

Cronin & Sutton Consulting

Proposed Residential Development,
Dundrum, Dublin 14

Quality Audit

Cronin & Sutton Consulting

Proposed Residential Development, Dundrum, Dublin 14

Quality Audit

Document Ref: P21-138-UQA-GEN-RP-001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
3.0	AOR	AP	AOR	17 th Nov. 2021	Revised RSA Feedback Revised
2.0	AP/AOR	AOR	AOR	10 th Nov. 2021	Final
1.0	AP	AOR/TAG	AOR	5 th Nov. 2021	Draft Report

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1 Introduction

1.1 General

This report was prepared in response to a request from Mr Fionnán De Burca of Cronin & Sutton Consulting to provide a Quality Audit of a Proposed Residential Development, in Dundrum, Dublin 14. The Quality Audit shall consider the following elements:

- Road Safety Audit
- Access Audit
- Walking Audit
- Non-Motorised User Audit
- Cycle Audit

The Quality Audit followed a site visit on the 12th October 2021. At the time of the site visit the weather was 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.

This report contains three primary sections, with each section focussing on different implications to the users of the scheme. The Road Safety Audit identifies safety implications of the scheme, whilst the Accessibility & Walking Audit focusses more on accessibility implications for vehicles and pedestrians associated with the development. Finally, the Non-Motorised User and Cycle Audit predominantly focusses on cycle use, as pedestrians have been discussed as part of the accessibility and walking audit, and there are currently no requirements for equestrians as part of this development.

2 Background

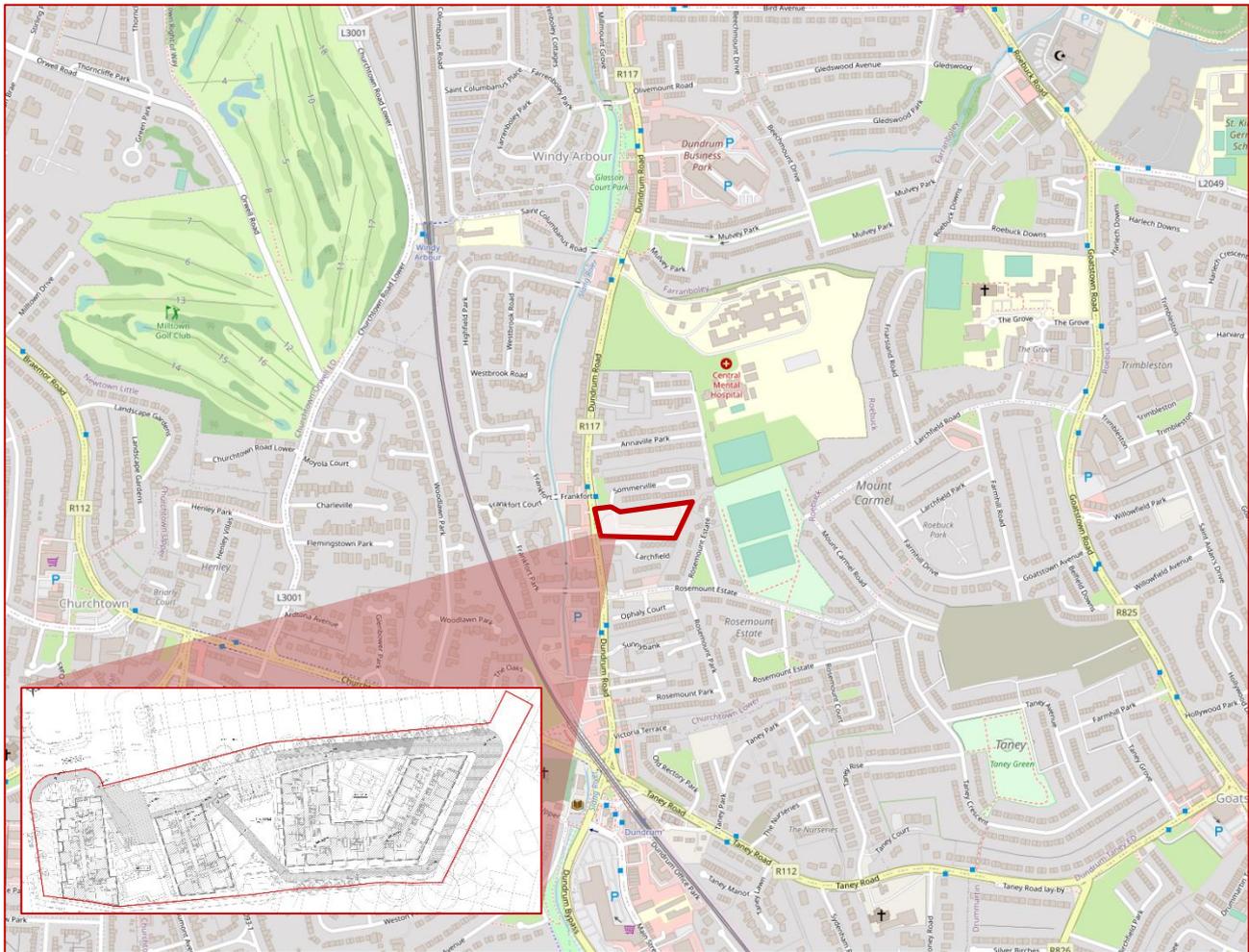


FIGURE 2.1: SITE LOCATION PLAN (SOURCE: WWW.OPENSTREETMAPS.ORG)

The proposed development is located near Windy Arbour on an existing brownfield site adjacent to, and will be accessed from, the grounds of the existing Somerville Housing Estate, on Dundrum Road, Dublin 14. Windy Arbour is a suburb of Dublin City on the city's southern side which primarily consists of residential areas, with extensive housing developments located on both sides of Dundrum Road. The proposed development is located at the existing Somerville estate, approximately 500m north of the intersection of the R112 (Churchtown Road Upper) and the R117 (Dundrum Road), and includes the construction of a residential complex comprising of two apartment blocks and a basement carpark beneath one of the blocks. The development will also include indoor cycle parking facilities, outdoor cycle stands and mobility impaired vehicle parking spaces at ground level. Within the basement carpark, parking for electric vehicles (EV), 8No, and Car Club vehicles, 3No, are proposed.

The development will be accessed from the eastern side of Dundrum Road via the existing Somerville access junction. A pedestrian access is also proposed connecting the development's proposed footway network with the existing footpath on the eastern side of Dundrum Road. A ramp to the basement carpark is proposed south of the development's entrance.

Dundrum Road runs in a north-south direction in the vicinity of the proposed development and is a two-way single carriageway road with pedestrian footways and public lighting on both sides. The road is in an urban area with a posted speed limit of 50kph. There is a signalised pedestrian crossing located approximately 185m to the south of the existing Somerville access.

3 Road Safety Audit

3.1 Introduction

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 (previously NRA HD19/15) dated December 2017, contained on the Transport Infrastructure Ireland (TII) Publication's website.

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

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

Mr. Antonios Papadakis
(MSc, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during October and November 2021 and comprised an examination of the documents provided by the designers (see section 3.8). A site visit was undertaken on the 12th October 2021. The weather at the time of the site visit was dry and the road surface was dry. Traffic volumes were moderate, as were pedestrian and cycle numbers. Vehicles speeds were considered to be 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. Where problems are general to the proposals sample drawing extracts are within the main body of the report, where considered necessary. Road Safety problem locations are also shown in Appendix A.

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.

3.2 Items Not Submitted for Auditing

Details of the following items were not submitted for audit; therefore, no specific problems have been identified at this stage relating to these design elements, however where the absence of this information has given rise to a safety concern it has been commented upon in Section 3.4: -

- Vehicle swept paths
- Drainage
- Public Lighting
- Visibility splays

3.3 Collision History

The Road Safety Authority website (www.rsa.ie) was consulted to identify historical collisions in the vicinity of the proposed scheme. The website includes summary information on recorded collision occurrence for the period 2005 to 2016 (see Figure 3-1).

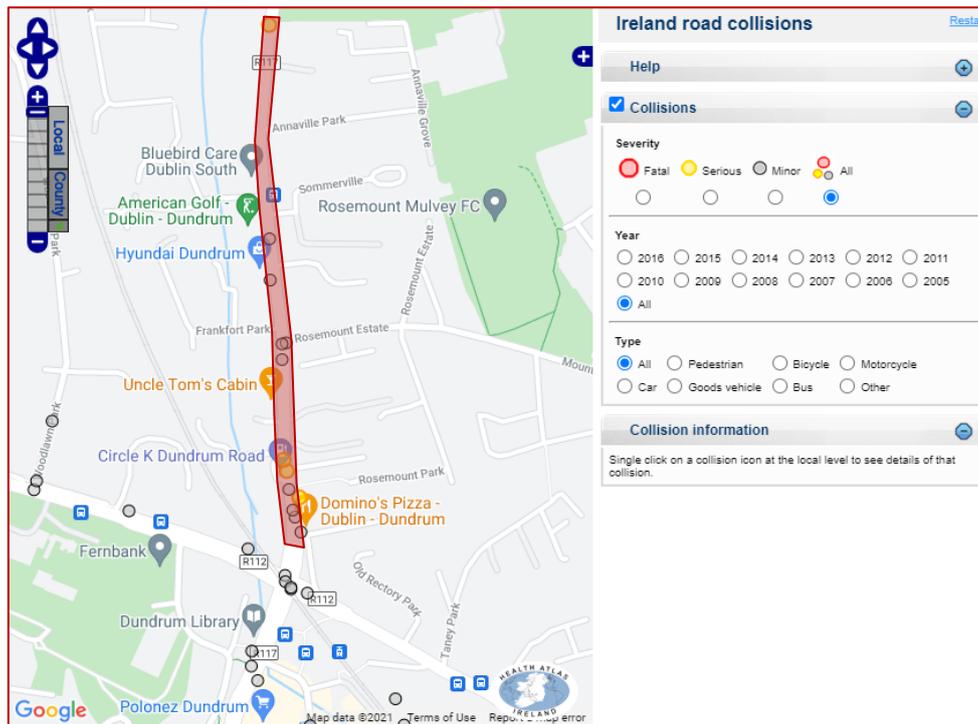


FIGURE 3-1: HISTORICAL COLLISIONS IN THE VICINITY OF THE PROPOSED DEVELOPMENT (SOURCE WWW.RSA.IE)

Table 3.1 below contains a summary of the collisions recorded on the Road Safety Authority’s database during this period.

TABLE 3.1: SUMMARY OF COLLISIONS IN THE VICINITY OF THE SITE RECORDED ON THE ROAD SAFETY AUTHORITY’S

Severity	Year	Vehicle	Circumstances	Casualties	Day	Time	Speed limit	Location
Serious	2013	Car	Other	1	Wednesday	7am - 10am	50kph	240m north of Somerville access junction with Dundrum Rd.
Serious	2013	Car	Other	1	Friday	4pm – 7pm	50kph	300m south of Somerville access junction with Dundrum Rd.
Serious	2011	Car	Other	1	Friday	10am – 4pm	50kph	310m south of Somerville access junction with Dundrum Rd.
Serious	2006	Goods vehicle	Pedestrian	1	Monday	10am – 4pm	50kph	350m south of Somerville access junction with Dundrum Rd.
Minor	2015	Bicycle	Other	1	Friday	7pm – 11pm	60kph	380m south of Somerville access junction with Dundrum Rd.

Severity	Year	Vehicle	Circumstances	Casualties	Day	Time	Speed limit	Location
Minor	2014	Bicycle	Other	1	Thursday	4pm – 7pm	60kph	150m south of Somerville access junction with Dundrum Rd.
Minor	2014	Bicycle	Other	1	Tuesday	7am - 10am	50kph	160m south of Somerville access junction with Dundrum Rd.
Minor	2014	Undefined	Pedestrian	1	Friday	11pm – 3am	50kph	330m south of Somerville access junction with Dundrum Rd.
Minor	2012	Car	Other	1	Friday	7am - 10am	50kph	370m south of Somerville access junction with Dundrum Rd.
Minor	2009	Car	Rear end, straight	2	Thursday	4pm – 7pm	50kph	50m south of Somerville access junction with Dundrum Rd.
Minor	2008	Car	Other	1	Saturday	10am – 4pm	60kph	60m south of Somerville access junction with Dundrum Rd.
Minor	2008	Car	Other	1	Saturday	7pm – 11pm	50kph	150m south of Somerville access junction with Dundrum Rd.
Minor	2006	Car	Angle, both straight	1	Saturday	10am – 4pm	50kph	240m south of Somerville access junction with Dundrum Rd.

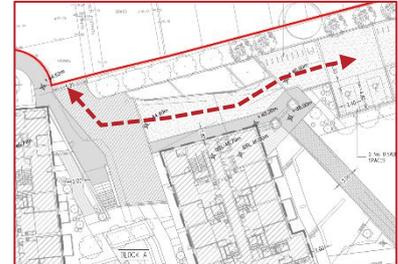
3.4 Road Safety Audit

3.4.1 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: It is unclear if the proposed development will be sufficiently lit during the hours of darkness.

Information regarding public lighting within the proposed development has not been provided to the Audit Team and it is therefore unclear if the development will be sufficiently lit during the hours of darkness. This problem may be exacerbated by the horizontal alignment within the proposed development between the access and mobility impaired parking spaces at surface level, which includes a number of sharp changes in direction and abrupt narrowing of the carriageway. Drivers traveling to/from these parking spaces may be insufficiently aware of the kerb line during the hours of darkness resulting in potential kerb strikes and material damage.



Additionally, if the proposed development is not sufficiently lit during the hours of darkness there is a risk that inter-visibility between drivers and vulnerable road users will be reduced resulting in an increased risk of vehicle-pedestrian collisions.

Recommendation

Ensure the proposed development is sufficiently lit during the hours of darkness.

3.4.2 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: It is unclear if the carriageway within the proposed development will sufficiently shed surface water.

Information regarding the proposed drainage provision within the development has not been provided. Should insufficient drainage measures be provided, this could lead to ponding within the development's access road, leading to loss of traction during wet or icy weather resulting in possible loss of control collisions.

Recommendation

Ensure the carriageway within the development is sufficiently drained and that ponding does not occur.

3.4.3 Problem

Location: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: Tactile paving has not been indicated at the top and bottom of steps within the proposed development which may lead to visually impaired pedestrians being insufficiently aware of the hazard.

Tactile paving has not been indicated at the top and bottom of steps within the proposed development. This may lead to visually impaired pedestrians being insufficiently aware of the height hazard resulting in them continuing towards the steps and falling from a height.



Recommendation

Corduroy hazard tactile paving should be provided at the top and bottom of steps within the proposed development.

3.4.4 Problem

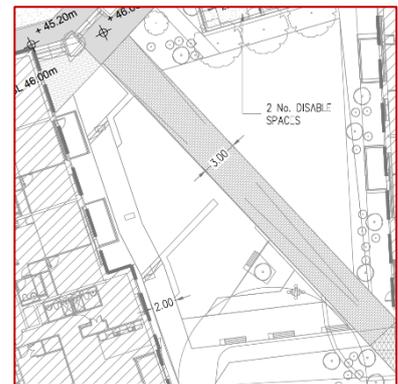
Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: *The gradient of footways within the development is unclear and may lead to slips, trips and falls if steeper than 1:20.*

Ramps have been indicated throughout the footway network within the proposed development. The gradient of these ramps has however not been indicated. Should ramps be provided at a gradient that is in excess of 1V:20H, elderly, or mobility impaired pedestrians, particularly wheelchair users, and cyclists may experience difficulty ascending/descending the ramps resulting in potential slips and falls.

Recommendation

Ensure the proposed gradients are not steeper than 1V:20H.



3.4.5 Problem

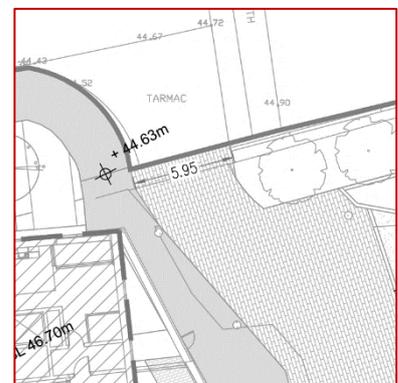
Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: *Junction control, or priority, has not been indicated at the access to the proposed development.*

The junction control (stop, yield etc.), and thus priority, at the development's access has not been indicated. The absence of adequate road markings and signage may lead to driver confusion and hesitation resulting in drivers misinterpreting priority at the junction and entering the junction at the same time as opposing vehicles where there is an increased risk of side-swipe or side-on collisions.

Recommendation

Ensure the junction control, and priority, at the proposed development access is clear via signage and road markings.

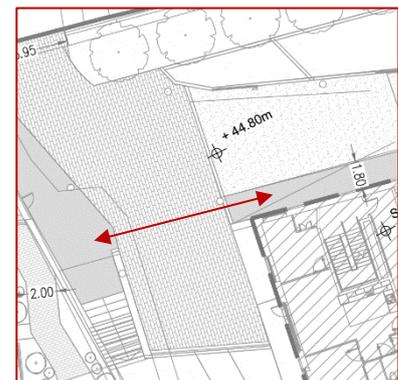


3.4.6 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: *A pedestrian crossing has not been indicated at the top of the basement carpark access ramp along the pedestrian desire line between Block A and Block B.*

Measures have not been indicated to allow pedestrians to safely cross from the footway in front of Block A to the footway in front of Block B at the top of the basement carpark access ramp, where a pedestrian desire line is likely to exist. Should pedestrians cross at this location, which is the shortest route between these footways, or elsewhere within the development, there is a risk that drivers entering/exiting the basement carpark will be less attentive to them increasing the risk of vehicle-pedestrian collisions.



Recommendation

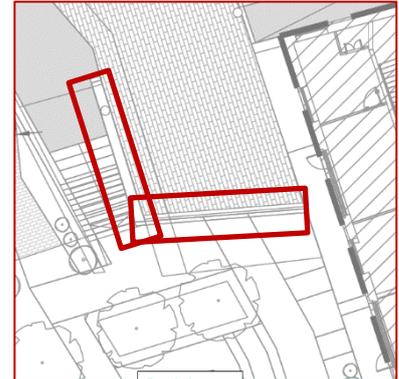
A formal uncontrolled pedestrian crossing, including dropped kerbs and tactile paving if a level difference is proposed between the shared surface and footway, should be provided at the top of the basement carpark access ramp, ensuring drivers exiting the ramp have sufficient visibility to crossing pedestrians and cyclists.

3.4.7 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: It is unclear if sufficient edge protection will be provided at surface level adjacent the basement carpark access ramp.

It is unclear from the drawing provided if sufficient edge protection will be provided at surface level adjacent the basement carpark access ramp. Insufficient edge protection may increase the risk of pedestrians and cyclists falling from a height onto the ramp below, leading to serious personal injury.



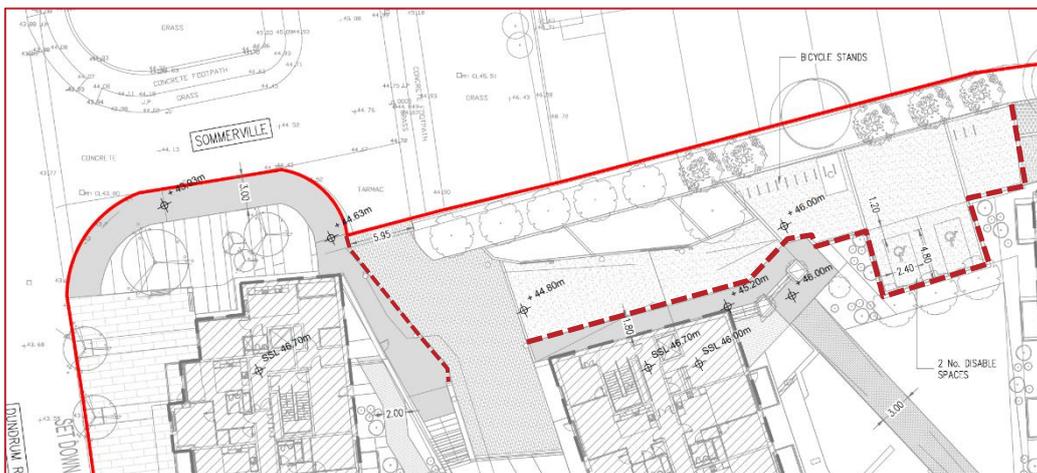
Recommendation

Sufficient edge protection should be provided at surface level adjacent the basement carpark ramp.

3.4.8 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: It is unclear if the footways at the development's ground level will be flush with the adjacent shared surface.



It is assumed that the route between the development access and the mobility impaired parking spaces/carpark at surface level is a shared surface. It is however unclear if the adjacent footways will be flush with the shared surface or at a different level. It is likely that visually impaired pedestrians will travel within the footways which will present a 'safe zone' for them where motorised vehicles will not enter. However, if the footways are flush with the shared surface, and a sufficient means of delineation not provided at the transition between the footways and shared surface, visually impaired pedestrians may inadvertently enter the shared surface leading to an increased risk of collisions with vehicles and cyclists.

Recommendation

If the footways and shared surface are flush a tactile strip should be provided at the transition between the two surfaces to advise visually impaired pedestrians of the transition. Sufficient colour contrast should also be provided between the two surfaces to further increase a visually impaired pedestrian's awareness of the road layout.

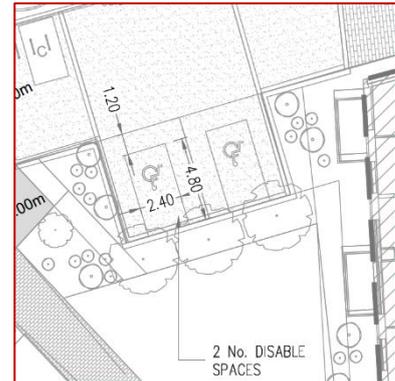
3.4.9 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005

Summary: Absence of dropped kerbs and tactile paving at the mobility impaired parking spaces.

Mobility impaired parking spaces have been indicated adjacent to the northern side of the proposed development units.

It is unclear from the information provided if dropped kerbs and associated tactile paving are proposed at these parking spaces. The absence of dropped kerbs could lead to difficulties for mobility impaired road users in accessing the footpath once they leave their vehicle.



Recommendation

Provide dropped kerbs & tactile paving between the parking spaces to permit safe access to/from the footway.

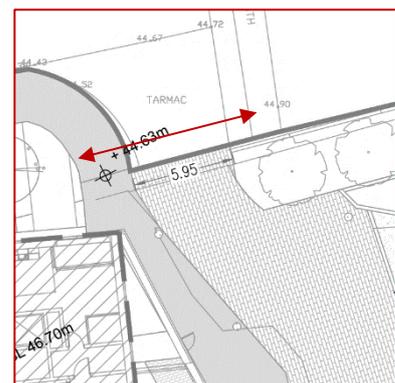
3.4.10 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: The existing footway on the eastern side of the Sommerville Estate access road terminates at the development boundary with no measures indicated for pedestrians to access the proposed footway on the western side of the road.



The existing footway on the eastern side of the Sommerville Estate access road terminates at the development boundary. Measures have not been indicated for pedestrians travelling to the development from the Somerville Estate to safely access the proposed footway on the western side of the road which is indicated as continuing into the proposed development. This could lead to pedestrians crossing the carriageway at a location where drivers may be less attentive to them increasing the risk of vehicle-pedestrian collisions.



Additionally, mobility impaired and visually impaired pedestrians will be unable to access the development from this footway resulting in them being unable to safely, and independently, navigate the road layout.

Recommendation

A pedestrian access to the development should be provided from the footway on the eastern side of the Sommerville Estate access road.

Alternatively, an uncontrolled pedestrian crossing should be provided at the development access to allow pedestrians access the western footway at this location. The crossing should be located where inter-visibility between drivers and crossing pedestrians is unobstructed.

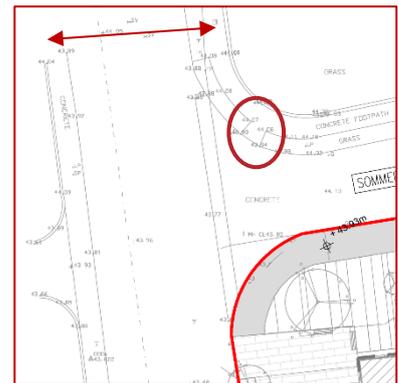
3.4.11 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: The route between Dundrum Road, to the north of the Sommerville Estate Access, and the proposed development does not include safe pedestrian crossing facilities for the visually and mobility impaired.

The route between Dundrum Road, to the north of the Sommerville Estate Access, and the proposed development does not include safe pedestrian crossing facilities for the visually and mobility impaired. There are existing dropped kerbs provided on either side of the Sommerville Estate access, however no tactile paving has been provided, nor do the dropped kerbs align with each other.

While it is acknowledged that this is outside the extents of the proposed development, it is likely that pedestrian trips generated by the proposed development will use this route to access public transport and other services located to the north. The lack of tactile paving at, and the alignment of, the crossing may lead to visually impaired pedestrians inadvertently entering the carriageway, and potentially being directed into the Dundrum Road carriageway rather than towards the opposing crossing point, where they are at an increased risk of being struck by a vehicle.



Additionally, there are limited existing pedestrian crossing facilities across the Dundrum Road to cater for pedestrian desire lines to/from the proposed development. If safe cross facilities are not provided along these pedestrian desire lines, there is a risk that pedestrians will cross at unsafe locations, increasing the risk of vehicle-pedestrian collisions.

Recommendation

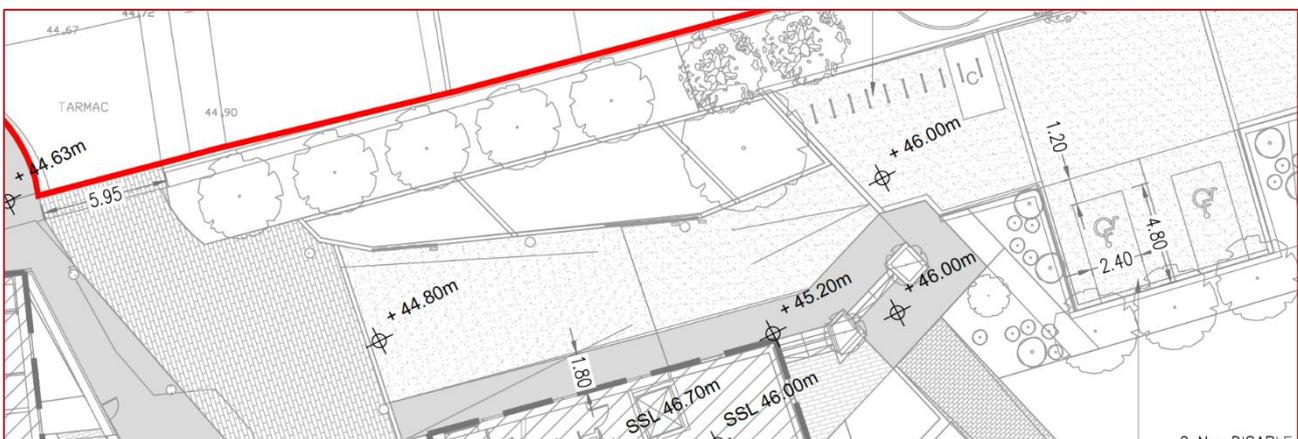
The dropped kerbs on either side of the Sommerville Estate access should be amended such that they align with each other. The necessary tactile paving should also be provided at the dropped kerbs.

The developer should also liaise with Dún Laoghaire–Rathdown County Council to provide improved pedestrian crossing facilities across the Dundrum Road in the vicinity of the proposed development.

3.4.12 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: It is unclear if sufficient inter-visibility between drivers will be provided within the shared surface.



It is assumed that the route between the development access and the mobility impaired parking spaces at surface level is a shared surface. It is unclear however if sufficient inter-visibility between opposing drivers traveling along the shared surface will be provided due to the road furniture indicated within this area and

adjacent building boundaries/walls. If sufficient inter-visibility is not provided throughout the shared surface there is a risk of low speed head-on collisions particularly at locations where the carriageway narrows.

Recommendation

Ensure sufficient inter-visibility between opposing drivers within the shared surface is provided.

3.4.13 Problem

Drawing: E037-CSC-ZZ-XX-DR-C-0005 (Rev. P1)

Summary: It is unclear if there is sufficient space provided for vehicles to safely travel along the road layout within the proposed development.



It is assumed that the route which circumnavigates Block B is intended for access for emergency vehicles (e.g. ambulance, fire tender etc.). Information regarding the swept path of vehicles has not been provided to the Audit Team and it is therefore unclear if these vehicles can safely enter, travel within, and exit the proposed development's road layout.

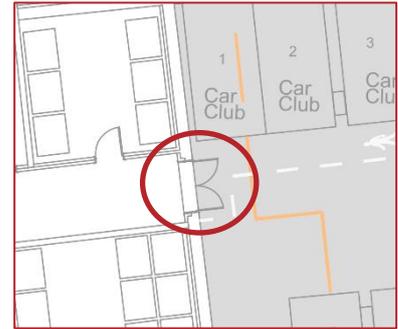
If sufficient space is not provided for vehicles to travel within the development, there is an increased risk of unsafe manoeuvres and material damage collisions, particularly where vehicle movement is restricted by overhanging or adjacent structures.

Recommendation

Ensure sufficient space is provided within the development for vehicles to safely enter, travel within, and exit the proposed development's road layout.

3.5 Observations

3.5.1 Doors within the basement carpark have been indicated as opening outward directly into the carpark carriageway. Drivers may not anticipate a door to open outwards, or for a pedestrian to suddenly step into the carriageway. It is unclear if this is indicative only or if it is intended for the doors to open outwards. Doors directly adjacent the carpark carriageway should open inward to avoid pedestrians suddenly entering the carpark carriageway. Should the proposed arrangement reflect fire egress requirements, measures should be put in place to provide a safe refuge for pedestrians exiting the building.



3.5.2 Existing 30kph and 50kph speed limit signs at the Sommerville Estate access facing drivers entering and exiting the estate respectively were noted as being twisted on their post at the time of the site visit such that they may not be sufficiently visible to drivers. The signs should be reoriented such that they are sufficiently visibility to the necessary stream of traffic.



3.6 Road Safety Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme.

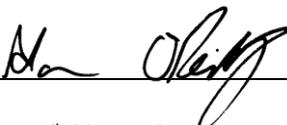
The problems identified have been noted in this report together with associated safety improvement suggestions, which we would recommend should be studied for implementation.

The Road Safety Audit Team has not been involved in the design of this scheme.

ROAD SAFETY AUDIT TEAM LEADER

Alan O'Reilly

Signed:



Dated:

17th November 2021

ROAD SAFETY AUDIT TEAM MEMBER

Antonios Papadakis

Signed:



Dated:

17th November 2021

3.7 Road Safety Audit Brief Checklist

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

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

Any other information?

(if 'Yes', describe below)

	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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3.8 Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Proposed Site Layout	E037-CSC-ZZ-XX-DR-C-0005	P1
Proposed Lower Ground Layout	E037-CSC-ZZ-XX-DR-C-0013	-

3.9 Road Safety Audit Feedback Form

Scheme: Proposed Residential Development, Dundrum, Dublin 14

Route No.: R117 (Dundrum Road)

Audit Stage: Stage 1 Road Safety Audit Date Audit Completed: 1st November 2021

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem Accepted (Yes/No)	Recommended Measure(s) Accepted (Yes/No)	Describe Alternative Measure(s). Give reasons for not accepting recommended measure	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.4.1	Yes	Yes		
3.4.2	Yes	Yes		
3.4.3	Yes	Yes		
3.4.4	Yes	Yes		
3.4.5	Yes	Yes		
3.4.6	Yes	Yes		
3.4.7	Yes	Yes		
3.4.8	Yes	Yes		
3.4.9	No	No	Access to the mobility impaired spaces is provided at-grade from the shared surface. A tactile strip shall be provided to aid visually impaired users.	Yes
3.4.10	Yes	Yes		
3.4.11	Yes	Yes		

3.9 Road Safety Audit Feedback Form

Scheme: Proposed Residential Development, Dundrum, Dublin 14

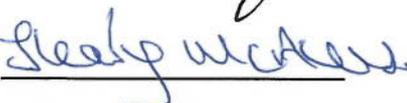
Route No.: R117 (Dundrum Road)

Audit Stage: Stage 1 Road Safety Audit **Date Audit Completed:** 1st November 2021

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem Accepted (Yes/No)	Recommended Measure(s) Accepted (Yes/No)	Describe Alternative Measure(s). Give reasons for not accepting recommended measure	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.4.12	Yes	Yes		
3.4.13	Yes	Yes		

Signed:  Designer **Date** 16.11.2021

Signed:  Audit Team Leader **Date** 17th November 2021

Signed:  Employer **Date** 28/02/2022

4 Accessibility & Walkability Audit

4.1 Introduction

The proposed development is located near Windy Arbour on the grounds of the existing Sommerville Housing Estate, on Dundrum Road, Dublin 14. Windy Arbour is a suburb of Dublin City on the city's southern side which primarily consists of residential areas, with extensive housing developments located on both sides of Dundrum Road. The proposed development includes the construction of a residential complex comprising of two apartment blocks and a basement carpark beneath one of the blocks.

The proposed residential development is well served by existing facilities on Dundrum Road which provides footpaths on both sides between its junction with Bird Avenue to the north and its junction with Churchtown Road Upper to the south of the development. The footpaths on Dundrum Road continue into Bird Avenue and also Churchtown Road Upper / Taney Road. There is an existing signalised pedestrian crossing of Dundrum Road located approximately 200m south of the Sommerville Estate access.

The proposed development will provide pedestrian and cyclist permeability between Dundrum Road and the development access through Sommerville Estate, where a pedestrian access is proposed by extending the footpath on the southern side of the Sommerville Estate access around the corner of the junction and into the proposed development. The development access is located in the northwest of the development and links the development with Dundrum Road through Sommerville, adjacent the development's north-western boundary. A number of pedestrian routes between the two apartment blocks and basement carpark within the site are also proposed through the provision of shared surfaces.

4.1.1 Access to local bus network

The development is well served by Transport for Ireland bus services which are located within walking distance of the development on Dundrum Road. The development is also situated close to future BusConnects routes which are expected to provide high quality bus corridors between Dublin City Centre and its suburbs.

A list of bus routes servicing the area is provided in Table 4-1, including the distance from these bus stops to the proposed development. The distances indicated have their origin at the existing site access which is to be retained for vehicular access to the site.

The proposed development is also located in close proximity to the LUAS light rail network. The nearest LUAS stops to the proposed development is the Dundrum Stop and the Windy Arbour Stop (500m south and 600m northwest of the development's vehicular access respectively) which are on the Green LUAS Line and within an 8- to 10-minute walking distance of the proposed development. The LUAS Green Line extends from Brides Glen, in southeast County Dublin, to Broombridge, in north County Dublin, passing through Dublin City Centre where Heuston Railway Station and Connolly Railway Station are located.

The proposed development will, therefore, have access to good quality public transport networks.

TABLE 4-1: BUS ROUTES CLOSE TO THE PROPOSED RESIDENTIAL DEVELOPMENT

Bus Stop (Name)	Bus Stop (Number)	Proximity to the development	Bus Route	Travelling between
Sommerville	2823	40m	44	DCU - Enniskerry
			61	Eden Quay - Whitechurch
			17	Rialto - Blackrock Station
Frankfort	2893	60m	44	Enniskerry - DCU
			61	Whitechurch - Eden Quay
			17	Blackrock Station - Rialto

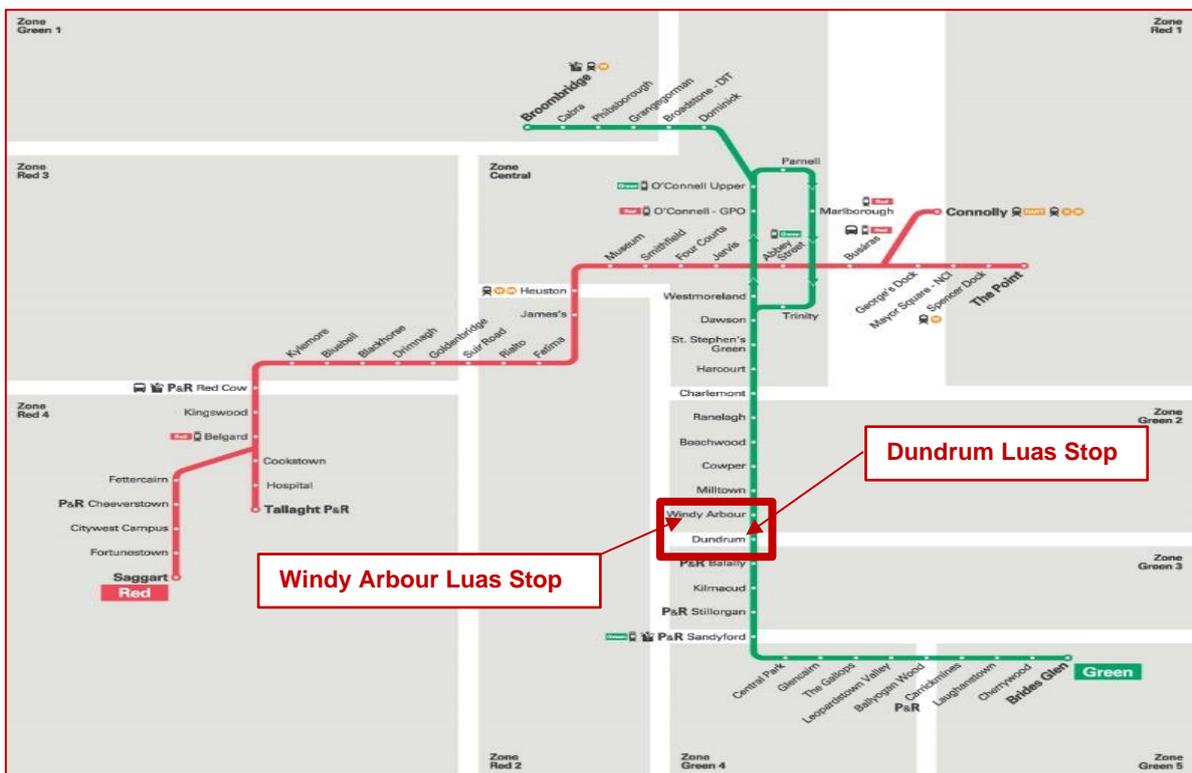


FIGURE 4.1: LUAS MAP SHOWING BOTH THE RED, AND GREEN, LUAS LINES AND MILLTOWN STOP

4.1.2 Local Amenities

The development is located less than 600m from Dundrum Town Centre, which is a small town including supermarkets, restaurants, bars, a shopping centre and other amenities. Pedestrian routes are well served between the development and Dundrum, with walking journey times of approximately 10 minutes.

Dublin City Centre is also accessible via bicycle in less than 25 minutes and via public transport in less than 30 minutes. Dublin City Centre provides a wide range of amenities including various retail outlets, cafes, restaurants, bars, shopping centres, supermarkets, department stores, universities, museums, Dublin Castle, the Aviva Stadium, Merrion Square, St. Stephen’s Green Park, breweries, cinemas, theatres, hotels, hostels, hospitals and many more.

A selection of amenities located nearby are listed in Table 4-2, including the distance to these amenities and the pedestrian, and cyclist, journey times. Given the urban character of the area in which the proposed development is located, pedestrian routes are well catered for, including, footpaths of varying widths and dropped kerb accesses.

Given the variety of amenities available to residents of the development complex, as highlighted in Table 4-2, the development is considered to be well served by both essential, and recreational, amenities.

TABLE 4-2: LOCAL AMENITIES CLOSE TO THE PROPOSED DEVELOPMENT

Amenity	Distance (approx.)	Pedestrian / Cyclist Journey Time (approx.)	Direction from Development
Uncle Tom’s Cabin Takeout	270m	3 minutes / 1 minute	South
Circle K Dundrum Road petrol station	350m	5 minutes / 1 minute	South
CashZone ATM	350m	5 minutes / 1 minute	South
Village Vets Dundrum Animal Hospital	400m	5 minutes / 2 minutes	South
Domino’s Pizza Dundrum	450m	5 minutes / 2 minutes	South
Fanagans Funeral Directors Dundrum	500m	7 minutes / 2 minutes	South
Saint Nahi’s Church and cemetery	700m	9 minutes / 3 minutes	South
Lidl Supermarket, Dundrum	800m	12 minutes / 4 minutes	South
AIB Bank	800m	11 minutes / 4 minutes	South
Dundrum College for Further Education	800m	11 minutes / 4 minutes	South
Peter Mark Hairdressers	700m	10 minutes / 3 minutes	South
Glasson Court Park	700m	8 minutes / 3 minutes	North

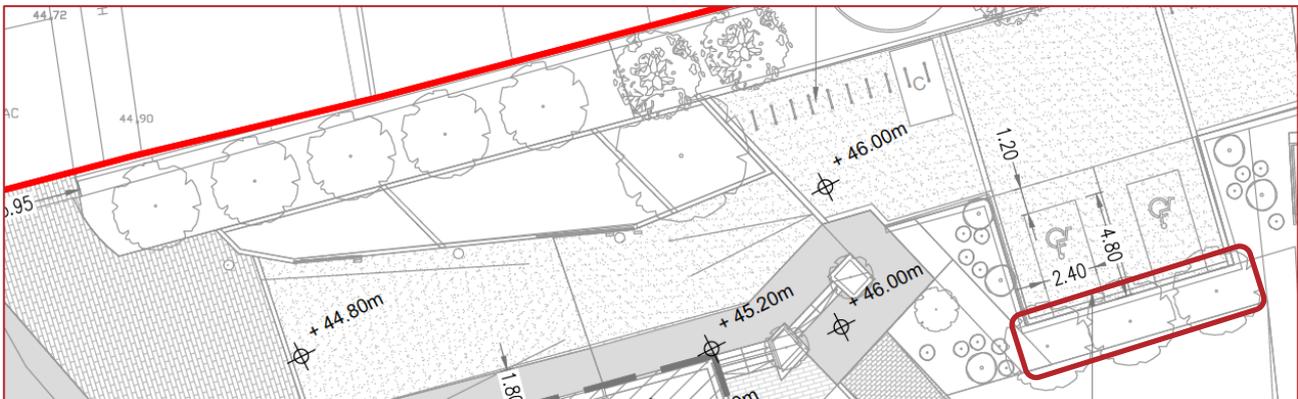
Amenity	Distance (approx.)	Pedestrian / Cyclist Journey Time (approx.)	Direction from Development
Our Lady's National School	800m	10 minutes / 3 minutes	Northwest
Bluebird Care Dublin South Healthcare service	90m	1 minute / 1 minute	West
CUS Rugby Grounds	1.1km	13 minutes / 4 minutes	North
Windy Arbour Playground	1.4km	17 minutes / 5 minutes	North
Milltown Golf Club	1.5km	18 minutes / 6 minutes	Northwest

4.2 Building Accesses

Issues relating to the Building Accesses within the proposed development have been discussed in Section 3.5.1.

4.3 Pedestrian Facilities

4.3.1 Issue



The path immediately to the rear of the mobility impaired parking spaces at surface level appears to be blocked by trees and may not be accessible for the mobility impaired, particularly wheelchair users, after exiting their vehicle. If this path is not directly accessible from these parking spaces, it is likely that mobility impaired drivers/passengers will have to travel a longer route through the shared surface to access the apartment blocks.

Recommendation

Ensure the path adjacent the mobility impaired parking spaces is free of all obstructions and that mobility impaired pedestrians can access this and have a continuous route between this location and both apartment blocks.

Other accessibility issues relating to the Pedestrian Facilities within the proposed development have been discussed in Sections 3.4.4, 3.4.6, 3.4.10 and 3.4.11.

4.4 Target Groups

Issues relating to the Target Groups (i.e. visually & mobility impaired etc.) within the proposed development have been discussed in Sections 3.4.3, 3.4.8, 3.4.9, 3.4.10 and 3.4.11.

4.5 Subways

No accessibility issues have been identified relating to Subways.

4.6 Junctions

Issues relating to Junctions within the proposed development have been discussed in Section 3.4.5.

4.7 Signage

Issues relating to Signage within the proposed development have been discussed in Section 3.5.2.

4.8 Public Transport

No accessibility issues have been identified relating to Public Transport.

4.9 Public Lighting

Issues relating to Public Lighting within the proposed development have been discussed in Section 3.4.1.

4.10 Visibility

Issues relating to the Visibility within the proposed development have been discussed in Section 3.4.12.

4.11 Waste Facilities within the Development

4.11.1 Issue

Although unclear, bin stores appear to have been indicated in the basement carpark. It is also unclear how refuse will be collected from the development and whether bins will be collected from the stores or if they will be transported to a designated collection point. If collected from the stores in the basement, it is unclear if refuse trucks will be able to access the carpark unrestricted.

Similarly, if collected at a designated point at surface level it is likely that operatives will have to transport large bins up the basement ramp which may lead to difficulties. The absence of a detailed refuse strategy could lead to refuse trucks having difficulty in accessing the refuse stores or to difficulties in transporting bins from their stores to the collection point.

Recommendation

Ensure a refuse strategy is developed clearly explaining how refuse is to be transported, collected and how refuse vehicles are to access bins at collection times.

4.12 Carriageway Markings for Pedestrians

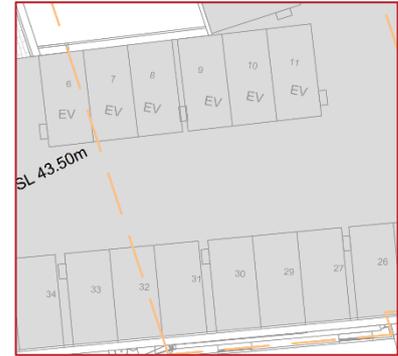
No accessibility issues have been identified relating to Carriageway Markings for Pedestrians.

4.13 Parking

4.13.1 Issue

Electric Vehicle (EV) parking spaces have been indicated within the basement carpark. These typically require additional width to support a buffer zone to account for potentially different charging port connections on vehicles. The additional width allows space for electric cables, as well as user access to connect/disconnect the charging cables.

The EV parking spaces within the basement carpark appear to have similar dimensions as the standard parking spaces. There is a risk therefore that the required space will not be available to accommodate the necessary buffer zone and infrastructure at the EV parking spaces resulting in parking spaces having to be potentially removed, and potentially preventing the required number of EV parking spaces being provided.



Recommendation

Sufficient space should be provided at EV parking spaces in accordance with Section 7.6.16 of the Traffic Signs Manual (2019), Chapter 7 'Road Markings.'

Other accessibility issues relating to Parking within the proposed development have been discussed in Section 3.4.9.

5 Non-motorised User and Cycle Audit

5.1 External Cycle Provision

There are currently no existing cycle facilities on the Dundrum Road in the vicinity of the proposed development with cyclists required to share the carriageway with motorised vehicles.

5.1.1 Issue

There is a lack of existing cycle facilities on Dundrum Road in the vicinity of the proposed development. The provision of extensive bicycle parking facilities within the development suggests that it is expected that cycling will be a popular mode of transport for residents of the development. If this is the case, it is likely that the volume of cyclists using the Dundrum Road will increase. A failure to provide formal cycle facilities on Dundrum Road may deter residents from cycling should they be less confident about sharing the carriageway with motorised vehicles.



Recommendation

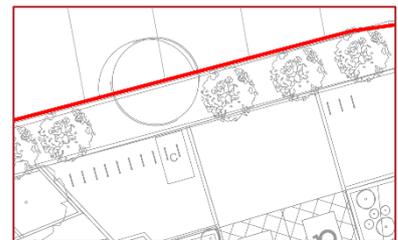
The developer should liaise with Dún Laoghaire–Rathdown County Council to provide improved cycle infrastructure on Dundrum Road in the vicinity of the proposed development to support the use of cycling as a mode of transport for the development's residents.

5.2 Internal Cycle Provision

A shared surface for all road users is proposed within the development from its access within the Sommerville Estate to the mobility impaired parking spaces at surface level. Cycle parking stands are proposed at two locations at surface level within this shared surface. An extensive indoor bicycle parking facility is also proposed which will be accessed from the basement carpark.

5.2.1 Issue

It is unclear if the proposed cycle parking stands at surface level will be sheltered. Users may be discouraged from using cycle stands if they believe the locations are unsafe, or if their bicycle will be exposed to the weather. This may encourage informal parking on footways or at property accesses, thereby restricting pedestrian access.



Recommendation

Ensure cycle parking stands are sheltered and, where located in areas away from high pedestrian volumes, ensure cycle stands are secure and the surrounding area sufficiently lit.

5.3 Quality Audit Action Plan

Issue	Situation	Action/Adjustment	Priority	Cost
4.2	Doors within the basement carpark have been indicated as opening outward directly into the carpark carriageway.	Doors directly adjacent the carpark carriageway should open inward to avoid pedestrians suddenly entering the carpark carriageway. Should the proposed arrangement reflect fire egress requirements, measures should be put in place to provide a safe refuge for pedestrians exiting the building.	1	A
4.3.1	The path immediately to the rear of the mobility impaired parking spaces at surface level appears to be blocked by trees and may not be accessible for the mobility impaired, particularly wheelchair users, after exiting their vehicle	Ensure the path adjacent the mobility impaired parking spaces is free of all obstructions and that mobility impaired pedestrians can access this and have a continuous route between this location and both apartment blocks.	1	A
4.3	The gradient of footways within the development is unclear and may lead to slips, trips and falls if steeper than 1:20.	Ensure the proposed gradients are not steeper than 1V:20H.	1	A
	A pedestrian crossing has not been indicated at the top of the basement carpark access ramp along the pedestrian desire line between Block A and Block B.	A formal uncontrolled pedestrian crossing, including dropped kerbs and tactile paving if a level difference is proposed between the shared surface and footway, should be provided at the top of the basement carpark access ramp, ensuring drivers exiting the ramp have sufficient visibility to crossing pedestrians and cyclists.	1	B
	The existing footway on the eastern side of the Sommerville Estate access road terminates at the development boundary with no measures indicated for pedestrians to access the proposed footway on the western side of the road.	A pedestrian access to the development should be provided from the footway on the eastern side of the Sommerville Estate access road. Alternatively, an uncontrolled pedestrian crossing should be provided at the development access to allow pedestrians access the western footway at this location. The crossing should be located where inter-visibility between drivers and crossing pedestrians is unobstructed.	1	B

Issue	Situation	Action/Adjustment	Priority	Cost
	The route between Dundrum Road, to the north of the Sommerville Estate Access, and the proposed development does not include safe pedestrian crossing facilities for the visually and mobility impaired.	The dropped kerbs on either side of the Sommerville Estate access should be amended such that they align with each other. The necessary tactile paving should also be provided at the dropped kerbs. The developer should also liaise with Dún Laoghaire–Rathdown County Council to provide improved pedestrian crossing facilities across the Dundrum Road in the vicinity of the proposed development.	1	C
4.4	Tactile paving has not been indicated at the top and bottom of steps within the proposed development which may lead to visually impaired pedestrians being insufficiently aware of the hazard.	Corduroy hazard tactile paving should be provided at the top and bottom of steps within the proposed development.	1	A
	It is unclear if the footways at the development's ground level will be flush with the adjacent shared surface.	If the footways and shared surface are flush a tactile strip should be provided at the transition between the two surfaces to advise visually impaired pedestrians of the transition. Sufficient colour contrast should also be provided between the two surfaces to further increase a visually impaired pedestrian's awareness of the road layout.	1	A
	The existing footway on the eastern side of the Sommerville Estate access road terminates at the development boundary with no measures indicated for pedestrians to access the proposed footway on the western side of the road.	A pedestrian access to the development should be provided from the footway on the eastern side of the Sommerville Estate access road. Alternatively, an uncontrolled pedestrian crossing should be provided at the development access to allow pedestrians access the western footway at this location. The crossing should be located where inter-visibility between drivers and crossing pedestrians is unobstructed.	1	A
	The route between Dundrum Road, to the north of the Sommerville Estate Access, and the proposed development does not include safe pedestrian crossing facilities for the visually and mobility impaired.	The dropped kerbs on either side of the Sommerville Estate access should be amended such that they align with each other. The necessary tactile paving should also be provided at the dropped kerbs. The developer should also liaise with Dún Laoghaire–Rathdown County Council to provide improved pedestrian crossing facilities across the Dundrum Road in the vicinity of the proposed development.	2	D
	Absence of dropped kerbs and tactile paving at the mobility impaired parking spaces.	Provide dropped kerbs & tactile paving between the parking spaces to permit safe access to/from the footway.	1	A

Issue	Situation	Action/Adjustment	Priority	Cost
4.6	Junction control, or priority, has not been indicated at the access to the proposed development.	Ensure the junction control, and priority, at the proposed development access is clear via signage and road markings.	1	A
4.7	Existing 30kph and 50kph speed limit signs at the Somerville Estate access facing drivers entering and exiting the estate respectively were noted as being twisted on their post at the time of the site visit such that they may not be sufficiently visible to drivers.	The signs should be reoriented such that they are sufficiently visibility to the necessary stream of traffic.	1	A
4.9	It is unclear if the proposed development will be sufficiently lit during the hours of darkness.	Ensure the proposed development is sufficiently lit during the hours of darkness.	1	D
4.10	It is unclear if sufficient inter-visibility between drivers will be provided within the shared surface.	Ensure sufficient inter-visibility between opposing drivers within the shared surface is provided.	1	A
4.11.1	It is also unclear how refuse will be collected from the development and whether bins will be collected from the stores or if they will be transported to a designated collection point.	Ensure a refuse strategy is developed clearly explaining how refuse is to be transported, collected and how refuse vehicles are to access bins at collection times.	1	A
4.13.1	Electric Vehicle (EV) parking spaces typically require additional width to support a buffer zone to account for potentially different charging port connections on vehicles. The EV parking spaces within the basement carpark appear to have similar dimensions as the standard parking spaces such that the required space will not be available to accommodate the necessary buffer zone and infrastructure.	Sufficient space should be provided at EV parking spaces in accordance with Section 7.6.16 of the Traffic Signs Manual (2019), Chapter 7 'Road Markings.'	1	A
4.13	Absence of dropped kerbs and tactile paving at the mobility impaired parking spaces.	Provide dropped kerbs & tactile paving between the parking spaces to permit safe access to/from the footway.	1	A
5.1.1	There is a lack of existing cycle facilities on Dundrum Road in the vicinity of the proposed development.	The developer should liaise with Dún Laoghaire–Rathdown County Council to provide improved cycle infrastructure on Dundrum Road in the vicinity of the proposed development to support the use of cycling as a mode of transport for the development's residents.	1	D
5.2.1	It is unclear if the proposed cycle parking stands at surface level will be sheltered. Users may be discouraged from using cycle stands if they believe the locations are unsafe, or if their bicycle will be exposed to the weather.	Ensure cycle parking stands are sheltered and, where located in areas away from high pedestrian volumes, ensure cycle stands are secure and the surrounding area sufficiently lit.	1	A

Priority

- 1 – Immediate works required;
- 2 – Essential works required within 1 year;
- 3 - Desirable works required within 2 years;
- 4 – Long term works;
- 5 - Specific needs (e.g. pedestrian desire line not catered for)

Cost (Indicative cost only)

- A – Up to €2,500
- B – From €2,500 up to €10,000
- C - Between €10,000 up to €20,000
- D – Above €20,000

6 Appendix A - Road Safety Audit Problem Locations

