Project

Residential Development, Cornelscourt, Dublin 18

Report Title

Preliminary Design Stage Quality Audit

Client

Cornel Living Ltd.

TRANSPORTATION

DBFL CONSULTING ENGINEERS

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APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 DBFL Consulting Engineers (DBFL) has been commissioned to prepare a Preliminary Design Stage Quality Audit for a proposed residential development on a greenfield site in Cornelscourt, Dublin 18. The proposals seek permission for the provision of 412 no. apartments and 7 no. houses as part of a Build to Rent Scheme on residential zoned lands. The subject site is located on and accessed via the R842 Old Bray Road and lies to the south of the strategic N11 Stillorgan Road within the Cornelscourt area of Southeast Dublin.

1.1.2 This Preliminary Design Stage Quality Audit forms part of the planning submission for the proposed residential development.

1.1.3 The vehicular access for the proposed development, onto the R842 Old Bray Road, is shared by the Cornelscourt AIB Bank. It is proposed to upgrade the existing R842 site access junction arrangement and to incorporate a single entry and exit lane on the minor arm in addition to the introduction a right turn pocket layout leading to the developments access on the minor arm. This development access will service both the vehicles entering/exiting the basement car park and podium level 'shared surface' of the proposed development.

1.2 SCOPE OF QUALITY AUDIT

1.2.1 The geographical scope of this Quality Audit considers the subject development site (extent of proposed new infrastructure works within the site boundary) which includes the basement car park and the proposed site access/egress locations. In addition, the immediate pedestrian/cycle/vehicular routes leading to/from the development site have also been included within the Quality Audit.

Figure 1.1: Subject Site

1.3 QUALITY AUDIT PROCEDURE

1.3.1 The definition of a Quality Audit is provided within the Department for Transport (UK) Traffic Advisory Leaflet 5/11 "Quality Audit", and states: -

"QA is a defined process, independent of, but involving, the design team, that through planning, design, construction and management stages of a project, provides a check that high quality places are delivered and maintained by all relevant parties, for the benefit of all end users. QA is a process, applied to highway, traffic management or development schemes, which systematically reviews projects using a series of discrete but linked evaluations and ensures that the broad objectives of a place, functionality, maintenance and safety are achieved."

1.3.2 The Design Manual for Urban Roads and Streets (DMURS) states that; "***the intention of a Quality Audit is not to pass or fail a design***

rather it is intended as an assessment tool that highlights the strengths and weaknesses of a design and a documented process of how decisions were made."

1.3.3 DMURS Advice Note No. 4 provides designers with guidance in relation to the preparation and content of Quality Audits in Ireland. The Quality Audit report structure has been compiled in reference to DMURS Advice Note No. 4 and international best practice guidance including, amongst others, the Department for Transport (UK) Traffic Advisory Leaflet 5/11 "Quality Audit", and the CIHT document "Manual for Streets 2". Through the adoption of the guidance detailed within the aforementioned documents, DBFL submit that this Quality Audit complies fully with the requirements introduced in DMURS.

1.3.4 For developer led schemes the Quality Audit is an integral element of the development team approach through which all relevant disciplines contribute to the planning process. The Quality Audit seeks to identify a set of clear, agreed outcomes and recommendations that are set fed back into the design process through discussion and agreement with the relevant parties of the design team (e.g. architects, planners, engineers etc.). The Quality Audit process can be summarised as follows:

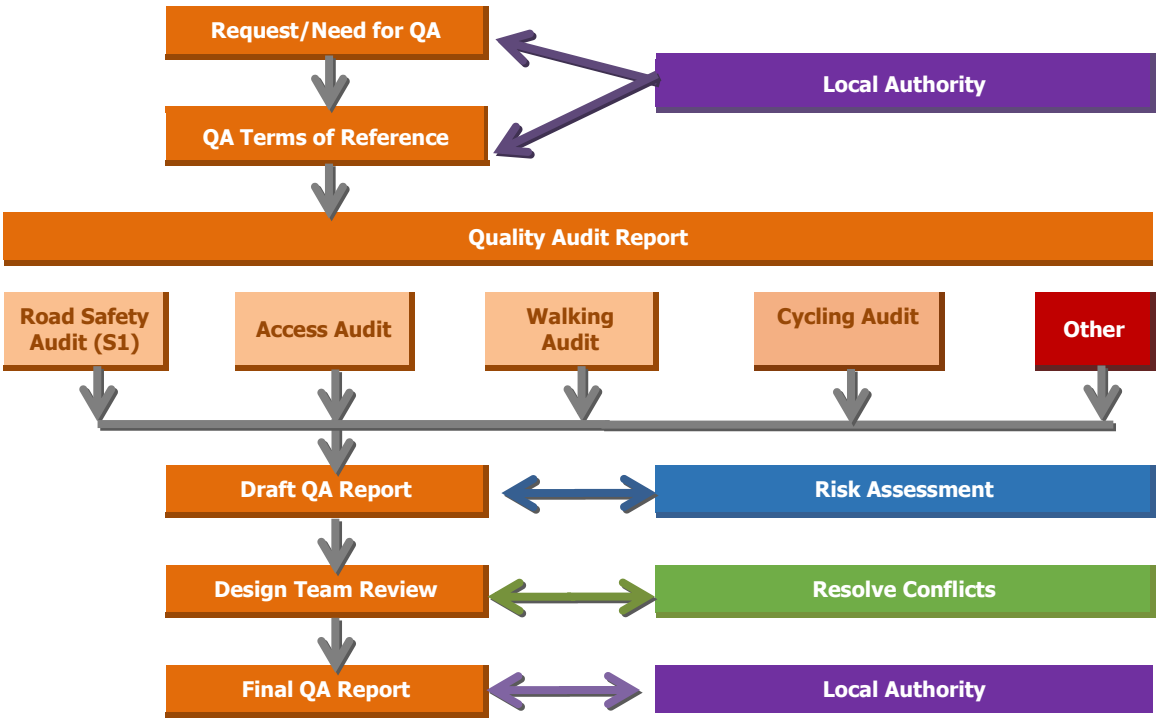


Figure 1.2: Quality Audit Process

1.4 REPORT STRUCTURE

1.4.1 Section 2 & 3 introduces the principal characteristic of the development of the scheme. The purpose and context of the Quality Audit process are detailed in response to the Quality Audits specific terms of reference. A summary of the Quality Audit findings and associated recommendations are outlined in section 4.

1.4.2 Section 5 details the general comments the audit team have in relation to the Audit, whilst Section 6 details the Audit Team Statement.

1.4.3 Section 7 summarises the list of information provided to the audit team for the purposes of the audit.

2.0 CHARACTERISTICS OF PROPOSALS

2.1 OVERVIEW

2.1.1 The proposals seek planning permission to construct 412 no. residential apartment units and 7 no. houses on residential zoned lands. The residential development is to be built on a greenfield site in Cornelscourt, Dublin 18.

2.1.1 The development proposes basement accessed through (i) a ramp for vehicles; (ii) dedicated cycle ramps; and (iii) several stairwells for the development's residents.

2.1.2 The development will also comprise the construction of associated infrastructure including landscaped shared surface courtyard, footpaths, and associated services as referred to in the Infrastructure Report.

2.1.3 As the proposed development is a full BTR scheme, at operational phase it will be a fully managed property (24/7). Residents will avail of a number of shared services such as a concierge, a café, communal open spaces, car parking, bicycle parking, laundry, waste disposal etc.

2.2 Vehicle/Pedestrian Site Access

2.2.1 The proposed site's vehicular access, onto the R842 Old Bray Road, is shared by the Cornelscourt AIB Bank. It is proposed to incorporate a one lane exit and a single entry lane onto the access to service the vehicles exiting the basement car park of the proposed development. A right turn pocket will serve vehicles entering onto the site from the shared access with AIB Bank. The access junction onto the R842 Old Bray Road, will continue to operate as a priority junction. A pedestrian island will also be placed at the access junction, to allow safe crossings for pedestrians. The proposed junction layout is shown in **Figure 2.1** below.

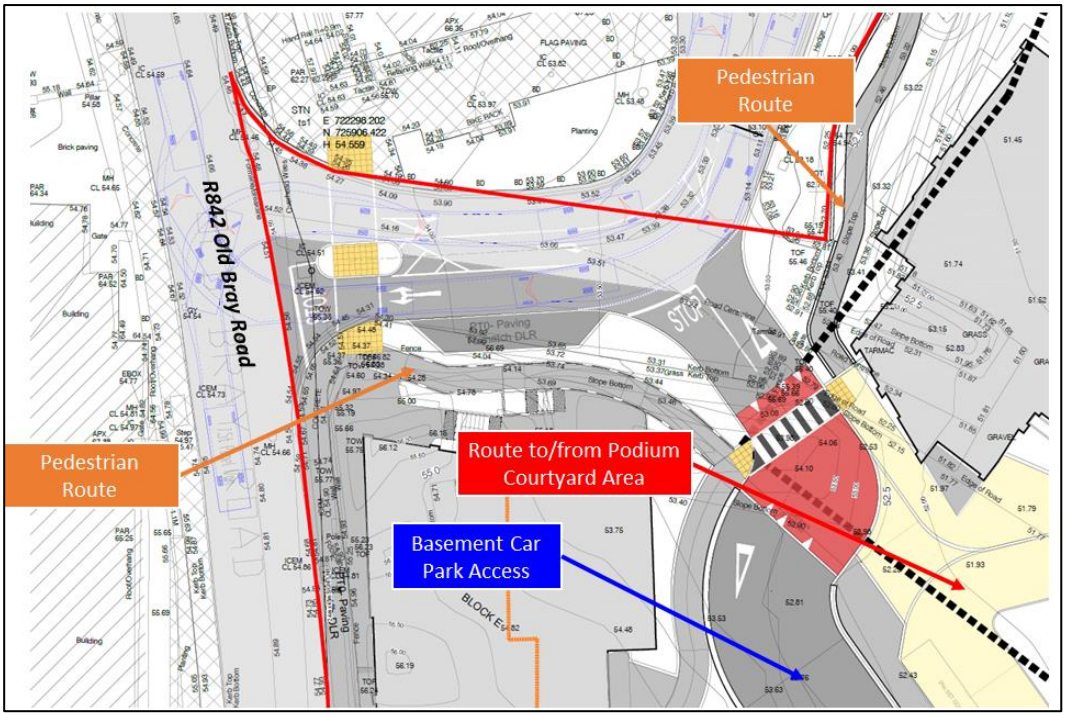


Figure 2.1: Site Access Junction Layout

2.2.2 Pedestrians and cyclists can access the development via four accesses. Three accesses are located on the Old Bray Road as shown in **Figure 2.2** below; one access is shared by vehicles entering the site with the second & third access on the Old Bray Road operating as a dedicated pedestrian and cyclist access only. The accesses will lead pedestrians into the courtyard of the development site.

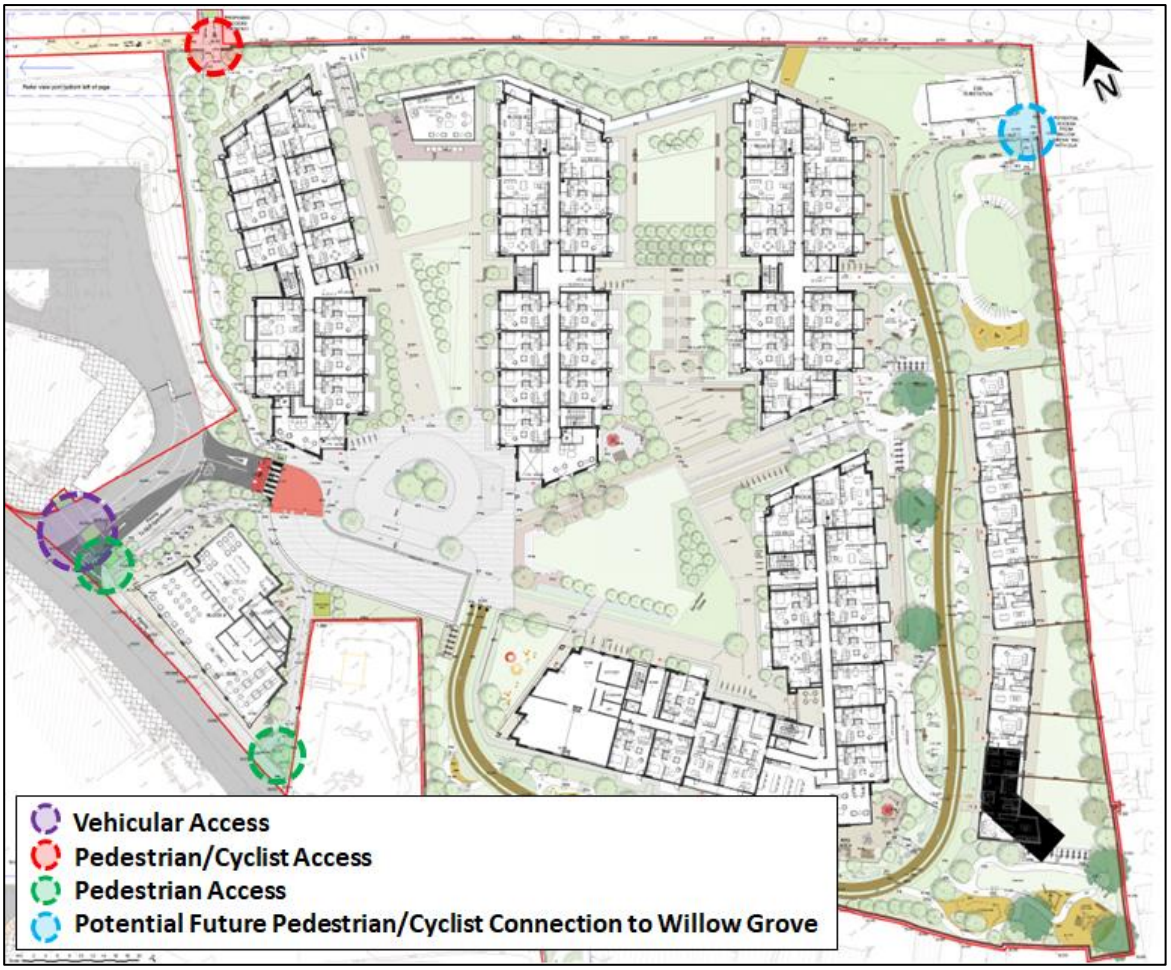


Figure 2.2: Site Layout (Source: Henry J Lyons)

Further pedestrian links will be provided from the northern boundary of the site to the N11 Stillorgan Road and a future potential connection is proposed to the adjacent Willow Grove, as shown in **Figure 2.2**. The proposed site layout plan illustrates the permeable nature (**Figure 2.3**) of the Cornelscourt site for pedestrians which will facilitate more sustainable travel choices for future residents of the site.

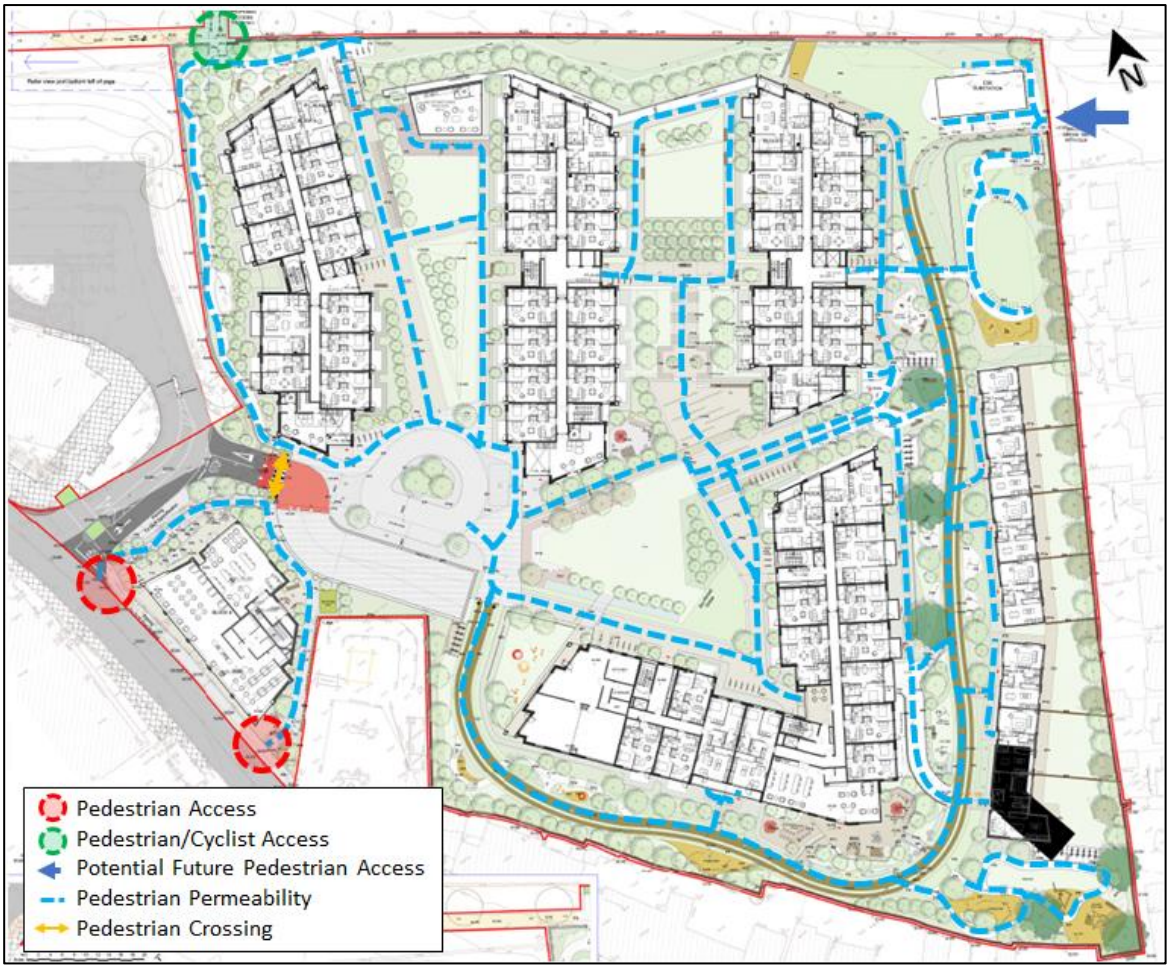


Figure 2.3: Pedestrian Permeability at Subject Site (Source: Henry J Lyons)

2.2.3 Shared pedestrian/cycles route are provided to take cyclists to the bicycle parking areas in the basement. These cycle routes are completely separate from the vehicle access ramp to the basement. Cyclist access points to the basement are illustrated in **Figure 2.4**.

Figure 2.4: Cyclist Access points to the Basement (Source: Henry J Lyons)

2.2.4 An existing cycle lane is located along the N11 (adjacent to the site's north-eastern boundary). Another basement access is linked to the N11 cycle lane (in the northern corner of the site) providing direct access from the basement's bicycle parking locations.

2.2.5 Further details of the development proposals including the site layout and site access arrangements are illustrated in the architects' scheme drawings submitted with this planning application.

3.0 QUALITY AUDIT CONTEXT

3.1 INTRODUCTION

3.1.1 This section describes the general context of the Quality Audit which encompasses a Stage 1 Road Safety Audit, Access Audit, Walking Audit and Cycling Audit. The scope of the audit considers the subject development site and the immediate pedestrian/cycle/vehicular routes leading to/from the development site.

3.1.2 The Audit Team membership was as follows:

Team Leader: Thomas Jennings
BEng MSc MIEI MIHT CMILT
DBFL Consulting Engineers

Team Member: Mark Kelly
BAI (Hons) MA MSc PGradDip CEng MIEI
DBFL Consulting Engineers

3.1.3 The Audit comprised a review of the drawings/documents detailed in Section 6 of this report in addition to an examination of the existing conditions on site. The site was visited by the audit team on Friday 22nd October between 12:00 and 13:00 with the objective of quantifying: -

- Existing traffic (pedestrian, cyclist and vehicular) and travel demand characteristics;
- The provision of dedicated facilities available for NMU's and their functionality;
- The likely travel desire lines/links to/from the subject site; and
- Any issues that might impact the comfort and safety of NMU's.

3.1.4 This Audit has been carried out in accordance with the DMRB (UK) Section 5 Part 2 HD45/02 Non-Motorised User Audits, the relevant sections of Transport Infrastructure Ireland guidance GE-STY-01024 December 2017 for Road Safety Audits, in addition to respecting the DMURS requirements of the Access Audit, Cycling Audit and Walking Audit.

3.1.5 The problems identified and described in this report are considered by the Audit Team to require action in order to improve accessibility, enhance comfort and safety levels of the scheme and minimise accident occurrence.

3.2 COLLISON HISTORY

3.2.1 The collision statistics on the Road Safety Authority (RSA) website were reviewed in order to ascertain the safety record in the vicinity of the subject scheme extents over the most recent ten-year period. This includes information for the years 2005 to 2016 inclusive and indicates basic information on all reported incidents. It should be noted that information relating to reported incidents for the years 2017, 2018, 2019, 2020 and 2021 are not yet available on the Road Safety Authority (RSA) website. Accordingly, the following records relate to the Bray Road and the N11.

3.2.2 The RSA records detail only those occasions were the incident was officially recorded such as the Garda being present to formally record details of the incident.

3.2.3 According to the RSA website there were no reported incidents in close proximity to the subject site access junction on the R841 Old Bray Road corridor. However, it is noted that there are a number of minor incidents and one fatal injury on the N11 which involved a pedestrian.

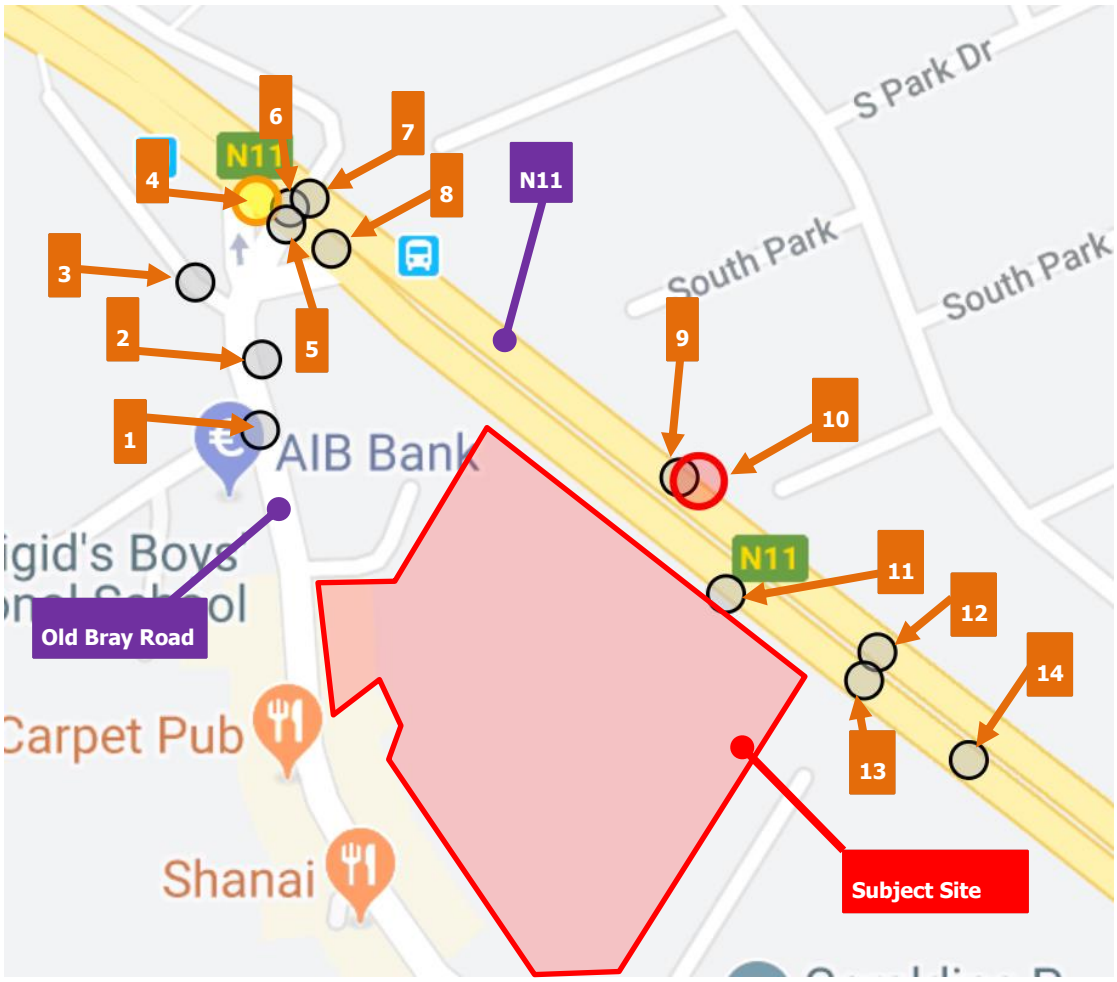


Figure 1.2: Collision Records (*Source www.rsa.ie*)

Ref	Year	Vehicle	Circumstances	Day	Time	Severity	Total Casualties
1	2010	Motorcycle	Angle, right turn	Wed	1000-1600	Minor	1
2	2010	Motorcycle	Single vehicle only	Tues	1600-1900	Minor	1
3	2010	Car	Other	Fri	1600-1900	Minor	1
4	2012	Undefined	Other	Mon	1000-1600	Serious & Minor	4 & 2
5	2013	Car	Rear end, straight	Thurs	1000-1600	Minor	2
6	2008	Bicycle	Other	Sun	2300-0300	Minor	1
7	2008	Undefined	Pedestrian	Tues	0700-1000	Minor	1
8	2015	Car	Rear end, straight	Tues	1900-2300	Minor	3
9	2014	Car	Rear end, straight	Tues	1900-1900	Minor	1
10	2008	Undefined	Pedestrian	Sun	2300-0300	Fatal & Minor	1 & 1
11	2008	Car	Pedestrian	Fri	1000-1600	Minor	1
12	2006	Goods vehicle	Rear end, straight	Tues	1000-1600	Minor	2
13	2009	Goods vehicle	Other	Sat	1900-2300	Minor	2
14	2009	Car	Other	Fri	1600-1900	Minor	2

Table 1.1 Collsion Records

4.0 ITEMS RAISED DURING THIS PRELIMINARY DESIGN STAGE QA

4.1 GENERAL PROBLEMS AT MULTIPLE LOCATIONS

4.1.1 Problem G1 – Landscaping adjacent to pedestrian/cycle routes

The landscape plans indicate the provision of trees adjacent to pedestrian/cycle/vehicle routes throughout the site. The audit team are concerned that landscaping may encroach into the pedestrian/cycle routes and reduce their effective width or overhang the routes resulting in head/eye injuries.

Recommendation:

Ensure adequate side and height clearance is provided to all pedestrian/cycle routes. Ensure tree species are chosen such that the canopy of the trees can be maintained at a minimum of 2.5m above cycle tracks and footpaths.

4.1.2 Problem G2 - Street lighting

The drawings provided for the purpose of this audit do not detail the provision of street lighting along the pedestrian routes within the subject site. In the absence of appropriate street lighting, safety issues such as trip hazards could arise for pedestrians whilst personal security issues could prove a significant concern for pedestrians and cyclists.

Recommendation:

During the detailed design stage, appropriate levels of internal (and external along any new pedestrian / cycle connections if necessary) lighting should be provided across all pedestrian, cycle and vehicle routes. The location of the street lighting columns should also be carefully considered to ensure that they do not impact access levels or present a hazard.

4.1.3 Problem G3 – Surface Drainage.

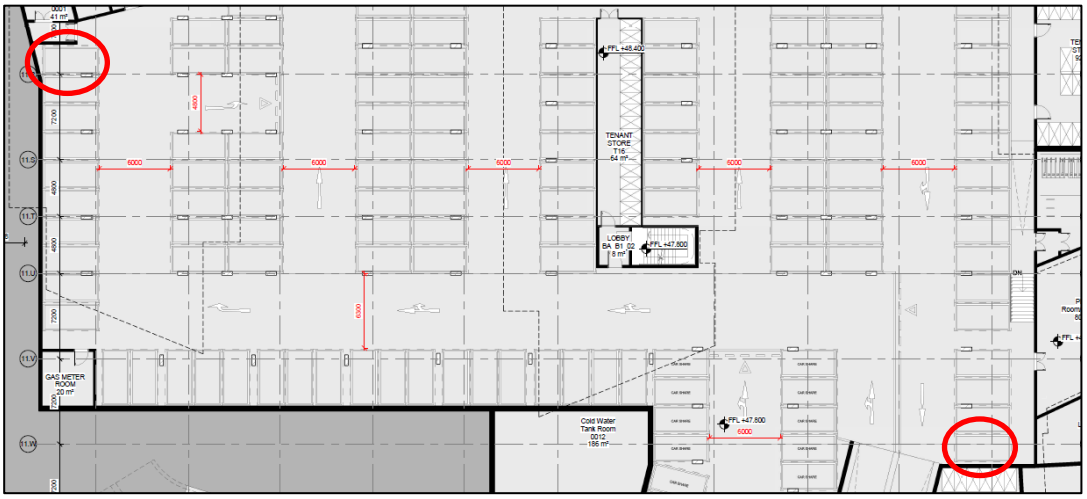
From the scheme information provided for this audit it has not been possible to ascertain the specific details of the surface drainage strategy. Surface water can prove a trip hazard in both warm and cold weather conditions in addition to adversely impacting the skid resistance of bicycles and motorized vehicles.

Recommendation:

During the detail design stage ensure adequate measures are taken to ensure that the ramp has sufficient drainage and that localised ponding does not arise during wet weather conditions. All access routes leading to/from the subject site should have adequate surface water drainage.

4.1.4 Problem G4 – Car Park

It is unclear to the audit team if all of the parking bays within the residential development are accessible when the car parking spaces adjacent and perpendicular are occupied by vehicles. Failure to provide adequately sized parking bays with aisles of sufficient width could result in material damage incidents as vehicle drivers try to manoeuvre into/out of parking bays.



Recommendation:

A tracking analysis should be undertaken to determine if all spaces are accessible. Sufficient side clearance to structures should be provided.

4.1.5 Problem G5 – Servicing Arrangement

The auditors are unclear about the servicing arrangements (refuge collections) for the proposed development. Inappropriate practices in regard to; (i) temporary wheelie bin storage at surface level (e.g. temporary transfer area) which could block pedestrian and vehicle routes, (ii) method of transfer of large wheelie bins from the basement store to the surface on waste collection days (a single person pushing the bins up a 1:10 ramp would be considered dangerous), and (iii) refuge

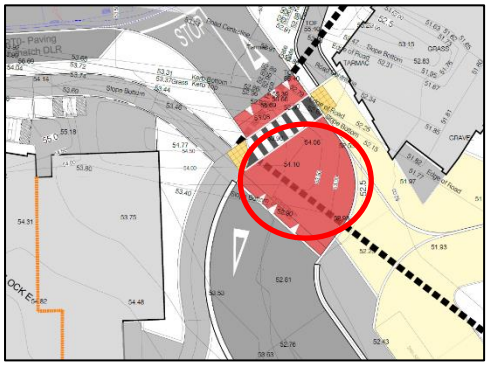
vehicles access requirements and the potential for reversing in areas were conflicts with other vehicles, cyclists and pedestrians may arise.

Recommendation:

The designers should confirm the arrangements being considered for refuge collections for the subject site, associated bin storage (permanent/temporary on day of collection) and refuge vehicle access/egress arrangements to all bin storage areas. A swept path analysis along the proposed servicing route should be undertaken.

4.2 PROBLEMS AT SPECIFIC LOCATIONS

4.2.1 Problem S1 – Access/Egress to the basement Car Park

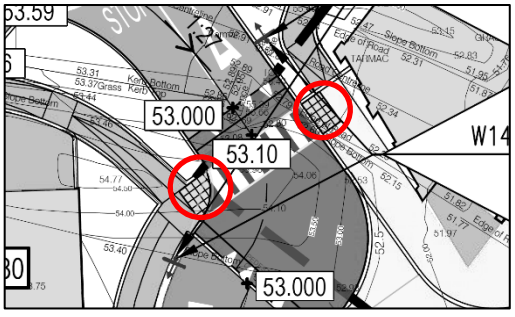


Due to the sharp bend on the vehicle access route to the basement car park the auditors are concerned that there may not be sufficient space for a vehicles to pass at the same time leading to potential conflict. There is a risk that when two vehicles pass that side-swipe collisions may occur.

Recommendation:

The design team should confirm that vehicles accessing and egressing the development can pass at the sharp bend. A tracking analysis should be undertaken for the largest vehicles expected to use the carpark. The auditors recommend that typical Zebra Crossing road markings (transvers and zig zag lines) are provided as per TSM, which should aid in outlining the most appropriate vehicular route through the bend, to minimise potential side-swipe collisions.

4.2.2 Problem S2 - Zebra Crossing Markings & Buff coloured Tactile Paving

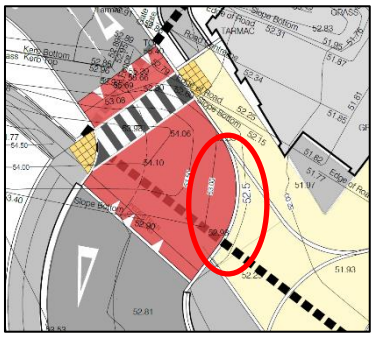


The audit team have noted the use of zebra crossing road markings with buff coloured tactile paving. The zebra crossing road marking indicate that pedestrians have priority at the crossing and vehicle drivers must stop. However, the use of buff tactile paving (and the associated configuration) indicates that the crossing is an uncontrolled crossing. The use of the zebra road markings with buff tactile may cause confusion to both pedestrians and vehicle drivers as to who has priority, there is potential for pedestrian and vehicle conflict.

Recommendation:

It is recommended that the zebra markings with illuminated beacons are supplemented with the appropriate red tactile (and the associated configuration) and the regulatory lines (transverse & zig zag) in accordance with the requirements of the Traffic Signs Manual.

4.2.3 Problem S3 – Dropped Kerb at access to 'Shared Surface'

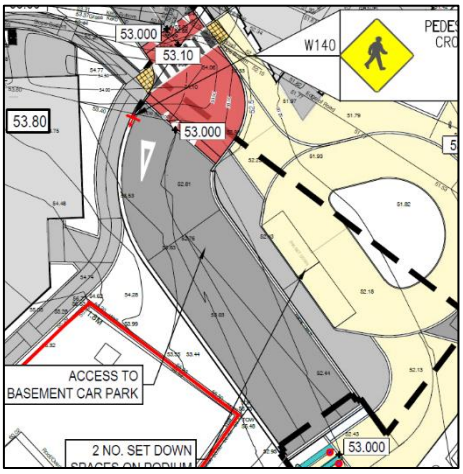


It is unclear to the auditors whether a kerb is proposed between the ramp and the 'shared surface' towards the podium area. If no kerbing is provided, the shared area will exit directly onto the road carriageway without any warning being provided to visually impaired pedestrians. Accordingly, pedestrians could find themselves continuing to walk from the 'shared surface' out into the path of moving vehicles accessing/exiting the basement car park.

Recommendation:

It is recommended that a 50mm kerb is provided which will warn visually impaired pedestrians walking from the shared surface onto the road carriageway. Alternatively, tactile 'warning' paving could be provided at the transition from the 'shared area' to/from the road carriageway. This will ensure that visually impaired pedestrians are provided with the necessary warning of 'to proceed with caution' or direct them along the footpath to the neighbouring zebra crossing facilities.

4.2.4 Problem S4 - Proposed Site Access Junctions

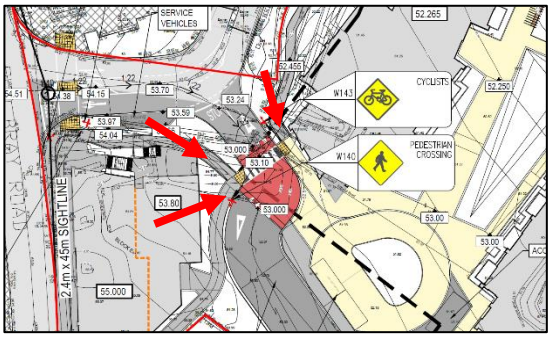


Parking restrictions (barrier or bollards) to the basement, to prevent access for non-residents have not been provided. During the site visit it was observed that cars were parked haphazardly on the southern side of the access. The auditors are concerned that non-residents such as AIB customers may park (i) in the basement or (ii) at the podium level courtyard. Such practices could result in residents having to park haphazardly on the surface level footpaths/shared surface, which could lead to vulnerable road users having to enter the carriageway leading to greater likelihood of conflict with motorised vehicles or could lead to slip and fall as pedestrians mount/dismount kerbs or walk through grassed area.

Recommendation:

Ensure appropriate self-enforcing measures are put in place to prevent non-residential vehicles from accessing the basement car park and central podium level 'shared' courtyard area.

4.2.5 Problem S5 – Pedestrian/Cycle route approaching the zebra crossing

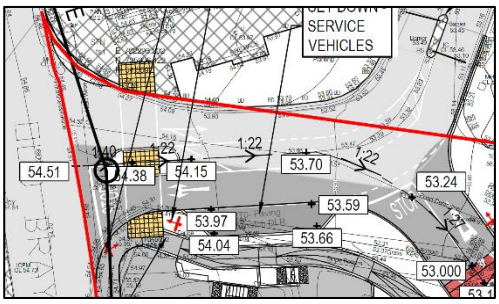


The auditors are unsure if the three paths approaching the zebra crossing are pedestrian footpaths or shared pedestrian/cycle routes? The cyclist warning sign (W143) prior to the crossing, would give the impression that they are shared pedestrian/cycle routes. If these are shared pedestrian/cycle routes, they appear to be of inadequate width. These shared pedestrian/cycle routes could result in pedestrians/cyclists competing for space and increase the risk of pedestrian/cyclist collisions.

Recommendation

Ensure the pedestrian/cycle routes are an appropriate width to cater for the anticipated level of pedestrian and cyclist demand. The effective width of the pedestrian/cycle link should meet the width requirements for shared facilities in accordance with the National Cycle Manual.

4.2.6 Problem S6 - Proposed Site Access Junctions

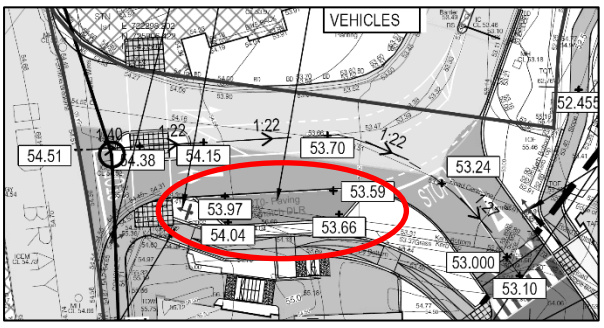


The auditors note that there are no parking restrictions proposed at the AIB access. During the site visit it was observed that cars were parked haphazardly on the southern side of the access. The auditors are concerned that vehicles parked kerbside within the vicinity of the site access junctions may adversely impact the availability of unobstructed visibility splays for vehicles exiting the junctions. This could potentially contribute to the generation of side-impact collisions between vehicles exiting the subject site and the AIB access.

Recommendation:

It is recommended that parking restrictions are implemented in the vicinity of (i) the Old Bray Road/AIB access junction and the internal access route leading to/from both the existing AIB car park entrance/exit and the proposed site access junction with the objective of safeguarding the appropriate visibility splays and (ii) keeping the internal vehicle access route free from inappropriate car parking practices.

4.2.7 Problem S7 – Surface Level 'Set Down' Area



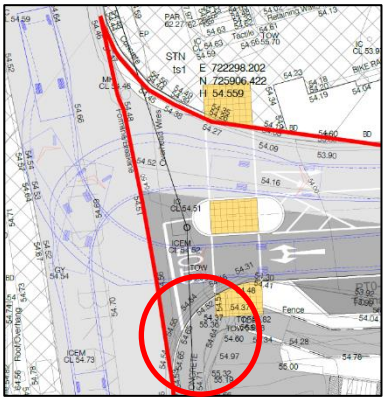
An indented kerbside layby facility is proposed on the southern side of the internal access between the Old Bray Rd junction and the access routes to/from the proposed residential development. The auditors request clarification regarding how the adopted design vehicle can conveniently gain safe access into or from this kerbside facility without the need to undertake

a three point (or more depending upon vehicle type) u-turn manoeuvre on the internal road carriageway in the general area where the access roads diverts to the northwest (AIB car park) and southeast (development basement car park – podium access). Vehicle drivers undertaking turning manoeuvres in this general area could come into conflict with other vehicles or result in localised congestion leading to a queue of inbound vehicles extending back onto the Old Bray Road carriageway (where the potential for rear-end shunt incidents increases).

Recommendation

Clarification is required outlining how safe and convenient vehicle access can be achieved to the proposed kerbside layby facility in its present location. Should it provide difficult to achieve a safe and convenient access arrangement (e.g. one that does not require a u-turn manoeuvre on the main internal vehicle road carriageway) it is recommended that the kerbside bay is relocated to an appropriate location on Old Bray Road. Appropriate regulations may also need to be implemented to safeguard the availability of the kerbside bay (for its intended function) considering the existing demand at the neighbouring AIB facility.

4.2.8 Problem S8 – AIB Access Junction



The auditors are concerned that the generous radii (approx. 5m) of the proposed site access junction layout could; (i) contribute to excessive vehicle speeds entering and exiting the site, and (ii) result in a longer (length) than necessary road crossing for pedestrians walking along the Bray Road footpath and who are required to walk across the proposed minor arm of this junction / access.

Recommendation:

In the context of the modest number and size (predominately cars with no more than 1-3 LGV's per day and 2 HGV's per week) of vehicles that is predicted to travel through this site access junction, it is recommended that a tighter radius in the order of 3m is adopted at the site access junction to achieve a greater balance between pedestrian and vehicle access requirements.

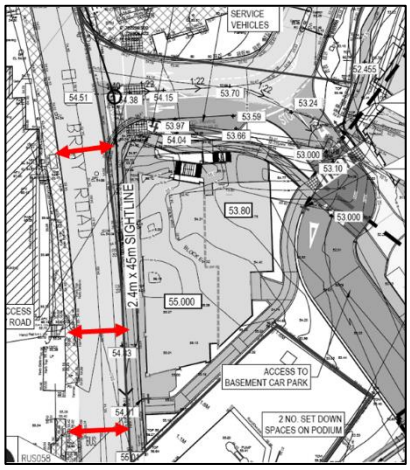
4.2.9 Problem S9 – Haphazard parking on Bray Road at AIB access junction

During the site visit it was observed that cars were parked haphazardly on the southern side of the access. The auditors are concerned that due to the new junction layout, vehicles will no longer be able to park on the southern side of the existing AIB access and may decide to park along the eastern side of Bray road in close proximity to the junction. Haphazard parked cars along Bray Road at the AIB access junction may obstruct driver's visibility at the junctions. Failure to provide sufficient visibility for vehicle drivers at the junctions could result in overshoot incidents or side impact collisions with vehicles/cyclists travelling along the road.

Recommendation

The existing double yellow lines alone the eastern side of Bray Road should be extended to prevent vehicles parking at the AIB access junction. Ensure sufficient visibility is provided at junction.

4.2.10 Problem S10 – Pedestrian crossing Bray Road



The audit team have concerns regarding the lack of pedestrian crossing facilities at the priority junction at Bray Road/AIB access road and along the Old Bray Road. Pedestrians may attempt to cross at the three locations illustrated, which are the immediate crossing desire lines to reach the shops, office blocks and bus stop on the western side of Bray Road along with the bus stop. As a result, mobility impaired pedestrians may experience difficulty in undertaking the crossings and accessing the footpath on the opposite side of the carriageway; or it could result in pedestrians entering into the Bray Road carriageway when it is unsafe to do so, resulting in conflict with vehicles (or cyclists) travelling along Bray Road.

Recommendation:

Appropriate pedestrian crossing facilities should be provided to enable pedestrians to cross the Old Bray Road at key crossing desire lines.

4.2.11 Problem S11 – Basement Carpark Internal Junctions

The basement proposal details the provision of 'No Entry' road markings at two locations where there is only one access/egress at each location (see below). This may cause confusion for drivers resulting in potential vehicular collisions.

Recommendation:

In reference to the Traffic Signs Manual, the 'No Entry' road markings should be removed from these two locations and the appropriate 'Yield' and directional road markings are provided.

4.2.12 Problem S12 – Basement Carpark Internal Junctions

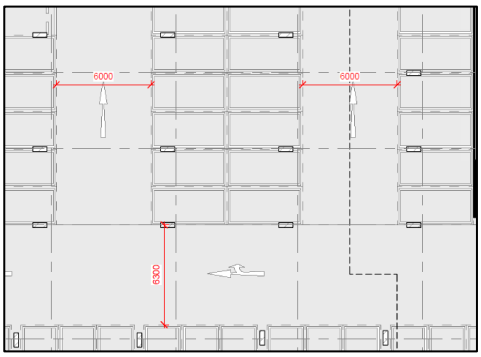
Due to omission of 'No Entry' road markings and directional arrows at particular junctions outlined in the schematic below, drivers may become confused and drive against traffic. This could result in head-on collisions between vehicles.

Recommendation:

In reference to the Traffic Signs Manual, the 'No Entry' road markings and directional arrows in the basement should be reviewed and updated.

4.2.13 Problem S13 – Basement Carpark wide carriageway widths

The basement has a number of wide 6.0-6.3m one-way vehicular routes, which may encourage excessive speeds, which could result in serious collisions if they strike pedestrians.

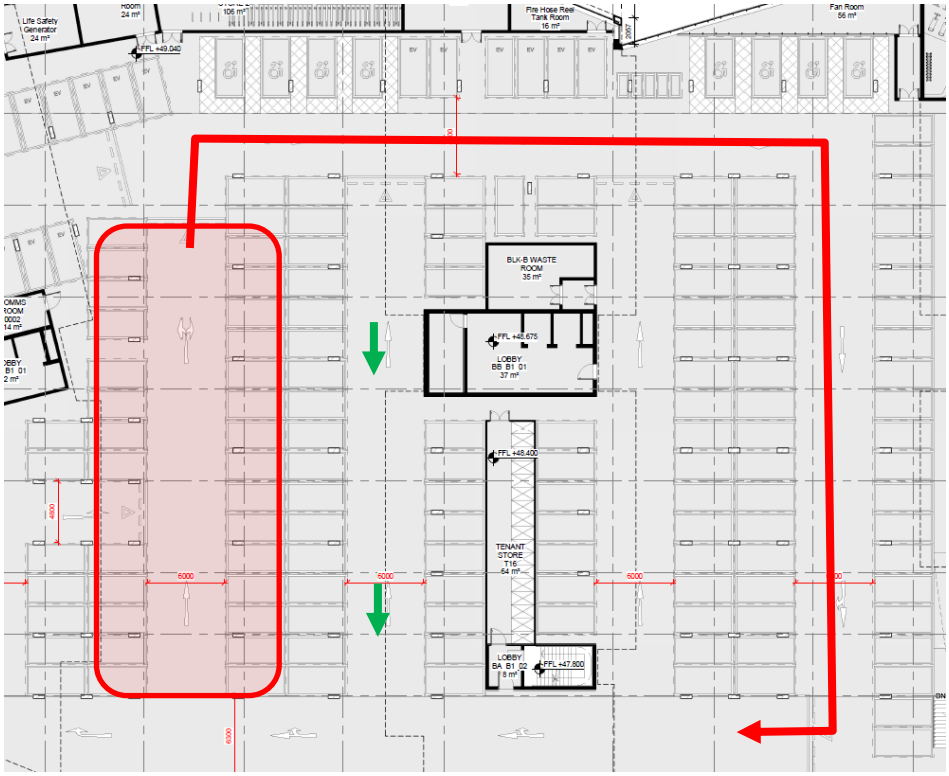


Recommendation:

It is recommended that flush pedestrian / defensible walkways are provided either side of the carriageway to reduce the perceived width of the carriageway, while still providing the minimum width of 6m between perpendicular parking bays for manoeuvrability.

4.2.14 Problem S14 – Basement Carpark one-way circulatory system

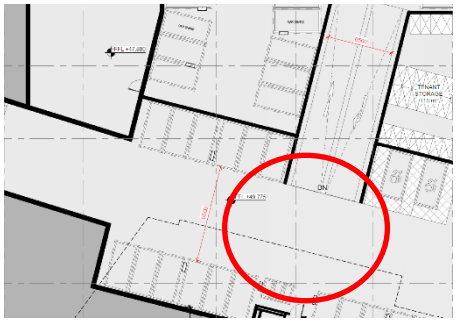
If there are no parking spaces available along the second 'western' section/row of car parking spaces, a driver will have to loop around the whole car park to access any of the 'eastern' sections/rows of car parking spaces due to the proposed one-way circulatory system. Due to the circuitous route, drivers may choose not to abide by the one-way circulatory system to access the 'eastern' sections/rows of parking and drive against traffic. This could result in head-on collisions between vehicles.



Recommendation:

The designs should confirm if the on-site car parking is going to be assigned to specific users (e.g. individual bay) as part of a parking management regime or if parking is available on a first come basis. If the latter, it is recommended that the one-way circulatory system in the basement car park is review and updated. Potential to switch the direction of travel on the third 'western' section/row of car parking spaces (see green arrows).

4.2.15 Problem S15 – Access to the lower level of the basement Carpark



The access/egress route to/from the lower level of the basement car park is not very clear, particularly due to the very wide 9.6m two-way carriageway on approach to the lower level ramp. There is a risk of driver confusion and possible side-swipe collisions between vehicles.

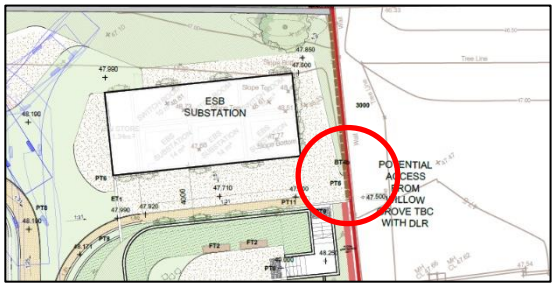
There is also no regulatory road markings provided at this junction, such as a 'Stop' or 'Yield' road markings. This could lead to drivers being unaware of the priority and may result in collision with vehicles on main road.

Recommendation:

It is recommended that appropriate wayfinding signage and road markings are provided to clearly outline the route to the lower level of the basement. Sufficient visibility splays should be safeguarded at all internal junctions within the basement car park facility.

The regulatory road markings should be provided at the access junction in accordance with the requirements of the Traffic Signs Manual.

4.2.16 Problem S16 – Pedestrian linkage to Willow Grove



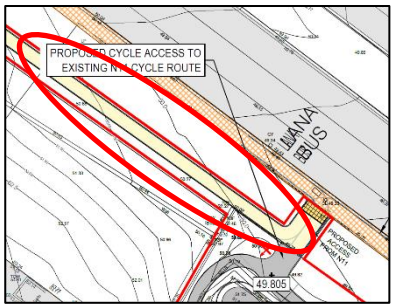
There is no tie-in between the proposed pedestrian/cycle route on the eastern side of the development and Willow Grove. There could be a risk of slips and falls in the green area during wet conditions.

Recommendation:

It is recommended that a hard surface (of appropriate with and gradient) is provided through the green area to provide a link to Willow Grove.

4.2.17 Problem S17 – Shared Surface along the N11

The shared two-way pedestrian/cycle route along the N11 appears to be of inadequate width. This pedestrian/cycle route could result in pedestrians/cyclists competing for space and increase the risk of pedestrian/cyclist collisions.

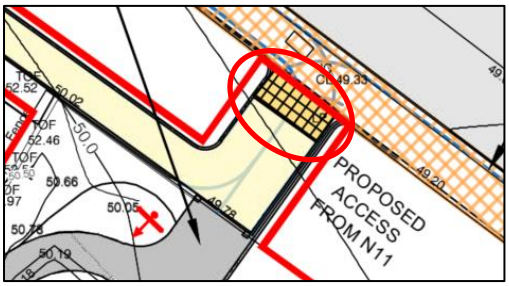


Recommendation

Ensure the pedestrian/cycle route is an appropriate width to cater for the anticipated level of pedestrian and cyclist demand. The effective width of the pedestrian/cycle link should meet the width requirements for shared facilities in accordance with the National Cycle Manual.

4.2.18 Problem S18 - Tactile Paving at Start and End of Shared Surface

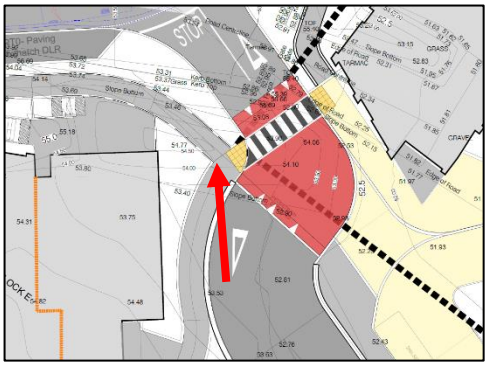
The audit team have noted the use of tactile paving at the start and end of the shared surface approaching the cycle lane along the N11. The use of blister tactile paving may be misleading to blind or partially sighted pedestrians who may feel that they are at a crossing point.



Recommendation

It is recommended that ladder type corduroy tactile paving is provided at the start and end of the shared use surface.

4.2.19 Problem S19 – Inter-visibility basement car park

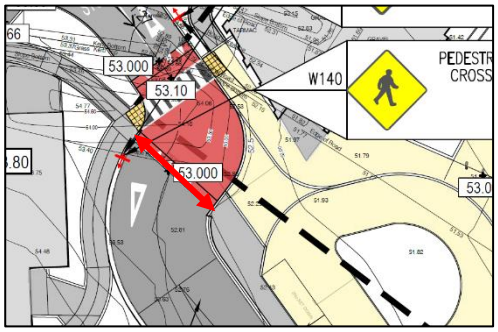


There is a pedestrian crossing route in close proximity to the entrance to the basement car park. It is unclear if there will be sufficient inter-visibility between pedestrians and drivers due to the presence of the wall/structure adversely impacting exiting vehicle drivers.

Recommendation:

It is recommended that sufficient inter-visibility be provided on the approaches to the proposed zebra crossing. The pedestrian crossing could be shifted further north to provide sufficient visibility while also ensuring vehicles approach the crossing more perpendicular.

4.2.20 Problem S20 – Pedestrian desire line/crossing

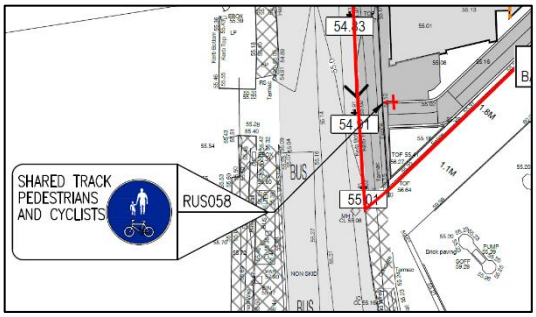


The Audit team have concerns that pedestrians may attempt to cross the basement access road along the immediate crossing desire lines to/from the footpath at the set down area (see in schematic). The steep crossfall of the ramp is along this pedestrian desire line, which may lead to pedestrian trips/falls.

Recommendation:

It is recommended that the crossfall of the ramp is relocated outside of the pedestrian desire line and an appropriate pedestrian crossing is provided with tactile paving.

4.2.21 Problem S21 – Pedestrian/Cycle route



The auditors are unsure if the path approaching the zebra crossing is a pedestrian footpath, shared pedestrian/cycle routes or segregated footpath/cycle route (due to centreline)? If this is a shared pedestrian/cycle routes or segregated footpath/cycle route, it would appear to be of inadequate width. This shared pedestrian/cycle routes could result in pedestrians/cyclists competing for space and increase the risk of pedestrian/cyclist collisions. Also, warning tactile paving has not been provided on approach to the existing footpath along the Old Bray Road.

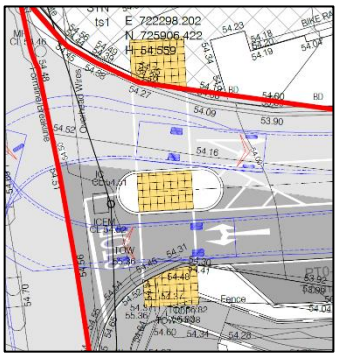
Recommendation

Ensure the pedestrian/cycle routes are an appropriate width to cater for the anticipated level of pedestrian and cyclist demand. The effective width of the pedestrian/cycle link should meet the width requirements for shared facilities in accordance with the National Cycle Manual. Ensure the appropriate warning tactile paving is provided.

5.0 COMMENTS

5.1.1 Comment C1 – Uncontrolled crossing at site access

Pedestrians Lines (M131), are typically provided at controlled crossing, not uncontrolled crossings. DBFL have assumed that the Pedestrians Lines (M131) shown at the uncontrolled crossing is a drafting error.

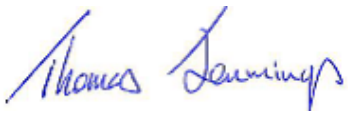


6.0 AUDIT TEAM STATEMENT

6.1 I certify that I have examined the drawings and other information listed in Chapter 5. This Audit has been carried out with the sole purpose of identifying any features of the Design that could be removed or modified to improve the safety of the Scheme. The problems that I have identified have been noted in the report, together with suggestions for improvement which we recommend should be studied for implementation.

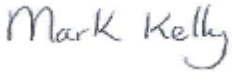
Audit Team Leader: Mr Thomas Jennings

BEng (Hons) MSc MIEI MCIHT CMILT
DBFL Consulting Engineers (Waterford)

Signed:	
Date:	18th of November 2021

Audit Team Member: **Mr Mark Kelly**

BAI (Hons) MA MSc PGradDip CEng MIEI
DBFL Consulting Engineers (Dublin)

Signed:	
Date:	18th of November 2021

7.0 LIST OF INFORMATION RECEIVED

Items Received		Yes /No	Details
1	Scheme Description	Yes	• Draft Traffic and Transport Assessment Report
2	Project Brief	Yes	• Informal brief received
3	Scheme / Project Drawings	Yes	DBFL DUBLIN drawing nos:- • '180208-DBFL-XX-XX-DR-C-2001' • '180208-DBFL-XX-XX-DR-C-2002' Cameo & Partners Ltd drawing nos:- • C0126 L100 Henry J Lyons drawing nos:- • COR-HJL-SW-B1-DR-A-10B1 P2
4	Departures from Standard	No	
5	Traffic Signal Information	No	
6	Road Signs & Road Marking Details	Yes	As per the above drawings.
7	Traffic Count Information	Yes	
8	Speed Survey Data	No	
9	Collision Data	No	Obtained from www.RSA.ie
10	Previous Road Safety Audit Reports	No	
11	Relevant Design Standards	No	
12	Public Transport Information	No	
13	Other Information	No	

APPENDIX A

Problem Location Figures

Project :	**Residential Development, Cornelscourt, Dublin 18**	Designed :	MK	Prepared :	MK
		Date :	Nov 2021	Checked :	TJ
Client :	**Cornel Living Ltd.**	Scale :	NTS		
Drawing Title :	**Preliminary Design Stage Quality Audit**	File Ref :	180208-S1 RSA-Fig 1		
		Drawing No :	**180208/SK001**		

DBFL Consulting Engineers

Project :	**Residential Development, Cornelscourt, Dublin 18**	Designed :	MK	Prepared :	MK
		Date :	Nov 2021	Checked :	TJ
Client :	**Cornel Living Ltd.**	Scale :	NTS		
Drawing Title :	**Preliminary Design Stage Quality Audit**	File Ref :	180208-S1 RSA-Fig 1		
		Drawing No :	**180208/SK002**		

DBFL Consulting Engineers

APPENDIX B

Feedback Form

180208

ROAD SAFETY AUDIT FEEDBACK FORM

Scheme: Residential Development, Cornelscourt, Dublin 18

Audit Stage: **1**

Date Audit Completed: October 2021

To be Completed By Designer				To be Completed by Audit Team Leader
Problem No. in Quality Audit Report	**Problem accepted (yes/no)**	**Recommended measure 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)**
G1	Yes	Yes		
G2	Yes	Yes		
G3	Yes	Yes		
G4	Yes	Yes		
G5	Yes	Yes	Note; Bin storage areas are located in the basement. Bins will be hauled by a vehicle to a "refuse vehicle staging point" on the podium. Refuse trucks will access the "refuse vehicle staging point" via the access road shared with AIB and the podium. These areas have been tracked to confirm sufficient space is available for a refuse vehicle to access and egress the "refuse vehicle staging point". We note that refuse removal will be co-ordinated by the management company to ensure minimal disruption to residents. The location of the "refuse vehicle staging point" will not impede pedestrian access across the podium area.	
S1	Yes	Yes		
S2	Yes	Yes		
S3	Yes	Yes		
S4	Yes	Yes		
S5	Yes	Yes		
S6	Yes	Yes		
S7	Yes	Yes		

S8	Yes	No	Corner radii have been selected to facilitate access to the development by a high-reach fire tender (length of tracked vehicle, approx. 12.0m). A refuge is provided at the site entrance to split the crossing distance for pedestrians. The crossing is set back from Old Bray Road where the crossing width is unaffected by the corner radii.	
S9	Yes	Yes		
S10	Yes	No	Note; Ability to provide a pedestrian crossing at this location fall outside the applicant's area of ownership. The local authority will be made aware, this crossing can be incorporated should the local authority agree	
S11	Yes	Yes		
S12	Yes	Yes		
S13	Yes	Yes		
S14	Yes	Yes		
S15	Yes	Yes		
S16	Yes	No	This is intended as a potential future linkage to the open space north of Willow Grove. The area north of Willow Grove falls outside the applicant's area of ownership. The local authority will be made aware, this linkage can be incorporated in the future should the local authority agree.	
S17	Yes	Yes		
S18	Yes	Yes		
S19	Yes	Yes		
S20	Yes	Yes		
S21	Yes	Yes		

Signed: _____ **Designer:** **Brendan Keogh** **Date:** **16-11-2021**

Signed: _____ **Audit Team Leader:** **Thomas Jennings** **Date:** **16-11-2021**

Signed: _____ **Employer:** **Dan Reilly** **Date:** **16-11-2021**

Please complete and return to safety auditor.