ATKINS

Member of the SNC-Lavalin Group

Fassaroe Phase 1 Strategic Housing Development

Stage 1 Quality Audit

Cosgrave Property Group

April 2022

Notice

This document and its contents have been prepared and are intended solely as information for Cosgrave Property Group and use in relation to this project.

WS Atkins Ireland Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 0	Draft Issue	DB	ST	ST	PF	Jan 2022
Rev 1	Final Issue	DB	ST	ST	PF	April 2022

Client signoff

Client	Cosgrave Property Group
Project	Fassaroe Phase 1 Strategic Housing Development
Job number	5186693
Client signature / date	

Contents

Chapter		Page
1.	**Introduction**	**5**
1.1.	Background	5
1.2.	Site Inspection	5
1.3.	The Team	6
1.4.	Compliance	6
1.5.	The Design	6
1.6.	Objectives of the Scheme	7
2.	**Road Safety Audit**	**8**
2.1.	Road Safety Audit Compliance	8
2.2.	Road Safety Issues Identified	8
3.	**Access, Walking and Cycling Audit**	**19**
3.1.	Access Audit (General)	19
3.2.	Access, Walking and Cycling Issues Identified	21
4.	**Audit Team Statement**	**26**
4.1.	Certification	26
4.2.	Sole Purpose	26
4.3.	Implementation of Quality Audit Recommendations	26
4.4.	Audit Team's Independence to the Design Process	26
4.5.	Quality Audit Team Sign-Off	26
5.	**Designer's Response**	**27**
Appendices		**28**
Appendix A.	**Quality Audit Feedback Form**	**29**

Tables

Table 1-1 - Speed Limits for Scheme Roads 5

Table 1-2 - Drawing List 6

Table 3-1 - Access Audit Findings Summary Table 19

Figures

Figure 1-1 - Site Location 5

Figure 2-1 – Bus Stop North West of Scheme 8

Figure 2-2 – Large Unmarked Parking Area 9

Figure 2-3 – Proposed Raised Table 9

Figure 2-4 – Congested Area in Centre of Scheme 10

Figure 2-5 – Abrupt End to Footpath 11

Figure 2-6 – Footpath Tie-in with Tramline Paving 11

Figure 2-7 – Parallel Parking on Inside of Bend 12

Figure 2-8 – Series of Road Elements on Bend 12

Figure 2-9 – Large Radii at Junction 13
Figure 2-10 – Short Sections of Shared Areas 13
Figure 2-11 – Proposed Road Markings 14
Figure 2-12 – Toucan Crossing in Close Proximity to Junction 14
Figure 2-13 – Footpath Leads onto Carriageway 15
Figure 2-14 – Significant Change in Levels for Existing Ground 16
Figure 2-15 – Footpath and Cycle Track Delineation 16
Figure 2-16 – Provision for Turning areas for Vehicles 17
Figure 2-17 – Intersection of Existing Routes and Proposed Main Road 17
Figure 2-18 - Tress Impeding Sightlines Across Scheme 18
Figure 3-1 – No Provision for Cyclists Turning Right 21
Figure 3-2 – Tactile Paving on Cycle Tracks 22
Figure 3-3 – Right of Way for Junctions Across Scheme 22
Figure 3-4 – Proposed Tramline Paving 23
Figure 3-5 – Provision for Pedestrians at Roundabout 24
Figure 3-6 – Proposed Tactile Paving 24
Figure 3-7 – Lack of Direct Access to Playground 25

1. Introduction

1.1. Background

This report describes the findings of a Stage 1 Quality Audit associated with the Fassaroe Phase 1 Strategic Housing Development. The Quality Audit consists of a Road Safety Audit (Stage 1), an Accessibility Audit, a Walkability Audit and a Cycle Audit. The project is located immediately west of N11 Junction 6. It ties in and includes work to the R918 and Fassaroe Link Road, with the latter connecting to Ballyman Road, as shown in Figure 1-1.

The speed limit on Ballyman Road is 50 km/h, while the R918 and Fassaroe Link Road is 80km/h. The existing Ballyman Road is rural in nature, with no public lighting or footways. The R918 and Fassaroe Link Road are urban roads with the presence of road signage and public lighting. The Fassaroe Link Road has pedestrian facilities while the R918 has limited pedestrian facilities.

Proposed speed limits for roads included in the scheme are detailed below in Table 1-1.

Table 1-1 - Speed Limits for Scheme Roads

Design Criteria	Boulevard Street	Link Street	Local Street	Home Zone Street	Berryfield Lane
Adopted Design Speed	50km/h	30-50km/h	20km/h	20km/h	20km/h

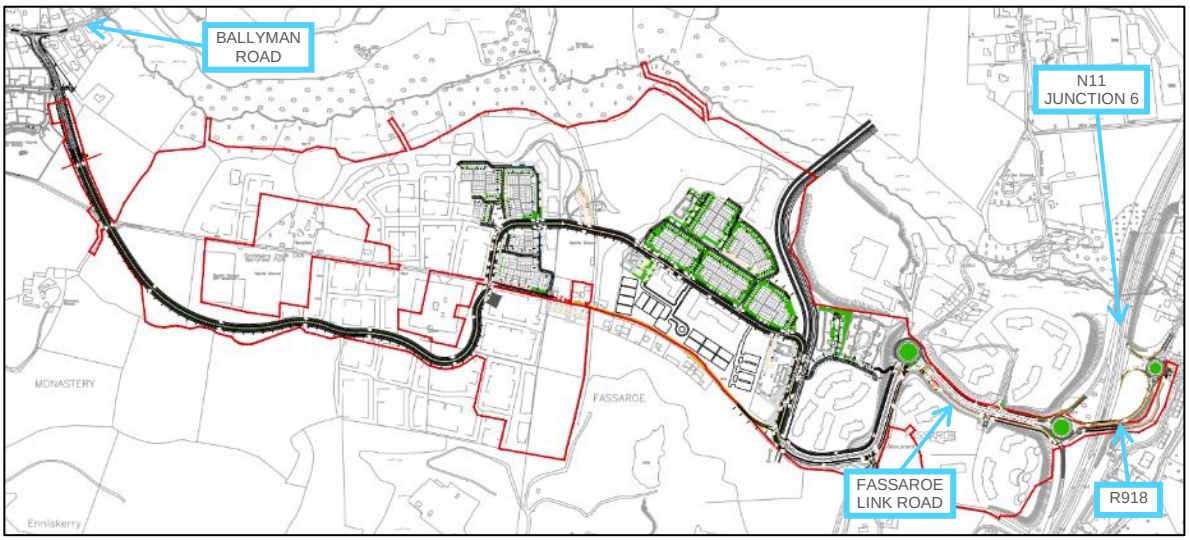


Figure 1-1 - Site Location

The Audit has been completed by Atkins on behalf of Cosgrave Property Group.

1.2. Site Inspection

The site inspection was carried out on 5th January 2022 by the Audit Team.

Weather conditions during the site inspection were cold and dry; road surfaces were dry. Traffic conditions were low. Pedestrian and cyclist movements were low.

1.3. The Team

The Road Safety Audit Team members were as follows:

- Team Leader: **Shane Tobin** BA BAI P.Cert (RSA) C.Eng MIEI
- Team Member: **Daire Breen** BAI MAI MIEI

1.4. Compliance

This Quality Audit is undertaken in accordance with **Section 5.4.2** of the Design Manual for Urban Roads and Streets (DMURS). The UK Department for Transport Traffic Advisory Leaflet (TAL) 5/11 has also been referred to for additional guidance.

This Quality Audit consists of the following elements:

- **Road Safety Audit** – focusing on issues relating directly to road safety.
- **Access, Walking and Cycling Audit** – focusing on accessibility requirements of vulnerable road users (in particular those who are visually and/or mobility impaired).

It shall be noted that the following, as listed in Section 5.4.2 of DMURS are outside of the scope of this Quality Audit report:

- An audit of visual quality.
- A review of how the street is/may be used by the community.
- A community street audit (in existing streets).
- A place check audit.

It should be noted that a Community Audit is an audit carried out by an existing community on existing street networks. The proposed development is for the creation of a new community on, in effect, an entirely new street network. Therefore, a community street audit is not relevant or applicable in the case of this planning application.

1.5. The Design

The following drawings were examined as part of the Quality Audit process:

Table 1-2 - Drawing List

Drawing Number	Drawing Title	Revision
5186693 / HTR / 01 / DR / 0118	JUNCTION LAYOUT - KEY PLAN - SHEET 1 OF 4	-
5186693 / HTR / 01 / DR / 0119	JUNCTION LAYOUT SHEET 2 OF 4	-
5186693 / HTR / 01 / DR / 0120	JUNCTION LAYOUT SHEET 3 OF 4	-
5186693 / HTR / 01 / DR / 0121	JUNCTION LAYOUT SHEET 4 OF 4	-
5186693 / HTR / 01 / DR / 0122	JUNCTION VISIBILITY - KEY PLAN - SHEET 1 OF 4	-
5186693 / HTR / 01 / DR / 0123	JUNCTION VISIBILITY - SHEET 2 OF 4	-
5186693 / HTR / 01 / DR / 0124	JUNCTION VISIBILITY - SHEET 3 OF 4	-
5186693 / HTR / 01 / DR / 0125	JUNCTION VISIBILITY - SHEET 4 OF 4	-
5186693 / HTR / 01 / DR / 0126	VEHICLE TRACKING - SHEET 1 OF 3	-
5186693 / HTR / 01 / DR / 0127	VEHICLE TRACKING - SHEET 2 OF 3	-

5186693 / HTR / 01 / DR / 0128	VEHICLE TRACKING - SHEET 3 OF 3	-
5186693 / HTR / 01 / DR / 0129	TYPICAL CROSS SECTION KEY PLAN	-
5186693 / HTR / 01 / DR / 0130	TYPICAL CROSS SECTION SHEET 1 OF 2	-
5186693 / HTR / 01 / DR / 0131	TYPICAL CROSS SECTION SHEET 2 OF 2	-
LFAS-MAL-XX-XX-DR-L-0100	LANDSCAPE MASTERPLAN	00

1.6. Objectives of the Scheme

The following objectives have been provided by the Design Team:

- To design the development in accordance with the “15-minute city principles” that creates environments that are more liveable and people orientated through a network of streets that link mixed uses residentials uses with facilities and amenities required to live, work and play.
- To create an environment that actively encourages and is conducive to walking and cycling, particularly for shorter journeys.
- To reduce / minimise the need to travel by car.
- To ensure that there are excellent onward connections from the development to key destination such as Bray and Dublin through the provision of high frequency public transport connections that increase with demand.
- To provide walking and cycling connections from the development towards Bray to facilitate walking and cycling connections.

2. Road Safety Audit

2.1. Road Safety Audit Compliance

2.1.1. Procedure and Scope

This Road Safety Audit has been carried out in accordance with the procedures and scope set out in TII publication number **GE-STY-01024 - Road Safety Audit**.

As part of the road safety audit process, the Audit Team have examined only those issues within the design which relate directly to road safety.

2.1.2. Compliance with Design Standards

The road safety audit process is not a design check, therefore verification or compliance with design standards has not formed part of the audit process.

2.1.3. Minimizing Risk of Collision Occurrence

All problems described in this report are considered by the Audit Team to require action in order to improve the safety of the scheme and minimise the risk of collision occurrence.

2.2. Road Safety Issues Identified

2.2.1. Problem: Location of Bus Stop

Location: **Main Road of Scheme (Chainage 1+360)**

The proposed bus stop is located at the beginning of the bend in the road and is in close proximity to the junction on the bend (shown below in Figure 2-1). Sightlines for northbound vehicles and vehicles emerging from the junction may be blocked or at least impaired by a stopped bus which may create the hazard of drivers manoeuvring around the bus with limited visibility. This could lead to head-on and side-on collisions between vehicles.

Furthermore, the position of a stopped bus on the bend may make it difficult for the bus to stop sufficiently near to the kerb to allow users to enter / exit safely; in particular for less-abled users, visually impaired users and those with buggies. This could lead to slips, trips and falls for passengers.

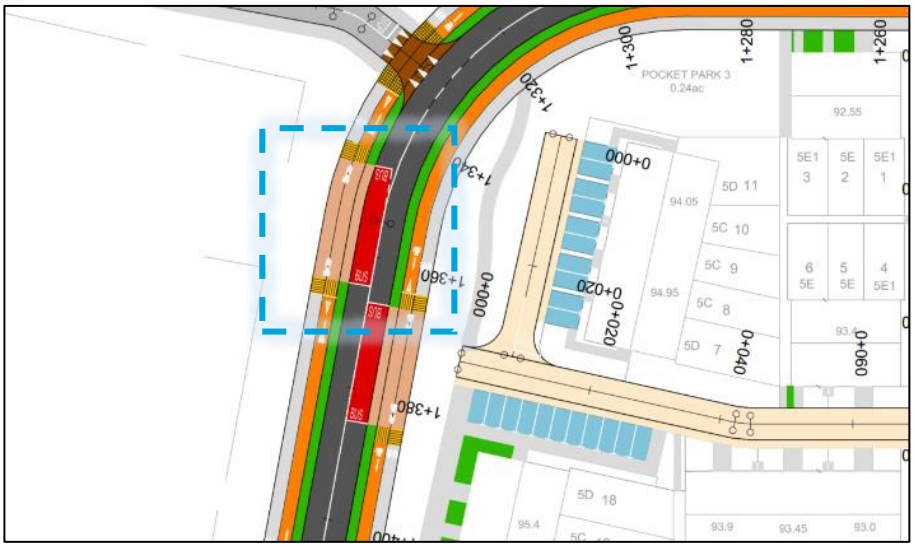


Figure 2-1 – Bus Stop North West of Scheme

Recommendation

The location of the bus stop should be moved to a straight section of road, taking into account opposing bus stops and designated pedestrian crossing points.

2.2.2. Problem: Large Unmarked Parking Area

Location: **Main Road of Scheme (Chainage 1+030 – 1+190)**

There is a large unmarked parking area adjacent to a local road carriageway which may result in poor parking discipline or positioning by drivers (shown in Figure 2-2). This hazard could lead to an increased risk of collision.

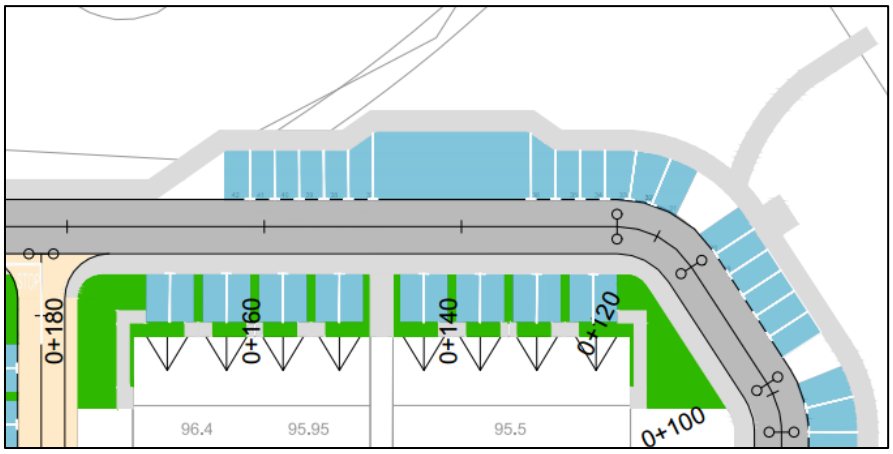


Figure 2-2 – Large Unmarked Parking Area

Recommendation

The parking area should be formalised.

2.2.3. Problem: Proposed Raised Table

Location: **Main Road of Scheme (Chainage 1+030 – 1+190)**

There is a proposed 160m long raised table along the main road of the scheme (as shown in Figure 2-3). The merit of such a long table is unclear, perhaps it is intended to slow traffic along this section and at the junction at Ch 1+150, and if this is the case its functionality will be limited considering its length. Where vehicle speeds are not reduced as intended there may be a risk of increased collisions with other road users.

Figure 2-3 – Proposed Raised Table

Recommendation

The provision of this is to be reviewed and confirm that the intended slowing of traffic will be achieved, if required.

2.2.4. Problem: Congested Road Elements

Location: Main Road of Scheme (Chainage 0+720, 0+840, 0+930 to 1+000)

The proposed layout of this area contains a series of junctions, bus stops and residential parking in a relatively confined space (shown below in Figure 2-4); the congested nature of such elements may contribute to a number of road safety concerns.

Where buses are stopped (at Chainage 0+950 or 1+000), visibility from the junctions may be impeded for road users. This may result in side-on or head-on collisions. Additionally, drivers performing overtaking manoeuvres (of a stop bus) on the major road may be ill-prepared to stop for vehicles emerging from a junction.

At Chainage 0+940 to 0+980, the proposed residential parking is only accessible by crossing the cycle track and footpath. The parking is orientated in such a way that it requires drivers to either perform turning manoeuvres on the main road (to reverse-in) or more likely to reverse out onto the major road, which may result in collisions with passing NMUs. The parking issue is compounded by the nearby bus stops and junctions, which adds to the risk of conflict for those parking. It shall be noted that this problem is also present at chainage 0+720 and 0+840.

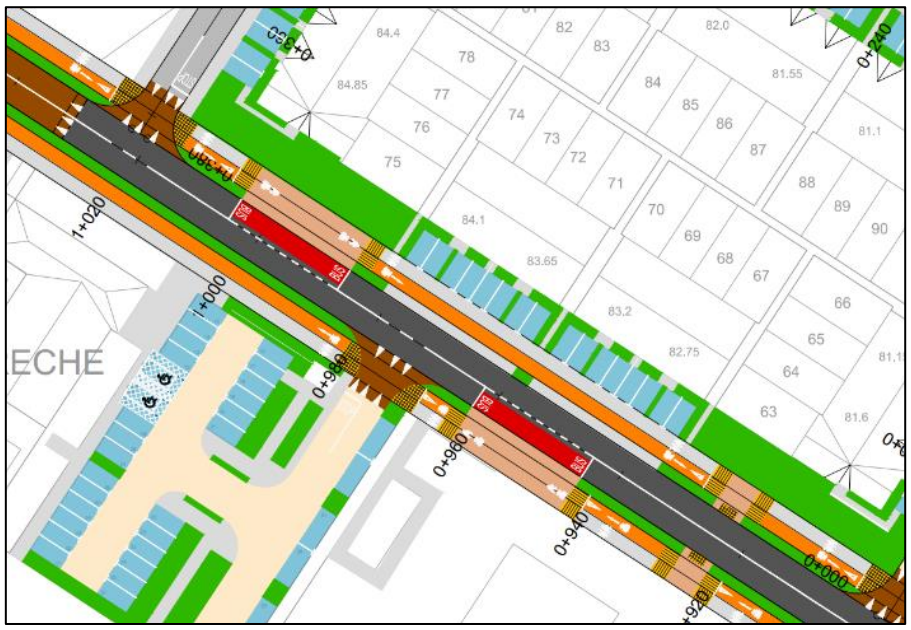


Figure 2-4 – Congested Area in Centre of Scheme

Recommendation

The proposed layout of this area should be reviewed to ensure adequate sightlines are achieved when buses are stopped.

The parking should also be reconfigured to reduce the conflicts between passing NMUs and mainline traffic/buses.

2.2.5. Problem: Abrupt End to Footpath

Location: Main Road of Scheme (Chainage 0+620)

The proposed footpath ends abruptly and merges into a cycle track (shown below in Figure 2-5). This may result in the hazard of pedestrians unknowingly entering the cycle lane, or cyclists unknowingly entering the footpath. This could lead to head-on collisions between pedestrians and cyclists.

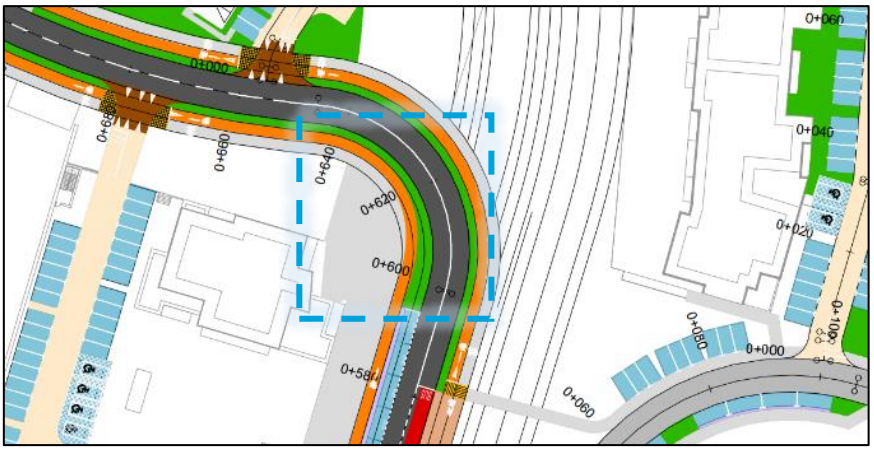


Figure 2-5 – Abrupt End to Footpath

Recommendation

The footpath and cycle track terminations/alignments should be reviewed to remove the conflict.

2.2.6. Problem: Footpath Tie-in with Tramline Paving

Location: **Main Road of Scheme (Chainage 0+580)**

The proposed footpath ties in perpendicularly to the tramline paving of the shared area on the main road (as shown in Figure 2-6). This tramline orientation would indicate to visually impaired NMUs that they are entering onto a cycle track.

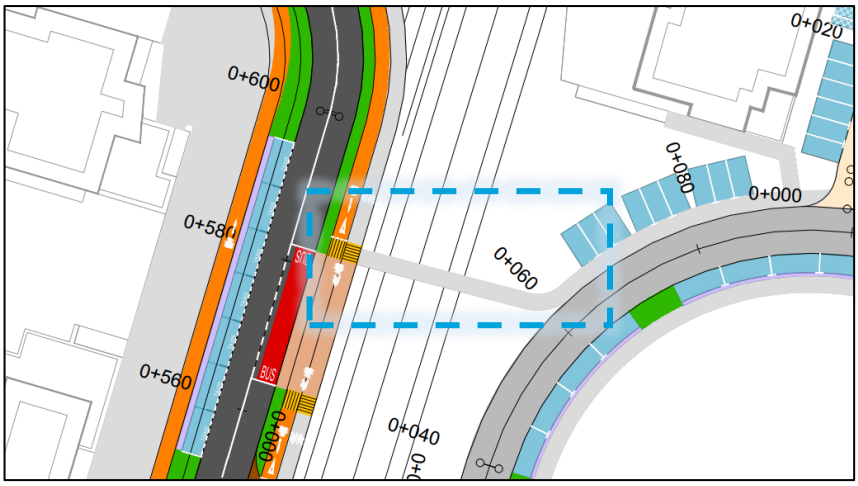


Figure 2-6 – Footpath Tie-in with Tramline Paving

Recommendation

The footpath tie-in should be reconfigured to remove the potential for confusion for visually impaired users.

2.2.7. Problem: Parallel Parking on Inside of Bend

Location: **Local Road of Scheme (Connected to Main Road at Chainage 0+540)**

Road users attempting to use the proposed parallel parking (shown below in Figure 2-7) will likely tend to stop and reverse into a parking space. Other parked and adjacent vehicles may obstruct forward visibility to those vehicles stopped / reversing into the parking space, which may result in the risk of rear-end shunts by through traffic.

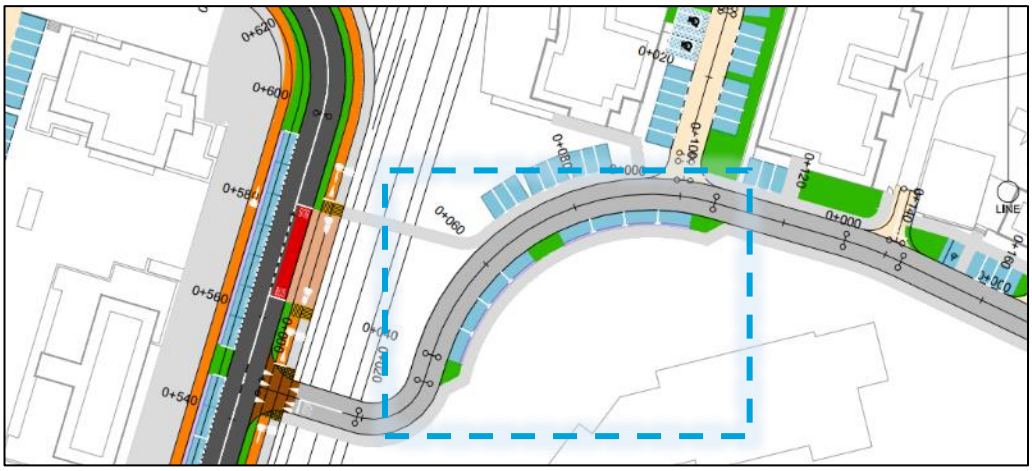


Figure 2-7 – Parallel Parking on Inside of Bend

Recommendation

Sufficient visibility for through traffic should be confirmed, considering parked vehicles (including taller vans / 4x4s). If insufficient, the parking should be relocated or removed.

2.2.8. Problem: Series of Road Elements on Bend

Location: **Main Road of Scheme (Chainage 0+390)**

The proposed signalised crossing at Chainage 0+390 is located on the bend in the road, which may reduce forward visibility to it, for approaching southbound/eastbound traffic (shown below in Figure 2-8). Furthermore, the southbound/eastbound lane widens in advance of the crossing, which may promote an increase in speed for road users. These issues could lead to drivers being ill-prepared to stop for the crossing, which may lead to the risk of collisions with NMUs.

In addition, on the westbound/northbound lane there is no provision for buses to merge into the general traffic lane, as the bus lane ends abruptly at the crossing. This may lead to vehicles and buses attempting to simultaneously merge after the crossing, which could lead to side-impacts.

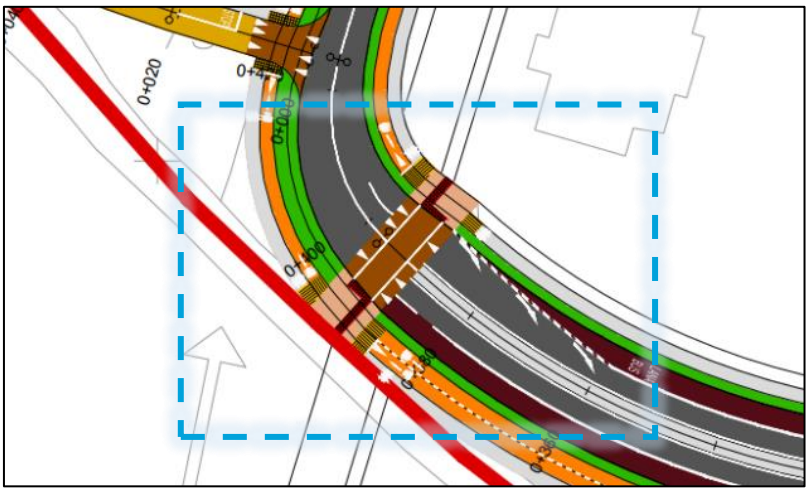


Figure 2-8 – Series of Road Elements on Bend

Recommendation

Sufficient visibility of the signalised crossing for through traffic should be confirmed. If insufficient, the crossing should be moved. Road widening (southbound/eastbound) should commence after the crossing, if possible.

Provision for westbound/northbound buses to merge into the general traffic lane should be provided.

2.2.9. Problem: Large Radii at Junction

Location: **Main Road of Scheme (Chainage 0+200) and Fassaroe Link Road**

The large radii for the proposed junction (shown below in Figure 2-9) may result in increased speeds for road users, while increasing the crossing distance for NMUs. The combination of these factors may result in the risk of collisions between vehicles and NMUs.

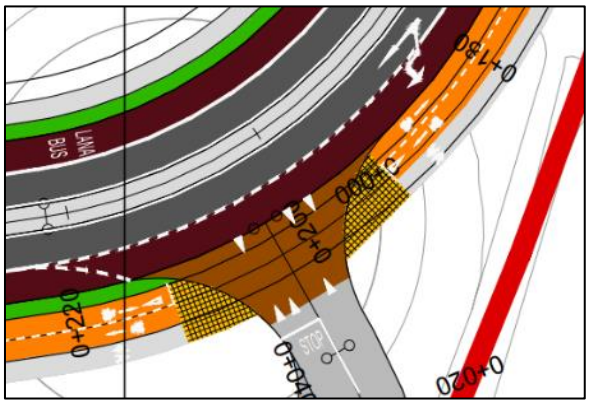


Figure 2-9 – Large Radii at Junction

Recommendation

The junction should be tightened, if possible, considering anticipated vehicle movements.

2.2.10. Problem: Short Sections of Shared Areas

Location: **Main Road of Scheme (Chainage 0+000) and Fassaroe Link Road**

The proposed shared areas, facilitating two-way cycle tracks and a pedestrian footpath, have relatively short approach lengths, considering the potential number of users that may congregate in the area (shown below in Figure 2-10), and considering the possible speed of approach by cyclists. This may result in collisions between users.

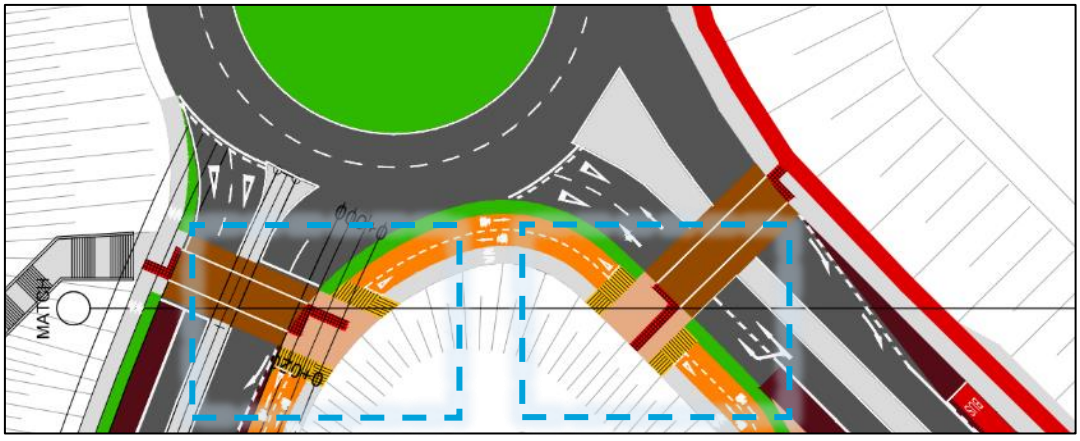


Figure 2-10 – Short Sections of Shared Areas

Recommendation

The shared areas should be increased in size to enable more space for users to avoid one another.

2.2.11. Problem: Proposed Road Markings

Location: **Fassaroe Link Road**

The proposed road markings at this location do not facilitate general vehicles to cross the bus lane to enter the junction (shown in Figure 2-11). This may result in unexpected manoeuvres leading to collisions between road users.

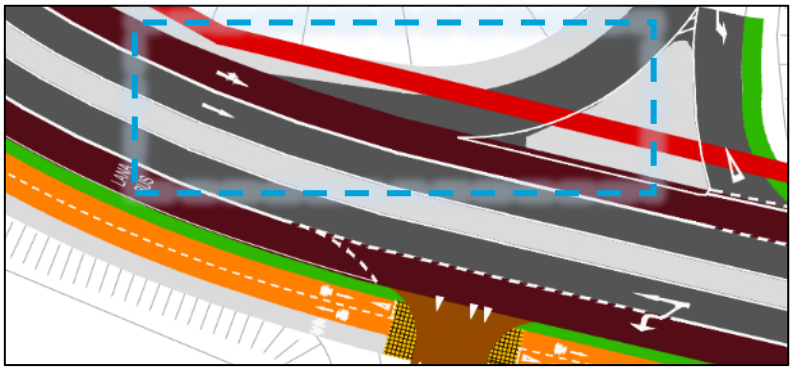


Figure 2-11 – Proposed Road Markings

Recommendation

The Design Team should provide a broken line and a 'Bus Lane Ends arrow' (M 130L) to allow general vehicles to cross the bus line to enter the junction, as included on the northbound lane shown in Figure 2-11.

2.2.12. Problem: Toucan Crossing in Close Proximity to Roundabout

Location: **Roundabout at N11 Northbound Slip Lane**

The proposed toucan crossing is in close proximity to the roundabout, where drivers are expected to yield for traffic on the roundabout (shown below in Figure 2-12). This may lead to drivers mistaking the green light at the toucan crossing as a green light to enter the roundabout. This may lead to the risk of road users entering the roundabout without yielding, which could result in side-impact collisions between vehicles.

Furthermore, a yielding vehicle (at the roundabout) may block the toucan crossing when stopped. In this case and when the toucan crossing is green for NMUs, their path may be blocked, which may cause them to enter the carriageway unsafely, and would be particularly problematic for wheelchair users or those with visual impairments.

Additionally, the Stop and two-way road markings on the slip lane are misleading to approach drivers, as the N11 slip lane is one-way.

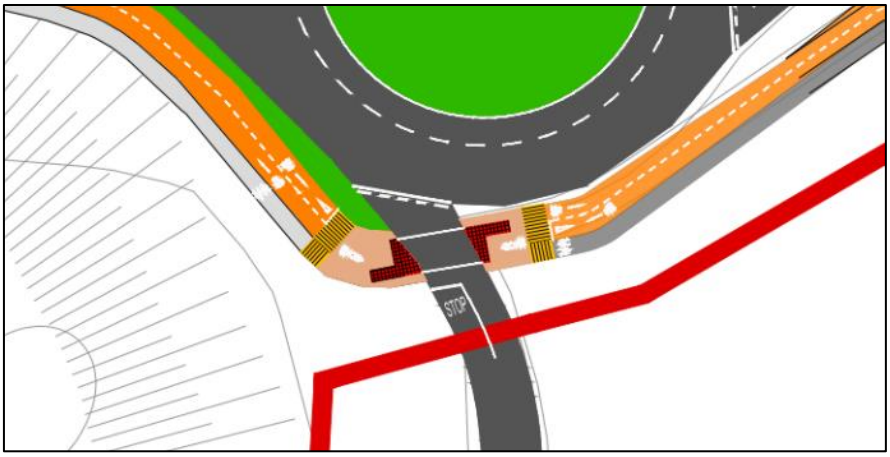


Figure 2-12 – Toucan Crossing in Close Proximity to Junction

Recommendation

The toucan crossing should be relocated to allow space for drivers to yield and to not impede the crossing while yielding. Only flashing amber or red signals should be used for the toucan crossing to avoid displaying a green signal to drivers. The Stop and two-way road markings should be removed and a yield marking provided before entering the roundabout.

2.2.13. Problem: Footpath Leads onto Carriageway

Location: West Side of N11 Junction 6

There is an existing footpath on the north side of the road which leads to a drop kerb onto the carriageway at the northbound exit from the roundabout (shown below in Figure 2-13). This leads pedestrians directly onto the carriageway with no pedestrian provision on the other side of the road. This arrangement may lead to the hazard of pedestrians traversing the carriageway, which could lead to the risk of collisions between vehicles and pedestrians.

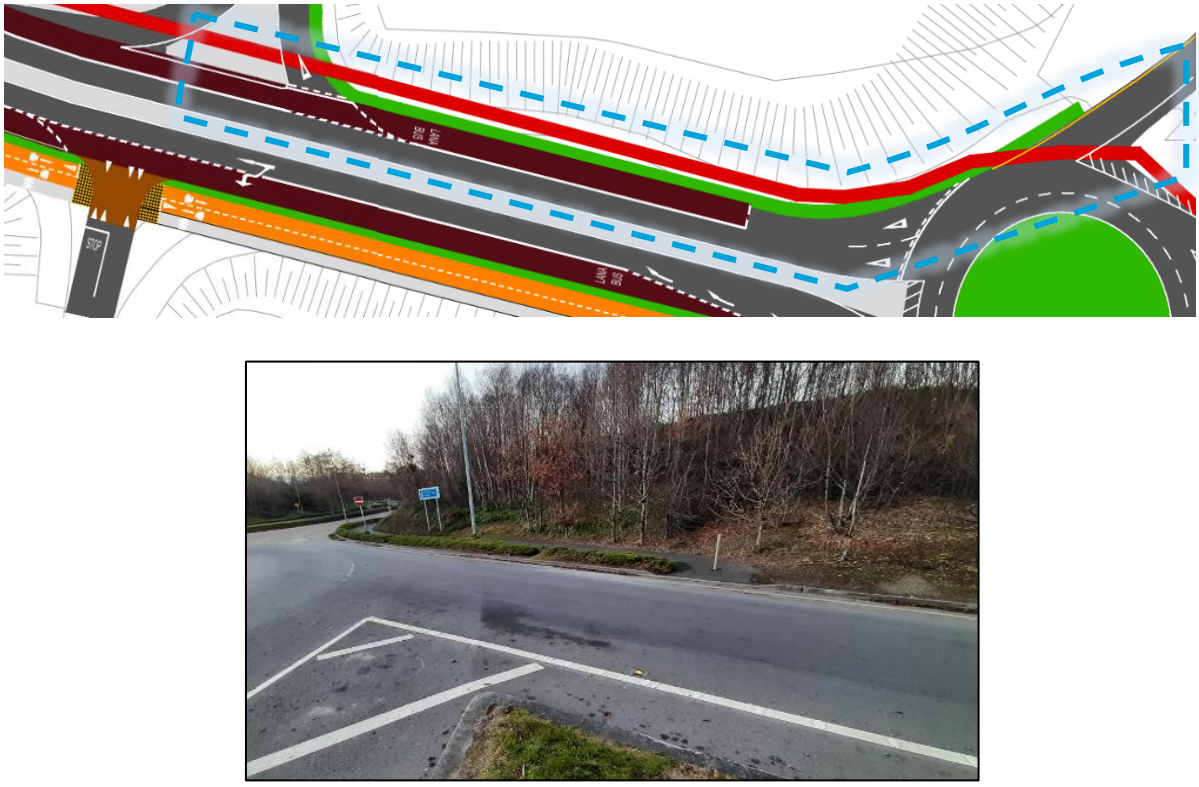


Figure 2-13 – Footpath Leads onto Carriageway

Recommendation

The existing footpath should be removed (e.g. replaced with a grass verge, or similar).

2.2.14. Problem: Significant Change in Levels for Existing Ground

Location: East Side of N11 Junction 6 Pedestrian Bridge

There are significant changes in existing ground levels where a footpath and two-way cycle track is proposed at the east end of this scheme (shown below in Figure 2-14). The proposed length of this facility, as allowed for in the design, may result in a steep incline / decline for NMUs. This would be especially problematic for wheelchair users and less-abled pedestrians, and would promote high speeds for cyclists; all of which may result in slips, trips and falls for NMUs. Steep drop offs may be a result, each side of the proposed facility, which could increase injury severity during falls.

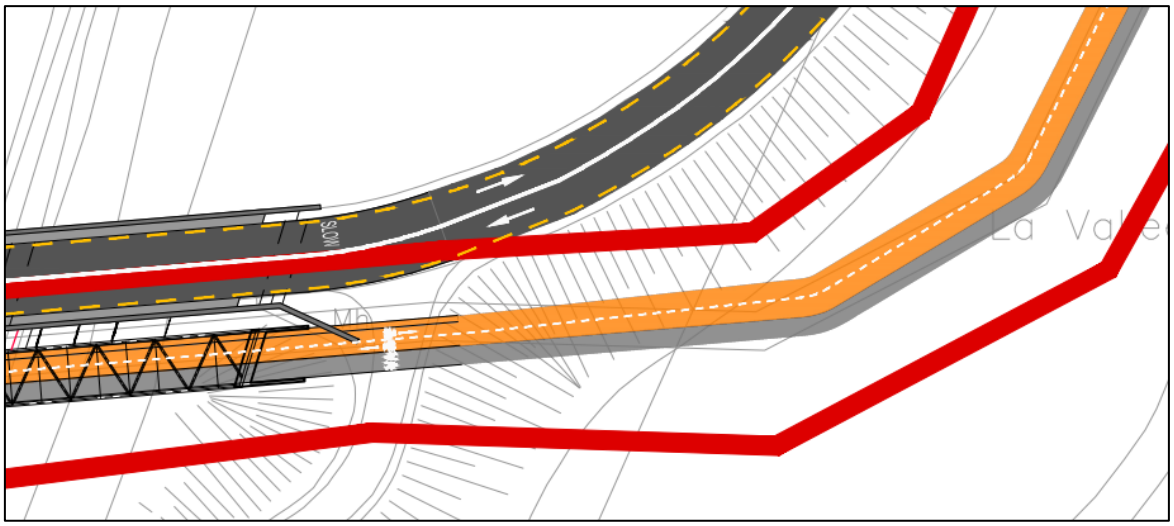


Figure 2-14 – Significant Change in Levels for Existing Ground

Recommendation

The Design Team should ensure that gradients are suitable for NMUs, and sufficient protection is put in place at any steep side-slopes, such as parapets or fencing along the extents of the slope.

2.2.15. Problem: Footpath and Cycle Track Delineation

Location: **Scheme Wide**

The proposed footpath and cycle lanes across the scheme are flush with no kerb in between. This may lead to the hazard of visually impaired pedestrians unknowingly straying onto the cycle track which could result in collisions with cyclists.

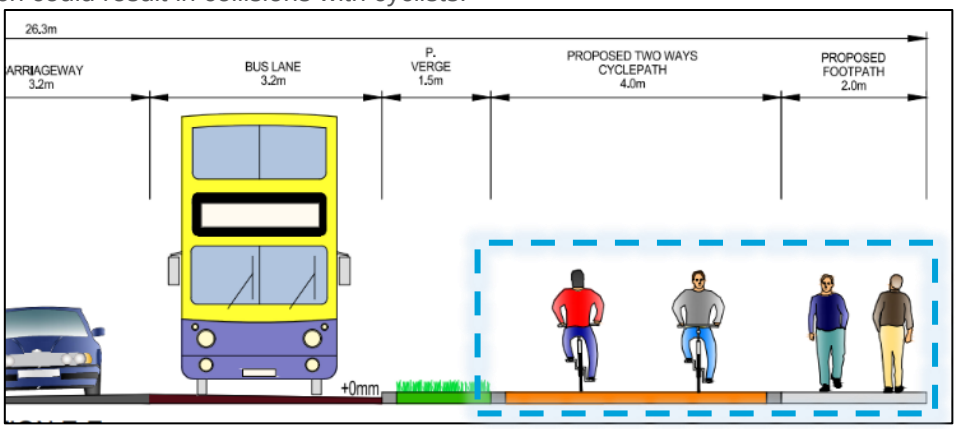


Figure 2-15 – Footpath and Cycle Track Delineation

Recommendation

The Design Team should provide a delineating kerb in between the footpath and cycle lane to inform visually impaired pedestrians of the boundary of the footpath.

2.2.16. Problem: Provision for Turning areas for Vehicles

Location: **Scheme Wide**

There are numerous cul-de-sacs on the homezone carriageways across the scheme that do not contain provision for vehicles to turn around (non-exhaustive examples shown in Figure 2-16), such as refuse vehicles. This may result in vehicles making multi-point turns or reversing along the road to the closest junctions where there is more space on the carriageway to perform a turning manoeuvre. These manoeuvres can increase the risk of conflict with pedestrians or other road users.

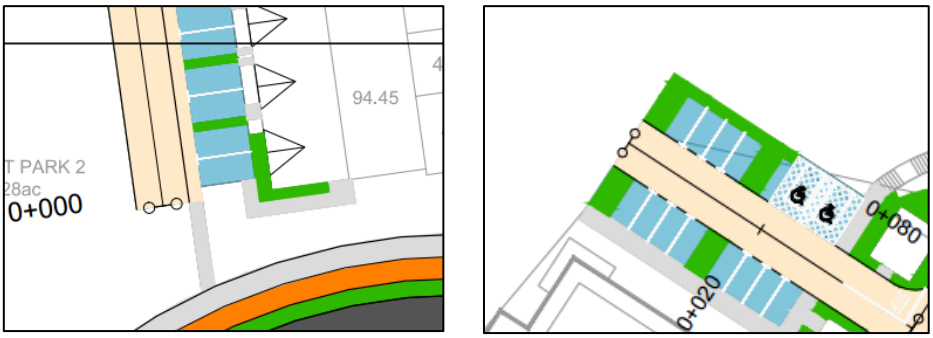


Figure 2-16 – Provision for Turning areas for Vehicles

Recommendation

The Design Team should provide for vehicles to turn around at the cul-de-sacs.

2.2.17. Problem: Limited Number of Controlled Crossings Along Main Road

Location: **Scheme Wide**

There are no controlled crossings provided from Chainage 0+490 to 2+620 for NMUs. Although there are uncontrolled crossings in this area, the proposed arrangement may not be sufficient for the expected NMU flows and expected traffic flows. As a result, vulnerable road users may not be able to cross safely, as pedestrians are expected to yield to traffic at uncontrolled crossings.

Recommendation

Crossing provisions in this area should be reviewed to ensure that they account for and proportionately provide for expected NMU movements and traffic flows, and the use of Zebra / Signalised crossings investigated.

2.2.18. Problem: Intersection of Existing Routes and Proposed Main Road

Location: **Scheme Wide**

A number of existing routes intersect with the proposed main road (example shown in Figure 2-17). Adequate tie-in/transition provision for pedestrians and cyclists may be required to ensure that these users can safely access the proposed facilities without risk of trips or falls.

Figure 2-17 – Intersection of Existing Routes and Proposed Main Road

Recommendation

Where the scheme intersects with existing pedestrian / cycle access points, they should be suitably tied in.

2.2.19. Problem: Trees Impeding Sightlines Across Scheme

Location: Scheme Wide

The proposed trees located along all roads in the scheme may impede sightlines for drivers and NMUs depending on the size and scheduled maintenance of the trees (example shown in Figure 2-18). If the trees are large in nature, with thick trunks or broad foliage, this may lead to collisions between drivers and NMUs (if visibility is blocked at crossings), or other drives (if visibility is blocked at junctions).

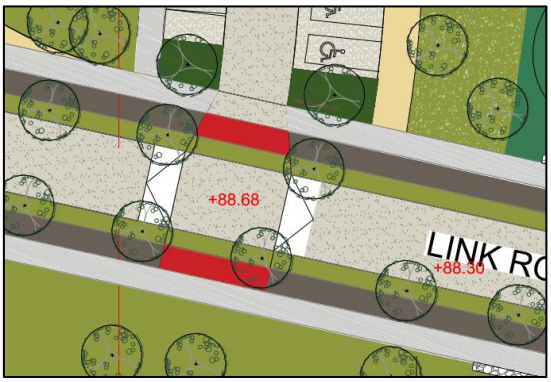


Figure 2-18 - Tress Impeding Sightlines Across Scheme

Recommendation

The species of tree should be reviewed to ensure their size is suitable and does not impinge on the safety of the scheme. The trees should be maintained regularly to ensure that foliage does not impede sightlines for NMUs or drivers.

3. Access, Walking and Cycling Audit

3.1. Access Audit (General)

3.1.1. Best Practice Guidance

This Access Audit has been carried out in accordance with general best practice guidance set out within the following documents:

- The Disability Act 2005
- British Standards Institute BS8300:2001
- Building Regulations 2000, Technical Guidance Document M – Access for People with Disabilities (Department of the Environment, Heritage and Local Government)
- Buildings for Everyone Access and use for all citizens (National Disability Authority)
- Access Auditing of the Built Environment Guidelines (National Disability Authority)
- Traffic Management Guidelines (Irish Government Publications 2003)
- Guidance on the use of Tactile Paving Surfaces: UK Department for Transport

3.1.2. Objectives

The objectives of the Access Audit section of this report are as follows:

- To ensure a high level of accessibility to the proposed development site for all vulnerable road users and in particular visually and mobility impaired users.
- To ensure that the access infrastructure in relation to the external built environment is in accordance with current best practice.
- To ensure that the current and future access needs within the scheme are recognised and developed.

3.1.3. Accessibility Recommendations

In terms of progression, following delivery of the Accessibility Audit, the design team should consider all issues raised herein for inclusion into the final design. It is less costly to make the changes now, pre-construction, than later after the scheme has been commissioned.

3.1.4. General Accessibility Recommendations

A summary of the design features, together with recommended actions to be taken during the relevant stage of the design or operation of the scheme have been detailed in the following table and should be given consideration by the design team.

Table 3-1 - Access Audit Findings Summary Table

I.D.	Location	Feature	Action	When
01	Public Footpath	Pedestrian Provision	Ensure pedestrian environments are logical and clear to understand reducing the need for way finding / signage.	Design Stage
02	External Site & Public Footpath	Pedestrian Provision	Ensure contrasting colours/materials are used to define the pedestrian provision and also the street fronting the buildings across the site.	Design Stage

I.D.	Location	Feature	Action	When
03	External Site & Public Footpath	Pedestrian Provision	Ensure footpath edges are clearly defined without the creation of trip hazards.	Design Stage
04	External Site & Public Footpath	Pedestrian Provision	Ensure defined pedestrian clear zone is free from street furniture and excessive clutter that could hamper progress for partially sighted users.	Design & Operational Stages
05	Public Footpath	Pedestrian Provision	The existing pedestrian footway where interacting with the proposed site has been in service for some time; and is showing signs of general wear and tear. Ensure safe pedestrian footway is provided during and after construction.	Design Stage & Operational Stages
06	External Site & Public Footpath	Pedestrian Provision	Ensure steps are legible and contrasting colour nosings are provided.	Design Stage
07	Public Footpath	Pedestrian Provision	Ensure appropriate drop kerbs and tactile paving is provided at crossing points.	Design Stage
08	External Site & Public Footpath	Street Lighting	Ensure street lighting is specifically located where pedestrian movement decisions are required (i.e. at crossing points, entrances and junctions).	Design Stage
09	General	Drainage	Ensure any break in surface or gap (such as a drainage gulley) is no greater than 10mm and is perpendicular to line of travel. Locate drainage features outside of crossing points, but adjacent to (to capture surface water before the crossing).	Design Stage
10	General	Drainage	Ensure access routes are laid to even falls to allow proper drainage and prevent ponding. The cross-fall gradient to any access route should not exceed 1 in 50, except when associated with a dropped-kerb.	Design Stage
11	External Site & Public Footpath	Provision of Street Furniture	Ensure furniture does not encroach on the clear width of pathways and minimum clear widths are provided.	Design Stage
12	External Site & Public Footpath	Provision of Street Furniture	Ensure street furniture contrasts in colour with the background and is identified with a 75-100mm marking.	Design Stage
13	External Site & Public Footpath	Provision of Street Furniture	Ensure that any pedestal mounted items are fitted with a tapping rail 250mm above the ground, contrasting in colour with the pavement.	Design Stage

I.D.	Location	Feature	Action	When
14	External Site & Public Footpath	Provision of Street Furniture	Ensure provision of seating (rest area) is provided where steep gradients exist or long sections or walkways.	Design Stage
15	General	Disabled Parking Provision	Ensure that sufficient disabled car parking provision is provided and to an appropriate geometric standard, located in a well-lit environment in close proximity to building entrances.	Design Stage

3.2. Access, Walking and Cycling Issues Identified

3.2.1. Problem: Provision for Cyclists Turning Right

Location: **Scheme Wide**

There are junctions across the scheme (non-exhaustive examples shown in Figure 3-1) that have no provision for cyclists to enter/exit from the other side of the road. Current arrangements expect cyclists to use crossings relatively far from the junction, which may result in cyclists crossing the verge or using the carriageway.

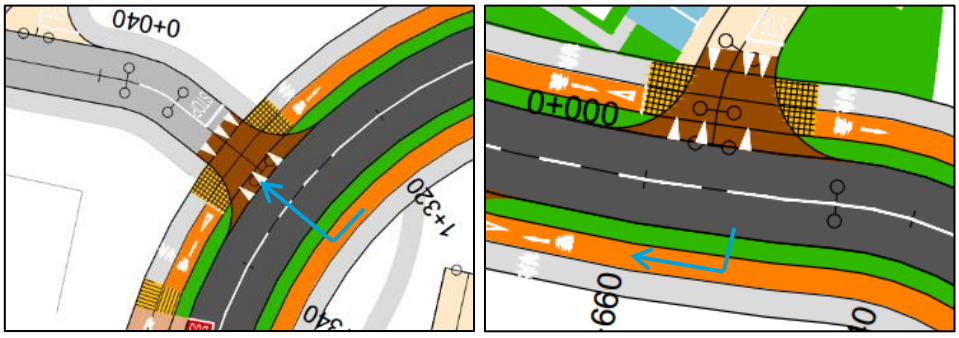


Figure 3-1 – No Provision for Cyclists Turning Right

Recommendation

The Design Team should include provisions for cyclists to turn right at all such locations. The location of the proposed trees should be considered in-tandem, so that there is no inter-visibility issues with right-turning cyclists.

3.2.2. Problem: Provision for NMUs to Cross the Main Road

Location: **Scheme Wide**

There is no dedicated provision to allow pedestrians or cyclists to cross the Main Road safely from Ch 0+920 to 1+420; and from Ch 1+420 to 2+630. This may result in these users attempting to cross at unsafe locations, resulting in a collision with other road users.

Recommendation

Suitable crossings should be provided for, to provide for pedestrians at desire lines including junctions, bus stops, etc. to allow for safe crossing of the main road for NMUs.

3.2.3. Problem: Tactile Paving on Cycle Tracks

Location: **Scheme Wide**

Across the scheme, tactile paving is shown on cycle tracks prior to and after junctions (shown in Figure 3-2). This may cause unnecessary destabilisation of cyclists at crossings.

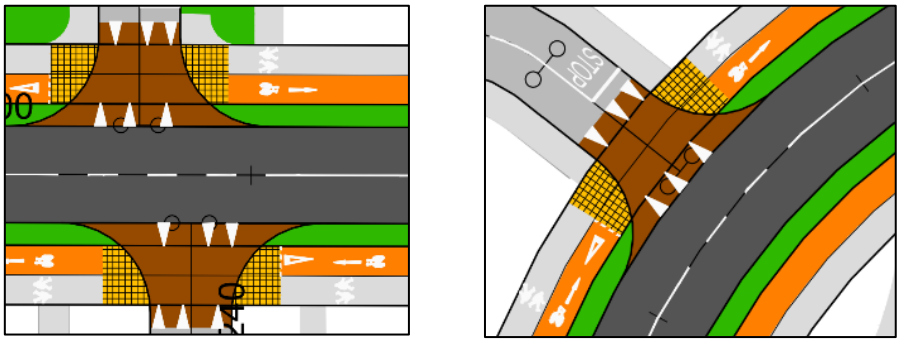


Figure 3-2 – Tactile Paving on Cycle Tracks

Recommendation

Remove tactile paving at crossing points where they are for cyclists only.

3.2.4. Problem: Right of Way for Junctions Across Scheme

Location: **Scheme Wide**

Across the scheme, junctions are designed to give right of way to vehicles while NMUs are expected to yield (as shown in Figure 3-3). DMURS states "*This Manual recognises the importance of assigning higher priority to pedestrians and cyclists, without unduly compromising vehicle movement, in order to create secure, connected places that work for all members of the community".*

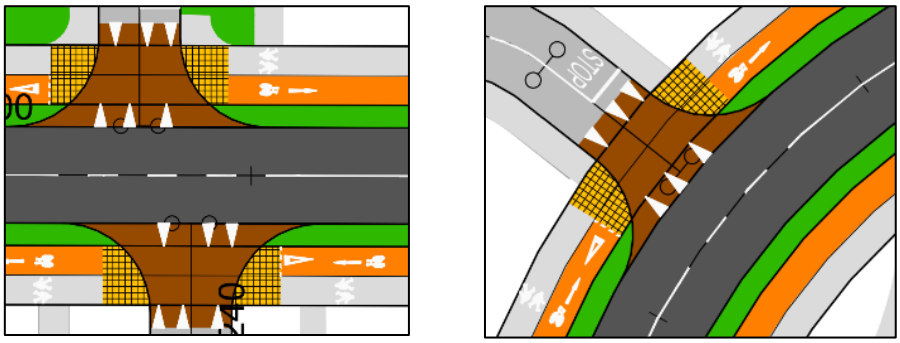


Figure 3-3 – Right of Way for Junctions Across Scheme

Recommendation

The Design Team should give priority to NMUs on these junctions.

3.2.5. Problem: Dropped Crossings for NMUs

Location: **Scheme Wide**

Many crossings across the scheme, whether signalised or unsignalised, include a drop in the footpath to tie into road level to allow NMUs to cross. This arrangement is undesirable for vulnerable NMUs who are required to traverse a change in levels while using the footpath, which will be especially difficult for visually impaired pedestrians, elderly and wheelchair users. It also does not encourage drivers to slow down at crossings.

Recommendation

Each crossing should be raised to the level of the footpath to remove the change in levels for NMUs. This will require vehicles on the carriageway to slow down on approach to crossings, and will encourage drivers to allow priority to NMUs as a courtesy.

3.2.6. Problem: Southbound Cyclists & Proposed Tramline Paving

Location: **Main Road of Scheme (Chainage 0+420)**

At the junction where the realigned Berryfield Lane merges with the main road of the scheme, there is no provision for southbound cyclists existing Berryfield Lane (as shown in Figure 3-4). This may result in southbound cyclists using the northbound cycle track or using the carriageway, which may lead to collisions with other cyclists and vehicles respectively.

Additionally, the tramline tactile paving on the east side of the crossing is orientated parallel to the footpath which is inconsistent with other arrangements in the scheme.

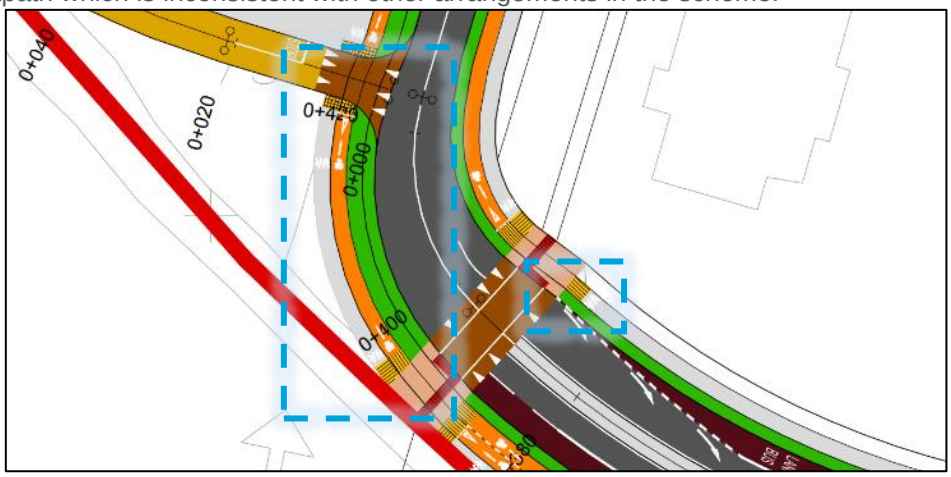


Figure 3-4 – Proposed Tramline Paving

Recommendation

Provision should be included for southbound cyclists at this location. The tramline tactile paving should be orientated perpendicular to the footpath.

3.2.7. Problem: Provision for Pedestrians at Roundabout

Location: **Main Road / Thornhill Road Roundabout**

The footpath at chainage 0+000 of the scheme ends abruptly on the west side of the roundabout scheme (as shown in Figure 3-5). This may encourage pedestrians using the footpath to traverse the roundabout on the existing verge or on the main carriageway on the west side, which could result in collisions with vehicles. Furthermore, there is no ramp access to the residential area to the west, only steps are provided, which will present a barrier for access for mobility impaired users.

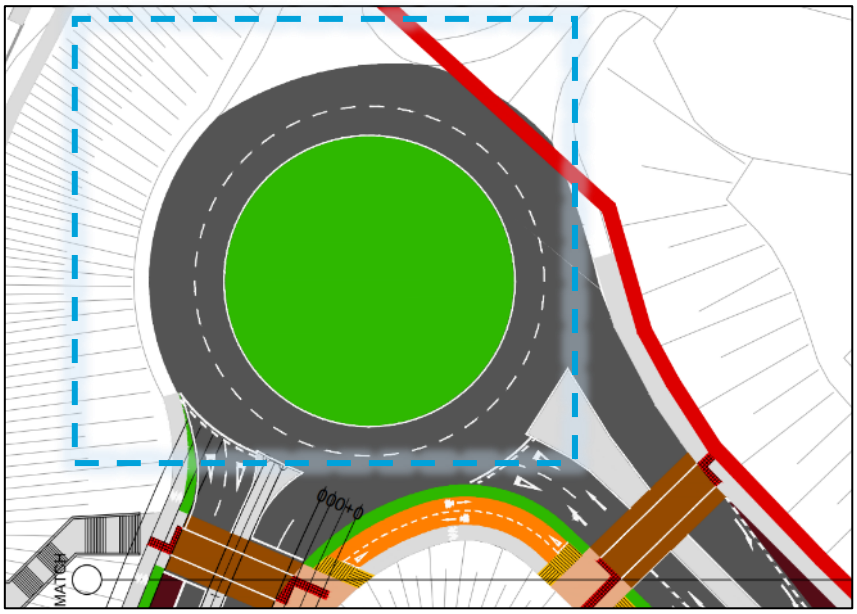


Figure 3-5 – Provision for Pedestrians at Roundabout

Recommendation

A footpath should be provided around the roundabout and a crossing on the northern arm to connect to the existing footpath on Thornhill Road. Provision for a ramp access to the residential area to the west should be provided for wheelchair users and cyclists.

3.2.8. Problem: Proposed Tactile Paving

Location: **Main Road of Scheme (Chainage 0+015)**

The proposed tactile paving at the toucan crossing does not extend to the back of the footpath (as shown in Figure 3-6). This may lead to visually impaired pedestrians being unaware of the crossing.

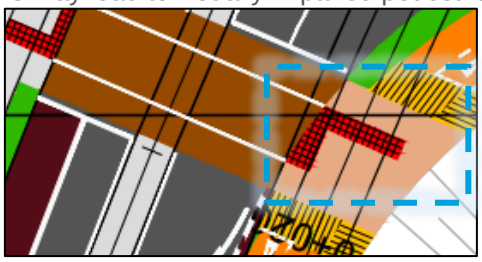


Figure 3-6 – Proposed Tactile Paving

Recommendation

The tactile paving should be extended to the back of the footpath.

3.2.9. Problem: Lack of Direct Access to Playground

Location: **Recreational Area**

There is a lack of direct access to playground from the parking area to the west which may result in users walking across the grass along the dashed path (as shown in Figure 3-7).

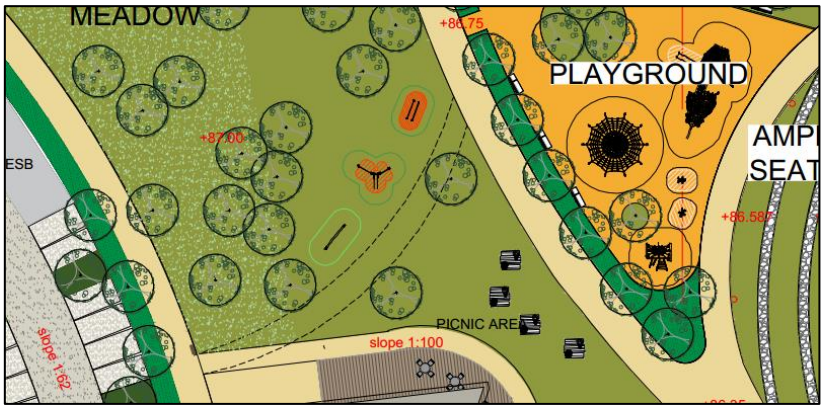


Figure 3-7 – Lack of Direct Access to Playground

Recommendation

A path should be provided between the parking area and playground.

3.2.10. Problem: Lack of Bicycle Parking

Location: **Recreational Area**

Bicycle parking in the recreational area is limited to only the central area (near the "Kiosk"), and so no provision has been provided at the east side (Amphitheatre) and west side (Meadow/Games Area).

Recommendation

Additional bicycle parking should be provided in the recreational area.

3.2.11. Problem: Lack of Disabled Parking

Location: **Recreational Area**

There is no provision for disabled parking at the west side of the recreational area (Meadow/Games Area).

Recommendation

Disabled parking should be provided at the west side of the recreational area.

3.2.12. Problem: Lack of Seating Areas

Location: **Recreational Area**

There are relatively few benches / seating areas provided in the recreational area. Considering the numerous changes in levels throughout, this may make it difficult for less-abled or elderly users to traverse the area.

Recommendation

Additional benches / seating areas should be provided in the recreational area.

4. Audit Team Statement

4.1. Certification

We certify that we have examined the drawings listed in Chapter 1 of this Report.

4.2. Sole Purpose

The Quality Audit 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 road safety aspects and user experience aspects of the scheme.

4.3. Implementation of Quality Audit Recommendations

The problems identified herein have been noted in the Report together with their associated recommendations for safety and quality improvements. We (the Audit Team) propose that these recommendations should be studied with a view to implementation.

4.4. Audit Team's Independence to the Design Process

No member of the Audit Team has been otherwise involved with the design of the measures audited.

4.5. Quality Audit Team Sign-Off

Shane Tobin
Audit Team Leader
Road Safety Engineering Team
ATKINS

Signed: 
Date: 13 January 2022

Daire Breen
Audit Team Observer
Road Safety Engineering Team
ATKINS

Signed: 
Date: 13 January 2022

5. Designer's Response

The Designer should prepare an Audit Response for each of the recommendations using the Quality Audit Feedback Form attached in Appendix A.

When completed, this form should be signed by the Designer and returned to the Audit Team.

Please return the completed Quality Audit Feedback Form attached in Appendix A to:

Road Safety Engineering Team,
Atkins,
Atkins House,
150 Airside Business Park,
Swords,
Co Dublin,
Ireland.

Tel: 00 353 (0)1 810 8000
Email: shane.tobin@atkinsglobal.com

The Audit Team will consider the Designer's response and reply indicating acceptance or otherwise of the Designer's response to each recommendation.

Where the Designer and the Audit Team cannot agree on an appropriate means of addressing an underlying safety issue identified as part of the audit process, an Exception Report must be prepared by the Designer on each disputed item in the audit report.

Appendices

Appendix A. Quality Audit Feedback Form

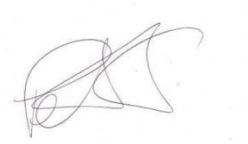
Scheme: Fassaroe Phase 1 Strategic Housing Development

Audit Stage: Quality Audit (Stage 1)

Date Audit Completed: 13/01/2022

	To be completed by the Designer			To be completed by the Audit Team
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)
2.2.1	Y	Y		
2.2.2	Y	N	Parking area no longer forms part of this location. Area converted to landscaping	Y
2.2.3	Y	Y		
2.2.4	Y	Y		
2.2.5	Y	Y		
2.2.6	Y	Y		
2.2.7	Y	Y		
2.2.8	Y	Y		
2.2.9	Y	N	Junction provides access to Roadstone Quarry where there are frequent large require access.	Y
2.2.10	Y	Y		
2.2.11	Y	Y		
2.2.12	Y	Y	Design will look to relocate crossing subject to meeting desire lines and road safety issues.	
2.2.13	Y	Y		
2.2.14	Y	Y	Note – gradients are with tolerances for all users.	
2.2.15	Y	Y		
2.2.16	Y	Y	Vehicle tracking to be used to show appropriate turning areas are provided.	
2.2.17	Y	Y		
2.2.18	Y	Y		

	To be completed by the Designer			To be completed by the Audit Team
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)
2.2.19	Y	Y		
3.2.1	Y	Y		
3.2.2	Y	Y		
3.2.3	Y	Y	All junction are raised to provide ped & cycle priority with stop lines set back behind the raised entry	
3.2.4	Y	Y	The junction layout is to be amended in accordance with the recent BusConnects Design Guidance for side road crossings. This design amendment will take place post planning approval.	
3.2.5	Y	Y		
3.2.6	Y	Y		
3.2.7	Y	Y		
3.2.8	Y	Y		
3.2.9	Y	Y		
3.2.10	Y	Y		
3.2.11	Y	Y		
3.2.12	Y	Y		



Signed by the Designer: **Date:** 08/04/2022

Signed by the Audit Team Leader: **Date:** 08/04/2022

Signed by the Employer: **Date:** / /2022

WS Atkins Ireland Limited
Atkins House
150 Airside Business Park
Swords
Co. Dublin
K67 K5W4

Tel: +353 1 810 8000