BMCE

Development at Gowan Motors Site, Naas Road

Stage 1 Road Safety Audit

P·M·C·E

October 2023

BMCE

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Stage 1 Road Safety Audit

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Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
5.0	AOR	RF	AOR	10th Oct. 2023	Final Report
4.0	AOR/RF	TAG	AOR	6th Oct. 2023	Scheme Extents Extended to Include Pedestrian Crossing
3.0	AOR/RF	TAG	AOR	14th Aug. 2023	Final (Updated Project Description)
2.0	AOR/RF	TAG	AOR	10th Aug. 2023	Final
1.0	AOR/RF	TAG	AOR	31st July 2023	Draft Report

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T +353 (1) 464 3041
F +353 (1) 459 1836
info@pmceconsultants.com
www.pmceconsultants.com

Unit 17, Greenmount House
Greenmount Office Park
Harold's Cross, Dublin 6W
D6W VX78, Ireland

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1 Introduction

1.1 General

This report results from a Stage 1 Road Safety Audit on the proposed Development at Gowan Motors Site, Naas Road carried out at the request of Mr. John Cunningham of BMCE.

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

Mr. Alan O'Reilly
(BA, BAI, MSc, PGDip(PM), RSACert, CEng, MIEI)
Road Safety Audit Team Leader

Ms. Rebecca Farnan
(BA, MAI, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during July 2023 and comprised an examination of the documents provided by the designers (see Appendix A). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 25th July 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 low 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 B. 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 Project Scope

At the outset of this Stage 1 Road Safety Audit in July 2023, the scope of the proposed scheme included the redevelopment of an existing site on the southern side of the Naas Road, Dublin 12, to provide a student accommodation development, and associated works.

The scope of the proposed scheme, however, was extended in September 2023 to include a new signalised pedestrian crossing of the Naas Road, including the Luas line, to connect the proposed development to the footpath on the northern side of the Naas Road.

Sections 3.1 and 4.1 of this Stage 1 Road Safety Audit includes safety problems and observations, respectively, raised by the RSA Team on the initial extents of the scheme, with a final report issued in August 2023.

During October 2023, the report was revised to include for the audit of the additional works associated with the scheme's extended scope. Sections 3.2 and 4.2 of this report includes safety problems and observations, respectively, raised in relation to the scheme's extended scope.

2 Project Description

2.1 General

It is proposed to construct a student accommodation development on the Naas Road, Dublin 12. The proposed development would be located on an existing brownfield site, located approximately 7km southwest of Dublin City Centre, and is bound to the north by the Naas Road, to the west by the Carriglea Industrial Estate Access Road, to the south by the Carriglea Residential Development, which is currently under construction, and to the west by existing industrial developments (see Figure 2.1).

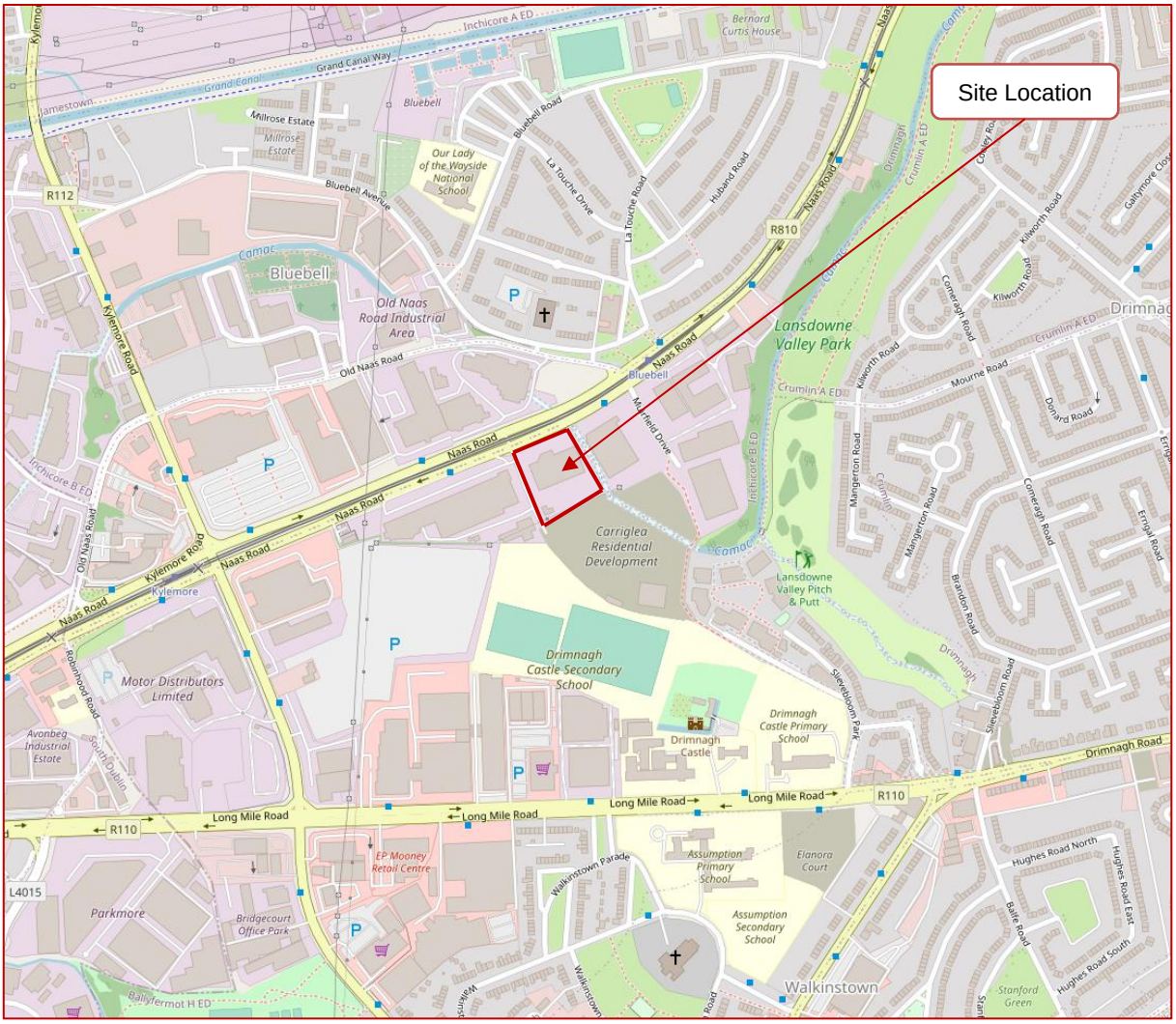


FIGURE 2.1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG)

The proposed student accommodation development would be accessed via the Carriglea Industrial Estate Access Road which is currently accessed from an existing signal-controlled junction on the Naas Road. The Bluebell Redline Luas Stop is located approximately 150m (~2mins walking distance) northeast from the pedestrian/cyclist access to the proposed development on the Naas Road.

The Carriglea Industrial Estate Access Road is a two-way single carriageway road approximately 8.5m wide with footpaths provided on both sides of the road and a posted speed limit of 50kph. There is an existing signalised junction on the Naas Road with the Carriglea Industrial Estate Access Road which provides the development with connection to both northbound and southbound traffic on the Naas Road.

The Naas Road is a dual carriageway with a posted speed limit of 50kph. Adjacent to the site of the proposed development, the southeast-bound carriageway has three traffic lanes, two straight-ahead lanes, and a designated left-turn lane into the Carriglea Industrial Estate Access Road, which develops approximately 70m upstream of the junction with the Carriglea Industrial Estate Access Road. The Luas line runs between the two carriageways of the Naas Road.

The proposed development will principally consist of the following:

- The demolition of the existing two-storey office/warehouse building and outbuilding.
- The construction of the new development in two blocks.
    - Block 1 (eastern block) is part 2-storeys to part 15-storeys over a lower ground floor and basement level.
    - Block 2 (western block) is part 9-storeys to part 11-storeys over a basement.
- The development would provide 941 Student Accommodation bedspaces comprised of 871 standard rooms, 47 accessible rooms and 23 studios, with associated facilities, which will be utilised for short-term lets during student holiday periods.
- The standard rooms are provided in 123 clusters ranging in size from 3 bedspaces to 8 bedspaces, and all clusters are served by a communal living, kitchen, and dining room.

The development would also provide:

- Ancillary internal and external communal student amenity spaces and support facilities.
- Cultural and community floor space.
- Commercial floorspace.
- Communal and public open space.
- The 'daylighting' of the culverted River Camac through the site.
- A pedestrian bridge link at first floor level between Blocks 1 and 2.
- Vehicular access at the south-western corner.
- Seven car-parking spaces, including two motorcycle parking and two set down areas to the west and south.
- Bicycle stores at ground and lower ground floor levels comprising space for 941 bicycles and 218 visitor cycle parking spaces.
- Bin stores, substation, hard and soft landscaping, roof gardens, green roofs, boundary treatments, plant, lift overruns, and all associated works above and below ground.

2.2 Extended Scope of Scheme

It is proposed to provide a new signalised pedestrian crossing on the Naas Road at the northwestern extent of the proposed development. The crossing would be located to the east of the site access and would provide pedestrians with a route across the Naas Road and the Luas tramline to connect the development to the footpath on the northern side of the Naas Road.

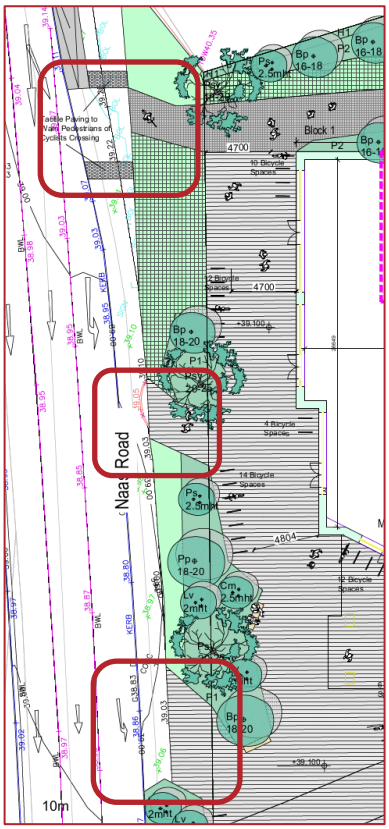
3 Items Arising from the Audit

3.1 Initial Scope of Proposed Scheme

3.1.1 Accesses to Development from the Naas Road

Location: *Drawing 22-579-SDA-PD-DR-GF-001*

Summary: *Drivers may attempt to enter the development from the pedestrian/cyclist accesses on the Naas Road if the layout of the accesses is not clear that they are for non-motorised road users only.*



Three accesses to the proposed development from the Naas Road have been indicated along its western boundary. The Audit Team have assumed that these accesses are intended to be for pedestrians and cyclists only. The Audit Team is concerned that inattentive drivers may attempt to access the development at these locations. This problem may be exacerbated by the provision of the existing left-turn arrow road markings within the left-turn lane on the Naas Road, which drivers may mistake as applying to these VRU accesses.

Should drivers attempt to enter the development via these accesses there is an increased risk of vehicle-pedestrian, and vehicle-cyclist, collisions within the development's shared surface.

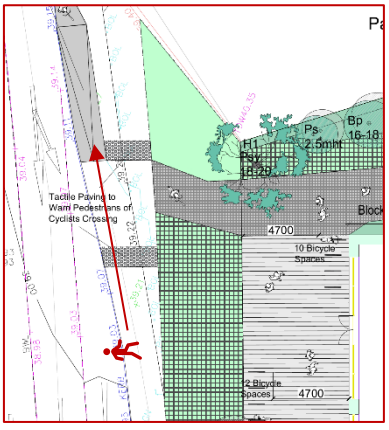
Recommendation

The layout of the accesses should be such that it is clear to drivers that these are for pedestrians and cyclists only and not vehicular accesses. If necessary, deterrent measures should be provided to prevent vehicular access to the development at unauthorised locations.

3.1.2 Access at Northwest of Development

Location: *Drawing 22-579-SDA-PD-DR-GF-001*

Summary: *The layout of the access at the northwest of the development, where cyclists are indicated as crossing the existing footpath, is unclear and may be confusing for visually impaired pedestrians.*



Tactile paving has been indicated on both sides of the access at the northwest of the proposed development where it is intended that cyclists would travel between the Naas Road and the development's underground Bike Store via this access. A ramp has been indicated at this location to allow cyclists to leave the Naas Road carriageway and enter the development.

Tactile paving has been indicated within the footpath on both sides of this access however the type of tactile paving proposed is unclear. Should 'Ladder and Tramline' tactile paving not be provided on the north-eastern side of the access where the footpath and cycle track transition to a shared path, this may result in visually impaired pedestrians, travelling northeast, inadvertently descending the ramp and entering the cycle track where they are at risk of being struck by a cyclist.

In addition, should warning tactile paving not be provided on the south-western side of the access, there is a risk that visually impaired pedestrians may be insufficiently aware that they have entered/exited an area shared with cyclists, increasing the risk of cyclist-pedestrian collisions.

Recommendation

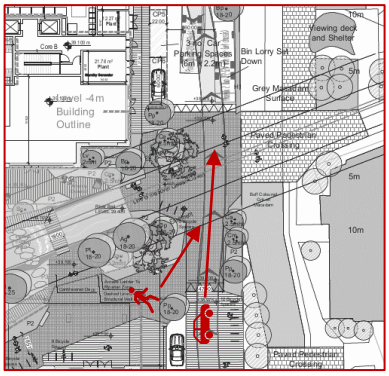
'Ladder and Tramline' tactile paving, of an appropriate depth, should be provided on the north-eastern side of the access and warning tactile paving should be provided on the south-western side of the access where the segregated facilities transition to the shared surface.

The profile of the 'Ladder and Tramline,' and warning, tactile paving should be in accordance with, "Guidance on the Use of Tactile Paving Surfaces (2021)."

3.1.3 Safe Zone for Visually Impaired Pedestrians

Location: *Drawing 22-579-SDA-PD-DR-GF-001*

Summary: *A designated 'safe zone' for visually impaired pedestrians has not been indicated within the development's shared surface, particularly where vehicles share the space with pedestrians and cyclists.*



A shared surface which would be traversed by vehicles, cyclists, and pedestrians has been indicated within the proposed development, however, a designated 'safe zone' has not been provided within this surface for visually impaired pedestrians where they can travel without having to share space with motorised vehicles. The absence of a 'safe zone' within areas shared by all road users may lead to an increased risk of vehicle-pedestrian collisions and, in addition, lead to visually impaired pedestrians being unable to safely and independently navigate through the development.

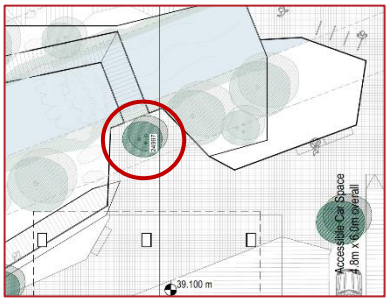
Recommendation

A designated 'safe zone' denoted by, for example, a strip of guidance tactile paving, or similar measures, should be provided to guide visually impaired pedestrians through areas shared with motorised vehicles.

3.1.4 Trees within the Shared Surface

Location: *Drawing GWH-HKR-XX-00-DR-A-0200*

Summary: *Trees within the shared surface may present a hazard to pedestrians and cyclists.*



Trees have been indicated within the shared surface at various locations within the proposed development such that they would obstruct pedestrian and cyclist routes, presenting a hazard to these road users and resulting in personal injury collisions if struck.

This is of particular concern where a tree has been indicated at the eastern access to the pedestrian footbridge adjacent to the River Camac, however it is noted that a tree has not been indicated at this location on all drawings provided.

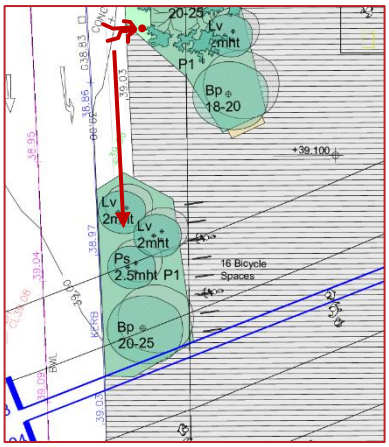
Recommendation

Trees should not be located within the expected path of pedestrians and cyclists and, in addition, the location of trees should be consistent throughout the design drawings to reduce the risk of confusion.

3.1.5 Tree Pit within Existing Footpath

Location: *Drawing 22-579-SDA-PD-DR-GF-001*

Summary: *The pedestrian desire line along the existing footpath on the eastern side of the Naas Road would be blocked by a tree pit.*



A tree pit has been indicated within the existing footpath on the Naas Road at the southwest of the proposed development. This would obstruct the desire line of pedestrians travelling along the existing footpath on the Naas Road and may lead to pedestrians travelling over the tree pit, rather than diverting around it and into the development, where there is a risk of trips and falls.

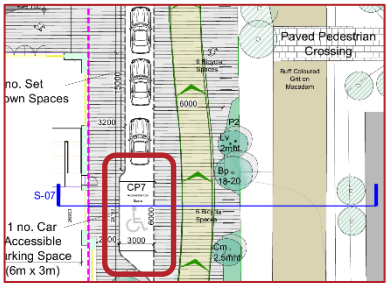
Recommendation

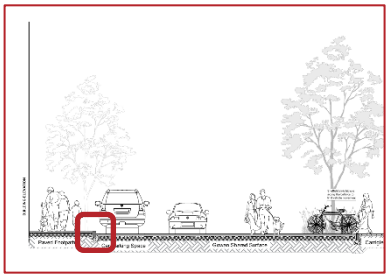
The tree pit should be removed or relocated such that the pedestrian desire line along the footpath is not obstructed.

3.1.6 Dropped Kerb at Mobility Parking Space

Location: *Drawings 22-579-SDA-PD-DR-GF-001 & 22-579-SDA-PD-DR-XX-201*

Summary: *No dropped kerb, and tactile paving has been indicated at the mobility parking space within the proposed development.*





A mobility impaired parking space has been indicated within the proposed development to the east of Block 2. Cross-section ‘S-07’ indicates that a kerb would be located to the rear of the parking space between the space and the adjacent shared surface. No dropped kerb has been indicated adjacent to the mobility parking space. This would lead to mobility-impaired vehicle occupants having to travel within the area shared with motorised vehicles to a suitable access location, where they are at risk of being struck by a vehicle.

Recommendation

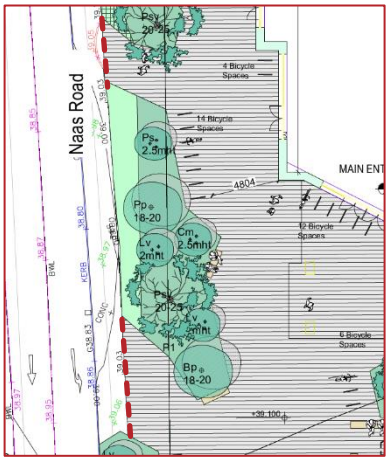
A dropped kerb, and associated tactile paving, should be provided adjacent to the mobility impaired parking space.

3.1.7 Transition between Public Footpath and Development's Shared Surface

Location: *Drawing 22-579-SDA-PD-DR-GF-001*

Summary: *It is unclear how the development's shared surface will be delineated from the existing footpath on the Naas Road, which may lead to visually impaired pedestrians entering an area shared with cyclists.*

The proposed development would be accessible to pedestrians traveling along the eastern side of the Naas Road at a number of locations. It is unclear if measures to delineate the development's shared surface from the public footpath would be provided where the footpath on the Naas Road intersects the shared surface within the development. Should none be provided, this may lead to visually impaired pedestrians inadvertently entering the shared surface within the development where they are at risk of being struck be a cyclist.



Recommendation

Delineation measures, such as warning tactile paving or contrasting surface material/colour, should be provided to advise visually impaired pedestrians, travelling on the Naas Road, of the development's shared surface.

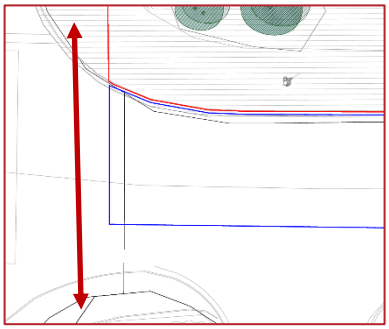
3.1.8 Pedestrian Crossing of Carriglea Industrial Estate at Junction with Naas Road

Location: *Drawing GWH-HKR-XX-00-DR-A-0200*

Summary: *There is no pedestrian crossing provided, nor has one been indicated, across the access road to the Carriglea Industrial Estate at its junction with the Naas Road.*

There is no existing pedestrian crossing at the access road to the Carriglea Industrial Estate at its junction with the Naas Road, nor has one been indicated on the development's site layout drawing.

However, an additional drawing has been provided which indicates improvements to the Carriglea Estate Access Road, which include the provision of a signalised pedestrian crossing at this location. It is, however, unclear if this crossing would be constructed, and therefore in operation, at the time of the development's opening.



If no pedestrian crossing is provided at the access road, this could lead to mobility and visually impaired pedestrians experiencing difficulties crossing the road to access the development from the southwest resulting in personal injuries as pedestrians attempt to ascend/descend the kerbs.

In addition, the absence of a crossing may lead to pedestrians crossing at locations where drivers may be less attentive to them, increasing the risk of vehicle-pedestrian collisions.

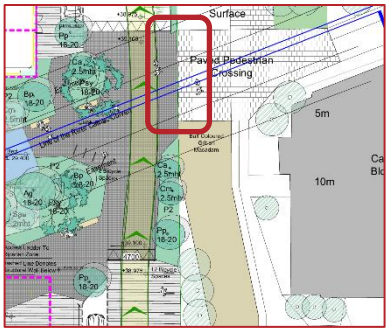
Recommendation

A pedestrian crossing should be provided at the access road to the Carriglea Industrial Estate, and be in operation at the time of the development's opening.

3.1.9 Tie-in with Adjacent Carriglea Development

Location: *Drawing 22-579-SDA-PD-DR-GF-001 & 22-579-SDA-PD-DR-XX-204*

Summary: *It is unclear if the proposed development would be accessible from the adjacent Carriglea Development and, if so, how this will be controlled.*



A 'Paved Pedestrian Crossing' has been indicated at the development's eastern boundary with the adjacent Carriglea Development. This crossing would tie-in to the proposed development's shared surface within the vehicular route. Cross section 'S-04' indicates that there would be no level difference between the development's shared surface and this crossing in the Carriglea Development. It is, therefore, unclear if vehicles would be able to access the proposed development from the Carriglea Development at this location.

Should vehicles not be permitted to travel between the two developments at this location, and no vehicle deterrent measures provided, there is a risk that a driver may enter the development at this location where road users may be less attentive to them, increasing the risk of collisions.

Recommendation

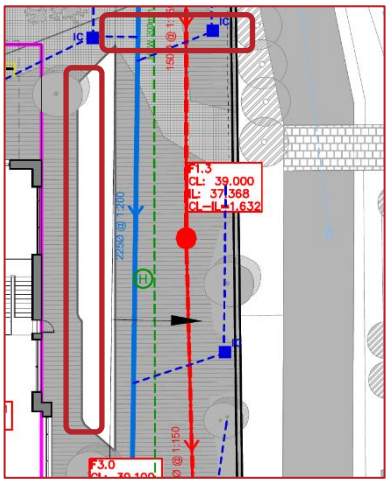
Vehicle deterrent measures (e.g. bollards) should be provided to prevent vehicles travelling between the adjacent developments.

Alternatively, should vehicular access be permitted at this location, control measures should be provided to reduce the risk of conflict between road users.

3.1.10 Gullies at Vertical Changes in Level

Location: *Drawing CWH-BMD-ZZ-00-DR-C-1000 (Rev. PL1)*

Summary: *Gullies have not been indicated within the proposed development, particularly at locations where vertical changes in level are proposed (e.g. raised tables, kerbs etc.), and it is unclear if the shared surface will sufficiently shed surface water at these locations.*



Information relating to the drainage provision within the proposed development has been provided however there does not appear to be any gullies indicated within the development. The development would make use of SuDS drainage, however it is likely that gullies would be required at vertical changes in level such as at the proposed raised table to the east of the River Camac and where kerbs have been indicated at car parking spaces and set down areas.

If sufficient drainage measures are not provided at these locations there is an increased risk of ponding which may lead to loss of traction for vehicles and cyclists, and slips and falls for pedestrians, particularly during times of cold and icy weather, resulting in material damage to vehicles and personal injuries to pedestrians and cyclists.

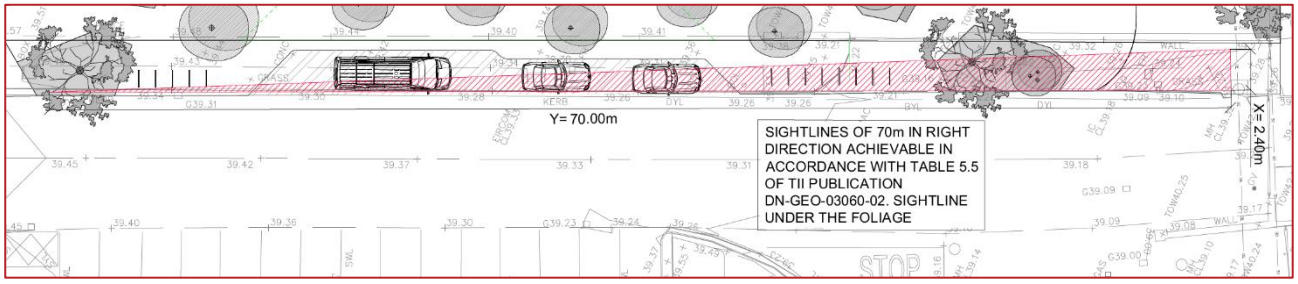
Recommendation

Sufficient drainage measures should be provided throughout the proposed development to prevent ponding.

3.1.11 Visibility Splay

Location: *Drawing GWH-BMD-ZZ-00-DR-C-1004 (Rev. PL1)*

Summary: *The visibility splay for drivers exiting the development onto the Carriglea Industrial Estate Access Road is indicated as passing through trees/vegetation, bicycle parking stands and the set down area.*



A visibility splay has been provided for drivers exiting the proposed development onto the Carriglea Industrial Estate Access Road. The visibility splay is indicated as passing through trees/vegetation, bicycle parking stands and the set down area. While there is a note on the drawing indicating that a driver's visibility would be below the foliage of the trees, visibility for an exiting driver towards an oncoming vehicle may be restricted by bicycles parked at the bicycle stands or vehicles parked within the set down area. This could lead to drivers exiting the development when it is unsafe to do so resulting in side-on collisions with vehicles on the Carriglea Industrial Estate Access Road.

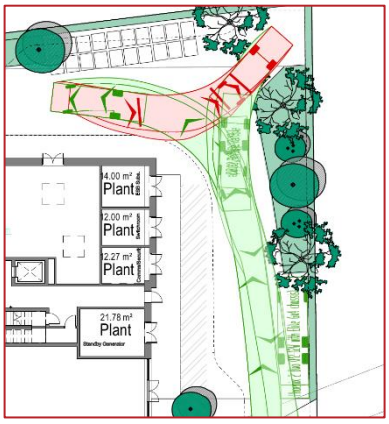
Recommendation

The visibility splay for drivers exiting the development should be clear of vegetation and items of roadside furniture.

3.1.12 Swept Path of Large Vehicles

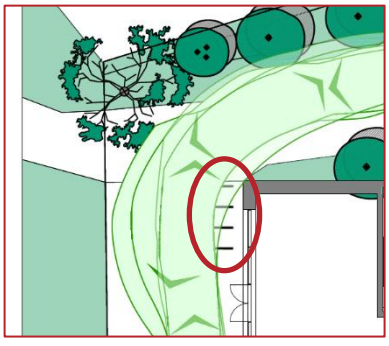
Location: *Drawing CWH-BMD-ZZ-00-DR-C-1040 (Rev. PL1)*

Summary: *The swept path of some vehicles is indicated as conflicting with trees and bicycle parking stands.*



Swept paths of a refuse truck and fire tender travelling through the development's vehicular route have been provided.

The swept path of a refuse truck is indicated as conflicting with an area that may include tree canopies as it traverses through the development. While this is unlikely to lead to material damage to the vehicle it may lead to branches of trees being knocked into the carriageway or shared surface where they may present hazards to smaller vehicles, resulting in material damage if struck, or non-motorised road users, resulting in personal injuries.



Similarly, the swept path of a fire tender is indicated as passing through bicycle parking stands adjacent to Block 1 which would result in material damage to the bicycle parking stands, or bicycles parked there if occupied.

Recommendation

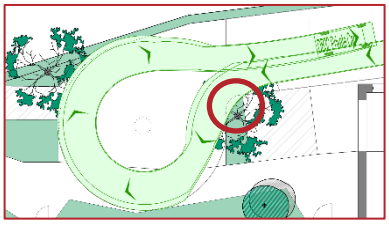
All vehicles should be able to safely travel through the development without conflicting with vegetation or items of roadside furniture.

3.1.13 Swept Path of Private Cars

Location: *Drawing CWH-BMD-ZZ-00-DR-C-1041 (Rev. PL1)*

Summary: *The swept path of a private car at the Car/Small Van Turning Circle is indicated as mounting the kerb, and colliding with vegetation, when entering the turning circle.*

A turning circle for cars and small vans has been indicated adjacent to Block 1 within the proposed development. The swept path of a car entering the turning circle is indicated as conflicting with the kerb at the entrance to, and sharing an area that may include tree branches as it traverses, the turning circle. While it is likely that the branches of trees adjacent to the turning circle would be above the height of a standard car, there is a risk of wheel strikes, and the potential for material damage, at the entrance to the turning circle.



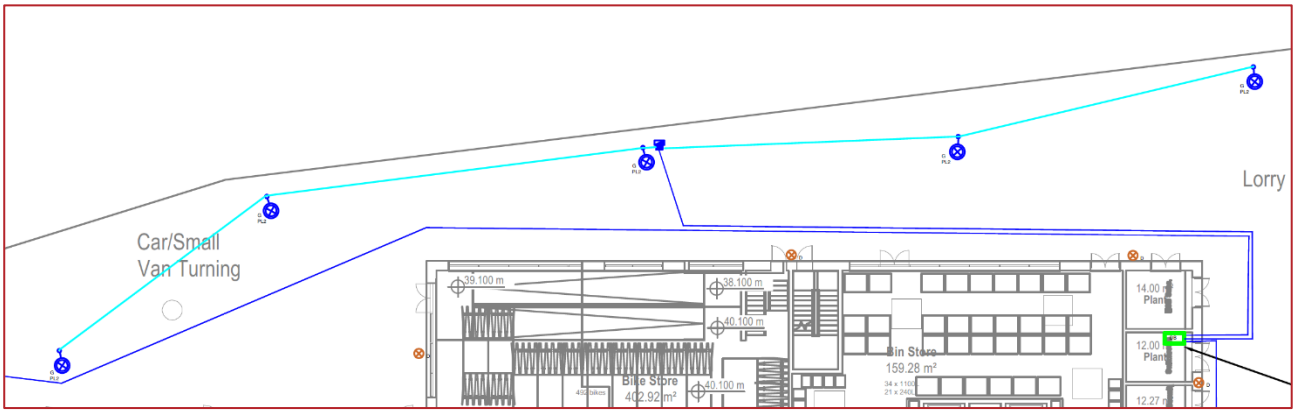
Recommendation

A car, and small van, should be able to undertake a safe turning manoeuvre without mounting or striking the kerb, and colliding with branches, as they traverse the turning circle.

3.1.14 Location of Public Lighting Columns

Location: *Drawing 22135- L00-DR-DLW-E-602 (Rev. p)*

Summary: *Some of the public lighting columns within the proposed development have been indicated within the vehicle route, adjacent to trees and at building access.*



A number of public lighting columns have been indicated throughout the proposed development. Although unclear, some of these appear to be located within the vehicular route along the eastern and northern sides of Blocks 1 and 2, and within the car/small van turning circle, where they would be at risk of being struck by a vehicle resulting in material damage.

Similarly, some public lighting columns have been indicated where they would be located adjacent to trees. The height of the luminaires of the lighting columns, relative to the tree canopies, is unclear at this early stage in the design process however, should the tree canopy and luminaires be at the same height, the tree canopies may block the luminaire preventing it from sufficiently illuminating the development. This could lead to dark spots within the development resulting in reduced inter-visibility between road users and an increased risk of collisions.

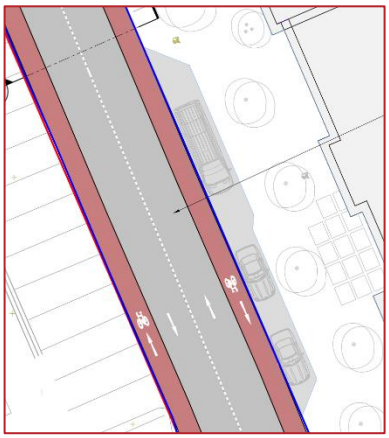
Recommendation

The public lighting columns within the proposed development should be located outside the vehicular routes and where they would not be impeded by the canopy of adjacent trees.

3.1.15 Cycle Lane Adjacent to Set Down Area

Location: *Drawing GWH-BMD-ZZ-XX-DR-C-1010 (Rev. P3)*

Summary: *Vehicle occupants opening car doors when stopped in the set down area may present a hazard to cyclists within the inbound cycle lane.*



It is proposed to upgrade the road layout on the Carriglea Industrial Estate Access Road to provide cycle lanes in each direction. The inbound cycle lane is indicated as running directly adjacent to the proposed development's set down area in front of Block 2. A buffer zone has not been indicated between the cycle lane and set down area and this could lead to the occupant of a vehicle within the set down area opening the door of their vehicle into the path of an oncoming cyclist resulting in collisions and personal injuries, or to cyclists suddenly swerving into the adjacent traffic lane to avoid an open door where there is an increased risk of being struck by a vehicle.

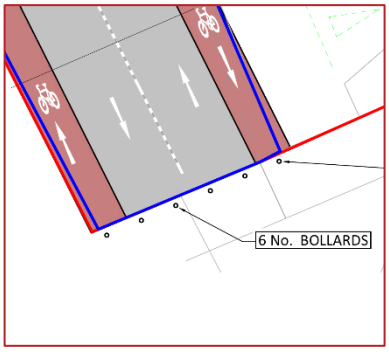
Recommendation

A buffer zone should be provided between the cycle lane and set down area such that an open vehicle door would not encroach into the cycle lane.

3.1.16 Bollards at Tie-In between Carriglea Industrial Estate Access Road and Carriglea Development

Location: *Drawing GWH-BMD-ZZ-XX-DR-C-1010 (Rev. P3)*

Summary: *Bollards may not be visible during the hours of darkness and have been indicated within the cycle lane.*



Six bollards, which are part of the adjacent Carriglea Development, have been indicated at the end of the Carriglea Industrial Estate Access Road. Details in relation to the type of bollards proposed have not been provided and it is, therefore, unclear if the bollards would be visible during the hours of darkness. If the bollards are not sufficiently visible during the hours of darkness there is an increased risk of drivers and cyclists colliding with the bollards resulting in material damage and personal injuries, respectively.

In addition, two of the bollards are located centrally within the inbound and outbound cycle lanes, further increasing the risk of cyclists colliding with the bollards.

Recommendation

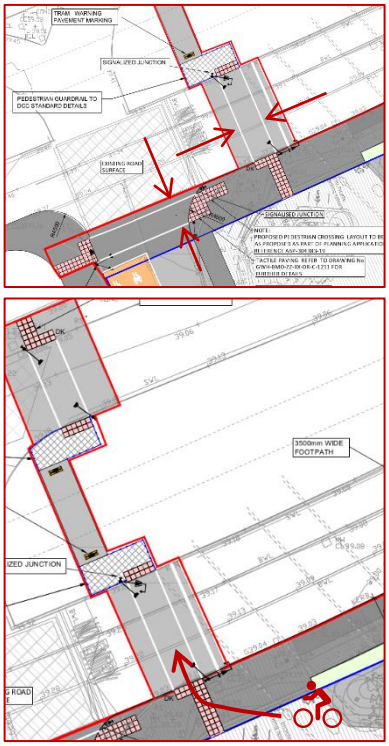
The bollards should include a reflective strip that is sufficiently visible during the hours of darkness and the two bollards located within the cycle lanes should be removed.

3.2 Extended Scope of Proposed Scheme

3.2.1 Width of Pedestrian Crossings

Location: *Drawing No. GWH-BMD-ZZ-XX-DR-C-1012 (Rev. P5)*

Summary: *Pedestrian crossing widths may be insufficient to safely accommodate the likely volumes of crossing pedestrians and cyclists.*



The new signalised pedestrian crossings on the Naas Road, and across the development's access road, are indicated as being approximately 2.4m wide. Pedestrian crossings of this width in an urban area may not sufficiently accommodate the volume of pedestrians using the crossing, particularly during peak times.

Pedestrian crossings which are not wide enough to accommodate the volume of pedestrians using them may result in pedestrians crossing outside the extents of the crossing increasing the risk of vehicle/pedestrian collisions.

This issue would be exacerbated should cyclists also use the pedestrian crossing of the Naas Road as it is likely to create an attractive route for cyclists when travelling to/from the proposed development.

Recommendation

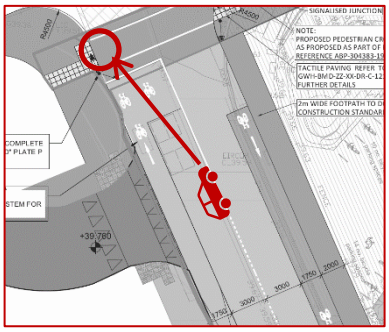
The pedestrian crossings should be wide enough to cater for the expected/likely volumes of pedestrians and cyclists during peak times (the "Design Manual for Urban Roads and Streets (DMURS)" suggests that crossings in "Urban Centres" should be a minimum of 4m wide).

In addition, the crossing of the Naas Road should be amended to a Toucan crossing to support cyclist use.

3.2.2 Location of Proposed Sign

Location: *Drawing No. GWH-BMD-ZZ-XX-DR-C-1012 (Rev. P5)*

Summary: *The proposed "Cycle Track End" sign may be located such that it would impede a driver's visibility towards the signal head.*



A new "Cycle Track End" sign (RUS 009) has been indicated on the western side of the access road to the proposed development. The exact location of the sign is unclear, however it appears that it would be located immediately upstream of the primary traffic signal pole. This may result in the sign partially blocking the signal aspects and impeding an approaching driver's visibility towards the signal head. Reduced visibility to the primary signal head may lead to drivers being insufficiently aware of a red signal at the junction, reducing the time they would have to react, resulting in possible overshoot type incidents and collisions with pedestrians using the crossing, or side-on collisions with vehicles on the Naas Road.

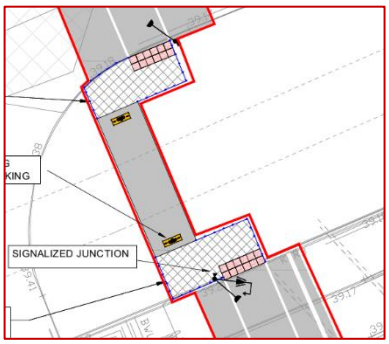
Recommendation

The sign should be relocated, so as not to restrict an approaching driver's visibility towards the signal head.

3.2.3 Guardrail Setback

Location: *Drawing No. GWH-BMD-ZZ-XX-DR-C-1012 (Rev. P5)*

Summary: *It is unclear if the proposed pedestrian guardrails would be sufficiently setback from the edge of the carriageway and Luas tracks.*



Pedestrian guardrails have been indicated at the edge of the refuge islands within the proposed pedestrian crossing of the Naas Road.

It is unclear if the guardrails would be sufficiently setback such that they would provide the necessary clearance to the edge of the carriageway and the Luas track. If the pedestrian guardrails are not sufficiently setback, there is an increased risk of vehicle strikes and material damage.

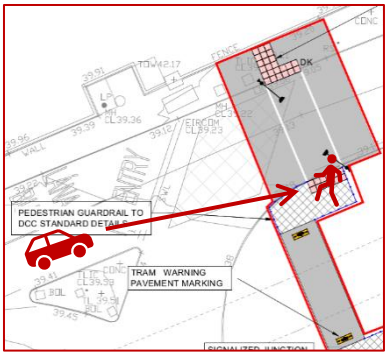
Recommendation

The pedestrian guardrails should be setback a minimum of 450mm from the edge of the carriageway and Luas tracks.

3.2.4 Type of Pedestrian Guardrails

Location: *Drawing No. GWH-BMD-ZZ-XX-DR-C-1012 (Rev. P5)*

Summary: *It is unclear if the pedestrian guardrail would restrict inter-visibility between pedestrians within the refuge island and approaching drivers.*



No information has been provided in relation to the type of pedestrian guardrail proposed within the refuge islands on either side of the Luas track, with the exception that they would be to DCC Standards, which have not been provided to the Audit Team. It is therefore unclear if the height, or bars, of the guardrail would restrict inter-visibility between pedestrians, particularly young children waiting to cross, and approaching drivers.

Should insufficient inter-visibility be provided between drivers and pedestrians, this may lead to pedestrians undertaking a crossing when it is unsafe to do so and to drivers having insufficient time to react to a pedestrian crossing the carriageway, resulting in potential vehicle/pedestrian collisions.

Recommendation

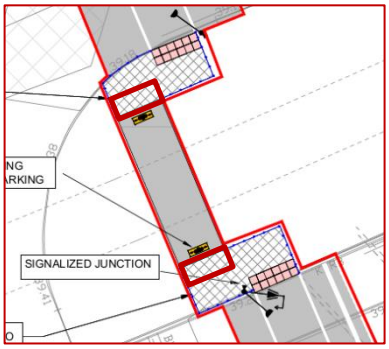
A high-visibility pedestrian guardrail should be provided which would not restrict inter-visibility between drivers and pedestrians waiting within the refuge islands.

3.2.5 Awareness of the Tramline Crossing

Location: *Drawing No. GWH-BMD-ZZ-XX-DR-C-1012 (Rev. P5)*

Summary: *Visually-impaired pedestrians may be insufficiently aware of the crossing of the Luas tracks.*

The proposed crossing of the Naas Road includes a crossing of the Luas tracks, however no tactile paving has been indicated on either side of the Luas line to advise visually-impaired pedestrians of the upcoming hazard. This may lead to visually-impaired pedestrians being insufficiently aware of the tracks, resulting in them inadvertently entering the tracks where there is an increased risk of being struck by a Luas.



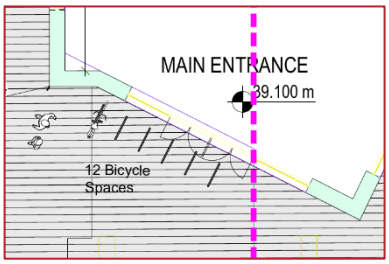
Recommendation

Measures should be provided on both sides of the tram crossings to advise visually impaired pedestrians of the Luas track.

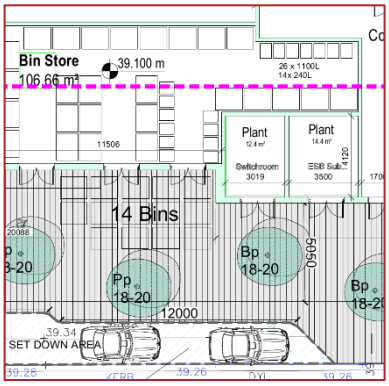
4 Observations

4.1 Items Relating to the Development

4.1.1 Bicycle parking stands have been indicated within the development's shared surface adjacent to the main entrance to Block 1 such that they would block a pedestrian's access/egress to/from Block 1, particularly when the stands are occupied. The bicycle parking stands should be relocated where they will not present an obstacle to non-motorised road users.

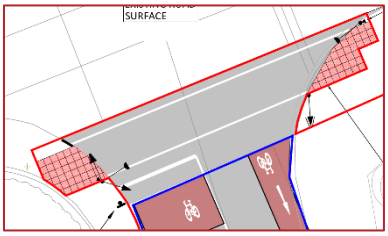


4.1.2 Space for the storage of fourteen bins has been indicated within the development's shared surface at the edge of the Carriglea Industrial Estate Access Road such that they would block access/egress to/from Block 2. The bin storage area should be relocated where it would not block access, or present obstacles, for non-motorised road users.



4.1.3 There are inconsistencies between some of the site layout drawings provided. For example, the Ground Floor Plan (Drawing GWH-HKR-XX-00-DR-A-0200) and Ground Floor Masterplan (Drawing 22-579-SDA-PD-DR-GF-001) differ in some locations. Two motorcycle parking spaces have been indicated adjacent to the lorry turning area which have not been indicated on the Ground Floor Plan. Similarly, the layout of the three parking spaces adjacent to the eastern side of Block 1 are not indicated in detail on the Ground Floor Plan. To avoid confusion during construction, the layout of the proposed development should be consistent throughout all drawings.

4.1.4 As indicated in Drawing No. GWH-BMD-ZZ-XX-DR-C-1010 (Rev. P3), it is proposed to upgrade the road layout on the Carriglea Industrial Estate Access Road to provide cycle lanes in each direction and a new signalised pedestrian crossing at the access road at its junction with the Naas Road. Tactile paving has been indicated on both sides of the proposed signalised pedestrian crossing.

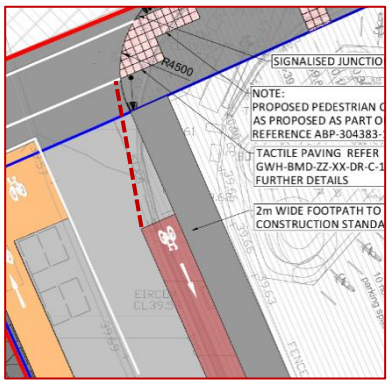


However, on the western side of the crossing a stem has not been indicated within the tactile paving layout, presumably due to the adjacent boundary at this location. Similarly, on the eastern side of the crossing, the stem indicated does not extend a sufficient distance from the crossing.

If possible, and where constraints allow, the layout of the tactile paving on both sides of the signalised pedestrian crossing should be amended to be in accordance with the document, "Guidance on the Use of Tactile Paving Surfaces."

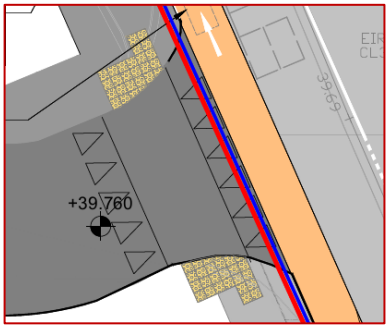
4.2 Items Relating to the Scheme's Extended Scope

4.2.1 The cycle lane indicated on the eastern side of the development access road commences downstream of the access road's junction with the Naas Road. This may lead to cyclists and drivers being insufficiently aware of the cycle lane when entering the access road and adopting a position in the carriageway that would fail to correctly guide or direct users to the correct facility downstream.

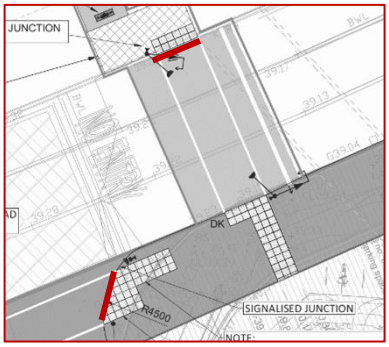


The cycle lane should be extended to the Naas Road via an appropriate taper with a dashed line road marking to better advise drivers of the cycle lane and to guide cyclists into the cycle lane.

4.2.2 The tactile paving layout indicated at the crossing of the access on the western side of the development access road is incorrect for an in-line uncontrolled pedestrian crossing. The tactile paving layout at this location should be amended, and the stem indicated removed, to provide tactile paving with a depth of at least 1.2m across the full width of the crossing.

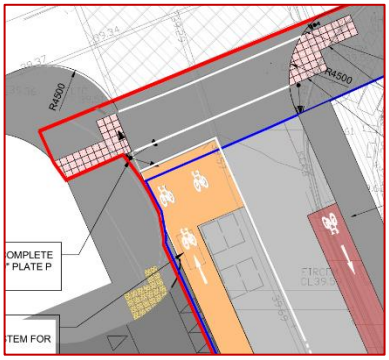


4.2.3 The label "DK" has been indicated adjacent to a number of the pedestrian crossing points. It is assumed that this text denotes that a dropped kerb would be provided at these locations. However, it is unclear if a dropped kerb would be provided where this label has not been indicated, such as at the refuge island crossings and the crossing of the development access road. Dropped kerbs should be provided at all pedestrian crossing points.



4.2.4 An Advance Stop Line for cyclists has been indicated on the development access road at its junction with the Naas Road. However, it is unclear if cyclists exiting the side road would receive an advance green signal prior to motorised vehicles. Should none be provided this may lead to an increased risk of conflicts between right-turning cyclists and left-turning vehicles. The provision of an advance green signal for cyclists at this location should be considered during the traffic signal development stage of the design.

In addition, a smart detection system for cyclists has been indicated upstream of the Advance Stop Line for cyclists. It is unclear if this detection system would detect cyclists as they traverse the loop or if cyclists would need to be stopped on the loop to trigger a green phase. If cyclists would be required to be stopped on the loop to trigger a cyclist phase then the loop is located upstream of where cyclists would likely be stopped at the junction, and should, therefore, be relocated.



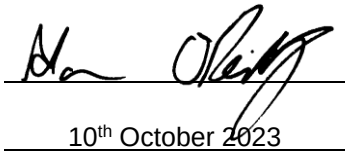
5 Audit Team Statement

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.

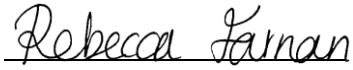
No one on the Road Safety Audit Team has been involved with the design of the scheme.

ROAD SAFETY AUDIT TEAM LEADER

Alan O'Reilly Signed: 

Dated: 10th October 2023

ROAD SAFETY AUDIT TEAM MEMBER

Rebecca Farnan Signed: 

Dated: 10th October 2023

6 Road Safety Audit Feedback Form

Road Safety Audit Feedback Form

Scheme: Development at Gowan Motors Site, Naas Road

Route No.: R810

Audit Stage: 1 **Date Audit Completed:** 4th October 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. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.1.1	YES	YES		
3.1.2	YES	NO	NOTE: FOLLOWING COMMENTS FROM DCC, THIS ACCESS HAS BEEN CHANGED TO FACILITATE PEDESTRIANS ONLY. SO PROBLEM ADDRESSED, BUT TACTILE PAVING NOT REQUIRED	Yes
3.1.3	YES	YES		
3.1.4	YES	YES		
3.1.5	YES	YES		
3.1.6	YES	YES		
3.1.7	YES	YES		
3.1.8	YES	YES		
3.1.9	YES	YES		
3.1.10	YES	YES		
3.1.11	YES	YES	NOTE: SIGHTLINES WILL BE UPDATED IN ACCORDANCE WITH DMURS TABLE 4.2 FOR URBAN SETTINGS, RATHER THAN TII DOCUMENT	
3.1.12	YES	YES		
3.1.13	YES	YES		

Road Safety Audit Feedback Form

Scheme: Development at Gowan Motors Site, Naas Road

Route No.: R810

Audit Stage: 1 **Date Audit Completed:** 4th October 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. Only complete if recommended measure is not accepted**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.1.14	YES	YES		
3.1.15	YES	YES		
3.1.16	YES	YES		
3.2.1	YES	NO	WIDTH OF THE CROSSINGS WILL BE INCREASED AS RECOMMENDED. HOWEVER, THE PROPOSAL FOR THE TOUCAN CROSSING IS CONTRARY TO DCC PREFERENCE FOR CYCLISTS TO USE THE MAIN ACCESS ROADS. CYCLISTS TRAVELLING FROM THE CITY WILL TRAVEL ON THE WESTBOUND CARRIAGEWAY AND TURN ONTO THE CYCLE LANE ON THE ACCESS ROAD. CYCLISTS LEAVING THE DEVELOPMENT WILL USE THE CYCLE LANE ON THE ACCESS ROAD AND JOIN THE NAAS ROAD FROM THE UPGRADED JUNCTION	Yes
3.2.2	YES	YES		
3.2.3	YES	YES		
3.2.4	YES	YES		
3.2.5	YES	YES		

Signed:  Designer **Date** 06.10.23

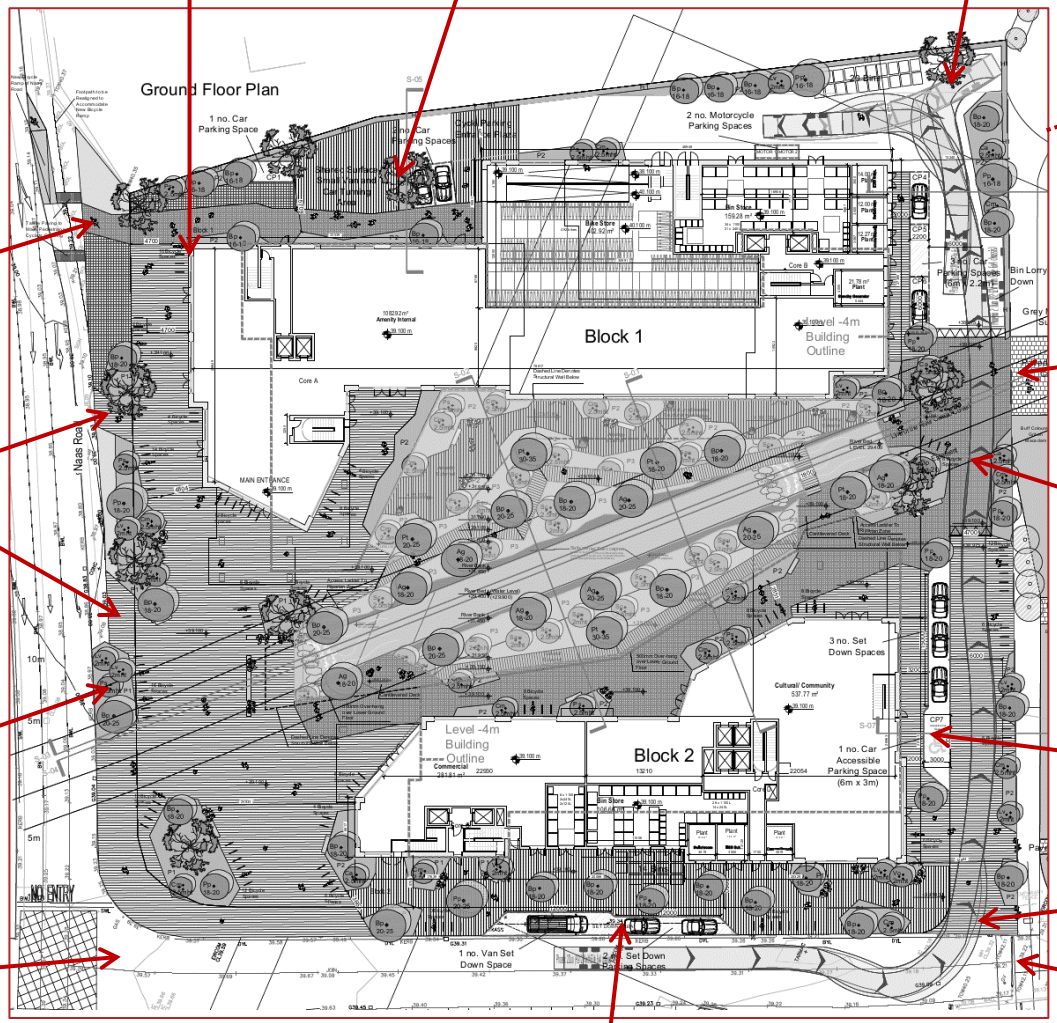
Signed:  Audit Team Leader **Date** 10th October 2023

Signed: _____ Employer **Date** _____

Appendix A - Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Basement Floor Plan	GWH-HKR-XX-B2-DR-A-0222	
Ground Floor Plan	GWH-HKR-XX-00-DR-A-0200	
Site Layout Plan	GWH-HKR-XX-00-DR-A-0101	
AUTOROUTE TRACKING - PRIVATE CAR	GWH-BMD-ZZ-00-DR-C-1041	PL1
AUTOROUTE TRACKING - REFUSE VEHICLE & FIRE TENDER	CWH-BMD-ZZ-00-DR-C-1040	PL1
TOPOGRAPHICAL SURVEY	CWH-BMD-ZZ-00-DR-C-1006	PL1
PROPOSED SIGHTLINES LAYOUT	GWH-BMD-ZZ-00-DR-C-1004	PL1
PROPOSED SuDS LAYOUT - GROUND LEVEL	GWH-BMD-ZZ-00-DR-C-1003	PL1
SITE DRAINAGELAYOUT	CWH-BMD-ZZ-00-DR-C-1000	PL1
Section 04	22-579-SDA-PD-DR-XX-204	
Section 03	22-579-SDA-PD-DR-XX-203	
Sections 01, 05, 06	22-579-SDA-PD-DR-XX-202	
Sections 02,07	22-579-SDA-PD-DR-XX-201	
Lower Ground Floor Masterplan	22-579-SDA-PD-DR-LGF-001	
Ground Floor Masterplan	22-579-SDA-PD-DR-GF-001	
PROPOSED SITE LIGHTING LAYOUT GROUND FLOOR	22135- L00-DR-DLW-E-602	P
ACCESS ROAD UPGRADE WORKS	GWH-BMD-ZZ-XX-DR-C-1010	P3
ADDITIONAL INFORMATION PROVIDED		
NAAS ROAD FOOTPATH REALIGNMENT & ACCESS ROAD JUNCTION LAYOUT	GWH-BMD-ZZ-XX-DR-C-1012	P5

Appendix B - Problem Locations



Problem 3.1.12

Problem 3.1.13

Problem 3.1.12

General Problem 3.1.4

General Problem 3.1.10

General Problem 3.1.14

Problems 3.1.1 & 3.1.2

Problem 3.1.9

Problems 3.1.1 & 3.1.7

Problem 3.1.3

Problem 3.1.5

Problem 3.1.6

Problem 3.1.11

Problem 3.1.8

Problem 3.1.16

Problem 3.1.15

Problems 3.2.3 & 3.2.4

Problem 3.2.1

Problem 3.2.5

Problem 3.2.1

Problem 3.2.1

Problem 3.2.2