safer roads for everyone

Buck Barn Services
A24 Worthing Road, Horsham, West Sussex

Section 278 Highway Works and Internal Layout

Road Safety Audit Stage 1

on behalf of West Sussex County Council

TMS Client
ADL Traffic and Highways Engineering Ltd

TMS Reference No: 19592
Date: 5th December 2025
Revision: 0

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THE CHARTERED INSTITUTION OF HIGHWAYS & TRANSPORTATION
INSTITUTE OF HIGHWAY ENGINEERS
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1. Project Details

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Author	Harminder Aulak
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Prepared by:	TMS Consultancy
On behalf of:	West Sussex County Council (Overseeing Organisation)
TMS Client	ADL Traffic and Highways Engineering Ltd

Document Control Sheet

Issue No	Revision	Audit Team	Completion Date	TMS Issue Date
1	0	HA/NR	04/12/2025	05/12/2025

2. Introduction

2.1 This report describes a Stage 1 Road Safety Audit carried out on the Section 278 Highway Works and the internal layout of the redevelopment of Buck Barn Services on land off the A24 Worthing Road, south of Horsham, West Sussex.

2.2 The audit team members are as follows:

Audit Team Leader

Harminder Aulak – BSc (Hons), IEng, FIHE, RegRSA (IHE)
National Highways Approved RSA Certificate of Competency
Associate Director – Engineering Services, TMS Consultancy

Audit Team Member

Neal Roderick - BEng (Hons), PGCE, MCIHT, MSoRSA
National Highways Approved RSA Certificate of Competency
Engineer / Road Safety Auditor, TMS Consultancy

2.3 The audit comprised an examination of the documents listed in **Appendix A**. The Road Safety Audit was undertaken in accordance with the instruction from Catherine Chapman on behalf of ADL Traffic and Highways Engineering Ltd.

2.4 The site was visited by the Audit Team on Tuesday 2nd December 2025, between 1pm and 2.15pm. The weather was rain showers and road surface conditions were wet. Traffic flows were moderate to high. Pedestrian and cycle flows were not observed on the public highway network.

2.5 The terms of reference of the Road Safety Audit are as described in GG 119 Revision 2. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

2.6 All of the problems described in this report are considered by the audit team to require action in order to improve the safety of the scheme and minimise collision occurrence.

2.7 A scheme drawing is included in **Appendix B**, where the locations of specific problems are referenced. A location plan of the scheme is also included in this Appendix.

2.8 Scheme Description

The scheme consists of highway works associated with the redevelopment and expansion of the service area. The S278 element consists of the improvement of the existing diverge into the service station on the A24 Worthing northbound by increasing the length of the diverge from 58m to 80m.

The internal works consist of the removal of the existing McDonalds restaurant and petrol filling station and redevelopment of the site to provide a new drive-through restaurant, petrol filling station shop, drive-through coffee pod and car wash together with the reconfiguration of car parking and circulation routes for both vehicles and pedestrians.

The speed limit of the A24 Worthing Road northbound and A272 is 50mph and the roads are unlit. The internal layout of the service station is lit by a system of private lighting.

2.9 Road Safety Audit Response Report

Following the completion of the road safety audit, the design team should prepare a road safety audit response report in collaboration with the Overseeing Organisation.

The response report should incorporate the following:

- **Decision Log** spreadsheet, where each Problem and Recommendation in the Safety Audit report is reiterated.
- In the Decision Log, a response should be provided by the Design Team and Overseeing Organisation for each problem raised in the RSA report, together with an agreed action.

Further information is provided in **GG 119 Sections 4.11 to 4.19** and **Appendix F** (where a road safety audit response report template is available).

The response report should be produced and finalised within *one month* of the issue of the RSA report. A copy of the response report should be issued to the Audit Team for their information.

3. Items resulting from the Stage 1 Audit Road Safety Audit

3.1 PROBLEM

Location: New diverge lane off A24 Worthing Road northbound (S278 highway works)

Summary: Risk of collisions if visibility of diverge lane is obstructed by dense vegetation.

The current stopping sight distance (SSD) to the diverge lane is severely restricted by dense vegetation. Even-though some of this will need to be removed as part of the improvement works, some of the vegetation may still remain. If visibility to the slip-road is restricted, road users may not have a clear view of the road layout ahead, which could lead to collisions associated with sudden lane changing and braking, such as loss of control and rear-end shunts.



Current SSD to diverge lane severely restricted by vegetation.

RECOMMENDATION

It should be ensured that sufficient vegetation is removed to ensure the full length of the diverge lane is visible to road users travelling at the speed limit of the road (50mph).

3.2 PROBLEM

Location: New diverge lane off A24 Worthing Road northbound (S278 highway works)

Summary: Large metallic service cover could pose a skidding and loss of control hazard to road users.

There is an existing large metallic service cover in the carriageway at the location of the current diverge lane. With the new arrangements, the cover could be more within the wheel-tracks of vehicles decelerating to enter the service station. Therefore, the cover could pose a skid and loss of control hazard to road users if they are braking heavily in wet and icy weather conditions.



Large metallic service cover in current diverge lane.

RECOMMENDATION

The cover should be inspected to assess whether it can be relocated out of the carriageway. Otherwise, its skidding resistance properties should be established to determine if the values are similar to the surrounding carriageway.

3.3 PROBLEM

Location: New diverge lane off A24 Worthing Road northbound (S278 highway works)

Summary: Difference in skidding resistance value of carriageway surface could result in loss of control type collisions.

The road surface within the current diverge lane has a different texture to the mainline carriageway of the A24 and so its skidding resistance value may differ. The extents of the new resurfacing as part of the improvement works is not known at this stage, but if there is a large differential between the skidding resistance value of existing and new carriageway within the diverge lane, vehicles may lose adhesion under heavy braking and loss of control type collisions could occur as a result.



Current diverge lane has different surfacing to A24 mainline carriageway.

RECOMMENDATION

It should be ensured that the whole of the new diverge lane is surfaced with the same carriageway material.

3.4 PROBLEM

Location: Existing vehicle restraint system (VRS) adjacent to petrol filling station along A24 Worthing Road northbound (S278 highway works)

Summary: Risk of errant vehicles being launched by VRS concrete anchorage.

The existing VRS could be impacted by the improvement works. It is noted that the terminal of the VRS has an “old style” concrete block anchorage. It is unlikely that this would meet the terminal “performance class” requirements specified in the DMRB standard CD 377 – Requirements for Road Restraint Systems. This is because if errant vehicles collide into the terminal, the concrete block could cause them to be launched and potentially overturn, resulting in injury to vehicle occupants.



Existing VRS with ramped concrete anchorage.

RECOMMENDATION

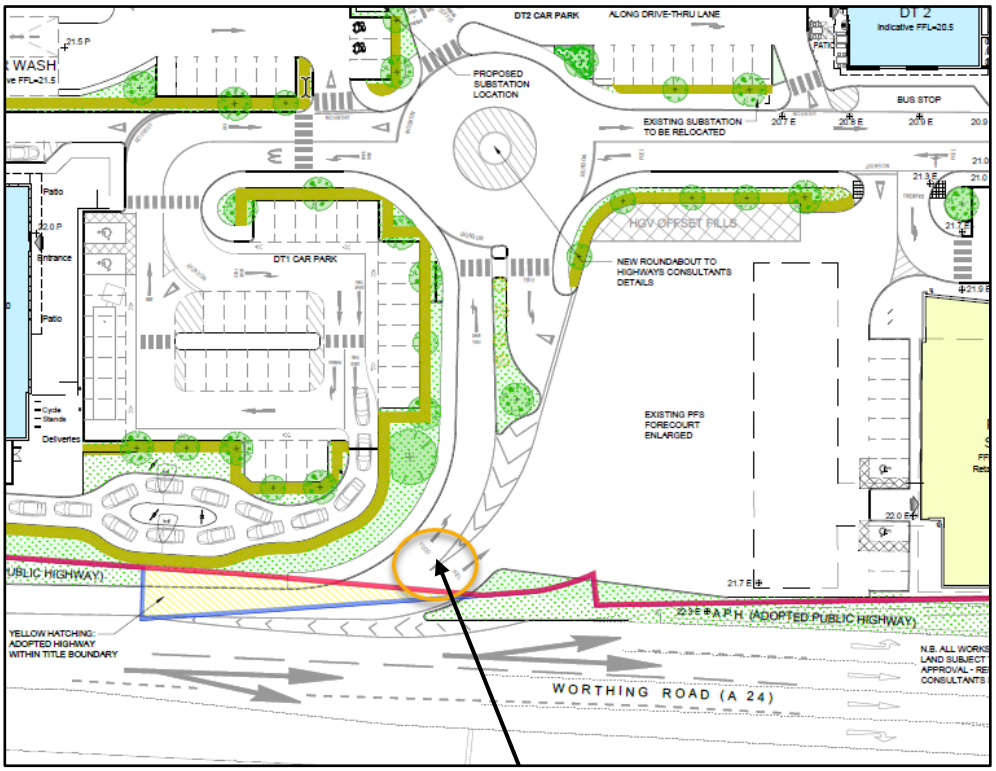
If impacted by the proposed works, the VRS terminal should be amended to meet the requirements of CD 377 (i.e. the performance class should be P1 or P4, depending upon measured vehicle speeds).

3.5 PROBLEM

Location: Internal Layout – entry to service station from A24 Worthing Road northbound

Summary: Risk of collisions if road users cannot comprehend the road layout quickly.

Upon entering the service station, road users will need to make a quick decision about whether to enter the forecourt of the petrol filling station or bear left towards the roundabout and access the other facilities. The visibility to this critical decision point may be restricted by the boundary fencing to the McDonalds restaurant and any other features in the verge. This could lead to collisions associated with late manoeuvres and sudden braking, such as loss of control and rear-end shunts.



Critical road user decision point.

RECOMMENDATION

It should be ensured that there is unobstructed stopping sight distance to the critical decision point. At detailed design, clear and concise signing is also recommended at the entry to the service station to allow road users to understand the road layout quickly.

3.6 PROBLEM

Location: Internal Layout – Roundabout within service station

Summary: Risk of collisions if road users negotiate the roundabout at excessive speed.

The proposed roundabout has a small overrun area around the central island with a fairly wide circulatory carriageway. Therefore, drivers of smaller vehicles may circumnavigate the roundabout at higher speed and may not slow down when entering. This could result in collisions, such as entry versus circulatory type collisions.

RECOMMENDATION

A larger overrun area should be provided to narrow down the circulatory carriageway, so that smaller vehicles are encouraged to travel around the roundabout at very low speed.

3.7 PROBLEM

Location: Internal Layout – Entry to petrol filling station from roundabout

Summary: Risk of collisions due to large width of junction.

The entry to the petrol filling station from the road that connects to the roundabout is very wide. This could encourage road users to enter the PFS forecourt without properly checking for vehicles entering from the A24 Worthing Road diverge lane. This could result in collisions in the vicinity of the junction.

RECOMMENDATION

The entry junction should be reduced in width, possibly by using an overrun area if needed to accommodate the swept path of large vehicles.

3.8 PROBLEM

Location: Internal layout - Access Road to Bungalows and adopted public highway opposite (northern extents of service station)

Summary: Risk of pull-out type collisions at junctions due to restricted visibility.

The right-hand visibility splay from the access road to the bungalows is currently severely restricted due to dense vegetation. It does not appear that this will be improved with the new road layout. In addition, the left-hand visibility splay from the public adopted highway opposite could also be restricted. These issues could result in pull-out type collisions at the junctions.



Visibility splay severely restricted at access road junction to the bungalows.

RECOMMENDATION

The opportunity to improve visibility splays from the junctions should be taken.

3.9 PROBLEM

General: Internal Layout – Lighting of service station

Summary: Risk of collisions if lighting is inconsistent and there are dark areas at conflict points.

During the site visit, it was noted that the lighting was sporadic and did not cover the whole service station. With the new layout, there will be numerous junctions and conflict points, such as at priority junctions, the roundabout and pedestrian crossing points. If these are in dark areas and not sufficiently illuminated at night, there could be an increased risk of collisions.

RECOMMENDATION

It should be ensured that a suitable system of lighting is developed to ensure the whole service station will be illuminated with high quality and consistent lighting

4. Audit Team Statement

We certify that the terms of reference of the road safety audit are as described in GG 119 Revision 2.

Audit Team Leader

Harminder Aulak – BSc (Hons), IEng, FIHE, RegRSA (IHE) National Highways Approved RSA Certificate of Competency Associate Director – Engineering Services, TMS Consultancy

Signed	
Date	5th December 2025

Audit Team Member

Neal Roderick - BEng (Hons), PGCE, MCIHT, MSoRSA National Highways Approved RSA Certificate of Competency Engineer / Road Safety Auditor, TMS Consultancy

Signed	
Date	5th December 2025

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Appendix A

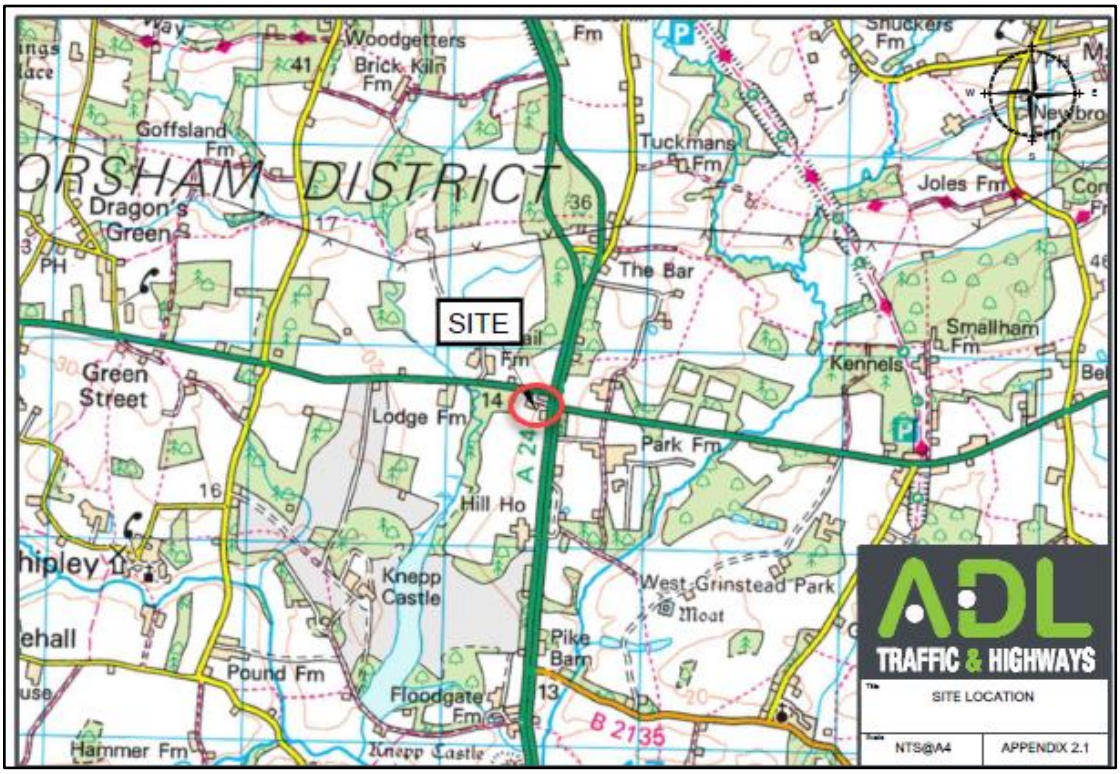
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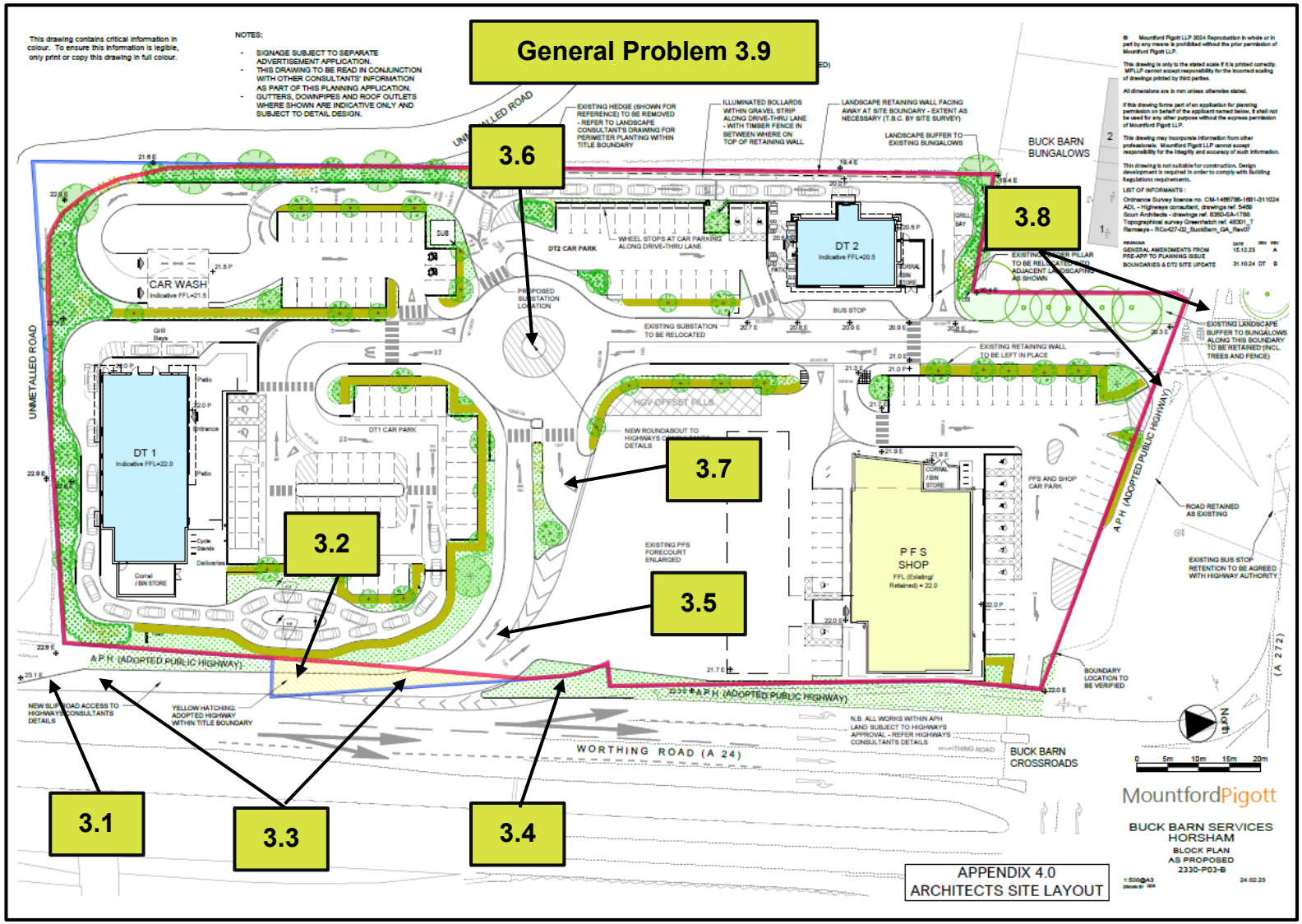
- Drawing No. Appendix 4.0
- Drawing No. Appendix 5.0
- RSA1 - Checklist of Information Required
- 5469 DMP Buck Barn (November 2024)
- 5469 Transport Statement, Buck Barn (November 2024)

Appendix B

Please refer to the following page for a plan illustrating the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

The location of the scheme is shown below:




General Problem 3.9
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
NOTES:
- SIGNAGE SUBJECT TO SEPARATE ADVERTISEMENT APPLICATION.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' INFORMATION AS PART OF THIS PLANNING APPLICATION.
- GUTTERS, DOWNPIPES AND ROOF OUTLETS WHERE SHOWN ARE INDICATIVE ONLY AND SUBJECT TO DETAIL DESIGN.
UNMETALLED ROAD
BUCK BARN BUNGALOWS
CAR WASH
DT 1
DT 2
DT1 CAR PARK
DT2 CAR PARK
PFS SHOP
EXISTING SUBSTATION TO BE RELOCATED
PROPOSED SUBSTATION LOCATION
EXISTING RETAINING WALL TO BE LEFT IN PLACE
EXISTING LANDSCAPE BUFFER TO BUNGALOWS ALONG THIS BOUNDARY TO BE RETAINED (INCL. TREES AND FENCE)
ROAD RETAINED AS EXISTING
EXISTING BUS STOP RETENTION TO BE AGREED WITH HIGHWAY AUTHORITY
A P H (ADOPTED PUBLIC HIGHWAY)
WORTHING ROAD (A 24)
BUCK BARN CROSSROADS
BOUNDARY LOCATION TO BE VERIFIED
MountfordPigott
BUCK BARN SERVICES HORSHAM
BLOCK PLAN AS PROPOSED
2330-P03-B
APPENDIX 4.0
ARCHITECTS SITE LAYOUT