

South Dublin County Council

**Proposed Parking Site Developments at Lucan Demesne,
Lucan, Co. Dublin,**

Road Safety Audit Stage 1



Proposed Parking Site Developments at Lucan Demesne, Lucan, Co. Dublin

Road Safety Audit Stage 1

Document Control Sheet	
Document Reference	11194-TR01-RSA
Report Status	Issue
Report Date	July 2021
Current Revision	A
Client:	South Dublin County Council
Client Address:	County Hall, Belgard Square North, Tallaght, Dublin, D24YNN5
Project Number	11129

Galway Office Fairgreen House, Fairgreen Road, Galway, H91 AXK8, Ireland. Tel: +353 (0)91 565 211	Dublin Office Block 10-4, Blanchardstown Corporate Park, Dublin 15, D15 X98N, Ireland. Tel: +353 (0)1 803 0406	Castlebar Office Market Square, Castlebar, Mayo, F23 Y427, Ireland. Tel: +353 (0)94 902 1401
---	--	--

Revision	Description	Author:	Date	Reviewed By:	Date	Authorised by:	Date
D01	Issue	RM	08/07/2021	LG	08/07/2021	LG	08/07/2021
A	Final Issue	RM	10/08/2021	LG	10/08/2021	LG	10/08/2021

TOBIN Consulting Engineers

Disclaimer

This Document is Copyright of TOBIN Consulting Engineers Limited. This document and its contents have been prepared for the sole use of our Client. No liability is accepted by TOBIN Consulting Engineers Limited for the use of this report, or its contents for any other use than for which it was prepared.



Table of Contents

1.0	Introduction.....	1
1.1	Existing Environment	1
1.2	Proposed Development.....	2
1.3	Audit Details	2
2.0	Items resulting from this road safety audit.....	4
2.1	SITE A.....	4
2.1.1	<i>Problem</i>	4
2.1.2	<i>Problem</i>	4
2.1.3	<i>Problem</i>	5
2.1.4	<i>Problem</i>	5
2.1.5	<i>Problem</i>	6
2.2	SITE B.....	7
2.2.1	<i>Problem</i>	7
2.2.2	<i>Problem</i>	7
2.2.3	<i>Problem</i>	8
2.2.4	<i>Problem</i>	8
2.2.5	<i>Problem</i>	9
2.2.6	<i>Problem</i>	9
2.3	OBSERVATIONS	11
2.3.1	<i>General</i>	11
2.3.2	<i>Site A</i>	11
2.3.3	<i>Site B</i>	12
3.0	Audit Team Statement	13

Table of Figures

Figure 1-1:	Site Location.....	1
Figure 1-2:	Road Collision Data 2005 – 2016 (source Road Safety Authority)	3
Figure 2-1:	Roundabout Ahead Warning Sign on westbound side of R835	4
Figure 2-2:	Proposed dimensions for parallel parking bays at Site A.....	4
Figure 2-3:	Site A: Bus stop width	5



Figure 2-4: Public Lighting Obstructed by Vegetation	5
Figure 2-5: Existing gully appearing to clash with location of proposed pedestrian crossing.....	7
Figure 2-6: No right turn sign appearing to clash with location of proposed entrance/exit point to Site B.....	7
Figure 2-7: Possible visibility clashes with Parking spot WA2 and Soft landscaping to East	8
Figure 2-8: Operation of Parking Space 1	9
Figure 2-9: Potential Conflict Point between existing 50kph repeater sign and proposed Pedestrian Crossing	9
Figure 2-10: Dimensions of the Proposed Wheelchair Accessible Parking within Site B.....	10
Figure 2-11: Observation – General Existing Signage	11
Figure 2-12: Observation – Overhanging Foliage & Tree Growth over Proposed Footway.....	11

Appendices

Appendix A – List of Documents Examined

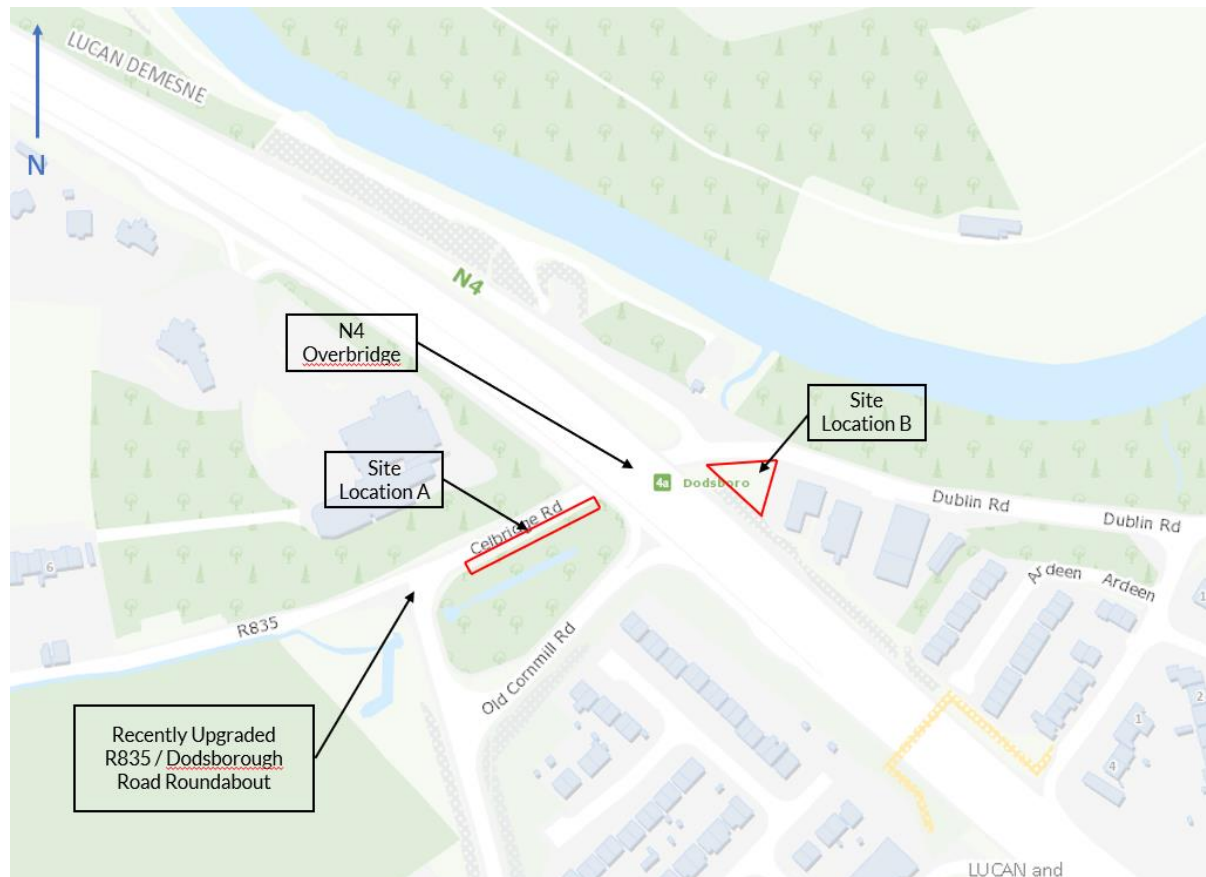
Appendix B – Problem Location Map

Appendix C – Road Safety Audit Feedback Form



1.0 INTRODUCTION

This report describes the Stage 1 Road Safety Audit carried out for two proposed parking site developments for South Dublin County Council as part of the Lucan Village Public Realm Improvement Scheme. This section of proposed works is located at Lucan Demesne, Lucan, Co. Dublin, see Figure 1-1.



CYAL50169152 © Ordnance Survey Ireland/Government of Ireland

Figure 1-1: Site Location

1.1 Existing Environment

The existing sites are currently public land under various use off the R835 Dublin /Celbridge Road.

- At Site A – Existing online bus stop, grass verge and footpath with wall and grassed area to the rear. Sited on the west side of the N4 overbridge on approach to the R835/Dodsborough Road Roundabout
- At Site B – Existing offline landscaped grassed area with welcome sign, and pedestrian facilities to the east side of the N4 overbridge.

The proposed sites are sited within a 50km/h urban speed limit. Street lighting and footways are present in the vicinity of both sites with bus stops, public parking and businesses in close proximity. Both sites are split by the N4 national road where exit 4A joining the R835 with Site A immediately west of the N4 overbridge and Site B immediately west of the N4 Exit 4A / R835 junction. The R835/Dodsborough Roundabout is to the west of Site A and provides access to Exit 5 on the N4.

The R835 regional route has a carriageway cross section comprising an approximate 7.0m carriageway with 2m footpaths on both sides. Road markings and signage are present along the existing road network. Pavement is in relatively good condition with some minor defects at the N4 slip/R835 junction. Road drainage is catered for through piped gullies alongside the footpaths.

1.2 Proposed Development

The proposed development is split into two parking sites on publicly owned land just off the R835 Dublin/Celbridge Road. Proposed Development drawing have been made available indicating the following development at both sites

- Site A – Online development of 7 no. parallel parking bays, recessed bus stop with tapers and new 3.0m wide footway on the westbound side of the R835.
- Site B – Offline development of 11 no. parking spaces (including 2 wheelchair accessible spaces) on grasscrete permeable paving with new direct access entry/exit onto the R835.

1.3 Audit Details

The audit took place at the Galway and Dublin office of TOBIN Consulting Engineers in July 2021. The audit comprised an examination of the documents provided by the Design Team and listed in Appendix A. In addition, a daytime site visit took place on the 5th of July 2021. During the site visit the weather was clear and sunny, and the road surface was dry.

The Audit Team note that no information was provided on the following:

- Departures to Standards
- Visibility Splays
- Detailed Design Elements – (All Ancillary Highway Drawings inc. drainage, swept paths, details etc.)

The audit team members were as follows:

Audit Team Leader

- Laura Gaffney – MSc. Env. Eng., BEng (Hons) Civil Eng., CEng., MIEI. Senior Engineer for Roads & Transportation, TOBIN Consulting Engineers – TII Reference LG3386505

Audit Team Member

- Ronan Murtagh – B.A., B.A.I CEng., MIEI., Engineer for Roads & Transportation, TOBIN Consulting Engineers – TII Reference RM3414512

This Stage 1 Audit has been carried out in accordance with the relevant sections of Transport Infrastructure Ireland Publication (Standards) “Road Safety Audit” GE-STY-01024 (December 2017). The team have examined and reported only on the road safety implications of the design submitted and has not examined or verified the compliance of the design to any other criteria. However, to clearly explain a problem or a recommendation, it may be necessary to refer to another Standard or Advice Note, but such reference will not conflict with the requirements of the above Terms of Reference.

Road Collision Data available on the Road Safety Authority Database, within the period 2005 to 2016, has identified 1 no. minor collision in the vicinity of the proposed development, as detailed in Figure 1-2 below. (2 no. collisions on the N4 above the site have been excluded)

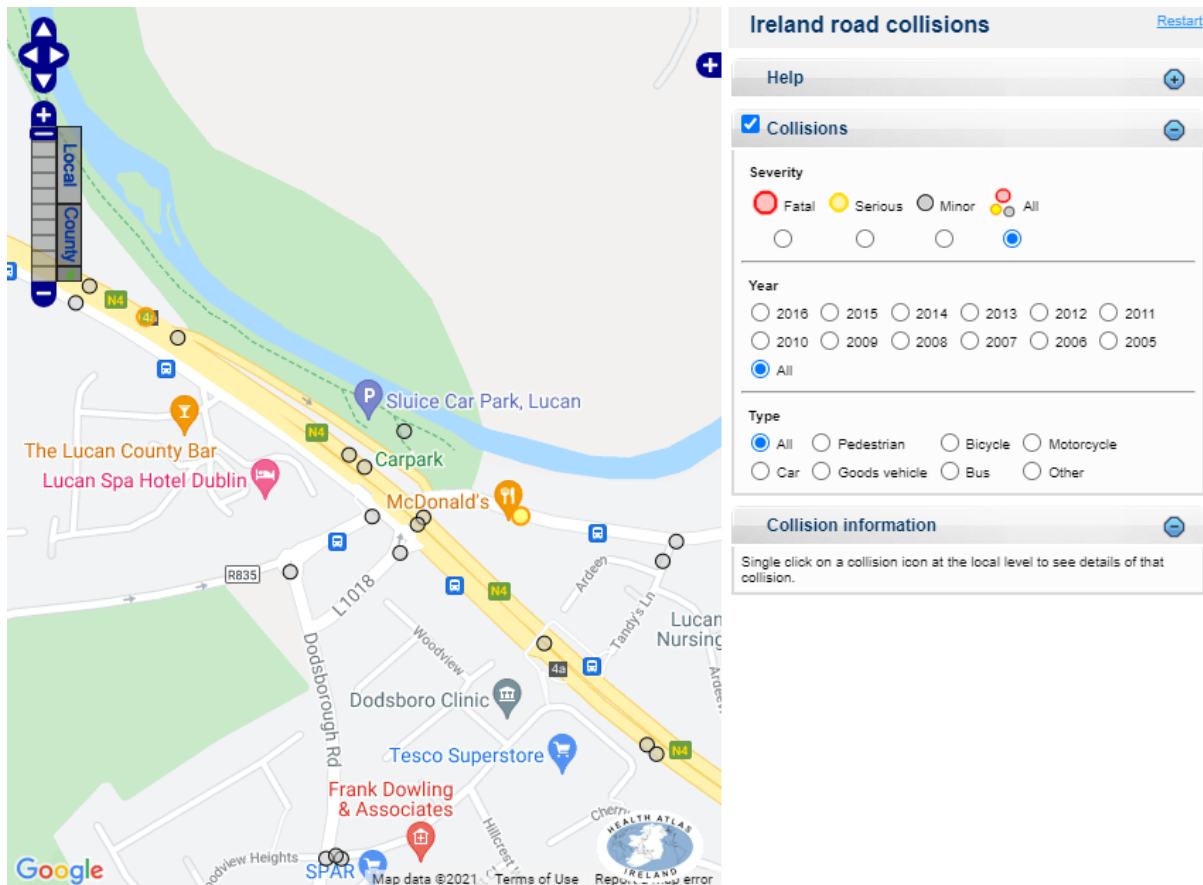


Figure 1-2: Road Collision Data 2005 – 2016 (source Road Safety Authority)

Note - the RSA database is not a comprehensive record of collisions and should be reviewed in conjunction with the Local Authority / Gardaí records for the site.

The Road Safety Audit was undertaken during the COVID pandemic, and the Road Safety Audit team adhered to the best practice guidelines issued by TII with regards to the undertaking of the Road Safety Audit at the time.

The Road Safety Audit was undertaken examining only the proposed indicative layout drawings provided as listed in Appendix A. These do not include drawings such as Vehicle Swept Path Analysis or any of the Roadworks series of drawings to make safety assessments.

The Design Team and Employer (Client) is reminded that the Road Safety Audit Feedback Form, in Appendix C, shall be completed and returned to the Road Safety Audit Team Leader for sign off.

2.0 ITEMS RESULTING FROM THIS ROAD SAFETY AUDIT

2.1 SITE A

2.1.1 Problem

Location of Existing Signage

Roundabout Ahead Warning Sign on the westbound side of the R835 could potentially be blocked by buses using the bus stop. Insufficient warning of the upcoming road layout may result in higher speeds approaching the roundabout resulting in sudden braking and potentially increasing the risk of rear end collisions..



Figure 2-1: Roundabout Ahead Warning Sign on westbound side of R835

Recommendation

The Design Team should provide adequate warning to road users in advance of the upcoming road layout.

2.1.2 Problem

Parking Space Dimensions

Parallel parking space dimensions are of insufficient length. This may result in difficulty manoeuvring into / out of spaces resulting in parked collisions, and increased potential for rear end shunts between vehicles parking and passing traffic.

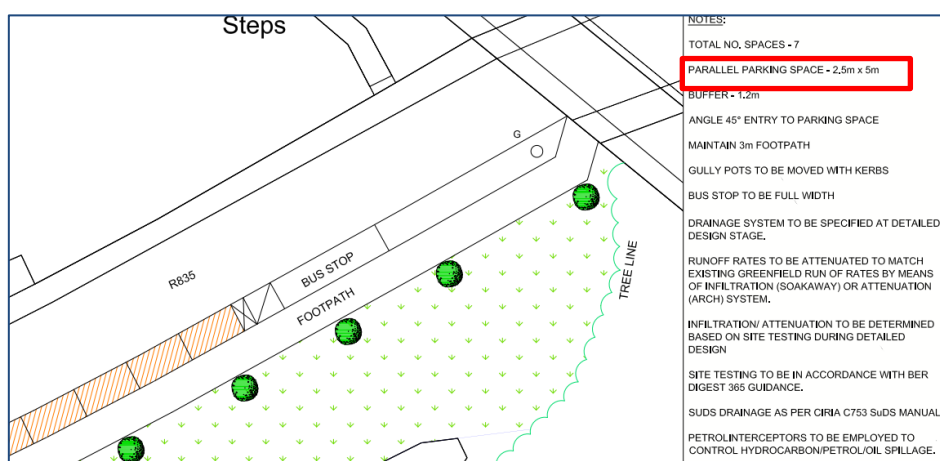


Figure 2-2: Proposed dimensions for parallel parking bays at Site A

Recommendation

The Design Team should provide suitably sized parking bays for safe manoeuvrability.

2.1.3 Problem

Bus Stop Width

The bus lay-by is indicated in line with the parallel car parking on the R835. The Audit Team are concerned that the width of the bus lay-by will result in the stopped bus encroaching into the passing traffic. This may result in the bus being struck by passing traffic / on-road cyclists swerving around the obstruction into the path of a vehicle approach from behind.

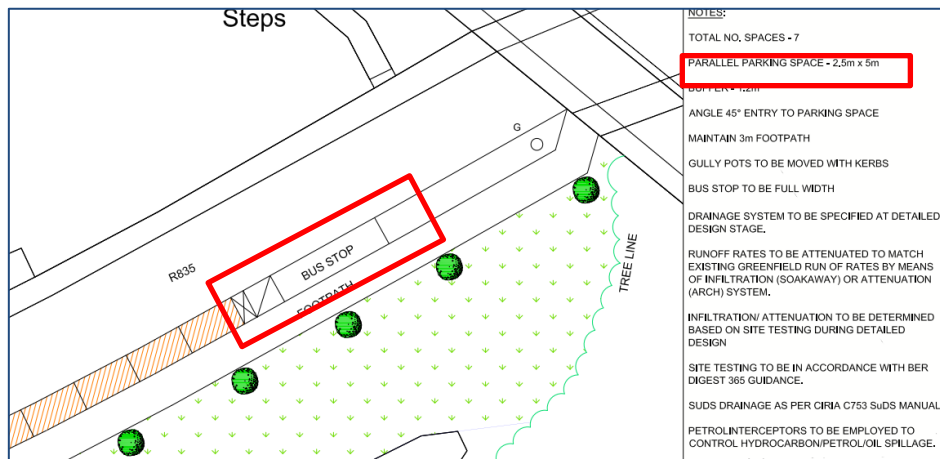


Figure 2-3: Site A: Bus stop width

Recommendation

The bus layby should be positioned so as not to obstruct passing traffic on the R385.

2.1.4 Problem

Public Lighting Obstructed by Vegetation

The Audit Team observed that the public lighting on the eastbound side of the carriageway was obstructed by overgrown vegetation (i.e. trees canopy). Insufficient lighting on the carriageway outside of daylight hours may result in vehicle not observing the road layout ahead which will be exasperated by additional vehicular movements into/ out of the revised layout including parallel parking.



Figure 2-4: Public Lighting Obstructed by Vegetation

Recommendation

The Design Team should ensure that sufficient lighting is provided on the scheme.

2.1.5 Problem

Location of Access Gate

The Audit Team observed that the existing access gate on the westbound side of the carriageway to the grassed area will be sited within the vicinity of the proposed parking bays. This may result in visibility of vehicles exiting the access being obscured by parked vehicles which could result in collisions with vehicles travelling along the R835.



Recommendation

The Design Team should ensure that sufficient visibility is provided for vehicles entering/exiting the Access Gate.

2.2 SITE B

2.2.1 Problem

Drainage & Pedestrian Crossing Clash

Existing gully appears to be in line of proposed pedestrian crossing. Potential for ponding of water / built up of debris leading to slips / trips and in cold weather ice may form at crossing leading to slips. There is also the potential for visually impaired walking aids to become stuck in the grating.

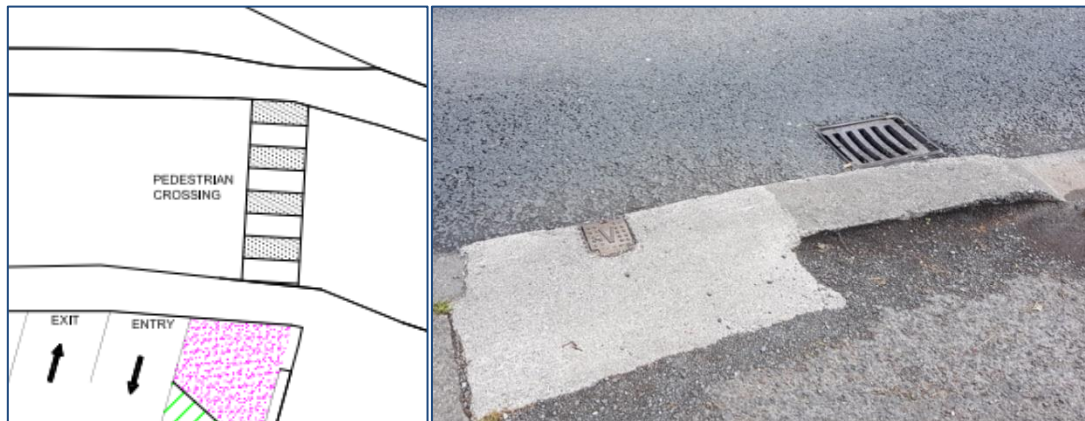


Figure 2-5: Existing gully appearing to clash with location of proposed pedestrian crossing

Recommendation

The Design Team should relocate gully upstream of the pedestrian crossing.

2.2.2 Problem

Signage & Access Point Clash

No right turn sign on the westbound footway appears to be clashing with the proposed entrance/exit to the proposed parking site. The Audit Team are concerned this sign could create a potential conflict point for vehicles entering/exiting the proposed car park.



Figure 2-6: No right turn sign appearing to clash with location of proposed entrance/exit point to Site B

Recommendation

The design team should relocate the No Right Turn sign clear of the direct access and such that it does not obscure pedestrian movements.

2.2.3 Problem

Visibility Splays

No details of the visibility splays were provided. The Audit Team are concerned that the visibility splays existing the carpark may be impacted by landscaping, boundary treatment and high sided parked vehicle in WA2. Obstructed visibility may result in a vehicle encroaching into oncoming passing traffic on the R835 and the vehicle being struck by passing traffic.

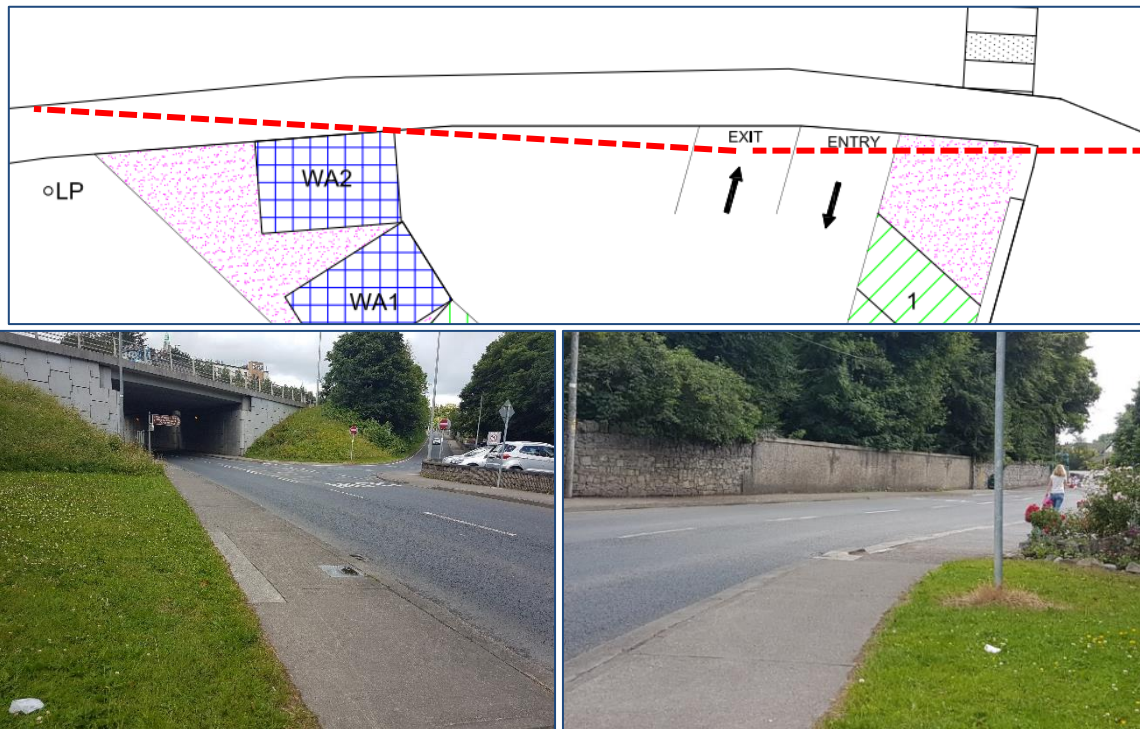


Figure 2-7: Possible visibility clashes with Parking spot WA2 and Soft landscaping to East

Recommendation

The design team to ensure adequate visibility splays are provided and that no obstructions are within driver eye line.

2.2.4 Problem

Turning Movements & Operation of Parking Space

The Audit Team note on Drawing No. 3108-03 that vehicles on entry to the carpark will requires a tight turn to enter parking space no. 1 and will occupy the carpark entry lane for manoeuvring into / out of this space. This may result in vehicles waiting to enter the carpark overhanging the footpath and protruding into the R835 carriageway. This may result in rear end / side swipe collisions.

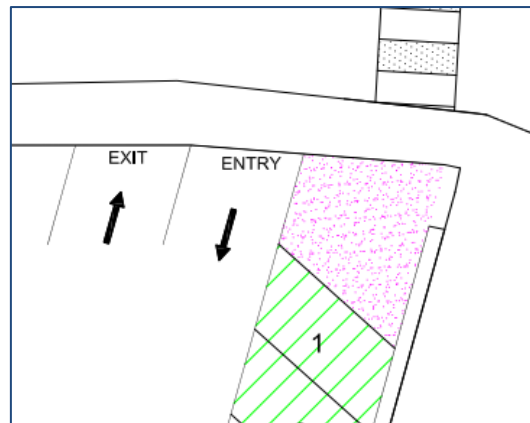


Figure 2-8: Operation of Parking Space 1

Recommendation

The Designer should ensure that adequate clearance is provided between passing traffic along the R835 and vehicles waiting to enter the carpark.

2.2.5 Problem

Signage & Pedestrian Crossing Clash

The Audit Team note that the location of the 50kph repeater sign on eastbound side of the R835 will potentially clash with the proposed pedestrian crossing infrastructure and pedestrian movements leading to a conflict point.

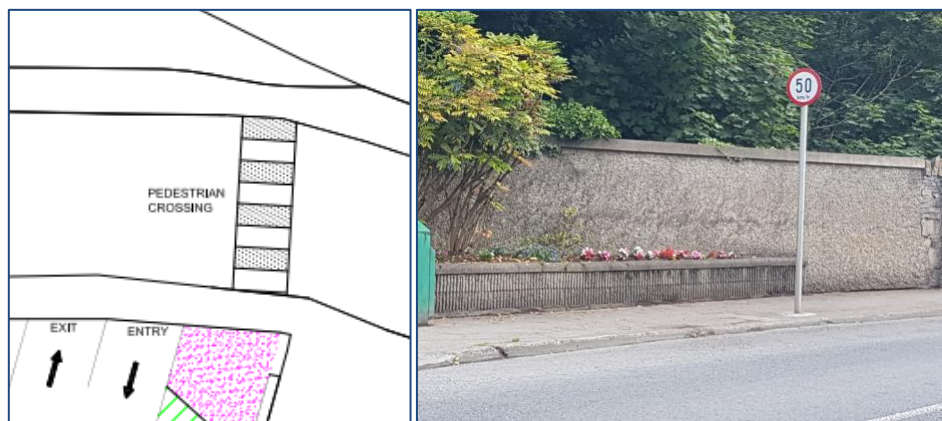


Figure 2-9: Potential Conflict Point between existing 50kph repeater sign and proposed Pedestrian Crossing

Recommendation

The Designer should ensure that sign is sited clear of pedestrian interface to the back of footway.

2.2.6 Problem

Wheelchair Accessible Parking Space Dimensions

Proposed wheelchair accessible parking space indicates dimensions below those required for suitable manoeuvrability around a parked vehicle. This may prevent a vulnerable road user from safely accessing/ egressing the designated spaces and result in the vulnerable road user being stationary within a conflict area with vehicles reversing / manoeuvring into adjacent parking spaces.

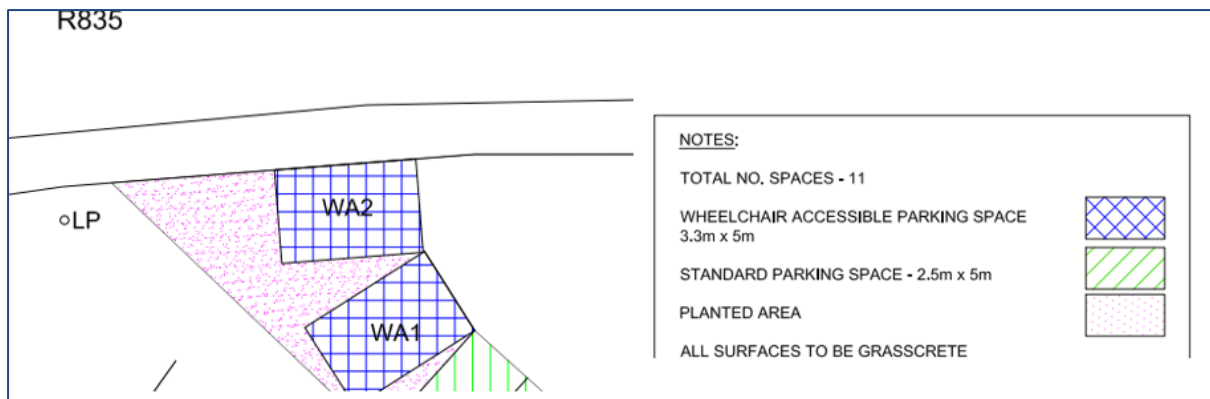


Figure 2-10: Dimensions of the Proposed Wheelchair Accessible Parking within Site B

Recommendation

The Design Team should provide wheelchair accessible parking with adequate manoeuvrability for access / egress from the vehicle within the designated space.

2.3 OBSERVATIONS

2.3.1 General

Existing Signage

Multiple incidences of damage, mis-orientation, mis-siting, low mounting heights and lack of maintenance were noted on signs in the vicinity of the Site A and Site B.



Figure 2-11: Observation – General Existing Signage

2.3.2 Site A

Field Access Gate

Access gate to the existing grass area behind Site A can cater for vehicular entry. Designer has not specified kerbing types at this location from the parking area to indicate if vehicular entry is to be retained.

Overhanging Foliage & Tree Growth

Existing foliage will overhang the proposed footway and with potential conflict between pedestrians and low hanging branches / foliage.



Figure 2-12: Observation – Overhanging Foliage & Tree Growth over Proposed Footway

Road Markings

Road markings on approach to roundabout were noted on site to be significantly faded, and of inappropriate height for the speed limit.

2.3.3 Site B

Existing Dropped Kerbs

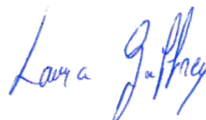
On the eastbound side of the road opposite the proposed carpark, there is an existing drop kerb (without tactile paving) which does not create a pedestrian desire line to a drop kerb on the westbound side. A pedestrian may enter the carriageway without a means of exiting, in particular a pedestrian with a push buggy / wheelchair user and become stranded within the carriageway and potential struck by an approaching vehicle.

3.0 AUDIT TEAM STATEMENT

We certify that we have examined the design drawings and other information listed in the Appendices to this report and have carried out a desktop study. This examination has been carried out with the sole purpose of identifying any features of the scheme that can be removed or modified in order to improve the safety of the scheme. The problems that we have identified have been noted in this report, together with suggestions for improvement, which we recommend should be studied for implementation. We have not been involved with the scheme design.


AUDIT TEAM LEADER

Name: Laura Gaffney
TII Reference: LG3386505
Position: Senior Engineer
Organisation: TOBIN Consulting Engineers
Address: Fairgreen House,
Fairgreen Road,
Galway.

Signed: 
Date: 06/08/2021

AUDIT TEAM MEMBERS

Name: Ronan Murtagh
TII Reference: RM3414512
Position: Senior Engineer
Organisation: TOBIN Consulting Engineers
Address: Block 10-4, Blanchardstown
Corporate Park
Dublin 15,

Signed: 
Date: 06/08/2021

Appendix A – List of Documents Examined

Drawing No. 3108-03-Lucan Demesne Proposed Parking Site A

Drawing No. 3108-04-Lucan Demesne Proposed Parking Site B

Drawing No. 3108-05-Lucan Demesne Proposed Parking Site Location

Hotel



LOCATION



Steps

NOTES:

- TOTAL NO. SPACES - 7
- PARALLEL PARKING SPACE - 2.5m x 5m
- BUFFER - 1.2m
- ANGLE 45° ENTRY TO PARKING SPACE
- MAINTAIN 3m FOOTPATH
- GULLY POTS TO BE MOVED WITH KERBS
- BUS STOP TO BE FULL WIDTH
- DRAINAGE SYSTEM TO BE SPECIFIED AT DETAILED DESIGN STAGE.
- RUNOFF RATES TO BE ATTENUATED TO MATCH EXISTING GREENFIELD RUN OF RATES BY MEANS OF INFILTRATION (SOAKAWAY) OR ATTENUATION (ARCH) SYSTEM.
- INFILTRATION/ ATTENUATION TO BE DETERMINED BASED ON SITE TESTING DURING DETAILED DESIGN
- SITE TESTING TO BE IN ACCORDANCE WITH BER DIGEST 365 GUIDANCE.
- SUDS DRAINAGE AS PER CIRIA C753 SuDS MANUAL
- PETROLINTERCEPTORS TO BE EMPLOYED TO CONTROL HYDROCARBON/PETROL/OIL SPILLAGE.

R835

BUS STOP

FOOTPATH

TREE LINE

ACCESS GATE

EXISTING GRASSED AREA

RIVER

TREE LINE

REV.	DESCRIPTION	DATE

COMHAIRLE CONTAE ÁTHA CLIATH THEAS
SOUTH DUBLIN COUNTY COUNCIL
PUBLIC REALM MANAGEMENT

 Teresa Walsh
Director of Services
Environment, Water &
Climate Change
Suzanne Furlong
Senior Parks Superintendent

LUCAN DEMESNE
PROPOSED PARKING
SITE A

Drawn JMcD/NC	Surveyed NC
Scale 1:300	Checked JMcD
Date DEC 20	Drawing Number 3108-03



LOCATION

R835

PEDESTRIAN CROSSING

LP

WA2

WA1

EXIT

ENTRY

NO PLANTING
IN THIS AREA

9

8

7

6

5

1

2

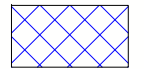
3

4

NOTES:

TOTAL NO. SPACES - 11

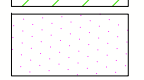
WHEELCHAIR ACCESSIBLE PARKING SPACE
3.3m x 5m



STANDARD PARKING SPACE - 2.5m x 5m



PLANTED AREA



ALL SURFACES TO BE GRASSCRETE
PERMEABLE PAVEMENT

LIGHTING COLUMN LOCATION IS INDICATIVE.
TO BE AGREED BEFORE CONSTRUCTION

DRAINAGE SYSTEM TO BE SPECIFIED AT
DETAILED DESIGN STAGE.

RUNOFF RATES TO BE ATTENUATED TO
MATCH EXISTING GREENFIELD RUN OF
RATES BY MEANS OF INFILTRATION
(SOAKAWAY) OR ATTENUATION (ARCH)
SYSTEM.

INFILTRATION/ ATTENUATION TO BE
DETERMINED BASED ON SITE TESTING
DURING DETAILED DESIGN

SITE TESTING TO BE IN ACCORDANCE WITH
BER DIGEST 365 GUIDANCE.

POROUS PAVEMENT TO BE SPECIFIED AT
DETAILED DESIGN STAGE

SUDS DRAINAGE AS PER CIRIA C753 SuDS
MANUAL

PETROLINTERCEPTORS TO BE EMPLOYED
TO CONTROL HYDROCARBON/PETROL/OIL
SPILLAGE.

REV.	DESCRIPTION	DATE
1	REVISED LAYOUT	MAR 21

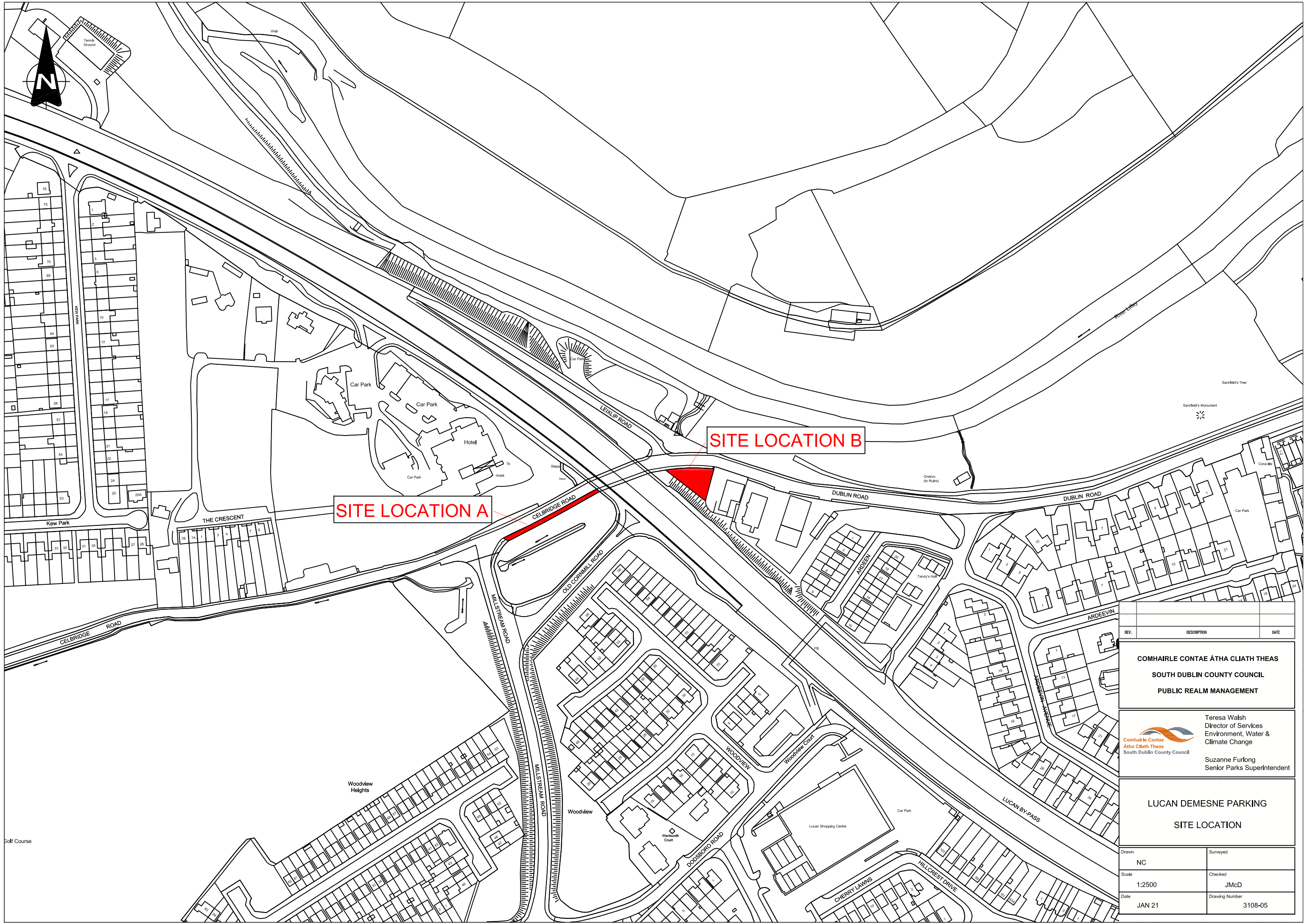
COMHAIRLE CONTAE ÁTHA CLIATH THEAS
SOUTH DUBLIN COUNTY COUNCIL
PUBLIC REALM MANAGEMENT

 Teresa Walsh
Director of Services
Environment, Water &
Climate Change
Suzanne Furlong
Senior Parks Superintendent

LUCAN DEMESNE
PROPOSED PARKING
SITE B

Drawn JMcD/CNC	Surveyed CNC
Scale 1:200	Checked McD
Date MAR 21	Drawing Number 3108-04

DRAFT




SITE LOCATION A

SITE LOCATION B

REV.	DESCRIPTION	DATE

COMHAIRLE CONTAE ÁTHA CLIATH THEAS
SOUTH DUBLIN COUNTY COUNCIL
PUBLIC REALM MANAGEMENT

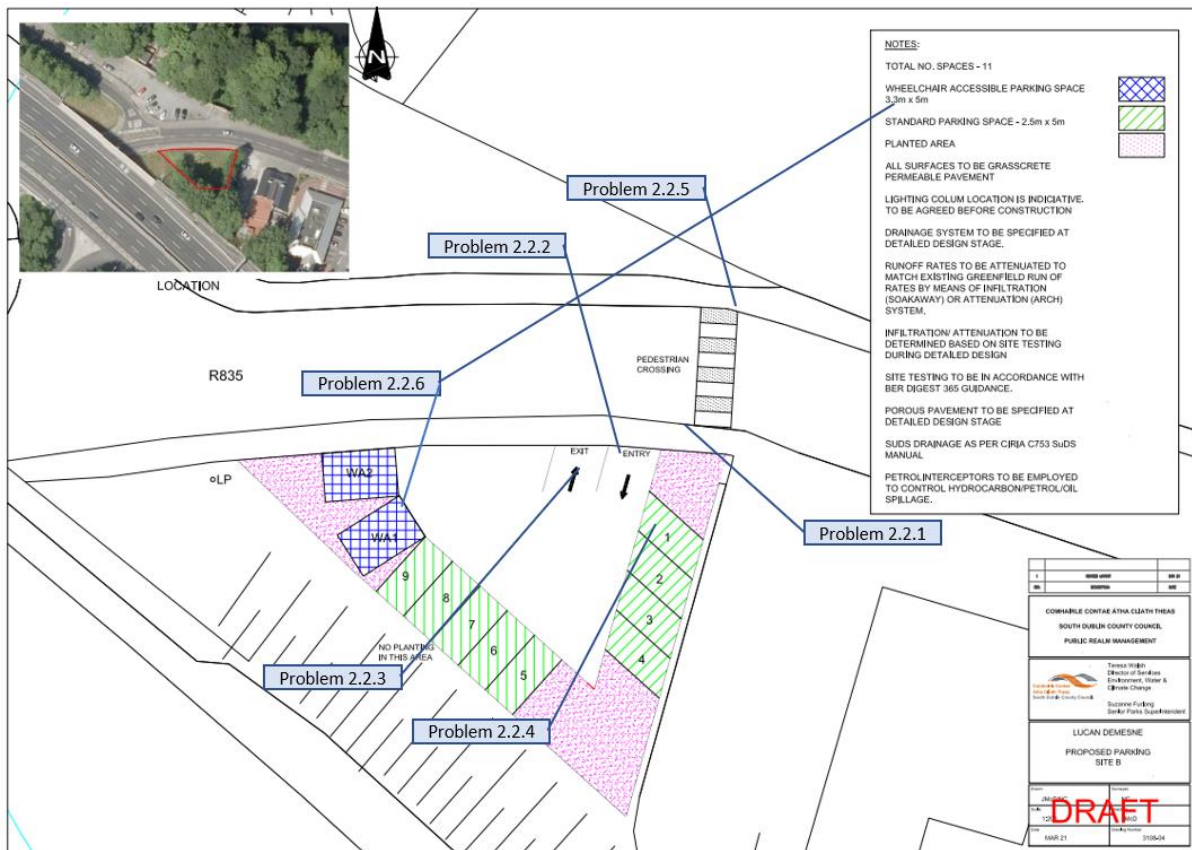
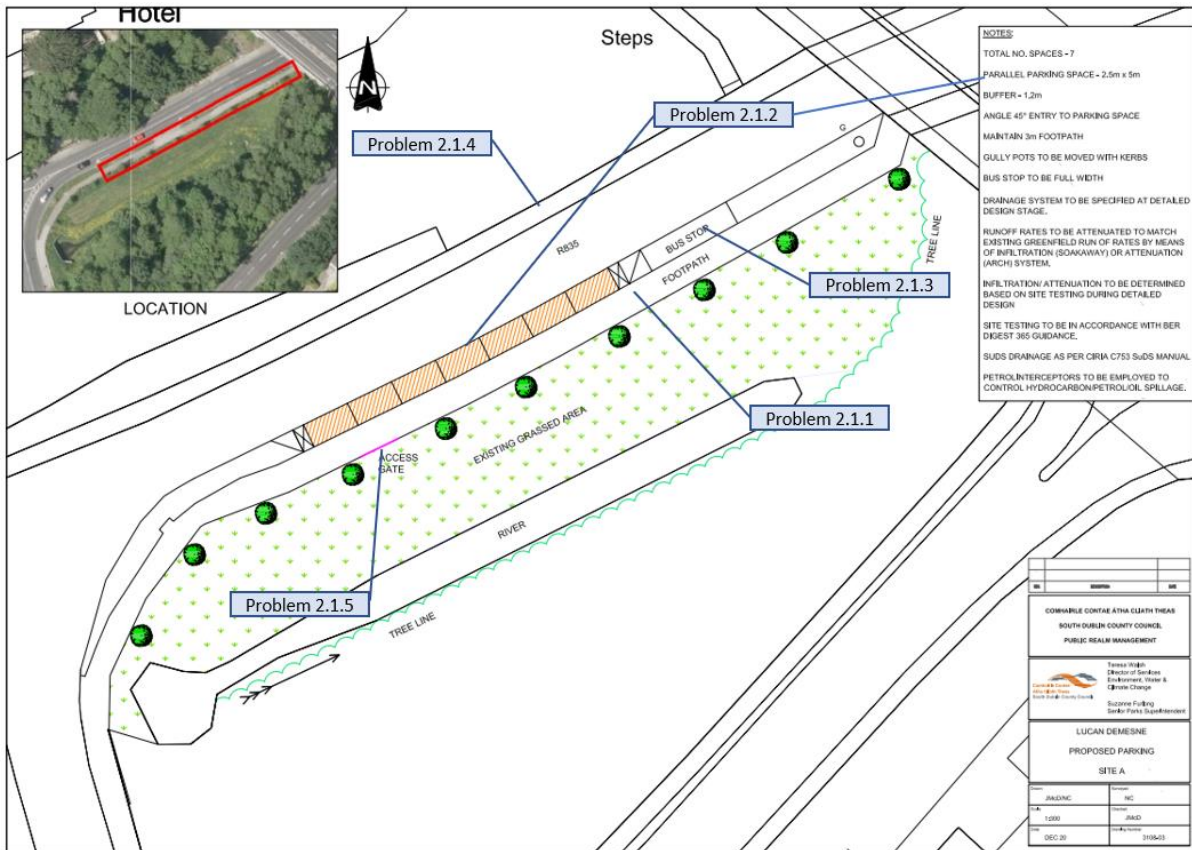
 Teresa Walsh
 Director of Services
 Environment, Water &
 Climate Change

Suzanne Furlong
 Senior Parks Superintendent

LUCAN DEMESNE PARKING
SITE LOCATION

Drawn NC	Surveyed
Scale 1:2500	Checked JMcD
Date JAN 21	Drawing Number 3108-05

Appendix B – Problem Location Maps



Appendix C – Road Safety Audit Feedback Form

Road Safety Audit Feedback Form


Scheme: Proposed Parking Development, Lucan Demesne, Lucan Co. Dublin


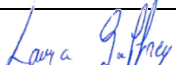
Audit Stage: 1

Route No.: R835

Date of Audit: 05/07/2021

To be Completed by Designer				To Be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended Measures Accepted (yes/no)	Alternative Measures (describe). Give reason for not accepting recommended measure	Alternative Measures or reasons accepted by auditors(yes/no)
2.1.1	Yes	yes		
2.1.2	Yes	yes		
2.1.3	Yes	No	Current drawings do not specify that the bus stop is to be "in-line" in conjunction with a kassel kerb. The bus will not need to manoeuvre off the carriageway to stop. This is representative of the existing condition and as such is deemed acceptable. Drawing to be amended with a note clarifying that the bus stop is to be an in-line stop with a kassel kerb	
2.1.4	Yes	Yes		
2.1.5	Yes	yes		
2.2.1	Yes	No	Rather than re-locate the gully, it is intended to amend the design and relocate the pedestrian crossing.	
2.2.2	Yes	Yes		
2.2.3	Yes	Yes		
2.2.4	Yes	Yes		
2.2.5	Yes	Yes		
2.2.6	Yes	Yes		

Signed:		Designer	Jed McDermott	Date:	06/08/2021
----------------	---	-----------------	----------------------	--------------	------------

Signed:		Client	Suzanne Furlong	Date:	06/08/2021
Signed:		Audit Team Leader	Laura Gaffney	Date:	06/08/2021

www.tobin.ie



TOBIN Consulting Engineers



@tobinengineers

Galway

Fairgreen House,
Fairgreen Road,
Galway,
H91 AXK8,
Ireland.
Tel: +353 (0)91 565 211

Dublin

Block 10-4,
Blanchardstown Corporate Park,
Dublin 15,
D15 X98N,
Ireland.
Tel: +353 (0)1 803 0406

Castlebar

Market Square,
Castlebar,
Mayo,
F23 Y427,
Ireland.
Tel: +353 (0)94 902 1401