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Road Infrastructure Design Report

Kilcock West SHD2

Boycetown, Kilcock, Co. Kildare

Client: Teresa Monaghan

Job No. S037

September 2022



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ROAD INFRASTRUCTURE DESIGN REPORT

KILCOCK WEST SHD2
BOYCETOWN, KILCOCK, CO. KILDARE

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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Teresa Monaghan to prepare a Road Infrastructure Design Report for a proposed 272-unit Strategic Housing Development (SHD) at Boycetown, Kilcock, Co. Kildare.

In preparing this report, CS Consulting has made reference to the following:

- Kildare County Development Plan 2017-2023
- Kilcock Local Area Plan 2015–2021
- National Cycle Manual 2011
- Design Manual for Urban Roads and Streets

The Road Infrastructure Design Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with the documentation submitted by the other members of the design team, which form part of the planning submission.

2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

2.1 Site Location

The site of the proposed development is located in Kilcock, County Kildare, approx. 1.5km to the north-west of the town centre, in the administrative jurisdiction of Kildare County Council. The application boundary encloses a total area of 11.39ha, while the core section of the development site (see Figure 2) extends to approx. 8.75ha.

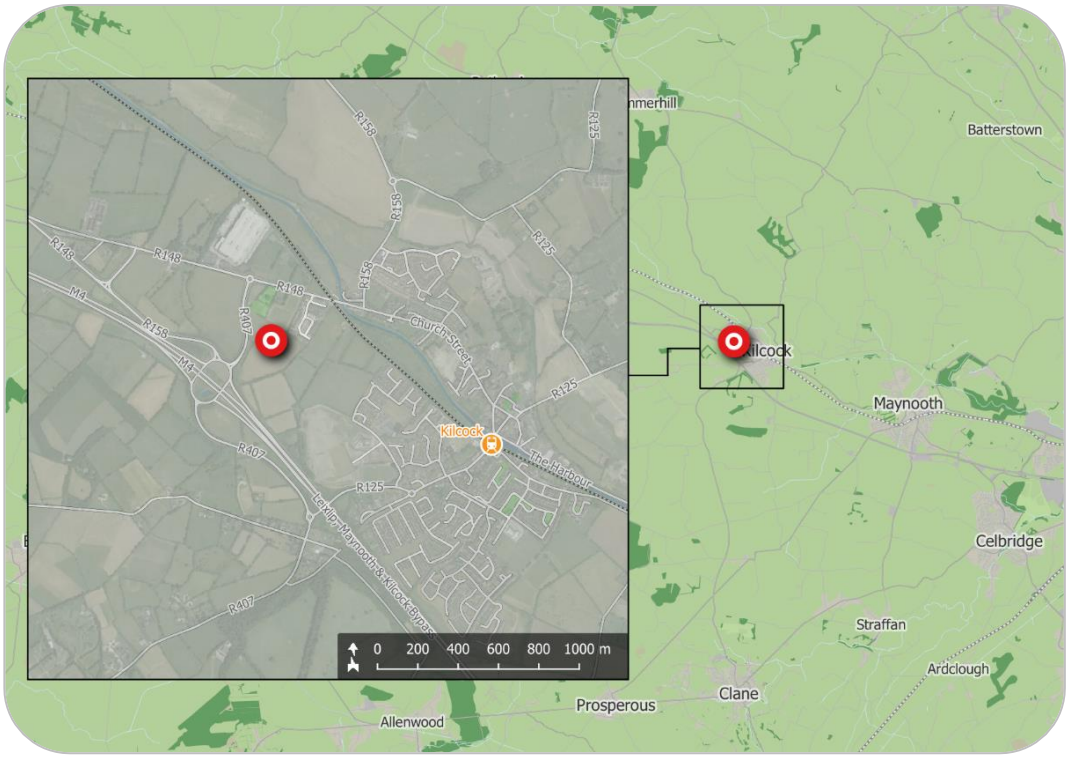

Figure 1 – Location of proposed development site
(*map data & imagery: EPA, OSM Contributors, Google*)

The location of the proposed development site is shown in **Figure 1** above; the indicative extents of the development site, as well as relevant elements of the surrounding road network, are shown in more detail in **Figure 2**.

The site is located adjacent to Junction 8 on the M4 motorway. It is bounded to the north by the R148 regional road, to the west by the R158

regional road, to the north-east by the existing Boycetown Court residential development, to the east by undeveloped farmland, and to the south-east by lands on which planning permission has been granted for a Strategic housing Development (SHD).

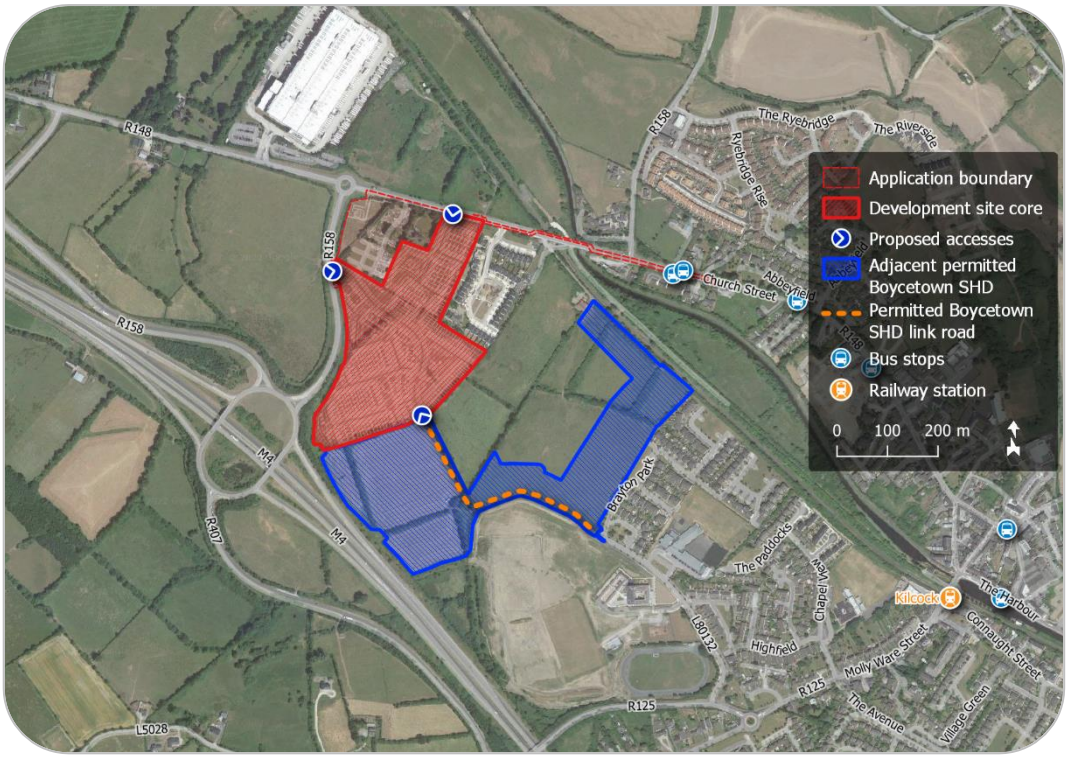

Figure 2 – Site extents, access and transport infrastructure
(*map data & imagery: NTA, OSi, OSM Contributors, Google*)

2.2 Existing Land Use

The core of the development site comprises greenfield agricultural land, an existing farm access to which is located on the R158, at its western boundary. A former church (Kilbeg House, now in residential use) and the existing St. Joseph's Cemetery are located within the north-west corner of the overall development site; these are to remain essentially unchanged by the proposed development.

2.3 Description of Proposed Development

2.3.1 Full Development Description

The proposed development (30,839 sq.m GFA) will consist of the demolition of a detached, vacant cottage (gfa 69sq.m) and the construction of 272 residential units (149 no. houses, 65 apartments and 58 duplexes), childcare facility and foul pumping station along with associated ancillary works and site works.

The 149 no. dwellings consist of:

- 40 no. 4 bed 2 storey houses (House Type A1, A2, A3, A4, A5)
- 8 no. 4 bed 3 storey houses (House Type E1, E2)
- 90 no. 3 bed 2 storey houses (House Type B1, B2, B3, C1, C2)
- 11 no. 2 bed 2 storey houses (House Type D1)

The proposed apartments and duplexes are provided in 7 no. blocks (Blocks A, B, C, D, E, F, G) ranging in height from 3 to 4 storeys, with the exception of 1no. Duplex Block (Type N1), which is a 3 storey, end of terrace unit. Block A and Block B containing Rooftop terraces at 4th floor level.

The Duplex Blocks (Type J1, Type, J2, Type J3, Type J4, Type K1, Type L1, Type M1, Type N1) are all 3-storey and contain 58 units divided as follows:

- 6no. 1 bed ground floor apartment units (Units L1-A)
- 23no. 2 bed ground floor apartment units (Units J1-A, J2-A, J3-A, J4-A, K1-A, M1-A, N1-A)
- 1no. 2 bed duplex unit (two-storey unit) (Units K1-B)
- 25no. 3 bed duplex units (two-storey units) (Units J1-B, J2-B, J3-B, J4-B, L1-B)
- 3no. 4 bed duplex units (two-storey units) (Units M1-B, N1-B)

The 65 apartments are located within Blocks A, B, C and D divided as follows:

- 17no. 1 bed units (Type F1, Type F2, Type F3, Type F4, Type F5, Type F6)
- 37no. 2 bed units (Type G1, Type G2, Type G3, Type G4, Type G5-A, Type G5-B, Type G6, Type G7, Type G8)
- 11no. 3 bed units (Type H1, Type H2)

Block D also contains a childcare facility (gfa.526.2 sqm) and includes a dedicated outdoor play area (about 210 sq.m).

Ancillary works including 1 no. vehicular entrances off the R148 to the north and 1 no. vehicular entrance off the R158 to the west, a spine road which will link with the permitted spine road on the adjoining lands to the south-east under PL09.306826, internal roads, footpaths, cycle lanes, car parking (465 no. spaces), cycle storage/parking (426 no. spaces), 2 no. bus stops, bin storage, public open space, hard and soft landscaping, natural play area, play equipment, boundary treatments, public lighting, 3 no. substations (14sq.m each) and controlled pedestrian crossing on the R148.

All associated site and infrastructural works including underground wastewater pump station (a wetwell); welfare building 6.25sqm and 3m in height; 472m of 125mm OD rising main and 250m of gravity sewer along the R148; an underground emergency storage tank, capacity 230 m^3 approx.; above ground lifting gantry; valve and flowmeter chambers; a chemical dosing facility for odour control; Passive Carbon Unit; Kiosks; above ground surge vessel (<13 m^3); Landscaping, fencing and access off the R148. The proposed development includes all necessary ancillary pipework and manholes, diversion of existing utilities; new power supply and water connection for the pump station, ducting, mechanical and electrical services, plant, instrumentation, automation, controls and equipment. It also includes all associated site development works, hardstanding areas and access and site drainage. The proposed development

includes works on lands owned by Kildare County Council to facilitate access and drainage infrastructure.

2.3.2 Access Provisions

Vehicular, cyclist, and pedestrian access to the development shall be ensured at three locations:

- a proposed new 3-arm simple priority junction on the R158, at the development's western boundary;
- a proposed new 3-arm simple priority junction on the R148, at the development's northern boundary; and
- a connection to the future east-west link street that forms part of the adjacent permitted Boycetown SHD, to the south-east of the subject development (connecting in turn to the existing Brayton Park local street).

3.0 ROAD INFRASTRUCTURE DESIGN

The objectives of the development's internal layout design are:

- to ensure ease of access for emergency services and for refuse collection and servicing operations;
- to encourage walking and cycling;
- to create short walking routes to shops, public transport, etc.;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs) such as children.

Design measures have been implemented to support the above objectives in accordance with the core principles of the *Design Manual for Urban Roads and Streets* (DMURS).

The design of the road infrastructure within the subject development is primarily informed by principles contained within DMURS. However, reference has also been made to the following documents:

- Kildare County Development Plan 2017-2023
- Kilcock Local Area Plan 2015–2021
- National Cycle Manual 2011
- Traffic Signs Manual 2019
- DN-GEO-03060: Geometric Design of Junctions

3.1 Road Classification

DMURS uses a hierarchy system to classify the movement function of a street. This system classifies streets into the following categories:

- Arterial Streets
- Link Streets
- Local Streets

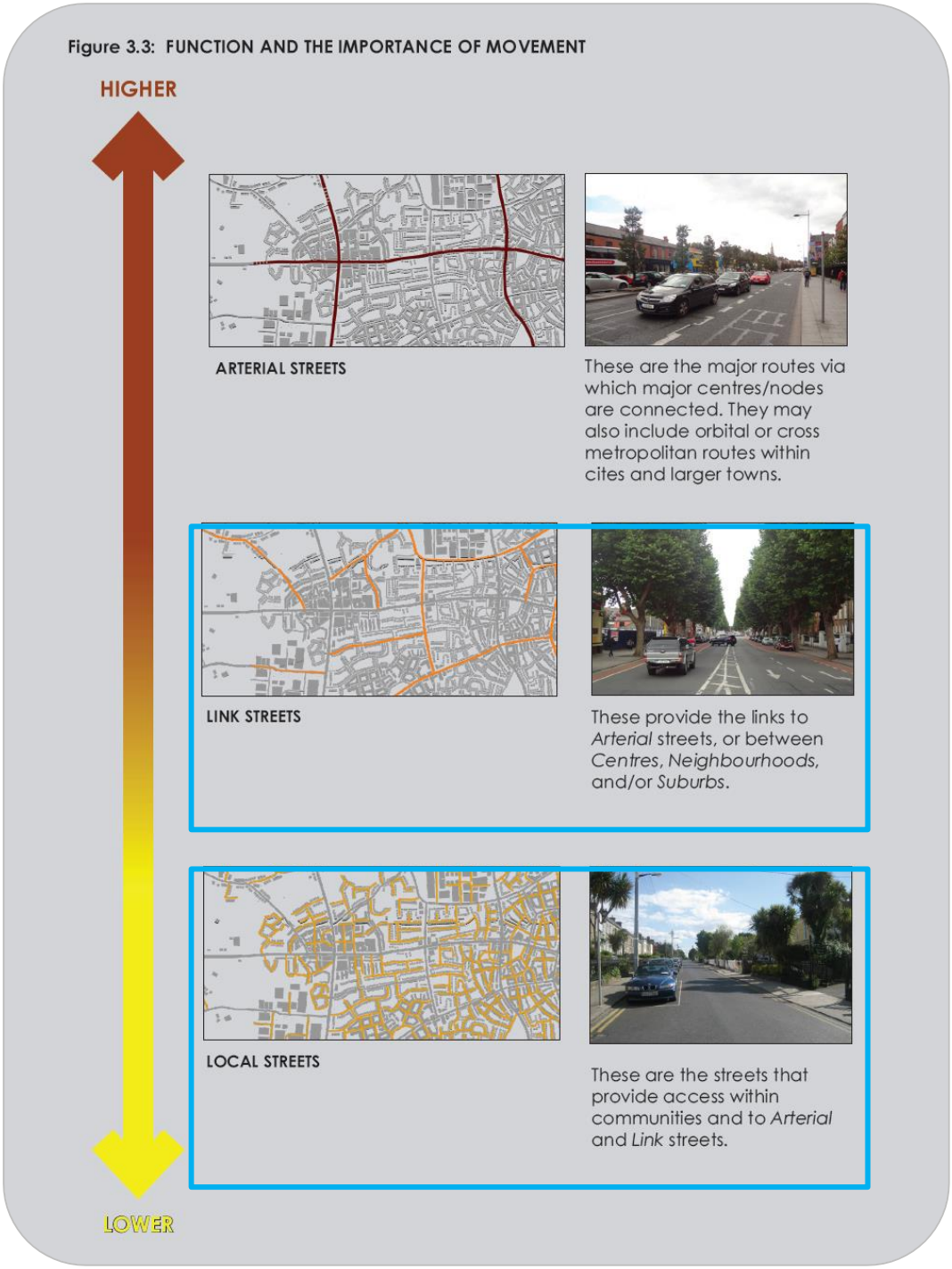

Figure 3 – DMURS Street Classification
(*source: Design Manual for Urban Roads and Streets*)

The internal road layout of the proposed development comprises a network of local streets, connecting to a link street that traverses the development

site generally along a NW-SE axis (see **Figure 4**). To the west, this link street connects to the R158 regional road; to the south-east, it connects to that running through the adjacent permitted development. The link street within the adjacent development connects in turn via Brayton Park to the R125 approx. 800m to the south-east, constituting another vehicular access to both developments from the public road network.

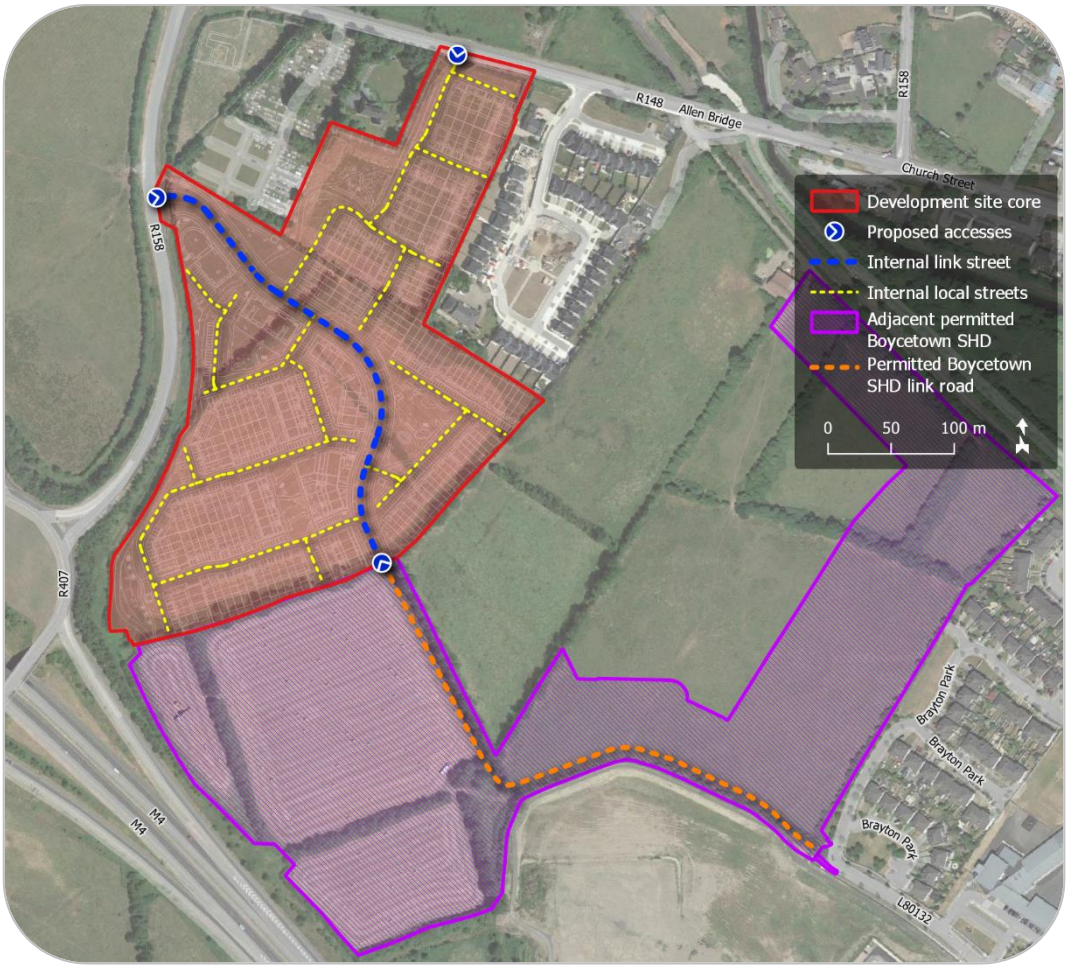

Figure 4 – Internal road hierarchy of development
(*map data & imagery: OSM Contributors, Google*)

Table 3.1 of DMURS (reproduced in **Figure 5**) outlines how road hierarchy terminology used in DMURS relates to other relevant publications.

DMURS Description	Roads Act/ DN-GEO-03031	Traffic Management Guidelines	National Cycle Manual
Arterial	National	Primary Distributor Roads	Distributor
Link	Regional (see note 1)	District Distributor Local Collector (see Notes 1 and 2)	Local Collector
Local	Local	Access	Access

Notes

Note 1: Larger Regional/District Distributors may fall into the category of *Arterial* where they are the main links between major centres (i.e. towns) or have an orbital function.

Note 2: Local Distributors may fall into the category of *Local* street where they are relatively short in length and simply link a neighbourhood to the broader street network.

Figure 5 – DMURS terminology compared to other key publications
(*source: Design Manual for Urban Roads and Streets*)

3.2 Road Design Speeds

PEDESTRIAN PRIORITY VEHICLE PRIORITY

FUNCTION	CENTRE	N'HOOD	SUBURBAN	BUSINESS/ INDUSTRIAL	RURAL FRINGE
ARTERIAL	30-40 KM/H	40-50 KM/H	40-50 KM/H	50-60 KM/H	60-80 KM/H
LINK	30 KM/H	30-50 KM/H	30-50 KM/H	50-60 KM/H	60-80 KM/H
LOCAL	10-30 KM/H	10-30 KM/H	10-30 KM/H	30-50 KM/H	60 KM/H

CONTEXT

Figure 6 – Design Speed Selection Matrix
(*source: Design Manual for Urban Roads and Streets*)

All streets within the development have been designed for a vehicular traffic speed of 30km/h, in order to prioritise the movement of vulnerable road users.

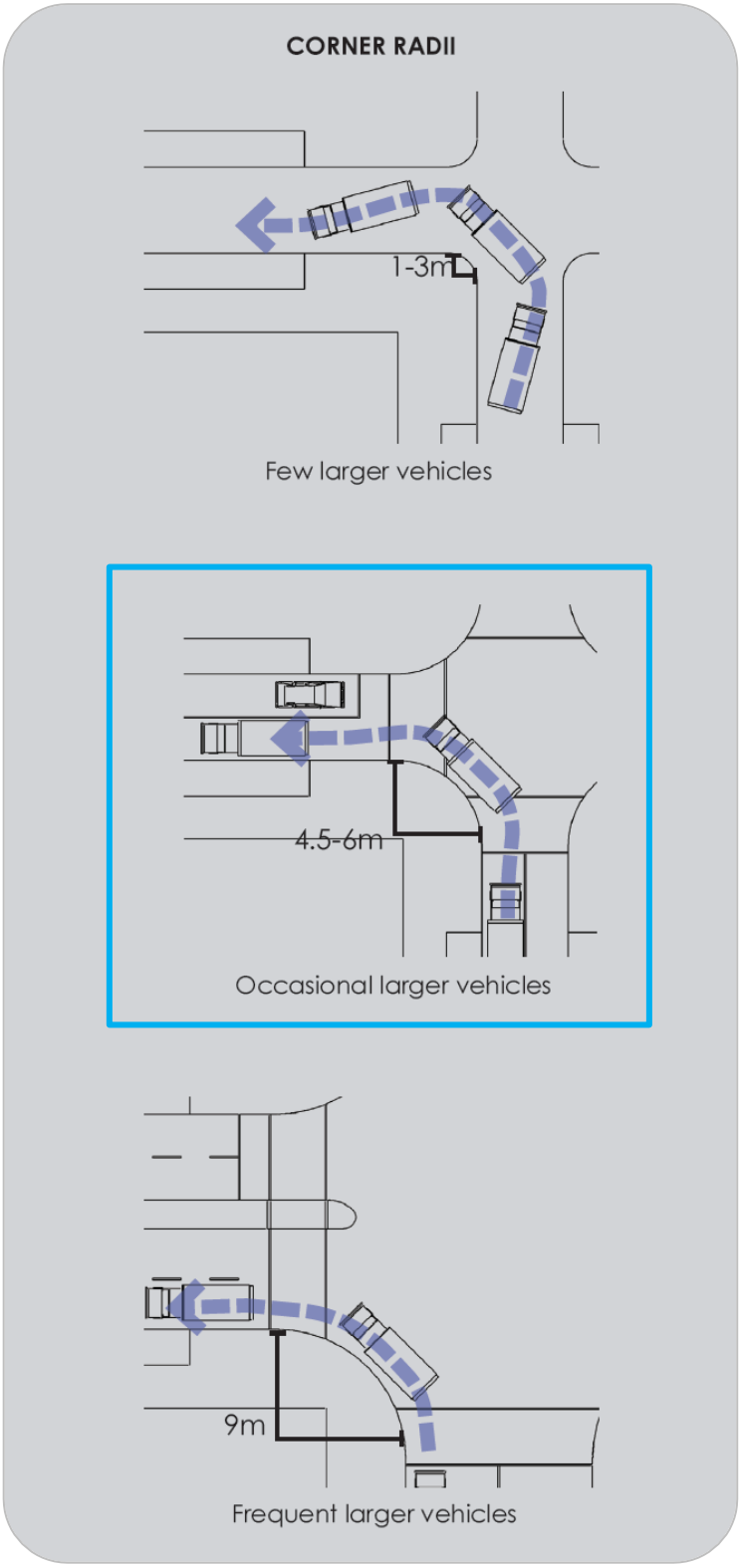

Figure 7 – Design Speed Selection Matrix
(*source: Design Manual for Urban Roads and Streets*)

In accordance with DMURS, kerb radii at internal local street junctions have been restricted to a maximum of 4.5m, while those at the junctions of local streets with the link street have been restricted to a maximum of 6.0m. This serves to discourage high vehicle speeds, while also allowing for the occasional circulation of large vehicles such as refuse collection trucks and fire tenders.

3.3 Road Cross-Sections

All internal roads have a carriageway width of between 5.5m and 6.0m (with the exception of the main link street within the development, which has a carriageway width of 6.5m generally) and comprise one traffic lane in either direction.

All local streets are flanked on one or both sides by a pedestrian footpath (minimum 2.0m in width) and/or a shared pedestrian/cyclist facility (in some cases separated from the street by a grass verge). The development's link street features a grass verge to either side, punctuated by on-street parallel parking bays, a 2.0m-wide cycle track, and a 2.0m-wide footpath. A number of local streets include on-street parking bays, either parallel or perpendicular to the street, located between the carriageway and footpath. A carriageway width of 6.0m is ensured where perpendicular on-street parking spaces are located, to accommodate parking manoeuvres.

The typical cross-sections of the development's link street and local streets are shown in **Figure 8** and **Figure 9**. Refer to CS Consulting drawing **S037-CSC-XX-XX-DR-C-0116** for further details.

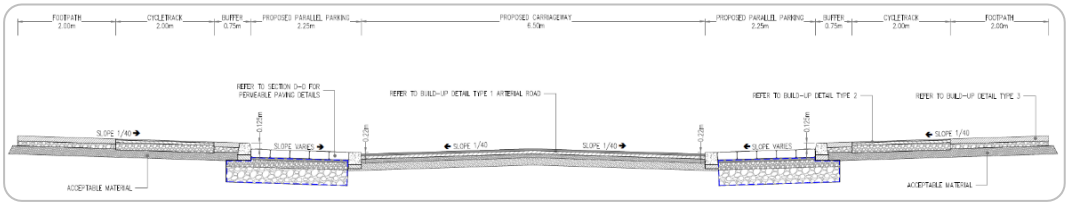

Figure 8 – Typical link street cross-section

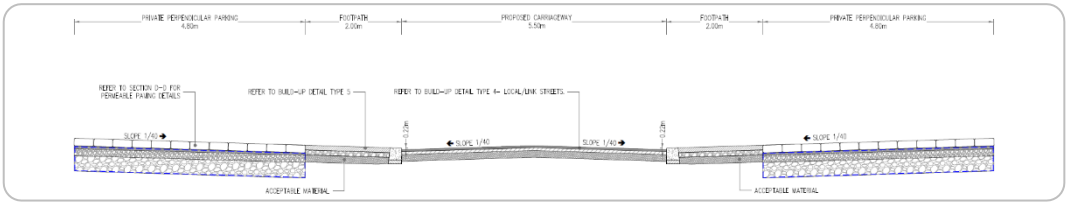

Figure 9 – Typical local street cross-section

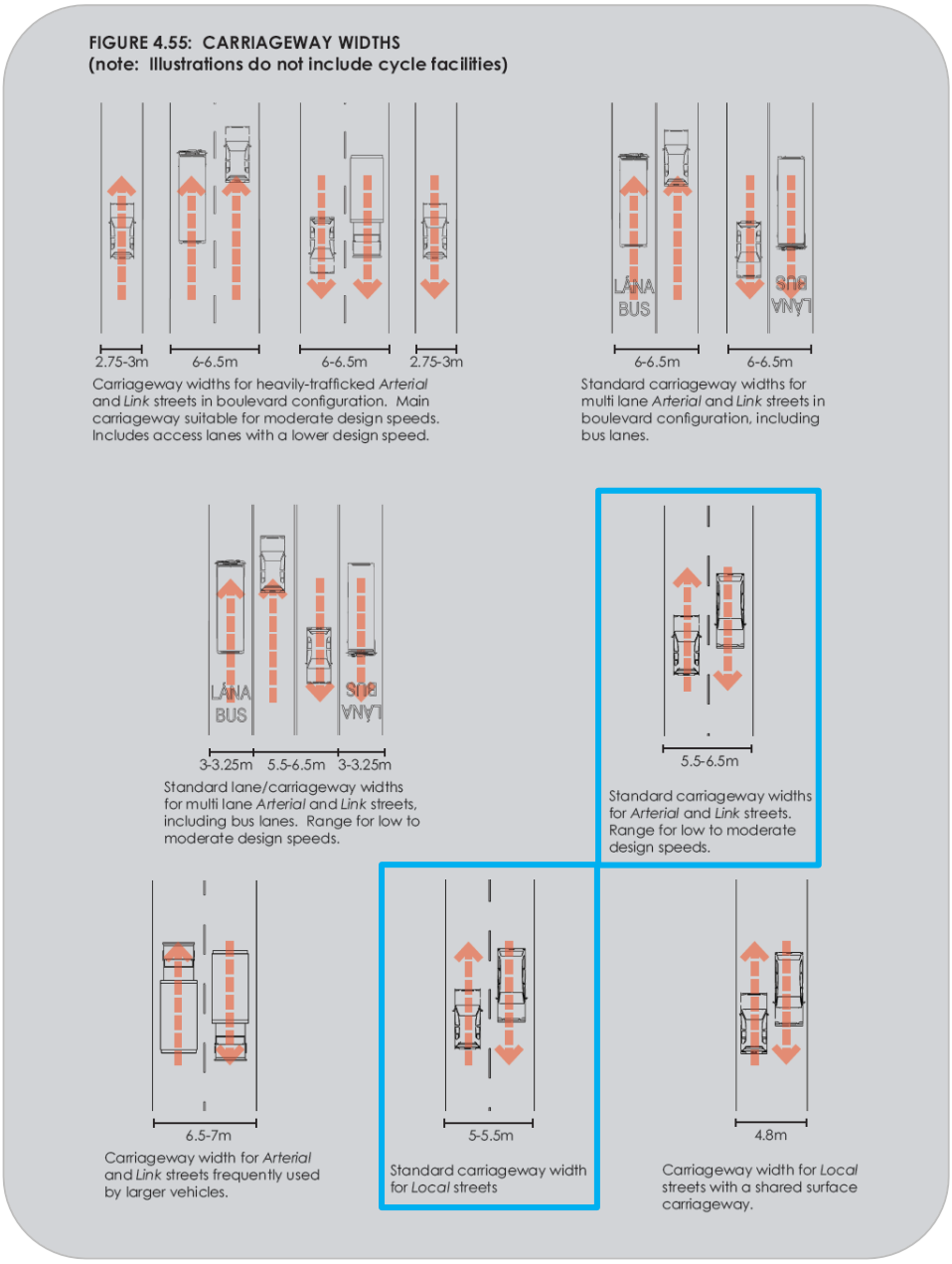

Figure 10 – Carriageway widths
(*source: Design Manual for Urban Roads and Streets*)

3.4 Footpaths

Footpath widths within the proposed development have been designed in accordance with DMURS. It is proposed to provide a footpath width of 2.0m-2.2m along internal roads, allowing space for two people to pass comfortably.

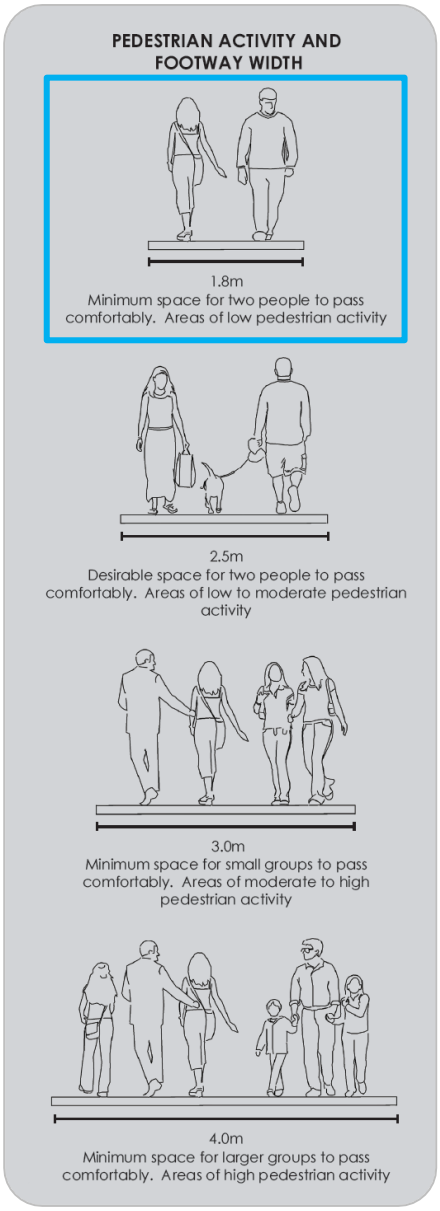

Figure 11 – Pedestrian activity and footpath width
(*source: Design Manual for Urban Roads and Streets*)

3.5 Delivery of Kilcock LAP Objective MTO 25

Objective MTO 25 of the *Kilcock Local Area Plan 2015-2021* provides for the delivery of a road link "from the Bawnogues to the M4 interchange".

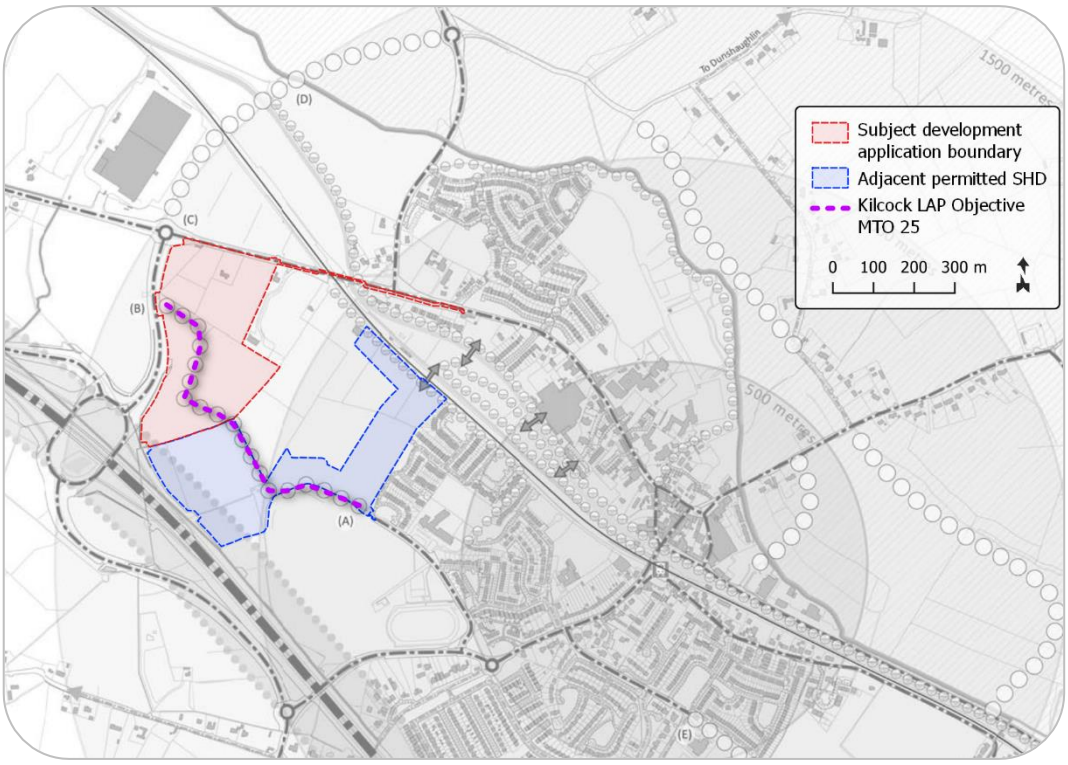

Figure 12 – Extract of Kilcock LAP Transport Objectives map
(*background image source: Kildare County Council*)

As previously described in this report, the subject development's internal road network includes a link street traversing it from north-west to south-east. This link street connects to the R158 regional road at the western boundary of the development site. At the site's south-eastern boundary, this link street connects to the future east-west link street that forms part of the adjacent permitted Boycetown SHD (connecting in turn to the existing Brayton Park local street), completing the road link identified under Objective MTO 25. The link street within the development site has been designed in accordance with the *Design Manual for Urban Roads and Streets* (DMURS).

CS Consulting has liaised with Pinnacle Consulting Engineers, civil engineering consultants for the adjacent Boycetown SHD to the south-east (ABP ref. 306826) to coordinate road levels and services locations for tie-in of the MTO 25 link street at the boundary between these two sites.

The link street's junction with the R158 regional road shall initially be configured as a 3-arm simple priority junction. This complies with the requirements of the TII standards document DN-GEO-03043 ('Geometric Design of Major/Minor Priority Junctions and Vehicular Access to National Roads'), including the provision of an unobstructed 90m sightline along the R158 for vehicles approaching the junction on the minor arm. Junction modelling has shown this priority junction configuration to be sufficient to cater for predicted traffic flows past the design year 2040 (accounting for currently known committed development).

The internal road network of the subject development, as well as its footpath and cycle track alignments, have however been designed to permit the future implementation of a 4-arm roundabout at this location, if required to facilitate the development of zoned lands to the west of the R158. See Section 8 of the accompanying Traffic and Transport Assessment report for further details.

4.0 DEVELOPMENT LAYOUT, PEDESTRIANS AND CYCLISTS

4.1 Development Access



Figure 13 – Access points to subject development
(*map data & imagery: PBA, Pinnacle, OSM Contributors, Google*)

Vehicular and pedestrian access to the development shall be via 2no. entrances off the R158 and R148 regional roads, at the development site's western and northern boundaries, as well as a southern access via the adjacent permitted Boycetown SHD to the south-east (see **Figure 13**). The subject development's internal layout also makes provision for multiple potential future connections to vehicular and pedestrian infrastructure within adjoining developments to the south and east.

For further detail of the development's proposed internal network and provisions for vehicular access to/from the surrounding road network, refer to the following CS Consulting drawings:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0110 (road markings and signage)
- S037-CSC-XX-XX-DR-C-0111 (visibility splays)
- S037-CSC-XX-XX-DR-C-0112 to S037-CSC-XX-XX-DR-C-0115 (road long sections)
- S037-CSC-XX-XX-DR-C-0116 (typical cross sections)
- S037-CSC-XX-XX-DR-C-0125 & S037-CSC-XX-XX-DR-C-0126 (road details)
- S037-CSC-XX-XX-DR-C-0132 (Quality Audit)
- S037-CSC-XX-XX-DR-C-0133 (parking arrangement)
- S037-CSC-XX-XX-DR-C-0134 (permeability & road hierarchy)
- S037-CSC-XX-XX-DR-C-0135 (indicative roundabout design)

4.2 Internal Site Layout

The internal road layout of the proposed development comprises a network of local streets, connecting to a link street that traverses the development site along a north-south axis. This link street within the development connects the site to the R158 and to a link road to the south of the development site, connecting to a separate development to the south.

All internal roads have a carriageway width of between 5.5m and 6.0m (with the exception of the main link street, which has a carriageway width of 6.5m) and internal junction kerb radii do not exceed 6.0m. Turning heads are provided at cul-de-sacs and traffic calming measures are incorporated into the design of the internal local streets, in the form of raised tables at junctions and horizontal deflections. On-street car parking for residential units is arranged along the internal roads.

The internal road layout of the proposed development is designed in accordance with the guidance provided in the *Design Manual for Urban Roads and Streets* (DMURS). As stated in the introduction to the DMURS:

"Better street design in urban areas will facilitate the implementation of policy on sustainable living by achieving a better balance between all modes of transport and road users. It will encourage more people to choose to walk, cycle or use public transport by making the experience safer and more pleasant."

Dated design elements that reflect poor design standards (such as wide roads, long straights or sweeping curves, unnecessarily large junction corner radii, and large junction visibility splays) are omitted to the extent possible within the site layout, to reduce vehicle speeds within the development.

The objectives of the site layout design are:

- to keep vehicle speeds low;
- to minimise the intrusion of vehicle traffic;
- to encourage walking and cycling;
- to create short walking routes to shops, public transport, etc.;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs) such as children; and
- to ensure ease of access for emergency services and for refuse collection and servicing operations.

Traffic calming and VRU protection measures to be implemented in the design include:

- designated and marked pedestrian crossing points;
- smaller corner radii;
- the arrangement of on-street parking;
- horizontal alignment constraints to restrict vehicle speeds;
- vertical deflections (raised tables) at internal junctions; and
- implementation of raised local streets.

Refer to architect's drawings for full detail of site layout.

4.3 Road Alignments and Traffic Calming Measures

The development's internal streets have been designed for a vehicular traffic speed of 30km/h. Kerb radii at internal junctions have been restricted to a maximum of between 4.5m and 6.0m, in order to discourage high vehicle speeds. Turning heads are provided at cul-de-sacs and traffic calming measures are incorporated into the design of the internal local streets, in the form of raised tables at junctions and horizontal deflections. On-street car parking for residential units is arranged along local streets. It has been ensured that forward visibility splays of at least 24m are achieved at internal junctions, in compliance with DMURS requirements.

4.4 Pedestrians & Cyclists

Pedestrian and cyclist access to the proposed development shall initially be facilitated at 2no. locations:

- to/from the R158, via the access at the subject site's western boundary.
- to/from the R148, at the access at the subject site's northern boundary.

In addition to these, the development's internal link street shall connect to that of the adjacent permitted Boycetown SHD immediately to the south-east, providing a third principal pedestrian and cyclist access, and provision is made for multiple potential additional connections to vehicular and pedestrian infrastructure within adjoining developments to the south and east.

Raised footpaths are provided along all internal roads of the development. Further segregated footpaths and cycle tracks provide pedestrian and cyclist connectivity between internal roads, as well as to the development's public open spaces and to the public park located at the centre of the development.

Cycle tracks are provided along the full length of the development's link street. Pedestrian crossings of the internal roads are provided at numerous locations, with raised junction tables and horizontal deflections to calm vehicular traffic.

The cycle tracks along the development's link street are configured in accordance with Section 4.3 of the National Cycle Manual, as shown in **Figure 14**.

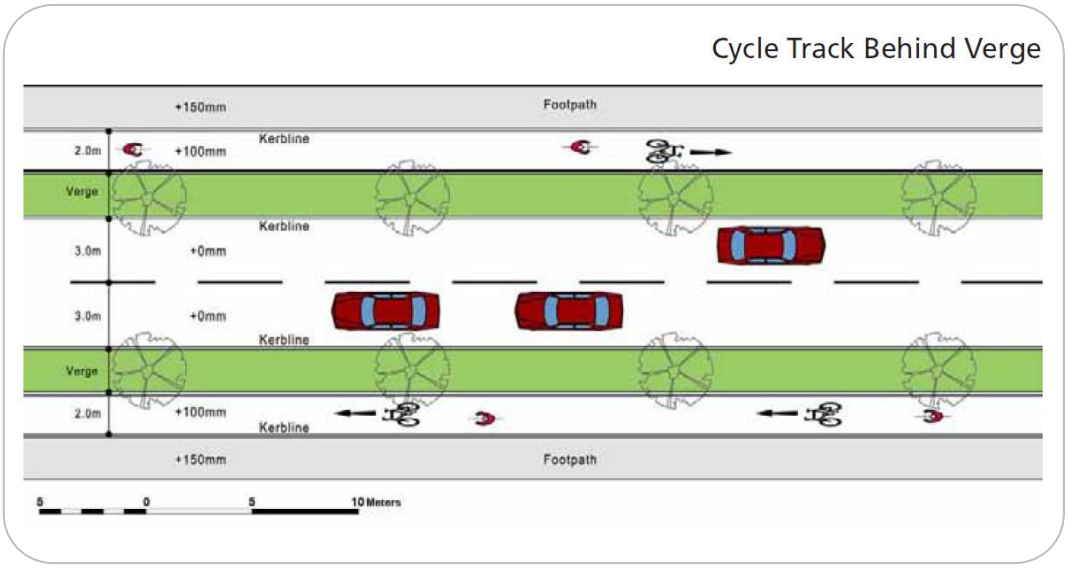

Figure 14 – Typical design of cycle track behind verge
(*source: National Cycle Manual*)

Where local streets join the development's link street, these junctions have been designed in accordance with the principles set out in Section 4.9 of the National Cycle Manual.

Where pedestrian footpaths extend across the cycle track (e.g. to reach pedestrian crossing points), a shared surface is provided at this location, with cyclists yielding priority to pedestrians. This approach accords with Sections 1.9 and 4.7 of the National Cycle Manual, as in the examples illustrated in **Figure 15** and **Figure 16**.

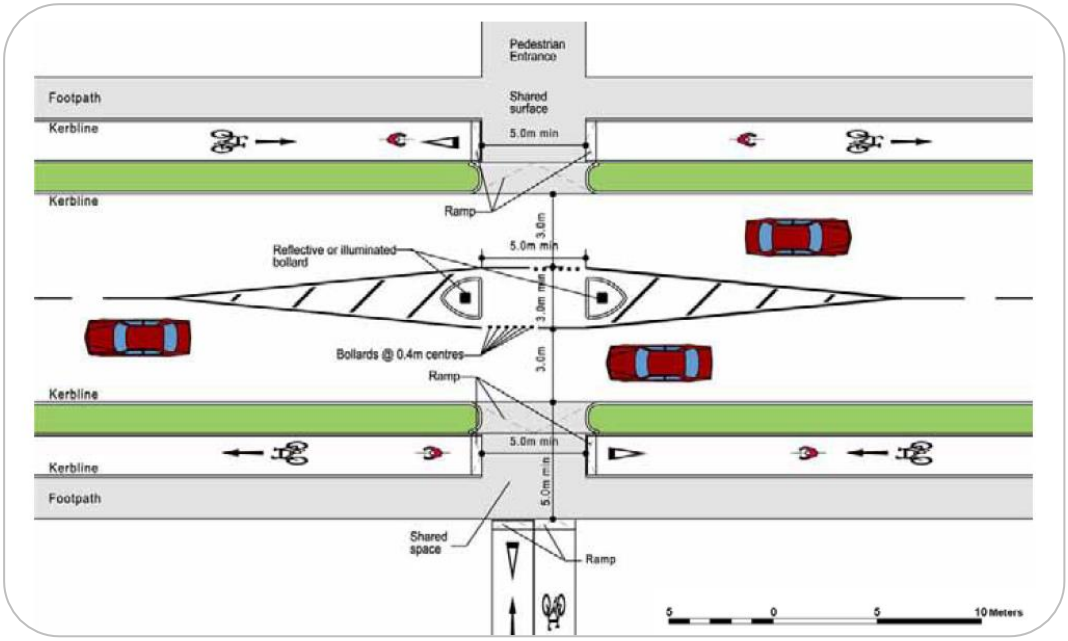

Figure 15 – Example of shared surface at crossing
(*source: National Cycle Manual*)

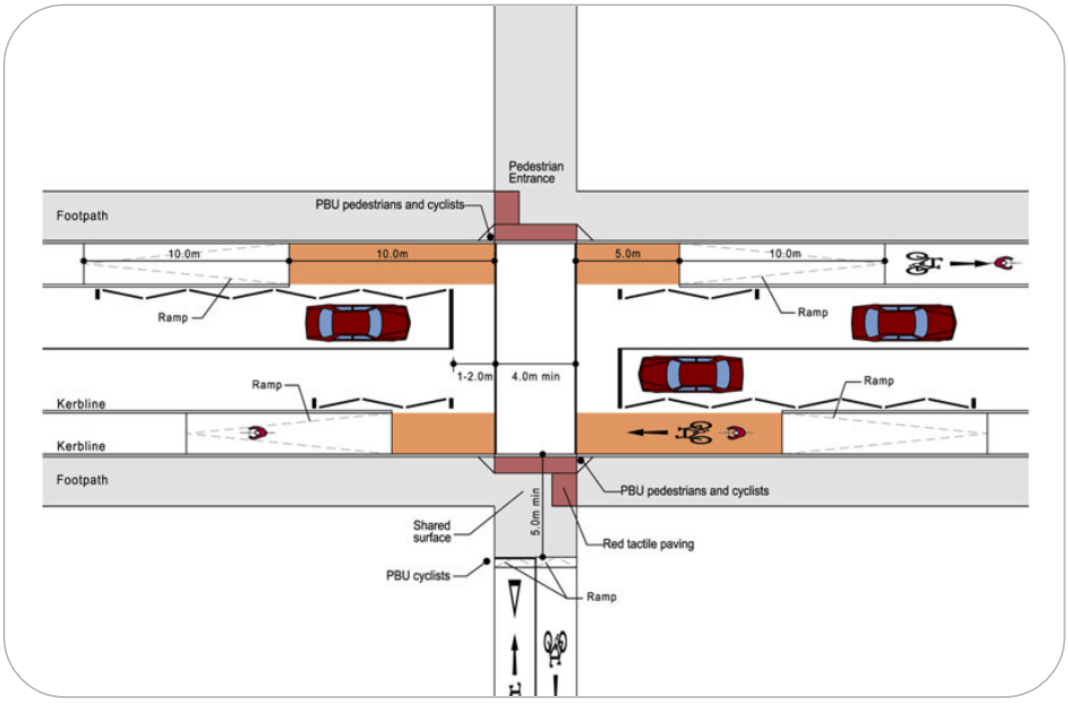

Figure 16 – Example of shared surface at crossing
(*source: National Cycle Manual*)

In addition to the segregated cycle track provided along the development's link street, a 4.0m-wide shared pedestrian and cycle facility is provided along the development's western boundary. This is a continuation of the shared pedestrian and cycle facility within the adjacent permitted Boycetown SHD, extending this northward through the subject development to meet the R148 regional road. Section 1.9 of the National Cycle Manual ('Pedestrians and Cyclists') notes that:

> *"Shared facilities might be appropriate at locations where footpaths are wide and the volume of pedestrians and cyclists is low, e.g. in low-density towns and cities, and suburban or recreational areas."*

5.0 INDEPENDENT QUALITY AUDIT

An independent Quality Audit of the proposed development layout and access arrangements has been conducted by PMCE Consulting Engineers on behalf of CS Consulting. This incorporates the following four components:

- access audit
- cycling audit
- walking audit
- road safety audit

The Quality Audit was completed in July 2022. Design changes have been made in response to the recommendations of the Quality Audit and the measures adopted have been accepted by the audit team. Refer to CS Consulting drawing no. **S037-CSC-XX-XX-DR-C-0132** for details of these design changes.

The Quality Audit report document issued by PMCE, together with the audit response form, are provided as **Appendix B** to this report.

6.0 COMMENTS RECEIVED FROM PLANNING AUTHORITIES

Both An Bord Pleanála and Kildare County Council have reviewed the planning documentation submitted in respect of the proposed development during the pre-application consultation phase of the SHD process. A tripartite pre-application consultation meeting has also been held with An Bord Pleanála and Kildare County Council.

The relevant opinions of An Bord Pleanála that pertain to road design and transportation matters, as communicated to the applicant, are reproduced below; also examined in this section are the recommendations of Kildare County Council relating to roads and transportation, which were issued to An Bord Pleanála. In each case, we describe measures taken by the design team in response to these opinions and recommendations.

6.1 Opinion Issued by An Bord Pleanála

An Bord Pleanála has in May 2022 issued an opinion detailing issues that it considered required further attention and enumerating the items of specific information that should be submitted with any application for permission. The following items among these are of relevance to this Traffic and Transport Assessment.

6.1.1 Items of specific information to be submitted

1. *A design for the spine road through the site to comply with Road Objective MT 025 in the Kilcock LAP 2015-2021. The design should have regard to the adjoining SHD permission (306826-20), the requirements of the Roads Department, the connection onto a regional route to the north R148 and the standards in the NRA Design Manual. Submission of details demonstrating compliance with the particular requirements of the National Cycle Manual, including sections 1.9 and 4.9 of the cycle manual.*

4. *A Noise Impact Assessment and the justification for any setback along the motorway and those polices in the development plan.*

8. *A Traffic and Transport Assessment which addresses the concerns of the Transport Section having regard to the car parking ratio proposed.*

6.1.2 Response to ABP items to be submitted

1. Objective MTO 25 of the *Kilcock Local Area Plan 2015-2021* provides for the delivery of a road link "from the Bawnogues to the M4 interchange". As described in sub-sections 3.5 and 4.2 of this report, the subject development's internal road network includes a link street traversing it from north-west to south-east. This link street connects to the R158 regional road at the western boundary of the development site. At the site's south-eastern boundary, this link street connects to the future east-west link street that forms part of the adjacent permitted Boycetown SHD (connecting in turn to the existing Brayton Park local street), completing the road link identified under Objective MTO 25. The link street within the development site has been designed in accordance with the *Design Manual for Urban Roads and Streets* (DMURS) and the *National Cycle Manual*. Sections 3 and 4 of this report detail compliance with the applicable specific standards set out in these documents. The link street's junction with the R158 regional road complies with the relevant TII design standards.

4. An *Assessment of Inward Traffic Noise Impact* has been prepared by AWN Consulting and is submitted separately as part of this planning application.

8. The present document satisfies the requirement for submission of a Traffic and Transport Assessment. The development's proposed parking provision and the bases on which this has been

determined are discussed in Section 6 of the accompanying Traffic and Transport Assessment report.

6.2 Recommendations of Kildare County Council

Kildare County Council (KCC) on the 21st of January 2022 issued an opinion requesting that further clarification or consideration be given to a number of items raised in the internal report of its Transportation Department. These are addressed below.

6.2.1 KCC Item 1 – provision of road objective MTO 25

"The Applicant to submit drawings and detailed design for the provision of the entire road objective MTO 25, as detailed in Kilcock LAP 2015-2021, extending from existing Bawnogues road to R148/M4 Interchange detailing road layout, dimensions and cross sections, drainage, services, road lining & signing, public lighting, VRU facilities and a pedestrian crossing as required in previous application SHD21311037. Detailed design to incorporate a 4-arm roundabout at the entrance to the proposed road objective MTO 25 on R148. The proposed roundabout shall be designed and constructed to standards as laid out in the NRA Design Manual for Roads and Bridges. The exact position and detailed design of this road objective and roundabout shall be agreed in writing with the Planning Authority prior to work commencing on site. The proposed road objective MTO25 shall be constructed to site boundary prior to occupation of housing. Road widths of 6.5m including 2.0m footpaths and 2.0m cycle paths to be provided."

6.2.2 Response to KCC Item 1

As described in sub-sections 3.5 and 4.2 of this report, the subject development's internal road network includes a link street traversing it from north-west to south-east. This link street connects to the R158

regional road at the western boundary of the development site. At the site's south-eastern boundary, this link street connects to the future east-west link street that forms part of the adjacent permitted Boycetown SHD (connecting in turn to the existing Brayton Park local street), completing the road link identified under Objective MTO 25.

The link street within the development site has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS). It has a carriageway width of 6.5m generally, comprising one traffic lane in either direction, and features a grass verge to either side, a 2.0m-wide cycle track, and a 2.0m-wide footpath.

The link street's junction with the R158 regional road shall initially be configured as a 3-arm simple priority junction, which junction modelling has shown to be sufficient to cater for predicted traffic flows past the design year 2040 (accounting for currently known committed development). The design of this junction complies with the relevant TII design standards. The internal road network of the subject development, as well as its footpath and cycle track alignments, have however been designed to permit the future implementation of a 4-arm roundabout at this location, if required to facilitate the development of zoned lands to the west of the R158. See Section 8 of the accompanying Traffic and Transport Assessment report for further details. Refer also to the following CS Consulting drawings:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0110 (road markings and signage)
- S037-CSC-XX-XX-DR-C-0111 (visibility splays)
- S037-CSC-XX-XX-DR-C-0112 to S037-CSC-XX-XX-DR-C-0115 (road long sections)
- S037-CSC-XX-XX-DR-C-0116 (typical cross sections)
- S037-CSC-XX-XX-DR-C-0125 & S037-CSC-XX-XX-DR-C-0126 (road details)

- S037-CSC-XX-XX-DR-C-0132 (Quality Audit)
- S037-CSC-XX-XX-DR-C-0133 (parking arrangement)
- S037-CSC-XX-XX-DR-C-0134 (permeability & road hierarchy)
- S037-CSC-XX-XX-DR-C-0135 (indicative roundabout design)

CS Consulting has liaised with Pinnacle Consulting Engineers, civil engineering consultants for the adjacent Boycetown SHD to the south-east (ABP ref. 306826) to coordinate road levels and services locations for tie-in of the MTO 25 link street at the boundary between these two sites.

6.2.3 KCC Item 2 – detailed road layout

"The Applicant to provide detailed road layout drawings for proposed development as per DMURS. Road widths of 6.5m including 2.0m footpaths and 2.0m cycle paths to be provided. All other roads to be a minimum of 5.5m width. Corner radii 4.5-6m to be provided."

6.2.4 Response to KCC Item 2

A detailed description of the subject development's internal road layout – including carriageway/footpath/cycle track widths and kerb radii – is provided in Sections 3 and 4 of this report. Refer also to the following CS Consulting drawings:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0110 (road markings and signage)
- S037-CSC-XX-XX-DR-C-0111 (visibility splays)
- S037-CSC-XX-XX-DR-C-0112 to S037-CSC-XX-XX-DR-C-0115 (road long sections)
- S037-CSC-XX-XX-DR-C-0116 (typical cross sections)
- S037-CSC-XX-XX-DR-C-0125 & S037-CSC-XX-XX-DR-C-0126 (road details)
- S037-CSC-XX-XX-DR-C-0132 (Quality Audit)
- S037-CSC-XX-XX-DR-C-0133 (parking arrangement)

- S037-CSC-XX-XX-DR-C-0134 (permeability & road hierarchy)

6.2.5 KCC Item 3 – road, footpath, and cycle track details

"Applicant to provide a cross section drawing of proposed road tie in with neighbouring proposed development. Applicant to outline land ownership and footpath and cycle path details."

6.2.6 Response to KCC Item 3

The following CS Consulting drawings provide the requested details of road tie ins and footpath/cycle track details:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0112 to S037-CSC-XX-XX-DR-C-0115 (road long sections)
- S037-CSC-XX-XX-DR-C-0116 (typical cross sections)
- S037-CSC-XX-XX-DR-C-0125 & S037-CSC-XX-XX-DR-C-0126 (road details)
- S037-CSC-XX-XX-DR-C-0134 (permeability & road hierarchy)

The extents of the applicant's land ownership are indicated on drawings prepared by other members of the design team.

6.2.7 KCC Item 4 – permeability and access to Royal Canal

"Applicant to provide a drawing detailing the proposed pedestrian/cyclist permeability and access to the Royal Canal. Proposed access design to include footpath and cycle path design, kerbing, tactile paving, landscaping, lighting, gates and railing details. Design should include measures to enhance the safety of pedestrians and cyclists and to discourage anti-social behaviour."

6.2.8 Response to KCC Item 4

Pedestrian and cyclist access to the proposed development shall initially be facilitated at 2no. locations:

- to/from the R158, via the access at the subject site's western boundary.
- to/from the R148, at the access at the subject site's northern boundary.

In addition to these, the development's internal link street shall connect to that of the adjacent permitted Boycetown SHD immediately to the south-east, providing a third principal pedestrian and cyclist access, and provision is made for multiple potential additional connections to vehicular and pedestrian infrastructure within adjoining developments to the south and east.

Raised footpaths are provided along all internal roads of the development. Further segregated footpaths and cycle tracks provide pedestrian and cyclist connectivity between internal roads, as well as to the development's public open spaces and to the public park located at the centre of the development.

Cycle tracks are provided along the full length of the development's link street. Pedestrian crossings of the internal roads are provided at numerous locations, with raised junction tables and horizontal deflections to calm vehicular traffic.

It is proposed to provide a new signal-controlled pedestrian crossing of the R148 regional road at the northern boundary of the subject development. This shall connect the development site to the existing footpath along the northern side of the R148, which extends eastward across the Royal Canal and into the centre of Kilcock.

Refer to the following CS Consulting drawings for further detail:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0110 (road markings and signage)
- S037-CSC-XX-XX-DR-C-0116 (typical cross sections)
- S037-CSC-XX-XX-DR-C-0125 &

S037-CSC-XX-XX-DR-C-0126 (road details)

- S037-CSC-XX-XX-DR-C-0132 (Quality Audit)
- S037-CSC-XX-XX-DR-C-0134 (permeability & road hierarchy)

6.2.9 KCC Item 5 – car parking provision

"The Applicant has reduced quantum of car parking spaces in this application which appears to already have a shortfall in car parking provision. Applicant to provide a clear car parking schedule for housing (incl. duplex, apartment), crèche and visitor car parking in accordance with standards from KCC Development Plan Chapter 17. Applicant to colour code the categories in order to establish if adequate car parking is located adjacent accommodation. All car parking spaces to be 2.5m x 5.0m in dimension. Applicant to outline location and level of visitor car parking."

6.2.10 Response to KCC Item 5

Section 6 of the accompanying Traffic and Transport Assessment report details the car parking provision for the subject development. This shows that the proposed car parking provision for houses, crèche, and visitor use comply with the standards set out in Chapter 17 of the *Kildare County Development Plan 2017-2023*, and that the proposed car parking provision for apartments and duplex units accords with the guidance given in the 2020 *Design Standards for New Apartments*. A colour-coded car parking allocation drawing (**S037-CSC-XX-XX-DR-C-0133**) is also provided as part of this submission.

6.2.11 KCC Item 6 – bus stops

"Applicant to indicate the location of recessed bus stop on proposed link road. Location and details to be agreed with the Maynooth Area office and adjacent development to ensure continuity but not overprovision of bus stops."

6.2.12 Response to KCC Item 6

2no. on-line bus stops are provided along the development's link street, at locations determined by pedestrian desire lines and by driver sightlines. On-line bus stops have been implemented, rather than recessed stops, to ensure consistency with the design of the bus stops permitted within the adjacent Boycetown SHD to the south-east (ABP ref. 306826). It is also considered that on-line bus stops provide a valuable traffic calming function and are suited to the relatively low volume of bus traffic anticipated along this route.

Refer to the following CS Consulting drawings:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0110 (road markings and signage)
- S037-CSC-XX-XX-DR-C-0111 (visibility splays)

6.2.13 KCC Item 7 – toucan crossing

"Applicant to provide a 4.0 m Toucan VRU crossing on proposed road objective MTO25."

6.2.14 Response to KCC Item 7

A signal-controlled toucan crossing is provided on the link street within the subject development, in proximity to the 2no. on-line bus stops proposed.

Refer to the following CS Consulting drawings for further detail:

- S037-CSC-XX-XX-DR-C-0109 (road layout)
- S037-CSC-XX-XX-DR-C-0110 (road markings and signage)
- S037-CSC-XX-XX-DR-C-0134 (permeability & road hierarchy)

6.2.15 KCC Item 8 – Acoustic Design Statement

"The Applicant shall submit to Kildare County Council a revised Acoustic Design Statement by a suitable qualified acoustic specialist

demonstrating the proposed development will not be exposed to noise levels in excess of the Kildare County Council Third Noise Action Plan 2019 Lden threshold of 70 dB(A) and Inight threshold of 57 dB (A). These thresholds shall apply to the designated open space within the red line of the application site and particularly the back gardens of residential developments and the potential inadequate usability of these spaces due to road and rail noise. The previous Noise Assessment Report was inadequate and inconclusive. The Acoustic Design Statement shall have full consideration to the British Standards BS 8233:2014 in achieving internal ambient noise levels for the residential development. The site is located adjacent to the M4 Motorway and this is designated a 'major" road as defined under the European Communities Environmental Noise regulations 2018, SI No 549/2018. This acoustic design statement shall have consideration to appropriate professional guidance and standards on noise and shall contain mitigation measures (as deemed required) to be incorporated into the design of the development.

"The Acoustic Design Statement shall contain the following:

a. *Calculated Lden and measured Lnight values at the designated open spaces within the application site at a level not less than 1.5 metres above ground floor level. Calculated Lden and measured Inight values at the facades of the housing and apartment buildings at a level not less than 1.5 metres above ground floor level. The statement shall also include noise mitigation measures, as deemed required, and the associated estimated noise reduction decibel values in complying with the Kildare County Council Third Noise Action Plan 2019-2023. Designated monitoring points to be agreed with Transportation Section prior to commencement of survey.*

b. *Calculated internal ambient noise levels in housing and apartment and mitigation measures (as deemed required) in complying with the British Standards BS 8233:2014.*

c. *The ADS requires a revised Noise Impact survey prior to the commencement of development seeking a week survey at all survey points providing hourly results from which Lden for each day can be calculated for both road and rail. This shall be accompanied by full site layouts at a scale of 1:500 indicating modelled Lden and Lnight predicted noise levels on the site in selected public and private open spaces without mitigation measures and modelled levels with mitigation measures for the development from which Transportation can address internal noise levels, as in, the effect of opening windows and patio doors has on occupants. Designated monitoring points to be agreed with Transportation Section prior to commencement of survey."*

6.2.16 Response to KCC Item 8

Refer to the *Assessment of Inward Traffic Noise Impact* prepared by AWN Consulting in July 2022 and submitted separately as part of this planning application.

6.2.17 KCC Item 9 – autotrack drawings

"The Applicant to provide revised auto track drawings for proposed development."

6.2.18 Response to KCC Item 9

Swept path (AutoTrack) analyses have been conducted of fire tenders and refuse collection vehicles accessing the development and manoeuvring within it. These analyses indicate that the development access design and internal roads layout can accommodate these vehicle movements where required, and that

any vehicle accessing the site shall be able to turn within it and exit in a forward direction.

Refer to the following CS Consulting drawings:

- S037-CSC-XX-XX-DR-C-0117 (swept path - fire tender)
- S037-CSC-XX-XX-DR-C-0118 (swept path - refuse vehicle)

6.2.19 KCC Item 10 – Road Safety Audit

"The Applicant to provide a revised independent Road Safety Audit for proposed development and surrounding area. All recommendations of RSA to be incorporated into proposed design."

6.2.20 Response to KCC Item 10

As described in Section 5 of this report, an independent Quality Audit of the proposed development layout and access arrangements (incorporating a Road Safety Audit) has been conducted by PMCE Consulting Engineers on behalf of CS Consulting. The Quality Audit was completed in July 2022. Design changes have been made in response to the recommendations of the Quality Audit and the measures adopted have been accepted by the audit team. The Quality Audit report document issued by PMCE, together with the audit response form, are provided as **Appendix B** to this report. A Quality Audit response drawing (**S037-CSC-XX-XX-DR-C-0132**), illustrating design changes made in on foot of the Audit, is also provided as part of this submission

6.2.21 KCC Item 11 – Construction Management Plan

"The Applicant to provide a Construction Management Plan. HGV's to avoid Kilcock town."

6.2.22 Response to KCC Item 11

An Outline Construction and Environmental Management Plan (OCEMP) is provided as part of this planning application. The OCEMP includes provisions for construction traffic management, among which is a designated route for heavy construction traffic that is confined locally to the R158 regional road and the M4 motorway, ensuring that HGVs do not travel via Kilcock town.

Appendix A

DMURS Statement

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Date: 10-Aug-22

RE: **Proposed Residential Development, Boycetown, Kilcock, Co. Kildare**

DMURS Statement of Consistency

Cronin & Sutton Consulting Engineers (CS Consulting), as part of a multi-disciplinary design team, have been commissioned by Teresa Monaghan to develop a DMURS Statement of Consistency to accompany a planning application for a proposed Strategic Housing Development (SHD) at Boycetown, Kilcock, Co. Kildare. The proposed development (30,839m^2 GFA) will consist of the demolition of a detached, vacant cottage (69m^2 GFA) and the construction of 272no. residential units (149no. houses, 65no. apartments, and 58no. duplexes), childcare facility, and foul pumping station, along with associated ancillary works and site works.

ROAD DESIGN, TRAFFIC & TRANSPORTATION

The subject development has been designed in compliance with the following:

- Design Manual for Urban Roads and Streets (May 2019)
- Kildare County Development Plan 2017–2023
- Kilcock Local Area Plan 2015-2021
- National Cycle Manual (2011)

The internal road layout of the proposed development is designed in accordance with the guidance provided in the *Design Manual for Urban Roads and Streets* (DMURS). As stated in the introduction to the DMURS:

"Better street design in urban areas will facilitate the implementation of policy on sustainable living by achieving a better balance between all modes of transport and road users. It will encourage more people to choose to walk, cycle or use public transport by making the experience safer and more pleasant."

Given the location, shape and topography of the site, and the scale and type of the residential development proposed, we submit that the proposed site layout is well suited to these residentially zoned development lands.

The development layout design put forward improves the existing roads environs with enhanced pedestrian facilities. The development design ensures pedestrian permeability to the west, north and east while also providing for future pedestrian connectivity to LAP zoned lands.

The final development layout incorporates features that benefit vulnerable road users by encouraging low vehicle speeds (such as reduced road corner radii, raised table junctions, plantings, etc.), following the principle that roads should serve a community and not dominate it. The provision of good permeability for pedestrians, cyclists & public transport are all key objectives of the proposed site layout.

The scheme consists of a residential development with several pocket parks and a link street through to adjoining zoned development lands to the southeast. The road hierarchy within the scheme is as follows:

- A proposed 3-arm priority junction at the west of the development on the R158.
- A Link Street from the R158 (new western junction) through to the southeast of the site facilitating zoned development lands. The Link Street will be 6.5m in carriageway width. Refer to Figure 1 below.
- The Applicant has liaised with the adjacent landowner's design team outlining the agreed roads design strategy/road cross section and alignment (as outlined above) to facilitate the delivery of the required link street, which is a transport objective under the *Kilcock Local Area Plan 2015-2021*. Refer to Figure 2 below.
- This hierarchy of roads provided comprises Link Streets and Local Streets, interconnected with good permeability on foot and by bicycle.
- The joining of the Link Street with the extension of the adjacent zoned lands has been coordinated with the adjacent landowner to ensure a seamless transition exists at the site boundary.
- Road surface finishes will be standard tarmacadam finish to taking in charge standards.

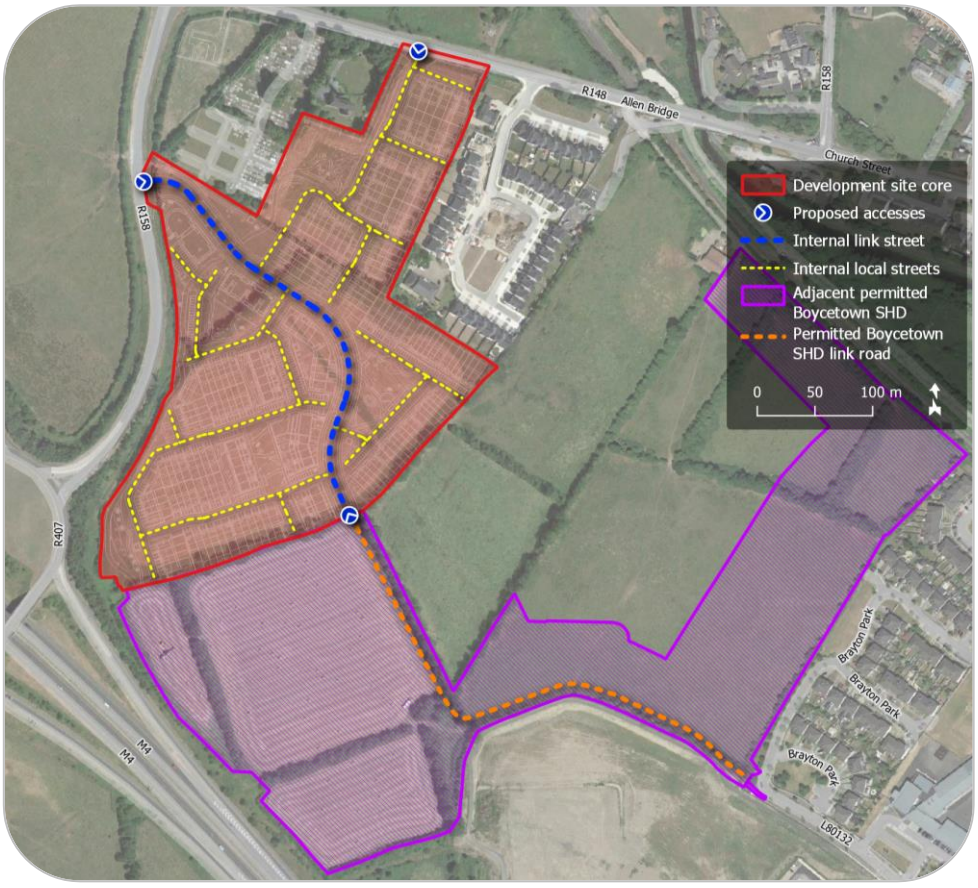

Figure 1 – Internal road hierarchy of development
(*map data & imagery: OSM Contributors, Google*)

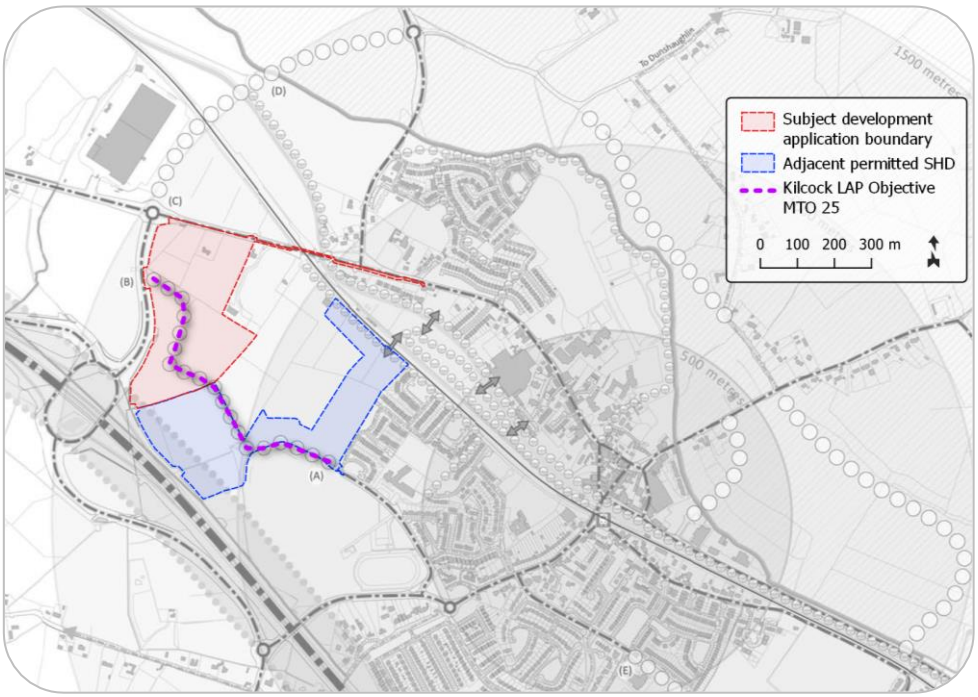

Figure 2 – Extract of Kilcock LAP Transport Objectives map
(*background image source: Kildare County Council*)

Dated design elements that reflect poor design standards (such as wide roads, long straights or sweeping curves, unnecessarily large junction corner radii, and large junction visibility splays) shall be omitted to the extent possible within the final site layout, to reduce vehicle speeds within the development.

The objectives of the final site layout design are:

- to keep vehicle speeds low;
- to minimise the intrusion of vehicle traffic;
- to ensure ease of access for emergency services;
- to encourage walking and cycling;
- to create short walking routes to shops, public transport, etc.;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs) such as children.

Traffic calming and VRU protection measures in the design include:

- designated and marked pedestrian crossing points;
- dropped kerbs and tactile paving at crossing points;
- off-road cycle tracks;
- smaller corner radii;
- horizontal alignment constraints and vertical deflections to restrict vehicle speeds;
- landscaping to frame vehicle sightlines internally;
- a road design for a maximum vehicle speed of 30km/h;

The proposed internal Link Street has a minimum carriageway width of 6.5m, to permit safe access for service and emergency vehicles, with connectivity to other LAP lands provided. No direct unit access will be considered onto the Link Street. Speed control measures such as raised tabled junctions have been included within the development.

Raised footpaths and cycle tracks flank the Link Street to either side connecting to existing road infrastructure and zoned development lands. Further footpaths connecting directly to adjacent residential communities to the northeast via the R148 shall provide good permeability for the development lands.

Local Streets with a minimum width of 5.5m with footpaths provided will create good service routes for local access only whilst promoting good permeability throughout the site. The internal layout has been designed to discourage HGVs and other large vehicles from using the Local Streets within the scheme.

The internal layout of the proposed development incorporates numerous design features such as distinctive surface materials and colours, strong landscaping proposals and modern furniture structures, in order to establish a sense of place within an urban neighbourhood environment.

As part of this planning application, the following further relevant documentation is also submitted:

- Roads and parking layout drawings
- Road details and drainage drawings
- Quality Audit (including Road Safety Audit)
- Outline Construction Environmental Management Plan



Niall Barrett

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B.Eng (Hons), CEng, M.I.E.I, Cert Health & Safety, Cert RSA, Cert PSDP

For Cronin & Sutton Consulting

Appendix B

Independent Quality Audit

CS CONSULTING
GROUP

Cronin & Sutton Consulting

Proposed Residential Development at Boycetown Kilcock, Co. Kildare

Quality Audit

P·M·C·E

August 2022

Cronin & Sutton Consulting

Proposed Residential Development at Boycetown Kilcock, Co. Kildare

Quality Audit

Document Ref:	P22-102-UQA-GEN-RP-001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	AOR	MAH	AOR	26th August 2022	Final Report
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1 Introduction

1.1 General

This report was prepared in response to a request from Mr Gordon Finn of Cronin & Sutton Consulting to provide an Quality Audit of a proposed Residential Development at Boycetown Kilcock, Co. Kildare. This Quality Audit shall consider the following elements: -

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

The Quality Audit took place during July 2022 and comprised an examination of the documents provided by the designers (see Appendix B). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 8th July 2021. Weather conditions at the time of the site visit were dry, and the road surface was dry. Traffic volumes during the site visit were moderate, as were pedestrian and cyclist volumes 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 for 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

2.1 Proposed Development

It is proposed to construct a residential development in Kilcock, Co. Kildare. The development will consist of a total of 271 units comprised of 150 houses, 93 apartments and 28 duplexes, distributed over 7 apartment blocks. The houses will comprise 11 two-bed, 92 three-bed and 47 four-bed units.

The apartments will include 23 one-bedroom, 59 two-bedroom and 11 three-bedroom apartments. The total number of residential units within the site will therefore be 271.

Two off-street parking spaces will be provided for each house. Parking has also been allocated within the development for each apartment block, with 121 provided in total, which will include mobility parking spaces. Cycle parking will also be provided at each apartment block.

A crèche is proposed adjacent to one of the apartment blocks which will have 10 designated parking spaces associated with it. A total of 37 visitor parking spaces are proposed within the development.

The development will have two accesses, both onto the R148 Regional Road. One will be via a proposed priority-controlled t-junction on the R148 north of the M4 Junction 8 grade separated junction while the second will be via a second proposed t-junction to the east of the existing roundabout located between the entrance to Kilcock Cemetery and the existing Boycetown Court residential development.

A shared pedestrian and cycle track is proposed from the t-junction access to the primary spine road through the development. A number of public open spaces are also proposed within the development.

Two bus stops, one in each direction, are proposed on the primary spine road through the development.

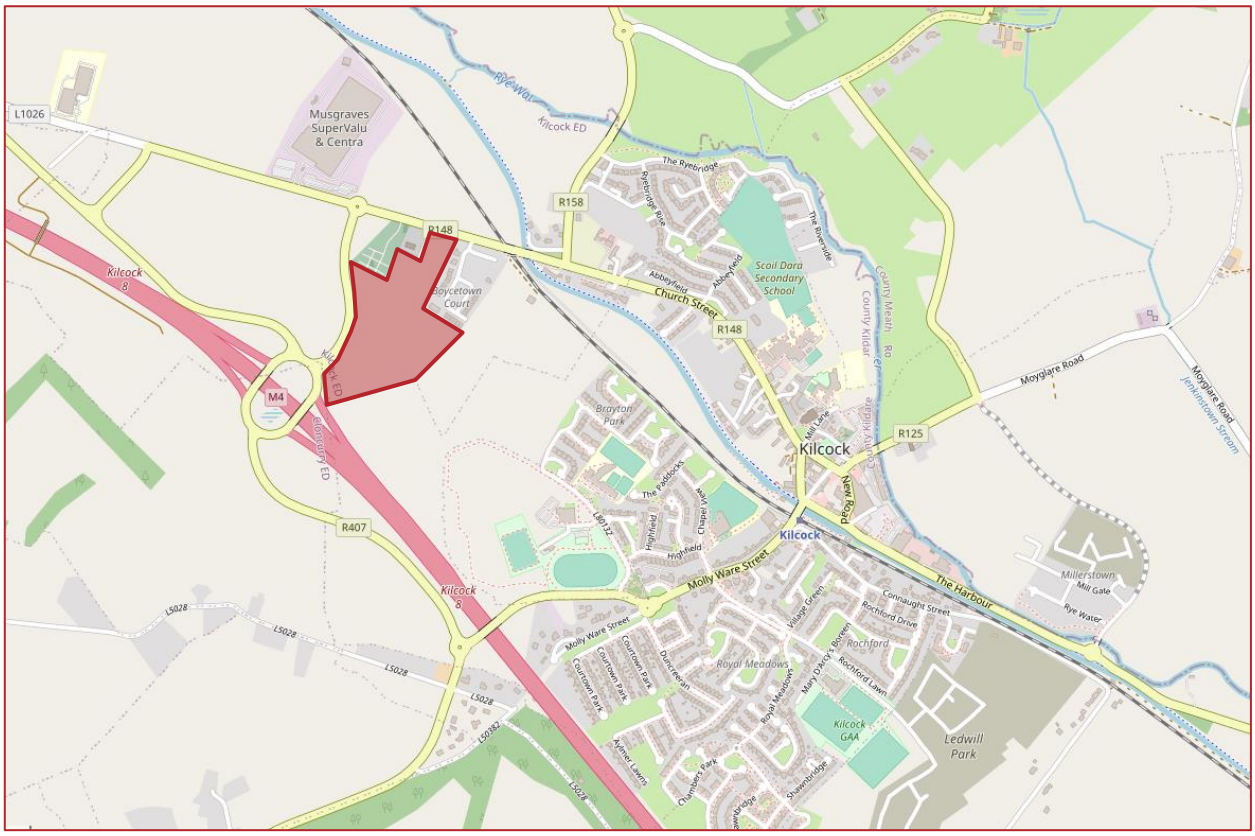


FIGURE 2.1: SITE LOCATION PLAN

2.2 Existing Road Network

The R148 is a two-way single carriageway which, in the vicinity of the proposed development, runs from the M4 Junction 8 rotary northwards before extending east and west at an existing roundabout. Between the M4 and this roundabout there is one traffic lane in each direction with no hard shoulder and a wide verge on both sides of the carriageway. There is currently no footpath or cycle facilities on this section of the R148.

To the east of the roundabout the R148 continues towards Kilcock Town Centre, with one traffic lane in each direction, hard shoulders on both sides of the carriageway and a shared pedestrian and cycle path along the northern side of the road which extends to the town centre. On the southern side of the road a footpath commences at the boundary of the Boycetown Court residential development and continues eastwards for a short distance.

To the east of the R148/R158 junction footpaths are provided on both sides of the carriageway and the hard shoulders terminate at this location. Between the M4 and the existing R148 roundabout the R148 has a posted speed of 60kph which reduces to 50kph immediately east of the roundabout and continues at this speed limit into Kilcock Town Centre.

3 Road Safety Audit

3.1 Introduction

This 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) Publications 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. Mazen Al Hosni
(BEng, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during July 2022 and comprised an examination of the documents provided by the designers (see Section 3.8).

In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 8th July 2022. Weather conditions at the time of the site visit were dry, and the road surface was dry. Traffic volumes during the site visit were moderate, as were pedestrian and cyclist volumes and traffic speeds were considered to be generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report. 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

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).

11 Minor Injury collisions and 2 Serious Injury collisions were recorded on the R148, and immediate surrounding roads, between the M4 Junction 8 rotary and Kilcock Town Centre which compromises the main routes to/from the site of the proposed development.

Table 3.1 summarises the details recorded in relation to these collisions.

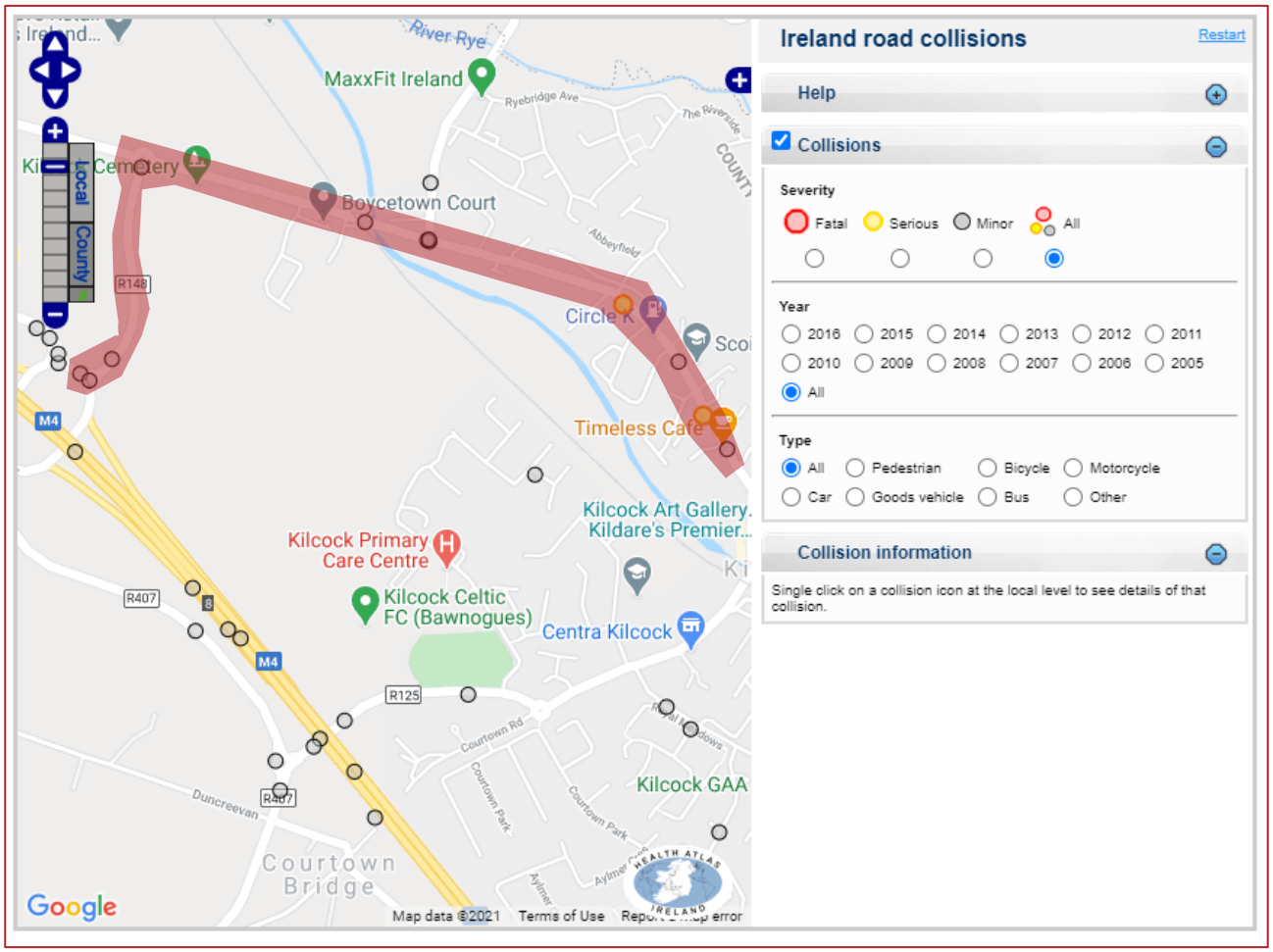


FIGURE 3.1: COLLISIONS RECORDED ON THE ROAD SAFETY AUTHORITY'S COLLISION DATABASE ON THE R148 BETWEEN THE M4 JUNCTION 8 ROTARY AND KILCOCK TOWN CENTRE (SOURCE: WWW.RSA.IE)

TABLE 3.1: SUMMARY OF COLLISIONS RECORDED ON THE ROAD SAFETY AUTHORITY'S COLLISION DATABASE ON THE R148 BETWEEN THE M4 JUNCTION 8 ROTARY AND KILCOCK TOWN CENTRE (SOURCE: WWW.RSA.IE)

Severity	Year	Vehicle	Collision Type	Casualties	Day of week	Time	Speed limit	Location
Minor	2016	Motorcycle	Rear-end	1	Thursday	7am – 10am	60kph	R148 at M4 J8 Rotary
Minor	2016	Car	Head-on	1	Wednesday	4pm – 7pm	50kph	R158
Minor	2016	Bicycle	Other	1	Sunday	10am – 4pm	80kph	Scoil Dara Kilcock
Minor	2016	Goods Vehicle	Pedestrian	1	Friday	7pm – 11pm	50kph	Kilcock Town
Minor	2015	Bicycle	Other	1	Monday	4pm – 7pm	50kph	R148 Roundabout
Minor	2014	Car	Rear-end	1	Monday	4pm – 7pm	50kph	R148 at river bridge
Minor	2014	Car	Rear-end	1	Monday	7pm – 11pm	50kph	R148/R158 Junction
Minor	2013	Car	Other	3	Wednesday	10am – 4pm	50kph	R148/R158 Junction
Minor	2012	Undefined	SVO	1	Thursday	10am – 4pm	60kph	R148 north of M4 J8
Minor	2011	Car	Pedestrian	1	Thursday	7pm – 11pm	50kph	R148/R158 Junction
Minor	2011	Car	Rear-end	1	Thursday	10am – 4pm	50kph	R148 at M4 J8 Rotary
Serious	2006	Car	Pedestrian	1	Thursday	4pm – 7pm	50kph	Circle K Kilcock
Serious	2005	Car	Pedestrian	1	Thursday	4pm – 7pm	50kph	Kilcock Town

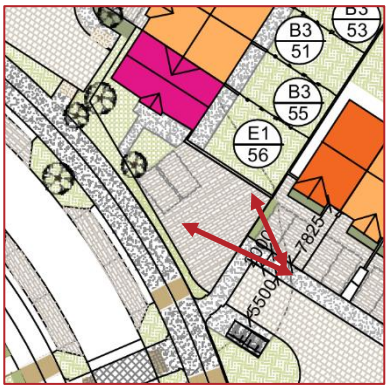
3.4 Road Safety Audit

3.4.1 Problem

Drawing: *Drawing 15113 – P101 (Rev. -)*

Summary: *Inter-visibility between pedestrians on the footpath and drivers entering/exiting the driveway at Unit E1-56 may be restricted by the adjacent property boundaries.*

Unit E1-56 has been indicated at the end of a cul-de-sac such that drivers are not required to turn off the road when entering the property but can drive straight into the driveway. The footpath on the northern side of this road is indicated as crossing the entrance to the driveway at Unit E1-56. The type of property boundaries proposed have not been indicated and it is therefore unclear if sufficient inter-visibility between drivers exiting this property, particularly when reversing, and pedestrians on the footpath crossing the driveway entrance will be available.



If inter-visibility is restricted there is a risk of drivers being insufficiently aware of approaching pedestrians, in particular small children, crossing their path resulting in an increased risk of collisions.

Recommendation

The parking spaces should be relocated closer to the footpath edge to minimise the reversing distance and sufficient inter-visibility should be provided between pedestrians on the footpath and drivers exiting Unit E1-56.

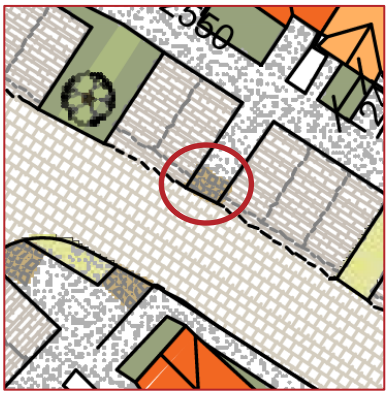
In addition, the remaining driveway space should be minimised to remove the risk of residents parking at locations where inter-visibility is restricted.

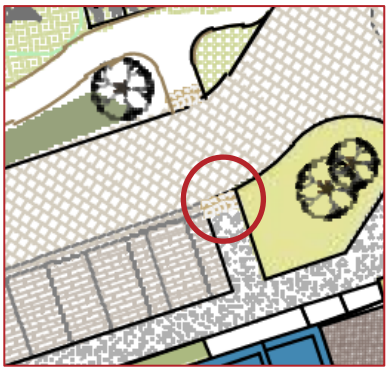
3.4.2 Problem

Drawing: *Drawing 15113 – P101 (Rev. -)*

Examples: *Adjacent to Unit B1-70 & Apartment Blocks B & C*

Summary: *Visibility for a driver towards a pedestrian crossing the carriageway may be restricted where crossings have been indicated between, or adjacent to, parking spaces.*





Pedestrian crossings have been indicated between, or adjacent to, parking spaces throughout the development. When these spaces are occupied the parked vehicles may restrict a driver's visibility to pedestrians, in particular children, about to cross the carriageway. This could lead to reduced reaction time and an increased risk of vehicle-pedestrian collisions.

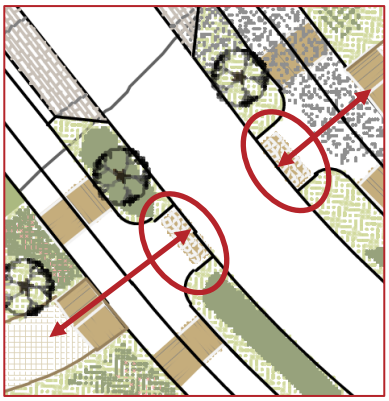
Recommendation

The pedestrian crossings should be positioned at locations where adequate inter-visibility can be provided.

3.4.3 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *It is unclear if the tactile paving at some inline pedestrian crossings is 1.2m deep.*



It is unclear if the tactile paving indicated at inline pedestrian crossings within the proposed development is of the required depth for this type of crossing. This could lead to visually impaired pedestrians stepping over the tactile paving layout and inadvertently entering the carriageway where they are at an increased risk of being struck by a vehicle.

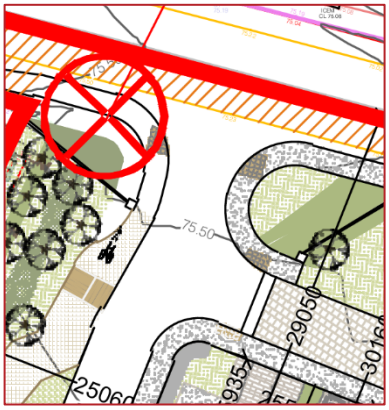
Recommendation

Ensure the tactile paving layout at all inline pedestrian crossings is a minimum of 1.2m, or three (400mm x 400mm) slabs, deep. Attention should be given to locations where one side of the crossing is an inline crossing while the other is not.

3.4.4 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Junction control and priority has not been indicated at the proposed development access junctions or at internal junctions within the proposed development.*



The junction control (stop, yield etc.) at the development access junctions and internal junctions within the development has not been indicated, nor has priority at junctions been clearly outlined.

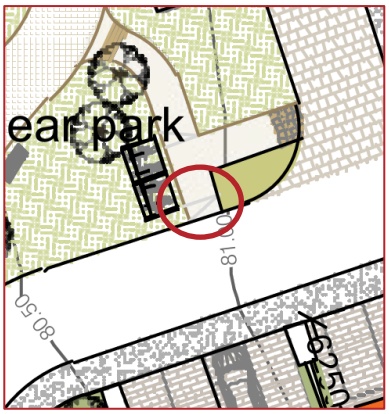
It is therefore unclear how drivers should approach these junctions and thus what visibility splays will be required. The absence of clear junction control and priority may result in driver confusion and hesitation, leading to them failing to slow their speed on approach to, or stop, at junctions resulting in rear end shunts or overshoot, and side-on, collisions.

Recommendation

The priority and junction control should be clearly conveyed, via signs and/or road markings, to drivers at the development access junctions on the R148 and at the internal junctions within the development.

3.4.5 Problem

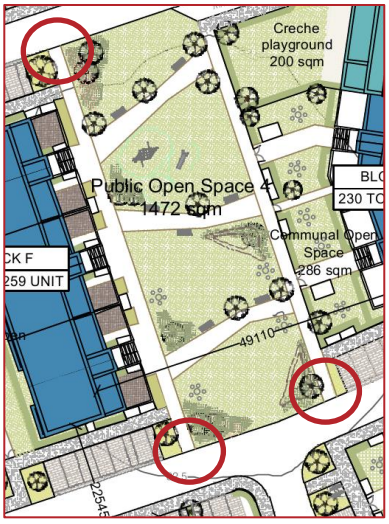
Drawing: *Drawing 15113 – P101 (Rev. P1)*



Summary: *Footpaths indicated terminating at carriageway edge without tactile paving.*

At a number of locations, including but not limited to those listed below, footpaths have been indicated terminating at the carriageway where no tactile paving, or corresponding footpath, has been indicated: -

- Side road junction between Apartment Blocks D and E.
- Footpaths on both sides of Public Open Space 4
- Footpath adjacent bicycle parking at Linear Park



At this early stage in the design, information regarding the kerb types proposed within the development have not been provided to the Audit Team and it is therefore unclear if dropped kerbs will be provided at these locations. If dropped kerbs are provided, and no tactile paving, visually impaired pedestrians may inadvertently enter the carriageway where there is an increased risk of being struck by a vehicle.

Recommendation

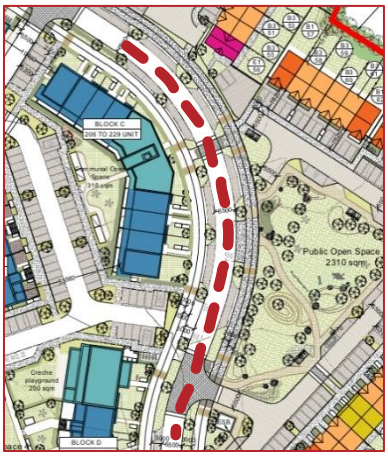
If dropped kerbs are proposed at these locations tactile paving should be provided.

However, if it is not intended for pedestrians to cross at these locations then a full height kerb should be provided, or other measures to deter access to the carriageway (e.g. verge/tree).

3.4.6 Problem

Location: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Unclear if there is sufficient space within the carriageways throughout the development for larger vehicles to travel through, and turn within the development.*



Information regarding the swept path of large vehicles, for example refuse vehicles and buses, have not been provided. It is therefore unclear if there will be sufficient space within the proposed road layout for large vehicles, especially refuse trucks and buses, to travel through the development and undertake U-Turns within the turning heads indicated.

If sufficient space is not provided within the carriageways there is a risk of large vehicles crossing over into the adjacent traffic lanes, leading to head-on collisions, or mounting/striking the kerb leading to material damage.

Recommendation

Ensure the carriageways, and turning heads, within the development can safely accommodate the swept path of all vehicles for all likely manoeuvres.

3.4.7 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Examples: *Unit A4-16, B2-46*

Summary: *Tactile paving indicated in front of driveways may be damaged due to increased loading as vehicles enter/exit the driveway.*



The tactile paving at pedestrian crossings adjacent some residential units (e.g. Units A4-16 & B2-46) has been indicated such that vehicles entering and exiting the driveway may drive over the tactile paving layout.

There is a risk that the tactile paving may be damaged by frequent vehicular loading and potentially creating trip hazards for pedestrians resulting in trips and falls and personal injuries.

Recommendation

The pedestrian crossings should be relocated to where they will not be overrun by vehicles entering/exiting driveways.

3.4.8 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Unclear if the proposed development, particularly the shared pedestrian and cyclist surface and the areas of public open space, will be sufficiently lit.*

Details of the proposed public lighting within the proposed development have not been provided at this early design stage.

It is therefore unclear if the pedestrian routes within the development, particularly the shared pedestrian and cyclist surface and the routes through areas of public open space, will be lit.

It is likely that these areas may attract young children and be an attractive route for walkers. If the VRU routes are not lit there is a risk of a driver having reduced awareness of pedestrians travelling to/from the area of public open space during the hours of darkness or the potential for conflicts between cyclists and pedestrians on the shared surface should there be dark spots on the route.

Recommendation

The VRU routes throughout the development, particularly to/from and within the areas of public open space, should be sufficiently lit.

3.4.9 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *At a number of locations mobility parking spaces are proposed with no measures to allow mobility impaired drivers/passengers to enter adjacent footpaths.*



Mobility impaired parking spaces have been indicated at a number of locations throughout the proposed development. No dropped kerbs and tactile paving have been indicated adjacent these mobility impaired parking spaces.

This could lead to a mobility impaired driver/passenger being unable to ascend the kerb and access the footpath after exiting their vehicle resulting in them having to travel within the carriageway to access a dropped kerb, resulting in an increased risk of being struck by a vehicle.

Recommendation

At locations where mobility impaired parking spaces are proposed dropped kerbs and tactile paving should be provided adjacent the parking spaces as recommended in the National Disability Authority publication 'Building for Everyone: A Universal Design Approach'.

3.4.10 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Unclear if there is sufficient space within the cul-de-sac in the south-western corner of the development to accommodate the swept path of turning vehicles*



A cul-de-sac has been indicated within the south-western corner of the proposed development. It is unclear if there will be sufficient space at this location for all vehicles to undertake a u-turn manoeuvre.

If sufficient space is not provided this may lead to vehicles mounting the kerb when undertaking turning manoeuvres, thus increasing the risk of collisions with items of roadside furniture and parked vehicles resulting in material damage.

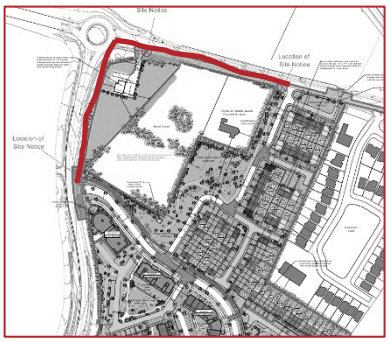
Recommendation

Ensure all vehicles can safely undertake turning manoeuvres within the extents of the carriageway at this location.

3.4.11 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *It is unclear how the proposed VRU facilities will terminate at the development's accesses onto the existing road network.*



Two accesses to the proposed development from the existing road network have been indicated, one at its western, and another at its northern, boundary with the R148. The footpath and cycle tracks within the development have been indicated as extending to these accesses and along the R148 for a short distance.

At the proposed northern access there is an existing footpath on the opposite side of the R148 where a new controlled pedestrian crossing is proposed to allow pedestrians and cyclists to access the existing shared path on the northern side of the carriageway.

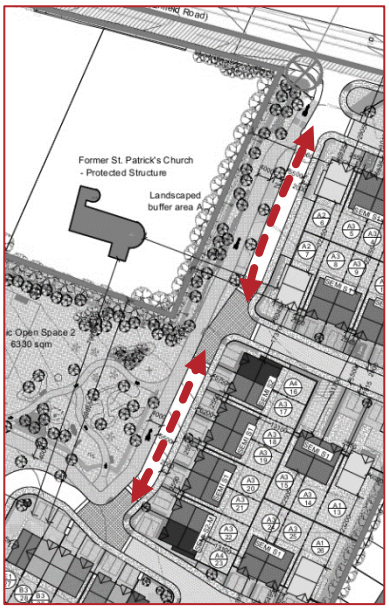
However, to the west there are no existing facilities on the southern side of the R148 with the proposed footpath indicated as terminating at the development's boundary.

Similarly, no existing or proposed facilities are located on the eastern side of the R148 at the development's western access. Vulnerable road users would therefore be required to continue within the hard shoulder. This is a particular concern for visually impaired pedestrians who may not realise that they are no longer on a footpath, resulting in an increased risk of VRUs being struck by a vehicle.

Recommendation

A footpath should be provided on the southern and eastern sides of the R148 between the development's northern and western accesses. A safe transition between these facilities and the carriageway should be provided at their termination.

3.4.12 Problem



Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Risk of unsafe crossing manoeuvres between the shared path at Public Open Space 2 and the residential units on the other side of the carriageway due to a lack of formal pedestrian crossings.*

Uncontrolled pedestrian crossings have been indicated at the junctions on the internal access road adjacent to Public Open Space 2, however no crossings have been indicated between the junctions along this section of road.

It is unlikely that residents of the properties on the eastern side of the road, particularly children, wishing to travel to the Public Open Space will travel to these crossings to do so as the most direct route is straight across the carriageway.

This could lead to pedestrians crossing away from designated crossing points at locations where a driver may be less attentive to them and insufficiently prepared to react safely resulting in an increased risk of vehicle-pedestrian collisions.

Recommendation

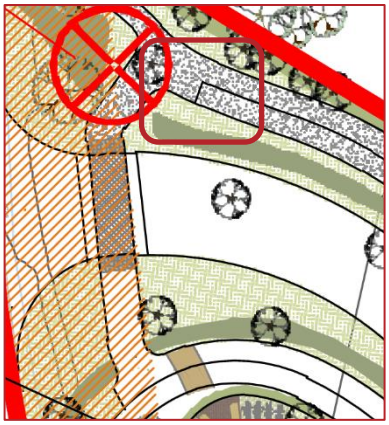
Formal pedestrian crossings should be provided between the side road junctions to provide additional safe crossing opportunities for pedestrians.

3.4.13 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *'Ladder & Tramline' tactile paving has not been indicated at the end of the segregated pedestrian and cyclist facilities at the development's western access.*

A segregated footpath and cycle track has bene indicated on both sides of the development's main access road commencing/terminating at the development's western access where a shared surface is indicated at the crossing of the access.



'Ladder & Tramline' tactile paving has not been indicated on the northern side of the access road at the transition between the segregated and shared facilities. This may lead to visually impaired pedestrians being insufficiently aware that they have entered an area shared with cyclists increasing the risk of pedestrian-cyclist collisions.

Recommendation

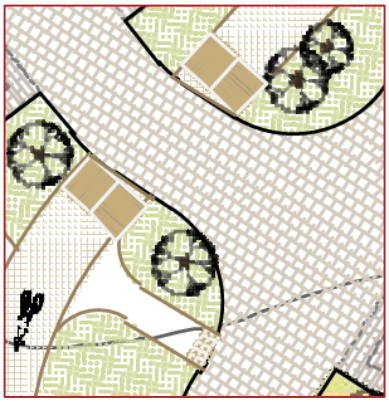
'Ladder & Tramline' tactile paving should be provided at the transition between the shared and segregated pedestrian and cyclist facilities.

3.4.14 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Incorrect tactile paving indicated at crossing of side road adjacent Apartment Block A.*

'Ladder & Tramline' tactile paving has been indicated within the shared pedestrian and cyclist path at the crossing of the side road adjacent Apartment Block A. This is the incorrect type of tactile paving for an uncontrolled crossing.



This may lead to a visually impaired pedestrian misinterpreting the road layout and thinking that they are entering segregated facilities downstream rather than a carriageway resulting in them inadvertently entering the carriageway where there is an increased risk of vehicle-pedestrian collisions.

Recommendation

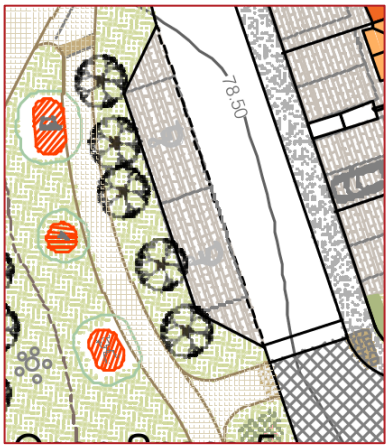
The 'Ladder & Tramline' tactile paving should be replaced with buff coloured blister tactile paving laid at a minimum depth of 1.2m.

3.4.15 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Vehicle occupants exiting the mobility parking spaces adjacent Public Open Space 5 must exit into the carriageway or verge where there is an increased risk of being struck by a vehicle or trips and falls respectively.*

Two mobility parking spaces have been indicated adjacent Public Open Space 5. A grass verge has been indicated between the footpath and parking spaces such that vehicle occupants exiting their vehicle will be required to exit into the carriageway or verge where there is an increased risk of being struck by a vehicle or slips, trips and falls respectively.



Recommendation

The footpath should be realigned such that it is located adjacent to the parking spaces or a link provided through the grass verge connecting the footpath and parking spaces.

In addition, ensure a sufficient buffer zone is provided between the parking spaces and footpath such that vehicle doors will not present obstacles to pedestrians on the footpath when opened.

3.4.16 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Bicycle parking indicated at the end of cul-de-sacs may be within the swept path of a vehicle performing a U-Turn.*

Bicycle parking has been indicated adjacent the end of cul-de-sacs at some locations within the proposed development, for example at Units B2-46 and E1-56. The area at the end of cul-de-sacs is limited and may present difficulties for drivers should they need to perform a U-Turn manoeuvre.



The bicycle parking at these locations may be located within the swept path of a turning vehicle leading to the potential for further difficulties in completing a U-Turn manoeuvre resulting in material damage collisions.

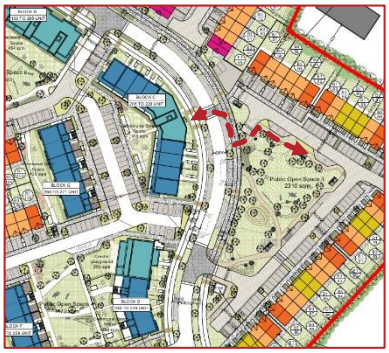
Recommendation

A swept path analysis should be undertaken and if the bicycle parking is determined to present an obstacle to this manoeuvre, it should be relocated.

3.4.17 Problem

Drawing: *Drawing 15113 – P101 (Rev. P1)*

Summary: *Mobility parking spaces have been indicated adjacent to Public Open Space 3 which is located a significant distance from the apartment blocks and would require mobility impaired vehicle occupants to cross the main development access road when travelling between these parking spaces and the apartment blocks.*

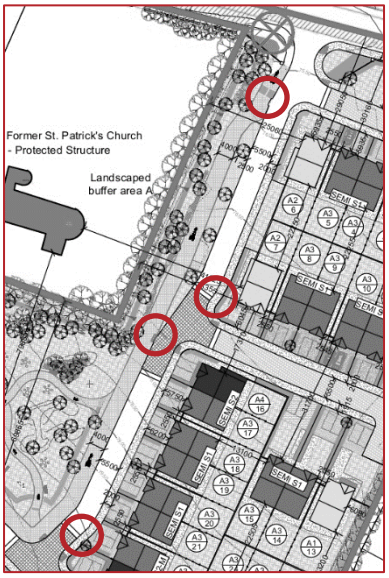


Mobility parking spaces have been indicated adjacent Public Open Space 3 and within an area of single residential units. It is assumed the mobility impaired parking spaces will be for the residents of, or visitors to, the apartment blocks. This would require mobility impaired vehicle occupants to travel a long distance, and cross the main development access road carriageway, when travelling between the apartments and their vehicle increasing the risk of vehicle-pedestrian collisions.

Recommendation

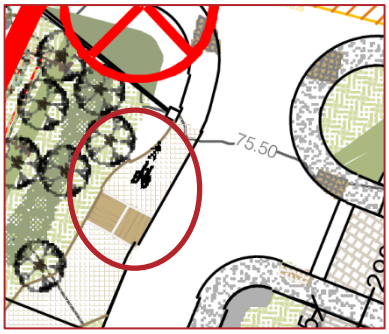
If these parking spaces are intended for the apartment blocks, they should be relocated to the other side of the access road adjacent the apartments blocks.

3.5 Observations



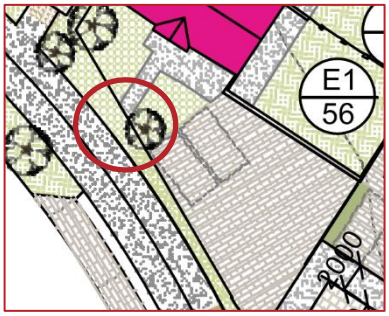
3.5.1 There are a number of abrupt changes in the horizontal alignment, and thus the kerb line, on roads within the proposed development. The Audit Team assume that these have been included as a means of traffic calming and reducing speeds. However, drivers typically use the nearside kerb edge as a guide when travelling in the carriageway and abrupt changes in direction, or sharp deflections, may result in drivers unintentionally striking the kerb or undertaking sudden evasive action to avoid a kerb strike.

While the Audit Team support the inclusion of traffic calming measures, ensure these changes in the horizontal alignment are smooth and sufficiently lit such that they are visible to approaching drivers.



3.5.2 The shared surface at the proposed development's northern access is indicated as extending beyond the 'Ladder & Tramline' tactile paving indicated.

The shared surface should be terminated upstream of the 'Ladder & Tramline' tactile paving to prevent vulnerable road users, especially cyclists and the visually impaired, from misinterpreting the road layout.



3.5.3 The footpath at Unit E1-56 terminates at a verge with no link to the adjacent footpath on the development's access road. This will lead to residents of this unit having to walk within the verge when travelling to/from their property.

The footpath should be extended through the verge to the footpath at the edge of the access road carriageway.

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: 26th August 2022

ROAD SAFETY AUDIT TEAM MEMBER

Mazen Al Hosni Signed: _____

Dated: 26th August 2022

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	☐	☑
2.	Departures from Standard	☐	☑
3.	Scheme Drawings	☑	☐
4.	Scheme Details such as signs schedules, traffic signal staging	☐	☑
5.	Collision data for existing roads affected by scheme	☐	☑
6.	Traffic surveys	☐	☑
7.	Previous Road Safety Audit Reports and Designer's Responses/Feedback Form	☐	☑
8.	Previous Exception Reports	☐	☑
9.	Start date for construction and expected opening date	☐	☑
10.	Any elements to be excluded from audit	☐	☑

Any other information? ☐ ☑
(if 'Yes', describe below)

3.8 Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Proposed Site Plan – Overall Site Masterplan	15113 – P101	-

3.9 Road Safety Audit Feedback Form

Scheme: Boycetown Kilcock, Co. Kildare

Route No.: R148

Audit Stage: Stage 1 Road Safety Audit **Date Audit Completed:** 26th July 2022

	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	No	No	Tactile paving is not located directly in front of driveways and will not be subject to frequent overrun by vehicles	Yes
3.4.8	Yes	Yes		
3.4.9	Yes	Yes		
3.4.10	Yes	Yes		
3.4.11	Yes	No	The development provides internal pedestrian permeability links in accordance with LAP objectives. The lands along the R158 and R148 at the site's western and north-western boundaries are outside the control of the applicant and it is not possible to provide a footpath there. The applicant will however raise with the Local Authority the matter of external pedestrian facilities to cater for possible future pedestrian desire lines outside the development site.	Yes

1.1 Road Safety Audit Feedback Form

Scheme: Boycetown Kilcock, Co. Kildare

Route No.: R148

Audit Stage: Stage 1 Road Safety Audit **Date Audit Completed:** 26th July 2022

	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		
3.4.14	Yes	Yes		
3.4.15	Yes	No	These parking spaces have been removed.	Yes
3.4.16	Yes	Yes		
3.4.17	Yes	No	These parking spaces are intended to serve houses, not apartments.	Yes

Signed: Designer **Date** 26.08.2022

Signed: Audit Team Leader **Date** 26th August 2022

Signed: Employer **Date** 26.8.2022

4 Accessibility & Walkability Audit

4.1 Introduction

The proposed development is located on the R148 in Boycetown, Kilcock, Co. Kildare and will include the construction of 271 residential units.

Vehicles will access the new development via two new accesses onto the R148 Regional Road. Both are proposed to be priority-controlled t-junctions to the south and east of the existing roundabout. The access to the east of the roundabout will be located between the entrance to Kilcock Cemetery and the existing Boycetown Court residential development.

Pedestrian and cyclists would access the development at these junctions with footpaths, cycle tracks and shared surfaces provided from these accesses and extending throughout the development. There are no existing footpath or cycle facilities on the R148 at these proposed junction locations, with a wide verge on both sides of the R148 carriageway to the west of the development and a hard shoulder on the southern side of the R148 to the north of the development. A controlled pedestrian crossing of the R148 is proposed to the east of the development's northern access which will provide access to an existing shared pedestrian and cycle path on the northern side of the R148.

A shared pedestrian and cycle track is proposed from the access at the development's northern boundary to the primary spine road through the development. A number of public open spaces are also proposed within the development which are located along this route.

To the east of the existing roundabout the R148 continues towards Kilcock Town Centre with a single traffic lane in each direction and a wide hard shoulder on the southern side of the carriageway. There is an existing shared pedestrian and cyclist path on the northern side of the R148 which continues towards the town centre. On the southern side of the R148 an existing footpath commences at the boundary of the Boycetown Court residential development and continues eastwards for a short distance. To the east of the R148/R158 junction footpaths are provided on both sides of the carriageway.

4.1.1 Access to Public Transport Network

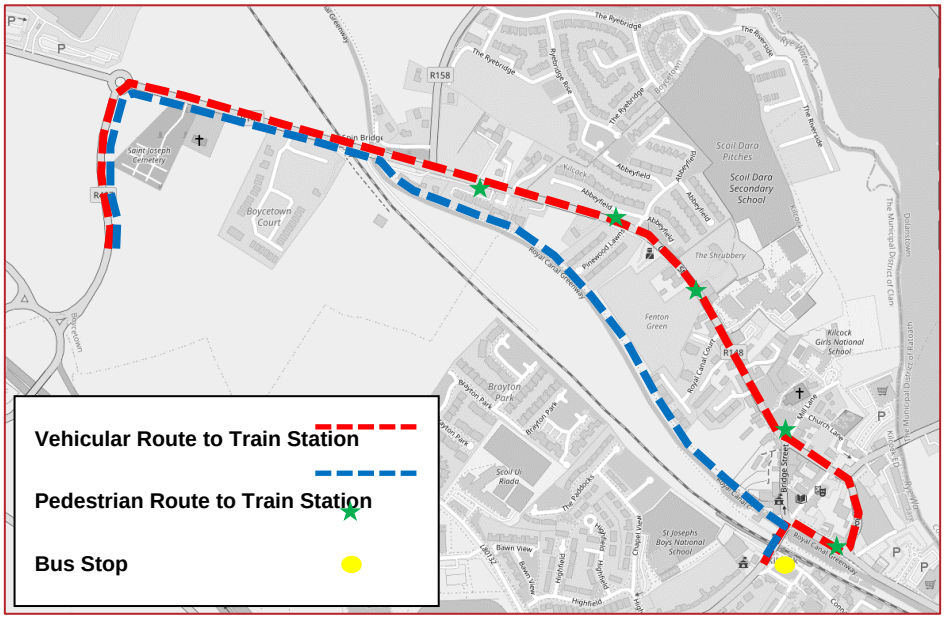


FIGURE 4.1: VEHICLE AND PEDESTRIAN ROUTE BETWEEN PROPOSED DEVELOPMENT AND KILCOCK TOWN CENTRE

There are five bus stops located in Kilcock Town Centre, all of which serve the 115 and 115C Bus Éireann routes. Both the 115 and 115C routes travel from Mullingar, in the midlands, to UCD, in Dublin. All of the bus stops are within 1.5km of the proposed development, which would be a journey time of approximately 20 minutes on foot.

The Sligo/Longford to Dublin railway line also runs through Kilcock, with Kilcock Train Station located 1.4km from the proposed development, a journey time of 17 minutes on foot. The train station also has a small Park and Ride facility.

Two bus stops, one in each direction, are proposed on the primary spine route through the development. It is unclear at this early design stage what route will serve these stops and what route the buses will take through the development.

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

4.1.2 Local Amenities

The development is located less than 2km from Kilcock Town Centre, which has a number of amenities including supermarkets, restaurants, bars and other services. Pedestrian routes will be well served between the development and Kilcock, with walking journey times of approximately 20 minutes.

A selection of other amenities located nearby are listed in Table 4.1, including the distance to these amenities and the journey times on foot. Given the peri-urban character of the area in which the proposed development is located, pedestrian routes are well catered for, including pedestrian crossings, footpaths of varying widths and dropped kerb accesses.

Given the variety of amenities available to residents of the development complex, as highlighted in Table 4.1, the development is considered to be well served by both essential, and recreational, amenities.

TABLE 4.1: LOCAL AMENITIES CLOSE TO THE PROPOSED DEVELOPMENT

Amenity	Distance (approx.)	Journey Time (approx.)	Direction from Development
Kilcock Cemetery	<250m	3-minutes	North
MaxxFit Ireland	1.1km	13-minutes	Northeast
Happy Steps (Creche)	700m	9-minutes	Northwest
Mulligans Garden Sheds	650m	8-minutes	East
Mulligans Fuel Depot	450m	6-minutes	East
Circle K Service Station	950m	11-minutes	East
Timeless Café	1.2km	15-minutes	Southeast
Casey & Nally's SuperValu	1.4km	17-minutes	East
Rye River Café	1.5km	18-minutes	East
Gregory's Tavern	1.4km	17-minutes	Southeast
Kilcock Art Gallery	1.4km	17-minutes	Southeast
Thomas O'Keeffe's Restaurant	1.4km	17-minutes	Southeast
Kilcock Train Station	1.5km	19-minutes	Southeast
Topline Clearys (Hardware Store)	1.5km	18-minutes	Southeast
Bujolle Bistro	1.5km	19-minutes	Southeast
Lidl Supermarket	1.6km	20-minutes	Southeast

Amenity	Distance (approx.)	Journey Time (approx.)	Direction from Development
St. Joseph's National School	1.8km	23-minutes	Southeast
Scoil Uí Riada Gaelscoil	2.2km	27-minutes	Southeast
Kilcock Primary Care Centre	2.2km	28-minutes	Southeast
Common West Playground	2.2km	27-minutes	Southeast
Kilcock Celtic FC	2.3km	28-minutes	Southeast
Kilcock GAA Club	2.1km	26-minutes	Southeast
Fitness Journey Kilcock	1.8km	22-minutes	Southeast
Kilcock Credit Union	1.4km	18-minutes	East
Kilcock Veterinary Hospital	1.3km	16-minutes	East
St. Coca's Catholic Church	1.3km	15-minutes	East
Kilcock Motor Factors (Auto Parts Store)	1.3km	16-minutes	East
Harbour Pharmacy	1.4km	17-minutes	Southeast
Tesco Express Supermarket	1.1km	13-minutes	East
Scoil Dara Kilcock	1.0km	12-minutes	East
Parke House Nursing Home	1.0km	12-minutes	West

4.2 Building Accesses

No accessibility issues have been identified relating to Building Accesses.

4.3 Pedestrian Facilities

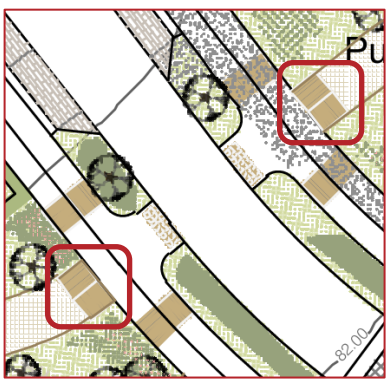
Accessibility issues relating to pedestrian facilities have been discussed in Sections 3.4.5, 3.4.11 & 3.4.12.

4.4 Target Groups

Accessibility issues relating to Target Groups have been discussed in Sections 3.4.3, 3.4.9, 3.4.13, 3.4.14, 3.4.15 and 3.4.17.

4.4.1 Issue

'Ladder & Tramline' tactile paving has been indicated at the transitions between the shared pedestrian and cycle path and shared surfaces at uncontrolled pedestrian crossings. This transition is between two shared pedestrian and cyclist areas and, as a result, 'Ladder & Tramline' tactile paving is not required at this location. Providing this tactile paving at these locations may lead to visually impaired pedestrians misinterpreting the road layout and thinking that they have exited the shared area and entered an area segregated from cyclists.



Recommendation

'Ladder & Tramline' tactile paving is only required at transitions between shared and segregated pedestrian and cyclist facilities and should therefore be removed from these locations.

4.5 Subways

No accessibility issues have been identified relating to Subways.

4.6 Junctions

Accessibility issues relating to Junctions have been discussed in Sections 3.4.4.

4.7 Signage

No accessibility issues have been identified relating to Signage.

4.8 Public Transport

No accessibility issues have been identified relating to Public Transport.

4.9 Lighting

Accessibility issues relating to Lighting have been discussed in Section 3.4.8.

4.10 Visibility

Accessibility issues relating to Visibility have been discussed in Sections 3.4.1 & 3.4.2.

4.11 Waste Facilities within the Development

No accessibility issues have been identified relating to Waste Facilities within the Development.

4.12 Carriageway Markings for Pedestrians

No accessibility issues have been identified relating to carriageway markings for pedestrians.

4.13 Parking

Accessibility issues relating to Parking have been discussed in Sections 3.4.9, 3.4.15 and 3.4.17.

5 Non-motorised User and Cycle Audit

5.1 External Cycle Provision

Accessibility issues relating to the External Cycle Provision have been discussed in Section 3.4.11.

5.2 Internal Cycle Provision

5.2.1 Issue

It is unclear if cycle parking will be sheltered and secure. 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 access, thereby restricting pedestrian access.

Recommendation

Ensure cycle stands are sheltered and located in areas with high pedestrian volumes to encourage greater passive security.

5.3 Quality Audit Action Plan

Issue	Situation	Action/Adjustment	Priority	Cost
4.3	Footpaths indicated terminating at carriageway edge without tactile paving.	If dropped kerbs are proposed at these locations tactile paving should be provided. However, if it is not intended for pedestrians to cross at these locations then a full height kerb should be provided, or other measures to deter access to the carriageway (e.g. verge/tree).	1	A
	It is unclear how the proposed VRU facilities will terminate at the development's accesses onto the existing road network.	A footpath should be provided on the southern and eastern sides of the R148 between the development's northern and western accesses. A safe transition between these facilities and the carriageway should be provided at their termination.	1	C
	Risk of unsafe crossing manoeuvres between the shared path at Public Open Space 2 and the residential units on the other side of the carriageway due to a lack of formal pedestrian crossings.	Formal pedestrian crossings should be provided between the side road junctions to provide additional safe crossing opportunities for pedestrians.	1	B
4.4	It is unclear if the tactile paving at some inline pedestrian crossings is 1.2m deep.	Ensure the tactile paving layout at all inline pedestrian crossings is a minimum of 1.2m, or three (400mm x 400mm) slabs, deep. Attention should be given to locations where one side of the crossing is an inline crossing while the other is not.	1	A
	At a number of locations mobility parking spaces are proposed with no measures to allow mobility impaired drivers/passengers to enter adjacent footpaths.	At locations where mobility impaired parking spaces are proposed dropped kerbs and tactile paving should be provided adjacent the parking spaces as recommended in the National Disability Authority publication 'Building for Everyone: A Universal Design Approach'.	1	A
	'Ladder & Tramline' tactile paving has not been indicated at the end of the segregated pedestrian and cyclist facilities at the development's western access.	'Ladder & Tramline' tactile paving should be provided at the transition between the shared and segregated pedestrian and cyclist facilities.	1	A
	Incorrect tactile paving indicated at crossing of side road adjacent Apartment Block A.	The 'Ladder & Tramline' tactile paving should be replaced with buff coloured blister tactile paving laid at a minimum depth of 1.2m.	1	A
	Vehicle occupants exiting the mobility parking spaces adjacent Public Open Space 5 must exit into the carriageway or verge where there is an	The footpath should be realigned such that it is located adjacent to the parking spaces or a link	1	B

	increased risk of being struck by a vehicle or trips and falls respectively.	provided through the grass verge connecting the footpath and parking spaces. In addition, ensure a sufficient buffer zone is provided between the parking spaces and footpath such that vehicle doors will not present obstacles to pedestrians on the footpath when opened.		
	Mobility parking spaces have been indicated adjacent to Public Open Space 3 which is located a significant distance from the apartment blocks and would require mobility impaired vehicle occupants to cross the main development access road when travelling between these parking spaces and the apartment blocks.	If these parking spaces are intended for the apartment blocks, they should be relocated to the other side of the access road adjacent the apartments blocks.	1	B
4.4.1	'Ladder & Tramline' tactile paving has been indicated at the transitions between the shared pedestrian and cycle path and shared surfaces at uncontrolled pedestrian crossings. This transition is between two shared pedestrian and cyclist areas and, as a result, 'Ladder & Tramline' tactile paving is not required at this location. Providing this tactile paving at these locations may lead to visually impaired pedestrians misinterpreting the road layout and thinking that they have exited the shared area and entered an area segregated from cyclists.	'Ladder & Tramline' tactile paving is only required at transitions between shared and segregated pedestrian and cyclist facilities and should therefore be removed from these locations.	1	A
4.6	Junction control and priority has not been indicated at the proposed development access junctions or at internal junctions within the proposed development.	The priority and junction control should be clearly conveyed, via signs and/or road markings, to drivers at the development access junctions on the R148 and at the internal junctions within the development.	1	A
4.9	Unclear if the proposed development, particularly the shared pedestrian and cyclist surface and the areas of public open space, will be sufficiently lit.	The VRU routes throughout the development, particularly to/from and within the areas of public open space, should be sufficiently lit.	1	D
4.10	Inter-visibility between pedestrians on the footpath and drivers entering/exiting the driveway at Unit E1-56 may be restricted by the adjacent property boundaries.	The parking spaces should be relocated closer to the footpath edge to minimise the reversing distance and sufficient inter-visibility should be provided between pedestrians on the footpath and drivers exiting Unit E1-56. In addition, the remaining driveway space should be minimised to remove the risk of residents parking at locations where inter-visibility is restricted.	1	A

	Visibility for a driver towards a pedestrian crossing the carriageway may be restricted where crossings have been indicated between, or adjacent to, parking spaces.	The pedestrian crossings should be positioned at locations where adequate inter-visibility can be provided.	1	B
4.13	At a number of locations mobility parking spaces are proposed with no measures to allow mobility impaired drivers/passengers to enter adjacent footpaths.	At locations where mobility impaired parking spaces are proposed dropped kerbs and tactile paving should be provided adjacent the parking spaces as recommended in the National Disability Authority publication 'Building for Everyone: A Universal Design Approach'.	1	A
	Vehicle occupants exiting the mobility parking spaces adjacent Public Open Space 5 must exit into the carriageway or verge where there is an increased risk of being struck by a vehicle or trips and falls respectively.	The footpath should be realigned such that it is located adjacent to the parking spaces or a link provided through the grass verge connecting the footpath and parking spaces. In addition, ensure a sufficient buffer zone is provided between the parking spaces and footpath such that vehicle doors will not present obstacles to pedestrians on the footpath when opened.	1	A
	Mobility parking spaces have been indicated adjacent to Public Open Space 3 which is located a significant distance from the apartment blocks and would require mobility impaired vehicle occupants to cross the main development access road when travelling between these parking spaces and the apartment blocks.	If these parking spaces are intended for the apartment blocks, they should be relocated to the other side of the access road adjacent the apartments blocks.	1	A
5.1	It is unclear how the proposed VRU facilities will terminate at the development's accesses onto the existing road network.	A footpath should be provided on the southern and eastern sides of the R148 between the development's northern and western accesses. A safe transition between these facilities and the carriageway should be provided at their termination.	1	C
5.2.1	It is unclear if cycle parking will be sheltered and secure.	Ensure cycle stands are sheltered and located in areas with high pedestrian volumes to encourage greater passive security.	1	A

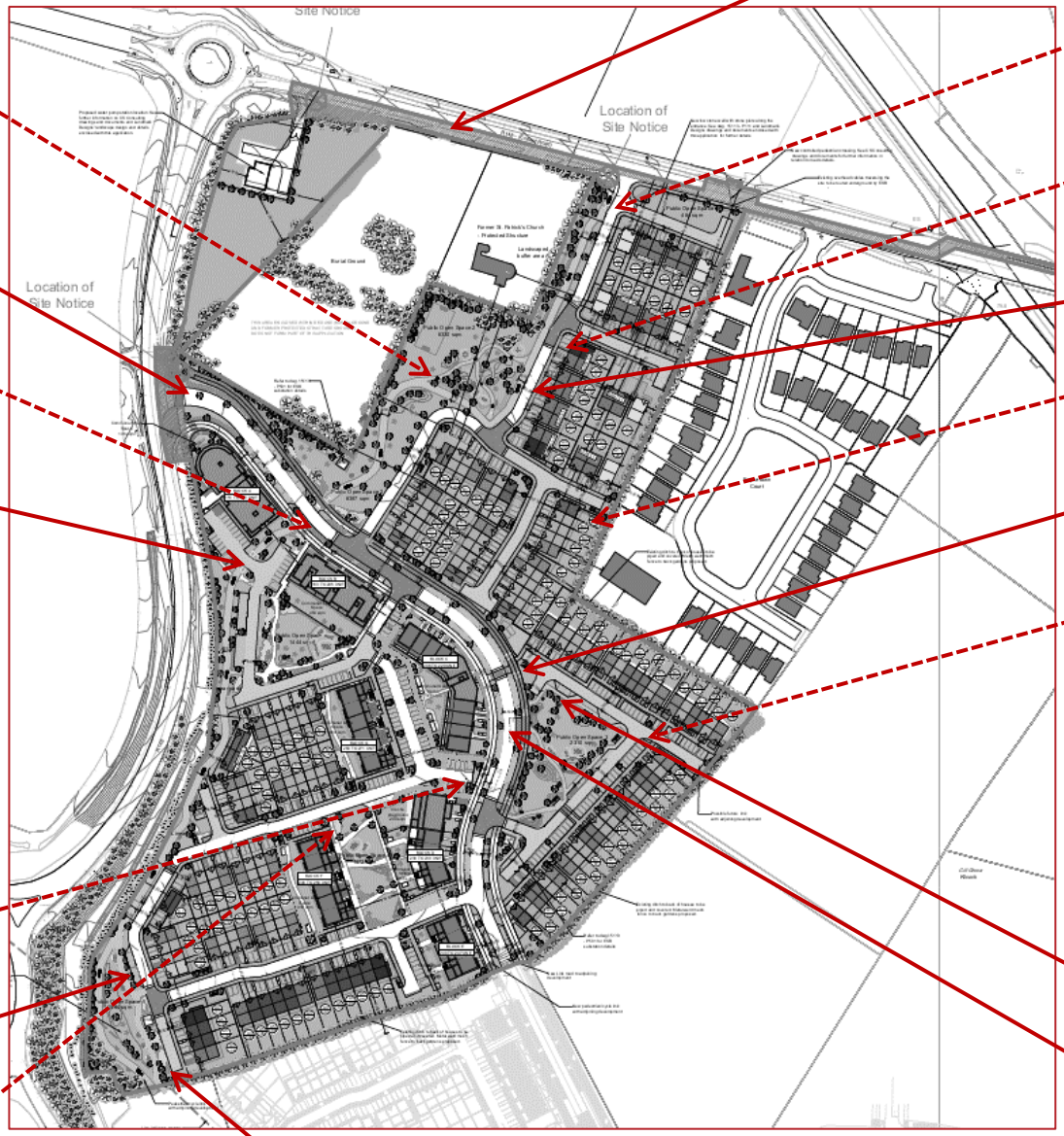
Priority

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 – Greater than €20,000

Appendix A - Road Safety Audit Problem Locations



Problem 3.4.11

Example of General Problem 3.4.8

Example of General Problem 3.4.4

Problem 3.4.13

Example of General Problem 3.4.7

Example of General Problem 3.4.3

Problem 3.4.12

Problem 3.4.14

Example of General Problem 3.4.16

Problem 3.4.1

Example of General Problem 3.4.2

Example of General Problem 3.4.9

Problem 3.4.15

Problem 3.4.17

Example of General Problem 3.4.5

Problem 3.4.10

Problem 3.4.6