

BASILDON TOWN CENTRE HIGHWAYS IMPROVEMENTS

COMBINED STAGE 3 & 4 ROAD SAFETY AUDIT

Report Date:	13 th February 2024
Road Safety Audit Register Number:	9286
DM Code:	N/A
Project ID:	16233102230400008

1.0 INTRODUCTION

- 1.1 This report has been produced as a result of a request for a Combined Stage 3 & 4 Road Safety Audit (RSA) on the Town Centre Highways Improvements in Basildon, Essex . The audit has been carried out at the request of [REDACTED] of the Essex County Council (contact: [REDACTED]). The audit was undertaken during February 2024.
- 1.2 For the purpose of this audit, Waterman are considered to be the “Designers” for this scheme and [REDACTED] is considered to be the ‘Project Sponsor’.
- 1.3 The scheme aims to create a pedestrian and cycle friendly town centre. This will include the following;
- A two-way system converting Clay Hill Road, Cherrydown East and Station Way (including associated junctions) from one-way to two-way traffic,
 - The section of Southernhay between the junctions with Clay Hill Road and Station Way / Roundacre to be converted to provide bus and taxi access only. The junctions at either end will be reconfigured to accommodate this,
 - Existing flag paving along the southern side of both sections of Southernhay will be widened to accommodate a footway / cycleway. The existing footway long the southern side of Cherrydown East will also become a footway / cycleway.
 - The existing carriageway along Southernhay, to the east of Clay Hill Road, will be resurfaced (including the roundabout). The eastbound bus stop will be relocated to the east and marked on lane 1 of the carriageway, in place of an existing loading bay and taxi rank.
 - The subway under Southernhay near the railway station will be removed and the layout of that area reconfigured to provide open space and cycle parking.
 - The area to the south of Basildon railway station will include a cycle hub following the infill of the subway, as well as a cycleway / footway, which will provide links between Southernhay, Station Way and Cherrydown East.
 - Various resurfacing works, changes to road markings and signage and revised crossing provisions, as part of the proposals above.
- 1.4 The RSA Team was formed of members of the Essex County Council/ Ringway Jacobs Partnership Road Safety Engineering Team (based at Seax House, Chelmsford, Essex, CM1 1QH). This report was prepared by those officers. The RSA Team membership was as follows:
- [REDACTED] (RSA Team Leader) – Senior Road Safety Engineer and;
 - [REDACTED] (RSA Team Member) –Road Safety Engineer; and
- 1.5 The terms of reference for the RSA are as described in Essex Highways Policy HPN039. The Audit Team has examined and reported only on the road safety implications of the proposals and has not examined or verified the compliance of the design to any other criteria. This safety audit does not perform a ‘technical check’ function on these proposals.

- 1.6 This Combined Stage 3 & 4 RSA comprised an examination of the drawings and RSA brief provided by the design organisation and a visit to the site during daylight and hours of darkness on Wednesday 7th February 2024. At the time of the site visit the weather was overcast, the road surface was generally dry and traffic was free-flowing.
- 1.7 All comments and recommendations are referenced to the preliminary design drawing provided (where applicable) and the locations have been indicated on the Problem Location Plans within Section 9.0 of this report.
- 1.8 A previous Stage 2 Road Safety Audit was undertaken by [REDACTED] on the proposed scheme during August 2019 (Ref: SA 2665). The problems outlined in the RSA 2 are reviewed as part of this Stage 3 & 4 RSA.

1.9 Documents/drawings provided:

Documents:

RSA Request and Brief (dated 01/02/2024)
RSA Stage 2 Designer Responses - Final all comments
VISSIM Reports:
Basildon VISSIM Forecasting Report
Basildon VISSIM LMVR Final

Drawings:

As Built:

14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900101
14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900102
14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900103
14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900104
14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900105
14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900106
14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900107
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900201
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900202
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900203
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900204
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900205
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900206
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900207
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900208
14916-100-WIE-ZZ-XX-DR-C-900200 Site Clearance-900209
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900301
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900302
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900303
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900304
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900305
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900306
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900307
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900308
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900309
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900310
14916-100-WIE-ZZ-XX-DR-C-900300 Street Furniture, Fencing & Barriers_-900311

14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900551
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900552
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900554
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900555
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900556
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900557
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900558
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900559
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900560
14916-100-WIE-ZZ-XX-DR-C-900550 Proposed Drainage-900561
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900701
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900702
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900703
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900704
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900705
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900706
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900707
14916-100-WIE-ZZ-XX-DR-C-900700 Carriageway Pavements-900708
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901101
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901102
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901103
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901104
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901105
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901106
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901107
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901108
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901109
14916-100-WIE-ZZ-XX-DR-C-901100 Kerbs, Footways & Paved Areas-901110

14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901210
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901211
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901212
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901213
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901214
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901215
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901216
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901217
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901218
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901219
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901220
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901221
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901222
14916-100-WIE-ZZ-XX-DR-C-901210 Proposed Signs & Road Markings-901223
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901300
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901301
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901302
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901303
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901304
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901305
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901306
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901307
14916-100-WIE-ZZ-XX-DR-C-901300 Lighting & CCTV-901308
14916-100-WIE-ZZ-XX-DR-C-901400 Bus Station-901401
14916-100-WIE-ZZ-XX-DR-C-901400 Bus Station-901402
14916-100-WIE-ZZ-XX-DR-C-901400 Bus Station-901403
14916-105-WIE-ZZ-XX-DR-C-000001-F01 LOCATION PLAN
14916-105-WIE-ZZ-XX-DR-C-970001-F01 STATION WAY NORTH PLAN
14916-105-WIE-ZZ-XX-DR-C-970002-F01 STATION WAY NORTH SECTIONS
14916-105-WIE-ZZ-XX-DR-C-970003-F01 SOUTHERNHAY PLAN
14916-105-WIE-ZZ-XX-DR-C-970004-F01 SOUTHERNHAY SECTIONS
14916-105-WIE-ZZ-XX-DR-C-970005-F01 PARAPET INCREASE
BAS-ASB-100-2D
BAS-ASB-100-2D

TELENT Drawings:

277229-TS01-AB

277229-TS02-AB

277229-TS03-AB

277229-TS04-AB

277229-TS05-AB

Swept Path Analysis:

14916-100-WIE-ZZ-XX-DR-C-900128 Vehicle Swept Paths (Draft)

2.0 DEPARTURES FROM STANDARD

- 2.1 No details of any relaxations or departures from standards have been provided to the Audit Team.

3.0 REVIEW OF PERSONAL INJURY COLLISION HISTORY (POST COMPLETION)

- 3.1 Validated collision data as reported to Essex Police within the extents of the scheme has been reviewed and for the period since the scheme completion (September 2021), There has been four Personal Injury Collisions (PIC's). Three of the PIC's were of Slight severity and one was classified as Serious. Two PIC's involved pedestrians and one involved a motorcyclist.

4.0 ITEMS RAISED DURING THE PREVIOUS STAGE 2 ROAD SAFETY AUDIT

4.1 GENERAL

4.2 PROBLEM (*RSA1 Problem A1*)

Location: Existing bus layby on northern side of Southernhay

Summary: Bus stop relocation may increase layby usage and potential for conflicts.

The proposal includes the relocation of the existing bus stop approximately 40m to the east, without the removal of the existing bus layby. It is unclear what purpose, if any, the layby will be used for in the scheme. The Audit Team is concerned that the layby will potentially be used for passenger drop-offs and pick-ups (including by taxis) following the removal of the bus stop, increasing the risk for conflict with eastbound road users on Southernhay.

RECOMMENDATION:

It is recommended that the existing layby is removed following the relocation of the bus stop.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

The stage 3-4 site visit revealed that the bus layby on northern side of Southernhay has been converted into a Taxi Rank and the stop has been relocated eastward. This issue is considered to be resolved.

4.3 Problem (*RSA1 Problem A2*)

Location: Through the scheme.

Summary: Larger vehicles may struggle to safely negotiate layout.

No swept path analysis has been provided and it is therefore unclear whether all types of vehicles (including HGVs and buses) will be able to negotiate the network safely without overrunning or overhanging adjacent/ opposing lanes or footways. Collisions could occur between larger vehicles and other road users/ footway users under these circumstances.

RECOMMENDATION:

It is recommended that swept path analysis is undertaken to ensure that all types of vehicles which will require access to and through the scheme (for example HGVs and buses) can do so safely.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:
No comments at RSA2

REVIEW AT RSA3:

Drawing: 14916-100-WIE-ZZ-XX-DR-C-900128 Vehicle Swept Paths, provides details of HGV tracking through the Cherrydown East and Clay Hill junction. This issue is considered resolved.

4.4 Problem (*RSA1 Problem A3*)

Location: Cherrydown East (north-south) between Station Way and Cherrydown East (east-west)

Summary: Proposals unclear.

The proposals for the north-south section of Cherrydown East are unclear including with regards to car park access/egress and the proposed arrangements for the junction with the east-west section of Cherrydown East to the south. The Audit Team is therefore unable to comment on the suitability or safety implications of the proposed arrangements on this part of the network and with regards to the wider proposed scheme.

RECOMMENDATION

It is recommended that the proposed arrangements in this area are included within the ongoing development of the design.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:
No comments at RSA2

REVIEW AT RSA3:

The 'As Built' Drawing: 14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900105, shows the layout of the for this section together with car park access. This issue is resolved.

4.5 Problem (*RSA1 Problem B1*)

Location: Western approach to Southernhay roundabout

Summary: Wide approach lanes may lead to side-swipe collisions at the roundabout entry.

The plans provided suggest that two wide (4.0-4.5m) lanes are proposed on this approach to the roundabout. The Audit Team is concerned that some drivers may attempt to form three lanes at the roundabout give-way line whilst other drivers may be aware this is a two-lane entry only. This could lead to driver confusion, frustration and/ or side-swipe collisions as vehicles approach and enter the circulatory carriageway on this arm.

Recommendation:

It is recommended that the width of the western entry to the roundabout is reduced to ensure road users are aware that this is a two-lane entry. Alternatively, retain the formal three-lane entry as per the existing situation.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

Drawing: 14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900101, shows the nearside lane has been reduced by the use of hatching. This issue is resolved.

4.6 Problem (*RSA1 Problem B3*)

Location: Station Way, around bend from north to east

Summary: Reduced forward visibility due to existing retaining wall may lead to rear end shunt type collisions.

The proposals will convert Station Way to two-way operation, thereby allowing vehicles to travel from north to east (as well as from east to north as per the existing situation). The existing retaining wall on the eastern side of Station Way appears to restrict forward visibility for road users travelling from north to east. The Audit Team is concerned that this may result in rear end shunt type collisions when road users navigate the bend, particularly since vehicles may be slowing to turn left into the car park and/ or negotiating the horizontal alignment themselves.

RECOMMENDATION:

It is recommended that sufficient forward visibility is provided around the bend, or that the speed limit on this section is reduced.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

This section of the scheme is now subject to two way traffic flows and has traffic signal control. This issue is considered resolved.

4.7 Problem (*RSA1 Problem B4*)

Location: Station Way, around bend from north to east.

Summary: Narrow carriageway width and tight alignment may lead to kerb strikes and/ or collisions with other road users.

The proposals will allow vehicles to travel from north to east along Station Way on the inside of the existing bend. There is concern that, due to the narrow lane width proposed (2.75m) and tight radius of the bend, larger vehicles (such as HGVs and buses) may stray over the centre-line increasing the risk of head-on collisions. Furthermore, kerb strikes may occur increasing the likelihood of secondary collisions. See also Problems A2 and B3.

RECOMMENDATION:

It is recommended that swept path analysis is undertaken to ensure that all vehicles will be able to safely negotiate the proposed layout. If this indicates that large vehicles cannot make the manoeuvre safely, then it is recommended that the proposed carriageway width and/ or inside kerb radius is increased.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

Whilst no Swept Path Analysis has been provided for this section, a review of the PIC's shows that there have been no collisions within this area. This issue is resolved.

4.8 Problem (*RSA1 Problem B5*)

Location: Station Way, around bend from east to north.

Summary: Excessive carriageway width may result in high vehicle speeds.

The proposed east to north running carriageway width for road users travelling from east to north along Station Way is approximately 7m. However, it does not appear that two separate lanes will be marked. This could result in high vehicle speeds around the bend with the potential for loss of control collisions, or alternatively side-swipe type collisions as road users navigate the bend and attempt to form two lanes.

RECOMMENDATION:

It is recommended that two marked lanes are provided around the bend or that the proposed carriageway width is reduced to provide a single lane of sufficient width

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the lane markings detailed in drawing 14916-100-WIE-ZZ-XX-DR-C-900100 General Arrangement-900105, have been provided. This issue is resolved.

4.9 Problem (*RSA1 Problem B6*)

Location: Western approach to Southernhay/ Clay Hill Road/ Eastgate Centre car park signalised junction.

Summary: Wide approach lanes may lead to side-swipe collisions at the junction entry.

The plans provided suggest that two relatively wide (4.0m) lanes are proposed on this approach to the junction. Some drivers may attempt to form three lanes at the give-way line whilst other drivers may be aware this is a two-lane entry only. This could lead to driver confusion or frustration and/ or side-swipe collisions as vehicles approach and enter the junction on this arm.

RECOMMENDATION:

It is recommended that the width of the western entry arm of the junction is reduced to ensure road users are aware that this is a two-lane entry. Alternatively, it is recommended that the three-lane entry is retained.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the approach is two lanes with the off-side lane being right turn only. The carriageway width is reduced by the implementation of a central median. This issue is resolved.

4.10 Problem (*RSA1 Problem C1*)

Location: Southern side of Southernhay at the roundabout

Summary: Onward cycle facilities/ tie-ins are unclear.

The proposed shared off-road cycle facility on the southern side of Southernhay will continue at the eastern extent of the scheme, with no safe continuous off-carriageway cycle route extending from this point or proposals to allow cyclists to access the carriageway safely. If a suitable onward cycle route is not provided, then cyclists will be forced to either continue along pedestrian-only footways increasing conflicts with pedestrians or to cycle in the live carriageway to continue their journey, increasing the risk of collisions with vehicles.

RECOMMENDATION:

It is recommended that suitable onward cycle provision and/or suitable cycle tie-ins are provided at this location

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the cycle facility at this location ties-in to the onward cycle route and footway to the east of Southernhay roundabout. This issue is resolved.

4.11 Problem (*RSA1 Problem C2*)

Location: Shared cycle/ footway on southern side of Southernhay.

Summary: Shared cycle/ footway too narrow due to existing bus shelter.

The existing bus shelter (and associated waiting bus passengers) will reduce the effective width of the proposed shared cycle/ footway in this location. This may result in non-motorised users being forced into the live carriageway to continue their journey and/ or collisions between pedestrians and cyclists in this section.

RECOMMENDATION:

It is recommended that the existing bus shelter is relocated, or that a shared use facility of sufficient width is provided at this location

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the bus shelter has a cantilever roof that extends southward and away from the cycle route. This provides sufficient width for cyclists and pedestrians. This issue is resolved.

4.12 Problem (*RSA1 Problem C3*)

Location: Various locations throughout the scheme.

Summary: Pedestrians may be unaware of shared pedestrian/ cycle routes after using pedestrian crossings.

The proposals include shared cycle/footways at various points across the scheme which will provide links with existing footways on the other side of the carriageway via pedestrian crossings. Pedestrians using the crossings (in the relevant direction) may be unaware that they are about to join a shared route, increasing the potential for conflicts between pedestrians and cyclists.

RECOMMENDATION:

It is recommended that onward provision is suitably considered, and that appropriate shared route signage is provided for pedestrians at these crossing locations.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that flag-type directional signing has been provided throughout the scheme. This issue is resolved.

4.13 Problem (*Problem C4*)

Location: Various locations throughout the scheme.

Summary: Buff coloured tactile paving at controlled crossings could result in visually impaired pedestrian/ driver confusion as to who has priority.

Buff coloured tactile paving is currently proposed at several signal-controlled and zebra crossings across the scheme. Buff tactile paving may result in pedestrian and driver confusion as to who has priority at these locations and may result in visually impaired pedestrians not being able to use the crossings safely, potentially causing vehicle/ pedestrian collisions at these locations.

RECOMMENDATION:

It is recommended that red coloured tactile paving is provided at the proposed signal-controlled and zebra crossings across the scheme.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that all controlled crossings are provided red tactile paving. This issue is resolved.

4.14 Problem (*Problem C5*)

Location: Various locations throughout the scheme.

Summary: Inappropriate use of signage prohibiting pedal cycles.

The proposals include signage prohibiting the use of pedal cycles at the interfaces between shared routes and pedestrian routes at various locations across the scheme. There is however no cycle dismount/ end of cycle route signage proposed, or otherwise suitable provision to allow cyclists to safely join the carriageway. If suitable signage or onward cycle routes are not provided, then cyclists may continue along footways increasing conflicts with pedestrians or be

forced to enter the live carriageway to continue their journey increase the risk of collisions with vehicles. See also Problem C1.

RECOMMENDATION:

It is recommended that appropriate signage is provided to signify the end of a cycle route where necessary and that suitable continuous cycle provision is otherwise provided across the scheme.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the 'Prohibition of Cycling' signs (Diag. 951) at the junction of Southernhay and Clay Hill, are poorly located and are not accompanied by 'End of Route'. Whilst it is appreciated that there are cycle scoops at the junction, it is noted that there are no signs guiding cyclists to rejoin or leave the carriageway. It is also noted that signs should not be used to indicate the end of a shared pedestrian and cycle facility. Failure to provide the appropriate signing could lead to conflict between cyclists and pedestrians. It is recommended that a review of these signs is undertaken and appropriate signing provision installed.

Designer Response:

Rejected: As noted above the "End of Route" signs should not be used and cycle scoops have been provided at the junction which is clear indication for cyclists. No conflicts have been reported since the scheme opened. The addition of extra signs would be unnecessary street clutter.

4.15 Problem (*Problem C6*)

Location: Various locations throughout the scheme.

Summary: Incorrect tactile paving layouts at signal-controlled crossings.

The tactile paving layouts shown at several signal-controlled crossings across the scheme do not include stems which extend to the back of the footway (or shared cycle/ footway). If the stem does not extend to the back of the footway, visually impaired footway users may not be able to find the crossing which may cause confusion and result in them crossing at unsuitable locations where they may be struck by passing vehicles.

RECOMMENDATION:

It is recommended that the tactile paving stems extend to the back of the footway (or shared cycle/ footway) at the proposed signal-controlled crossings

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that all controlled crossing are provided tactile paving tails that extend to the back of the footway. This issue is resolved.

4.16 Problem (*RSA1 Problem C7*)

Location: Various locations throughout the scheme.

Summary: Inappropriate 'look left' and 'look right' markings for crossings.

The highway network will generally operate two-way as a result of the scheme. However, there are a number of crossings which include 'look left' or 'look right' markings for pedestrians increasing the risk that they will fail to look both ways prior to using the crossings, increasing the risk of collisions with vehicles. There are also a few locations where the markings face pedestrians in the incorrect direction which could result in pedestrian confusion and an increased risk of collisions with vehicles.

RECOMMENDATION:

It is recommended that the 'look left' and 'look right' markings are reviewed and replaced with 'look both ways, 'look left' and/ or 'look right' markings correctly aligned as appropriate.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the correct 'look left' 'look right' and 'look both ways' markings have been provided throughout the scheme. This issue is resolved.

4.17 Problem (*RSA1 Problem C8*)

Location: Proposed zebra crossing on Southernhay in vicinity of existing bus station.

Summary: Absence of tactile paving may result in pedestrian/ vehicular collisions.

The proposed zebra crossing does not include any tactile paving on the southern or northern approaches to the crossing. Visually impaired pedestrians may therefore be unaware of the crossing, causing them to step out unknowingly into the live carriageway increasing the risk of collisions with vehicles. Alternatively, visually impaired footway users may not be able to find the crossing which may cause confusion and result in them crossing at unsuitable locations where they may be struck by passing vehicles

RECOMMENDATION:

It is recommended that tactile paving is provided (see also Recommendation C4).

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the proposed zebra crossing has been removed from the design and replaced by a dropped kerb uncontrolled crossing with buff coloured tactile paving. This issue is resolved.

4.18 Problem (*RSA1 Problem C9*)

Location: Proposed zebra crossing on Southernhay in vicinity of existing bus station.

Summary: Close proximity to proposed car park egress may result in pedestrian/ vehicular collisions.

The proposed zebra crossing is situated immediately to the east of the proposed car park egress onto Southernhay. Road users looking to their right when giving way/turning left onto Southernhay may not initially be aware of the crossing, increasing the risk of collisions with pedestrians using the crossing.

RECOMMENDATION:

It is recommended that the proposed zebra crossing is relocated further from the junction to allow drivers space/ time to stop if required

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the proposed zebra crossing has been removed from the design and replaced by a dropped kerb uncontrolled crossing with buff coloured tactile paving. This issue is resolved.

4.19 Problem (*Problem C10*)

Location: Proposed Southernhay/ car park (west of bus station) egress priority junction.

Summary: Absence of pedestrian crossing facilities on pedestrian desire line across the car park egress.

There is an existing footway along the northern side of Southernhay which accommodates pedestrians travelling in an east-west direction, including those travelling to/ from the bus station and taxi rank to the east of the Market Square car park. The proposals do not include a pedes-

trian crossing to serve the east/ west pedestrian desire line. This may result in pedestrians attempting to cross the proposed car park egress at inappropriate locations, increasing the risk of trips/falls as well as potential collisions with vehicles.

RECOMMENDATION:

It is recommended that pedestrian crossing facilities (dropped kerbs/ tactile paving) are provided across the car park egress

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that controlled crossings have been provided at this location. This issue is resolved.

4.20 Problem (RSA1 Problem C11)

Location: Proposed Southernhay/ Station Way/ Roundacre/ Fodderwick signalised junction.

Summary: Absence of pedestrian crossing facilities to accommodate north-south pedestrian desire line to the west of Station Way.

The existing junction provides pedestrian crossing facilities across Roundacre which accommodate pedestrians travelling north-south between Station Way and Fodderwick (providing a link between the station and the western end of the town centre). The proposals will re-configure the existing Southernhay/ Station Way/ Roundacre/ Fodderwick signalised junction, resulting in the removal of the existing crossing facilities within the centre of the junction and the provision of a new staggered pedestrian crossing on the eastern arm (Southernhay). This proposed crossing is considered to be some distance from the pedestrian desire line, and this may result in pedestrians attempting to cross Roundacre at inappropriate locations, increasing the risk of trips/falls as well as potential collisions with vehicles.

RECOMMENDATION:

It is recommended that pedestrian crossing facilities are provided on the pedestrian desire line across Roundacre.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that controlled crossings have been provided at this location. This issue is resolved.

4.21 Problem (RSA1 Problem C12)

Location: Southern footway on Station Way to the east of Cherrydown Way.

Summary: Poor footway surfacing may pose a trip hazard to footway users.

The existing footway contains a number of trip hazards including broken/ irregular paved surfacing, raised covers and raised tree pits. Whilst the proposals seek to replace the existing tree pits, it is unclear whether the other defects will be rectified. If these defects are not rectified, then footway users are more likely to trip or fall resulting in potential injury. This concern is exacerbated by the proposed removal of pedestrian guard railing which could subsequently result in footway users falling into the live carriageway, increasing the risk of collisions with vehicles.

RECOMMENDATION:

It is recommended that all of the existing footway defects are rectified as part of the proposed improvements

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the footway in this area has been replaced. This issue is resolved.

4.22 Problem (RSA1 Problem C14)

Location: Proposed cycle/ footway on southern side of Cherrydown East and the southern pavement of Southernhay adjacent to the proposed taxi rank

Summary: Poor surfacing may pose hazards to pedestrians and cyclists.

The existing footways at the above locations contain broken/ irregular paved surfacing which present a number of trip hazards to users. The proposals seek to convert the footways to shared cycle/ footways but do not appear to include any proposed re-surfacing along these sections. If the existing defects are not rectified, then pedestrians are more likely to trip or fall and cyclists are more likely to lose control or become unseated resulting in potential collisions and injury

RECOMMENDATION:

It is recommended that the proposed cycle/ footways are re-surfaced to remove the existing defects.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the cycle/ footways in this area has been re-surfaced. This issue is resolved.

4.23 Problem (*RSA1 Problem C15*)

Location: Cherrydown East/ residential car park access and Cherrydown East/ bus depot access/ egress junctions

Summary: Tactile paving layout may lead to visually impaired pedestrians becoming confused and crossing unsafely

The proposed tactile paving provision on the 'island' between the existing car park egress and bus depot access on the northern side of Cherrydown East covers the entire width of the island (approximately 3m). This may cause confusion for visually impaired pedestrians which may increase the likelihood of collisions with vehicles

Recommendation:

It is recommended that a break is provided within the tactile paving so that the layout is in accordance with the appropriate guidance.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that no gap in tactile paving is provided at this location. This issue remains to be resolved.

Designer Response:

Rejected: The footways at this location were not part of our scope of work and were in place before the design started

4.24 Problem (*RSA1 Problem C18*)

Location: Proposed pedestrian crossing on southern arm of Clay Hill Road/ Cherrydown East junction.

Summary: Long pedestrian crossing may put users at risk of being struck by vehicles.

The proposed pedestrian crossing on Clay Hill Road is approximately 14m in length. This may increase the likelihood of crossing pedestrians being struck by vehicular traffic due to the length of time that they will be within the live carriageway.

RECOMMENDATION:

It is recommended that the crossing distance is reduced and/ or that an island is provided to allow pedestrians to cross in two stages.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

A review of the Tenet Drawing 277229-TS03-AB shows a crossing time in excess of 10secs. During the Stage 3-4 site visit it was noted that these times were deemed as sufficient. This issue is resolved.

4.25 Problem (*RSA1 Problem D1*)

Location: Signalised junctions across the entire scheme.

Summary: No staging/ phasing details provided.

No traffic signal staging/ phasing details have been provided as part of the audit. The Audit Team is therefore unable to comment on the suitability or safety implications of the signal sequences, timings and stop line locations and layouts etc. on this basis as, for example, there may be a case for segregation between stop-lines at locations where adjacent streams of traffic are given a green signal at different times

RECOMMENDATION:

It is recommended that staging and phasing are fully analysed as part of the on-going development of the design and that traffic signal layouts (stop-line layouts, traffic signal head provision) are appropriate.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

Telent drawing 277229-TS03-AB shows a crossing time in excess of 10secs. During the Stage 3-4 site visit it was noted that these times were deemed as sufficient. This issue is resolved.

4.26 Problem (*RSA1 Problem D2*)

Location: Southernhay/ Clay Hill Road/ Eastgate Centre car park signalised junction.

Summary: Straight ahead movements from the northern arm may result in mid-junction collisions.

Road users are currently able to travel straight ahead from the Eastgate Centre car park (northern arm) to Clay Hill Road (southern arm). Whilst the proposals include two left-turn only lanes on the northern arm, no physical measures are proposed to prevent vehicles from continuing straight ahead. The Audit Team is concerned that road users may attempt to travel straight ahead at the junction (as per the existing situation) which could result in collisions with other road users.

RECOMMENDATION:

It is recommended that further measures are considered to prevent road users from travelling ahead at the junction

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

Telent drawings for all signalised junctions have been provided and reviewed. This issue is resolved.

4.27 Problem (*RSA1 Problem D3*)

Location: Proposed Southernhay/ car park (west of bus station) egress priority junction.

Summary: General traffic may join bus-only link on Southernhay.

Southernhay currently accommodates general traffic movements in the eastbound direction and provides access to a car park to the north immediately to the west of the existing bus station. The proposals will create a two-way bus (and taxi) only link along this section of Southernhay, whilst also converting the existing car park access to a car park egress. Vehicles exiting the car park onto Southernhay will subsequently join a bus-only link in either the eastbound or westbound direction which could cause confusion to road users with the subsequent risk of collisions.

RECOMMENDATION:

It is recommended that the proposals are re-visited to prevent general traffic from joining a bus-only link on Southernhay when exiting or entering the car park

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

The eastbound approach to the bus-only link on Southernhay has an Advanced Directional Sign (ADS) and 'Turn Left' carriageway marking to inform eastbound road users of the route they should take. This issue is resolved.



4.28 Problem (*RSA1 Problem D4*)

Location: Throughout scheme.

Summary: Junction modelling/ queue lengths not known.

Junction modelling/anticipated queue length details have not been provided to the Audit Team for review and as such the Audit Team cannot comment on any potential road safety concerns with regards to the potential for queuing and associated impacts at the proposed signalised junctions (following the conversion of certain arms to two-way), as well as the suitability of proposed lane lengths and turning arrangements. There are a number of relatively short turning lane reservoirs proposed and it is unclear whether there is enough space to store road users safely.

RECOMMENDATION:

It is recommended that the junction designs are such that turning and stop-line reservoirs are of suitable length and that excessive queuing will not occur that may adversely impact on the safe operation of the junctions and surrounding network.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

The site was visited between 3:30pm – 6:00pm, during the 'pm peak'. No excessive queuing was observed during this period. It is recommended that this issue is monitored and remedial actions taken as appropriate.

Designer Response:

Rejected: We do not consider queue lengths as a matter for a RSA as it is not related to a safety concern and could not be addressed in a Stage 1 Road Safety Audit (when it was initially raised) as the finalised model would not be available. However, the VISSIM model was carried out by Essex County Council and the subsequent LinSig model shows practical reserve capacity at all locations.

4.29 Problem (*RSA1 Problem D6*)

Location: Proposed Southernhay/ Station Way/ Roundacre/ Fodderwick signalised junction.

Summary: Substandard junction inter-visibility on southern and northern arms.

The junction inter-visibility splay between the southern and western arms of the junction, as well as between the northern and eastern arms of the junction both appear to be obstructed by existing buildings. Substandard junction visibility at these locations may result in vehicle collisions should the traffic signals fail.

RECOMMENDATION:

It is recommended that the design/ stop-line locations are reviewed to provide adequate levels of junction inter-visibility.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

A review of the PIC Data for the period since the completion of the scheme, shows there have been no collisions at this junction during this time. It is recommended that this issue is monitored.

Designer Response:

Rejected: The road layout and signal positions at this location have not been changed. No issues have previously been identified and given the fixed thresholds and restricted space available it would not be possible to improve the situation.

4.30 Problem (*RSA1 Problem D7*)

Location: Station Way/ Ashdon Way and Station Way/ Cherrydown Way junctions.

Summary: Road users may attempt to turn right onto Ashdon Way or Cherrydown Way at the junctions.

The proposals will convert Station Way to a two-way operation thereby allowing vehicles to travel from north to east (as well as from east to north as per the existing situation). Whilst a solid centre-line is proposed along Station Way, road users travelling from the north may still attempt to turn right onto Ashdon Way or Cherrydown Way at the respective junctions. This could result in collisions with other road users, particularly in consideration of the tight turning manoeuvres required to achieve the right turns and the forward visibility concerns raised in Problem B3.

RECOMMENDATION:

It is recommended that measures are provided to prevent road users from turning right onto Ashdon Way and Cherrydown Way from Station Way.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the Cherrydown junction is signal controlled and both junctions have No Entry signs and carriageway marking which are clearly visible. This issue is resolved.

4.31 Problem (*RSA1 Problem D8*)

Location: Station Way/ Cherrydown East/ Ashdon Way junction.

Summary: Possible conflicts between controlled and uncontrolled turning movements at junction.

The northern and southern Station Way arms and the western Ashdon Way arm will operate under signal control. However, the eastern Cherrydown East arm will form an uncontrolled give-way (left turn only) at the junction. Road users turning left from Cherrydown East to Station Way will not have visibility of the signals and will be unsure when they can safely emerge from the junction and other main-line traffic may not expect traffic to be joining at this point in an uncontrolled nature. This could lead to mid-junction collisions occurring at this location

RECOMMENDATION:

It is recommended that Cherrydown East is brought within the signal control of the junction.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that the Cherrydown junction is signal controlled. This issue is resolved.

4.32 Problem (*RSA1 Problem D9*)

Location: Cherrydown East/ residential access junction

Summary: Existing bus stop may restrict junction visibility

It is unclear whether the existing bus stop located on the westbound lane along Cherrydown East (adjacent to a residential access) is to remain under the scheme proposals; if a bus stop is retained, a bus using this bus stop may block the visibility splay to eastbound traffic for vehicles emerging from the residential access. This may result in collisions occurring involving emerging and mainline traffic

RECOMMENDATION:

It is recommended that the existing bus stop is relocated away from the junction.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit a bus was observed at the stop. It was noted that there was sufficient space for left turning vehicles to join the carriageway and sufficient carriageway width to pass the pass with oncoming traffic. This issue is resolved.

4.33 Problem (*Problem D10*)

Location: Eastern arm of Clay Hill Road/ Cherrydown East junction

Summary: Limited stacking space for vehicles turning left to access the car park

There appears to be limited stacking space at the left turn from Clay Hill Road into the eastern car park. This may lead to rear end shunt type collisions occurring as a result of vehicles braking suddenly to take the left turn into the car park and /or collisions occurring due to driver frustration due to vehicles queuing back onto the mainline ahead only lane.

RECOMMENDATION:

It is recommended that the crossing is relocated further to the east to provide additional stacking space for left turners

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it noted that there were no stacking issues. It is recommended that this issue is monitored.

Designer Response:

Agree: issue to be monitored. It is unlikely that the crossing could be moved further east as there would not be clear visibility to the signal heads

4.34 Problem (*RSA1 Problem D11*)

Location: Station Way/ Cherrydown Way junction.

Summary: Road users may attempt to turn right onto Station Way at the junction.

The proposals will convert Station Way to two-way operation thereby allowing vehicles to travel from north to east (as well as from east to north as per the existing situation). Whilst the junction layout is not conducive for road users to turn right onto Station Way at the junction, no measures are proposed to prevent this right turn. Road users may therefore attempt to turn right from Cherrydown Way, across the wide westbound traffic lane and the solid centre-line on Station Way. This could result in collisions with other road users, particularly those travelling along Station Way in an eastbound direction with consideration of the limited forward visibility around the bend (Problem B3) and narrow running lane width (Problem B4).

RECOMMENDATION

It is recommended that measures are provided to prevent road users from turning right onto Station Way from Cherrydown Way.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

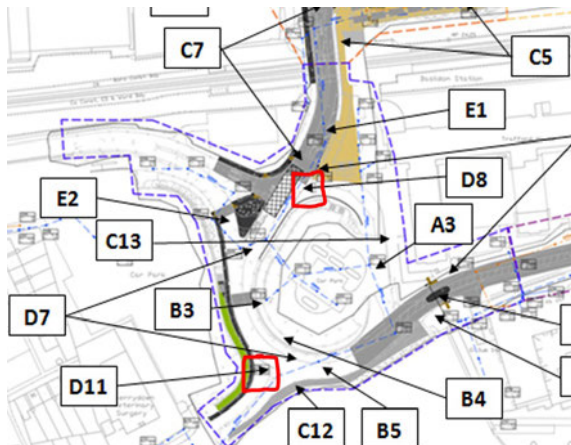
REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that there are several 'Turn Left' regulatory signs and carriageway marking to direct road users. However, at the time of the site visit, the vehicle in the image below was observed turning right into Station Way. It is recommended that this issue is monitored and remedial / enforcement actions taken as appropriate.



Designer Response:

Agree: The image shown above and the review at RSA3 are referring to a different location to the comments in RSA 1 location D11. The image above is at location D8. However, both locations have clear signage and physical measures implemented (kerb line changes) . Due to the width of the station way carriageway, it is impossible to stop cars (Taxis) from making right turns without a central median or barrier. The situation should be monitored and if instances persist, camera enforcement could be considered.



4.35 Problem (*RSA1 Problem E1*)

Location: Station Way to the north of Cherrydown East.

Summary: Proposed hatching on southbound carriageway (nearside) may lead to on-street parking.

The proposals include hatched road markings on the nearside southbound carriageway of Station Way immediately to the north of Ashdon Way and the proposed give-way with Station Way. As this part of the network is situated within close proximity of Basildon railway station and the town centre, it is anticipated that drivers may choose to park temporarily within the hatched area for pick-ups and/or drop-offs. These parked vehicles may restrict junction visibility between road users waiting to turn left out of Cherrydown East (looking to the right), and forward visibility for southbound road users on Station Way, increasing the potential for collisions.

RECOMMENDATION:

It is recommended that the hatched area is physically built out at this location to avoid the potential for on-street parking.

RECOMMENDATION

It is recommended that measures are provided to prevent road users from turning right onto Station Way from Cherrydown Way.

DESIGNERS RESPONSE

No Designers Response provided.

REVIEW AT RSA2:

No comments at RSA2

REVIEW AT RSA3:

During the Stage 3-4 site visit it was noted that 'No Waiting At Any Time' restrictions have been provided throughout this section. This issue is resolved.

5.0 MATTERS ARISING FROM PREVIOUS STAGE 2 ROAD SAFETY AUDIT

5.1 PROBLEM (*RSA2 Problem 7.1*)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900101 Rev P01.
Existing bus layby on the northern side of Southernhay.

Summary: Risk of pedestrians colliding with trees and bus shelter due to the restriction of width.

The proposals include the relocation of the existing bus stop, approximately 40m to the east, without removing the existing bus layby. This issue has been identified in Problem 6.1 above. However, no indication has been submitted with regard to the landscaping proposals and whether the shelter will be relocated. Consequently, it is not clear if there would be sufficient footway width remaining. If the footway width is insufficient, then there is a risk of pedestrians colliding with the trees and shelter, where injuries may occur. Image No. 1



Image No. 1

Recommendation:

It is recommended that the designers should ensure that there is sufficient footway width.

Designer Response:

Accepted: The lay-by is being converted into a Taxi Rank, which however is not clear upon the GA drawing supplied to the Audit team. The Bus shelter is being relocated along with the bus stop, so will significantly widen the footway at the location.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

The stage 3-4 site visit revealed that the bus layby on northern side of Southernhay has been converted into a Taxi Rank and the stop has been relocated eastward. This issue is considered to be resolved.

5.2 Problem (*RSA1 Problem 7.2*)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900101 Rev P01.

Existing roundabout at the eastern end of Southernhay

Summary: Risk of pedestrians colliding with road users due to no pedestrian crossing.

The existing highway layout includes pedestrian guardrail on the northern and southern footways of Southernhay, as well as along the central reserve of the dual carriageway. During the site visit the Audit Team observed a number of pedestrians crossing Southernhay by climbing over the pedestrian guardrail from the north side to gain access to the south side, as indicated by the brown arrow in Image No.2. This increases the potential for pedestrians to collide with road users who may be entering or leaving the roundabout, particularly as drivers would have their attention drawn to the roundabout and other traffic using it, especially when observing the access to the ASDA superstore.

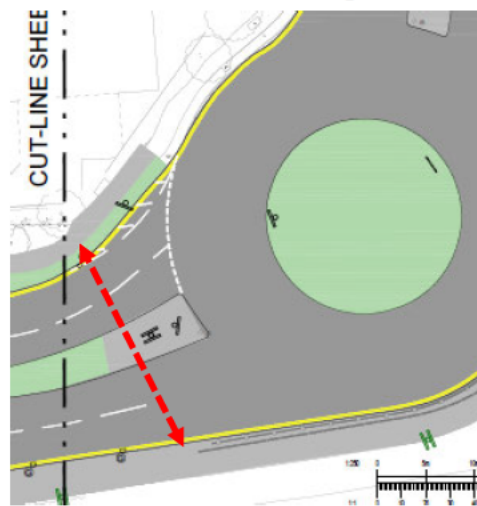


Image No.2

Recommendation:

It is recommended that the designer should review the likelihood of pedestrians wishing to access the footway/footpath links east of the roundabout in question, with a view to including pedestrian facilities.

Designer Response:

Rejected: Whilst it is noted the Audit teams' observations on site that pedestrians crossed at the location advised, pedestrian guard-rail is being maintained at the location to discourage pedestrians from crossing on an exit of the roundabout. There is also the existing facility 120m approx. to the west of this location for pedestrians to cross safely.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the stage 3-4 site visit it was noted that there continues to be significant pedestrian movements at this location (see image above). It was also noted that there is no guard rail that would deter pedestrians from crossing at this location. It is recommended that pedestrian guard rail is provided at this location.

Designer Response:

Agree: A section of pedestrian guardrail should be installed to deter crossings at this location. 30-40m adjacent to the existing VRS on the south side of Southernhay Road

5.3 Problem (*RSA2 Problem 7.3*)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900101 Rev P01.

Access to Deliveries to Eastgate Shopping Area. North side of Southernhay

Summary: Risk of collisions between vehicles exiting Eastgate shopping area and pedestrians due to a lack of visibility

The site visit revealed that pedestrians would have difficulty in seeing any vehicles exiting the access to the delivery area Eastgate shopping centre and vice versa due to the lack of visibility, as can be seen in Image No.3 above. There are no proposals to amend the existing kerb line on the eastern side, which adds to the problem of a lack of visibility. There is a potential for collisions to occur between vehicles exiting the area and pedestrians who are crossing or standing in the carriageway in order to achieve a line of sight. This may result in pedestrian injuries.



Image No.3

RECOMMENDATION:

It is recommended that the eastern kerblines be adjusted so that the width of the crossing point is reduced so that vehicles exiting the delivery access to the Eastgate shopping area would be able to see pedestrians waiting to cross the junction easier and pedestrians view approaching vehicles from the footway.

DESIGNER RESPONSE:

Rejected: The kerb alignment at the location has been reviewed after carrying out tracking at the location to provide enough space for a 16.5t articulated vehicle to be able to turn into and out of the loading area for Eastgate Shopping. Vehicle speeds at the location in addition will also be low to help pedestrians to cross at the location. Furthermore, the stage 1 RSA made a requirement for the introduction for the pedestrian island at the location instead of the previously proposed carriageway markings.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the stage 3-4 site visit it was noted that traffic islands and dropped kerb crossing has been provided at this junction. This issue is resolved.

5.4 Problem (RSA2 Problem 7.4)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900102 Rev P01.

Access to Deliveries to Eastgate Shopping Area. North side of Southernhay

Summary: Risk of collisions between vehicles and partially sighted pedestrians due to no tactile paving guidance.

The drawing submitted for audit proposes two traffic islands where pedestrians may wait for traffic to access the Eastgate shopping area. These islands would form a safe haven for crossing pedestrians. However, no tactile paving is proposed between the two traffic islands. This would be a particular issue for partially sighted pedestrians who would be following the orientation that the tactile paving either side of the junction would give them. Partially sighted pedestrians may not be aware of the two traffic islands and may continue through the junction until they reach the opposite side. Consequently, there is a risk of pedestrians colliding with vehicles exiting or entering the delivery access to Eastgate shopping centre, which may result in injuries to pedestrians.

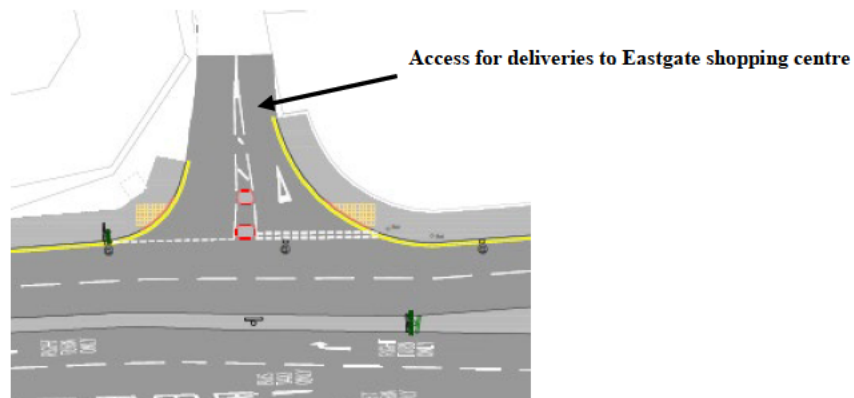


Image No.4

Recommendation:

It is recommended that tactile paving, is placed between the two proposed traffic islands. This needs to be considered along with the recommendation in 7.3 above to ensure sufficient space to allow for both proposals.

Designer Response:

Accepted: The tactile paving had been proposed at the location; however this was not apparent on the drawings and has been amended.

CLIENT'S COMMENT: Agree

Review at RSA3:

During the stage 3-4 site visit it was noted that traffic islands and dropped kerb crossing has been provided at this junction. This issue is resolved.



5.5 Problem: (RSA2 Problem 7.5)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900102 Rev P01.
Exit from Multi-storey Car Park above Eastgate Shopping Centre.

Summary: Risk of vehicle side impact collisions due to vehicles exiting multi-storey car park.

The drawing submitted for audit shows two lanes exiting the multi-storey car park above the Eastgate Shopping Centre. The design suggests that the median strip separating the traffic lanes will be reduced eastwards. The amendments to the junction are as a consequence of the reconfiguring of the junction. However, the reduction of the median separating island provides the potential for vehicles exiting the multi-storey car park to travel across the junction southwards and continue their journey along Clay Hill Road. (The suggested direction of the potential risk is shown by a red arrow). The result of this issue is that there is a risk of vehicle side impact collisions, with the potential of serious injuries occurring or even fatalities.

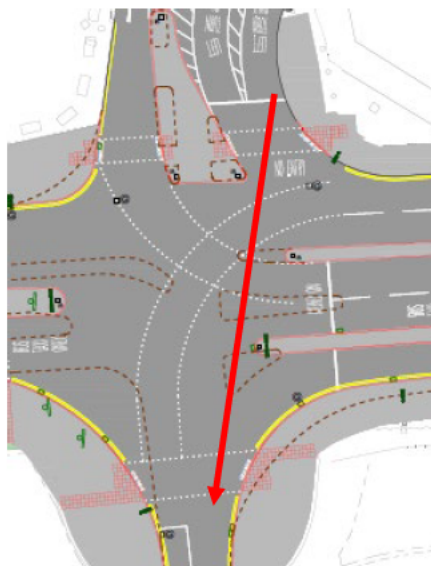


Image No.5

Recommendation:

It is recommended that swept paths for the type of vehicles likely to turn right from Clay Hill Road to Southernhay are undertaken. If necessary, it is recommended that amendments should be carried out to the entry/exit splitter island to encourage vehicles to turn left and continue along Southernhay eastwards.

Designer Response:

Rejected: This issue had been previously raised during the stage 1 RSA, with similar concerns. Part of the detailed design at the location was to amend the kerb alignment to prevent vehicles from being able to driver straight across the junction from the car park exit, this included extension of the traffic islands on the eastern side of the junction on Southernhay. We are unable to further extend the islands due to vehicle tracking at the location to ensure that no kerb strikes occur at the junction.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:
No further comment.

5.6 Problem: *(RSA2 Problem 7.6)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900102 Rev P01.
Southernhay / Clay Hill Road / Multi-storey Car Park Entry / Exit

Summary: Risk of head-on and side impact collisions due to potential signal phasing

The drawing submitted for audit shows alterations to the existing traffic signal junction. However, no details were submitted showing the turning movements of vehicles likely to use the junction. Also, a phase diagram was also omitted and therefore the Audit Team are not aware which arm of the junction would have priority at the various stages. Unsuitable arrangements and designs could result in a risk of head-on and side impact collisions.

Recommendation:

It is recommended that the designers ensure that the amended junction is sufficient to allow turning movements for vehicle likely to use it, when considering the various phases of the traffic signals, including pedestrian movements.

Designer Response:

Accepted: Vehicle tracking drawings have been provided to the Audit team to show clearance for all vehicle movements at the junction. LinSig modelling of the junction has been carried out prior to the signal design to ensure there are no phase/vehicle conflicts under the signal control of the junction. Traffic signal design drawings will be provided to the Audit team for review.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

Telent drawings for all signalised junctions have been provided and reviewed. This issue is resolved.

5.7 Problem: *(RSA2 Problem 7.7)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900102 Rev P01.
Multi-storey Car Park Entrance.

Summary: Risk of pedestrians catching shoes in gully grating and falling into the live carriageway.

The drawing submitted for audit shows tactile paving crossing points at the access to the Eastgate Shopping Centre multi-storey car park. However, there is an existing gully within the proposed crossing area. The existing cover type increases the risk of pedestrian getting their heels caught in the cover, which may result in trips and falls, potentially into the live carriageway.

Recommendation:

It is recommended that the designers should ensure that either the gully grating is pedestrian safe cover or that it is relocated to a more appropriate location outside of the crossing area.

Designer Response:

Accepted: The gully will be relocated to the outside of the pedestrian crossing to prevent any difficulties for users of the crossing.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the Stage 3 site it was noted that the gully grate has been relocated away from the pedestrian desire line. This issue is resolved.

5.8 Problem: *(RSA2 Problem 7.8)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900102 Rev P01
Junction of Southernhay and Clay Hill Road

Summary: Risk of vehicle to pedestrian collisions

The drawing submitted for audit proposes for Clay Hill Road to become two-way. The south-west kerbline between Clay Hill Road and Southernhay West is also being reduced to facilitate a left turn from Clay Hill Road, with controlled crossing points shown on both arms. The audit team have not been provided with the traffic signal phasing diagram but are concerned, subject to phasing that vehicles exiting Clay Hill Road turning left may not expect to stop immediately at the controlled crossing point on Southernhay. This increases the risk of drivers overshooting the crossing point, which may result in vehicle to pedestrian collisions.

Recommendation:

It is recommended that the phasing of the traffic signals is such that left turning vehicles will not be required to immediately stop at the Southernhay crossing point.

Designer Response:

Rejected: The junction is continued to be signal controlled to ensure that there are no vehicle/pedestrian conflicts at the junction. The signal drawings which include the phasing will be provided to the Audit team for review.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

The junction of Southernhay and Clay Hill Road is signal controlled and is provided with a pedestrian crossing. This issue is resolved.

5.9 Problem: *(RSA2 Problem 7.9)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900103 Rev P01
Exit from the bus station

Summary: Risk of head-on and side swipe collisions due to driver confusion

The drawing submitted for audit shows the junction where buses and taxis exit the bus station and taxi rank. The Audit Team are of the opinion that without any information regarding the direction to which vehicles may travel there is the potential risk of side swipe and head on collisions taking place. The introduction of an Advanced Direction Sign would aid the junction configuration with the benefit that drivers would be less confused.

Recommendation:

It is recommended that an Advanced Direction Sign is introduced.

Designer Response:

Rejected: There are no amendments to the existing traffic flows at the location for buses and taxis at the location, therefore it was felt that no additional signage is required at the location.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

It is noted that there have been no PIC's recorded at this location since the implementation of the scheme. No further comment.

5.10 Problem: *(RSA2 Problem 7.10)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900103 Rev P01
Proposed controlled pedestrian crossing

Summary: Risk of collisions between pedestrians and vehicles.

Image No.8, which is an extract from drawing number 14916-100-WIE-ZZ-DR-C-900103 Rev P01, shows a proposed controlled pedestrian crossing point on Southernhay, adjacent to a retail unit called The Barbers Shop. The tactile paving shown in image No.8 illustrates a proposed standard L shaped layout for this facility on the north side of Southernhay. However, the stem of the tactile paving layout is too short for visually impaired pedestrians, who may bypass the tactile unaware of the controlled crossing point available, leading to them cross the road at an inappropriate location, increasing the risk of injury should a collision with a vehicle occur.

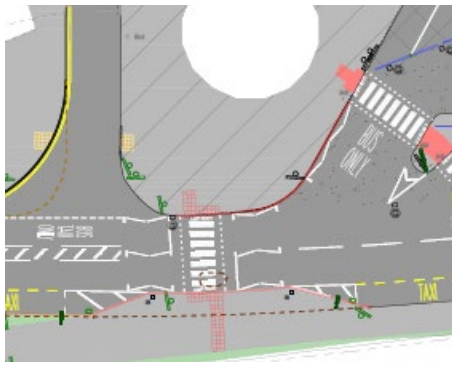


Image No. 8



Image No.9

Recommendation:

It is recommended that the stem of the tactile paving is extended to the rear of the footway to the yellow paving as shown in image No 9 above.

Designer Response:

Agreed: The crossing has been reviewed and a changes to the tactile paving due to the change to an uncontrolled crossing point.

REVIEW AT RSA3:

During the Stage 3 site visit, it was noted that an uncontrolled crossing point has been provided. This issue is resolved.

5.11 Problem: *(RSA2 Problem 7.11)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900103 Rev P01
Proposed controlled pedestrian crossing

Summary: Risk of collisions between pedestrians and cyclists due to confusion of shared facilities.

The southern side of the controlled crossing point shown in image 10 above appears to be a shared footway / cycleway facility. Unfortunately, due to a lack of shared use information submitted, it is not clear whether the controlled crossing is meant for pedestrians as well as cyclists. It is assumed due to the tactile paving shown that the crossing facility is meant for pedestrians. This confusion raises the potential for collisions between pedestrians and cyclists, which may result in injuries.

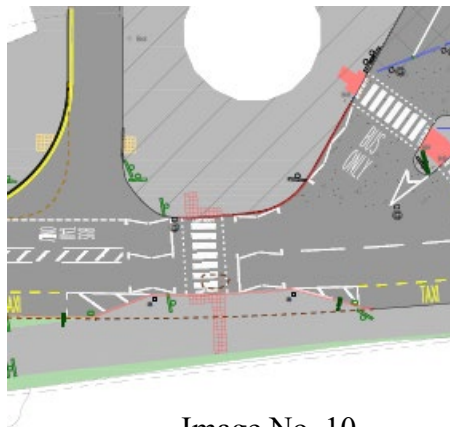


Image No. 10

Recommendation:

It is recommended that the tactile paving for a shared footway / cycleway facility should be appropriate for a shared facility.

Designer Response:

Accepted: Tactile paving has been added to the southern side of Southernhay to indicate the end of the shared footway either side of the crossing point.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the Stage 3 site visit, it was noted that an uncontrolled crossing point has been provided. This issue is resolved.

5.12 Problem (RSA2 Problem 7.12)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900103 Rev P01
Proposed controlled pedestrian crossing

Summary: Risk of pedestrian collisions with Statutory Undertakers Apparatus.
Statutory Undertakers Apparatus

Image No. 12 above shows two Statutory Undertakers' apparatus cabinets at the approximate location where the controlled pedestrian crossing would be on the north side of South-ernhay. The drawing submitted for audit did not have this equipment shown. If the cabinets were to remain, they may physically obstruct pedestrians using the controlled crossing and/or affect visibility. This situation would be a particular problem for visually impaired pedestrians, and they could quite easily collide with the cabinets, if they were to remain, when using the crossing.

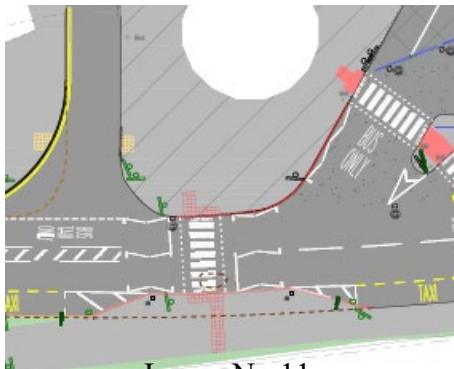


Image No.11



Image No.12

Recommendation:

It is recommended that the Statutory Undertakers' apparatus cabinets are relocated to a more appropriate location.

Designer Response:

Accepted: The zebra crossing has been relocated to ensure that it is not obstructed by the cabinet's, or to impact on visibility for the approaching driver or the pedestrian using the facility.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the Stage 3 site visit, it was noted that apparatus cabinets have been relocated. This issue is resolved.

5.13 Problem: *(RSA2 Problem 7.13)*

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900103 Rev P01
Proposed Market Pavement Exit

Summary: Risk of vehicle to pedestrian collisions
Southernhay

The entry radii to Market Pavement is being increased to provide a smoother sweep for vehicles exiting Southernhay. This is likely to increase the speed at which vehicles exit Southernhay, which could increase the risk of a collision with pedestrians crossing this arm, especially eastbound pedestrians who will need to turn 180 degrees to observe approaching vehicles.

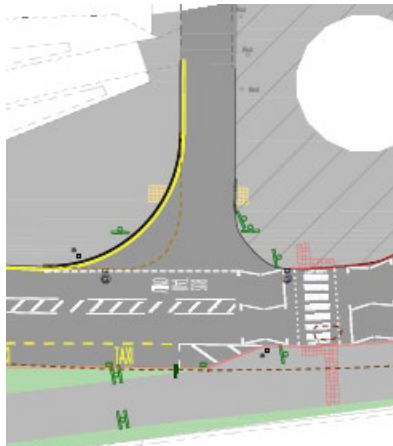


Image No.13

Recommendation:

It is recommended that the junction radii remain tight to control vehicle speeds. Swept path analysis should be undertaken to demonstrate the kerbline is still appropriate for the intended vehicle use as there is existing evidence of kerbline overrun/damage.

Designer Response:

Rejected: The alignment of the junction has been designed to allow an HGV to be able to turn left into Market Pavement from Southernhay. Currently large vehicles overrun the kerbs and footway which significantly increases the possibility for conflict with pedestrians waiting to cross at the location. It is anticipated that vehicle flows will reduce at this location as through traffic has been banned and vehicles that use the junction are using it for local access/deliveries.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:
No further comment.

5.14 Problem: *(RSA2 Problem 7.14)*

Location: Various

Summary: Risk of head-on collisions due to making existing one-way roads two-way.

There are a number of roads that currently operate as one-way that are proposed to operate as two-way (Image No14 being one such example). Drivers become creatures of habit and may drive the current one-way roads out of habit. Following the implementation of the scheme proposals, drivers may still drive by habit failing to notice the changes in priorities/direction of travel, especially during quieter periods. This increases the risk of drivers driving on the wrong side of the road whereby head on collisions are a significant risk. The likely severity of any head on collision would be serious or even fatal.



Image No. 14

Recommendation:

It is recommended that measures to inform road users of the change in priorities are significantly increased. Including;

- Physical separation where ever possible,
- Central hatched separation,
- Increased number of arrow road markings informing of direction of flow,
- Warning signs including 'two-way traffic',
- Advanced direction signs
- Temporary 'New Road Layout Signs' that inform drivers of the specific change – i.e. Two-Way Road

Designer Response:

Rejected: The signing of the scheme has taken this into account with there being clear indication and signage for the section of carriageway that will become two-way. In addition, the "New Road Layout" signs have been already proposed as part of the scheme with the requirement of these to be removed within 6 weeks.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the Stage 3 site visit, it was noted that the appropriate traffic signs had been provided. This issue is resolved.

5.15 Problem: (*RSA2 Problem 7.15*)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900104 Rev P01
Fodderwick / Southernhay / Station Way junction

Summary: Risk of head-on and / or side impact collisions due to driver confusion.

It is proposed to alter the existing controlled junction shown in the above image No. 15, where Station Way changes from a one-way carriageway to a two-way carriageway that allows vehicles to travel from Fodderwick and Southernhay south to Station Way. The Audit Team are concerned that vehicles travelling south from Fodderwick to Station Way may misalign themselves and cause a head-on collision.

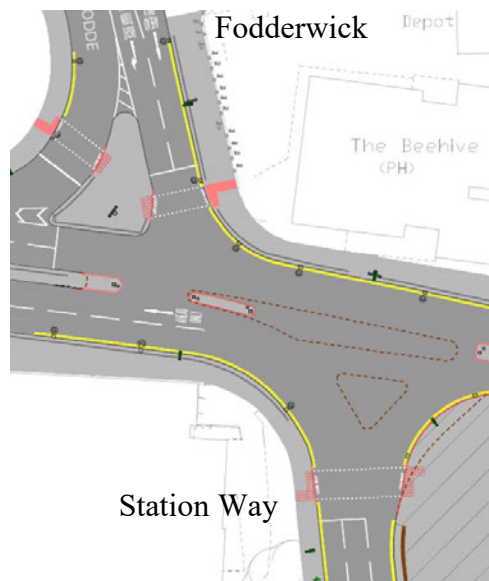


Image No. 15

Recommendation:

It is recommended that additional lane carriageway guidance markings should be included to aid vehicles travelling from Fodderwick to Station Way in conjunction with a physical island with keep left arrow. Additionally, it is recommended that carriageway arrow markings in accordance with Diagram 1038 of Chapter 5 of the Traffic Signs Manual and two-way flow warning signs to Diagram 521 of Chapter 4 of the Traffic Signs Manual are included.

Designer Response:

Rejected: There is a bollard proposed for the new traffic island to advise drives from Fodderwick Road to keep left. Carriageway arrow markings have also been provided to reinforce vehicle movements, as demonstrated within the drawing.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the Stage 3 site visit, it was noted that a Keep Left bollard and lane markings have been provided. This issue is resolved.

5.16 Problem: (RSA2 Problem 7.16)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900104 Rev P01
Change of Priority on Station Way

Summary: Risk of head-on and / or side impact collisions due to a change in priority for the junction resulting in driver confusion.

The drawing submitted for audit shows a change in priority at the junction and in particular Station Way where the existing configuration is a one-way priority from south to north. The proposal shown in image No. 16 shows that there will be two lanes for vehicles wishing to travel south to north, who would have to either turn left or turn right along Southernhay. The third lane would be for drivers wishing to access Station Way from Southernhay and Fodderwick to travel south. There does not appear to be any information for drivers northbound (along the previous one-way road) to inform them that the road now operates two-way. Drivers who frequently drive this route may fail to notice/observe the change in priorities. This significantly increases the risk of head on collisions.

Recommendation:

It is recommended that significant measures are installed to inform drivers of the change of priorities/direction of travel, possibly including; physical islands, hatched centre-lines, arrow road markings at frequent intervals, warning signs and temporary 'New Road Layout ahead signs' with appropriate wording to inform drivers of the specific layout change.

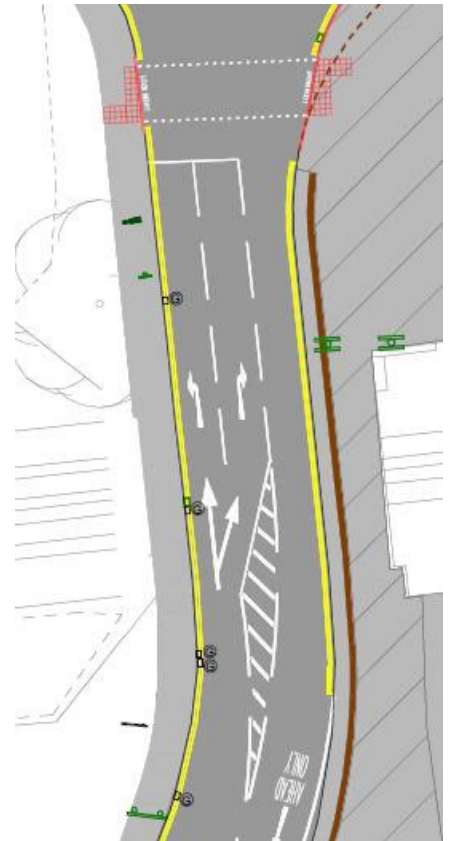


Image No. 16

Designer Response:

Rejected: There are 2 lanes proposed to head north bound into the junction, with one lane clearly marked for left turning vehicles, and the other for right turning vehicles which for the majority will be for the majority buses and taxis only.

In addition, the "New Road Layout" signs will be used on all approaches to the area to advise motorists of the changes to the layout, with clear signage to advise of two-way operation where required.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

During the Stage 3 site visit, it was noted that the appropriate signing has been provided. This issue is resolved.

5.17 Problem: (RSA2 Problem 7.17)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900105 Rev P01
Westbound exit from Cherrydown East

Summary: Risk of side impact vehicle collisions due to lack of visibility

The drawing submitted for audit shows the north-eastern exit from the Cherrydown East roundabout with a stop-line, which suggests that this arm of the junction is to be signalised. However, no additional information has been submitted to confirm this. The required vehicle movement is also 'left turn only' from Cherrydown East. If this arm is not signalised, there is a lack of visibility due to the retaining wall, to see vehicles travelling southbound on Station Way. As a consequence of this issue there may be the potential risk of side impact vehicle collisions, which may result in injuries.

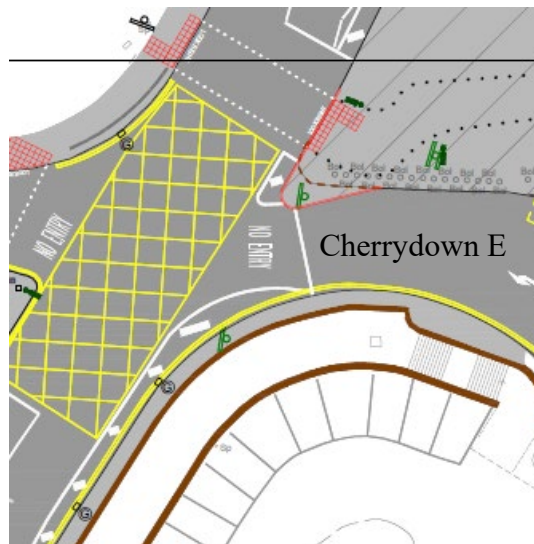


Image No. 17

Recommendation:

It is recommended that the exit from Cherrydown East is signalised.

Designer Response:

Rejected: The exit from Cherrydown East is proposed to be signalised, removing the risk of side impact collisions.

CLIENT'S COMMENT: Agree, junction signalised

REVIEW AT RSA3:

As mentioned in para.4.34, during the Stage 3-4 site visit it was noted that there are several 'Turn Left' regulatory signs and carriageway markings at the signalised junction to direct road users. However, at the time of the site visit, a vehicle (Taxi) was observed turning right into Station Way. It is recommended that this issue is monitored and remedial / enforcement actions taken as appropriate.

Designer Response:

Agree: The signalised junction has clear signage and physical measures implemented (kerb line changes). Due to the width of the station way carriageway, it is impossible to physically stop cars (Taxis) from making right turns without a central median. The situation should be monitored and if instances persist, camera enforcement could be considered.

5.18 Problem: (RSA2 Problem 7.18)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900105 Rev P01
Proposed two-way traffic on Station Way and Cherrydown East

Summary: Risk of head-on and side impact collisions due to driver confusion

The above image, which is an extract from drawing No. 900105 Rev PO1, shows Station Way and Cherrydown East to change from one-way priority to two-way priority. The existing carriageway is very wide and operates as one-way. As such, elevated speeds and vehicles taking the racing line were observed. If this route is made two-way there is a risk that drivers may retain their previous habits and fail to observe that it is now a two-way road, still driving at elevated speeds and taking the racing line. This, combined with the reduced forwards visibility for southbound traffic, increases the risk of head on collisions.

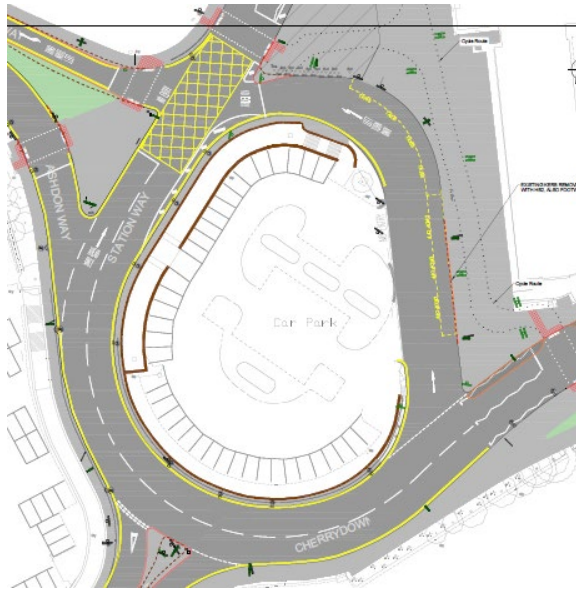


Image No.18

Recommendation:

It is recommended that physical separation should be included which would also serve to narrow the operational carriageway and reduce vehicle speeds.

Designer Response:

Rejected: Vehicle tracking of the location details insufficient space for any form of segregation to be introduced at the location. The carriageway also on a bend which will act as a speed reduction measure so high speeds are not anticipated to be an issue at the location.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:
No further comment.

5.19 Problem: (RSA2 Problem 7.19)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900105 Rev P01
Toucan Crossing, Cherrydown East

Summary: Risk of Pedestrian, Slip, Trips and Falls due to incorrect kerb levels

A toucan crossing is shown on images No. 19 and 20 above. The site visit revealed that ‘pond-ing’ had taken place during recent rainfall. This was identified by detritus being deposited at the northeast corner of the southern crossing point. There is a risk of pedestrians slipping or tripping when crossing during inclement weather and falling onto the carriageway. This is particularly significant with regard to visually impaired pedestrians.

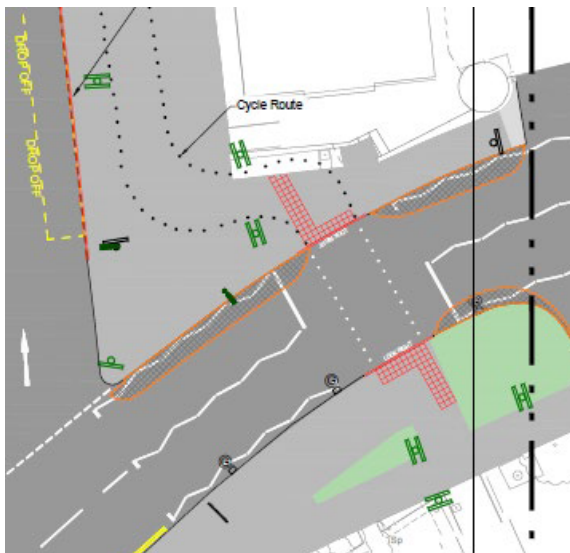


Image No.19



Image No.20

Recommendation:

It is recommended that mitigation measures are carried out to remove the ponding issue.

Designer Response:

Rejected: The levels of the carriageway will be reviewed throughout the scheme to ensure there are no ponding issues at the location identified.

CLIENT'S COMMENT: Agree.

REVIEW AT RSA3:

During the Stage 3-4 site visit no ponding issues were noted. No further comment.

5.20 Problem: (RSA2 Problem 7.20)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900106 Rev P01
Exit from Trafford House, Cherrydown East

Summary: Risk of collisions between vehicles and visually impaired pedestrians due to lack of colour contrast of tactile paving.

On the north side of Cherrydown East there is an entrance and exit to Trafford House. The exit is shown in image No. 21 above. It may also be seen in the image that there is no colour contrast between the tactile paving and the adjacent paving slabs. This matter is a concern for partially sighted pedestrians, who, although they may be aware that there is a change in footway surfacing, may not appreciate that they should be cautious due to the potential hazard of a vehicle exiting Trafford House. As a consequence of this issue there is a risk of vehicles colliding with pedestrians, which may result in injuries to pedestrians. Additionally, the Audit Team are aware that the footway surface will change to a flexible material, but no information has been provided for the type of tactile paving that may be included in the design



Image No. 21

Recommendation:

It is recommended that tactile paving is appropriate for the new surfacing.

Designer Response:

Rejected: Whilst it is noted the lack of colour contrast at the location, this is an existing issue and is not included within the scope of this project. The footway at the location will remain as no works are being carried out at the location.

CLIENT'S COMMENT: Agree

REVIEW AT RSA3:

No further comment.

5.21 Problem: (RSA2 Problem 7.21)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900106 Rev P01
Rear Entrance to flats opposite Trafford House, Cherrydown East

Summary: Risk of head-on collisions due to lack of visibility

The drawing submitted for audit, of which image No. 22 above is an extract, shows a proposed bus 'cage' in yellow on the Southernhay carriageway. No information has been forwarded to the Audit Team to show if there is sufficient visibility to look past a stationary bus at the bus stop. This matter affects vehicles exiting the residential area opposite Trafford House and wishing to turn left as may not be able to see if there are any vehicles travelling along Cherrydown East in an easterly direction. As a consequence of this issue there may be the potential risk of vehicle head-on collisions when overtaking a stationary bus.

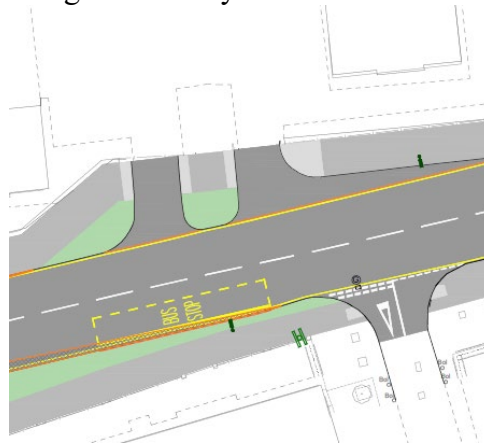


Image No.22

Recommendation:

It is recommended that the designer ensures that there is sufficient visibility for drivers to see past a stationary bus. If there is not sufficient visibility, then it is recommended that the bus stop is relocated to a more appropriate location or that the centre-line is appropriately re-aligned past the bus stop to provide a through lane, should the carriageway widths allow.

Designer Response:

Rejected: Visibility for drivers when turning left is sufficient for them to join the flow of traffic, with them then having the option to wait for the bus to move away from the stop. In addition the junction is to a gated entrance/exit so there are not anticipated to be many vehicles using the location to exit onto the carriageway at this location.

CLIENT'S COMMENT: Agree; there are also very infrequent bus services.

REVIEW AT RSA3:

As mentioned in para 4.32, during the Stage 3-4 site visit with a bus at the stop, it was noted that there was sufficient space for left turning vehicles to join the carriageway and sufficient carriageway width to pass the bus with oncoming traffic. This issue is resolved.

5.22 Problem: (RSA2 Problem 7.22)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900107 Rev P01
Clay Hill Road / Car Park 13

Summary: Risk of vehicle rear shunt type collisions due to driver confusion

The extract from drawing number 14916-100-WIE-ZZ-DR-C-900107 Rev P01, shown above, suggests that the pedestrian crossing will be signalised for vehicles wishing to enter Car Park 13. The location of the stop-line is such that vehicles are likely to back up and block the through-flow of traffic on the main road, leading to rear end shunts. As the proposed signal phasing has not been provided, the audit team cannot establish the proposed phasing of the junction. Additionally, there is also the potential that drivers wishing to travel south along Clay Hill Road may overtake waiting vehicles wishing to access the car park, with the risk of head-on collisions with road users travelling northwards towards Southernhay, as it is proposed that Clay Hill Road will become a two-way road.

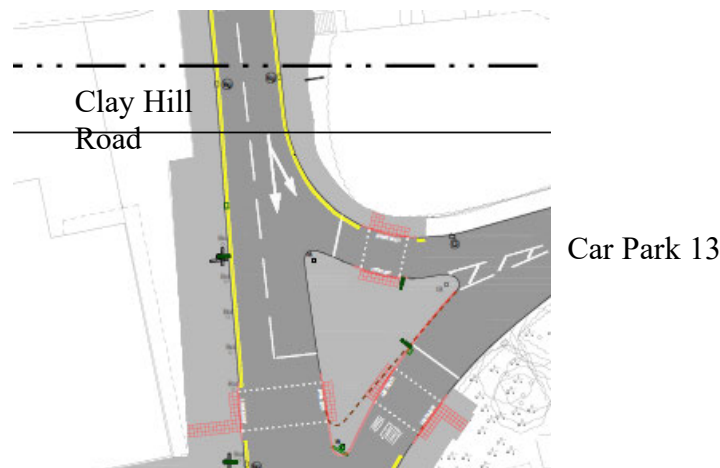


Image No. 23

Recommendation:

It is recommended that the designers review the signal phasing and whether a signalised crossing point into Car Park 13 is essential.

Designer Response:

Rejected: The junction is signalised in part to provide a safe crossing point for pedestrians, which will continue to include the entrance into Car Park 13. The staging diagrams will be provided to the Audit team for review.

CLIENT'S COMMENT: Agree.

REVIEW AT RSA3:
No further comment.

5.23 Problem: (RSA2 Problem 7.23)

Location: Drawing Nr. 14916-100-WIE-ZZ-DR-C-900107 Rev P01
Clay Hill Road / Cherrydown East / Car Park 13

Summary: Risk of head-on collisions due to driver confusion

The drawing submitted for audit shows the proposed signalised Clay Hill Road/Cherrydown East/Car Park 13 junction. Currently, drivers exiting Car Park 13 enter Cherrydown East as a one-way road. The proposals make Cherrydown East a two-way road. Drivers may exit Car Park 13 out of habit, taking the racing line, which increases the risk of a head on collision with eastbound traffic on Cherrydown East. A possible conflict point may be point A shown in image No. 24.

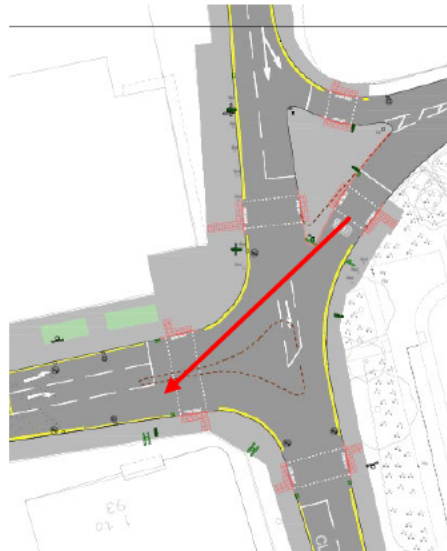


Image No.24

Recommendation:

It is recommended that more information is provided for drivers to guide them through the junction by indicating the appropriate lanes they should be taking to proceed on their journey and that Cherrydown East is now a two-way road.

Designer Response:

Rejected: The junction is to be signalled controlled with the exit from Car Park 13 having clear indication when it is safe to go, along with clear carriageway markings to show where oncoming traffic will be or should be waiting at the time.

CLIENT'S COMMENT: Agree.

REVIEW AT RSA3:
No further comment.

6.0 ITEMS RAISED DURING THIS STAGE 3 - 4 ROAD SAFETY AUDIT

6.1 GENERAL

No safety issues raised.

6.2 THE ALIGNMENT

No safety issues raised.

6.3 THE JUNCTIONS

No safety issues raised.

6.4 NON-MOTORISED USERS

6.5 PROBLEM

Location: Roundabout at the eastern end of Southernhay

Summary: Risk of pedestrians colliding with road users.

As mentioned previously within this report, during the Stage 3-4 site visit, it was noted that there is significant pedestrian movements across Southernhay at this location (see RSA 3-4 Image1). The desire line appears to be to gain access to the footway leading to the Basildon Hall area.



RSA 3-4 Image 1 – Pedestrian desire line

RECOMMENDATION

It is recommended that pedestrian guard rail is provided adjacent to the existing VRS, to deter this NMU movement.

Designer Response:

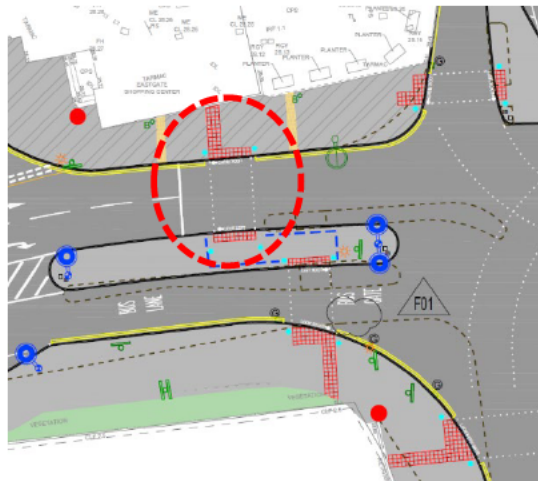
Agree: A section of pedestrian guardrail should be installed to deter crossings at this location. 30-40m adjacent to the existing VRS on the south side of Southernhay Road

6.6 PROBLEM

Location: Staggered crossing within northern footway to west of multi-story car park entrance on Southernhay.

Summary: Risk of collisions involving pedestrians with mobility impairment.

It was noted during the site visit that the gradient of the tactile paving at the northern side of the staggered crossing appears to be steep (see RSA 3-4 Image 2). There is concern that pedestrians with a mobility impairment and wheelchair users, may find it difficult to negotiate the ramp and may be left stranded in the carriageway and be at risk of collision with approaching traffic.



RSA 3-4 Image 2 – Tactile pavement gradient

RECOMMENDATION

It is recommended that a review of the gradient of the tactile paving is undertaken to establish if it DDA compliant / in accordance with Inclusive Mobility requirements.

Designer Response:

Agree: To be checked on site. Design levels suggest a 3.5% gradient

6.7 PROBLEM

Location: Shared use facility at the junction of Clay Hill and Southernhay.

Summary: Risk of collisions involving pedestrians and cyclists.

Whilst it is appreciated that 'cycle-scoops' have been provided at the junction to guide cyclists rejoin or leave the carriageway, it is noted that there are no information signs advising cyclists of the 'End of Route' or 'Cyclists Rejoin the Carriageway'. It was also noted that the 'Prohibition of Cycling' signs (Diag. 951) at the junction of Southernhay and Clay Hill, are poorly located (see RSA 3-4 Image 3). There is concern that failure to provide the appropriate signing could lead to conflict between cyclists and pedestrians.



RSA 3-4 Image 3 – Location of 951 signs at Clay Hill.

RECOMMENDATION

It is recommended that a review of the signing in this area is undertaken.

Designer Response:

Rejected: As noted in the response to item 4.14 above the “End of Route” signs should not be used, warning tactile has been provided and cycle scoops have been provided at the junction. The addition of extra signs would likely constitute unnecessary street clutter. Although no conflicts have been reported and the expected desire line of cyclists will allow them to see the Diag 951 signs, the situation should be monitored on site.

6.8 PROBLEM

Location: Dropped kerb crossing Market Pavement near junction with Southernhay.

Summary: Risk of injury to pedestrians.

At the time of the site visit it was noted that there is ‘ponding’ at the eastern side of the crossing point (see RSA 3-4 Image 4). There is concern that shallow standing water at this location could form to ice in low temperatures and present a hazard to pedestrians, particularly those with a mobility impairment.



RSA 3-4 Image 4 -standing water at crossing point

RECOMMENDATION

It is recommended that carriageway drainage in this area is inspected and remedial measures taken to prevent standing water at this location.

Designer Response:

Agree: This should be reviewed on site to ascertain if the water is ponding or just slow to drain north into the gully on market pavement. If problems persist a chute gully with connection into the existing adjacent gully should be made.



6.9 PROBLEM

Location: Controlled crossings at each end of the Bus Station on Southernhay.

Summary: Risk of collisions and injury to pedestrians.

During the Stage 3-4 site visit, it was noted that the controlled crossing at each end of the Bus Station have been damaged and have beacon globes missing (see RSA 3-4 Image 5). There is concern that in low light conditions approaching drivers may not be aware of the presence of the crossing or pedestrians on the crossing. This may lead to collisions between pedestrians and road users resulting in injury.



RSA 3-4 Image 4 – Damaged pole and globes at crossing

RECOMMENDATION

It is recommended that the repair works to the crossings are undertaken at the earliest opportunity.

Designer Response:

Agreed : Repair work to the crossings to be undertaken

6.10 PROBLEM

Location: Staggered crossings adjacent train station on Southernhay.

Summary: Risk of collisions involving pedestrians.

At the time of the site visit it was noted that there is a significant pedestrian movement that by-passes the staggered crossing and uses the traffic island as a direct route between the train station and the bus station/Eastgate shopping centre. During the site visit it was noted that there is a long pedestrian activation/call time for these signals. This may be a contributory factor for pedestrians not using the crossing facility. There is concern that this pedestrian movement increases the potential for collisions between pedestrians and passing road users.

RECOMMENDATION

It is recommended that this issue is monitored and remedial actions taken as appropriate.

Designer Response:

Disagree: Two suitable crossings have been provided (controlled and uncontrolled) on that desire line and within 65m of each other. If people are deciding to cross away from these positions no amount of additional measures will stop them.

6.11 SIGNING, LIGHTING, ROAD MARKINGS

No safety issues raised.

7.0 ADDITIONAL COMMENTS MADE AT THIS STAGE 3-4 RSA

- 7.1 It was noted that the New Road Layout Ahead' signs to diag. 7014 are still present on site. These signs should only be deployed for a 3month period on completion of the scheme. It is recommended that the signs are removed at the earliest opportunity.

Designer Response:

Agree:

- 7.2 During the site visit it was noted that the traffic sign assembly on the traffic island on Southernhay adjacent to Market Pavement has been damaged/removed (see RSA 3-4 Image 5). It is recommended that the signs are removed at the earliest opportunity.

Designer Response:

Agree : Signs to be removed



RSA 3-4 Image 5 – Damaged/removed traffic sign assembly on Southernhay at Bus Gate.

8.0 AUDIT TEAM STATEMENT

We certify that this audit has been undertaken in accordance with Essex Highways Policy HPN039.

AUDIT TEAM LEADER

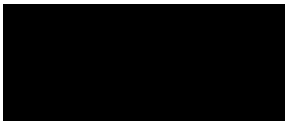

Senior Road Safety Engineer
Road Safety Engineering Team
Essex County Council/Ringway Jacobs
Seax House
Chelmsford
Essex, CM1 1QH

Signed: 

Date: 13/02/2024

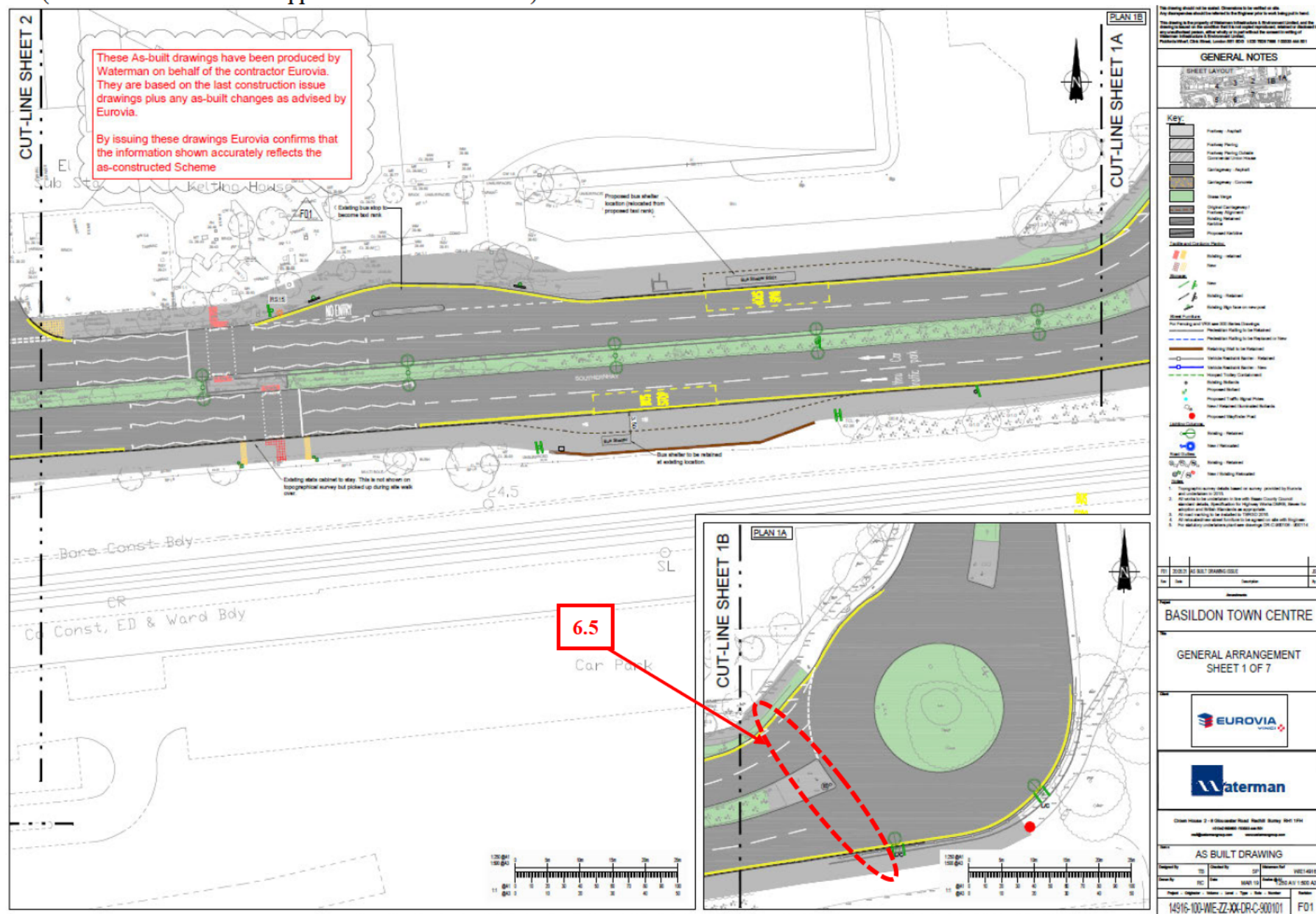
AUDIT TEAM MEMBER

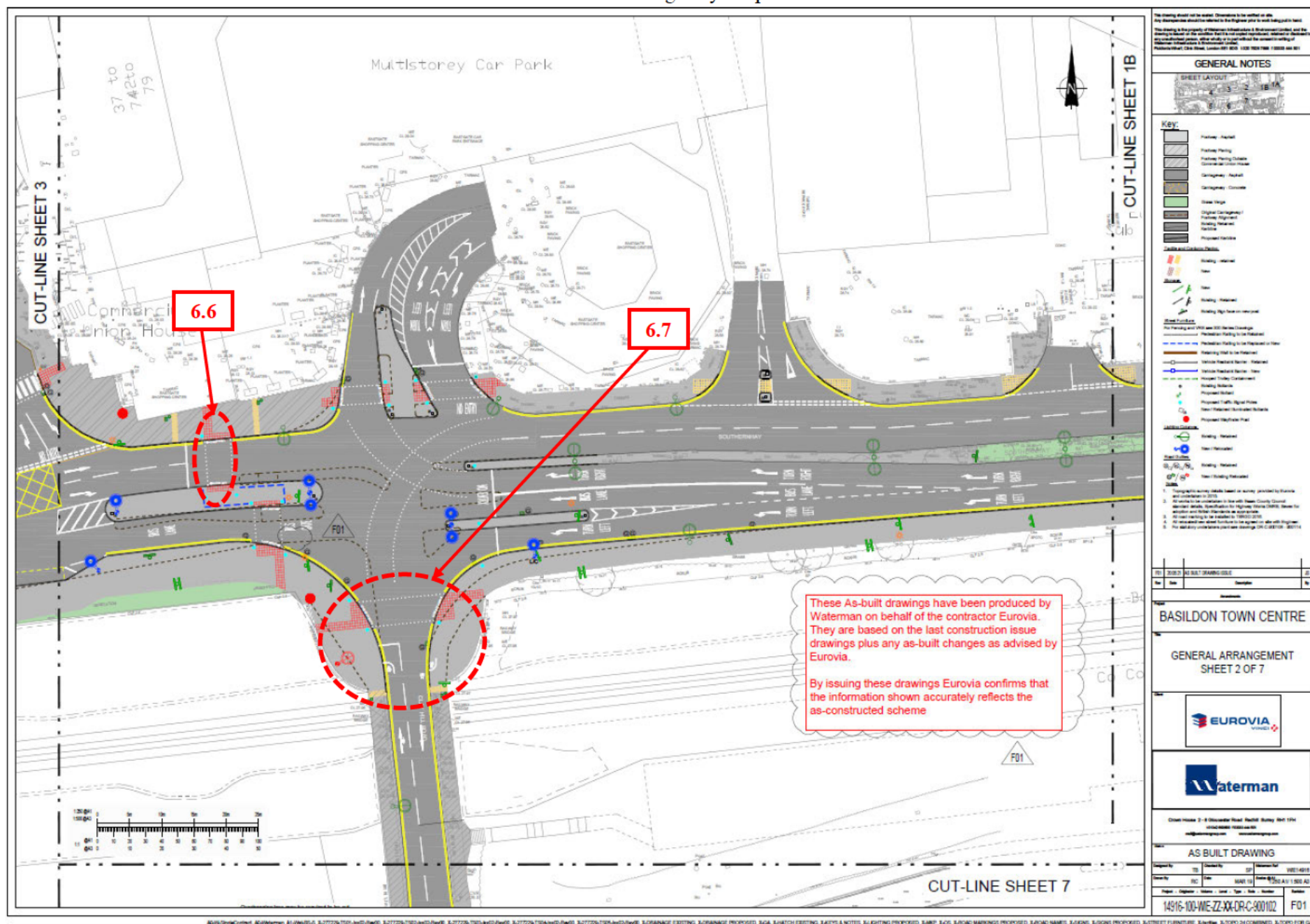

Road Safety Engineer
Road Safety Engineering Team
Essex County Council/Ringway Jacobs
Seax House
Chelmsford
Essex, CM1 1QH

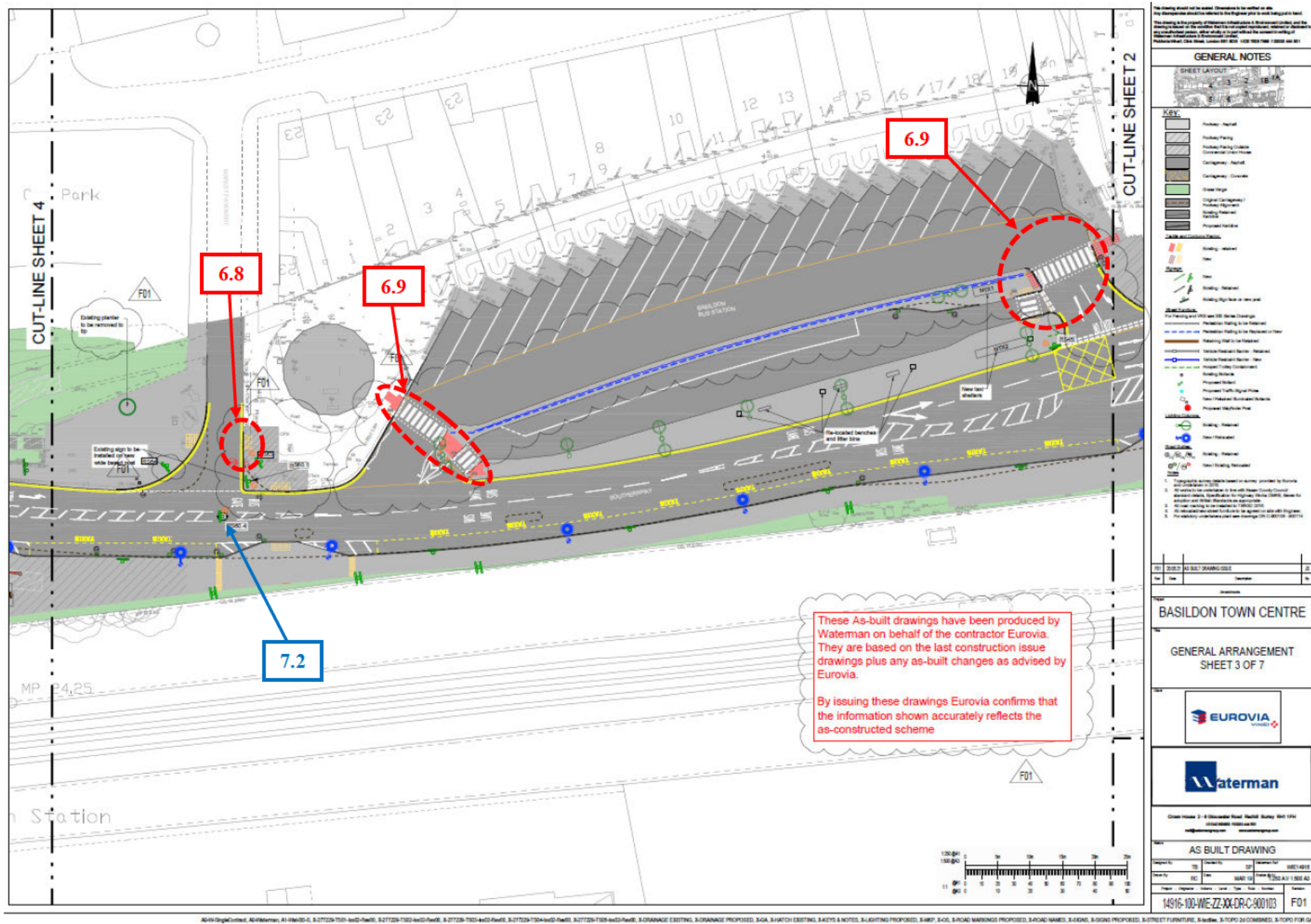
Signed: 

Date: 13/02/2024

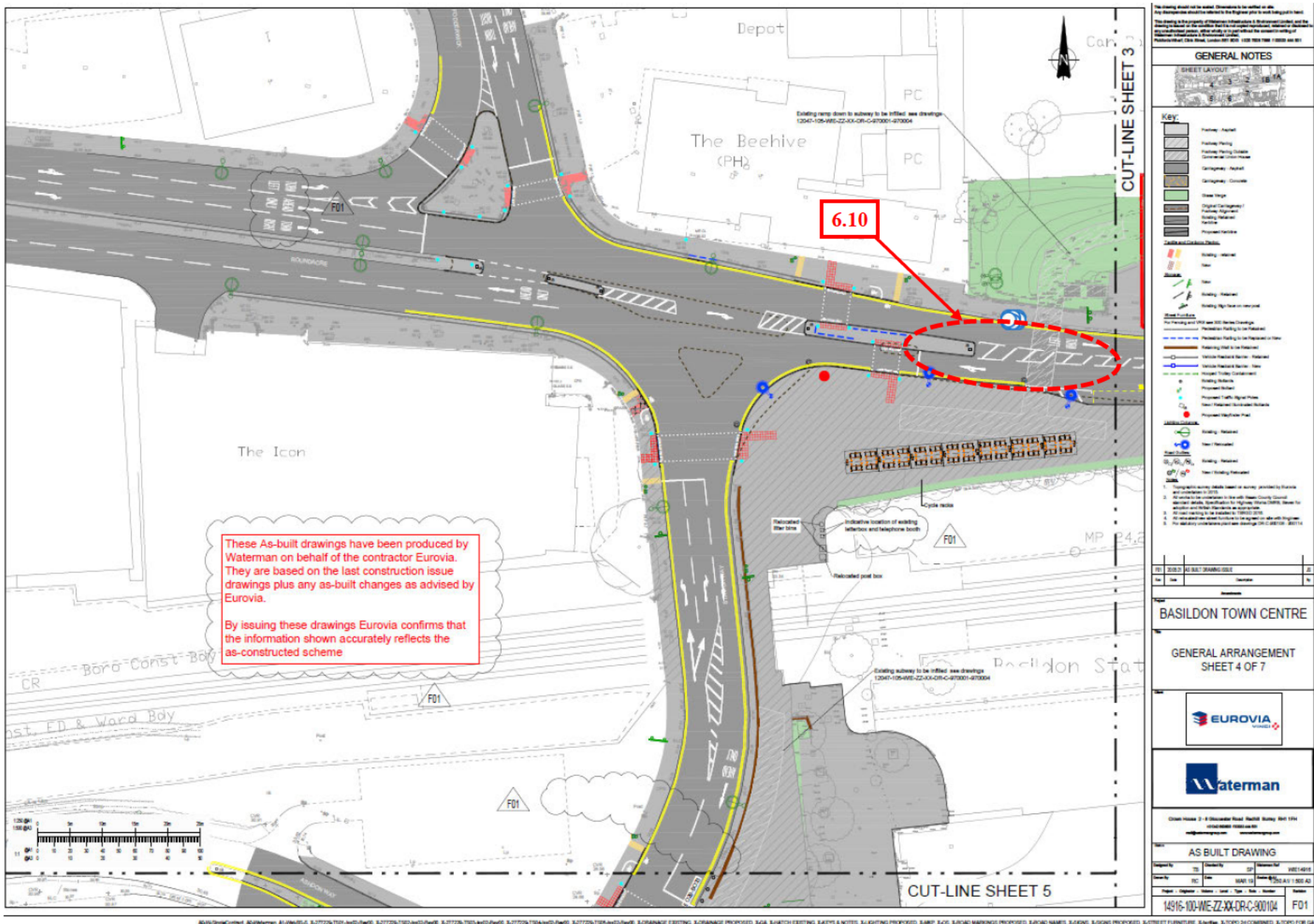
(Additional Comment 7.1 applies to extents of scheme)







9286 – Basildon Town Centre Highways Improvements RSA 3-4



APPENDIX A

Road Safety Audit – Designer’s Response (Combined Stage 3 & 4 RSA)  				
* Designer’s Response to be read in conjunction with the Audit Report:				
Safety Audit Problem Number/ Summary	RSA Recommendation	Designer’s Response to Recommendation: Acceptance details + design proposals OR Rejection details + alternative design proposals	Audit Team comments following Designer’s Response	Exception Report Required
4.14	It is recommended that appropriate signage is provided to signify the end of a cycle route where necessary and that suitable continuous cycle provision is otherwise provided across the scheme.	Rejected: As noted above the “End of Route” signs should not be used and cycle scoops have been provided at the junction which is clear indication for cyclists. No conflicts have been reported since the scheme opened. The addition of extra signs would be unnecessary street clutter.	This issue will be monitored.	No
4.23	It is recommended that a break is provided within the tactile paving so that the layout is in accordance with the appropriate guidance.	Rejected: The footways at this location were not part of our scope of work and were in place before the design started	RSA Team accepts the Designer Response.	No
4.28	It is recommended that the junction designs are such that turning and stop-line reservoirs are of suitable length and that excessive queuing will not occur that may adversely impact on the safe operation of the junctions and surrounding network.	Rejected: We do not consider queue lengths as a matter for a RSA as it is not related to a safety concern and could not be addressed in a Stage 1 Road Safety Audit (when it was initially raised) as the finalised model would not be available. However, the VISSIM model was carried out by Essex County Council and the subsequent LinSig model shows practical reserve capacity at all locations.	RSA Team accepts the Designer Response.	No

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4.29	It is recommended that the design/stop-line locations are reviewed to provide adequate levels of junction inter-visibility.	Rejected: The road layout and signal positions at this location have not been changed. No issues have previously been identified and given the fixed thresholds and restricted space available it would not be possible to improve the situation.	This issue will be monitored.	No
4.33	It is recommended that the crossing is relocated further to the east to provide additional stacking space for left turners	Agree: issue to be monitored. It is unlikely that the crossing could be moved further east as there would not be clear visibility to the signal heads	RSA Team accepts the Designer Response.	No
4.34	It is recommended that measures are provided to prevent road users from turning right onto Station Way from Cherrydown Way.	Agree: The image shown above and the review at RSA3 are referring to a different location to the comments in RSA 1 location D11. The image above is at location D8. However, both locations have clear signage and physical measures implemented (kerb line changes) . Due to the width of the station way carriageway, it is impossible to stop cars (Taxis) from making right turns without a central median or barrier. The situation should be monitored and if instances persist, camera enforcement could be considered.	RSA Team accepts the Designer Response.	No

5.2	It is recommended that the designer should review the likelihood of pedestrians wishing to access the footway/footpath links east of the roundabout in question, with a view to including pedestrian facilities. REVIEW AT RSA3: During the stage 3-4 site visit it was noted that there continues to be significant pedestrian movements at this location (see image above). It was also noted that there is no guard rail that would deter pedestrians from crossing at this location. It is recommended that pedestrian guard rail is provided at this location.	Designer Response: (RSA2) Rejected: Whilst it is noted the Audit teams' observations on site that pedestrians crossed at the location advised, pedestrian guard-rail is being maintained at the location to discourage pedestrians from crossing on an exit of the roundabout. There is also the existing facility 120m approx. to the west of this location for pedestrians to cross safely. Designer Response: (RSA3) Agree: A section of pedestrian guardrail should be installed to deter crossings at this location. 30-40m adjacent to the existing VRS on the south side of Southernhay Road	RSA Team accepts the Designer Response.	No
5.17	It is recommended that the exit of Cherrydown East is signalised.	Agree: The signalised junction has clear signage and physical measures implemented (kerb line changes). Due to the width of the station way carriageway, it is impossible to physically stop cars (Taxis) from making right turns without a central median. The situation should be monitored and if instances persist, camera enforcement could be considered.	RSA Team accepts the Designer Response.	No

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6.5	It is recommended that pedestrian guard rail is provided adjacent to the existing VRS, to deter this NMU movement.	Agree: A section of pedestrian guardrail should be installed to deter crossings at this location. 30-40m adjacent to the existing VRS on the south side of Southernhay Road	RSA Team accepts the Designer Response.	No
6.6	It is recommended that a review of the gradient of the tactile paving is undertaken to establish if it DDA compliant / in accordance with Inclusive Mobility requirements.	Agree: To be checked on site. Design levels suggest a 3.5% gradient	RSA Team accepts the Designer Response.	No
6.7	It is recommended that a review of the signing in this area is undertaken.	Rejected: As noted in the response to item 4.14 above the “End of Route” signs should not be used, warning tactile has been provided and cycle scoops have been provided at the junction. The addition of extra signs would likely constitute unnecessary street clutter. Although no conflicts have been reported and the expected desire line of cyclists will allow them to see the Diag 951 signs, the situation should be monitored on site.	This issue will be monitored.	No
6.8	It is recommended that carriageway drainage in this area is inspected and remedial measures taken to prevent standing water at this location.	Agree: This should be reviewed on site to ascertain if the water is ponding or just slow to drain north into the gulley on market pavement. If problems persist a chute gulley with connection into the existing adjacent gulley should be made.	RSA Team accepts the Designer Response.	No
6.9	It is recommended that the repair works to the crossings are undertaken at the earliest opportunity.	Agreed : Repair work to the crossings to be undertaken	RSA Team accepts the Designer Response.	No

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6.10	It is recommended that this issue is monitored and remedial actions taken as appropriate.	Disagree: Two suitable crossings have been provided (controlled and uncontrolled) on that desire line and within 65m of each other. If people are deciding to cross away from these positions no amount of additional measures will stop them.	RSA Team accepts the Designer Response.	No
<i>DESIGN TEAM REPRESENTATIVE</i>		<i>ROAD SAFETY AUDIT TEAM LEADER</i>		
Name*:		Name:	[REDACTED]	
Position:		Position:	[REDACTED]	
Signed:		Signed:	[REDACTED]	
Date:		Date:	10/1/2025	

*The Design Team have carefully considered the problems and recommendations raised as part of this Road Safety Audit Report.

APPENDIX B

Road Safety Audit - Exception Report				 
Please read in conjunction with Appendix A Designer's Response and Road Safety Audit Report				
Safety Audit Problem Number	Designer's Response to rejected RSA Recommendation:	Audit Team comments following Designer's Response:	Project Sponsor Statement:	
PROJECT SPONSOR				
Name:	Position:	Signed:	Date:	
Additional Comments:				

SENIOR ROAD SAFETY ENGINEER DECISION IF ARBITRATIONAL REVIEW REQUIRED			
Name:	Position:	Signed:	Date:
<i>The Project Sponsor Statement as part of this Exception Report is accepted</i> <i>The Project Sponsor Statement as part of this Exception Report is rejected:</i> <i>(please delete as appropriate)</i> <i>Arbitrational Review Required: Yes / No</i> <i>(please delete as appropriate)</i>			

ARBITRATIONAL REVIEWER			
Name:	Position:	Signed:	Date:
<i>The Project Sponsor Statement as part of this Exception Report is accepted (*):</i> <i>The Project Sponsor Statement as part of this Exception Report is rejected: (**):</i>			

(*)Following acceptance the Project Sponsor will instruct the Design Team accordingly

(**) Following rejection the Project Sponsor will obtain the final decision from ECC Commissioning Team.

ECC COMMISSIONING TEAM: FINAL DECISION			
Name:	Position:	Signed:	Date:
<i>This Exception Report is accepted:</i> <i>This Exception Report is rejected:</i>			