required.

## 1.2 Items Not Submitted for Auditing

Details of the following items were not submitted for audit; therefore no specific problems have been identified at this stage relating to these design elements, however where the absence of this information has given rise to a safety concern it has been commented upon in Section 3: -

- Vehicle swept paths
- Visibility splays

## 2 Project Description

### 2.1 General

Amendments to the existing road layout, including public realm improvement works, are proposed at Library Square and along Irishtown Road/Bridge Street (R802) and Fitzwilliam Street in Ringsend, Co. Dublin. Figure 2-1 shows the site location.

The Irishtown Road/Bridge Street (R802) regional road is a two-way single carriageway road running along the eastern and northern side of the existing public library building, with a short-radius bend where it changes direction. The existing road width varies between 9 m and 11 m within the scheme extents, with on-street parallel car parking along the south-eastern side of the road. There are existing footpaths on either side of Irishtown Road/Bridge Street and advisory cycle lanes on both sides of the road.

Fitzwilliam Street is a one-way street running in a south-north direction with a footpath on one (western) side. The road width varies along its length but is approximately 3.5m wide with on-street parallel car parking and a number of loading bays along its western side.

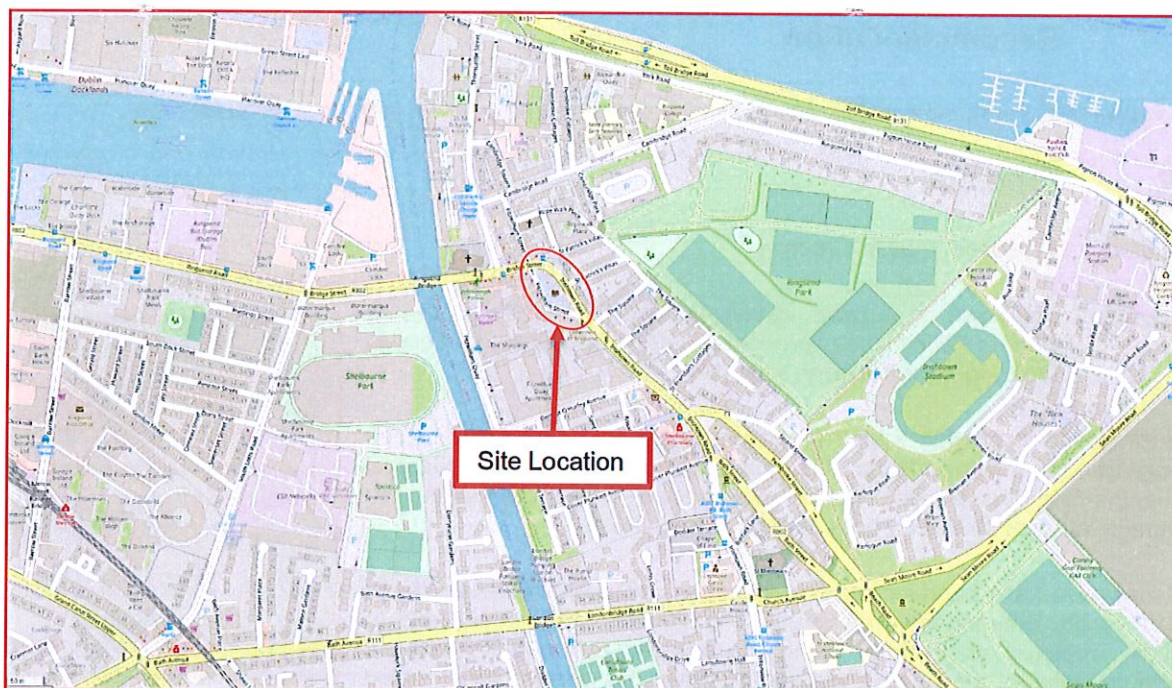


FIGURE 2-1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG)

The scheme would include the following works: -

- Amending the public realm around the library building, including amended & new footpaths.
- A new Toucan Crossing on a raised table across the R802 between the Library and Saint Patrick's Villas (north).
- Repositioning of existing parallel parking on the eastern side of the Irishtown Road with the cycle lane on this side positioned behind the parking spaces.
- Kerb realignment along Irishtown Road/Bridge Street and at the junctions of Fitzwilliam Street Upper and Saint Patrick's Villas.
- Public lighting.
- Bicycle parking stands
- Relocation of the existing southbound bus stop

## 3 Main Report

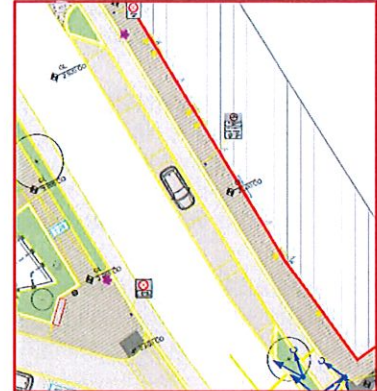
### 3.1 Problem

*Location: Parallel parking arrangements on Irishtown Road*

*Summary: The absence of an adequate buffer between the amended parallel parking spaces and the adjacent cycle lane may result in vehicle doors being opened into the path of a cyclist.*

It is proposed to reposition the existing parallel parking spaces along the eastern side of Irishtown Road and to position the cycle track to the rear of the parking spaces.

No buffer zone has been indicated between the parallel parking spaces and the adjacent cycle track, which could result in vehicle occupants opening their doors into the path of an oncoming cyclist.



### Recommendation

An appropriate buffer zone should be provided between the cycle track and the parking spaces.

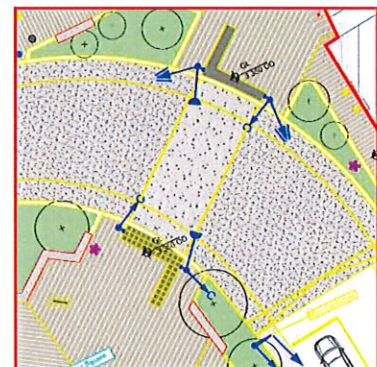
### 3.2 Problem

*Location: Proposed Toucan Crossing*

*Summary: Measures to advise visually-impaired pedestrians of the Shared Path on the approaches to/departures from the Toucan crossing have not been indicated.*

It is proposed to provide a new Toucan crossing on the corner between Bridge Street & Irishtown Road. This is likely to encourage cyclists to travel within the footpaths on either side of the crossing, in essence making the footpaths an area shared by both pedestrians & cyclists.

No measures have been indicated to advise visually-impaired pedestrians that they are entering an area shared with cyclists. This would lead to visually impaired pedestrians being insufficiently aware that they are entering a shared area where cyclists may also be present which could result in an increased risk of pedestrian-cyclist collisions.



### Recommendation

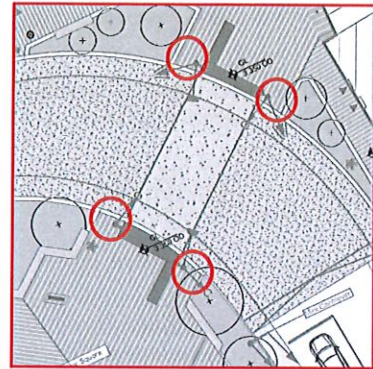
Measures should be provided to advise visually impaired pedestrians when they are entering/leaving a Shared Path (e.g. Ladder & Tramline tactile paving at the interfaces between shared and segregated surfaces).

### 3.3 Problem

*Location: Proposed raised table between Bridge Street & Irishtown Road*

*Summary: Unclear if the raised table would be level/flush with the adjacent path.*

A raised-table is proposed on the corner between Bridge Street & Irishtown Road. It is unclear from the information provided if it is intended to provide a level difference between the path and the raised-table away from the proposed signalised pedestrian crossing.



Should there be insufficient level difference between the path and the raised-table, there is a risk that a visually impaired pedestrian may inadvertently enter the carriageway where there is an increased risk of being struck by a vehicle.

### Recommendation

The proposed design should include measures to ensure that visually-impaired pedestrians do not inadvertently enter the carriageway at the proposed raised-table (e.g. providing an appropriate level difference between the footpath and the raised-table away from crossing locations).

### 3.4 Problem

*Location: Saint Patrick's Villas*

*Summary: Likely pedestrian desire line not catered at scheme extents.*

It is proposed to provide a new Toucan crossing on the corner between Bridge Street & Irishtown Road. This is likely to increase the volumes of pedestrians crossing the road and wishing to travel along Saint Patrick's Villas towards Ringsend Park, however the existing footpath leading to the park is unlikely to be able to cater for the increased volumes of pedestrians.

This may result in pedestrians travelling within the side road carriageway leading to an increased likelihood of vehicle/pedestrian collisions.



### Recommendation

New or amended pedestrian/cyclist desire lines created as result of the proposed new Toucan crossing should be assessed and, where necessary, appropriate measures provided to ensure that vulnerable road users can safely join the existing road network.

### 3.5 Problem

*Location: Fitzwilliam Street/Bridge Street junction.*

*Summary: Visibility for drivers exiting Fitzwilliam Street may be impeded by the proposed planting on Bridge Street.*

Trees/planting have been indicated on the southern side of Bridge Street, to the east of Fitzwilliam Street/Bridge Street junction. At this early stage in the design process it is not clear what planting is proposed at this location, and there is a risk that when mature planting in this area could restrict an exiting driver's visibility towards approaching vehicles, possibly resulting in unsafe exiting manoeuvres and side-on collisions.



### Recommendation

The proposed planting/landscaping should not impede a driver’s visibility towards approaching traffic when exiting side roads within the scheme.

### 3.6 Problem

*Location: Fitzwilliam Street*

*Summary: No “Safe Zone” for visually-impaired pedestrians has been indicated within the proposed shared area along Fitzwilliam Street.*

At this early stage in the design process it is unclear if a level difference is proposed between the footpath and the carriageway on Fitzwilliam Street. A note on the drawing provided indicates that this area is to be a “Shared Space”, however no “Safe Zone” for visually-impaired pedestrians has been indicated. It is also unclear if there would be sufficient tonal contrast between the footpath areas and the shared carriageway area.



The absence of a “Safe Zone” for partially-sighted and visually-impaired pedestrians would increase the difficulties experienced by these road users in independently & safely navigating the proposed street layout, and could result in a visually impaired pedestrian inadvertently entering the carriageway unsafely.

### Recommendation

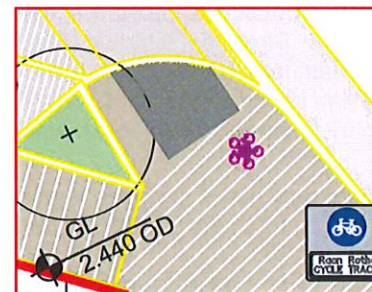
A “Safe Zone” should be provided within shared areas/paths within the scheme with appropriate measures to ensure that it can be detected and traversed safely by the visually-impaired.

### 3.7 Problem

*Location: Fitzwilliam Street/Irishtown Road Junction*

*Summary: Position of lighting column may present a hazard to non-motorised road users (NMUs).*

A public lighting column is indicated centrally within the footpath on the southern side of the crossing of Fitzwilliam Street. This would present a hazard to inattentive or visually-impaired pedestrians travelling within the footpath.



### Recommendation

Items of roadside furniture, including public lighting columns, should be positioned where they do not present an obstacle or a hazard to non-motorised road users within the footpaths.

### 3.8 Problem

*Location: Bridge Street*

*Summary: Lighting column may impede visibility towards proposed signals.*

A lighting column is indicated positioned in front of the eastbound cyclist secondary traffic signal head at Bridge Street. This might impede visibility to the signal head.





## Recommendation

Items of roadside furniture, including public lighting columns, should be positioned where they do not impede visibility towards the existing or proposed traffic signals.

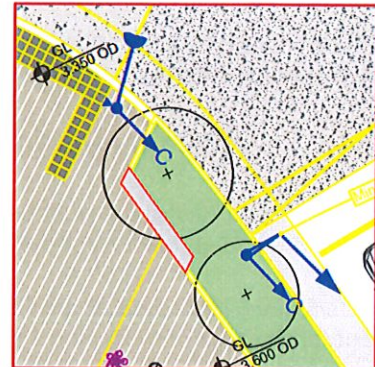
### 3.9 Problem

*Location: Cycle Lanes*

*Summary: Unclear if adequate vertical clearance would be available for cyclists within the cycle lane at all locations.*

Proposed trees have been indicated as extending over the cycle track/lane along Irishtown Road/Bridge Street at a number of locations. It is unclear at this early stage in the design process what the proposed tree species are, and if sufficient clearance/headroom would be available.

Insufficient clearance to the canopies could present a hazard to cyclists, or lead to sudden avoidance manoeuvres by cyclists resulting in possible loss-of-control incidents and personal injury.



## Recommendation

Trees adjacent to, or overhanging, the cycle track should have a vertical clearance of 2.5m to the cycle track.

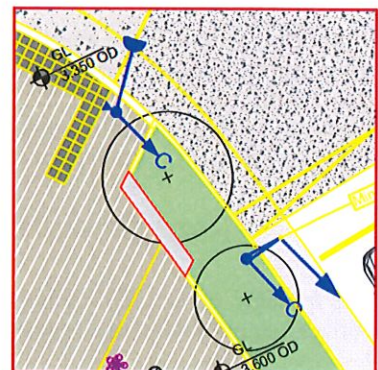
### 3.10 Problem

*Location: Proposed Cantilever Signal Supports at new Toucan Crossing*

*Summary: Unclear if the proposed cantilever signal supports at the new Toucan crossing will provide adequate clearance to cyclists within the cycle lane, and if measures are proposed to avoid them being struck by a vehicle that encroaches into the cycle lane.*

Cantilever signal supports posts have been indicated which overhang the proposed cycle lanes at a number of locations. It is unclear what the proposed clearance will be to the signals and their supports at these locations, and if insufficient they could present a hazard to cyclists, or lead to avoidance manoeuvres resulting in loss-of-control collisions.

In addition, no measures have been indicated to prevent vehicles from encroaching into the cycle lanes at these locations. Where a high-sided vehicle travels partially within the cycle lane there is a risk that they may strike the signals resulting in material damage.



## Recommendation

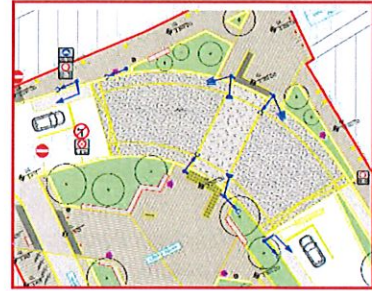
The proposed cantilever signal supports should provide adequate vertical clearance to the cycle lanes, and measures provided to ensure that vehicles cannot strike the cantilever signals.

### 3.11 Problem

*Location: Irishtown Road/Bridge Street*

*Summary: Unclear if the swept path of two-way traffic can be accommodated within the amended road layout.*

Details of vehicle swept paths along Irishtown Road/Bridge Street have not been provided, and it is therefore unclear if two vehicles travelling in opposite directions can pass each other safely on the short radius horizontal bend between Irishtown Road & Bridge Street.



If there is insufficient space for opposing traffic to pass there is a risk of vehicles encroaching onto the cycle lanes and striking a cyclist, or side-swipe collisions between opposing vehicles.

### Recommendation

A swept path analysis should be undertaken to confirm that the proposed road layout can accommodate the swept path of opposing vehicles safely at the short radius horizontal curve.

In addition, measures should be provided to ensure vehicles, in particular northbound vehicles, do not encroach onto the cycle lane through the bend.

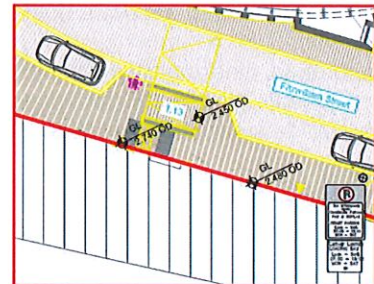
### 3.12 Problem

*Location: Fitzwilliam Street*

*Summary: Steep gradient within the footpath & carriageway.*

An 'external ramp' is proposed within the footpath on the western side of Fitzwilliam Street with a gradient of 1V:13H (c. 7.7%). The proposed ramp gradient may create difficulties for non-motorised road users. In particular a mobility-impaired wheelchair user, or someone pushing a pram, might fall forward out of a wheelchair when descending or the wheelchair or stroller may tip backwards when ascending.

In addition, at this early stage in the design process, it is unclear how the ramp will be implemented within the carriageway along Fitzwilliam Street. Should the gradient within the carriageway be similar to that within the footpath, and insufficient vertical curvature provided, there is a risk of vehicles "grounding" at the top of the ramp resulting in material damage.



### Recommendation

The gradient on external ramps should not exceed 5% and an appropriate vertical alignment should be provided within the carriageway.

## 4 Observations

- 4.1 It is proposed to relocate the eastbound bus stop from the corner of Bridge Street & Irishtown Road onto Bridge Street. It is unclear from the information provided if it is intended to provide Kassel kerbs at the new bus stop.

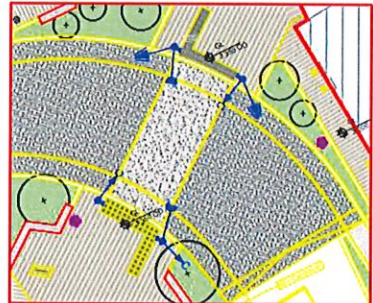


The absence of Kassel Kerbs could create difficulties for the mobility-impaired, in particular wheelchair users, in accessing/leaving buses.

- 4.2 It is unclear if no entry road markings at Fitzwilliam Street will be reinstated, there is a concern that the removal of no entry road marking will result in drivers not being aware of the one way system.



- 4.3 At this early stage of the design a number of issues relating to the tactile paving were identified that are likely to be addressed during the detailed design, however they are listed here to assist in the next design stage: -

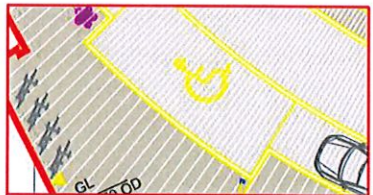


- a. The stems on the tactile paving layouts at the new toucan crossing don't extend far enough to be intercepted by a visually impaired pedestrian travelling along the approaching footpaths.
- b. It is unclear from the information provided what the colour/texture of the footpath surface will be, and consequently whether there will be adequate tonal contrast between the various tactile paving layouts and the footpath.

- c. The depth of the tactile paving indicated at a number of in-line pedestrian crossings of St Patrick's Villas, along the eastern side of Irishtown Road, is not indicated as being of sufficient depth.



- d. Unclear if there will be level difference between the footpath and carriageway at Fitzwilliam Street. It is therefore unclear if dropped kerbs and tactile paving will be required at the proposed mobility impaired parking space and the footpaths on Fitzwilliam Street.



- e. No tactile paving has been indicated at the top/bottom of the steps at the library entrance.



- f. No dropped kerbs or tactile paving has been indicated within the footpath along the eastern side of Irishtown Road at the southern terminal of the scheme, and the existing opposing dropped kerb at this junction has no tactile paving.



## 5 Road Safety Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that 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.

No one on the Road Safety Audit Team has been involved with the design of the scheme.

### ROAD SAFETY AUDIT TEAM LEADER

Peter Monahan

Signed:



Dated:

27<sup>th</sup> March 2023

### ROAD SAFETY AUDIT TEAM MEMBER

Mazen Al Hosni

Signed:



Dated:

27<sup>th</sup> March 2023

## **Appendix A – Road Safety Audit Brief Checklist**

Have the following been included in the audit brief?: (if 'No', reasons should be given below)

	Yes	No
1. The Design Brief	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Departures from Standard	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Scheme Drawings	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Scheme Details such as signs schedules, traffic signal staging	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Collision data for existing roads affected by scheme	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Traffic surveys	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Previous Road Safety Audit Reports and Designer's Responses/Feedback Form	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Previous Exception Reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Start date for construction and expected opening date	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Any elements to be excluded from audit	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Any other information?**

(if 'Yes', describe below)

<input type="checkbox"/>	<input checked="" type="checkbox"/>
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## **Appendix B – Documents Submitted to the Road Safety Audit Team**

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Proposed Signals and Signage	-	-



## Road Safety Audit Feedback Form

Scheme: Library Square, Ringsend

Route No.: R802

Audit Stage: 1 Date Audit Completed: 16<sup>th</sup> February 2023

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem Accepted (Yes/No)	Recommended Measure(s) Accepted (Yes/No)	Describe Alternative Measure(s). Give reasons for not accepting recommended measure	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.1	Yes	Yes		
3.2	Yes	No	Cycle signals to be omitted. Pedestrian crossing only.	Yes
3.3	Yes	Yes		
3.4	Yes	No	This is beyond the scope of the project and will be drawn to the attention of the local authority.	Yes
3.5	Yes	Yes		
3.6	Yes	No	The footpath will be kerb segregated from the road.	Yes
3.7	Yes	Yes		
3.8	Yes	Yes		
3.9	Yes	Yes		
3.10	Yes	Yes		
3.11	Yes	Yes		
3.12	Yes	No	The existing footpath ramp gradient is c. 26.3% (250mm rise across 950mm). It is proposed to provide steps and a ramp with gradient of 7.6%.  The vertical alignment within the carriageway at Fitzwilliam Street will not result in vehicle grounding.	Yes

Signed:  Designer Date 28th March 2023

Signed:  Audit Team Leader Date 27<sup>th</sup> March 2023

Signed:  Employer Date 30/3/23

**Appendix C – Feedback Form**

## Appendix D – Problem Locations

