

Cycle Superhighways Route 8 Upgrade

Chelsea Bridge Road / Grosvenor Road

Stage 3 Road Safety Audit

Ref: 2650.F1/012/A3212/TLRN/2016

Prepared for:

Sponsorship, TfL Road Space Management Directorate (RSM)

By:

Road Safety Audit, TfL Asset Management Directorate

Prepared by: [REDACTED], Audit Team Leader

Checked by: [REDACTED], Audit Team Member

Approved by: [REDACTED]

Version	Status	Date
A (Final)	Audit report issued to Client	13/02/2017



1.0 INTRODUCTION

1.1 Commission

- 1.1.1 This report results from a Stage 3 Road Safety Audit carried out on the Cycle Superhighways Route 8 Upgrade, Chelsea Bridge Road / Grosvenor Road.
- 1.1.2 The Audit was undertaken by TfL Road Safety Audit in accordance with the Audit Brief issued by the Client Organisation on 2nd December 2015. It took place at the Palestra offices of TfL on 17th December 2015 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the scheme.
- 1.1.3 The daytime visits to the site of the scheme were made on the 4th July 2016 and then the 1st November 2016. The site was visited during the hours of darkness on the 18th October 2016. During the visits the weather was overcast and the road surface was dry.
- 1.1.4 Justin Bennett of the Metropolitan Police attended the second day time site visit and his comments are incorporated in to this report.

1.2 Terms of Reference

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.
- 1.2.5 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

1.3 Main Parties to the Audit

1.3.1 Client Organisation

Client contact details: [REDACTED] – Sponsorship, TfL RSM

1.3.2 Design Organisation

Design contact details: [REDACTED] – Outcomes Design Engineering, TfL

1.3.3 Audit Team

Audit Team Leader: [REDACTED] – TfL Road Safety Audit

Audit Team Member: [REDACTED] – TfL Road Safety Audit

Audit Team Observer: None present

1.3.4 Metropolitan Police

Police Contact: [REDACTED] – Metropolitan Police

1.3.5 Other Specialist Advisors

Specialist Advisor Details: None present

1.4 Purpose of the Scheme

1.4.1 The Stage 4A Road Safety Audit has been reviewed for Cycle Superhighway (CS) Route 8 which has identified problematic locations along the route. Feasibility and Concept Design has been undertaken to address the safety problems identified at RSA4A at the above mentioned location [Chelsea Bridge Road / Grosvenor Road] CS8 runs from Wandsworth to the Westminster area and provides a fast route for people to cycle into Central London.*

*Taken directly from the Audit Brief.

1.5 Comments received from the Metropolitan Police

1.5.1 Justin Bennet from the Metropolitan Police commented that the lack of usage of the two stage right turn facility may warrant further investigation to determine why it is being used so infrequently. He also noted that the signing within and for the shared use areas is unclear and may benefit from being reviewed / rationalised and that westbound motorists cross the southern pedestrian crossing on the west arm during a green phase for pedestrians over Chelsea Embankment. These problems have been incorporated into Section 3 and Section 4 of this Stage 3 Road Safety Audit as appropriate.

1.6 Special Considerations

1.6.1 The Audit Team originally visited the part complete scheme in July 2016 and an interim Stage 3 Road Safety Audit Summary Report was completed and issued. The site was re-visited following completion of the outstanding works along with a visit with the police and a night time visit.

2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS

The proposals were subject to a Stage 1 Road Safety Audit carried out in September 2015 by TfL Road Safety Audit (ref: 2199/VAR/A3212/TLRN/2015). Items raised in that report can be summarised as follows:

- Problem 3.1.1 Proposed cycle lane may result in increased collisions between right turning cyclists and motorists continuing ahead.
The recommendation has been incorporated into the implemented layout. Therefore this issue will not be raised again in this Audit report.
- Problem 3.1.2 Traffic signal locations may not be immediately visible to cyclists
This problem remains in the constructed scheme and therefore this problem is raised again as problem 3.1.1 in this Audit report.
- Problem 3.1.3 Right turners may encroach into cycle lane and 'squeeze' cyclists.
The recommendation has been incorporated into the implemented layout. therefore this issue will not be raised again in this Audit report.
- Problem 3.2.1 Proposed lane widths may result in side swipe type collisions.
The recommendation has been incorporated into the implemented layout. therefore this issue will not be raised again in this Audit report.
- Problem 3.2.2 Proposed westbound alignment may lead to increased collisions.
The recommendation has been incorporated into the implemented layout, therefore this issue will not be raised again in this Audit report.

The proposals were subject to a Stage 2 Road Safety Audit carried out in December 2015 by TfL Road Safety Audit (ref: 2453.03/VAR/A3212/TLRN/2015). Items raised in that report can be summarised as follows:

- Problem 3.1.1 Chelsea Bridge Road northbound right turn into Grosvenor Road - Traffic signal locations may not be immediately visible to cyclists
This problem remains in the constructed scheme and therefore this problem is raised again as problem 3.1.1 in this Audit report.
- Issue 4.1 Chelsea Embankment eastbound approach to the junction - The proposed lane designation sign appears to be very close to the junction.
The recommendation has been incorporated into the revised design, therefore this issue will not be raised again in this Audit report.

The proposals were subject to an interim Stage 3 Road Safety Audit carried out in July 2016 by TfL Road Safety Audit (ref: 2650/012/VAR/TLRN/2016). Items raised in that report can be summarised as follows:

- Problem 2.1.1** Grosvenor Road east of junction with Chelsea Bridge Road – Vehicles over-running the mandatory cycle lane may result in collisions with cyclists.
- This problem remains in the constructed scheme and therefore this is raised again as problem 3.2.1 in this Audit report.
- Problem 2.2.1** Chelsea Bridge Road left turn into Chelsea Embankment – Swept path of larger vehicles may result in collisions with pedestrians.
- This problem remains in the constructed scheme and therefore this is raised again as problem 3.3.1 in this Audit report.
- Issue 3.1** Various locations – Loose granular material may lead to slips or falls.
- This issue was not observed on site, therefore this issue will not be raised again in this Audit report.
- Issue 3.2** Grosvenor Road junction with Chelsea Bridge Road – Incomplete road markings.
- During the most recent site visit, it was noted that the road markings have been completed. Therefore this issue will not be raised again in this Audit report.
- Issue 3.3** Chelsea Bridge Road junction with Chelsea Embankment / Grosvenor Road – Two stage right turn sign is not conspicuous.
- This issue remains in the constructed scheme, therefore this will be raised again as issue 4.4 in this Audit report.

3.0 ITEMS RAISED AT THIS STAGE 3 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

3.1 CYCLE FACILITIES

3.1.1 PROBLEM

Location: A – Chelsea Bridge Road northbound right turn into Grosvenor Road

Summary: Traffic signal locations may not be immediately visible to cyclists

The implemented scheme invites cyclists to adopt a carriageway position away from the normal primary stop-line to utilise the two stage right turn facility. Encouraging cyclists to adopt this position results in them being located in front of the primary traffic signals and therefore relying on the secondary signal to decide when to progress.

The location of the secondary traffic signal may lead to cyclists failing to appreciate when it is safe to cross, with an exacerbated potential for conflict as a result. This is particularly the case if the secondary traffic signal is obscured or not operational.

RECOMMENDATION

It is recommended to ensure the traffic signals are located in a position where they can be intuitively seen by cyclists. This may include but is not limited to providing additional cycle specific traffic signals in sight of cyclists utilising the two stage right turn pocket.

Design Organisation Response	Accepted / Part Accepted / Rejected
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Arcadis have not undertaken the traffic signal design on this scheme and we suggest that this is for TfL signals (Traffic Infrastructure) to comment on.

Client Organisation Comments

The proposed location of secondary traffic signal is on the central island on Grosvenor Road, and will be clearly visible to cyclists waiting in the area indicated for two stage right turners.

The scheme does not propose low level cycle specific traffic signals owing to the eastbound traffic lanes being separately signalled on a shared stop line. The eastbound ahead/left movement has its own signal stage before the right turn movement is then permitted in the following stage. Traffic Infrastructure (TI) have analysed the specifics of the site and decided having additional cycle specific traffic signals at this site could lead to confusion for cyclists waiting to turn right and have therefore recommended:

- an increase in safety clearance time by 3s to give cyclists making the second part of the manoeuvre an additional 'safety buffer'
- signage to be installed for cyclist on the approach to the 2SRT facility
- 7.5m ASL to be provided on Grosvenor Road west

Traffic Infrastructure (TI) explained *'the secondary signal head arrangement for Chelsea Embankment ahead/left movements will be sited so that it is visible to cyclists in the two stage right turn pocket. There is no early release facility for Chelsea Embankment and so there will be no cycle specific cycle filter aspect for*

cyclists, who will use the vehicle signal head for indication on when it will be safe for them to proceed with the second stage of their turn. A longer intergreen between Chelsea Bridge traffic losing right of way and Chelsea Embankment ahead/left gaining right of way is proposed to ensure that cyclists in the two stage turn pocket will be able to proceed without obstruction and to reduce the risk of conflict between them and traffic approaching from behind.'

3.1.2 PROBLEM

Location: B – Chelsea Embankment junction with Chelsea Bridge Road / Grosvenor Road

Summary: Vehicles over-running the pedestrian crossing during a green pedestrian phase may result in collisions between pedestrians and motorists.

During the site visit, westbound congestion appeared to result in vehicles continuing along Chelsea Embankment during the green phase for the southern part of the pedestrian crossing on the west arm. Due to the congestion motorists were moving slowly and it is assumed this problem would not arise during free flow conditions. However, whilst vehicles continue over the crossing out of phase, an increased potential for collisions with pedestrians crossing at this location may exist, particularly visually impaired pedestrians who may not see / anticipate such vehicles.

RECOMMENDATION

It is recommended to alter the traffic signals to ensure that motorists do not continue across the pedestrian crossing carpet whilst pedestrians are given a green traffic signal to cross. This may include but is not limited to providing an additional traffic signal 'catch' stop-line, and / or altering the traffic signal timing to ensure that motorists clear the crossing before pedestrians are given a green signal.

Design Organisation Response	Accepted / Part Accepted / Rejected
Arcadis have not undertaken the traffic signal design on this scheme and we suggest that this is for TfL signals (Traffic Infrastructure) to comment on.	
Client Organisation Comments	
The traffic signal timings have been reviewed as recommended.	

3.2 ROAD MARKINGS

3.2.1 PROBLEM

Location: C - Grosvenor Road east of Chelsea Bridge Road

Summary: Vehicles over-running the mandatory cycle lane may result in an increased potential for cyclists to be clipped or squeezed

A number of larger vehicles were observed to over-run the eastbound mandatory cycle lane at the 'kink', slightly east of the adjacent hatching. This may result in an increased potential for cyclists to be clipped or squeezed as they travel along the mandatory cycle lane.

RECOMMENDATION

It is recommended to ensure that vehicles are provided with enough space to not encroach into the mandatory cycle lane. This may require but is not limited to altering the centre-line to afford more space to eastbound vehicles.

Design Organisation Response	Accepted / Part Accepted / Rejected
At the point of the 'kink' there is a minimum traffic lane width of 3.0m in the eastbound direction. The two lanes in the westbound direction are also 3.0m. It is not possible to widen the cycle lane at this point without taking space from the traffic lanes or widening the carriageway. Neither of these options were possible as part of this scheme as the traffic lane widths were at a minimum and there was no scope to widen the carriageway due to the structure underneath the road at this location.	
It is recommended that proposed reflective plastic bollards (wands) are installed, starting at the start of the mandatory cycle lane and finishing after the 'kink'. This should provide protection for cyclists in the mandatory cycle lane and force vehicles into a better road position after the island.	
Client Organisation Comments	
Agree with designer's comments that the option to widened the carriageway or alter the centre-line to afford more space to eastbound vehicles is not feasible due to the carriageway constraints at this location.	
The recommendation to provide light segregation in the form of 'wands' would not be appropriate as the provision of wands reduces the effective width of the cycle lane to 1.2m at the kink and is likely to create a hazard for the high flow of cyclists using CS8. This was discussed and agreed with the Road Safety Auditor and therefore this issue will continue to be monitored going forward.	

3.2.2 PROBLEM

Location: D – Chelsea Embankment / Grosvenor Road / Chelsea Bridge Road

Summary: Vehicles in the left turn only lane may not anticipate cyclists continuing ahead from this lane which may lead to left hook type collisions

The scheme altered the lane designations so that the nearside eastbound lane changes from ahead and left to left turn only except cyclists. The Audit Team are concerned that if a motorist does not anticipate a cyclist continuing ahead from this lane they may turn left across the path of a cyclist continuing ahead, which may result in left hook type collisions.

RECOMMENDATION

It is recommended to provide additional features to highlight that cyclists may travel ahead from the left turn only lane. This may include but is not limited to providing 'except cycles' road marking text below the left turn arrow road markings and could also include a smaller cycle logo with an ahead arrow road marking in the Advanced Stop Line (ASL) but within the width of the nearside lane.

Design Organisation Response	Accepted / Part Accepted / Rejected
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The current eastbound approach to the junction indicates that cyclists should be in the primary position (central to the lane) on the approach to the junction. There are currently no road markings to guide cyclists into a secondary position (nearside of lane) on this approach. However, it is accepted that less confident cyclists are unlikely to take a primary position on this road due to the traffic volumes and types of vehicles that use the route. This may lead to a conflict between a motorist and cyclist if the motorist does not expect the cyclists to be in the secondary position whilst turning left at the junction. This conflict is very difficult to mitigate in this road layout. It is the designer's opinion that there are no solutions within the very restricted road space currently available, unless TfL implement;

- A reduction in the number of lanes (from 3 lanes to 2 lanes to introduce space for a formal on-road cycle facility) on the approach to the junction; however, the Designer suspects this would lead to capacity issues.
- Changes to the lane designations (changing the lane designation of the nearside lane to left and ahead as oppose to left only), but this would have a knock-on effect on the kerb alignments within the body of the junction.
- A widening to the carriageway; but the Designer acknowledges that may would be difficult due to the limited space.

Any of these solutions would further compromise the road network.

Other solutions have been reviewed but none have been found to further improve the current situation, these include;

- It is believed that the Auditors suggested 'except cycles' road markings do not feature in the 'Traffic Signs Regulations and General Directions 2016' document and we observe that it is unlikely that the text would fit in the available lane width. We feel that there would be too much text in a limited space and it would become illegible. It would also introduce signing clutter and increase driver distraction.
- An advisory cycle lane to guide cyclists into the middle lane – it is believed that this would add further conflict due to increased weaving manoeuvres to establish lane positions.
- A warning sign to motorists of potential conflict with cyclists – it is believed that an additional sign on this approach would serve to distract motorists further rather than warn them.

A potential improvement may be to install green cycle signal aspects below the existing left turn and ahead only signal heads.

Client Organisation Comments

Agree with the designer's response that options have been considered however are not viable, including 'except cycles' road marking text below the left turn arrow road markings.

To ensure motorists are aware of cyclists signage has been provided on the approach to the junction clearly indicating that cyclists can travel ahead in the nearside lane.

3.3 JUNCTIONS

2.1.1 PROBLEM

Location: E - Chelsea Bridge Road left turn into Chelsea Embankment

Summary: Swept path of larger vehicles may result in collisions with pedestrians

During the site visit various large vehicles were observed to utilise the whole carriageway to make the left turn from Chelsea Bridge Road onto Chelsea Embankment. This seems to have resulted in minor damage to the kerbs on the southern extent of the staggered pedestrian refuge island within the Chelsea Embankment arm of this junction. The Audit Team are concerned that the overhang of vehicles, which was observed on site, may potentially collide with a pedestrian who are unlikely to anticipate such encroachment within the pedestrian refuge island.

RECOMMENDATION

It is recommended to ensure that vehicles do not encroach over the pedestrian refuge island when making the turn. This may involve but is not limited to making kerb-line alterations to better facilitate the movements of larger vehicles.

Design Organisation Response	Accepted / Part Accepted / Rejected
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It is accepted that the evidence of tyre marks on the kerbing may be a result of the left turn manoeuvres at this location.

During the design phase, this left turn movement was extensively tracked and the manoeuvre was found to pass the vehicle tracking exercise. However, the vehicle tracking software does not account for driver behaviour. There is potential to reduce the width of the western end of the island back to the original dimensions, however this would reduce the waiting space available to pedestrians and it would not be within TfL's preferred refuge width guidance in the Streetscape Guidance document (2.5m for staggered islands).

There is also an equal possibility that the marks on the kerbing are resulting from westbound traffic merging from two to one lane on the exit from the junction.

An additional merge arrow and sign have been installed prior to the exit of the junction to guide motorists to merge as early as possible and also prevent them from getting caught two abreast where the roads narrows.

Client Organisation Comments

Tracking of the left turn shows there are no issues when undertaken at the appropriate speed. Site observations by the client indicate that this is likely to be driver behaviour issue. Reducing the width of the crossing to the original dimension would result in sub-standard island width.

Damage sustained to the kerb is most likely to have resulted from westbound traffic failing to have merged correctly. Additional signage and road markings have been provided prior to the merger to mitigate against this.

End of list of problems identified and recommendations offered in this Stage 3 Road Safety Audit

4.0 ISSUES IDENTIFIED DURING THE STAGE 3 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

4.1 ISSUE

Location: General to scheme, multiple locations

Reason considered to be outside the Terms of Reference: Existing issue for consideration rather than a defined road safety concern.

During the site visits, it was noted that cycle signing within the shared use areas was unclear and may benefit from review / rationalisation. This may offer an opportunity to provide clear information to cyclists about the onward route, shared use cycle footway areas and also reduce existing sign clutter / proliferation.

Design Organisation Response	Accepted / Part Accepted / Rejected
The shared use facilities were outside of the scope for the Chelsea Bridge Road/Grosvenor Road scheme. The design organisation is unaware of the situation on site and is therefore unable to comment.	
Client Organisation Comments	
Existing issue outside the scope of this scheme	

4.2 ISSUE

Location: 1 – Chelsea Embankment eastbound approach to the junction.

Reason considered to be outside the Terms of Reference: Item for consideration rather than a defined road safety concern.

The lane designation sign appears to be very close to the junction. In order to aid users to select the correct lane, as they enter the three marked lanes on this approach, it may be beneficial to relocate the sign further west. It is noted that consideration may be required of the impact of the existing advanced direction sign.

Design Organisation Response	Accepted / Part Accepted / Rejected
We acknowledge that the lane designation sign appears to be close to the junction. However, the reason for this is that the lane designation sign had to be installed 35m away from the existing directional sign for visibility requirements (re. The Design and Use of Directional Informatory Signs, LTN 1/94). The position of the lane designation sign also had to take into account the visibility constraints presented by the existing large trees on the approach to the junction.	
The final position took both factors into account and the sign was installed at the optimal location.	

Client Organisation Comments

Agree with designer's comments

4.3 ISSUE

Location: 2 – Chelsea Bridge Road right turn on to Grosvenor Road.

Reason considered to be outside the Terms of Reference: Item for consideration rather than a defined road safety concern.

During the site visits it was noted that only the minority of cyclists utilise the two stage right turn facility. The small minority of cyclists who did utilise the two stage right turn facility appeared to be users who were possibly less confident / slower cyclists. It is not considered a road safety concern that cyclists are not utilising the two stage right turn but it may be beneficial to try to determine how much the facility is used and why cyclists are / aren't using it. This may help determine whether further alterations / measures are likely to be beneficial to increase use of the facility.

Design Organisation Response

Accepted / Part Accepted / Rejected

This is an operational consideration for TfL.

Client Organisation Comments

Two-stage right turn facilities are new to London and it is anticipated it will take time for cyclists to become more familiar with them. They in particular provide a benefit for less confident cyclists, who are observed to be using the facility. TfL will continue to monitor two-stage right turn facilities.

4.4 ISSUE

Location: 3 - Chelsea Bridge Road junction with Chelsea Embankment / Grosvenor Road

Reason considered to be outside the Terms of Reference: Item for consideration rather than a defined road safety concern.

It was noted that the second two-stage right turn sign for south to east bound cyclists is set back within the footway and may not be conspicuous to cyclists.

It may be beneficial to relocate the sign to the lighting column which is closer to the carriageway. If the lighting column is suitable this may also mean that street furniture can be reduced by removing the sign post which the sign is currently mounted on.

Design Organisation Response

Accepted / Part Accepted / Rejected

The construction drawings issued by Arcadis proposed that the second two-stage right turn sign (Sign Ref: RS2) should be mounted on the lamp column to the west of the northbound ASL. It is therefore recommended that the sign is installed as per the design drawings.

In addition to the two-stage right turn sign at the junction there is also a two stage right turn sign on the approach on Chelsea Bridge. This sign should reinforce the understanding of the layout of the junction to cyclists.

Client Organisation Comments

Agree with designer's comments, the contractor has been instructed to install the signs in the correct location

4.5 ISSUE

Location: 4 - Chelsea Bridge Road junction with Chelsea Embankment / Grosvenor Road

Reason considered to be outside the Terms of Reference: Maintenance issue rather than a defined road safety concern.

It was noted that on this arm of the junction, an illuminated bollard is missing from the northern extent of the pedestrian refuge island.

It is understood that this has not been altered as part of the scheme, but it is recommended that this should be replaced.

Design Organisation Response

Accepted / Part Accepted / Rejected

This is an operational consideration for TfL.

Client Organisation Comments

This is a maintenance issue and has been passed on to the Asset Management Team

5.0 SIGNATURES AND SIGN-OFF

5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A. to this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

AUDIT TEAM LEADER:

Name: [REDACTED] MCIHT, MSoRSA Signed: [REDACTED]
Position: Principal Road Safety Auditor Date: 13/02/2017
Organisation: Transport for London, Road Safety Audit
Asset Management Directorate
Address: 4th Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ
Contact: [REDACTED]

AUDIT TEAM MEMBER:

Name: [REDACTED] Signed: [REDACTED]
BEng (Hons), MBA, MCIHT, MSoRSA
Position: Principal Road Safety Auditor Date: 13/02/2017
Organisation: Transport for London, Road Safety Audit
Asset Management Directorate
Address: 4th Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ
Contact: [REDACTED]

5.2 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 3 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisation's endorsement of my proposals.

Name: [REDACTED]

Position: Senior Highways Engineer

Organisation: Arcadis Consulting Ltd.

Signed [REDACTED]

Dated: 10/10/2017

5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

Name: [REDACTED]

Position: Senior Sponsor

Organisation: Transport for London

Signed: [REDACTED]

Dated: 13/10/2017

5.4 SECONDARY CLIENT ORGANISATION STATEMENT (where appropriate)

I accept these proposals by the Design Organisation.

Name: [REDACTED]

Position: Senior Portfolio Sponsor

Organisation: Transport for London

Signed: [REDACTED]

Dated: 13/10/2017

APPENDIX A

Documents Forming the Audit Brief

DRAWING NUMBER

C2014-0766D-DD-0000-01 Rev 0
C2014-0766D-DD-0200-01 Rev 0
C2014-0766D-DD-0700-01 Rev 0

C2014-0766D-DD-0700-02 Rev 0

C2014-0766D-DD-1100-01 Rev 0

C2014-0766D-DD-1100-02 Rev 0
C2014-0766D-DD-1100-03 Rev 0
C2014-0766D-DD-1100-04 Rev 0
C2014-0766D-DD-1200-01 Rev 0

C2014-0766D-DD-1300-01 Rev 0

DRAWING TITLE

Drawing list
Site clearance – existing layout
Road pavements general – proposed layout sheet 1 of 2
Road pavements general – standard details sheet 1 of 2
Kerbs footways and paved areas – General Arrangement
Kerbs footways and paved areas – standard details
Kerbs footways and paved areas – standard details
Kerbs footways and paved areas – standard details
Traffic signs and road markings – proposed signs and road marking layout
Road lighting columns and brackets – proposed street lighting layout

DOCUMENTS

- Safety Audit Brief
- Site Location Plan
- Traffic signal details
- TfL signal safety checklist
- Departures from standard
- Previous Road Safety Audits

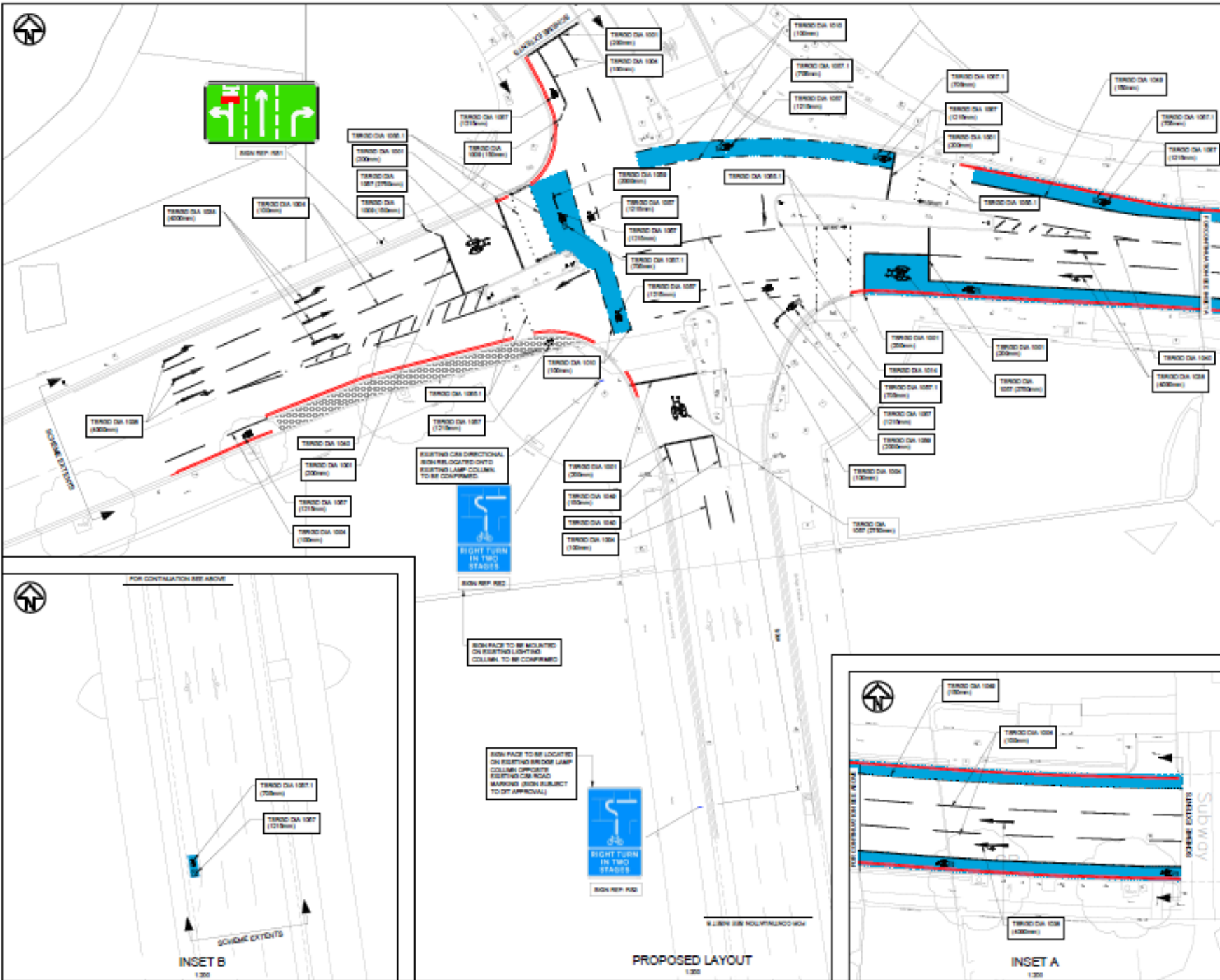
- Previous Designer Responses
- Collision data
- Collision plot
- Traffic flow / modelling data
- Pedestrian flow / modelling data
- Speed survey data
- Other documents

DETAILS (where appropriate)

2199/VAR/A3212/TLRN/2015
2453.03/VAR/A3212/TLRN/2016
2650.F1/VAR/A3212/TLRN/2016

APPENDIX B

Problem Locations



FOR INFORMATION ONLY, ALL DIMENSIONS SHOWN ON THIS DRAWING ARE TO THE FACE UNLESS OTHERWISE SPECIFIED. DIMENSIONS TO THE FACE OF CURBS, WALLS AND STRUCTURES SHALL BE TO THE FACE UNLESS OTHERWISE SPECIFIED. DIMENSIONS TO THE FACE OF CURBS, WALLS AND STRUCTURES SHALL BE TO THE FACE UNLESS OTHERWISE SPECIFIED.

- KEY (NOTE 1)**
- EXISTING ROAD MARKINGS
 - NEW WHITE ROAD MARKINGS
 - NEW CYCLE SUPERHIGHWAY SURFACE TREATMENT IN ACCORDANCE WITH CYCLE SUPERHIGHWAY PRODUCT SPECIFICATION (PWS 054) COLOUR: SKY BLUE (RAL 5015)
 - NEW REFLECTIVE BOLLARDS (REFER TO DRAWING 020-02 FOR DETAILS)
 - TERRAC DA 100 (200mm)
 - TERRAC DA 100 (100mm)

- NOTES**
1. FOR SURFACING WORKS REFER TO DMS CDM 020-000-000-000
 2. THE CONTRACTOR IS TO VERIFY ACCESS TO ALL PROPERTY AND BUSINESS AT ALL TIMES. ALL EXISTING STREET FURNITURE AND TREES TO BE PROTECTED/REMOVED AS NECESSARY.
 3. THIS DRAWING SHOULD BE USED IN ACCORDANCE WITH TERRAC 000 AND 001-000-000-000.

Scale	DATE	REV	BY
1:200	12/11/2014	0	AS SHOWN
DETAILED DESIGN			

Transport for London
Street Management

**CYCLE SUPERHIGHWAY
ROUTE 8 UPGRADE
CHELSEA BRIDGE**

TRAFFIC SIGNS AND ROAD MARKINGS - PROPOSED SIGNS AND ROAD MARKING LAYOUT

DATE	BY	CHKD	APPD	DATE
12/11/2014	AS SHOWN			12/11/2014

