Tram Extension, Edinburgh

Ocean Terminal to York Place
Road Safety Audit Stage 3

The City of Edinburgh Council

Project number: 60651312
AECOM Reference: RSA/316/S3-A

29 September 2023

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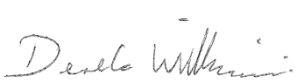
Quality information

Prepared by	Checked by	Verified by	Approved by
			
Derek Williamson Associate Director	William Prentice Principal Engineer	Leanne Gordon Principal Engineer	Derek Williamson Associate Director

Revision History

Revision	Revision date	Details	Authorised	Name	Position
-	29/09/2023	RSA Team Approval and Verification	DW	Derek Williamson	Associate Director
0	29/09/2023	FINAL Report Issue to Client	DW	Derek Williamson	Associate Director

Distribution List

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No	Yes	The City of Edinburgh Council
No	Yes	Sacyr Farrans Neopul

Prepared for:

The City of Edinburgh Council

Prepared by:

Derek Williamson
Associate Director

M: +44-7823-389896
E: Derek.Williamson@Aecom.com

AECOM Limited
1 Tanfield
Edinburgh
EH3 5DA
United Kingdom

aecom.com
T +44 (0)131 301 7800

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1. Project Details

Report Title:	Tram Extension, Edinburgh Stage 3 Road Safety Audit
Date:	29/09/2023
AECOM Document Reference:	RSA/316/S3-A
Overseeing Organisation Reference:	-
Prepared By:	AECOM
Overseeing Organisation:	The City of Edinburgh Council
On Behalf Of:	Sacyr Farrans Neopul

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2. Introduction

2.1 This report results from the final Stage 3 (post construction) Road Safety Audit carried out on the extension to the existing tram line in Edinburgh, between Ocean Terminal and York Place. The Audit was carried out at the request of Sacyr Farrans Neopul on behalf of the Overseeing Organisation (the City of Edinburgh Council).

2.2 The report indicates each of the problems identified together with recommendations to solve or mitigate the problems, the Audit Team Statement and a schedule of documents reviewed.

2.3 This report relates to the audit that was completed following completion of the project and the opening of the tram extension to the public. An interim Stage 3 Road Safety Audit Report was undertaken in April 2023 on the scheme prior to completion of all construction works. At that time there were still outstanding works, including: Newhaven Tram Stop to Melrose Drive; Melrose Drive; areas on Ocean Drive; several areas on Leith Walk; Elm Row; and the Picardy Gyratory / Picardy Tram Stop.

2.4 This is the fifth formal Road Safety Audit of the scheme. A Stage 1 (preliminary design) Road Safety Audit was carried out in September to October 2017 (Ref: RSA/147/S1-A). Amendments to the proposals warranted a re-auditing of the scheme, which was carried out in January to March 2019 (Ref: RSA/147/S1-B). An additional Stage 1 (preliminary design) Road Safety Audit was carried out on the proposed bus facilities at Ocean Terminal in June 2020 (Ref: RSA/252/S1-A). A Stage 2 (detailed design) Road Safety Audit was carried out in January to February 2021 (Ref: RSA/316/S2-A), during which a number of issues were raised. The Stage 2 Audit was divided into two individual reports, one report covered from York Place to Ocean Terminal and the other report covered Ocean Terminal to Newhaven. The Stage 3 Interim Audit was completed and issued on 25 April 2023 (Ref: RSA/316/S3IA). A designers response decision / action log has been drafted which covers all of the problems and recommendations in the Interim Stage 3 Report, however this has not been completed and agreed by both parties (Designer and Overseeing Organisation), therefore there are still a number of recommendations which have not been resolved. Outstanding issues from the most recent report are provided in section 3 of this report.

2.5 The Audit Team who were approved by Robert Armstrong of the City of Edinburgh Council (the Overseeing Organisation) were as follows:

Derek Williamson Team Leader
CEng FIHE RegRSA (IHE), Certificate of Competency in Road Safety Audit
Associate Director, AECOM

William Prentice Team Member
MEng(hons) MCIHT MSoRSA Certificate of Competency in Road Safety Audit
Principal Engineer, AECOM

2.6 Robert Armstrong from City of Edinburgh Council and Brian Donnelly from Sacyr Farrans Neopul attended part of the first site visit on 5 September which examined the eastern side of Leith Walk and the section between the foot of the Walk to Newhaven. A further site visit on Thursday 7 September was attended by the Audit Team with Richard Llewellyn from AECOM as an Observer, this visit covered the remaining eastern side of Leith Walk and included a review of the scheme by cycling the route on both sides of Leith Walk.

2.7 A Road Safety Audit brief was provided by Ana Palestina Saad Peribañez of Sacyr Farrans Neopul, which was approved by Robert Armstrong of the City of Edinburgh Council (the Overseeing Organisation). This brief was accepted by the Audit Team.

2.8 The Road Safety Audit took place at AECOM's Edinburgh office during September 2023. The Road Safety Audit consisted of an examination of the documents provided by the designers

(see Appendix A). In addition to examining the documents supplied, the Audit Team visited the site together on 5 September between 10:00 hrs and 22:30 hrs and again on 7 September between 10:00 hrs and 14:30 hrs. During these times, the weather conditions were dry, and the carriageway and footway surfaces were dry. Traffic flows were generally low, and little congestion was evident.

2.9 The Audit Team also viewed the route from the front of a tram during the site visit on 5 September.

2.10 During the site investigation it was noted that several areas of the scheme were not complete. This included: the cycleway on Elm Row was not open; Montgomery Street was closed at its junction with Leith Walk; sections of surfacing that were still to be completed; Albert Street was closed to traffic; and the entry and exit to the loading area outside Ocean Terminal were fenced off.

2.11 The works are located on Lindsay Road, Melrose Drive, Ocean Drive, Ocean Way, Constitution Street and Leith Walk, Edinburgh. These roads are predominantly located in an urban environment, with businesses and residences generally located on both sides of the road. Each of the roads are subject to a speed limit of 20mph, other than Lindsay Road which is subject to a speed limit of 30mph. The roads are all illuminated by street lighting and footways are generally provided on both sides of each of the roads, other than on sections of Ocean Drive.

2.12 The scheme involves the extension of the Edinburgh tram line from Ocean Terminal to York Place. This included the following measures:

- Provision of new tram stops;
- Alteration of road layouts;
- Modification of junctions;
- Provision of new pedestrian crossings and removal of existing crossings; and
- Alterations to bus stops and loading arrangements.

2.13 The scheme also includes the alteration of traffic signs and road markings, and provision of new traffic signs and road markings, along with significant works to provide segregated cycle infrastructure on both sides of Leith Walk.

2.14 The terms of reference of the Road Safety Audit are as described in GG119 of the Design Manual for Roads and Bridges. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria. The scheme has not been examined or verified for compliance with any other standards. However, in order 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 for information only. Any Audit comments should not be construed as implying that a technical audit has been undertaken in any respect.

2.15 Section 3 of this report includes outstanding issues identified from previous Audit Reports and Section 4 describes the safety issues identified in this Final Stage 3 Audit together with recommendations for improvement, to either remove or reduce the associated risk in connection with this highway proposal.

2.16 Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, in accordance with GG119, and in no way imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

2.17 The Audit Team have been made aware that there are a number of relaxations from the Edinburgh Street Design Guide, and that approval for these relaxations have all been granted.

2.18 No departures from standards or relaxations have been notified to the Audit Team on the proposals.

2.19 All traffic sign and road marking diagram number references are made to The Traffic Signs Regulations and General Directions, 2016 (TSRGD).

2.20 Where applicable, the locations of problems are shown in conjunction with the scheme proposals in Appendix B where the reference numbers relate to the problems identified in this report.

2.21 The Design Organisation(s) and Overseeing Organisation are advised of the following:

a. The RSA team shall produce and issue an RSA report directly to the Overseeing Organisation for all stages. Where changes are agreed to an RSA report between the RSA team and Overseeing Organisation, a revised version of the RSA report shall be produced by the RSA team and issued to the Overseeing Organisation.

b. Following the issue of the Road Safety Audit report the Road Safety Audit Response Report is produced by the Design Organisation(s) in collaboration with the Overseeing Organisation. To assist with this, the Design Team must prepare a Road Safety Audit Response Report to the audit at Stage 1, 2 and 3 Road Safety Audits.

c. The Road Safety Audit Response Report must contain a response from the Overseeing Organisation and a Road Safety Audit action for each problem agreed between the Design Organisation(s) and the Overseeing Organisation. The Overseeing Organisation and Design Organisation(s) shall sign the Road Safety Audit Response Report to indicate their agreement on the Road Safety Audit actions. A copy of the signed Road Safety Audit Response Report is to be sent to the Audit Team Leader for information.

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3. Items Outstanding from Previous Audits

This is the fifth Road Safety Audit Report for this scheme. Outstanding issues from the Interim Stage 3 Road Safety Audit carried out on the proposal to extend the existing tram line in Edinburgh (Ref: RSA/316/S3I-A), carried out in April 2023, are presented below:

Stage 3 Problem Ref:	**3.1.1**	**Stage 2 Problem Ref:**	**3.1.1**

Location(s):	Scheme extents
Drawing(s):	ETYN-SEF-XXX-14-DR-D-0001 to ETYN-SEF-XXX-14-DR-D-0004
Summary:	Excess surface water increases the risk of vehicles skidding, particularly during periods of cold / freezing weather

Description:

During the site investigation, areas of standing water were observed on the carriageway. Excess surface water increases the risk of vehicles skidding, resulting in loss-of-control collisions and personal injury. This is particularly pertinent during periods of cold / freezing weather when standing water could form ice.

Recommendation:

It is recommended that drainage is appropriate throughout the scheme extents.

Stage 2 Comment:

Standing water was observed at various locations during the site investigation where no drainage improvements appear to be proposed as part of the scheme. This included Lindsay Road at Great Michael Rise, Lindsay Road at Annfield, and at Melrose Drive at the access to Chancelot Mill. It is recommended that drainage is appropriate throughout the scheme extents

Designer's Response:

Please refer to drawing ETYN-SEF-XXX-14-DR-0001 and 0002 which details the new drainage along Lindsay Road including increased gully spacing and kerb drain units in areas where the longitudinal gradient is below the minimum. The access to Chancelot Mill and Melrose Drive are out with the defined extents of the permanent works.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. Standing water was observed along much of the route during the site investigation.

Design Organisation Response:

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tollerances.

Final Stage 3 Comment

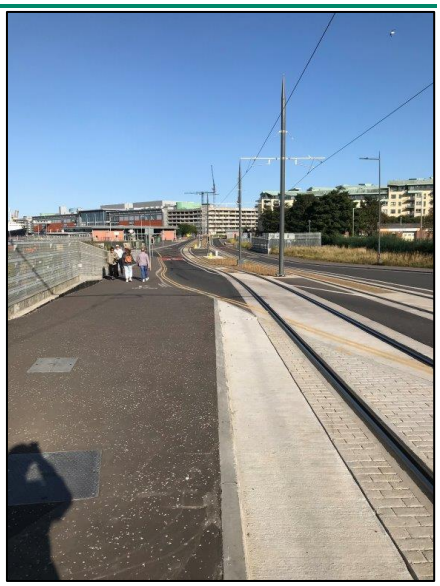
The Audit Team are concerned that this is still an issue and retain this recommendation to ensure that drainage is appropriate throughout the scheme extents.

Stage 3 Problem Ref:	3.1.3	Stage 2 Problem Ref:	3.1.7

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-XX-DR-D-0201 to ETYN-SEF-XXX-XX-DR-D-0204

Summary: Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle.



Description:

There is concern that the introduction of tram lines throughout the scheme could lead to problems for cyclists at the various junctions and accesses on these roads. The proposals do not include any new infrastructure for cyclists turning across the cycle tracks, other than the two stage right turn infrastructure at the junction of Constitution Street and Queen Charlotte Street.

"Guidance on Tramways - Railway Safety Publication 2" by the Office of Rail Regulation (2006) states that crossing angles should be "as far as possible, at right angles to the tracks" and "Where the achieved crossing angle is less than 60º, consideration should be given to alternative crossing layouts and other measures that mitigate the risks faced by cyclists". On the City of Edinburgh Council's 'Tram Safety' web page, under the "Advice for Cyclists" section it is advised to "Cross the tracks close to a right angle. This won't always be possible, but by crossing as close to a right angle as you can you'll avoid slipping on the tracks." At many of the junctions along the route, the angle at the intersection between the tram tracks and the general traffic lanes, or the crossing angle that a vehicle would take across the tram tracks, would be 45° or less.

Without the provision of any measures at junctions and accesses along the route, there is a risk that cyclists could cross the tram tracks at acute angles, resulting in them slipping on the tram tracks and falling, or getting their wheel(s) stuck and falling. If a cyclist was to fall from their bicycle, there is a risk that they could be struck by a passing vehicle.

Recommendation:

It is recommended that appropriate measures are provided for turning cyclists, so that:

- the angle that cyclists cross the tram tracks is 90°, or close to 90°; and
- the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.

Stage 2 Comment:

There are several locations between Ocean Terminal and Newhaven where cyclists would have to cross the tram tracks at an angle less than 90 degrees. This includes at the Toucan crossing north of the new junction between Melrose Drive and Lindsay Road and at each of the junctions within this section of the scheme.

It is recommended that appropriate measures are provided for turning cyclists, so that:

• the angle that cyclists cross the tram tracks is 90°, or close to 90°; and

• the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.

Designer's Response:

The angle of cycle crossing tram tracks should be measured relevant to the rail. The crossing example referred to in this stage 2 RSA when measured relevant to the rail is 60 degrees therefore compliant with Guidance on Tramways - Railway Safety Publication 2" by the Office of Rail Regulation (2006).

Throughout the scheme extents the design team have assessed the cycle crossings and confirm at no point do the cycle ways or cycle lanes, where provided, cross at an angle below 60 degrees.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. There are several locations between Ocean Terminal and Newhaven where cyclists would have to cross the tram tracks at an angle less than 90 degrees. This includes at the Toucan crossing north of the new junction between Melrose Drive and Lindsay Road and at each of the junctions within this section of the scheme.

It is recommended that appropriate measures are provided for turning cyclists, so that:

- the angle that cyclists cross the tram tracks is 90°, or close to 90°; and
- the risk of cyclists slipping or getting their wheel(s) stuck in the tram tracks is minimised.

Designer's Response:

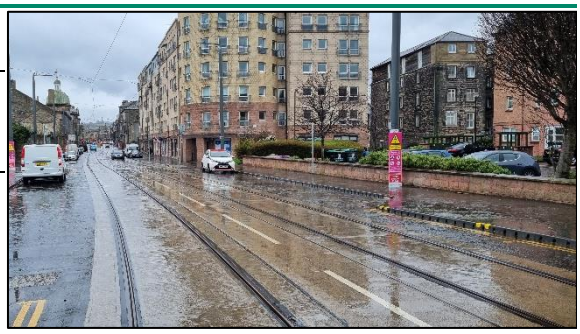
Throughout the scheme extents SFN have assessed the cycle crossings and confirm at no point do the cycle ways or cycle lanes, where provided, cross at an angle below 60 degrees.

Final Stage 3 Comment:

The Audit Team note the Designer's response comments, however there are still locations where cyclists can choose to travel and where there is a risk that they could cross the tram tracks at a very shallow angle and lose control as a result of a wheel entering the tram track. The above photo shows an example of this on Melrose Drive. The Audit Team retains the above recommendations.

Stage 3 Problem Ref:	**3.1.4**	**Stage 2 Problem Ref:**	**3.1.8**

Location(s):	Ocean Drive and Constitution Street
Drawing(s):	ETYN-SEF-XXX-XX-DR-D-0201 to ETYN-SEF-XXX-XX-DR-D-0204
Summary:	Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle.



Description:

There is concern that the introduction of tram lines throughout the scheme could lead to problems for cyclists, particularly at locations where a single lane is provided for general traffic and the trams. Such locations include Ocean Drive, Ocean Way and Constitution Street. Cyclists travelling parallel to the tram tracks may have to cross the tracks in order to overtake a vehicle stopped along the kerb line or to bypass an obstacle such as a pedestrian, gully, or pothole, and they may to do so suddenly and at an acute angle.

Carrying out such manoeuvres could result in cyclists slipping on the tram tracks and falling or getting their wheel(s) stuck and falling. If a cyclist was to fall from their bicycle, there is a risk that they could be struck by a passing vehicle.

Recommendation:

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

Stage 2 Comment:

On Ocean Drive, cyclists would have to cycle in the same lane as the tram lines. It is unclear to the Audit Team if an alternative route is provided.

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

Designer's Response:

No provision for cyclists are required at Ocean Drive. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting Leith with NCN75, as part of the Leith Connections scheme.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. On Ocean Drive, cyclists would have to cycle in the same lane as the tram lines. Whilst it is acknowledged that an alternative route is to be provided, cyclists will still travel on these streets both before the implementation of the alternative route and also afterwards. On-road cycling is catered for on these streets through the provision of advanced stop lines.

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.

Designer's Response:

No provision for cyclists are required at Ocean Drive as per contract scope. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting Leith with NCN75, as part of the Leith Connections scheme.

Final Stage 3 Comment:

Until such time as an alternative route is provided and signed for cyclists, the Audit Team retain their recommendations as above.

Stage 3 Problem Ref:	3.1.5	Stage 2 Problem Ref:	3.1.10

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-XX-DR-D-0201 to ETYN-SEF-XXX-XX-DR-D-0204

Summary: Risk of collisions occurring between vehicles and pedestrians due to long crossing lengths.

Description:

There are several locations within the extents of the scheme where long crossing widths are provided. In some cases, no pedestrian refuges are proposed, and in others the refuges do not appear wide enough for a pedestrian to safely wait in the centre of the road. An example is shown in the figure above. There is a risk that the long crossing length and the lack of a suitable refuge could lead to an increased risk of collisions between vehicles and pedestrians, particularly those with visual or mobility impairments.

Recommendation:

It is recommended that crossing lengths are minimised, refuges are provided where appropriate, and that pedestrians are given an appropriate length of time to cross.

Stage 2 Comment:

Several of the crossings within the extents of the scheme appear to be long, including across Melrose Drive at Lindsay Road, on Melrose Drive at the access to the Cruise Terminal parking and across the car park access on Ocean Drive.

It is recommended that crossing lengths are minimised, refuges are provided where appropriate, and that pedestrians are given an appropriate length of time to cross.

Designer's Response:

The traffic signal design is based on the junction layouts and therefore the time provided by the signal controller is sufficient. The approach adopted for the layout of signalised junctions is in accordance with the Edinburgh Street Design Guide G4 Crossings - Signalised Crossings. In each case the intention is to avoid staggered crossings as single stage is preferred. While the guidance indicates that wider single-phase crossings > 15m are often acceptable at signalised junctions. Linsig data can be provided to support the junction phasing and provide the appropriate crossing time information.

Interim Stage 3 Comment:

At the junction of Ocean Drive, Victoria Quay and Melrose Drive, the Audit Team observed that the green man time was very short for some movements. The Audit Team have concerns that this could lead to pedestrians becoming stranded on the central refuges where no push buttons are provided. This could lead to pedestrians crossing when not safe to do so, resulting in them being struck and injured by vehicles.

Design Organisation Response:

Signals have been handed over to CEC. Any timing adjustment should be through them.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.6	Stage 2 Problem Ref:	3.1.12

Location(s): Lindsay Road

Drawing(s): ETYN-SEF-XXX-XX-DR-D-0201

Summary: Risk of pedestrians stepping onto the carriageway to bypass the bus shelter and people waiting at the bus stop and being struck by a passing vehicle.

Description:

On Lindsay Road, north of No. 14 Annfield, a bus shelter is provided at the bottom of a flight of steps, as shown in the photograph above. This shelter acts as a pinch point on the footway. The proposals appear to include the removal of the footway on the north side of Lindsay Road, although it does appear that a footway will be provided to the north of the tram lines.

The pinch point caused by the location of the bus shelter could lead to pedestrians having to step onto the carriageway at busy periods. This could lead to them being struck by a passing vehicle and sustaining a personal injury. This issue could be exacerbated by the introduction of the tram stop and the closure of the footway on the north side of the carriageway, as this could lead to more pedestrians walking on the southern footway on Lindsay Road.

Recommendation:

It is recommended that measures are implemented to remove this pinch point, such as relocation of the shelter, provision of a shelter with a smaller cross-sectional area, provision of a cantilever shelter, or widening of the footway.

Stage 2 Comment:

Whilst it is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme, the Audit Team retain their belief that there is a risk of pedestrians being struck by passing vehicles, particularly given that pedestrian volumes are likely to increase in this area due to the introduction of the tram stop.

Designer's Response:

-

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue and that there is a risk of pedestrians being struck by passing vehicles, particularly given that pedestrian volumes are likely to increase in this area due to the introduction of the tram stop.

Design Organisation Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.7	Stage 2 Problem Ref:	3.1.13

Location(s):	Lindsay Road at Annfield
Drawing(s):	ETYN-SEF-XXX-XX-DR-D-0201
Summary:	Risk of pedestrians tripping and falling and sustaining a personal injury.

Description:

To the east of the bus stop and the wall on the south side of Lindsay Road there is a level difference where the footway on Annfield meets the footway on Lindsay Road, as shown in the photograph above. There is a risk that pedestrians, particularly those with visual impairments, could trip and fall due to the level difference, and sustain a personal injury.

Recommendation:

It is recommended that appropriate tactile paving is provided along the length of the section of footway where there is a level difference, in order to warn pedestrians of the difference in levels.

Stage 2 Comment:

It is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme. However, the Audit Team retain their belief that there is a risk of pedestrians tripping or falling due to the level difference, and that the increased volume of pedestrians that could be expected in this area due to the introduction of the tram stop could lead to a pedestrian sustaining an injury.

Designer's Response:

Out with the limits of this project. Should the MDU require to extend the works to include additional works this will require to be instructed.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme. However, the Audit Team retain their belief that there is a risk of pedestrians tripping or falling due to the level difference, and that the increased volume of pedestrians that could be expected in this area due to the introduction of the tram stop could lead to a pedestrian sustaining an injury.

Design Organisation Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.8	Stage 2 Problem Ref:	3.1.14

Location(s):	Junction of Lindsay Road and Hawthornvale
Drawing(s):	ETYN-SEF-XXX-XX-DR-D-0201
Summary:	Risk of crossing pedestrians being struck by vehicles.

Description:

On Hawthornvale at its junction with Lindsay Road, several issues were noted with the uncontrolled crossing layout:

- the tactile paving does not extend across the full width of the dropped kerbs on the west side of the road;
- the colour of the tactile paving is not consistent on each side of the road; and
- the crossing is not on the desire line for pedestrians.

Under the current arrangement, there is a risk that visually impaired pedestrians could be confused by the layout of the uncontrolled crossing or could have problems identifying the existence or location of the crossing. This could lead to them inadvertently entering the carriageway when it is not safe to do so, being struck by a passing vehicle and sustaining a personal injury.

Recommendation:

The following measures are recommended:

- An appropriate upstand is provided to the kerbs out-with the extents of the crossing;
- The colour of the tactile paving is contrasting, and is consistent on both sides of the road;
- The crossing is on the desire line for pedestrians.

Stage 2 Comment:

During the site investigation it was observed that these issues were still present on site. Whilst it is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme, the Audit Team retain their belief that the arrangement poses a risk to pedestrians, particularly those with visual impairments.

Designer's Response:

Out with the limits of this project. Should the MDU require to extend the works to include additional works this will require to be instructed.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. During the site investigation it was observed that these issues were still present on site. Whilst it is acknowledged that the Designer's Response indicates that it is considered that this is out-with the extents of the scheme, the Audit Team retain their belief that the arrangement poses a risk to pedestrians, particularly those with visual impairments.

Design Organisation Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	**3.1.14**	**Stage 2 Problem Ref:**	**4.3.7**

Location(s):	Ocean Drive, junction with Ocean Terminal Car Park Exit
Drawing(s):	ETYN-SEF-XXX-XX-DR-D-0203
Summary:	Risk of side swipe collisions between motorised vehicles exiting the car park, sustaining personal injuries.

Description:

During the site investigation it was observed that at the car park exit to Ocean Terminal two lanes exit from the car park, however, they merge into a single lane at the junction to Melrose Drive. There is a risk of side swipe collisions between motorised vehicles exiting the car park, sustaining personal injuries.

Recommendation:

It is recommended that the exit to the car park be reduced to a single lane.

Designer's Response:

This is out with the extents of the works. Any additional works will require to be instructed by the employer.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. During the site investigation it was observed that at the car park exit to Ocean Terminal two lanes exit from the car park, however, they merge into a single lane at the junction to Melrose Drive. There is a risk of side swipe collisions between motorised vehicles exiting the car park, sustaining personal injuries.

It is recommended that the exit to the car park be reduced to a single lane.

Design Organisation Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.15	Stage 2 Problem Ref:	4.4.4

Location(s):	South side of Lindsay Road (east) on approach to junction with Sandpiper Drive
Drawing(s):	ETYN-SEF-XXX-XX-DR-L-0016
Summary:	Risk of a visually impaired pedestrian becoming stuck on the carriageway and being struck and injured by a passing vehicle, due to existing tactile paving and dropped kerb not being removed.

Description:

During the site investigation it was noted that there are the remnants of an uncontrolled crossing point on the south side of Lindsay Road, east of its junction with Sandpiper Drive. The crossing infrastructure appears to have been removed on the north side of the road, but tactile paving and dropped kerbs remain on the south side.

From the plans provided to the Audit Team it is unclear if this arrangement is to be removed. If the arrangement is not removed, there is a risk of visually impaired pedestrians attempting to cross at this location, becoming stuck on the carriageway and being struck and injured by passing vehicles.

Recommendation:

It is recommended that the dropped kerbs and tactile paving at this location are removed.

Designer's Response:

Works to the westbound kerb and footway are outside the extent of the permanent works. Removal of the dropped kerb and tactile paving would require to be instructed by the employer.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. During the site investigation it was noted that there are the remnants of an uncontrolled crossing point on the south side of Lindsay Road, east of its junction with Sandpiper Drive. If the arrangement is not removed, there is a risk of visually impaired pedestrians attempting to cross at this location, becoming stuck on the carriageway and being struck and injured by passing vehicles.

It is recommended that the dropped kerbs and tactile paving at this location are removed.

Design Organisation Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.16	Stage 2 Problem Ref:	4.4.9

Location(s):	North-west side of Ocean Drive, adjacent to outside Ocean Terminal car parking facility
Drawing(s):	ETYN-SEF-XXX-XX-DR-L-0019
Summary:	Risk of pedestrians tripping and falling when attempting to transition between the footway and carriageway, resulting in them sustaining a personal injury, due to lack of pedestrian crossing facility and abrupt end of footway.

Description:

As shown in the image above, the proposed footway on the north-west side of Ocean Drive does not lead anywhere. No crossing facility appears to be provided at the access to the Ocean Terminal outside car parking facility and no further pedestrian infrastructure appears to be proposed.

There is a risk that a pedestrian could attempt to cross at this location and could trip and fall whilst attempting to transition between the carriageway and footway.

Recommendation:

It is recommended that suitable infrastructure is provided to allow pedestrians to continue their journey, such as an appropriate crossing point.

Designer's Response:

This is out with the extents of the works. Any additional works will require to be instructed by the employer.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. The proposed footway on the north-west side of Ocean Drive does not lead anywhere. No crossing facility has been provided at the access to the Ocean Terminal outside car parking facility and no further pedestrian infrastructure appears to be proposed.

There is a risk that a pedestrian could attempt to cross at this location and could trip and fall whilst attempting to transition between the carriageway and footway.

It is recommended that suitable infrastructure is provided to allow pedestrians to continue their journey, such as an appropriate crossing point.

Design Organisation Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	**3.1.17**	**Stage 2 Problem Ref:**	**4.5.2**

Location(s):	Scheme extents
Drawing(s):	ETYN-SEF-14X-02-DR-A-1001; ETYN-SEF-17X-02-DR-A-1001; ETYN-SEF-XXX-02-DR-D-1201; ETYN-SEF-XXX-02-DR-D-1202; ETYN-SEF-XXX-02-DR-D-1203; & ETYN-SEF-XXX-02-DR-D-1204
Summary:	Risk of pedestrians or cyclists colliding with street furniture resulting in personal injury.

Description:

New traffic signs, street lighting columns and other street furniture have been installed throughout the project extents. Due to the lack of colour contrasting banding on the traffic signal posts, traffic signposts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these resulting in personal injury.

Recommendation:

It is recommended that suitable contrast banding is applied to all street furniture.

Designer's Response:

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. New traffic signs, street lighting columns and other street furniture have been installed throughout the project extents. Due to the lack of colour contrasting banding on the traffic signal posts, traffic signposts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these resulting in personal injury.

It is recommended that suitable contrast banding is applied to all street furniture.

Design Organisation Response:

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

Final Stage 3 Comment:

The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.18	Stage 2 Problem Ref:	4.5.4

Location(s):	Sandpiper Drive southbound at junction with Lindsay Road
Drawing(s):	-
Summary:	Risk of vehicles crossing the stop line when it is not safe to do so and striking and injuring crossing pedestrians or striking passing vehicles, due to stop lines on Sandpiper Drive southbound not being visible.

Description:

During the site investigation it was observed that the existing stop lines on Sandpiper Drive are very worn, as shown in the photograph above. From the plans provided to the Audit Team, it does not appear that these are to be refreshed / renewed.

There is a risk that the driver / rider of a vehicle approaching the junction may not appreciate the need to stop or where to stop. This could lead to them proceeding across the stop line when on a red signal and colliding with a crossing pedestrian or a passing vehicle on Lindsay Road.

Recommendation:

It is recommended that the stop lines are suitably refreshed / renewed.

Designer's Response:

This is out with the extents of the works. Any additional works will require to be instructed by the employer.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. During the site investigation it was observed that the existing stop lines on Sandpiper Drive are very worn.

There is a risk that the driver / rider of a vehicle approaching the junction may not appreciate the need to stop or where to stop. This could lead to them proceeding across the stop line when on a red signal and colliding with a crossing pedestrian or a passing vehicle on Lindsay Road.

It is recommended that the stop lines are suitably refreshed / renewed.

Designer's Response:

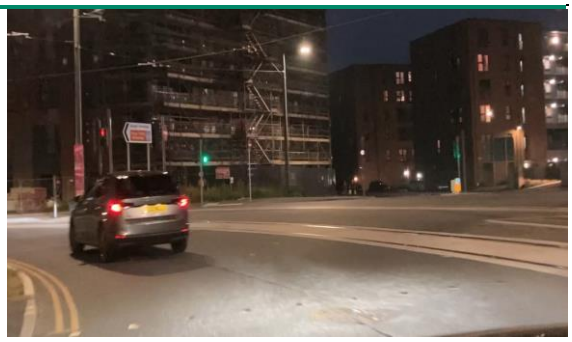
Out of the scope

Final Stage 3 Comment:

Whilst the designer suggests that this location is out-with the scope of the scheme, it is still part of the public road network adjacent to the works and is still a risk to the traveling public. The Audit Team are still concerned that this is an issue and retain the previous recommendation.

Stage 3 Problem Ref:	3.1.19	Stage 2 Problem Ref:	4.5.6

Location(s):	Ocean Drive north-eastbound, north-east of junction with Victoria Quay and Melrose Drive
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1203
Summary:	Risk of vehicles undertaking a sudden lane change upon inadvertently entering tram lane, resulting in side-swipe collisions occurring.



Description:

A dedicated lane for trams is provided in the offside lane on Ocean Drive at this location. The Audit Team are concerned that vehicles turning onto Ocean Drive from Victoria Quay or Ocean Drive (west) could inadvertently enter the tram lane due to the alignment of the longitudinal line to Diag. 1012.1 (TSRGD 2016), the position of the tram lane sign and the fact that the tram lane will look like a traffic lane at this point (i.e. it will not be surfaced with grasscrete).

The drivers / riders of vehicles turning onto Ocean Drive, particularly those from Victoria Quay, could inadvertently enter the tram lane and make a lane change upon realising that they are in the wrong lane, leading to side-swipe collisions occurring with vehicles in the nearside lane.

Recommendation:

It is recommended that the design is appropriately amended so that is clear to the drivers / riders of approaching vehicles which lanes they can travel in and which they cannot.

Designer's Response:

The provision of road markings through the junction will assist to guide vehicles from Victoria Quay into the correct lane. 'Tram Only' road markings have also been provided to make drivers aware of the lane arrangement.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. The drivers / riders of vehicles turning onto Ocean Drive, particularly those from Victoria Quay, could inadvertently enter the tram lane and make a lane change upon realising that they are in the wrong lane, leading to side-swipe collisions occurring with vehicles in the nearside lane. It should be noted that during the site investigation the road markings through the junction had not been provided.

It is recommended that the design is appropriately amended so that is clear to the drivers / riders of approaching vehicles which lanes they can travel in and which they cannot.

Designer's Response:

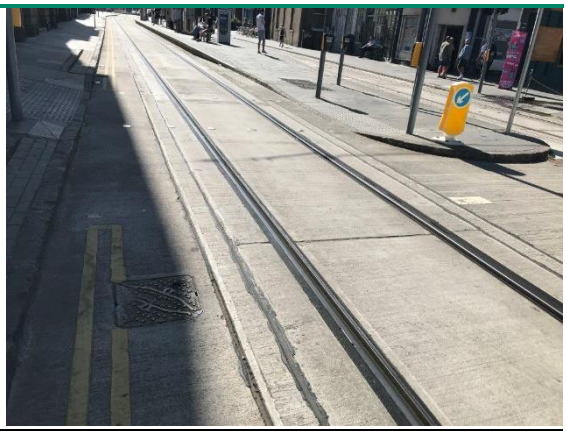
Road markings as per the design drawings will be fully implemented.

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that measures are implemented to guide drivers safely through this junction. During the site investigation associated it with the Final Stage 3 Road Safety Audit it was observed that the road markings had not been laid.

Stage 3 Problem Ref:	3.2.1	Stage 2 Problem Ref:	3.1.3

Location(s):	Ocean Way and Constitution Street
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1255 to ETYN-SEF-XXX-03-DR-D-1265
Summary:	Risk of cyclists falling and being struck by a vehicle, due to crossing tram tracks at an acute angle to overtake or bypass obstacles.



Description:

There is concern that the introduction of tram lines throughout the scheme could lead to problems for cyclists, particularly at locations where a single lane is provided for general traffic and the trams. Such locations include Ocean Drive, Ocean Way, and Constitution Street. Cyclists travelling parallel to the tram tracks may have to cross the tracks in order to overtake a vehicle stopped along the kerb line or to bypass an obstacle such as a pedestrian, gully, or pothole, and they may to do so suddenly and at an acute angle. Carrying out such manoeuvres could result in cyclists slipping on the tram tracks and falling or getting their wheel(s) stuck and falling. If a cyclist was to fall from their bicycle, there is a risk that they could be struck by a passing vehicle

Recommendation:

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

Stage 2 Comment:

Between Coatfield Lane and Ocean Terminal, there are several locations where a single lane is provided for general traffic and the trams. It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks, such as provision of alternative infrastructure or cycle routes.

Designer's Response:

No provision for cyclists along Ocean Drive, Ocean Way and Constitution Street. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting the Foot of the Walk with NCN75 and Ocean terminal, as part of the Leith Connections scheme. It is proposed to complete the Leith Connections Scheme prior to the new tram system being operational.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. Between Coatfield Lane and Ocean Terminal, there are several locations where a single lane is provided for general traffic and the trams.

Whilst it is acknowledged that an alternative route is to be provided, cyclists will still travel on these streets both before the implementation of the alternative route and also afterwards.

It is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.

Designers Response:

No provision for cyclists along Ocean Drive, Ocean Way and Constitution Street. The City of Edinburgh Council have confirmed that a new cycleway will be provided, connecting the Foot of the Walk with NCN75 and Ocean terminal, as part of the Leith Connections scheme.

Final Stage 3 Comment:

Until such time as an alternative route has been provided and appropriately signed for cyclists, the Audit Team retain their concerns that there is a risk to cyclists who may choose to use this route. As per problem and recommendation 3.1.4, it is recommended that appropriate measures are provided to minimise the risk of cyclists slipping or falling on the tram tracks.

Stage 3 Problem Ref:	3.2.2	Stage 2 Problem Ref:	3.1.11

Location(s):	Scheme extents
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1112; ETYN-SEF-XXX-03-DR-D-1114; ETYN-SEF-XXX-03-DR-D-1212; & ETYN-SEF-XXX-03-DR-D-1214
Summary:	Risk of cyclists colliding with pedestrians whilst attempting to transition between the carriageway on a stopped-up street and the cycle infrastructure or the mainline carriageway, due to no infrastructure being provided to facilitate this transition. Secondary risk of vehicles attempting to defy the 'no through road' restriction and colliding with pedestrians or cyclists whilst doing so.

Description:

There are several locations throughout the scheme extents where the proposals include the stopping up of side roads, with 'no through road except cycles' signage (Diagram 816, TSRGD 2016) being proposed.

From the plans provided it is unclear as to how cyclists are to transition between the carriageways on stopped up streets and the cycle infrastructure or the mainline carriageway. If no infrastructure is provided to facilitate these transitions, there is a risk that cyclists may attempt to cycle on footways and could strike pedestrians whilst doing so.

There is a secondary risk that vehicles may attempt to defy these 'no through road' restrictions and could collide with pedestrians or cyclists whilst driving across the footways.

Recommendation:

It is recommended that appropriate measures are provided to make the transition between the stopped up streets and the adjacent carriageways, and that measures are provided to prevent vehicles from blocking the accesses or attempting to drive over the footways.

Stage 2 Comment:

There are two locations on Leith Walk where access between Leith Walk and minor roads is proposed to be blocked off. This includes at Iona Street and Montgomery Street. Traffic signage to Diag. 619 (TSRGD 2016) is proposed. It is unclear if cycle access is to be permitted.

If cyclists are to be permitted to transition to / from Leith Walk and these side roads, it is recommended that appropriate measures are provided to enable cyclists to transition between the closed streets and the adjacent cycleways / carriageways. If cyclists are prohibited from undertaking these manoeuvres, it is recommended that alternative routes are signed.

Designer's Response:

Consideration was given to providing a cycle link between the stopped-up street at Ion Street and Montgomery Street and the Leith Walk cycleway or crossing points. A similar example In Edinburgh would be at the junction with Rankeillor Street / Clerk Street.

However, the arrangement at Rankeillor Street is part of the National Cycle Network route 1 providing a direct link from an on-road cycleway to a Toucan crossing at Clerk Street linking NCN1 with the Edinburgh City Centre.

At Iona Street and Montgomery Street there is no provision for cyclists and therefore no through road or direct link to a Toucan crossing it is also not a primary cycle route and therefore no additional cycle provision is considered necessary in these locations

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. The prohibition of motorised vehicles does not apply to pedal cyclists and so cyclists are likely to attempt to transition between Iona Street / Montgomery Street and Leith Walk. It is recommended that appropriate measures are provided to enable them to transition safely.

Designer's Response:

Same as above

Final Stage 3 Comment:

The Audit Team are still concerned that cyclists will continue to use these and will therefore risk falling, if a safe transition is not provided. It is recommended that appropriate measures are provided to enable them to transition safely, and that appropriate signage is provided.

Stage 3 Problem Ref:	3.2.4	Stage 2 Problem Ref:	3.1.13

Location(s):	North side of Ocean Drive, west of junction with Tower Place
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1105
Summary:	Risk of pedestrians slipping or tripping and sustaining a personal injury.

Description:

A pedestrian crossing is proposed across Ocean Drive, approximately 50 metres west of the junction of Ocean Drive and Tower Place. At the proposed crossing location, there is not currently a footway on the north side of the road. An area of hard standing exists to the rear of the grass verge, although there is a level difference between this area and the verge. A post and chain fence acts as a barrier between these two areas.

The proposals include the provision of a footway at this point, but it is unclear from the plans provided as to whether any measures are to be provided to prevent pedestrians from tripping and falling from the footway onto the hard standing.

If no measures are provided, there is a risk that pedestrians could sustain personal injuries through tripping and falling from the footway onto the hard standing.

Recommendation:

It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.

Stage 2 Comment:

The Audit Team have concerns that the level difference could result in pedestrians sustaining personal injuries through tripping and falling from the footway onto the hard standing.

It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.

Designer's Response:

The detailed design includes a 2m wide footway replacing the existing verge between the access to the Fingal delivery depot and the Forth Ports Dock Access Road. The level difference between the rear of the footway and the existing hardstanding area has been addressed by altering the fall of the footway.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. The Audit Team have concerns that the level difference could result in pedestrians sustaining personal injuries through tripping and falling from the footway onto the hard standing.

It is recommended that appropriate measures are provided to prevent pedestrians tripping or falling from the new footway onto the existing hard standing.

Designer's Response:

The detailed design includes a 2m wide footway replacing the existing verge between the access to the Fingal delivery depot and the Forth Ports Dock Access Road. The level difference between the rear of the footway and the existing hardstanding area has been addressed by altering the fall of the footway.

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue. The Audit Team have concerns that the level difference could result in pedestrians sustaining personal injuries through tripping and falling from the footway onto the hard standing.

Stage 3 Problem Ref:	3.2.5	Stage 2 Problem Ref:	4.1.3

Location(s): Leith Walk – various locations

Drawing(s): -

Summary: Risk of vehicles colliding with kerb lines at the commencement of segregated cycleways due to these being inconspicuous, resulting in injuries to vehicle occupants / riders.

Description:

Segregated cycleways are proposed on both sides of Leith Walk. The segregation starts and ends at various locations along the street, such as at the northern and southern extents of Leith Walk and at several of the junctions.

The Audit Team are concerned that the commencement of the segregation strips that run alongside the segregated cycleways may not be conspicuous to the drivers / riders of approaching vehicles. This could lead to vehicles colliding with a segregation strip, resulting in vehicles losing control and vehicle occupant(s) / rider(s) sustaining personal injuries.

Recommendation:

It is recommended that suitable measures are provided to highlight the presence of the kerb lines, such as appropriately reflective bollards.

Designer's Response:

The design of the segregated cycleway and associated on street cycleway road markings throughout has been developed in accordance with the Edinburgh Street Design Guide.

The transition between on street and segregated cycleway has been developed in a consistent manner throughout. The on-street cycle lane marking clearly direct cyclists to the segregated cycleway.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. The Audit Team are concerned that the commencement of the segregation strips that run alongside the segregated cycleways may not be conspicuous to the drivers / riders of approaching vehicles. This could lead to vehicles colliding with a segregation strip, resulting in vehicles losing control and vehicle occupant(s) / rider(s) sustaining personal injuries.

It is recommended that suitable measures are provided to highlight the presence of the kerb lines, such as appropriately reflective bollards.

Designer's Response:

Same as above

Final Stage 3 Comment:

The Audit Team retain their belief that this is still an issue and retain their recommendation.

Stage 3 Problem Ref:	3.2.6	Stage 2 Problem Ref:	4.1.13

Location(s): Scheme extents

Drawing(s): -

Summary: Risk of non-motorised users tripping and falling on ironwork protruding from footway surface, resulting in them sustaining personal injuries.

Risk of vehicles losing control when travelling over ironwork protruding from the carriageway surface, resulting in them striking other vehicles or street furniture.

Description:

The scheme includes areas of new pavement and footway construction. At many of these locations existing ironwork is present. In the plans provided to the Audit Team it is unclear if the ironwork will be raised / lowered to be flush with the adjacent surface.

If the existing ironwork if not appropriately raised / lowered or relocated, there is a risk that non-motorised users could trip and fall on ironwork protruding from the footway surface, resulting in them sustaining personal injuries. There is also a risk of vehicles losing control when travelling over ironwork protruding from the carriageway surface, resulting in them striking other vehicles or street furniture.

Recommendation:

It is recommended that all ironwork is flush with the surrounding surface on which it is located.

Designer's Response:

All existing ironwork will be amended to be flush with the finished road and footway surface in accordance with specification.

Interim Stage 3 Comment:

The Audit Team retain their belief that there are still a number of sites where this is still an issue and, as there are still areas under construction, this problem has been retained until the final road safety audit can be carried out.

Designer's Response:

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tollerances..

Final Stage 3 Comment:

As it did not appear that all of this work has been carried out, this recommendation is retained until such time as the work has been completed.

Stage 3 Problem Ref:	3.2.7	Stage 2 Problem Ref:	4.1.15

Location(s):	Constitution Street at junction with Laurie Street; and Leith Walk at junctions with Union Street, Jameson Place, Smith's Place, and Tram Depot DR 2
Drawing(s):	ETYN-SEF-XXX-14-DR-D-0009 to ETYN-SEF-XXX-14-DR-D-0015; ETYN-SEF-18X-03-DR-H-3001; ETYN-SEF-18X-03-DR-H-5031; and ETYN-SEF-18X-03-DR-H-5057 to ETYN-SEF-18X-03-DR-H-5059
Summary:	Risk of vehicles skidding and losing control due to surface water pooling on carriageway at interfaces between ramps and existing carriageway.

Description:

The proposals include the provision of raised junction entries and continuous footways at numerous locations throughout the extents of the scheme, including at locations of existing raised junction entries and new locations.

In the plans provided to the Audit Team it appears that there are several locations where there is a risk that water could pool at the interface between the ramp at a raised junction entry / continuous footway and the carriageway. No new gullies appear to be proposed at these locations. Locations where this appears to be an issue include Laurie Street, Union Street, Jameson Place, Smith's Place, and Tram Depot DR 2.

If water was to pool at these locations, there is a risk of vehicles skidding and losing control, resulting in vehicle occupants / riders sustaining personal injuries. This risk is heightened during periods of cold / freezing weather when the water could freeze and form ice.

Recommendation:

It is recommended that appropriate drainage infrastructure is provided at these locations.

Designer's Response:

The finished surface model including the locations of raised tables and continuous footways is contoured to determine surface water flow paths and identify low points to ensure the permanent drainage gullies are located appropriately.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. There are several locations observed during the site investigation where surface water pools at the interface between the ramp at a raised junction entry / continuous footway and the carriageway. No new gullies appear to be proposed at these locations. Locations where this appears to be an issue include Laurie Street, Union Street, Jameson Place, Smith's Place, and Tram Depot DR 2.

It is recommended that appropriate drainage infrastructure is provided at these locations.

Designer's Response:

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tollerances.

Final Stage 3 Comment:

As it did not appear that this work has been completed, this recommendation is retained until such time as the work has been completed.

Stage 3 Problem Ref:	**3.2.8**	**Stage 2 Problem Ref:**	**4.3.3**

Location(s):	Orchardfield Lane at junction with Leith Walk; Access south of Stead's Place on Leith Walk; and Access between Casselbank Street and Jane Street at junction with Leith Walk
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1260 to ETYN-SEF-XXX-03-DR-D-1261
Summary:	Risk of vehicles emerging from side road / access when it is not safe to do so due to visibility being obscured at proposed locations of give way markings, leading to side impact collisions with vehicles on Leith Walk or emerging vehicles striking and injuring non-motorised users.

Description:

The proposals at Orchardfield Lane, the access north of Stead's Place and the access between Casselbank Street and Jane Street at their junctions with Leith Walk include the provision of give way lines set back significantly from the junction.

The Audit Team have concerns that vehicles giving way at these locations will not have sufficient visibility to the carriageway on Leith Walk northbound, nor to non-motorised users approaching the junction / access from both directions on Leith Walk.

There is a risk of vehicles emerging at these locations when it is not safe to do so due to visibility being obscured where vehicles are instructed to give way. This could lead to side-impact collisions with vehicles on Leith Walk or emerging vehicles striking and injuring non-motorised users.

Recommendation:

It is recommended that the give way markings and signage at these locations are appropriately relocated to locations where there is appropriate visibility.

Designer's Response:

Throughout the ETYN scheme there are several existing private accesses to the rear of the public footways. As indicated above at each private access the available visibility offered to vehicles utilising these private accesses is limited. Several discussions have been held with the promotor to develop possible solutions to advise road users of the presence of the hazard. These include additional signage, road markings and traffic mirrors. Due to the private nature of these accesses, it would not be possible to introduce signs and road markings outside the adopted limits of the public road. It was also considered that introducing additional signage and traffic mirrors on the public footpath side would add to the issue of signage clutter and present a significant maintenance burden.

The accesses listed above provide for minor commercial business with limited use. It is considered due to the raised continuous footway and associated ramps and give way markings combined with infrequent use and likely speed of the vehicles that the risk of a RTA is considered low.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue.

It is recommended that the give way markings and signage at these locations are appropriately relocated to locations where there is appropriate visibility.

Designer's Response:

Excess surface water on the carriageway could lead to loss of control collisions resulting in vehicles colliding with other vehicles, street furniture of other road users. Excess surface water on the footway could lead to pedestrians slipping and falling, resulting in them sustaining personal injuries.

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue at a number of side road access junctions. The Audit Team also note the previous designer's response and that there would be limited traffic exiting junctions, however the risk remains and in particular to cyclists who could be traveling at speed on Leith Walk and could collide with an emerging vehicle.

Stage 3 Problem Ref:	3.2.9	Stage 2 Problem Ref:	4.3.10

Location(s):	Leith Walk at junction with Jameson Place
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1261; and ETYN-SEF-XXX-11-DR-N-0039
Summary:	Risk of vehicles striking and injuring crossing pedestrians due to proximity of signalised junction to side road junction.

Description:

A signalised junction is proposed at the junction of Leith Walk and Balfour Street, immediately downstream from Jameson Place at its junction with Leith Walk. There is concern that the drivers / riders of vehicles on Jameson Place may be unaware of the position of the signalised junction when emerging from Jameson Place. It is likely that they will be looking towards oncoming traffic to the right for an appropriate gap to emerge into. The short distance between the side road junction between Jameson Place and Leith Walk and the signalised junction of Leith Walk and Balfour Street means they are unlikely to have sufficient time to observe and respond to a red-light signal at the signalised junction. This increases the risk of vehicles colliding with non-motorised or a turning vehicle.

This issue is exacerbated as the attention of left turning drivers / riders is generally focused to the right where opposing traffic is coming from, meaning a driver / rider has no obvious need to look left to the crossing. Furthermore, the position of the signal head means that it is unlikely that drivers / riders stopped at the traverse stop road marking will be able to see the signal head.

Recommendation:

It is recommended that appropriate measures are provided to warn drivers / riders of the location of the signalised junction on Leith Walk.

Designer's Response:

Vehicles exiting from both Jameson Place are required to stop on the side road in advance of the continuous footway raised table. Vehicles can only turn left from the side road at the point of the stop line drivers/riders will have full visibility of the continuous footway and the signalised junction. It is anticipated that the vehicle speed will be low when crossing the continuous footway providing adequate time to assess the road conditions.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that appropriate measures are provided to warn drivers / riders of the location of the signalised junction on Leith Walk.

Designer's Response:

Same as above.

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It was observed on site that drivers / riders tend to be focused on the pedestrian and cycle activity before crossing the continuous footway, they then require to look right to ensure a gap in the vehicular traffic before emerging onto Leith

Walk. This can result in drivers / riders failing to observe the traffic signals for the pedestrian crossing. There is also an issue as the Tram Lane sign further obscures the traffic signal head at this location as can be seen in the above photo. The previous recommendation is retained.

Stage 3 Problem Ref:	3.2.11	Stage 2 Problem Ref:	4.4.7

Location(s):	Leith Walk at junction with Lorne Street
Drawing(s):	ETYN-SEF-XXX-11-DR-N-0038
Summary:	Risk of visually impaired pedestrians entering the carriageway when it is not safe to do so and being struck and injured by passing vehicles, due to confusing environment and tactile paving provision.

Description:

A pedestrian crossing is proposed across Leith Walk north of its junction with Lorne Street. The proposed tactile paving arrangements at the crossing do not include a stem.

If a stem is not provided, visually impaired pedestrians may mistake the crossing for an uncontrolled crossing rather than a controlled crossing. This could result in them crossing when it is not safe to do so and lead to them being struck and injured by passing vehicles.

Recommendation:

It is recommended that appropriate measures are provided to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.

Designer's Response:

The design will be amended to include a tactile tail beyond the outside of the cycleway as advised by CEC.

Interim Stage 3 Comment:

Though the recommendation raised in the Road Safety Audit Stage 2 has been actioned, the provision of tactile paving is confusing to vulnerable road users, especially those that are visually impaired. There is a risk that visually impaired road users could be disorientated by the confusing layout of the tactile paving and either step onto the cycle way or inadvertently step out on to the carriageway and be struck by passing cyclists or motorised road users.

It is recommended that tactile paving arrangements are amended to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.

Designer's Response:

Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didnt agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise..

Final Stage 3 Comment:

It is recommended that tactile paving arrangements are amended to inform visually impaired pedestrians of the presence of the controlled crossing and to guide these users to the crossing.

Stage 3 Problem Ref:	3.2.12	Stage 2 Problem Ref:	4.4.8

Location(s):	Leith Walk at junctions with Lorne Street, Jameson Place and Dalmeny Street
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1111 to ETYN-SEF-XXX-03-DR-D-1112
Summary:	Risk of pedestrians being struck and injured by passing vehicles when crossing due to drivers / riders failing to give way to crossing pedestrians. Secondary risk of rear-end shunts due to vehicles waiting for extended periods on Leith Walk whilst waiting for non-motorised users to cross the side road.

Description:

Continuous footways are proposed on Leith Walk at several of its junctions with side roads. The Audit Team have concerns regarding the introduction of continuous footways at these locations. It is noted that the use of continuous footways is a Council policy, however, there is concern that the application at these locations could result in collisions between different road users, due to the following factors:

- From the plans provided to the Audit Team, it appears that no information is proposed to indicate to a driver / rider they must give way to pedestrians at these locations; and
- This feature is uncommon to the wider neighbourhood and is not consistently provided along the street. Drivers / Riders may not be expecting to give way to pedestrians as it's something they do not need to do at other nearby junctions.

Furthermore, during the site investigation it was observed that there may be significant traffic demands during certain times of the day, including before and after school and at peak periods.

It is understood that the volume of non-motorised users in the area is significant, and drivers / riders may need to wait a considerable amount of time before being clear to cross the footway and cycleway, which may increase the risk of driver frustration and them proceeding across the paths of non-motorised users.

There is also the risk of rear-end shunt collisions on Leith Walk if vehicles attempting to enter one of the side roads have to wait for longer periods to allow for non-motorised users crossing the side road.

Recommendation:

It is recommended that suitable advanced signage is provided to warn drivers / riders of the new layout and the requirement to give way to non-motorised users.

Designer's Response:

City of Edinburgh Council policy is to provide priority to cyclists and pedestrians establishing key non-motorised routes throughout the City. The adoption of continuous footway surfaces across minor junctions is appropriate with high/medium pedestrian movements and low side road vehicle

flows. While there may be greater volume of traffic during peak times this does not change Council policy in terms of priority to pedestrians and cyclists.

The auditor has raised concerns of possible Road Traffic Accidents (RTA) on Leith Walk as a result of turning vehicles requiring giving way to pedestrians and cyclists on the continuous footways. The speed limit in Edinburgh and particularly Leith Walk is reduced to 20mph.

The proposed road markings agreed with the overseeing organisation is to position the Stop line and stop sign prior to the raised table on the side road.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that suitable advanced signage is provided to warn drivers / riders of the new layout and the requirement to give way to non-motorised users.

Designer's Response:

CEC policy is to provide priority to cyclists and pedestrians establishing key non-motorised routes throughout the City. The adoption of continuous footway surfaces across minor junctions is appropriate with high/medium pedestrian movements and low side road vehicle flows. While there may be greater volume of traffic during peak times this does not change Council policy in terms of priority to pedestrians and cyclists.

The auditor has raised concerns of possible Road Traffic Accidents (RTA) on Leith Walk as a result of turning vehicles requiring giving way to pedestrians and cyclists on the continuous footways. The speed limit in Edinburgh and particularly Leith Walk is reduced to 20mph. The proposed road markings agreed with the overseeing organisation is to position the Stop line and stop sign prior to the raised table on the side road.

Additionally tactiles across Leith walk and the side road have been provided in Jane, Lorne and Dalmeny as per PMI-1611

Final Stage 3 Comment:

The Audit Team note the Designer's Response to this comment; however, are still of the view that there is a collision risk, particularly at the busier junctions such as Dalmeny Street.

Police Scotland have also provided comment on Dalmeny Street:

"Sightlines at the stop line on Dalmeny Street are poor, particularly to the right where I spoke with several drivers who were also in agreement. Due to the restricted visibility at the stop line, vehicles were stopping on the continuous footway. I would prefer if the stop line was moved closer towards the junction.

I was also concerned about the lack of signage and markings warning drivers of the presence of and/or need to give way to pedestrians and cyclists. The delivery of this would help clarify the intended operation of the continuous footway in that drivers should give-way to pedestrians and cyclists at this location. A number of drivers were observed as not doing this and mounting the footway/cycleway.

I would also favour the installation of a zebra crossing at this location, in order to clarify road user priority and highlight the presence of pedestrians and cyclists at this location. If this is not possible, the delivery of coloured surfacing or similar would assist in guiding pedestrians and cyclists and warn drivers of potential hazards."

It is therefore recommended that measures are implemented to provide drivers / riders information on the requirement to give-way upon entering or leaving the junctions and that additional measures are provided to guide drivers / riders through to avoid overrunning the footway.

Stage 3 Problem Ref:	**3.2.14**	**Stage 2 Problem Ref:**	**4.4.10**

Location(s):	Leith Walk
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1110 to ETYN-SEF-XXX-03-DR-D-1115
Summary:	Risk of pedestrians encroaching into cycleways and being struck and injured by cyclists due to unclear delineation of cycleways.

Description:

The proposals on Leith Walk include several locations where the cycleways appear to ramp up to footway level to enable pedestrians to cross them.

In the plans provided to the Audit Team it is unclear as to whether any measures are proposed to delineate the cycleway and footway and warn visually impaired pedestrians of the interface between the cycleway and footway.

If no such measures are provided, there is a risk of pedestrians inadvertently encroaching into cycleways and being struck and injured by cyclists.

Recommendation:

It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.

Designer's Response:

The segregated cycleway has been designed in accordance with the City of Edinburgh Council Edinburgh Street Design guide Part C – Detailed Design Manual C4 – Segregated Cycle Track: Hard Segregation. The Cycleway design is an option 1 with intermediate level difference between the footway and the cycleway.

Where the footway and cycleway are at the same level a tactile separation strip is provided between the footway and the cycleway. At pedestrian crossings of the cycleway tactile paving is provided and markings to encourage the cyclists to give way to pedestrians.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.

Designer's Response:

Tails across the cycleways were included and submitted to be agreed with CEC via TQ-766. After this SFN was instructed to remove tactile across the cycleways via PM-1230. SFN didnt agree with that approach and EW-1178 was raised. SFN understand PMI-1230 still stands unless instructed otherwise.

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that appropriate measures are provided to delineate the transition between the footway and cycleway where they are flush.

Stage 3 Problem Ref:	**3.2.15**	**Stage 2 Problem Ref:**	**4.4.16**

Location(s):	Leith Walk
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1110 to ETYN-SEF-XXX-03-DR-D-1115
Summary:	Risk of cyclists losing control due to geometry of cycleway, resulting in them falling and sustaining personal injuries.

Description:

The proposed layout of the cycleways on Leith Walk appear to include many tapers on which radii do not appear to be proposed. The Audit Team have concerns that users on different types of bicycles (such as a cargo bike, recumbent bike or tandem) may have difficulties using the cycleways due to these changes in horizontal alignment. This could result in users losing control, and colliding with a kerb and falling, resulting in them sustaining personal injuries.

Recommendation:

It is recommended that any tapers in the cycleway are of an appropriate length and that appropriate radii are provided to enable all users to use the cycleway.

Designer's Response:

The design of the cycleway is in accordance with ESDG Part C – Detailed Design Manual and C4 – Segregated Cycle Tracks: Hard Segregation. Any change in direction has a minimum 1:3 tapers.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that any tapers in the cycleway are of an appropriate length and that appropriate radii are provided to enable all users to use the cycleway.

Designer's Response:

The design of the cycleway was in accordance with ESDG Part C – Detailed Design Manual and C4 – Segregated Cycle Tracks: Hard Segregation. Any change in direction had a minimum 1:3 tapers.

During the construction SFN came across with several instances where proposed kerbs and/or cycleways were clashing with existing utilities so we had to construct deviating slightly from the design.

Final Stage 3 Comment:

It was noted during the final Stage 3 site visit that there was construction on-going at a number of locations on the west side of Leith Walk to remove the sharp tapers. However, the Audit Team retain this recommendation until such time as all locations where there are sharp tapers have been remedied.

Stage 3 Problem Ref:	3.2.16	Stage 2 Problem Ref:	4.4.21

Location(s):	Western footway on Leith Walk, between Shrubhill Walk and Middlefield
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1113
Summary:	Risk of pedestrians stepping onto the cycleway and being struck and injured by passing cyclists due to restricted footway width.

Description:

In the plans provided to the Audit Team it is unclear what footway width is to be provided on the western footway on Leith Walk between Shrubhill Walk and Middlefield. As shown in the image on the left above, the drawings appear to show the footway being narrowed.

If the footway was to be narrowed at this location, there is a risk of pedestrians encroaching onto the cycleway to bypass other pedestrians. This could lead to them being struck and injured by passing cyclists.

Recommendation:

It is recommended that the footway is appropriately wide for the anticipated number of users.

Designer's Response:

The proposed footway width between Shrubhill Walk and Middlefield is designed to comply with the requirements of the Edinburgh Street Design Guidance P3 - Footways.

The design has been amended to ensure an absolute minimum footway at the pinch points is no less than 1.5m

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that the footway is appropriately wide for the anticipated number of users.

Designer's Response:

The proposed footway width between Shrubhill Walk and Middlefield is designed to comply with the requirements of the Edinburgh Street Design Guidance P3 - Footways. Absolute minimum footway at the pinch points is no less than 1.5m

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that the footway is appropriately wide for the anticipated number of users.

Stage 3 Problem Ref:	**3.2.19**	**Stage 2 Problem Ref:**	**4.5.2**

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-03-DR-D-1255 to ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of vehicles emerging from side roads / accesses when it is not safe to do so due to the position of the stop signs, leading to them striking and injuring non-motorised users or striking other vehicles

Description:

The proposals include stop signs on many of the side roads within the extents of the scheme. These are set back significantly from the junction, as shown in the example in the image above on the left (at the access to the private NHS car park on Leith Walk and accesses to 165 Leith Walk).

The Audit Team have concerns regarding the position of many of the traverse stop line road markings (to Diag. 1002.1, TSRGD 2016) and stop signage (to Diag. 601.1, TSRGD 2016) within the extents of the scheme. Vehicles stopping at such a distance from the carriageway are unlikely to have sufficient visibility to approaching vehicles on the carriageway, cyclists on the cycleway or pedestrians on the footway. During site investigation it was observed that at many of the proposed stop locations visibility would be restricted by the surrounding built environment. An example is shown in the photograph above on the right (also at the access to the private NHS car park on Leith Walk).

If drivers / riders do not have sufficient visibility at the proposed stop lines, there is a risk that they could strike and injure a non-motorised user when emerging or that they could collide with a passing vehicle.

Recommendation:

It is recommended that the existing arrangements at the side roads and accesses are appropriately amended so as to provide appropriate visibility where vehicles have to stop.

Designer's Response:

Extensive discussions have been held with the Client in terms of appropriate layouts for the continuous footways and in particular the road markings and traffic signage. The design of the continuous footways is in accordance with Edinburgh Street Design Guidance (ESDG) G7 - Priority Junctions: Continuous Footways and C4 – Segregated Cycle Tracks Hard Segregation Option 1 page 26 Continuous cycle Track Without deviation. In each example shown in the ESDG the approaching vehicle from the side road is required to give way to pedestrians at the mainline channel. TSRGD indicates that due to the introduction of the tram system approaching vehicles are required to stop at the channel. However due to the introduction of the continuous footway it was instructed by the Client that the stop line should be prior to the continuous footway on the side road to prevent vehicles encroaching on the continuous footway. At this point the stationary vehicle will have visibility of the footway allowing the vehicle to approach at caution.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that the existing arrangements at the side roads and accesses are appropriately amended so as to provide appropriate visibility where vehicles have to stop.

Designer's Response:

Same as above.

Final Stage 3 Comment:

The Audit Team retain their belief that this is an issue at a number of junctions where the visibility for emerging traffic is extremely limited.

Stage 3 Problem Ref:	3.2.22	Stage 2 Problem Ref:	4.5.8

Location(s): Scheme extents

Drawing(s): ETYN-SEF-4XX-02-DR-A-1002; ETYN-SEF-4XX-02-DR-A-1102; ETYN-SEF-6XX-02-DR-A-1002; ETYN-SEF-8XX-02-DR-A-1002; ETYN-SEF-11X-02-DR-A-1002; ETYN-SEF-XXX-01-DR-Z-0008 to ETYN-SEF-XXX-01-DR-Z-0019; ETYN-SEF-XXX-11-DR-N-0028 to ETYN-SEF-XXX-11-DR-N-0049; & ETYN-SEF-XXX-03-DR-D-1205 to ETYN-SEF-XXX-02-DR-D-1215

Summary: Risk of pedestrians or cyclists colliding with street furniture, resulting in personal injury.

Description:

New traffic signs, street lighting columns and other street furniture are proposed throughout the project extents. Due to the apparent lack of colour contrasting banding on the traffic signal posts, traffic sign posts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these, resulting in personal injury.

Recommendation:

It is recommended that suitable contrast banding is applied to all street furniture.

Designer's Response:

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. New traffic signs, street lighting columns and other street furniture have been installed throughout the project extents. Due to the lack of colour contrasting banding on the traffic signal posts, traffic signposts, pedestrian guardrail, street furniture and street lighting columns, visually impaired non-motorised users may not be able to differentiate the safest route and could collide with these resulting in personal injury.

It is recommended that suitable contrast banding is applied to all street furniture.

Designer's Response:

All street furniture provided as part of the Edinburgh Trams York Place to Newhaven project has been designed in accordance with the Edinburgh Street Design Guidance – Detailed Design Manual and the works specifications.

Final Stage 3 Comment:

The Audit Team note the ESDG in relation to the provision of contrast banding, however there is still an inherent risk to visually impaired users who may collide with street furniture resulting in personal injury. It is recommended that suitable contrast banding is applied to all street furniture.

Stage 3 Problem Ref:	3.2.23	Stage 2 Problem Ref:	4.5.10

Location(s):	Maritime Lane
Drawing(s):	ETYN-SEF-XXX-03-DR-D-1258
Summary:	Risk of vehicles proceeding contrary to direction of traffic flows on one-way streets, resulting in head on collisions, due to provision of road markings.

Description:

In the plans provided to the Audit Team it appears that road hump triangle markings (to Diag. 1062, TSRGD 2016) are proposed on both sides of the raised crossings on Maritime Lane at its junction with Constitution Street. Maritime Lane is one-way on both sides of Constitution Street and vehicles cannot turn into Maritime Lane from Constitution Street.

Providing markings to Diag. 1062 (TSRGD 2016) on the ramps on the Constitution Street side of the raised crossings could lead to drivers / riders mistakenly thinking that they are permitted to turn into Maritime Lane from Constitution Street. This could result in vehicles proceeding along Maritime Lane contrary to the direction of the traffic flow, which could result in head-on collisions occurring

Recommendation:

It is recommended that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.

Designer's Response:

The design has been amended to remove the two-lane approach and bifurcation arrows on the approach to Constitution Street avoiding any confusion that road users may have in terms of direction.

Interim Stage 3 Comment:

The Audit Team retain their belief that this is an issue. It is recommended that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.

Designer's Response:

Agreed.

Final Stage 3 Comment:

During the Stage 3 Audit final site visit it was noted that this work has not been carried out. The Audit Team retain their recommendation that the proposed markings to Diag. 1062 (TSRGD 2016) are removed from the ramps on the major road side of the raised crossings on Maritime Lane.

Stage 3 Problem Ref:	3.3.1	Interim Stage 3 Problem Ref:	4.1.1

Location(s): Ocean Drive, Ocean Way, Lindsay Road, Constitution Street, Coatfield Lane, Queen Charlotte Street, Baltic Street, Geissler Drive, Access to Ocean Terminal and Whisky Quay, Leith Walk

Drawing(s): ETYN-SEF-XXX-14-DR-D-0001 to ETYN-SEF-XXX-14-DR-D-0015

Summary: Excess surface water on the carriageway could lead to loss of control collisions resulting in vehicles colliding with other vehicles, street furniture of other road users.

Excess surface water on the footway could lead to pedestrians slipping and falling, resulting in them sustaining personal injuries.

Description:

It was noted on site during the interim stage 3 site visits that there were locations where large areas of surface water was ponding on newly surfaced carriageway and footways. Excess surface water on the carriageway could result in vehicles losing control or swerving to avoid the surface water and colliding with other road users or street furniture leading to injury to vehicle occupants, pedestrians, or cyclists. Excess surface water on the footway could result in pedestrians slipping and falling, resulting in them sustaining personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the carriageway and footways are suitably profiled and adequate drainage is provided to prevent surface water gathering.

Designers Response:

NCRs/Defects have been raised and SFN will deal with them if they are out of the design tollerances.

Final Stage 3 Comment:

As no mitigation measures appear to have been actioned, the Audit Team have retained this recommendation.

Stage 3 Problem Ref:	3.3.2	Interim Stage 3 Problem Ref:	4.1.6

Location(s): Top of Leith Walk at start of the Picardy Gyratory system

Drawing(s): ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of conflict between south-westbound general traffic and a tram, pedestrian, or other vehicles as a result of entering the Tram only lane.

Description:

There is a risk that south-westbound traffic heading up Leith Walk towards the Picardy Gyratory could enter the tram lane and continue into the tram stop then conflict with other vehicles or road users at the junction beyond the stop. This risk is increased during the hours of darkness or wet conditions when the visibility of the road markings is reduced. The road markings on the tram line do not tend to stand out due to the concrete surface and drivers / riders could fail to observe the "Tram Only" road markings. This is evident in the photograph.

It was noted that there are “Tram only” signs located in advance of all the tram only lanes, however, due to their size and relative position in the nearside footways, they are not always obvious to general vehicle drivers. During the interim Stage 3 site visits, there were several occasions where the Audit Team witnessed vehicles driving in the tram only lane, including a taxi driver who travelled up the lane towards the Picardy Stop and only swerved at the last moment to avoid entering the tram stop.

Interim Stage 3 Recommendation:

It is recommended that additional measures are provided to reinforce the Tram only restriction at this location.

Designers Response:

Agreed. Diagram 616 (S3-2-10) No entry except trams to be installed. 2 signs to be installed following Haymarket tramstop approach.

Final Stage 3 Comment:

As the agreed mitigation measures have still to be actioned, the Audit Team have retained this recommendation. The above photograph was taken during the night-time site visit on 5 September and appears to show two new traffic signposts which could accommodate two new no entry signs.

Stage 3 Problem Ref:	3.3.3	Interim Stage 3 Problem Ref:	4.1.10

Location(s): Gayfield Square at entry from Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-0715

Summary: Risk of vehicles losing control on ramps due to gradient, resulting in potential collision with other road users or riders of powered two wheelers becoming unseated and falling from their bikes.

Description:

During the site investigation it was noted that the ramp at the entry to Gayfield Square (to the rear of the footway) appears to be steep. The Audit Team have concerns that a vehicle could lose control while travelling down the ramp due to the gradient. This could result in them striking another vehicle or an item of street furniture.

Interim Stage 3 Recommendation:

It is recommended that the ramp gradient is appropriate for use by all vehicles.

Designers Response:

Gradient will be checked and amended if not compliant.

Final Stage 3 Comment:

As the Audit Team believe that this problem still exists, this recommendation has been retained.

Stage 3 Problem Ref:	3.3.4	Interim Stage 3 Problem Ref:	4.1.11

Location(s): Gayfield Square at Leith Walk

Drawing(s): -

Summary: Risk of cyclists becoming unseated due to statutory undertaker covers provided in cycleway not being flush with surrounding surface.

Description:

As shown in the photograph above, statutory undertaker covers are provided in the cycleway to the south of the exit of Gayfield Square at Leith Walk. These statutory undertaker covers are not flush with the surrounding surface of the cycleway.

There is a risk that a cyclist travelling over these statutory undertaker covers could become unseated, resulting in them falling from their bicycle and sustaining a personal injury.

Interim Stage 3 Recommendation:

It is recommended that the statutory undertaker covers are flush with the surrounding surface.

Designers Response:

NCR's / Defects have been raised and SFN will deal with them if they are out of the design tolerances.

Final Stage 3 Comment:

As this problem still exists, the Audit Team have retained this recommendation.

Stage 3 Problem Ref:	3.3.5	Interim Stage 3 Problem Ref:	4.1.12

Location(s): West side of Leith Walk, north of McDonald Road

Drawing(s): -

Summary: Risk of utility cover failing as a result of vehicle loading, leading to a void forming that pedestrians could trip on and sustain personal injuries.

Description:

The utility cover that is provided at the private access on the west side of Leith Walk, north of McDonald Road, is not suitable for loading by vehicles. If loaded by vehicles, there is a risk that it could fail, and a void could form. Pedestrians could trip on the void and sustain personal injuries.

Interim Stage 3 Recommendation:

It is recommended that a utility cover that is suitable for vehicle loading is provided at this location.

Designers Response:

Out of scope.

Final Stage 3 Comment:

As this problem still exists, the Audit Team have retained this recommendation.

Stage 3 Problem Ref:	3.3.6	Interim Stage 3 Problem Ref:	4.1.13

Location(s): Picardy Place tram stop

Drawing(s): ETYN-SEF-XXX-11-DR-N-0047

Summary: Risk of pedestrians crossing when not safe to do so due to "see through", resulting in them being struck and injured by passing vehicles.

Description:

The Audit Team have concerns regarding the risk of see through at Picardy Place tram stop. As shown in the photograph above, a pedestrian crossing between the tram stop and the traffic island to the south can see the pedestrian aspects for both crossings. Whilst these crossings do both get a green aspect during one stage, in another stage the crossing across the eastbound tramline displays a green man whilst that across the westbound tramline is shown a red man.

There is a risk that a pedestrian crossing from north to south may see the green man intended for the crossing of the eastbound tram line and may start to cross the westbound tram line when it is not safe to do so. This could result in them being struck and injured by a passing tram.

Interim Stage 3 Recommendation:

It is recommended that appropriate measures are provided to reduce the risk of see through.

Designers Response:

Louvres have been added on the green man.

Final Stage 3 Comment:

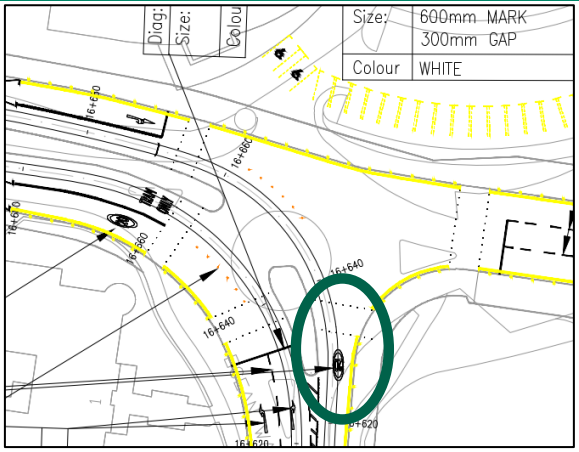
It was noted on site that louvres have been added to the green man signals on the north side of the crossing however there is still an issue with see-through from the crossing point on the Omni Centre side. It is recommended that a further louvre is fixed to resolve this.

Stage 3 Problem Ref:	3.3.7	Interim Stage 3 Problem Ref:	4.1.14

Location(s): Ocean Drive at Ocean Way

Drawing(s): ETYN-SEF-XXX-03-DR-D-1256

Summary: Risk of a southbound vehicle losing control and either mounting footway or colliding with other vehicles or tram.



Description:

Vehicles heading east on Ocean Drive and intending to turn right to head southwards require to merge from the nearside traffic lane into the tram track. This involves a turn of almost 90 degrees, whilst having to merge suddenly into the tram track lane. This sudden change of direction could result in drivers mounting the footway and conflicting with pedestrians or sudden braking or change of direction resulting in potential collisions with other vehicles or a tram. The sketch above shows circled the point where general traffic require to merge into the tram lane.

Interim Stage 3 Recommendation:

It is recommended that advance guidance signing, or markings are provided to eastbound drivers intending to follow the road southwards.

Designers Response:

Tram and road vehicles are on different signal stages.

Final Stage 3 Comment:

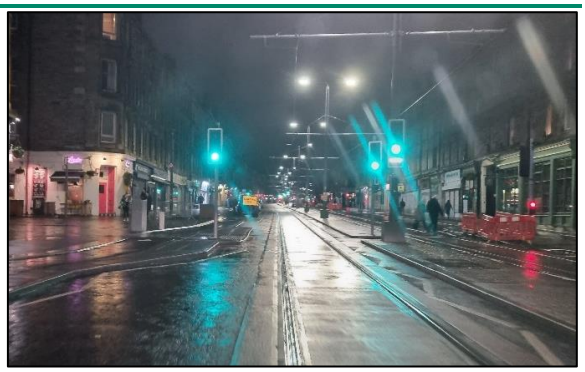
It is noted that the tram runs on a different stage to general traffic, however there is still a risk of a vehicle losing control and / or mounting the footway which could result in conflict with pedestrians. The Audit Team retain their belief that this is an issue and recommend that advance guidance signage or markings are provided to eastbound drivers / riders intending to follow the road southwards.

Stage 3 Problem Ref:	3.3.8	Interim Stage 3 Problem Ref:	4.2.1

Location(s): Leith Walk, between Jane Street and Manderston Street

Drawing(s): ETYN-SEF-XXX-03-DR-D-1110 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of vehicles striking kerb lines due to inconsistent alignment, leading to vehicle occupants sustaining personal injuries.



Description:

During the site investigation it was noted that the kerb line on Leith Walk is not consistent on the approach to Manderston Street. This is shown in the photograph above.

There is a risk of vehicles striking the kerb line due to the inconsistency of the alignment and sudden changes of direction, leading to the occupants / riders of the vehicles sustaining personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the kerb line avoids any sudden changes in direction and that vertical features are provided to highlight any changes in kerb line alignment.

Designers Response:

The sudden change of direction of that kerb was due to existing utilities.

Final Stage 3 Comment:

The Audit Team note the designer's response, however there is still the risk of a vehicle over running the kerb and losing control or colliding into other road users or street furniture resulting in potential injury. It is recommended that a vertical feature or features are erected to guide drivers / riders away from the kerb line.

Stage 3 Problem Ref:	3.3.9	Interim Stage 3 Problem Ref:	4.3.3

Location(s): Leith Walk

Drawing(s): -

Summary: Risk of vehicles cutting across footways / cycleways and striking non-motorised users or street furniture due to lack of guidance of path through junctions.

Description:

Continuous footways are provided at many of the junctions of Leith Walk and its side roads. Many of the footways at these continuous footways are wide and vehicles crossing the continuous footway have to cross the footway itself as well as the cycle track.

The street environment at many of these locations do not provide drivers / riders information on the alignment to take through the junction. The Audit Team have concerns that some drivers / riders may not be able to perceive the correct path across the footway to the ramp on the other side, particularly where they are expected to transition onto Leith Walk. This could lead to them cutting corners and driving / riding across the footway and cycleway, out with the extents of the continuous footway. This could lead to them colliding with unsuspecting pedestrians or street furniture or joining Leith Walk out-with the smooth transition which could lead to loss of control or bike riders becoming unseated.

During the site visits, the Audit Team witnessed a number of vehicles entering Leith Walk from side roads and having to "bump" down onto Leith Walk as they had failed to follow the direct route using the ramps provided to allow the correct transition.

Interim Stage 3 Recommendation:

It is recommended that appropriate measures are provided to guide vehicles across the continuous footway to the ramp opposite.

Designers Response:

To be discussed with City of Edinburgh Council.

Final Stage 3 Comment:

The Audit Team observed numerous instances of vehicles cutting the corners at some junctions and there is evidence of damage to the surface / slabs which supports this problem. From the Audit Team's perspective, the previous recommendation still stands.

Stage 3 Problem Ref:	3.3.10	Interim Stage 3 Problem Ref:	4.3.5

Location(s): Fingals delivery access, Ocean Drive; & Tower Place substation access, Ocean Drive

Drawing(s): -

Summary: Risk of rear end shunts or side impact collisions between motorised vehicles due to constrained forward visibility to access.

Description:

Two accesses are provided on the north side of Ocean Drive to the east of the Water of Leith. These accesses are provided on the inside of a bend, with a parapet being provided on the north side of the road.

The Audit Team have concerns that the driver / rider of a vehicle travelling eastbound on Ocean Drive may have insufficient forward visibility to vehicles accessing or emerging from these accesses. This could lead to rear-end shunt or side-impact collisions.

It is noted that there is insufficient space at the delivery access to Fingals to allow a vehicle to wait off the carriageway, which exacerbates this issue.

Interim Stage 3 Recommendation:

It is recommended that appropriate forward visibility is provided to these accesses.

Designers Response:

To be discussed with the City of Edinburgh Council.

Final Stage 3 Comment:

The Audit Team believe that this is still an issue, and the recommendation still stands.

Stage 3 Problem Ref:	3.3.11	Interim Stage 3 Problem Ref:	4.3.7

Location(s): Junction of Rennie's Isle and Ocean Drive

Drawing(s): ETYN-SEF-XXX-03-DR-D-1255

Summary: Risk of vehicles emerging from Rennie's Isle when not safe to do so and being struck by vehicles on Ocean Drive due to visibility being constrained by guardrail.

Description:

Guardrail is provided at the junction of Rennie's Isle and Ocean Drive, as shown in the photograph above. The Audit Team have concerns that the guardrail could obscure the visibility of drivers / riders turning from Rennie's Isle onto Ocean Drive. This could lead to vehicles emerging when it is not safe to do so and being struck by other vehicles.

Interim Stage 3 Recommendation:

It is recommended that high-visibility guardrail is provided.

Designers Response:

A car stopped at the stop line can see cars above and through the railing.

Final Stage 3 Comment:

During the final Stage 3 site visit, the Audit Team stopped a car at the stop line and observed this view of an approaching vehicle. It is noted that the top of the car can just be seen, however this was a high sided car. The Audit Team are concerned that a smaller or lower car would not be visible and there is therefore still a risk of a conflict if a vehicle pulls out into the path of a vehicle. The Audit Team retain their recommendation to replace the guardrail with high visibility guardrail or consider the removal of the barrier.

Stage 3 Problem Ref:	3.3.12	Interim Stage 3 Problem Ref:	4.3.8

Location(s): 2 no. private accesses on west side of Constitution Street, north of Queen Charlotte Street

Drawing(s): -

Summary: Risk of vehicles emerging from private accesses when not safe to do so and being struck by vehicles on Constitution Street due to visibility being constrained by parked vehicles.

Description:

Two vehicle accesses are provided on the west side of Constitution Street, north of Queen Charlotte Street. Parking is provided on either side of these accesses.

The Audit Team have concerns that parked vehicles may obscure visibility for the drivers / riders of vehicles exiting from the private accesses. This could lead to collisions occurring between vehicles, or between vehicles and a tram.

Interim Stage 3 Recommendation:

It is recommended that appropriate measures are provided so as to provide an unimpeded visibility splay for vehicles exiting from the private accesses.

Designers Response:

During OM3A a van was parked at the loading bay in front of 80 constitution street. Driver stopped 3,9 m away from the kerb to have visibility of the tram coming from the inbound track. Later on car driver stopped 2,4 m away from the kerb confirming he didn't have visibility of the tram (ESDG Factsheet G6 show 2,4 m as the desirable distance). Tram driver confirmed he could see the car in both situations and he that he also could apply the emergency brake on time.

Final Stage 3 Comment:

The Audit Team note the designer's response which is in relation to a possible conflict with a tram, however there is still a risk that a vehicle (such as a car or bicycle) could be travelling closer to the kerbside and conflict with a vehicle exiting the access. The Audit Team retain their belief that this is a problem and recommend that appropriate measures are provided so as to provide an unimpeded visibility splay for vehicles exiting from the private accesses.

Stage 3 Problem Ref:	3.3.13	Interim Stage 3 Problem Ref:	4.3.9

Location(s): Gayfield Square exit onto Leith Walk

Drawing(s): -

Summary: Risk of vehicles emerging from Gayfield Square when not safe to do so and striking and injuring non-motorised users, due to tree obscuring visibility.

Secondary risk of vehicles emerging from Gayfield Square when not safe to do so and being struck by northbound vehicles on Leith Walk, also due to tree obscuring visibility.

Description:

As shown in the photograph above, a tree is located to the south of the exit from Gayfield Square at its junction with Leith Walk. The Audit Team have concerns that the tree could obscure visibility for the drivers / riders of vehicles emerging from Gayfield Square.

If visibility was to be obscured, there is a risk that vehicles could emerge when it is not safe to do so and could strike and injure crossing non-motorised users. There is also a risk that vehicles could emerge onto Leith Walk into the path of northbound vehicles.

Interim Stage 3 Recommendation:

It is recommended that visibility is maximised.

Designers Response:

A car stopped at the stopline may not have enough visibility to enter the road but he will need to go across the footway slowly and at that moment he will have enough visibility.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, are still concerned that the visibility for emerging vehicles is severely limited to the footway and cycleway. There is still a risk that a vehicle could pull out into the path of a cyclist resulting in a serious injury to the cyclist. From the Audit Team's perspective, the previous recommendation still stands.

Stage 3 Problem Ref:	3.3.14	Interim Stage 3 Problem Ref:	4.4.1

Location(s): Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1110 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of visually impaired pedestrians becoming confused

Description:

There are several junctions on Leith Walk where signalised crossings interact with cycle tracks. At these points, the designer has attempted to introduce tactile paving which warns of:

1. the edge of flush cycle path;
2. the transition from footway to shared use footway;
3. uncontrolled crossing over cycle path;
4. stem leading to controlled crossing point over carriageway; and
5. uncontrolled crossing point over carriageway.

The mixture of these types and colour of tactile paving as well as the white zebra road markings which are used to indicate a crossing over the cycle route provide a very confusing layout and message to non-motorised users, in particular to the blind or partially sighted users.

It is noted that cycle speeds can be high given the gradient of Leith Walk, therefore there is a higher risk of more severe severity of injuries in the event of a collision between a cyclist and a pedestrian.

Interim Stage 3 Recommendation:

It is recommended that a simpler layout is provided at these locations which can be easier to understand and reduces the risk of conflict between vulnerable users.

Additionally, it is recommended that City of Edinburgh Council carry out a review of the guidance for the use of tactile paving in discussion with visually impaired user groups in order to simplify the use of tactile paving at these types of layouts.

Designers Response:

Layouts have been agreed with CEC through the road works working group and recorded through TQ's in CEMAR.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, are still concerned that there are a number of junctions where the layouts are very confusing. This applies to both those with good vision and visually impaired users. Police Scotland commented on the layouts after the Interim Road Safety Audit to suggest that they were rather confusing. The Audit Team therefore retain their belief that this is a problem and the recommendation from the Interim Stage 3 Road Safety Audit.

Stage 3 Problem Ref:	3.3.15	Interim Stage 3 Problem Ref:	4.4.2

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-03-DR-D-1101 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of visually impaired pedestrian becoming stuck on the carriageway, and being struck and injured by passing vehicles, due to tactile paving not aligning on opposing sides of crossing points.

Description:

At many locations throughout the extents of the scheme tactile paving has been provided that does not align on either side of crossing points, both controlled and uncontrolled. Affected streets include:

- the A901;
- Lindsay Road;
- Melrose Drive
- Ocean Drive;
- Stevedore Place;
- the junction of Constitution Street and Queen Charlotte Street;
- the junction of Constitution Street and Coatfield Lane;
- the junction of Constitution Street, Leith Walk and Duke Street;
- Bernard Street at its junction with Constitution Street;
- Tower Place;
- York Place at junction with Leith Walk; and
- Leith Walk.

If the tactile paving does not align at a crossing point, a visually impaired pedestrian could attempt to cross, be unable to locate the dropped kerb and tactile paving opposite and become stuck on the carriageway. This could lead to them being struck and injured by a passing vehicle.

Interim Stage 3 Recommendation:

It is recommended that the dropped kerbs and tactile paving align on opposing sides of crossing points.

Designers Response:

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.16	Interim Stage 3 Problem Ref:	4.4.3

Location(s): Scheme extents

Drawing(s): -

Summary: Risk of visually impaired pedestrians being unable to locate crossing points due to chamber covers being positioned within tactile paving, leading to them attempting to cross at unsafe locations and being struck and injured by passing vehicles whilst doing so.

Description:

During the site investigation it was observed that chamber covers have been provided within areas of tactile paving at several locations, including:

- the junction of Ocean Drive, Melrose Drive and Victoria Quay;
- Ocean Drive at its junction with the access to Ocean Terminal and Whisky Quay;
- Leith Walk south of junction with Duke Street;
- Leith Walk opposite Kirk Street; and
- Leith Walk south of junction with Dalmeny Street.

The presence of chamber covers within areas of tactile paving could lead to visually impaired pedestrians being unable to locate controlled crossing points, particularly if their stride was to lead them to stand on the cover itself. If a visually impaired pedestrian was unable to locate a crossing point, there is a risk that they could attempt to cross the road at an unsafe location and be struck and injured by a passing vehicle whilst doing so.

Interim Stage 3 Recommendation:

It is recommended that recess chamber covers are provided with a tactile paving infill or that the chambers are appropriately relocated.

Designers Response:

Due to existing utilities, some of the TS and SL chambers had to be relocated clashing with tactiles. In these instances recessed covers have been installed. Note that there were many existing chambers along the route clashing with proposed tactiles. In these cases SFN recommends CEC to replace them by recessed covers.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.17	Interim Stage 3 Problem Ref:	4.4.4

Location(s): Scheme extents (junction of Lindsay Road and A901, Leith Walk)

Drawing(s): -

Summary: Risk of pedestrians tripping on kerb and sustaining personal injuries due to tactile paving being positioned on a transition kerb.

Description:

Tactile paving was observed positioned on a transition kerb at various locations throughout the extents of the scheme, including:

- Junction of Lindsay Road and A901;
- Leith Walk central refuge north of Stead's Place;
- West side of Leith Walk at junction with Great Junction Street;
- East side of Leith walk at junction with Manderston Street; and
- Leith Walk central island and east side between Jane Street and Stead's Place.

There is a risk that a visually impaired pedestrian could follow the alignment of the crossing and could trip and fall whilst transitioning between the footway and carriageway due to the upstand of the transition kerb, which could result in them sustaining personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the uncontrolled crossings are appropriately amended so that the tactile paving is positioned adjacent to dropped kerbs with a maximum upstand of 6mm.

Designers Response:

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.18	Interim Stage 3 Problem Ref:	4.4.5

Location(s): North-east side of junction of Ocean Drive, Melrose Drive and Victoria Quay

Drawing(s): ETYN-SEF-XXX-03-DR-D-1103

Summary: Risk of visually impaired pedestrians being unable to locate controlled crossing point, leading to them attempting to cross at unsafe locations and being struck and injured by passing vehicles whilst doing so.

Description:

On the north-east side of the junction of Ocean Drive, Melrose Drive and Victoria Quay, the tactile paving does not extend to the rear of the footway. There is a risk that a visually impaired pedestrian would not be able to locate the crossing, which could result in them attempting to cross at an unsafe location and being struck and injured by a passing vehicle whilst doing so.

Interim Stage 3 Recommendation:

It is recommended that the tactile paving stem extends to the rear of the footway.

Designers Response:

As per ESDG factsheet M4 max tail lenght is normally 4800 mm.

Variation A - If the gap between the tail end and the rear of the footway is <1000mm,run the tactile paving to the building line.

Variation B - If the footway width is <6000mm ,run the tactile paving to the building line.

None of these cases are applicable here.

Final Stage 3 Comment:

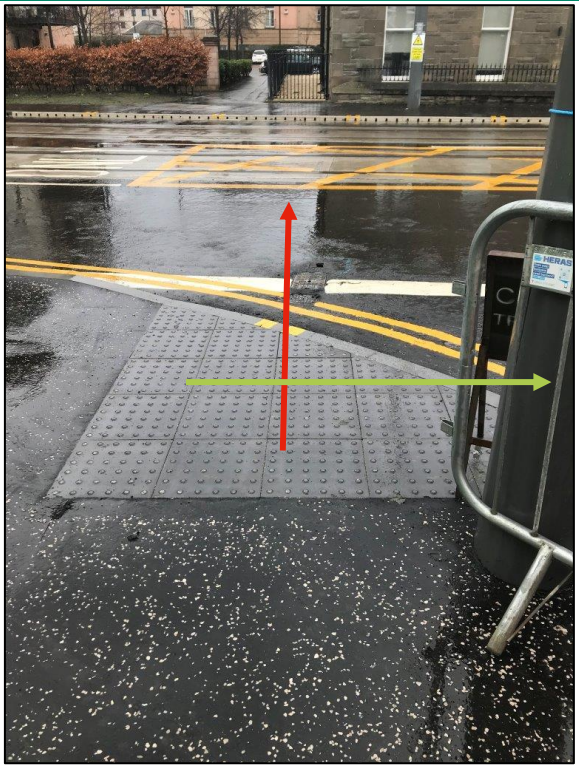
The Audit Team note the designer's response, however, even though this may comply with design standards, there is still a risk that a visually impaired pedestrian could miss the controlled crossing and cross the road where it is not safe to do so. The Audit Team therefore retain this recommendation.

Stage 3 Problem Ref:	3.3.19	Interim Stage 3 Problem Ref:	4.4.6

Location(s): Ocean Drive, Melrose Drive and Lindsay Road

Drawing(s): ETYN-SEF-XXX-03-DR-D-1104; ETYN-SEF-XXX-03-DR-D-1106; ETYN-SEF-XXX-03-DR-D-1107 to ETYN-SEF-XXX-03-DR-D-1109

Summary: Risk of visually impaired pedestrians misinterpreting tactile paving due to tactiles being positioned on radii, leading to visually impaired pedestrians attempting to cross, becoming stuck on the carriageway, and being struck and injured by passing vehicles.



Description:

At several locations throughout the extents of the scheme tactile paving has been positioned on kerb radii. There is a risk that such tactile paving could be misinterpreted by visually impaired pedestrians. An example, from the junction of Tower Place and Ocean Drive shows how the tactile paving could be misinterpreted, with the green arrow showing the intended crossing direction and the red arrow showing how the crossing could be interpreted.

Affected locations include:

- Lindsay Road at Great Michael Rise
- Ocean Drive at its junction with Tower Place; and
- Melrose Drive at Mill access.

If a visually impaired pedestrian was to misinterpret the direction of a crossing, they could attempt to cross, become stuck on the carriageway, and be struck and injured by a passing vehicle.

Interim Stage 3 Recommendation:

It is recommended that the affected tactile paving and accompanying dropped kerbs be relocated so as to clarify the intended crossing directions.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned at the above locations, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.20	Interim Stage 3 Problem Ref:	4.4.11

Location(s): Ocean Drive opposite Ocean Terminal shopping centre

Drawing(s): ETYN-SEF-XXX-XX-DR-L-0019

Summary: Risk of injury to pedestrians as a result of sunken tree planting in footway.

Description:

There are a number of new trees which have been planted along the southern side footway opposite the Ocean Terminal shopping centre, as can be seen in the photograph.

There is a risk that a visually impaired pedestrian could trip over the uneven footway surface where the tree base is and fall, resulting in personal injury.

Interim Stage 3 Recommendation:

It is recommended that the surface is flush with the footway or a suitable pedestrian friendly grid is provided at the tree bases.

Designers Response:

Grid will be installed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.21	Interim Stage 3 Problem Ref:	4.4.12

Location(s): North side of Lindsay Road at junction with Melrose Drive; Ocean Way north of Tower Street; junction of Maritime Lane and Constitution Street; & Ocean Drive at junction with Stevedore Place west

Drawing(s): ETYN-SEF-XXX-03-DR-D-1101 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of visually impaired pedestrians inadvertently stepping onto the carriageway due to footway being flush with carriageway, leading to them being struck and injured by passing vehicles.

Description:

Several locations were observed where the footway is flush with the adjacent carriageway out with designated crossing points. This included at the following locations:

- North side of Lindsay Road at its junction with Melrose Drive;
- Ocean Way, north of Tower Street;
- junction of Maritime Lane and Constitution Street; and
- Ocean Drive at its junction with Stevedore Place (west).

There is a risk that visually impaired pedestrians could inadvertently enter the carriageway at these locations, due to the footway and carriageway being flush and no measures being provided to delineate the footway and carriageway. This could lead to users being struck and injured by passing vehicles whilst on the carriageway.

Interim Stage 3 Recommendation:

It is recommended that appropriate measures are provided to delineate the footways and carriageways out with crossing points.

Designers Response:

The mentioned locations are corners where there are 2 crossing points in perpendicular directions. The kerb has been laid flush along the corner for constructability purposes. Since there arent tactiles visually impaired pedestrians will not detect there is a ped crossing.

Final Stage 3 Comment:

The Audit Team note the designer's response, however they consider that this is still a risk. Where the footway and carriageway are flush visually impaired users could walk onto the road outwith the crossing points. The Audit Team therefore retain the previous recommendation.

Stage 3 Problem Ref:	3.3.22	Interim Stage 3 Problem Ref:	4.4.13

Location(s): Scheme extents (Lindsay Road, Ocean Drive, Constitution Street, Leith Walk, Great Junction Street)

Drawing(s): ETYN-SEF-XXX-03-DR-D-1101 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of pedestrians tripping on kerb upstands and sustaining personal injuries.

Description:

Throughout the extents of the scheme several dropped kerbs were observed that had upstands greater than 6mm. This included the following locations:

- West side of crossing of Lindsay Road at junction with A901;
- West side of Ocean Drive at junction with Melrose Drive and Victoria Quay;
- Ocean Drive at its junction with the access to Ocean Terminal and Whisky Quay;
- Ocean Drive at Stevedore Place (east);
- Constitution Street at its junction with Queen Charlotte Street;
- Ocean Drive at its junction with Rennie's Isle;
- Leith Walk at junction with Annandale Street;
- Leith Walk at junction with McDonald Road;
- West side of Leith Walk at Dalmeny Street;
- Leith Walk central refuge north of Steads Place;
- Great Junction Street at its junction with Leith Walk;
- Leith Walk central island south of Jane Street;
- Leith Walk central island between Jane Street and Stead's Place;
- Leith Walk central island opposite Stead's Place; and
- East side of Leith Walk, south of Iona Street.

Dropped kerbs with upstands greater than 6mm pose a trip hazard to pedestrians, which could result in users tripping and falling and sustaining personal injuries.

Interim Stage 3 Recommendation:

It is recommended that dropped kerbs have an upstand of between 0mm and 6mm.

Designers Response:

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as several locations were observed throughout the scheme extents where these had not been remedied, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.23	Interim Stage 3 Problem Ref:	4.4.14

Location(s): Scheme extents (Melrose Drive, Ocean Drive; Constitution Street at junction with Queen Charlotte Street; Constitution Street; Baltic Street at junction with Constitution Street; York Place; Picardy Place; & Leith Walk)

Drawing(s): ETYN-SEF-XXX-03-DR-D-1101 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of pedestrians tripping on uneven footway surfaces and sustaining personal injuries.

Description:

Several trip hazards were observed on footways throughout the extents of the scheme. This included sections of footway being unfinished and covers not being flush with the surrounding footway surfaces. Affected locations included:

- the south side of Melrose Drive on approach to its junction with the A901;
- the western footway at Ocean Terminal;
- Constitution Street at its junction with Queen Charlotte Street;
- the west side of Constitution Street, south of Queen Charlotte Street;
- Baltic Street at its junction with Constitution Street;
- the south side of Ocean Drive, west of Rennie's Isle;
- North side of York Place;
- Picardy Place island;
- West side of Leith Walk at Gayfield Square;
- West side of Leith Walk at Pilrig Street;
- East side of Leith walk north of Crown Place;
- East side of Leith Walk north of Lorne Street; and
- East side of Leith Walk north of Iona Street.

Pedestrians could trip on these trip hazards and sustain personal injuries.

Interim Stage 3 Recommendation:

It is recommended that uneven footway surfaces are appropriately repaired and that any existing covers that are not flush with the surrounding footways are made good.

Designers Response:

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as several instances of uneven footway surfaces were observed throughout the scheme extents, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.24	Interim Stage 3 Problem Ref:	4.4.16

Location(s): Pedestrian crossing outside Ocean Terminal

Drawing(s): ETYN-SEF-XXX-03-DR-D-0703

Summary: Risk of pedestrians slipping / tripping and falling due to presence of grasscrete within extents of crossing points, resulting in them sustaining personal injuries.

Description:

As shown in the photograph above, grasscrete is provided with the crossing extents at the southern crossing of Ocean Drive northbound at Ocean Terminal.

There is a risk that this surfacing could cause a user to slip / trip and fall, resulting in them sustaining a personal injury.

Interim Stage 3 Recommendation:

It is recommended that grasscrete is removed from the extents of the crossing point and that an appropriate pavement surface is provided.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation. See photograph above showing the grasscrete within the extents of the crossing.

Stage 3 Problem Ref:	3.3.25	Interim Stage 3 Problem Ref:	4.4.18

Location(s): West side of Ocean Drive at Ocean Terminal

Drawing(s): ETYN-SEF-XXX-03-DR-D-1103

Summary: Risk of non-motorised users colliding and sustaining personal injuries due to restricted footway width.

Description:

As shown in the image above, the footway next to the bus stop on the north-west side of Ocean Drive at Ocean Terminal is constrained by the bus stop, feeder pillar, and the adjacent wall. There is a risk that non-motorised users could collide at this location, resulting in personal injury.

Interim Stage 3 Recommendation:

It is recommended that the feeder pillar is relocated to maximise the effective width.

Designers Response:

Bus shelters, bus trackers and feeders are out of SFN scope.

Final Stage 3 Comment:

The Audit Team note the designer's response, however they retain their belief that this is a problem and recommend that the feeder pillar is relocated to maximise the effective width.

Stage 3 Problem Ref:	3.3.26	Interim Stage 3 Problem Ref:	4.4.19

Location(s): Access to Ocean Terminal and Whisky Quay, adjacent to car park

Drawing(s): ETYN-SEF-XXX-03-DR-D-1104

Summary: Risk of pedestrians stepping onto carriageway and being struck and injured by passing vehicles due to narrow footway width.

Description:

As shown in the image above, the footway on the north side of the access to Ocean Terminal and Whisky Quay (adjacent to the surface level car park) was observed to be narrow.

There is a risk that the narrow footway width could lead to pedestrians stepping onto the carriageway to bypass an encumbered pedestrian or a pedestrian using a mobility aid, which could result in them being struck and injured by passing vehicles.

Interim Stage 3 Recommendation:

It is recommended that the footway is at least 1.5 metres wide, in line with Inclusive Mobility.

Designers Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team note the designer's response, however they retain their belief that this is an issue and therefore recommend that the footway is at least 1.5 metres wide, in line with Inclusive Mobility.

Stage 3 Problem Ref:	3.3.27	Interim Stage 3 Problem Ref:	4.4.20

Location(s): Leith Walk at Stead's Place, south of Dalmeny Street, north of London Road, north of MacDonald Road and York Place

Drawing(s): -

Summary: Risk of visually impaired pedestrians becoming confused or disorientated due to road studs not continuing across the full width of crossings, resulting in them being trapped on the carriageway and struck and injured by passing vehicles.

Description:

At several locations within the extents of the scheme it was observed that the road studs at crossing points do not extend across the full width of the crossing. This included on the following streets:

- Leith Walk at locations listed above.

If the road studs do not extend across the full width of the crossing point, there is a risk that visually impaired pedestrians could become confused or disorientated, leading to them becoming trapped on the carriageway and potentially struck and injured by passing vehicles.

Interim Stage 3 Recommendation:

It is recommended that the road studs extend across the full width of the crossing points.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response and that there have been studs installed at locations on Ocean Drive, however there are still crossings on Leith Walk where the studs do not extend across the full width of the crossings. It is recommended that road studs extend across the full width of all crossing points.

Stage 3 Problem Ref:	3.3.28	Interim Stage 3 Problem Ref:	4.4.21

Location(s): Ocean Drive at junction with Stevedore Place (east); Ocean Way at junction with Bernard Street and Baltic Street; Crossing across York Place at Picardy Gyratory; East side of Leith Walk, south of Jane Street; Courtesy crossing across cycleway, south of Lorne Street; & East side of Leith Walk at junction with Albert Street

Drawing(s): ETYN-SEF-XXX-14-DR-D-0001 to ETYN-SEF-XXX-14-DR-D-0015

Summary: Risk of pedestrians tripping and falling due to presence of gullies within extents of crossing points, resulting in them sustaining personal injuries.

Description:

Gullies are provided within the extents of crossings at several locations, including:

- Ocean Drive at its junction with Stevedore Place (east);
- Ocean Way at its junction with Bernard Street and Baltic Street;
- Crossing across York Place at Picardy Gyratory;
- East side of Leith Walk, south of Jane Street;
- Courtesy crossing across cycleway, south of Lorne Street

These gullies could pose a trip hazard to pedestrians, particularly those wearing a shoe with a heel. Pedestrians tripping could fall and sustain personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the gullies are relocated so as to be out with the extents of the crossings.

Designers Response:

In several locations gullies had to be placed deviating from the design due to existing utilities. They can't be relocated.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still an issue at several locations (including Leith Walk, south of junction with Manderston Street; Leith Walk, north of Albert Street; Picardy Place gyratory; and crossing of Bernard Street at junction with Constitution Street; and at crossing of Constitution Street, north of Bernard Street), it is recommended that either the gullies are relocated or that suitable pedestrian friendly covers are used.

Stage 3 Problem Ref:	3.3.29	Interim Stage 3 Problem Ref:	4.4.23

Location(s): West side of Constitution Street, north of Bernard Street; & West side of Constitution Street, north of Coatfield Lane

Drawing(s): ETYN-SEF-XXX-03-DR-D-0707; & ETYN-SEF-XXX-03-DR-D-0709

Summary: Risk of pedestrians tripping at vehicle crossovers due to surface not being flush with adjacent footways, resulting in the pedestrians sustaining personal injuries.

Description:

At several locations the surface of vehicle crossovers are not flush with those of the adjacent footways. This includes at the following locations:

- West side of Constitution Street, north of Bernard Street; and
- West side of Constitution Street, north of Coatfield Lane.

There is a risk that pedestrians could trip when transitioning between the footways and vehicle crossovers at these locations, which could result in them sustaining personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the surface of the vehicle crossovers are flush with that of the adjacent footways.

Designers Response:

The kerb is flush across the peds path.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as can be seen in the above photograph, there is still a short section of kerb which has an upstand which is not suitable for a pedestrian crossing point. The Audit Team retain this recommendation.

Stage 3 Problem Ref:	3.3.30	Interim Stage 3 Problem Ref:	4.4.25

Location(s): Ocean Drive at junction with Tower Place

Drawing(s): ETYN-SEF-XXX-03-DR-D-0706

Summary: Risk of crossing pedestrians tripping on cover and sustaining personal injuries due to covers not being flush with surrounding carriageway.

Description:

A cover is provided within the extents of the crossing of Tower Place at its junction with Ocean Drive that is not flush with the surrounding carriageway. This is shown in the photograph above.

There is a risk that a pedestrian could trip on the cover when crossing, resulting in them sustaining a personal injury.

Interim Stage 3 Recommendation:

It is recommended that cover is appropriately lifted and re-set so as to be flush with the surrounding carriageway.

Designers Response:

Statutory undertaker to replace the cover correctly.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.31	Interim Stage 3 Problem Ref:	4.4.26

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-11-DR-N-0003 to ETYN-SEF-XXX-11-DR-N-0018

Summary: Risk of pedestrians being struck and injured by vehicles whilst crossing due to inadequate green man times and long crossing lengths.

Description:

There are a number of locations throughout the scheme extents where pedestrians are expected to cross the full carriageway width in one movement even where there is a central island. The widths are often above the suggested width for a staggered crossing. The green man display is generally short which does not provide the confidence to some pedestrians to continue crossing over the full width and often some chose to stop on the central island. These locations do not have push buttons to allow users on the island to call the green man phase which can result in users being trapped in the middle of the crossing and taking risks to cross without a green man.

Interim Stage 3 Recommendation:

it is recommended that either a push button facility is provided on the central island or that the green man display is extended to allow all users to cross to at least beyond the central island.

Designers Response:

Signals have been handed over to CEC. Any timing adjustment should be through them. Installation of additional push buttons are not feasible.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as it did not appear that this had been remedied following the Interim Stage 3 Road Safety Audit, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.32	Interim Stage 3 Problem Ref:	4.4.27

Location(s): South side of tracks, east of Newhaven tram stop

Drawing(s): ETYN-SEF-XXX-03-DR-D-1101

Summary: Risk of a pedestrian crossing in conflict with a westbound tram resulting in potential injury to pedestrian.

Description:

A pedestrian crossing point is provided across the tram tracks to the east of Newhaven tram stop. As shown in the photograph above, visibility on the south side of the crossing point is constrained to the right due to the level difference between the crossing point and guardrail to the right. This could result in there being inappropriate intervisibility between pedestrians waiting to cross and the drivers of approaching westbound trams. This could result in pedestrians crossing when it is not safe to do so and being struck and injured by approaching trams.

Interim Stage 3 Recommendation:

It is recommended that the visibility to and from the crossing point is appropriate.

Designers Response:

During OM3A visibility from both driver and pedestrians' point of view was checked. Visibility was confirmed along 40 m. A mirror was installed between the 2 tracks to improve even more the visibility after been request by ET. After the installation ET reported that the mirror does not provide enough conspicuity. The dimensions of the mirror are restricted by the DKE. SFN position is that visibility is compliant and there isn't any mitigation required considering the low speed of the trams at that point (max 5 km/h).

Final Stage 3 Comment:

The Audit Team note the designer's response, however they still consider that this is a risk. Even a tram travelling at 5 kph could collide with and injure a pedestrian. It is recommended that measures are taken to improve the visibility splay.

Stage 3 Problem Ref:	3.3.33	Interim Stage 3 Problem Ref:	4.4.28

Location(s): Picardy Place Gyratory, at link to Broughton Street

Drawing(s): ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of cyclists losing control whilst attempting to follow cycle lane due to geometry of lane, leading to them sustaining personal injuries.

Description:

It is unclear if the geometry of the cycle lane that links Picardy Gyratory and Broughton Street is suitable for use by all types of bicycles. If cyclists cannot follow the cycle lane and cross the cycle lane at a safe angle, there is a risk that cyclists could slip on the tram tracks and fall and sustain a personal injury.

Interim Stage 3 Recommendation:

It is recommended that the geometry of the cycle lane is appropriate for use by all bicycle types.

Designers Response:

The geometry of the cycle lane is appropriate for any kind of bicycle. The minimum radius is 4 metres.

Final Stage 3 Comment:

The Audit Team note the designer's response; however, they still consider that this is a risk. During the site visit, cyclists were observed to be cutting directly over the tram tracks outwith the cycle lane. There is also a risk that a driver / rider may not anticipate a cyclist making such a sharp manoeuvre and could collide into the cyclist. Drivers were observed to be using both lanes from the gyratory to head down Broughton Street; this could result in a vehicle potentially undertaking a cyclist who may suddenly swerve into the left lane and collide with a vehicle if they are following the cycle lane markings. This has been raised as a new problem in Section 4.

It is recommended that this layout is amended to provide a smoother alignment.

Stage 3 Problem Ref:	3.3.34	Interim Stage 3 Problem Ref:	4.4.29

Location(s): Bus stop on west side of Leith Walk at Gayfield Square

Drawing(s): -

Summary: Risk of visually impaired pedestrians colliding with street furniture, due to position of bus stop with respect to uncontrolled crossing, resulting in them sustaining personal injuries.

Description:

As shown in the photograph above, a bus stop is provided within tactile paving associated with an uncontrolled crossing at this location. There is a risk that a visually impaired pedestrian crossing from west to east could collide with the bus shelter and sustain a personal injury, due to the shelter being located within the crossing extents.

Interim Stage 3 Recommendation:

It is recommended that the extents of the uncontrolled crossing are kept clear of street furniture.

Designers Response:

The bis stop shelter was not installed by SFN. It was installed after the footpath was finished.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, they still consider that this is a risk and recommend that the uncontrolled crossing is relocated to avoid the bus shelter.

Stage 3 Problem Ref:	3.3.35	Interim Stage 3 Problem Ref:	4.4.30

Location(s): Leith Walk

Drawing(s): -

Summary: Risk of visually impaired pedestrians inadvertently entering cycleway due to absence of corduroy paving, resulting in them being struck and injured by cyclists.

Description:

There are several bus stops on Leith Walk where corduroy paving is not provided beyond the uncontrolled crossing across the cycleway. An example is shown in the figure above.

There is a risk that a visually impaired pedestrian could miss the crossing point, which could lead to them continuing to walk along the bus stop waiting area. As the bus stop waiting area and cycleway are flush at these locations, there is a risk that the visually impaired pedestrian could continue walking into the cycle lane (due to the absence of measures to inform them of its presence) and lead to them being struck and injured by cyclists.

Interim Stage 3 Recommendation:

It is recommended that appropriate measures are provided to delineate the bus stop waiting area and cycleway along the full extents of the bus stop waiting area.

Designers Response:

The example provided is not a bus stop. Corduroy at the bus stop locations laid as per the design drawings.

Final Stage 3 Comment:

As shown in the above photograph (taken between Gayfield Square and Annandale Street), this was observed to still be an issue during the Stage 3 final site visit. No corduroy paving is provided along the offside of the cycleway to the north of the bus stop at this location. The Audit Team therefore retain the above recommendation.

Stage 3 Problem Ref:	3.3.36	Interim Stage 3 Problem Ref:	4.4.31

Location(s): Annandale Street at junction with Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1264

Summary: Risk of cyclists failing to give way and emerging into the path of vehicles, resulting in them being struck and injured, due to absence of give way markings.

Description:

As shown in the photograph above, no give way markings are provided in the cycle transition between Leith Walk and Annandale Street. There is a risk that a cyclist could mistakenly believe that they have right of way and could proceed onto Annandale Street into the path of a vehicle.

Interim Stage 3 Recommendation:

It is recommended that appropriate give way markings are provided.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.37	Interim Stage 3 Problem Ref:	4.4.32

Location(s): Leith Walk

Drawing(s): -

Summary: Risk of visually impaired pedestrians inadvertently entering cycleway and being struck and injured by cyclists due to minimal segregation being provided.

Description:

During the site investigation locations were observed where no segregation, or minimal segregation, is provided on Leith Walk.

An example, where no segregation is provided, is shown in the photograph above. Many other locations were observed where the level difference between the footway and adjacent carriageway was 25mm or less.

The lack of, or limited, segregation could lead to visually impaired pedestrians inadvertently entering the cycleway, which could result in them being struck or injured by cyclists.

Interim Stage 3 Recommendation:

It is recommended that appropriate segregation is provided that is detectable by a user with visual impairments.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.38	Interim Stage 3 Problem Ref:	4.4.33

Location(s): West side of Leith Walk

Drawing(s): -

Summary: Risk of pedestrians tripping and falling on segregation associated with previous arrangement, resulting in them sustaining personal injuries.

Description:

During the site investigation it was observed that the entire length of the raised white line segregation associated with the temporary segregated footway arrangement on Leith Walk has not been removed. The Audit Team have concerns that pedestrians could trip on the raised white line segregation and sustain personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the existing raised white line segregation is removed.

Designers Response:

The mentioned raised white line was not laid by SFN. CEC should remove it.

Final Stage 3 Comment:

As this is still to be actioned, the Audit Team retain the previous recommendation.

Stage 3 Problem Ref:	3.3.39	Interim Stage 3 Problem Ref:	4.4.34

Location(s): Leith Walk at junctions with McDonald Road and Pilrig Street

Drawing(s): ETYN-SEF-XXX-03-DR-D-1262; & ETYN-SEF-XXX-03-DR-D-1263

Summary: Risk of cyclists waiting on carriageway due to lack of storage space, leading to them being struck and injured by vehicles.

Description:

Limited storage space is provided for cyclists at several locations where on-road cyclists join the segregated cycleway. At these locations the on-road cyclists have to give way to cyclists already on the cycleway.

The Audit Team have concerns that the limited storage space could mean that a queue of cyclists' forms whilst the cyclist at the front of the queue gives way. If the queue does not dissipate during the stage of the traffic signals, there is a risk that cyclists could still be waiting on the carriageway when traffic on Leith Walk, or the side street gets a green light. This could result in cyclists on the carriageway being struck and injured by vehicles.

Interim Stage 3 Recommendation:

It is recommended that the anticipated future peak volume of cyclists using these links is assessed against the anticipated future peak volume of cyclists using Leith Walk and that the number of conflicts and likely wait time is assessed to ensure that the storage space is sufficient.

Designers Response:

Storage space will be enlarged by moving the double discontinuous line opposite to the road.

Final Stage 3 Comment:

This was still observed to be an issue during the site investigation associated with the final Stage 3 Road Safety Audit. As such, the Audit Team recommend that the anticipated future peak volume of cyclists using these links is assessed against the anticipated future peak volume of cyclists using Leith Walk and that the number of conflicts and likely wait time is assessed to ensure that the storage space is sufficient.

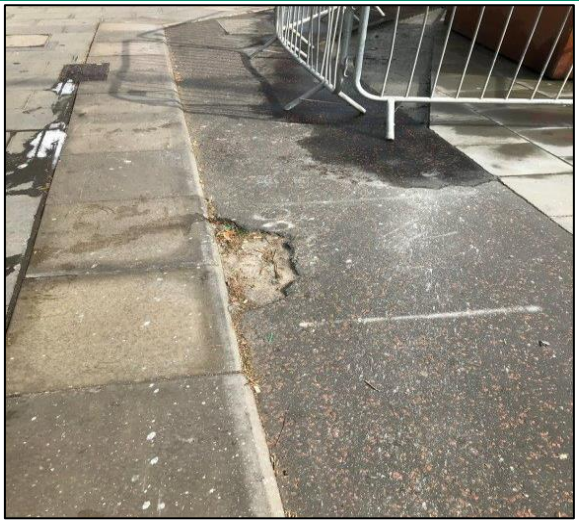
Stage 3 Problem Ref:	3.3.40	Interim Stage 3 Problem Ref:	4.4.35

Location(s): Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1110 to ETYN-SEF-XXX-03-DR-D-1115

Summary: Risk of cyclists becoming unseated due to uneven surfacing.

Secondary risk of cyclists taking evasive action to avoid uneven surface, resulting in them losing control or striking and injuring pedestrians.



Description:

During the site investigation many locations were observed on Leith Walk where the surface of the cycleway was uneven. This included at the following locations:

- West side, north of McDonald Road;
- West side, north of Pilrig Street;
- West side, opposite Dalmeny Street;
- East side, north of Crown Place;
- East side, opposite Casselbank Street (2 no.);
- East side, south of Jameson Place;
- East side, north of Iona Street;
- East side, south of Pilrig Street; and
- East side, between Pilrig Street and Albert Street.

There is a risk that the uneven surfacing could lead to cyclists becoming unseated. There is a secondary risk of cyclists taking evasive action to avoid patches of uneven surfacing, potentially resulting in them losing control or striking and injuring pedestrians.

Interim Stage 3 Recommendation:

It is recommended that the surface of the cycleway is made good.

Designers Response:

The mentioned locations are old street lighting locations that were removed after the cycleway construction. The surface will be repaired. .

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as the surface of the cycleway was still observed to be uneven in places, they retain the previous recommendation. The above photo is an example of the damaged surface just north of Middlefield.

Stage 3 Problem Ref:	3.3.41	Interim Stage 3 Problem Ref:	4.4.36

Location(s): Leith Walk, west side between Middlefield and Pilrig Street and west side north of Stead's Place

Drawing(s): ETYN-SEF-XXX-03-DR-D-1110; & ETYN-SEF-XXX-03-DR-D-1112

Summary: Risk of pedestrians stepping onto the cycleway to pass encumbered pedestrians or users using mobility aids due to restricted footway width, resulting in them being struck and injured by cyclists.

Description:

Two locations were observed on Leith Walk where the footway appeared to be narrow for the likely volume of pedestrians. These locations were as follows:

- West side between Middlefield and Pilrig Street; and
- West side north of Stead's Place.

Where footways are insufficiently wide for the likely volume of pedestrians, there is a risk that pedestrians may step onto the cycleway to bypass another pedestrian, particularly one pushing a pram, pulling a suitcase, or using a mobility aid. This could result in them being struck and injured by a cyclist, resulting in personal injury.

Interim Stage 3 Recommendation:

It is recommended that the footway width is appropriate for the anticipated footfall.

Designers Response:

Minimum footway width is 1.5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, this is still an issue at several locations on Leith Walk.

It was also noted that there are several additional locations where street furniture has been placed on the footway by businesses, which further restricts the footway width. The list below are further examples of where the footway width is compromised:

- Café Bellina just south of Montgomery Street – tables and chairs restricting footway width;
- Grocery shop just south of Albert Street – food displays restricting footway width;
- North of Pilrig Street west side – narrow footway
- Near foot of Leith Walk east side – narrow footway; and
- Near foot of Leith Walk west side – narrow footway.

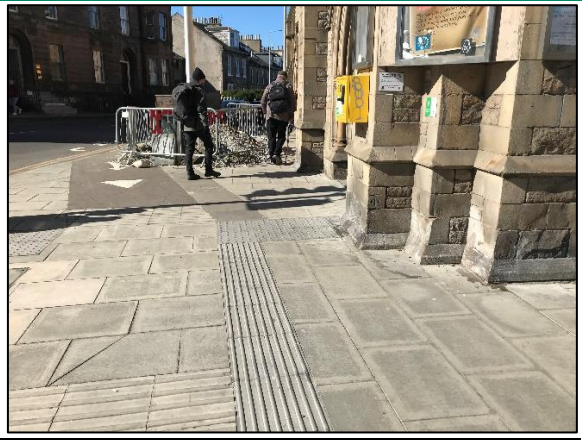
The Audit Team retain the previous recommendation to ensure that the footway width is appropriate.

Stage 3 Problem Ref:	3.3.42	Interim Stage 3 Problem Ref:	4.4.38

Location(s): Outside Pilrig St. Paul's Church at junction of Leith Walk and Pilrig Street

Drawing(s): ETYN-SEF-XXX-03-DR-D-1112

Summary: Risk of pedestrians stepping onto the cycleway to pass encumbered pedestrians or users using mobility aids due to restricted effective footway width, resulting in them being struck and injured by cyclists.



Description:

As shown in the photograph above, the effective footway width at Pilrig St. Paul's Church is restricted.

There is a risk that the restricted footway width could lead to pedestrians stepping onto the cycleway to bypass another pedestrian, particularly one pushing a pram, pulling a suitcase, or using a mobility aid. This could result in them being struck and injured by a cyclist.

Interim Stage 3 Recommendation:

It is recommended that the effective footway width is maximised.

Designers Response:

Minimum footway width is 1.5 m so compliant with the ESDG. Note that due to the space constraints and existing utilities it has not been always possible to comply with the desirable widths.

Final Stage 3 Comment:

The Audit Team retain their belief that this is a problem that could lead to conflicts between pedestrians and cyclists. As such, the previous recommendation is retained.

Stage 3 Problem Ref:	3.3.43	Interim Stage 3 Problem Ref:	4.4.39

Location(s): Leith Walk

Drawing(s): -

Summary: Risk of pedestrians crossing when not safe to do so due to pushbuttons not functioning, resulting in them being struck and injured by passing vehicles.

Description:

During the site investigation it was observed that several of the push button units were not functioning. An example (from Pilrig Street) is shown in the photograph above.

If push buttons are not functioning, there is a risk that pedestrians could cross when it is not safe to do so, resulting in them being struck and injured by passing vehicles.

Interim Stage 3 Recommendation:

It is recommended that the push buttons are appropriately repaired.

Designers Response:

All the junctions have been fully commissioned and handed over to CEC. CEC is now in charge of the maintenance.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, they noted that there is a faulty push button at the junction of Ocean Drive with Whiskey Quay / Ocean Terminal car park access. During the site visit it was also noted that a number of push buttons had been vandalised by spray paint – this issue has been raised as a new problem in Section 4.

Stage 3 Problem Ref:	3.3.44	Interim Stage 3 Problem Ref:	4.4.41

Location(s): Leith Walk in northbound cycleway near to foot of the Walk.

Drawing(s): ETYN-SEF-XXX-03-DR-D-1260

Summary: Risk of a cyclist colliding with the Overhead Line Electrification posts which are located on the edge of the new cycle lane, resulting in a cyclist falling and sustaining personal injury.

Description:

Near to the foot of the walk there are a number of Overhead Line Electrification (OLE) posts which are located immediately at the edge of the cycle lane. There is a risk that a northbound cyclist could clip the pole resulting in them falling and sustaining injury. This risk is heightened during the hours of darkness or periods of reduced visibility.

Interim Stage 3 Recommendation:

It is recommended that measures are implemented to guide cyclists away from these hazards and that appropriate measures are provided to make the hazards conspicuous.

Designers Response:

Its SFN position that the poles are conspicuous enough. Also we would like to raise that the poles had to be relocated due to existing utilities and the proposed cycleway re-aligned slightly..

Final Stage 3 Comment:

The Audit Team note the designer's response, however, they retain their belief that this is still a risk to cyclists and therefore retain the previous recommendation. The Audit Team also refer to the problems around contrast banding (problem refs. 3.1.17 and 3.2.22) and would strongly recommend that it is applied to this pole.

Stage 3 Problem Ref:	3.3.45	Interim Stage 3 Problem Ref:	4.4.42

Location(s): South side of Ocean Drive at signalised crossing to Port of Leith tram stop.

Drawing(s): ETYN-SEF-XXX-11-DR-N-0008

Summary: Risk of pedestrians stepping onto the carriageway to signal pole due to restricted effective footway width, resulting in them being struck and injured by vehicles.

Description:

As shown in the photograph above, the effective footway width on the south side of Ocean Drive is restricted by a traffic signal pole associated with the controlled crossing to the Port of Leith tram stop. The restricted effective footway width could lead to pedestrians stepping onto the carriageway to bypass the signal pole, which could result in them being struck and injured by vehicles whilst doing so.

Interim Stage 3 Recommendation:

It is recommended that the effective width of the footway is maximised.

Designers Response:

The width of the footway is compliant with the minimum 1.5 m as per the ESDG. Please note that signal poles had to be relocated due to existing utilities.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, there is less than 1.5 metres clearance within the surfaced footway at this location. They retain their belief this is still a risk to pedestrians and therefore retain the previous recommendation.

Stage 3 Problem Ref:	3.3.46	Interim Stage 3 Problem Ref:	4.4.45

Location(s): Footway at junction of London Road and Elm Row.

Drawing(s): ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of a pedestrian tripping on the segregated cycleway as a result of it being on the direct desire line between the crossing point and London Road.

Description:

Pedestrians crossing over London Road at the crossing point to head northwards are expected to continue northwards to cross the segregated cycleway at the mini zebra / courtesy crossing facility. However, pedestrians could turn right directly from the crossing point to head towards London Road and thereafter require crossing the segregated cycleway which cuts across the footway, and which is at a lower level. This could result in conflict between pedestrians and cyclists or pedestrians tripping on the kerbs on either side of the cycleway.

Interim Stage 3 Recommendation:

It is recommended that measures are provided to guide pedestrians to cross the cycle lane before heading towards London Road or that the area of footway is removed/landscaped to deter pedestrian use.

Designers Response:

There is a cycleway ped crossing point right in front of the road crossing.

Final Stage 3 Comment:

The desire line for London Road takes pedestrians over the cycleway at a point where there is no crossing facility. The Audit Team retain the above recommendation or would recommend that a further crossing point over the cycleway is provided on the desire line.

Stage 3 Problem Ref:	3.3.47	Interim Stage 3 Problem Ref:	4.4.46

Location(s): Crown Place at junction with Leith Walk

Drawing(s): -

Summary: Risk of pedestrians stepping onto carriageway into path of oncoming vehicles due to intervisibility being constrained by column.

Description:

As shown in the photograph above, a wall with a column on the end is provided between Crown Place and the entry to Tesco. The Audit Team have concerns that the column could restrict intervisibility between pedestrians waiting to cross and the drivers / riders of approaching vehicles. This could result in a pedestrian, particularly a child or someone smaller in stature, stepping out from behind the column and into the path of an oncoming vehicle.

Interim Stage 3 Recommendation:

It is recommended that the height of the existing column is reduced to improve intervisibility.

Designers Response:

Out of the scope.

Final Stage 3 Comment:

The Audit Team retain their belief that this is a problem and therefore retain the previous recommendation.

Stage 3 Problem Ref:	3.3.48	Interim Stage 3 Problem Ref:	4.4.47

Location(s): East side of Leith Walk, opposite Pilrig Street

Drawing(s): ETYN-SEF-XXX-03-DR-D-1112

Summary: Risk of cyclists becoming unseated whilst attempting to transition between carriageway and cycleway due to kerb upstand.

Description:

As shown in the photograph above, the dropped kerb at the cycle transition at this location has an upstand greater than 6mm. There is a risk that a cyclist attempting to transition from the carriageway onto the cycleway could fall due to the upstand, resulting in them sustaining a personal injury.

Interim Stage 3 Recommendation:

It is recommended that the dropped kerb is appropriate for cyclists to transition.

Designers Response:

NCR's/Defects have been raised and SFN will deal with them if they are out of the design tolerances.

Final Stage 3 Comment:

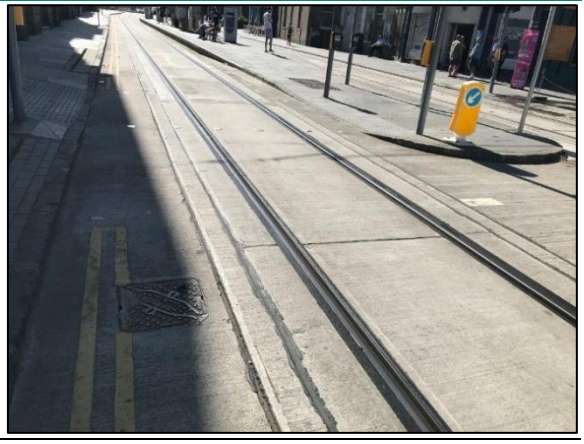
The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.51	Interim Stage 3 Problem Ref:	4.5.1

Location(s): Constitution Street northbound at The Shore tram stop

Drawing(s): ETYN-SEF-XXX-03-DR-D-1258

Summary: Risk of vehicles failing to stop at crossing point due to the stop line being worn, leading to them proceeding into the crossing on a red signal and striking and injuring crossing pedestrians.



Description:

During the site investigation it was noted that the stop line at The Shore tram stop was extremely worn. This is illustrated in the photograph above.

There is a risk that the condition of the stop line could mean that it is not visible to the drivers / riders of approaching vehicles. This could lead to them failing to stop at the crossing and striking and injuring crossing pedestrians.

Interim Stage 3 Recommendation:

It is recommended that the stop line is refreshed.

Designers Response:

Agreed

Final Stage 3 Comment:

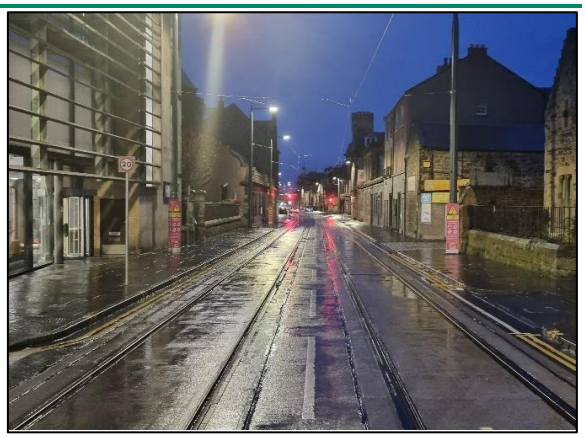
The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.52	Interim Stage 3 Problem Ref:	4.5.2

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-03-DR-D-1251 to ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of vehicles entering the tram track area and colliding with trams or failing to follow road markings resulting in confusion and late lane changes or manoeuvres, due to the conspicuity of road markings laid on concrete.



Description:

Road markings laid on concrete can be difficult to see during certain conditions such as bright daylight or when the surface is wet. This can result in drivers / riders failing to observe the road markings and could lead to them inadvertently entering the tram line or failing to observe directions. This could result in collisions between vehicles and trams or side-swipe collisions as a result of vehicles making late lane changes.

There is a secondary issue in that the road markings tend to wear off concrete surfaces quicker than traditional tarmac road surfaces unless a tack coat is applied to the concrete. Such a tack coat does not seem to have been provided. This could lead to road markings deteriorating rapidly, which could also result in vehicles inadvertently entering the tram line or failing to observe directions.

Interim Stage 3 Recommendation:

It is recommended that all road markings on the concrete surface are made clearly visible and that a tack coat is provided below the road markings where they are laid on a concrete surface.

Designers Response:

To be discussed with City of Edinburgh Council.

Final Stage 3 Comment:

As this is still to be actioned, the Audit Team retain the previous recommendation.

Stage 3 Problem Ref:	3.3.53	Interim Stage 3 Problem Ref:	4.5.3

Location(s): Access to Ocean Terminal car park

Drawing(s): ETYN-SEF-XXX-03-DR-D-1253

Summary: Risk of drivers / riders not observing raised table and losing control on ramp, resulting in vehicle striking a non-motorised user or piece of street furniture, due to absence of road markings on ramps.

Description:

A raised pedestrian crossing is provided across the vehicular access to the Ocean Terminal Red Car Park. As shown in the photograph above, no markings to Diag. 1062 (TSRGD 2016) are provided on the ramp on the approach to the crossing. As a result, the drivers / riders of approaching vehicles may not be aware of the raised crossing ahead, which could lead to them approaching the ramp at inappropriate speed, losing control, and striking a pedestrian or item of street furniture.

Interim Stage 3 Recommendation:

It is recommended that appropriate markings to Diag. 1062 (TSRGD 2016) are provided on the ramp on the approach to the raised crossing.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.55	Interim Stage 3 Problem Ref:	4.5.5

Location(s): Access to Ocean Terminal and Whisky Quay adjacent to car park; Coatfield Lane at junction with Constitution Street

Drawing(s): ETYN-SEF-XXX-03-DR-D-1204; ETYN-SEF-XXX-03-DR-D-1209

Summary: Risk of pedestrians striking signs mounted at inappropriate heights, resulting in personal injuries.

Description:

During the site investigation it was observed that two signs were mounted at inappropriate heights for the positions above footways. These signs were located on the north side of the access to Ocean Terminal and Whisky Quay (adjacent to the surface car park) and on the south side of Coatfield Lane at its junction with Constitution Street.

There is a risk that pedestrians could strike these sign faces and sustain personal injuries.

Interim Stage 3 Recommendation:

It is recommended that the signs are mounted at appropriate heights for their positions above footways.

Designers Response:

Out of the scope.

Final Stage 3 Comment:

As the Audit Team still consider this to be a risk to pedestrians, they retain their previous recommendation.

Stage 3 Problem Ref:	3.3.56	Interim Stage 3 Problem Ref:	4.5.6

Location(s): Ocean Drive; Leith Walk; On splitter island at Picardy Gyratory; & McDonald Road

Drawing(s): ETYN-SEF-XXX-03-DR-D-1204; ETYN-SEF-XXX-03-DR-D-1210

Summary: Risk of vehicles striking islands or segregation strips, resulting in vehicle occupants / riders sustaining personal injuries, due to absence of vertical features to highlight islands / segregation strips.

Description:

Bollards were observed to be missing at several locations throughout the extents of the scheme. This included:

- Ocean Drive at junction with Geissler Drive;
- Leith Walk, south of junction with Duke Street / Constitution Street / Great Junction Street;
- Leith Walk, south of Jane Street;
- On splitter island at Picardy Gyratory;
- Leith Walk northbound at Gayfield Square;
- Leith Walk northbound at junction with Great Junction Street;
- Leith Walk southbound south of junction with Manderston Street;
- McDonald Road eastbound at cycle transition.

If appropriate bollards are not provided, there is a risk that the island / segregation strip may not be conspicuous to an approaching driver / rider, particularly during the hours of darkness or periods of reduced visibility. This could lead to vehicles striking the islands / segregation strips and the occupants / riders of the vehicles sustaining personal injuries.

Interim Stage 3 Recommendation:

It is recommended that appropriate vertical features are provided to highlight the presence of the islands / segregation strips.

Designers Response:

All the bollards have now been installed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as there are still several locations where bollards have not been provided, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.58	Interim Stage 3 Problem Ref:	4.5.8

Location(s): Ocean Way at junction with Tower Place

Drawing(s): ETYN-SEF-XXX-03-DR-D-1204

Summary: Risk of visually impaired pedestrians striking sign pole and sustaining a personal injury due to position of sign pole with respect to tactile paving.

Description:

As shown in the photograph above, a sign post is located to the rear of tactile paving on the east side of Ocean Way at its junction with Tower Place.

There is a risk that a visually impaired pedestrian crossing at this location could follow the tactile paving and collide with the sign post, resulting in personal injury.

Interim Stage 3 Recommendation:

It is recommended that the sign post is relocated to minimise the risk of visually impaired pedestrians colliding with it.

Designers Response:

Tactiles will be amended. Utilities prevented us to install the signal pole as per the design drawings.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation. It should be noted that this is not a signal pole.

It is also noted that the crossing point at this corner could be misinterpreted by visually impaired pedestrians who could confuse the tactile paving on the radius and mistakenly cross over Ocean Way rather than Tower Place. In order to address this matter, it is recommended that the tactile paving layout is amended, which could both alleviate the issue of visually impaired pedestrians colliding with the signpost and the tactile paving being misinterpreted.

Stage 3 Problem Ref:	3.3.61	Interim Stage 3 Problem Ref:	4.5.11

Location(s): Leith Walk northbound at junction with Brunswick Road and McDonald Road

Drawing(s): ETYN-SEF-XXX-03-DR-D-1213

Summary: Risk of vehicles undertaking unsafe manoeuvres, and striking other vehicles whilst doing so, due to signage being obscured by signal heads.

Description:

A prohibition of U-turn sign is provided on the central island on Leith Walk northbound at its junction with Brunswick Road and McDonald Road. As shown in the image above, the sign is obscured by the signal head. This could lead drivers / riders believing that they can undertake U-turn manoeuvres at this junction, which could result in them attempting such manoeuvres and colliding with other vehicles whilst doing so.

Interim Stage 3 Recommendation:

It is recommended that the sign is appropriately relocated so as to be visible to approaching drivers / riders.

Designers Response:

No U-turn sign will be relocated on the signal pole at the D island.

Final Stage 3 Comment:

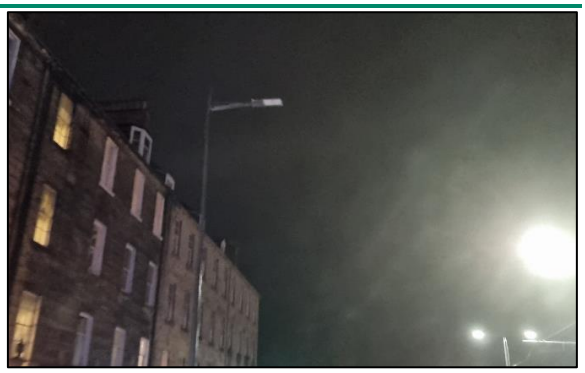
The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.62	Interim Stage 3 Problem Ref:	4.5.12

Location(s): Leith Walk

Drawing(s): ETYN-SEF-XXX-16-DR-M-0010 to ETYN-SEF-XXX-16-DR-M-0015

Summary: Risk of vehicles colliding with other vehicles, street furniture, or crossing non-motorised users, due to inadequate illumination.



Description:

During the site investigation it was observed that several lighting columns on Leith Walk were not functioning. There is a risk that this could lead to there being inadequate illumination, which could result in vehicles colliding with other vehicles, street furniture or crossing non-motorised users.

Interim Stage 3 Recommendation:

It is recommended that the lighting columns are appropriately repaired.

Designers Response:

Street lighting works along Leith Walk were not complete at the time that this RSA was carried out. Complete now.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, during the night-time site visit it was noted that there were several lighting columns that were not functioning.

It is recommended that a review of street lighting during darkness hours is carried out.

Stage 3 Problem Ref:	3.3.63	Interim Stage 3 Problem Ref:	4.5.13

Location(s): York Place eastbound on approach to Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1215

Summary: Risk of vehicles proceeding through red light due to primary signal head being obscured by sign face, resulting in vehicles striking trams or other vehicles.

Description:

During the site investigation it was observed that two post had been mounted immediately in front of a primary signal head on York Place at Picardy Place Gyratory. This is shown in the photograph above.

There is a high likelihood that a sign mounted at this location would obscure visibility to the signal head. This could result in vehicles proceeding through a red light, resulting in the vehicles striking trams or other vehicles.

Interim Stage 3 Recommendation:

It is recommended that the posts (and accompanying sign) are appropriately relocated to a position where forward visibility to the traffic signals will not be obscured.

Designers Response:

That sign had a very similar situation before the island works. It had to be relocated because it clashed with the porposed ped crossing. Taking into account the directional road markings to Leith, Portobello, Old Town, A900, A1, A7 and A68, SFN propose to remove the mentioned sign.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation to remove the signposts.

Stage 3 Problem Ref:	3.3.64	Interim Stage 3 Problem Ref:	4.5.14

Location(s): York Place eastbound on approach to Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of rear end shunts due to sudden braking at random stop line on York Place.

Description:

As shown in the photograph above, a random stop line is provided on York Place at its junction with Leith Walk. There is a risk that a driver / rider may be confused by the position of this stop line and brake suddenly. This could result in a rear-end shunt collision.

Interim Stage 3 Recommendation:

It is recommended that the stop line is removed.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.65	Interim Stage 3 Problem Ref:	4.5.15

Location(s): McDonald Road eastbound in cycle transition.

Drawing(s): ETYN-SEF-XXX-03-DR-D-1263

Summary: Risk of cyclists being unaware of presence of ramp, leading to them becoming unseated or losing control.

Description:

No road marking to Diag. 1062 (TSRGD 2016) is provided in the cycle transition on McDonald Road eastbound. There is a risk that this could lead to cyclists being unaware of the presence of the ramp and could lead to them being unseated or losing control when hitting the bottom of the ramp.

Interim Stage 3 Recommendation:

It is recommended that an appropriate road marking to Diag. 1062 (TSRGD 2016) is provided at this location.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

Stage 3 Problem Ref:	3.3.67	Interim Stage 3 Problem Ref:	4.5.17

Location(s): Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1260; ETYN-SEF-XXX-03-DR-D-1262; ETYN-SEF-XXX-03-DR-D-1264

Summary: Risk of vehicles undertaking sudden manoeuvres due to being unaware of start of tram lane, resulting in side swipe or rear end shunt type collisions.

Description:

There are several locations on Leith Walk where the offside lane becomes tram only and general traffic in the offside lane has to merge back into the nearside lane. At each of these locations, no tapered road marking is provided to guide vehicles back into the nearside lane. Such markings have been used elsewhere on the tram network within Edinburgh, typically eastbound at Shandwick Place prior to the tram stop.

The Audit Team believe that such markings would enhance the conspicuity of the tram only sections and provide warning to drivers / riders of the need to merge into the nearside lane. Without such markings, the presence of the tram only sections ahead may not be clear, which could lead to drivers / riders undertaking late lane changes to sudden manoeuvres, leading to side-swipe or rear-end shunt type collisions.

Interim Stage 3 Recommendation:

It is recommended that tapered tram lane road markings are provided at these locations.

Designers Response:

To be discussed with City of Edinburgh Council.

Final Stage 3 Comment:

As this has not been actioned, the Audit Team retain the previous recommendation.

Stage 3 Problem Ref:	3.3.68	Interim Stage 3 Problem Ref:	4.5.18

Location(s): Scheme extents

Drawing(s): ETYN-SEF-XXX-03-DR-D-1260 to ETYN-SEF-XXX-03-DR-D-1265

Summary: Risk of general traffic entering tram only lanes, resulting in conflict with trams or vehicles making sudden lane changes and colliding with other vehicles.

Description:

It is noted that tram lane signs have been erected throughout the scheme along with the tram lane marking. These signs are relatively small and could easily be missed by drivers / riders, particularly where they are mounted to the rear of the footway on Leith Walk. If drivers / riders fail to observe the tram lane sign, they could inadvertently enter the tram lane and conflict with trams.

There are specific locations where this could be a significant issue such as at the bottom of Leith Walk (as shown in the above photograph) where the tram only lane leads to Constitution Steet or at the top of Leith Walk where the tram lane leads to the Picardy Tram stop. The "Tram only" lane signs also are located at the commencement of the restricted lane, which means that drivers have little advance warning to allow them to move over out of the tram lane.

During the site visit, several vehicles were observed driving in the tram only lanes, whether intentionally or because the drivers were unaware of the restrictions. This could result in drivers / riders making sudden lane changes when they realise that they are not permitted in these lanes. At the top of Leith Walk for example, a vehicle could inadvertently enter the Picardy Tram stop resulting in conflict with other road users, including pedestrians.

Interim Stage 3 Recommendation:

It is recommended that there are sufficient tram lane signs and markings to inform drivers / riders of the restrictions and that these are sited where they can be easily seen by drivers / riders.

Designers Response:

Note that at the time of the RSA was carried out road markings were not fully implemented. Now TRAM ONLY road markings have been implemented as per the design drawings. The dimensions of the road marking signs are compliant taking into account the maximun speed permitted (20 mph). Please also note proposal for 4.5.17.

Final Stage 3 Comment:

The Audit Team believe that this is still a problem.

The Audit Team have particular concern around the start of the Tram only lane at the foot of Leith Walk, as general traffic will have driven for some distance on the tram lane before having to suddenly merge into the left lane. The carriageway surface is also conducive to making drivers think that they can continue straight in the offside lane.

As can be viewed in the above photograph – the "Tram Only" lane signs are not conspicuous and could easily be missed by vehicle drivers / riders.

Stage 3 Problem Ref:	3.3.70	Interim Stage 3 Problem Ref:	4.5.20

Location(s): Iona Street at junction with Leith Walk

Drawing(s): ETYN-SEF-XXX-03-DR-D-1212

Summary: Risk of vehicles proceeding across through prohibition of motor traffic restriction, leading to them striking and injuring non-motorised users, due to conflicting signage.

Description:

A prohibition of motorised traffic is in place at the junction of Iona Street and Leith Walk. As shown in the photograph above, in addition to the sign to Diag. 619 (TSRGD 2016) showing the prohibition of motor vehicles, a no right turn sign (Diag. 612, TSRGD 2016) is also provided. This paints a confusing message for the drivers / riders of approaching vehicles. There is a risk that this could lead drivers / riders to believe that they can turn left onto Leith Walk from Iona Street, which could lead to them striking and injuring non-motorised users whilst doing so.

Interim Stage 3 Recommendation:

It is recommended that the no right turn sign (Diag. 612, TSRGD 2016) is removed.

Designers Response:

Agreed.

Final Stage 3 Comment:

The Audit Team note the designer's response, however, as this is still to be actioned, they retain the previous recommendation.

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4. Items Resulting from the Stage 3 Road Safety Audit

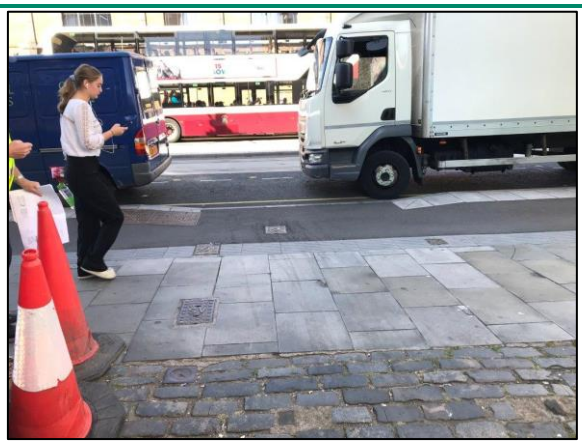
4.1 General

Problem: 4.1.1

Location(s): East side of Leith Walk at access south of Manderston Street

Drawing(s): -

Summary: Risk of vehicles driving on footway or cycleway and striking and injuring non-motorised users or emerging from access and colliding with southbound vehicles on Leith Walk due to position of parked vehicles.



Description:

As shown in the photograph above, no gap is provided in the parking bay on the east side of Leith Walk, south of Manderston Street, to enable vehicles to transition between Leith Walk and Manderston Street.

It was noted during the site visit that this access lane is heavily used by motorcycles (primarily for deliveries from the adjacent restaurant). If parking obstructed this access, there is a risk that vehicles could be driven on the footway to find a suitable access to Leith Walk, and this could result in conflict with pedestrians or cyclists. There is also the risk that a vehicle could attempt to enter Leith Walk between parked vehicles and be struck by a vehicle on Leith Walk due to the restricted visibility.

Recommendation:

It is recommended that a suitable gap is provided in the parking bay to enable vehicles to safely access and egress from the access.

Problem: 4.1.2

Location(s): West side of Leith Walk, south of Casselbank Street

Drawing(s): -

Summary: Risk of collisions between vehicles and other road users due to visibility being obscured at junction by parked vehicles.

Description:

As shown in the photograph above, a parking bay is located to the south of Casselbank Street. The Audit Team have concerns that a vehicle parked in the parking bay could restrict intervisibility between crossing non-motorised users and vehicles turning into Casselbank Street.

If visibility was to be restricted, there is a risk that a turning vehicle may not be aware of non-motorised users crossing, leading to them striking and injuring them.

Recommendation:

It is recommended that visibility at the junction is maximised.

Problem: 4.1.3

Location(s): West side of Leith Walk, north of Pilrig Street

Drawing(s): -

Summary: Risk of cyclists striking and injuring pedestrians due to intervisibility being obscured by bus stop flag and litter bin.

Description:

At the floating bus stop north of Pilrig Street, it was noted that intervisibility between cyclists and pedestrians transitioning from the bus stop island to the footway could be obscured by the bus stop flag and a bin. This could result in approaching cyclists being unaware of pedestrians about to step onto the cycleway, which could lead to a cyclist striking and injuring a pedestrian.

This issue could be exacerbated by the lack of measures to encourage cyclists to slow and give way at points where pedestrians will be transitioning between the footway and the bus stop island.

Recommendation:

It is recommended that visibility is maximised and / or that suitable measures are provided to warn cyclists of the possible presence of crossing pedestrians.

Problem: 4.1.4

Location(s): West side of Leith Walk, south of Pilrig Street

Drawing(s): -

Summary: Risk of cyclists striking planter, causing them to fall from their bicycle and sustain a personal injury.

Description:

As shown in the photographs above, two planters are provided adjacent to the cycleway on the northbound approach to Pilrig Street. A limited offset is provided between the cycleway and the planters.

The Audit Team have concerns that a cyclist could clip one of the planters with their handlebars, leading to them fall from their bicycle and sustain personal injuries.

Recommendation:

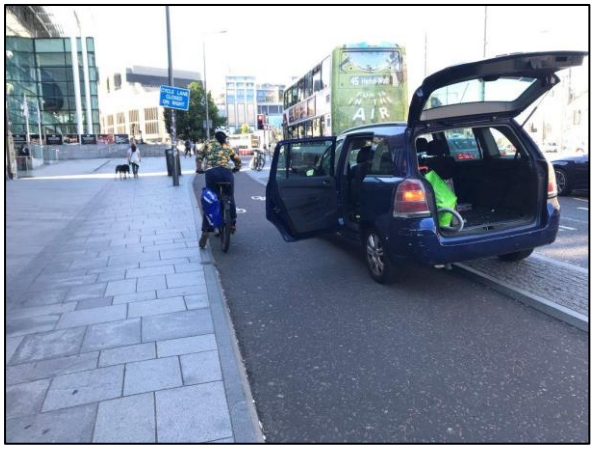
It is recommended that the planters are relocated to provide suitable clearance to the cycleway.

Problem: 4.1.5

Location(s): Leith Walk

Drawing(s): -

Summary: Risk of vehicles striking and injuring cyclists or crossing pedestrians due to indiscriminate loading on Leith Walk.



Description:

During the site investigation several vehicles were observed loading on the footway or cycleway. Examples are shown in the photographs above.

There is a risk that a vehicle could strike and injure a non-motorised user when mounting a footway or the cycleway or that a door could be opened that could strike a passing cyclist.

There is also a risk that a loading vehicle could obscure visibility to traffic signals, which could lead to approaching drivers / riders to miss a red signal and proceed into a controlled crossing point and strike and injure crossing non-motorised users.

Recommendation:

It is recommended that suitable facilities are provided for loading, that suitable kerbside restrictions are provided, and that kerbside restrictions are enforced.

Problem: 4.1.6

Location(s): East side of Leith Walk, north of Annandale Street

Drawing(s): -

Summary: Risk of pedestrians tripping and falling on damaged chamber cover or plastic cover, resulting in them sustaining personal injuries.

Description:

During the site investigation it was noted that a chamber cover on the east side of Leith Walk, north of Annandale Street, was damaged and has been covered by a plastic cover (which itself had been damaged).

There is a risk that a pedestrian could trip on the damaged chamber cover or damaged plastic cover, leading to them falling and sustaining personal injuries.

Recommendation:

It is recommended that the chamber cover is appropriately repaired / replaced.

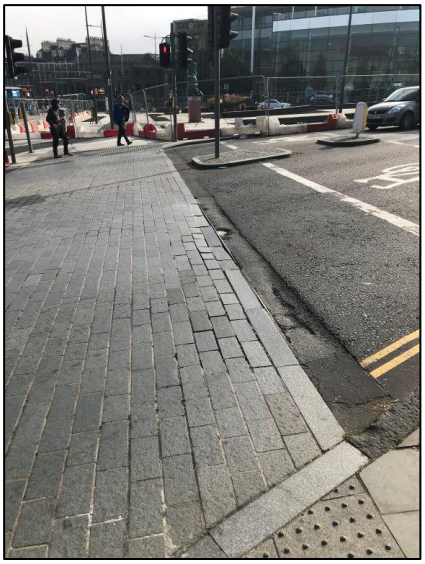
Problem: 4.1.7

Location(s): Blenheim Place, on approach to London Road;

Picardy Place gyratory (west side)

Drawing(s): -

Summary: Risk of bicycles or powered two wheelers losing control on uneven carriageway surface, resulting in riders becoming unseated and sustaining personal injuries.



Description:

During the site investigation two locations were observed where the carriageway surfacing was in poor condition: Blenheim Place, on approach to London Road; and the west side of Picardy Place gyratory. If a vehicle was to travel over these damaged areas of carriageway, there is a risk that they could lose control. This is a particular risk for bicycles or powered two wheelers, as riders could become unseated and sustain personal injuries.

Recommendation:

It is recommended that the carriageway surface is appropriately repaired at these locations.

4.2 Local Alignment

No problems identified at this Stage 3 Road Safety Audit.

4.3 Junctions

Problem: 4.3.1

Location(s): South side of Ocean Drive at south-western crossing at Ocean Terminal;

South side of Annandale Street at junction with Leith Walk;

Melrose Drive at mill access

Drawing(s): -

Summary: Risk of non-motorised users crossing when not safe to do so due to pedestrian units / low level cycle signals being obscured by vandalism, resulting in them being struck and injured by passing vehicles.

Description:

During the site investigation it was noted that there were several pedestrian units or low level cycle aspects that had been vandalised. There is a risk that this could lead a non-motorised user to mistakenly believe that it is safe to cross when crossing vehicular traffic is not stopped. This could lead to vehicles striking and injuring crossing non-motorised users.

Recommendation:

It is recommended that the pedestrian units and low level cycle symbols are appropriately cleaned or replaced.

Problem: 4.3.2

Location(s): South side of Ocean Drive at south-western crossing at Ocean Terminal;

Drawing(s): -

Summary: Risk of vehicles proceeding across the stop line when not safe to do so and striking and injuring crossing pedestrians, due to secondary signal head not functioning.

Description:

During the site investigation it was noted that a secondary signal head out was not functioning on Ocean Drive. This is shown in the photograph above.

If one or more of the other signal heads at this location were to fail, there is a risk that the driver / rider of an approaching vehicle may not be able to see a red signal, which could lead to them proceeding across the stop line during the pedestrian stage and strike and injure a crossing pedestrian.

Recommendation:

It is recommended that the secondary signal head is appropriately repaired.

Problem: 4.3.3

Location(s): Whisky Quay / Ocean Terminal car park access road at junction with Ocean Drive

Drawing(s): -

Summary: Risk of vehicles proceeding across the stop line when not safe to do so and striking and injuring crossing pedestrians, due to orientation of secondary signal head.

Description:

During the site investigation it was noted that a secondary signal head out was not visible to approaching drivers / riders at this location due to its orientation. This is shown in the photograph above.

If the primary head was to fail, there is a risk that the driver / rider of an approaching vehicle may not be able to see a red signal, which could lead to them proceeding across the stop line when not safe to do so and colliding with another vehicle or a crossing pedestrian.

Recommendation:

It is recommended that the secondary signal head is reorientated to be visible to approaching drivers / riders.

Problem: 4.3.4

Location(s): Laurie Street at junction with Constitution Street

Drawing(s): -

Summary: Risk of collisions between vehicles emerging from Laurie Street and crossing pedestrians or passing trams due to vehicles parking at junction with Constitution Street.

Description:

During the site investigation a vehicle was observed parked across the crossing across Laurie Street at its junction with Constitution Street. This is shown in the photograph above.

A vehicle parked at this location would obscure intervisibility between approaching vehicles and crossing pedestrians, as well as between approaching vehicles and tram drivers. This could lead to westbound vehicles on Laurie Street striking and injuring crossing pedestrians, or westbound vehicles pulling out from Laurie Street into the path of a tram.

Recommendation:

It is recommended that appropriate kerbside restrictions are provided to provide appropriate visibility at the crossing and junction.

Problem: 4.3.5

Location(s): Dalmeny Street at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles turning onto Leith Walk from Dalmeny Street and striking and injuring crossing pedestrians due to position of crossing, visibility of signal heads, and constrained visibility on approach.

Description:

A layby is provided on the south side of Dalmeny Street at its junction with Leith Walk. As shown in the photograph above, a large vehicle was parked in this loading bay, which obstructed forward visibility to the crossing downstream of Dalmeny Street.

The crossing is provided a short distance downstream of Dalmeny Street and at the stop line on Dalmeny Street the signal heads are not visible.

The driver / rider of a vehicle approaching Leith Walk would not have good forward visibility to the signal heads on approach when a vehicle is parked in the loading bay, and when stopped at the stop line they are likely to be focused on non-motorised users crossing and looking for a gap in southbound traffic to emerge into. All of the above could lead to a driver / rider being unaware of the traffic signals and proceeding across the stop line and striking and injuring a crossing non-motorised user.

Recommendation:

It is recommended that:

- Visibility to the crossing is maximised on the approach from Dalmeny Street.
- The position of the stop line on Dalmeny Street is relocated to provide appropriate visibility to the traffic signals downstream.
- Appropriate measures are provided to warn approaching drivers / riders of the location of the crossing.

Reference is also made to the previous Problem 3.2.12 above and to Police Scotland's comments which are contained in that problem.

Problem: 4.3.6

Location(s): Dalmeny Street at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles losing control when turning due to overrunning kerb line, resulting in vehicle occupants / riders sustaining personal injuries.

Description:

It was observed during the site visit that exiting vehicles were often cutting the corner at the junction of Dalmeny Street and Leith Walk and over running the footway. The above photograph shows the area where the footway slabs have been damaged by vehicle overrun.

There is a risk that this could result in a vehicle losing control and colliding with another vehicle on Leith Walk or colliding with a cyclist or a pedestrian.

Recommendation:

It is recommended that appropriate measures are provided to guide vehicles to the ramp down to Leith Walk.

Problem: 4.3.7

Location(s): Brunswick Street at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles striking planters and vehicle occupants / riders sustaining personal injuries.

Secondary risk of vehicles undertaking unsafe manoeuvres upon finding there to be no access onto Leith Walk, resulting in them colliding with other road users or street furniture.

Description:

During the site investigation access between Brunswick Street and Leith Walk had been closed by planters, as shown in the photographs above. It is understood that this is a temporary arrangement and that a more permanent arrangement is being considered.

Whilst the temporary arrangement is in place, the Audit Team have concerns that a vehicle could fail to observe the planters, particularly during the hours of darkness or periods of reduced visibility, which could lead them to collide with one of the planters.

It was noted that no advanced signage had been provided to warn the drivers / riders of approaching vehicles on Brunswick Street that it had been closed at Leith Walk. This could lead to vehicles attempting turning manoeuvres at the closure, which could lead to them overrunning the footway and potentially colliding with pedestrians or street furniture.

Recommendation:

It is recommended that:

- Appropriate measures are provided on the planters to improve their conspicuity during the hours of darkness or periods of reduced visibility; and
- Appropriate signage is provided on Brunswick Street to inform approaching drivers / riders that there is no access onto Leith Walk.

Problem: 4.3.8

Location(s): Pedestrian crossing across Leith Walk northbound, south of McDonald Road

Drawing(s): -

Summary: Risk of vehicles proceeding across stop line when not safe to do so, and striking and injuring crossing pedestrians whilst doing so, due to "see-through" to traffic signals downstream.

Description:

As shown in the photograph above, it is possible to see the traffic signals at the junction of Leith Walk, McDonald Road, and Brunswick Road from the upstream crossing.

When the crossing is on red, drivers / riders may see the green signal at the downstream junction and think that they can proceed across the stop line. This could lead to them striking and injuring crossing pedestrians.

Recommendation:

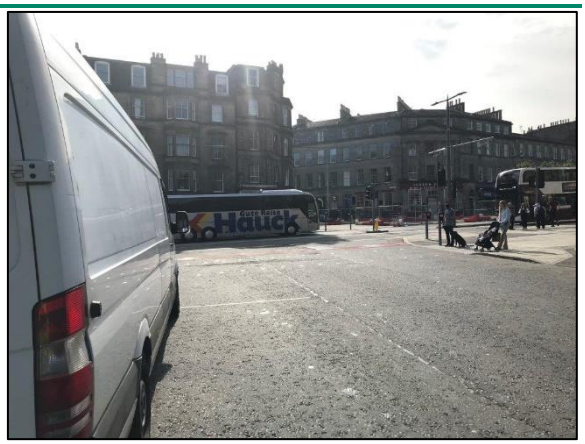
It is recommended that appropriate measures are provided to reduce the risk of see-through to the junction downstream from the signalised crossing.

Problem: 4.3.9

Location(s): Annandale Street at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles proceeding across stop line when not safe to do so and colliding with crossing non-motorised users or other vehicles, due to visibility to signal head being obscured by parked vehicles.



Description:

As shown in the photograph above, a van was parked on the north side of Annandale Street at its junction with Leith Walk. There are no kerbside restrictions at this location and the van blocked the entry to the cycleway and obscured visibility to the primary signal head.

If the secondary head was to be obscured by a queue of traffic, or were it to fail, and the primary signal head was to be obscured by a parked vehicle, there is a risk that the driver / rider of an approaching vehicle could fail to stop and could collide with a crossing non-motorised user or another vehicle.

Recommendation:

It is recommended that appropriate measures are provided to enhance the visibility of the signal heads.

Problem: 4.3.10

Location(s): Junction of Union Street and Leith Walk

Drawing(s): -

Summary: Risk of vehicles striking and injuring crossing pedestrians or cyclists due to intervisibility being obscured by parked vehicles.

Description:

No kerbside restrictions are provided on Leith Walk at its junction with Union Street. During the site investigation a vehicle was observed parked at the junction, obstructing intervisibility between the drivers / riders of approaching left turning vehicles and crossing non-motorised users. This could lead to vehicles turning into Union Street, failing to give way to crossing non-motorised users, and striking and injuring them.

Recommendation:

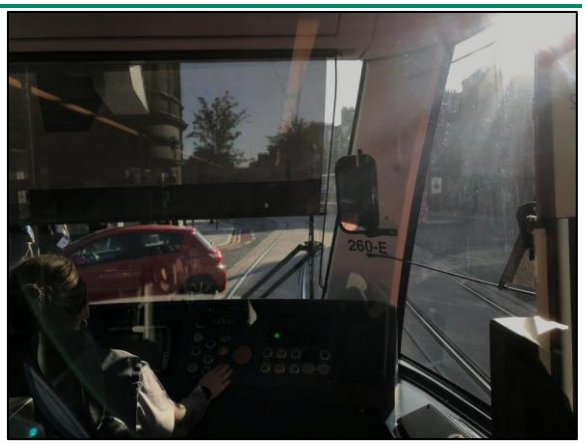
It is recommended that appropriate measures are provided to improve intervisibility at the junction.

Problem: 4.3.11

Location(s): Junction of Constitution Street, Duke Street, Great Junction Street, and Leith Walk

Drawing(s): -

Summary: Risk of vehicles being struck by trams due to queuing across tram lines.



Description:

During the site visit it was observed that there were eastbound vehicles on Duke Street queuing back across the junction with Constitution Street. This resulted in the tram lane being obstructed, which could result in a conflict between the tram and other vehicles. The Audit Team were informed by a tram driver that this was a regular occurrence which resulted in the tram being held up.

Recommendation:

It is recommended that appropriate measures are provided to discourage vehicles from queuing across the junction and obstructing the tram lines.

4.4 Non-Motorised User Provision

Problem: 4.4.1

Location(s): Melrose Drive at cruise terminal egress;

Crossing of Blenheim Place at junction with London Road

Drawing(s): -

Summary: Risk of visually impaired pedestrians inadvertently stepping onto the carriageway and being struck and injured by passing vehicles due to tactile paving being insufficiently deep.

Description:

Tactile paving has been provided on Melrose Drive at the cruise terminal egress and on Blenheim Place at its junction with London Road. The tactile paving that has been provided is insufficiently deep and could be missed by a visually impaired pedestrian crossing at these locations.

There is a risk that visually impaired pedestrians could inadvertently step out on the carriageway if they miss the tactile paving at these locations, which could result in them being struck and injured by vehicles.

Recommendation:

It is recommended that the tactile paving layouts are amended to reduce the risk of pedestrians missing the tactile paving.

Problem: 4.4.2

Location(s): Melrose Drive at mill access

Drawing(s): -

Summary: Risk of visually impaired pedestrians becoming stuck on the carriageway and being struck and injured by vehicles due to lack of delineation between carriageway and shared use footway.

Description:

At the access to ADM milling and Aggregate Industries on Melrose Drive, the footway ends to the rear of Melrose Drive and transitions into an area that is flush to the carriageway and separated from the carriageway by white lining.

The Audit Team have concerns that a visually impaired pedestrian could walk down into this area and become stuck on the carriageway to the absence of a level difference or other measures to delineate the footway and carriageway. This could lead to them being struck and injured by passing vehicles.

Recommendation:

It is recommended that appropriate measures are provided to delineate the footway and carriageway at this location.

Problem: 4.4.3

Location(s): Junction of Hudson Gate and Ocean Drive

Constitution Street at Bernard Street

East side of Leith Walk, south of Brunswick Street;

West side of Blenheim Place, at junction with London Road;

East side of island on northbound carriageway at Picardy Place

Drawing(s): -

Summary: Risk of users in mobility chairs overturning and sustaining personal injuries due to gradients of crossing points.

Description:

At several locations throughout the extents of the scheme gradients at crossing points were observed that would appear to pose a risk of overturning for users in mobility chairs.

If a gradient was too great, a user in a mobility chair could overturn, resulting in them sustaining personal injuries.

Recommendation:

It is recommended that the gradients at crossing points are suitable for all users.

Problem: 4.4.4

Location(s): Constitution Place at junction with Ocean Way

Drawing(s): -

Summary: Risk of visually impaired pedestrians inadvertently stepping onto the carriageway and being struck and injured by passing vehicles due to absence of tactile paving.

Description:

As shown in the photograph above, no tactile paving is provided on Constitution Place at its junction with Ocean Way. This could lead to a visually impaired pedestrian being unaware that they are stepping onto the carriageway, which could result in them being struck and injured by an approaching / turning vehicle.

Recommendation:

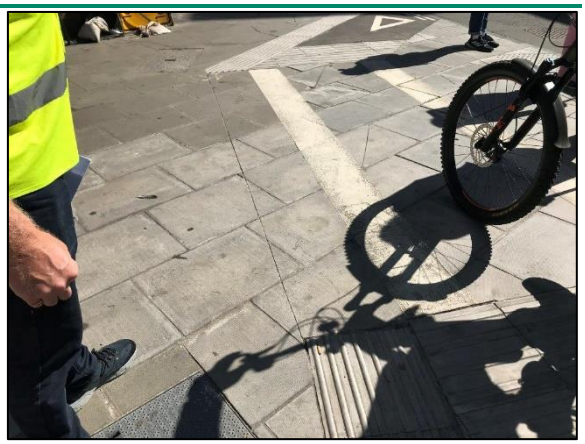
It is recommended that appropriate tactile paving is provided.

Problem: 4.4.5

Location(s): Duke Street at junction with Leith Walk, Great Junction Street, and Constitution Street

Drawing(s): -

Summary: Risk of visually impaired pedestrians being unable to locate crossing due to confusing tactile paving layout, resulting in them crossing at unsafe locations and being struck and injured whilst doing so.



Description:

On the north side of the crossing of Duke Street at its junction with Leith Walk and Constitution Street, measures are provided to aid a visually impaired pedestrian in locating the controlled crossing. No tactile paving is provided to the rear of the cycleway, meaning that a visually impaired pedestrian approaching from the east or west may find it difficult to locate the crossing. This could lead to them crossing at unsafe locations and being struck and injured whilst doing so.

Recommendation:

It is recommended that the tactile paving layout is amended to enable it to be detected by a visually impaired pedestrian approaching from the east or west.

Problem: 4.4.6

Location(s): East side of Leith Walk, between Crown Street and Duke Street

Drawing(s): -

Summary: Risk of visually impaired pedestrians being unable to locate crossing points to floating bus stop, leading to them crossing at unsafe locations and being struck and injured by cyclists.

Description:

As shown in the photograph above, only one row of tactile paving is provided between the footway and cycleway at the floating bus stop at this location. The tactile paving does not extend beyond the corduroy paving that runs alongside the cycleway.

Given the depth of tactile paving provided, this could lead to visually impaired pedestrians being unable to detect it. This could lead to visually impaired pedestrians stepping into the cycleway out with the dedicated crossing points and potentially into the path of an oncoming cyclist.

Recommendation:

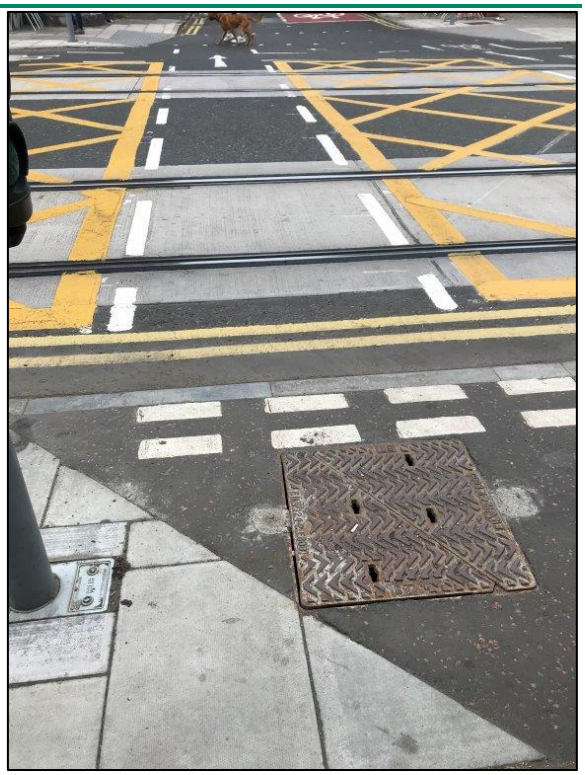
It is recommended that the depth of the tactile paving is increased.

Problem: 4.4.7

Location(s): West side of Leith Walk, opposite Manderston Street

Drawing(s): -

Summary: Risk of cyclists crossing when not safe to do so and being struck and injured by vehicles due to lack of clarity regarding the requirement to stop.



Description:

As shown in the photograph above, a give way line is provided within the cycle crossing from the west side of Leith Walk at Manderston Street. This could lead a cyclist to believe that they do not need to obey the traffic signals and could cross and strike a crossing pedestrian or be struck by a vehicle on Leith Walk.

Recommendation:

It is recommended that the existing give way line is replaced by a stop line (to Diag. 1001, TSRGD 2016).

Problem: 4.4.8

Location(s): East side of Leith Walk, around Inchkeith House / 165 Leith Walk

Drawing(s): -

Summary: Risk of pedestrians tripping or cyclists losing control, due to carriageway / footway surfacing.

Description:

As shown in the photographs above, the existing carriageway and footway surfacing in this location were observed to be in poor condition. There is a risk that this could lead pedestrians to trip and fall or cyclists to lose control and fall. This could result in non-motorised users sustaining personal injuries.

Recommendation:

It is recommended that the carriageway and footway surfaces are made good.

Problem: 4.4.9

Location(s): West side of Leith Walk, at junction with Balfour Street

Drawing(s): -

Summary: Risk of cyclists proceeding across stop line when vehicle aspect is on green and being struck and injured by left turning vehicles.

Description:

During the site investigation it was observed that several cyclists passed through the Leith Walk / Balfour Street junction at this location when the cycle aspect was on red and the vehicle aspect was on green. These cyclists were observed to be looking at the traffic signal head rather than the low level cycle signal.

Cyclists crossing the stop line during the traffic stage are at risk of being left-hooked by left-turning vehicles, who may not be expecting cyclists to re-join the carriageway at this location.

Recommendation:

It is recommended that the position of the low-level cycle signal is amended so as to be clear to approaching cyclists that it is this traffic signal that they should comply with.

Problem: 4.4.10

Location(s): East side of Leith Walk, south of Pilrig Street

East side of Leith Walk, south of Albert Street

Drawing(s): -

Summary: Risk of crossing pedestrians stepping into the path of oncoming vehicles due to intervisibility at crossing being obscured by parked vehicles.

Description:

Parking bays are provided immediately upstream of two uncontrolled crossings across Leith Walk: on the west side, south of Pilrig Street, and on the east side, south of Albert Street.

Vehicles parked in the bay adjacent to these crossings would likely obstruct intervisibility between the drivers / riders of approaching vehicles and pedestrians stepping onto the carriageway. This could result in vehicles striking and injuring crossing pedestrians.

Recommendation:

It is recommended that the extents of the parking bays are reduced to provide appropriate visibility at the crossings.

Problem: 4.4.11

Location(s): North side of Pilrig Street at junction with Leith Walk

Drawing(s): -

Summary: Risk of cyclists colliding due to unclear priority.

Description:

As shown in the photograph above, limited road markings are provided to indicate which cycle movement has priority at this location. It is assumed that the eastbound movement on Pilrig Street is to give way to the northbound movement on Leith Walk, but only one row of markings to Diag. 1003 (TSRGD, 2016) are provided, and these could be missed by cyclists due to being immediately adjacent to the ladder paving.

There is a risk that there could be confusion between cyclists as to which movement has priority, which could lead to cyclists colliding and sustaining personal injuries.

Recommendation:

It is recommended that appropriate measures are provided to clarify which movements have priority.

Problem: 4.4.12

Location(s): Brunswick Road at junction with Leith Walk

Drawing(s): -

Summary: Risk of pedestrians slipping on chamber cover resulting in them falling and sustaining personal injuries.

Description:

During the site investigation it was noted that there is a chamber cover that has a low skid / slip resistance on Brunswick Road at the junction with Leith Walk. This cover is within the crossing extents.

There is a risk that a pedestrian could slip on the chamber cover and fall, resulting in them sustaining personal injuries.

Recommendation:

It is recommended that the cover is replaced or that appropriate measures are provided to reduce the risk of pedestrians slipping on the cover.

Problem: 4.4.13

Location(s): Elm Row

Drawing(s): -

Summary: Risk of pedestrians being struck and injured by cyclists or motorised vehicles due to lack of delineation between carriageway, footway, and cycleway.

Description:

The footway and carriageway at Elm Row are all flush, and, beyond different surfacing, no measures are provided to delineate them. The Audit Team have concerns that this could lead to confusion for pedestrians, who could inadvertently enter the carriageway and be struck and injured by motorised vehicles.

It should also be noted that there are parts of Elm Row where no delineation is provided between the cycleways and the adjacent footways, and there is a risk of conflict between pedestrians and cyclists at these points.

There is also a risk that cyclists joining the southbound cycleway from Montgomery Street could cut across the footway and potentially strike and injure pedestrians whilst doing so. No formal link appears to be proposed between Montgomery Street and the cycleways on Leith Walk, although it should be noted that Montgomery Street was closed and not complete at the time of the site investigation.

Recommendation:

It is recommended that appropriate measures are provided to delineate the footways from the carriageway and cycleway.

Problem: 4.4.14

Location(s): West side of Leith Walk, at junction with Annandale Street

Drawing(s): -

Summary: Risk of cyclists cutting corner of cycleway and striking and injuring pedestrians whilst doing so.

Description:

A very tight radius is provided in the cycleway on the west side of Leith Walk at the junction with Annandale Street. The radius is between the southbound cycleway and the cycleway on the south side of Annandale Street, and is shown in the photograph above circled in yellow.

There is a risk that the tight radius could lead to cyclists cutting this corner which could result in them striking and injuring pedestrians whilst doing so.

Recommendation:

It is recommended that an appropriate radius is provided in the cycleway at this location.

Problem: 4.4.15

Location(s): Elm Row

Drawing(s): -

Summary: Risk of cyclists striking overhanging vegetation and being unseated, resulting in personal injury.

Secondary risk of cyclists encroaching onto footways to avoid overhanging vegetation and striking and injuring pedestrians whilst doing so.

Description:

As shown in the photograph above, vegetation was observed to be overhanging the cycleways on Elm Row during the site investigations. It should be noted that during the site investigations these cycleways were not yet open.

If the cycleways are opened and the vegetation is not appropriately trimmed / cut back, there is a risk of cyclists striking overhanging vegetation and being unseated, resulting in personal injury.

There is also a risk of cyclists encroaching onto footways to avoid overhanging vegetation and striking and injuring pedestrians whilst doing so.

Recommendation:

It is recommended that the vegetation is appropriately trimmed / cut back.

Problem: 4.4.16

Location(s): Elm Row, at parking area

Drawing(s): -

Summary: Risk of parked or loading vehicles overhanging or unloading items into cycleway, leading to cyclists striking them and sustaining personal injuries.

Description:

At the southbound cycleway on Elm Row, no measures are provided between the parking area and the cycleway to prevent vehicles from overhanging the cycleway or loading within the cycleway. There is a risk that this could lead to vehicles striking cyclists when reversing into a space, cyclists striking vehicles overhanging the cycleway, or cyclists striking objects or pedestrians whilst materials are being loaded or unloaded.

Recommendation:

It is recommended that appropriate measures are provided to reduce the risk of parked or loading vehicles overhanging or unloading items into cycleway.

Problem: 4.4.17

Location(s): London Road, east of junction with Leith Walk

Drawing(s): -

Summary: Risk of cyclists losing control when undertaking sharp turning manoeuvres, resulting in them falling and sustaining personal injuries.

Description:

As shown in the photographs above, it was noted during the site investigation that the changes of direction in the cycle transitions between the cycleways and London Road are very angular and little to no radius is provided. There is a risk that a cyclist using a bicycle with a large turning radius may not be able to make these turning manoeuvres. This could lead to them losing control and falling whilst attempting to do so, which could result in them sustaining personal injuries.

Recommendation:

It is recommended that appropriate radii are provided in the cycleways that are suitable for use by all types of bicycles.

Problem: 4.4.18

Location(s): East side of Leith Walk, north-east of Picardy Place gyratory

Drawing(s): -

Summary: Risk of cyclists attempting to cross, finding there is no facility opposite, and continuing into pedestrian crossing or footway and striking and injuring a pedestrian whilst doing so.

Description:

During the site investigation it was noted that a cycle crossing across Leith Walk, north-east of Picardy Place gyratory, did not link to infrastructure on the west side of Leith Walk. There is a risk that a cyclist could attempt to cross at this location, find there is no facility opposite, and continue into the pedestrian crossing and into conflict with crossing pedestrians or mounting the footway and striking and injuring a pedestrian whilst doing so.

Recommendation:

It is recommended that the cycle crossing is removed.

Problem: 4.4.19

Location(s): Leith Walk at entry to Gayfield Square

Drawing(s): -

Summary: Risk of pedestrians tripping on metal plate, resulting in them sustaining personal injuries.

Description:

As show in the photograph above, a metal plate is located on the west side of Leith Walk at the entry to Gayfield Square. This metal plate has an upstand and is a trip hazard for pedestrians. A pedestrian could trip on the metal plate, fall to the ground, and sustain a personal injury.

The Audit Team appreciate that this metal plate is likely covering an area of uneven surfacing and will be a temporary feature.

Recommendation:

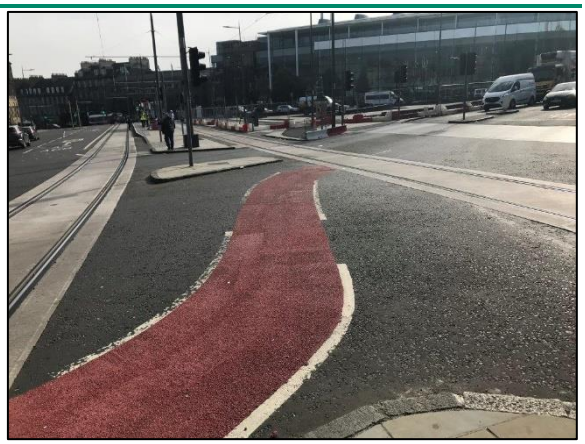
It is recommended that the metal plate is removed and that the surfacing underneath is made good.

Problem: 4.4.20

Location(s): West side of Picardy Place gyratory

Drawing(s): -

Summary: Risk of vehicle striking and injuring a cyclist due to alignment of advisory cycle lane.



Description:

On the west side of Picardy Place gyratory, the advisory cycle lane has an S-shape. This takes cyclists from the offside of the ahead lane to the nearside of Broughton Street.

The Audit Team have concerns that the alignment of the cycle lane could lead to cyclists coming into conflict with vehicles behind them, as following the alignment of the cycle lane may bring them across the path of a vehicle following behind them. If the driver / rider was unaware of the cycle lane, they could expect the cyclist to turn right and collide with them as they cross in front of the vehicle.

Recommendation:

Notwithstanding the recommendation in 3.3.33 above; it is recommended that the arrangement is appropriately amended to reduce the risk of a cyclist being struck by a following vehicle.

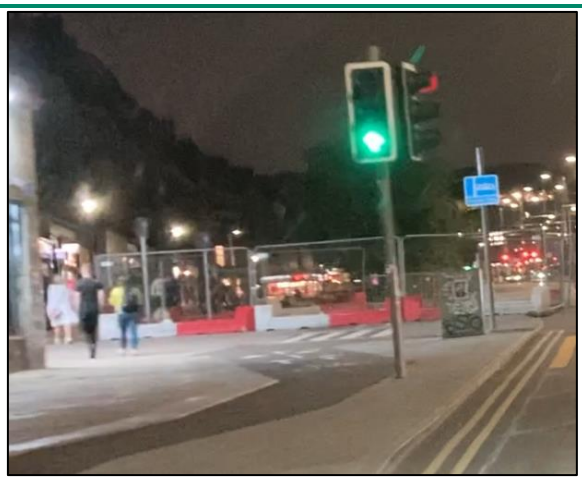
Problem: 4.4.21

Location(s): Montgomery Steet at Elm Row

Drawing(s): -

Summary: Risk of cyclists striking and injuring pedestrians due to route not being continuous.

Secondary risk of cyclists merging onto carriageway when not safe to do so and being struck and injured by vehicles, due to route not being continuous.



Description:

The new section of cycleway on Elm Row is not currently open to the public. A cyclist travelling southbound would either have to transition onto the carriageway or continue across the footway on Elm Row. If they were to merge onto the carriageway and into traffic, there is a risk that they could be struck and injured by a passing vehicle whilst doing so. If they were to cut across a footway, there is a risk that they could strike and injure a pedestrian whilst doing so.

Recommendation:

It is recommended that suitable infrastructure is provided to enable cyclists to continue southbound whilst the section of cycleway on Elm Row is closed.

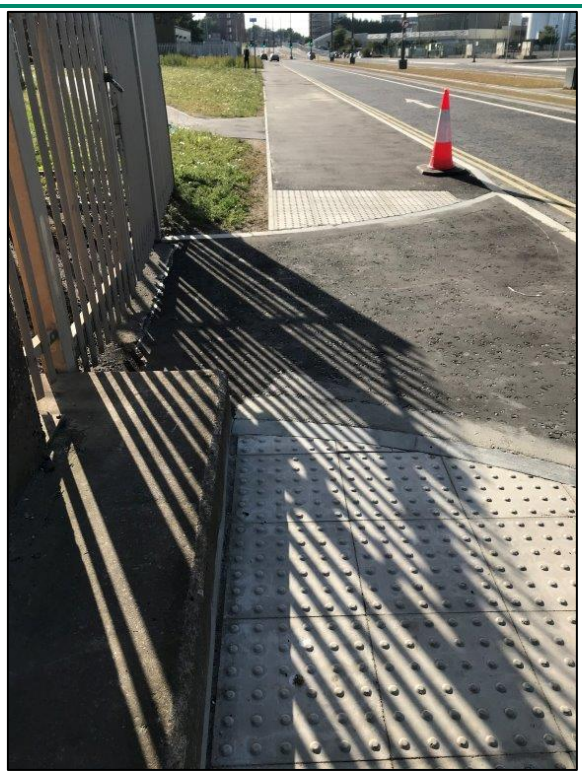
4.5 Road Signs, Carriageway Markings and Lighting

Problem: 4.5.1

Location(s): Substation access on south side of Melrose Drive

Drawing(s): -

Summary: Risk of vehicles turning right across tram tracks and being struck by trams whilst doing so, due to absence of signage or road markings to inform users to turn left.



Description:

As shown in the photograph above, no road markings are provided at the substation access on the south side of Melrose Drive. A left turn arrow (to Diag. 1038, TSRGD 2016) was proposed in the design drawings, however this has not been laid.

If no such marking is provided, there is a risk that a vehicle could turn right across the tram tracks and be struck by a tram whilst doing so.

Recommendation:

It is recommended that appropriate road markings and / or signage are provided to inform users of the need to turn left.

Problem: 4.5.2

Location(s): Crown Place, at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles failing to stop due to absence of stop line, resulting in them striking crossing non-motorised users or emerging into the path of oncoming vehicles.

Description:

During the site investigation it was noted that no stop line is provided next to the STOP road markings on Crown Place. The stop line is provided at the junction with Leith Walk.

This could lead to drivers / riders being unclear as to where they should stop and a risk that they could fail to give way to crossing cyclists, which could result in them striking and injuring cyclists. There is also a risk that vehicles which fail to stop at the junction could collide with a passing tram. It is noted that the "Stop" marking is required by the Tram guidance.

It should be noted that if they stop where the markings and signage is provided, they are unlikely to have appropriate visibility (see problem ref 3.2.19).

Recommendation:

It is recommended that an appropriate road marking is provided to Diag. 1002.1 (TSRGD, 2016).

Problem: 4.5.3

Location(s): West side of Leith Walk, south of Casselbank Street

Drawing(s): -

Summary: Risk of vehicles undertaking late lane changes to avoid entering tram lane resulting in side-swipe collisions, due to start of tram lane sign being obscured by parked vehicles.

Description:

As shown in the photograph above, the start of tram lane sign on Leith Walk northbound can be obscured by vehicles parked in the layby. This could lead to drivers / riders being unaware of the start of the tram lane, resulting in them undertaking late lane changes and side-swipe collisions occurring.

Recommendation:

It is recommended that appropriate forward visibility is provided to the start of tram lane sign.

Problem: 4.5.4

Location(s): Jameson Place, at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles failing to stop at stop line due to signal head being obscured by sign face, resulting in them striking and injuring crossing non-motorised users or colliding with other vehicles.

Description:

As shown in the photograph above, a vehicle approaching Leith Walk from Jameson Place is unlikely to have visibility to the primary signal head at the junction with Balfour Street due to the position of the start of tram lane sign. If the secondary signal head was not functioning, there is a risk a driver could be unaware that the traffic signals are on red, and they could proceed across the stop line and strike a crossing non-motorised user or another vehicle.

Recommendation:

It is recommended that the traffic sign face is repositioned so that appropriate visibility to the signal heads is provided.

Problem: 4.5.5

Location(s): Leith Walk at Orchardfield Lane

Drawing(s): -

Summary: Risk of vehicles on southbound carriageway crossing central reserve and colliding with a tram or a northbound vehicle, due to signage of car park on west side of road.

Description:

During the site investigation it was noted that signage had been added for a car park on the west side of Leith Walk, accessed via Orchardfield Lane. The signage had been added on both the northbound and southbound approaches.

There is a risk that a vehicle travelling southbound could cross the central reserve in an attempt to access the car park and could collide with a tram or a northbound vehicle whilst doing so.

Recommendation:

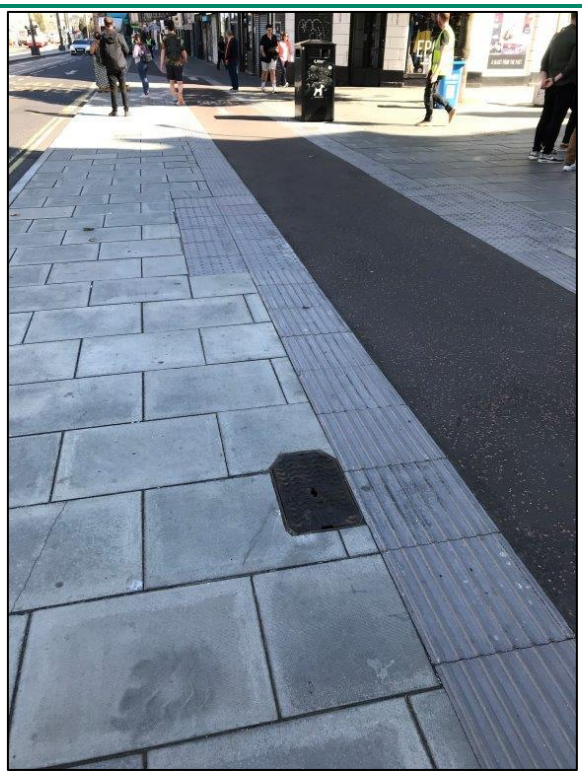
It is recommended that the signage facing southbound vehicles is removed.

Problem: 4.5.6

Location(s): Leith Walk – various sites

Drawing(s): -

Summary: Risk of cyclists failing to slow and / or give way to crossing pedestrians, resulting in them striking and injuring crossing pedestrians, due to absence of mini zebra road markings.



Description:

During the site investigation it was noted that many of the mini zebra crossing road markings have not been laid. These provide pedestrian priority at crossing points and alert cyclists of the need to slow down and give way to pedestrians.

If these road markings are not provided, there is a risk of cyclists failing to slow and give way to crossing pedestrians, which could result in collisions, as well as an increased severity of collision if a collision was to occur.

Recommendation:

It is recommended that appropriate measures are provided to encourage cyclists to slow and give way to crossing pedestrians.

Problem: 4.5.7

Location(s): Annandale Street eastbound, on approach to junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles braking sharply due to provision of road markings, resulting in rear-end shunt collisions.

Description:

As shown in the photograph above, there are series of random traverse road markings on Annandale Street on the approach to Leith Walk. There is a risk that a driver / rider could mistakenly believe that one of the traverse road markings upstream of the stop line is the stop line, which could lead to them braking sharply and could result in rear-end shunt collisions.

Recommendation:

It is recommended that the transverse lines on the approach to the signalised junction are removed.

Problem: 4.5.8

Location(s): Blenheim Place at junction with London Road

Drawing(s): -

Summary: Risk of westbound vehicles colliding with kerb and losing control, or mounting footway and striking and injuring pedestrians, due to confusing provision of road markings.

Description:

During the site investigation it was noted that the road markings on Blenheim Place had not been implemented as per the design. As shown in the photo above, the road markings appear to relate to the previous arrangement and could lead a westbound vehicle into the kerb line. This could lead to the vehicle losing control or mounting the footway and striking and injuring a pedestrian.

Recommendation:

It is recommended that the road markings are amended to make it clear that the road is two-way and not to direct drivers / riders into the kerb line.

Problem: 4.5.9

Location(s): Leith Walk northbound, south of junction with Union Street

Drawing(s): -

Summary: Risk of vehicles making sharp lane changes resulting in side-swipe collisions, due to restricted visibility to tram lane sign.

Description:

As shown in the photograph above, during the site investigation it was observed that the tram lane sign at this location had been turned. Additionally, it is positioned at a location where visibility to it could be obscured by a large vehicle loading or in a parked position.

There is a risk that the restricted visibility to the sign could lead to vehicles being unaware of the tram lane restrictions, beginning to change lane and then making a sudden manoeuvre upon realising that the adjacent lane is tram only. This could result in side-swipe collisions.

Recommendation:

It is recommended that the sign is repositioned to maximise visibility to the sign and that it is orientated to be visible to oncoming traffic.

Problem: 4.5.10

Location(s): York Place eastbound, west of junction with Broughton Street

Drawing(s): -

Summary: Risk of vehicles making sharp lane changes resulting in side-swipe collisions, due to absence of signage of bus lane.

Description:

No signage was observed of the bus lane on York Place eastbound during the site investigation. The Audit Team are concerned that drivers / riders could undertake sudden manoeuvres upon realising that they are about to enter a bus lane, which could lead to side-swipe collisions.

Recommendation:

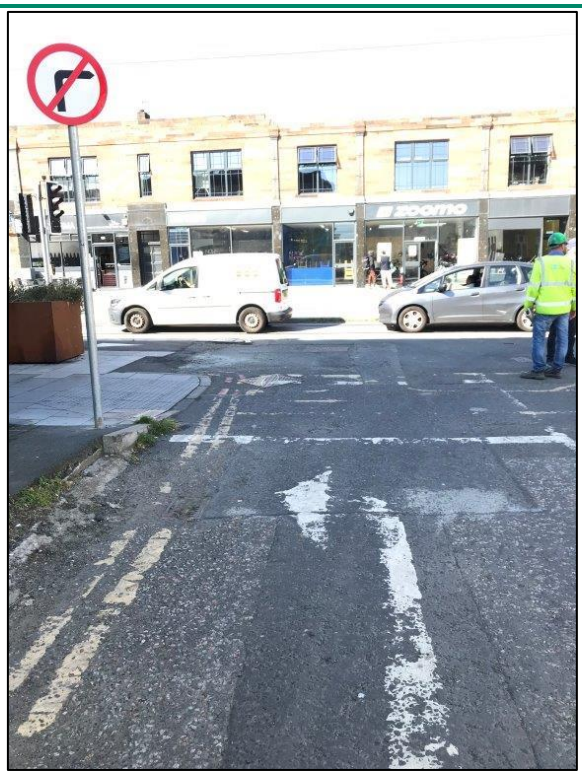
It is recommended that appropriate signage to Diags. 958 and 959B (TSRGD, 2016) are provided.

Problem: 4.5.11

Location(s): Access to 165 Leith Walk at junction with Leith Walk

Drawing(s): -

Summary: Risk of vehicles failing to stop at stop line, resulting in them emerging onto Leith Walk and being struck by passing vehicles, due to road markings being worn.



Description:

As shown in the photograph above, both the left turn arrow and stop line are very worn at this location. There is a risk that a driver / rider could fail to stop at this location due to the condition of the stop line. This could lead to them emerging onto Leith Walk when it is not safe to do so and colliding with another vehicle.

Recommendation:

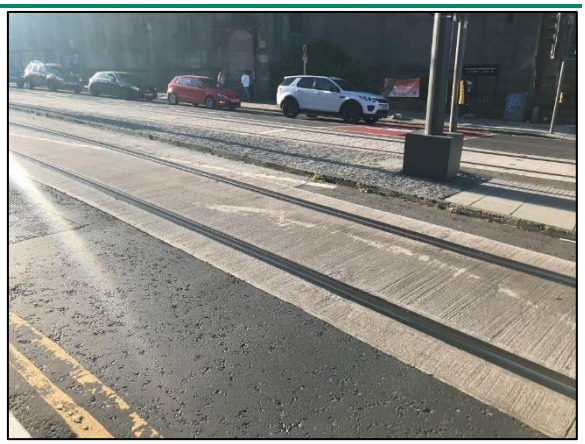
It is recommended that the road markings are appropriately refreshed.

Problem: 4.5.12

Location(s): York Place westbound, west of Picardy Place

Drawing(s): -

Summary: Risk of vehicles making sudden manoeuvres resulting in side-swipe collisions, due to worn road markings.



Description:

As shown in the photograph above, the deflection arrow at this location was very worn. There is a risk that the driver / rider of an approaching vehicle could fail to observe the deflection arrow, due to its condition, and make a sudden manoeuvre upon realising that they are about to enter the tram only lane. This could result in side-swipe collisions.

Recommendation:

It is recommended that the road marking is appropriately refreshed.

Problem: 4.5.13

Location(s): Leith Walk northbound on approach to junction with London Road

Drawing(s): -

Summary: Risk of vehicles attempting to turn right from nearside lane on Leith Walk, resulting in side-swipe collisions, due to road markings not having been ineffectively removed.

Description:

During the site investigation it was noted that it appeared that the right turn arrows in the nearside lane had been attempted to be removed at this location. However, they were still visible, as shown in the photograph above.

There is a risk that a driver / rider could believe that they can turn right from the nearside lane at this location, which would lead to them having to merge at the entry to London Road and could lead to a side-swipe collision.

Recommendation:

It is recommended that the road markings are amended to clarify that the nearside lane is ahead only.

Problem: 4.5.14

Location(s): York Place eastbound at junction with Broughton Street

Drawing(s): -

Summary: Risk of side swipe collisions due to vehicles merging due to the presence of bus lane.

Secondary risk of vehicles braking sharply when trying to merge, leading to rear-end shunt collisions, due to the presence of bus lane.

Description:

A bus lane is provided in the nearside lane on York Place eastbound. Whilst the bus lane terminates upstream of the Picardy Place gyratory, limited storage is provided. At the junction, the nearside lane is for northbound and eastbound traffic, while the offside lane is for southbound traffic.

A significant proportion of the traffic is likely to wish to be in the nearside lane at the junction, meaning that vehicles will have to merge into the nearside lane from the offside lane at, or on the immediate approach to, the junction. There is a risk of side swipe collisions when vehicles are merging, while there is a risk that a vehicle may brake suddenly when trying to merge, which could lead to rear-end shunt collisions.

Recommendation:

Without prejudice to problem 4.5.11, it is recommended that either:

- The bus lane is removed or terminates further in advance of the traffic signals; or
- Improved signage is provided to inform drivers / riders of the requirement to merge.

Problem: 4.5.15

Location(s): Leith Walk at junction with Balfour Street

Drawing(s): -

Summary: Risk of head-on collisions or side swipe collisions between vehicles entering Balfour Street and exiting vehicles due to the lane configuration and cycle lane markings.

Description:

As can be seen in the above photograph, the cycle lane from Leith Walk extends for a short distance into Balfour Street. This cycle lane marking effectively pushes general vehicles intending to turn left into Balfour Street out towards the centre of the road. This arrangement places vehicles into direct conflict with any vehicles exiting the side road or waiting at the stop line. This could result in a head-on or side swipe collision.

Recommendation:

It is recommended that the road markings are amended to ensure there is adequate effective carriageway width to reduce the potential for vehicle to vehicle conflict.

End of problems / recommendations raised in this Stage 3 Road Safety Audit

5. Audit Team Statement

We certify that this Road Safety Audit has been carried out in accordance with GG119.

AUDIT TEAM LEADER:

Name:	Derek Williamson CEng FIHE RegRSA (IHE) Certificate of Competency in Road Safety Audit	Signed:	
Position:	Associate Director	Date: 29/09/2023	
Organisation:	AECOM		
Address:	1 Tanfield Edinburgh EH3 5DA		

AUDIT TEAM MEMBER:

Name:	William Prentice MEng(hons) MCIHT MSoRSA Certificate of Competency in Road Safety Audit	Signed:	
Position:	Principal Engineer	Date: 29/09/2023	
Organisation:	AECOM		

Enquiries regarding this Road Safety Audit should be made to the Audit Team Leader.

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Appendix A Documents Submitted to the Audit Team

The following documents were submitted as part of the Road Safety Audit:

Document Number	Rev	Description	Date
		DOCUMENTS	
-	-	RSA Brief Stage 3 YP to NH	Mar 2023
-	-	Standards List	Sep 2022
-	-	Appendix G – Listed Building and Monuments	Apr 2018
-	-	Appendix O – Traffic survey count data	Jun 2018
RSA 17_012	-	Tram Extension RSA1	Apr 2018
-		Tram Extension RSA1 Designers Response	Apr 2018
RSA/252/S1-A		Ocean Terminal, Edinburgh, Bus Facilities RSA 1	Jun 2020
RSA 316_S2A	-	Tram Extension RSA 2	Apr 2021
ETYN-SEF-XXX-03-RP-D-0001	P04	Tram Extension RSA 2 Engineers Response	Apr 2021
ETYN-SEF-XXX-03-RP-D-0002	P03	Tram Extension RSA 2 Engineers Response	May 2021
		DRAWINGS	
ETYN-SEF-XXX-12-DR-H-2000	C01	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 1 of 7	May 2021
ETYN-SEF-XXX-12-DR-H-2001	C02	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 2 of 7	Aug 2021
ETYN-SEF-XXX-12-DR-H-2002	C01	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 3 of 7	May 2021
ETYN-SEF-XXX-12-DR-H-2003	C01	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 4 of 7	May 2021
ETYN-SEF-XXX-12-DR-H-2004	C01	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 5 of 7	May 2021
ETYN-SEF-XXX-12-DR-H-2005	C01	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 6 of 7	May 2021
ETYN-SEF-XXX-12-DR-H-2006	C01	Newhaven-Ocean Teminal-Trackworks Layout. Sheet 7 of 7	May 2021
ETYN-SEF-XXX-12-DR-H-2500	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 1	May 2021
ETYN-SEF-XXX-12-DR-H-2501	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 2	May 2021
ETYN-SEF-XXX-12-DR-H-2502	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 3	May 2021
ETYN-SEF-XXX-12-DR-H-2503	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 4	May 2021
ETYN-SEF-XXX-12-DR-H-2504	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 5	May 2021
ETYN-SEF-XXX-12-DR-H-2505	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 6	May 2021
ETYN-SEF-XXX-12-DR-H-2506	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 7	May 2021
ETYN-SEF-XXX-12-DR-H-2507	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 8	May 2021
ETYN-SEF-XXX-12-DR-H-2508	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 9	May 2021
ETYN-SEF-XXX-12-DR-H-2509	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 10	May 2021
ETYN-SEF-XXX-12-DR-H-2510	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 11	May 2021

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ETYN-SEF-XXX-12-DR-H-2511	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 12	May 2021
ETYN-SEF-XXX-12-DR-H-2512	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 13	May 2021
ETYN-SEF-XXX-12-DR-H-2513	C02	Section York Place-Ocean Terminal Trackworks Layout Sheet 14	Dec 2021
ETYN-SEF-XXX-12-DR-H-2514	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 15	May 2021
ETYN-SEF-XXX-12-DR-H-2515	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 16	May 2021
ETYN-SEF-XXX-12-DR-H-2516	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 17	May 2021
ETYN-SEF-XXX-12-DR-H-2517	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 18	May 2021
ETYN-SEF-XXX-12-DR-H-2518	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 19	May 2021
ETYN-SEF-XXX-12-DR-H-2519	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 20	May 2021
ETYN-SEF-XXX-12-DR-H-2520	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 21	May 2021
ETYN-SEF-XXX-12-DR-H-2521	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 22	May 2021
ETYN-SEF-XXX-12-DR-H-2522	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 23	May 2021
ETYN-SEF-XXX-12-DR-H-2523	C01	Section York Place-Ocean Terminal Trackworks Layout Sheet 24	May 2021
ETYN-SEF-18X-15-DR-Z-0201	C07	Ducting Layout Plan View Sheet 01 of 39	Aug 2022
ETYN-SEF-18X-15-DR-Z-0202	C04	Ducting Layout Plan View Sheet 02 of 39	Mar 2022
ETYN-SEF-18X-15-DR-Z-0203	C04	Ducting Layout Plan View Sheet 03 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0204	C03	Ducting Layout Plan View Sheet 04 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0205	C04	Ducting Layout Plan View Sheet 05 of 39	Sep 2021
ETYN-SEF-18X-15-DR-Z-0206	C03	Ducting Layout Plan View Sheet 06 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0207	C04	Ducting Layout Plan View Sheet 07 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0208	C03	Ducting Layout Plan View Sheet 08 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0209	C04	Ducting Layout Plan View Sheet 09 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0210	C02	Ducting Layout Plan View Sheet 10 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0211	C02	Ducting Layout Plan View Sheet 11 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0212	C02	Ducting Layout Plan View Sheet 12 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0213	C02	Ducting Layout Plan View Sheet 13 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0214	C02	Ducting Layout Plan View Sheet 14 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0215	C03	Ducting Layout Plan View Sheet 15 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0216	C06	Ducting Layout Plan View Sheet 16 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0217	C03	Ducting Layout Plan View Sheet 17 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0218	C03	Ducting Layout Plan View Sheet 18 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0219	C03	Ducting Layout Plan View Sheet 19 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0220	C04	Ducting Layout Plan View Sheet 20 of 39	Jun 2021

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ETYN-SEF-18X-15-DR-Z-0221	C03	Ducting Layout Plan View Sheet 21 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0222	C04	Ducting Layout Plan View Sheet 22 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0223	C03	Ducting Layout Plan View Sheet 23 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0224	C02	Ducting Layout Plan View Sheet 24 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0225	C02	Ducting Layout Plan View Sheet 25 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0226	C03	Ducting Layout Plan View Sheet 26 of 39	Dec 2021
ETYN-SEF-18X-15-DR-Z-0227	C02	Ducting Layout Plan View Sheet 27 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0228	C03	Ducting Layout Plan View Sheet 28 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0229	C03	Ducting Layout Plan View Sheet 29 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0230	C02	Ducting Layout Plan View Sheet 30 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0231	C02	Ducting Layout Plan View Sheet 31 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0232	C02	Ducting Layout Plan View Sheet 32 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0233	C02	Ducting Layout Plan View Sheet 33 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0234	C02	Ducting Layout Plan View Sheet 34 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0235	C02	Ducting Layout Plan View Sheet 35 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0236	C02	Ducting Layout Plan View Sheet 36 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0237	C02	Ducting Layout Plan View Sheet 37 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0238	C02	Ducting Layout Plan View Sheet 38 of 39	Jun 2021
ETYN-SEF-18X-15-DR-Z-0239	C03	Ducting Layout Plan View Sheet 39 of 39	Oct 2021
ETYN-SEF-XXX-14-DR-D-0001	C16	Surface Water Drainage Sheet 1	Jun 2022
ETYN-SEF-XXX-14-DR-D-0002	C15	Surface Water Drainage Sheet 2	Jun 2022
ETYN-SEF-XXX-14-DR-D-0003	C18	Surface Water Drainage Sheet 3	Jun 2022
ETYN-SEF-XXX-14-DR-D-0004	C12	Surface Water Drainage Sheet 4	Feb 2022
ETYN-SEF-XXX-14-DR-D-0005	C09	Surface Water Drainage Sheet 5	Jun 2022
ETYN-SEF-XXX-14-DR-D-0006	C09	Surface Water Drainage Sheet 6	Jun 2022
ETYN-SEF-XXX-14-DR-D-0007	C06	Surface Water Drainage Sheet 7	May 2021
ETYN-SEF-XXX-14-DR-D-0008	C10	Surface Water Drainage Sheet 8	Jul 2021
ETYN-SEF-XXX-14-DR-D-0009	C06	Surface Water Drainage Sheet 9	Jul 2021
ETYN-SEF-XXX-14-DR-D-0010	C12	Surface Water Drainage Sheet 10	Jun 2022
ETYN-SEF-XXX-14-DR-D-0011	C12	Surface Water Drainage Sheet 11	Jun 2022
ETYN-SEF-XXX-14-DR-D-0012	C11	Surface Water Drainage Sheet 12	Jun 2022
ETYN-SEF-XXX-14-DR-D-0013	C10	Surface Water Drainage Sheet 13	Mar 2022
ETYN-SEF-XXX-14-DR-D-0014	C09	Surface Water Drainage Sheet 14	Jun 2021
ETYN-SEF-XXX-14-DR-D-0015	C13	Surface Water Drainage Sheet 15	Mar 2022
ETYN-SEF-1XX-03-DR-C-0101	C01	York Place Crossover Protection Lane Widths	Jan 2023
ETYN-SEF-XXX-03-DR-D-1101	C02	Kerbs Footways and Paved Areas Sheet 1	Jun 2022
ETYN-SEF-XXX-03-DR-D-1102	C04	Kerbs Footways and Paved Areas Sheet 2	Jan 2022
ETYN-SEF-XXX-03-DR-D-1103	C04	Kerbs Footways and Paved Areas Sheet 3	Feb 2022
ETYN-SEF-XXX-03-DR-D-1104	C03	Kerbs Footways and Paved Areas Sheet 4	Jan 2022
ETYN-SEF-XXX-03-DR-D-1105	C03	Kerbs Footways and Paved Areas Sheet 5	Jan 2022

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ETYN-SEF-XXX-03-DR-D-1106	C02	Kerbs Footways and Paved Areas Sheet 6	Aug 2022
ETYN-SEF-XXX-03-DR-D-1107	C01	Kerbs Footways and Paved Areas Sheet 7	Jun 2021
ETYN-SEF-XXX-03-DR-D-1108	C01	Kerbs Footways and Paved Areas Sheet 8	Jun 2021
ETYN-SEF-XXX-03-DR-D-1109	C04	Kerbs Footways and Paved Areas Sheet 9	Jun 2022
ETYN-SEF-XXX-03-DR-D-1110	C05	Kerbs Footways and Paved Areas Sheet 10	Jan 2023
ETYN-SEF-XXX-03-DR-D-1111	C04	Kerbs Footways and Paved Areas Sheet 11	Dec 2021
ETYN-SEF-XXX-03-DR-D-1112	C04	Kerbs Footways and Paved Areas Sheet 12	Dec 2021
ETYN-SEF-XXX-03-DR-D-1113	C08	Kerbs Footways and Paved Areas Sheet 13	Jun 2022
ETYN-SEF-XXX-03-DR-D-1114	C06	Kerbs Footways and Paved Areas Sheet 14	Mar 2022
ETYN-SEF-XXX-03-DR-D-1115	C06	Kerbs Footways and Paved Areas Sheet 15	Jun 2022
ETYN-SEF-XXX-03-DR-D-1120	C01	Kerbs Footways and Paved Areas Standard Details Sheet 1	Jun 2021
ETYN-SEF-XXX-03-DR-D-1121	C05	Kerbs Footways and Paved Areas Standard Details Sheet 2	Mar 2021
ETYN-SEF-XXX-03-DR-D-1122	C01	Kerbs Footways and Paved Areas Standard Details Sheet 3	Mar 2022
ETYN-SEF-XXX-03-DR-D-0701	C03	Pavement Sheet 1	Jan 2022
ETYN-SEF-XXX-03-DR-D-0702	C02	Pavement Sheet 2	Nov 2021
ETYN-SEF-XXX-03-DR-D-0703	C02	Pavement Sheet 3	Nov 2021
ETYN-SEF-XXX-03-DR-D-0704	C03	Pavement Sheet 4	Nov 2021
ETYN-SEF-XXX-03-DR-D-0705	C02	Pavement Sheet 5	Nov 2021
ETYN-SEF-XXX-03-DR-D-0706	C02	Pavement Sheet 6	Nov 2021
ETYN-SEF-XXX-03-DR-D-0707	C02	Pavement Sheet 7	Nov 2021
ETYN-SEF-XXX-03-DR-D-0708	C04	Pavement Sheet 8	Nov 2021
ETYN-SEF-XXX-03-DR-D-0709	C02	Pavement Sheet 9	Nov 2021
ETYN-SEF-XXX-03-DR-D-0710	C02	Pavement Sheet 10	Nov 2021
ETYN-SEF-XXX-03-DR-D-0711	C03	Pavement Sheet 11	Nov 2021
ETYN-SEF-XXX-03-DR-D-0712	C03	Pavement Sheet 12	Nov 2021
ETYN-SEF-XXX-03-DR-D-0713	C03	Pavement Sheet 13	Nov 2021
ETYN-SEF-XXX-03-DR-D-0714	C03	Pavement Sheet 14	Nov 2021
ETYN-SEF-XXX-03-DR-D-0715	C03	Pavement Sheet 15	Nov 2021
ETYN-SEF-XXX-03-DR-D-0401	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 1	Jun 2021
ETYN-SEF-XXX-03-DR-D-0402	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 2	Jun 2021
ETYN-SEF-XXX-03-DR-D-0403	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 3	Jun 2021
ETYN-SEF-XXX-03-DR-D-0404	C02	Vehicle and Pedestrian Road Restraint Systems Sheet 4	Feb 2022
ETYN-SEF-XXX-03-DR-D-0405	C02	Vehicle and Pedestrian Road Restraint Systems Sheet 5	Feb 2022
ETYN-SEF-XXX-03-DR-D-0406	C02	Vehicle and Pedestrian Road Restraint Systems Sheet 6	Jun 2021
ETYN-SEF-XXX-03-DR-D-0407	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 7	Jun 2021
ETYN-SEF-XXX-03-DR-D-0408	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 8	Jun 2021
ETYN-SEF-XXX-03-DR-D-0409	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 9	Jun 2021
ETYN-SEF-XXX-03-DR-D-0410	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 10	Jul 2021
ETYN-SEF-XXX-03-DR-D-0411	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 11	Jul 2021
ETYN-SEF-XXX-03-DR-D-0412	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 12	Jul 2021

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ETYN-SEF-XXX-03-DR-D-0413	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 13	Jul 2021
ETYN-SEF-XXX-03-DR-D-0414	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 14	Jul 2021
ETYN-SEF-XXX-03-DR-D-0415	C01	Vehicle and Pedestrian Road Restraint Systems Sheet 15	Jul 2021
ETYN-SEF-XXX-03-DR-D-0450	C02	Vehicle and Pedestrian Road Restraint Systems Standard Details	Jan 2021
ETYN-SEF-XXX-03-DR-D-1201	C01	Traffic Signs Sheet 1	Jun 2021
ETYN-SEF-XXX-03-DR-D-1202	C01	Traffic Signs Sheet 2	Jun 2021
ETYN-SEF-XXX-03-DR-D-1203	C01	Traffic Signs Sheet 3	Jun 2021
ETYN-SEF-XXX-03-DR-D-1204	C01	Traffic Signs Sheet 4	Jun 2021
ETYN-SEF-XXX-03-DR-D-1205	C01	Traffic Signs Sheet 5	Jun 2021
ETYN-SEF-XXX-03-DR-D-1206	C02	Traffic Signs Sheet 6	May 2022
ETYN-SEF-XXX-03-DR-D-1207	C02	Traffic Signs Sheet 7	May 2022
ETYN-SEF-XXX-03-DR-D-1208	C01	Traffic Signs Sheet 8	Jun 2021
ETYN-SEF-XXX-03-DR-D-1209	C01	Traffic Signs Sheet 9	Jun 2021
ETYN-SEF-XXX-03-DR-D-1210	C01	Traffic Signs Sheet 10	Jul 2021
ETYN-SEF-XXX-03-DR-D-1211	C02	Traffic Signs Sheet 11	May 2022
ETYN-SEF-XXX-03-DR-D-1212	C02	Traffic Signs Sheet 12	Jan 2023
ETYN-SEF-XXX-03-DR-D-1213	C01	Traffic Signs Sheet 13	Jul 2021
ETYN-SEF-XXX-03-DR-D-1214	C01	Traffic Signs Sheet 14	Jul 2021
ETYN-SEF-XXX-03-DR-D-1215	C02	Traffic Signs Sheet 15	Jul 2021
ETYN-SEF-XXX-03-DR-D-1251	C01	Road Markings Sheet 1	Jun 2021
ETYN-SEF-XXX-03-DR-D-1252	C01	Road Markings Sheet 2	Jun 2021
ETYN-SEF-XXX-03-DR-D-1253	C01	Road Markings Sheet 3	Jun 2021
ETYN-SEF-XXX-03-DR-D-1254	C01	Road Markings Sheet 4	Jun 2021
ETYN-SEF-XXX-03-DR-D-1255	C01	Road Markings Sheet 5	Jun 2021
ETYN-SEF-XXX-03-DR-D-1256	C01	Road Markings Sheet 6	Jun 2021
ETYN-SEF-XXX-03-DR-D-1257	C03	Road Markings Sheet 7	Mar 2022
ETYN-SEF-XXX-03-DR-D-1258	C03	Road Markings Sheet 8	Mar 2022
ETYN-SEF-XXX-03-DR-D-1259	C02	Road Markings Sheet 9	Feb 2022
ETYN-SEF-XXX-03-DR-D-1260	C04	Road Markings Sheet 10	Mar 2022
ETYN-SEF-XXX-03-DR-D-1261	C03	Road Markings Sheet 11	Mar 2022
ETYN-SEF-XXX-03-DR-D-1262	C03	Road Markings Sheet 12	Feb 2022
ETYN-SEF-XXX-03-DR-D-1263	C02	Road Markings Sheet 13	Mar 2022
ETYN-SEF-XXX-03-DR-D-1264	C02	Road Markings Sheet 14	Mar 2022
ETYN-SEF-XXX-03-DR-D-1265	C04	Road Markings Sheet 15	Jun 2022
ETYN-SEF-2XX-02-DR-A-1001	C02	Picardy Place Tramstop Site Plan and GA	May 2021
ETYN-SEF-2XX-02-DR-A-1002	C01	Picardy Place Tramstop GA and Elevations	Dec 2020
ETYN-SEF-2XX-02-DR-A-1003	C04	Picardy Place Tramstop Ducting and Drainage	Oct 2021
ETYN-SEF-2XX-02-DR-A-1010	C01	Picardy Place Tramstop Detailed Sections	Dec 2020
ETYN-SEF-2XX-02-DR-A-1011	C01	Picardy Place Tramstop Detailed Sections	Dec 2020
ETYN-SEF-2XX-02-DR-A-1012	C01	Picardy Place Tramstop Detailed Sections	Dec 2020

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ETYN-SEF-4XX-02-DR-A-1001	C03	McDonald Road Tramstop Site Plan and GA	May 2021
ETYN-SEF-4XX-02-DR-A-1002	C01	McDonald Road Tramstop Sections and Elevations	Dec 2020
ETYN-SEF-4XX-02-DR-A-1003	C03	McDonald Road Tramstop Ducting and Drainage	Oct 2021
ETYN-SEF-4XX-02-DR-A-1010	C01	McDonald Road Tramstop Details Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1011	C01	McDonald Road Tramstop Details Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1012	C01	McDonald Road Tramstop Details Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1013	C01	McDonald Road Tramstop Details Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1101	C02	Balfour Street Tramstop Site and GA	May 2021
ETYN-SEF-4XX-02-DR-A-1102	C01	Balfour Street Tramstop Sections and Elevations	Dec 2020
ETYN-SEF-4XX-02-DR-A-1103	C03	Balfour Street Tramstop Ducting and Drainage	Oct 2021
ETYN-SEF-4XX-02-DR-A-1110	C01	Balfour Street Tramstop Detailed Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1111	C01	Balfour Street Tramstop Detailed Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1112	C01	Balfour Street Tramstop Detailed Sections	Dec 2020
ETYN-SEF-4XX-02-DR-A-1113	C01	Balfour Street Tramstop Detailed Sections	Dec 2020
ETYN-SEF-6XX-02-DR-A-1001	C02	Foot of the Walk Tramstop Site and GA	May 2021
ETYN-SEF-6XX-02-DR-A-1002	C02	Foot of the Walk Tramstop Sections and Elevations	May 2021
ETYN-SEF-6XX-02-DR-A-1003	C04	Foot of the Walk Tramstop Ducting and Drainage	Oct 2021
ETYN-SEF-6XX-02-DR-A-1010	C02	Foot of the Walk Tramstop Detailed Sections	May 2021
ETYN-SEF-6XX-02-DR-A-1011	C02	Foot of the Walk Tramstop Detailed Sections	May 2021
ETYN-SEF-6XX-02-DR-A-1012	C02	Foot of the Walk Tramstop Detailed Sections	May 2021
ETYN-SEF-8XX-02-DR-A-1001	C02	The Shore Tramstop Site and GA	May 2021
ETYN-SEF-8XX-02-DR-A-1002	C01	The Shore Tramstop Sections and Elevations	Dec 2020
ETYN-SEF-8XX-02-DR-A-1003	C03	The Shore Tramstop Ducting and Drainage	Oct 2021
ETYN-SEF-8XX-02-DR-A-1010	C01	The Shore Tramstop Detailed Sections	Dec 2020
ETYN-SEF-8XX-02-DR-A-1011	C01	The Shore Tramstop Detailed Sections	Dec 2020
ETYN-SEF-8XX-02-DR-A-1012	C01	The Shore Tramstop Detailed Sections	Dec 2020
ETYN-SEF-8XX-02-DR-A-1013	C01	The Shore Tramstop Detailed Sections	Dec 2020
ETYN-SEF-11X-02-DR-A-1001	C02	Port of Leith Tramstop Site and GA	May 2021
ETYN-SEF-11X-02-DR-A-1002	C01	Port of Leith Tramstop Sections and Elevations	Dec 2020
ETYN-SEF-11X-02-DR-A-1003	C04	Port of Leith Tramstop Ducting and Drainage	Oct 2021
ETYN-SEF-11X-02-DR-A-1010	C01	Port of Leith Tramstop Detailed Sections	Dec 2020
ETYN-SEF-11X-02-DR-A-1011	C01	Port of Leith Tramstop Detailed Sections	Dec 2020
ETYN-SEF-11X-02-DR-A-1012	C01	Port of Leith Tramstop Detailed Sections	Dec 2020
ETYN-SEF-11X-02-DR-A-1013	C01	Port of Leith Tramstop Detailed Sections	Dec 2020
ETYN-SEF-14X-02-DR-A-1001	C02	Ocean Terminal Tramstop-Site Plan and General Arrangement	May 2021
ETYN-SEF-14X-02-DR-A-1002	C01	Ocean Terminal Tramstop-Sections and Elevations	Dec 2020
ETYN-SEF-14X-02-DR-A-1003	C03	Ocean Terminal Tramstop-Ducting and Drainage	Oct 2021
ETYN-SEF-14X-02-DR-A-1010	C01	Ocean Terminal Tramstop-Detailed Sections	Dec 2020
ETYN-SEF-14X-02-DR-A-1011	C01	Ocean Terminal Tramstop-Detailed Sections	Dec 2020
ETYN-SEF-14X-02-DR-A-1012	C01	Ocean Terminal Tramstop-Detailed Sections	Dec 2020

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ETYN-SEF-14X-02-DR-A-1013	C01	Ocean Terminal Tramstop-Detailed Section	Dec 2020
ETYN-SEF-17X-02-DR-A-1001	C02	Newhaven Terminus Tramstop-Site Plan and General Arrangement	May 2021
ETYN-SEF-17X-02-DR-A-1002	C01	Newhaven Terminus Tramstop-Sections and Elevations	Dec 2020
ETYN-SEF-17X-02-DR-A-1003	C03	Newhaven Terminus Tramstop-Ducting and Drainage	Oct 2021
ETYN-SEF-17X-02-DR-A-1010	C01	Newhaven Terminus Tramstop-Detailed Sections	Dec 2020
ETYN-SEF-17X-02-DR-A-1011	C01	Newhaven Terminus Tramstop-Detailed Sections	Dec 2020
ETYN-SEF-XXX-01-DR-Z-0002	C03	Symbology	Oct 2022
ETYN-SEF-XXX-01-DR-Z-0002	C02	Project Info	Nov 2021
ETYN-SEF-XXX-01-DR-Z-0004	C08	OLE Pole Layout. Sheet 1	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0005	C08	OLE Pole Layout. Sheet 2	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0006	C11	OLE Pole Layout. Sheet 3	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0007	C09	OLE Pole Layout. Sheet 4	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0008	C08	OLE Pole Layout. Sheet 5	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0009	C09	OLE Pole Layout. Sheet 6	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0010	C09	OLE Pole Layout. Sheet 7	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0011	C07	OLE Pole Layout. Sheet 8	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0012	C06	OLE Pole Layout. Sheet 9	Oct 2022
ETYN-SEF-XXX-01-DR-Z-0013	C07	OLE Pole Layout. Sheet 10	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0014	C06	OLE Pole Layout. Sheet 11	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0015	C09	OLE Pole Layout. Sheet 12	Dec 2022
ETYN-SEF-XXX-01-DR-Z-0016	C05	OLE Pole Layout. Sheet 13	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0017	C09	OLE Pole Layout. Sheet 14	Dec 2022
ETYN-SEF-XXX-01-DR-Z-0018	C06	OLE Pole Layout. Sheet 15	Nov 2022
ETYN-SEF-XXX-01-DR-Z-0019	C09	OLE Pole Layout. Sheet 16	Dec 2022
ETYN-SEF-XXX-11-DR-N-0001	C01	Traffic Signals Drawings List	Aug 2021
ETYN-SEF-XXX-11-DR-N-0002	C01	Traffic Signals General Notes	Aug 2021
ETYN-SEF-XXX-11-DR-N-0003	C01	Traffic Signals Legend	Aug 2021
ETYN-SEF-XXX-11-DR-N-0004	C01	Traffic Signals Layout Sheet 1	Aug 2021
ETYN-SEF-XXX-11-DR-N-0005	C01	Traffic Signals Layout Sheet 2	Aug 2021
ETYN-SEF-XXX-11-DR-N-0006	C01	Traffic Signals Layout Sheet 3	Aug 2021
ETYN-SEF-XXX-11-DR-N-0007	C01	Traffic Signals Layout Sheet 4	Aug 2021
ETYN-SEF-XXX-11-DR-N-0008	C01	Traffic Signals Layout Sheet 5	Aug 2021
ETYN-SEF-XXX-11-DR-N-0009	C01	Traffic Signals Layout Sheet 6	Aug 2021
ETYN-SEF-XXX-11-DR-N-0010	C01	Traffic Signals Layout Sheet 7	Aug 2021
ETYN-SEF-XXX-11-DR-N-0011	C01	Traffic Signals Layout Sheet 8	Aug 2021
ETYN-SEF-XXX-11-DR-N-0012	C01	Traffic Signals Layout Sheet 9	Aug 2021
ETYN-SEF-XXX-11-DR-N-0013	C01	Traffic Signals Layout Sheet 10	Aug 2021
ETYN-SEF-XXX-11-DR-N-0014	C01	Traffic Signals Layout Sheet 11	Aug 2021
ETYN-SEF-XXX-11-DR-N-0015	C01	Traffic Signals Layout Sheet 12	Aug 2021
ETYN-SEF-XXX-11-DR-N-0016	C01	Traffic Signals Layout Sheet 13	Aug 2021

Document Number	Rev	Description	Date
ETYN-SEF-XXX-11-DR-N-0017	C01	Traffic Signals Layout Sheet 14	Aug 2021
ETYN-SEF-XXX-11-DR-N-0018	C01	Traffic Signals Layout Sheet 15	Aug 2021
ETYN-SEF-XXX-11-DR-N-0019	C03	Traffic Signals / Lindsay Road / New Heaven Tramstop Nr Annfield/ Sheet 1 / 30	May 2022
ETYN-SEF-XXX-11-DR-N-0020	C03	Traffic Signals / Lindsay Road / New Heaven Tramstop / Sheet 2 / 30	Oct 2021
ETYN-SEF-XXX-11-DR-N-0021	C05	Traffic Signals / Melrose Drive / Lindsay Road/ Sheet 3/30	Oct 2021
ETYN-SEF-XXX-11-DR-N-0022	C03	Traffic Signals / Melrose Drive / Melrose Drive Turnont / Sheet 4/30	Aug 2021
ETYN-SEF-XXX-11-DR-N-0023	C03	Traffic Signals / Melrose Drive / Entrance To Royal Yatch / Sheet 5/30	Aug 2021
ETYN-SEF-XXX-11-DR-N-0024	C03	Traffic Signals / Ocean Drive / Melrose Drive Layout/ Sheet 6/31	Aug 2021
ETYN-SEF-XXX-11-DR-N-0025	C02	Traffic Signals / Ocean Terminal Tramstop Layout/ Sheet 7/31	Aug 2021
ETYN-SEF-XXX-11-DR-N-0026	C02	Traffic Signals / Ocean Terminal Tramstop Layout/ Sheet 8/31	Aug 2021
ETYN-SEF-XXX-11-DR-N-0027	C02	Traffic Signals / Ocean Terminal Layout/ Sheet 9/31	Aug 2021
ETYN-SEF-XXX-11-DR-N-0028	C02	Traffic Signals Ocean Drive-Cala Development Layout Sheet 10	Aug 2021
ETYN-SEF-XXX-11-DR-N-0029	C03	Traffic Signals Port of Leith Tramstop Layout Sheet 11	Oct 2021
ETYN-SEF-XXX-11-DR-N-0030	C02	Traffic Signals Ocean Way Layout Sheet 12	Aug 2021
ETYN-SEF-XXX-11-DR-N-0031	C04	Traffic Signals Constitution St-Bernard St Layout Sheet 13	Aug 2021
ETYN-SEF-XXX-11-DR-N-0032	C03	Traffic Signals The Shore Tramstop Layout Sheet 14	Oct 2021
ETYN-SEF-XXX-11-DR-N-0033	C03	Traffic Signals Constitution St-Queen Charlotte St Layout Sheet 15	Oct 2021
ETYN-SEF-XXX-11-DR-N-0035	C03	Traffic Signals Leith Walk-Great Junction St Layout Sheet 17	Aug 2021
ETYN-SEF-XXX-11-DR-N-0036	C03	Traffic Signals Leith Walk-Manderston St Layout Sheet 18	Aug 2021
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ETYN-SEF-XXX-11-DR-N-0040	C03	Traffic Signals Balfour St Tramstop Layout Sheet 22	Oct 2021
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ETYN-SEF-XXX-11-DR-N-0042	C03	Traffic Signals Leith Walk-Albert St Layout Sheet 24	Aug 2021
ETYN-SEF-XXX-11-DR-N-0043	C04	Traffic Signals McDonald Rd-Leith Walk Layout Sheet 25	Aug 2021
ETYN-SEF-XXX-11-DR-N-0044	C02	Traffic Signals McDonald Road Tramstop Layout Sheet 26	Aug 2021
ETYN-SEF-XXX-11-DR-N-0045	C03	Traffic Signals Leith Walk-Annandale Street Layout Sheet 27	Oct 2021
ETYN-SEF-XXX-11-DR-N-0046	C03	Traffic Signals Leith Walk-London Rd Layout Sheet 28	Aug 2021
ETYN-SEF-XXX-11-DR-N-0047	C03	Traffic Signals Picardy Place Joint 1 Layout Sheet 29	Oct 2021
ETYN-SEF-XXX-11-DR-N-0048	C03	Traffic Signals Picardy Place Joint 2 Layout Sheet 30	Oct 2021
ETYN-SEF-XXX-11-DR-N-0049	C03	Traffic Signals Picardy Place Joint 3 Layout Sheet 31	Oct 2021
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ETYN-SEF-XXX-16-DR-M-0002	C04	Proposed Street Lighting Layout Sheet 2	Aug 2022

Document Number	Rev	Description	Date
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ETYN-SEF-XXX-16-DR-M-0014	C04	Proposed Street Lighting Layout Sheet 14	Aug 2022
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ETYN-SEF-XXX-16-DR-M-0016	C04	Proposed Street Lighting Layout Sheet 16	Aug 2022
ETYN-SEF-3XX-04-DR-L-0001	C02	Landscape Proposals Detailed Design – Elm Row	Aug 2021
ETYN-SEF-3XX-04-DR-L-0002	C02	Elm Row Landscape Construction Details	Aug 2021
ETYN-SEF-3XX-04-DR-L-0003	C02	Landscape Proposals Detailed Design – Elm Row Paving Orientation	Aug 2021
ETYN-SEF-3XX-04-DR-L-0004	C01	Landscape Proposals Detailed Design – Elm Row Paving Orientation – Sheet 2	Sep 2021
ETYN-SEF-17X-04-DR-L-0001	C02	Landscape Proposals Detailed Design Newhaven	Aug 2021
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ETYN-SEF-17X-04-DR-L-0003	C01	Newhaven Landscape Construction Details Sheet 2 of 2	May 2021
ETYN-SEF-17X-04-DR-L-0004	C01	Newhaven Landscape Corner Details	May 2021
ETYN-SEF-14X-04-DR-L-0001	C02	Landscape Proposals Detailed Design Ocean Term'l 1 of 4	May 2021
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ETYN-SEF-14X-04-DR-L-0003	C01	Landscape Proposals Detailed Design Ocean Term'l 3 of 4	May 2021
ETYN-SEF-14X-04-DR-L-0004	C02	Landscape Proposals Detailed Design Ocean Term'l 4 of 4	Aug 2021
ETYN-SEF-14X-04-DR-L-0005	C01	Ocean Terminal - Construction Details Sheet 1 of 3	May 2021
ETYN-SEF-14X-04-DR-L-0006	C01	Ocean Terminal - Construction Details Sheet 2 of 3	May 2021
ETYN-SEF-14X-04-DR-L-0007	C01	Ocean Terminal - Construction Details Sheet 2 of 3	May 2021
ETYN-SEF-XXX-XX-DR-L-0016	C02	Landscape Proposals 1 of 15	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0017	C02	Landscape Proposals 2 of 15	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0018	C03	Landscape Proposals 3 of 15	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0019	C03	Landscape Proposals 4 of 15	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0020	C02	Landscape Proposals Sheet 5	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0021	C02	Landscape Proposals Sheet 6	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0022	C02	Landscape Proposals Sheet 7	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0023	C02	Landscape Proposals Sheet 8	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0024	C02	Landscape Proposals Sheet 9	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0025	C02	Landscape Proposals Sheet 10	Aug 2021

Document Number	Rev	Description	Date
ETYN-SEF-XXX-XX-DR-L-0026	C02	Landscape Proposals Sheet 11	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0027	C03	Landscape Proposals Sheet 12	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0028	C02	Landscape Proposals Sheet 13	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0029	C02	Landscape Proposals Sheet 14	Aug 2021
ETYN-SEF-XXX-XX-DR-L-0030	C02	Landscape Proposals Sheet 15	Aug 2021

Appendix B Problem Location Plans

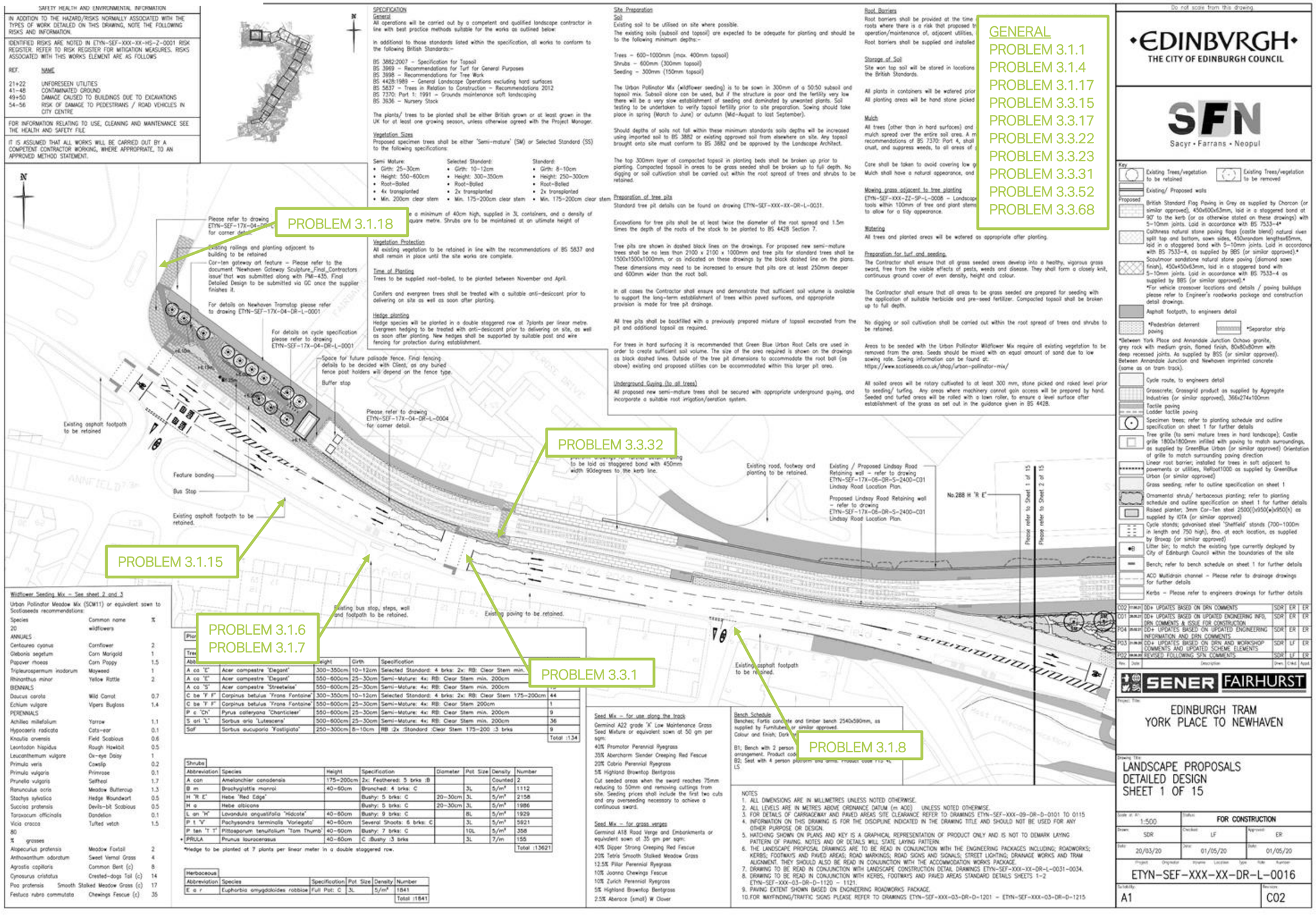

Figure 1 - Problem Location Plan (1 of 15)

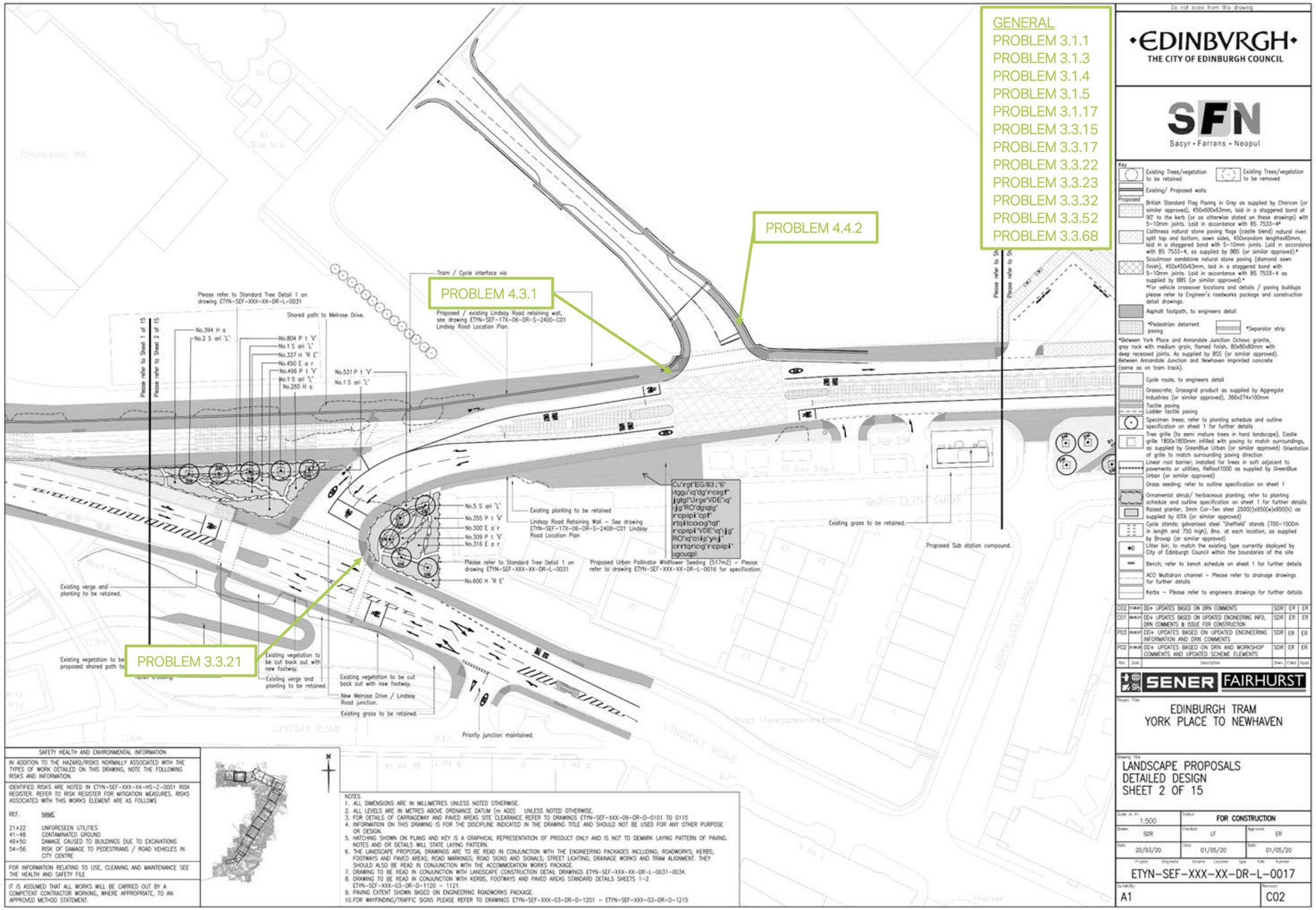

Figure 2 - Problem Location Plan (2 of 15)

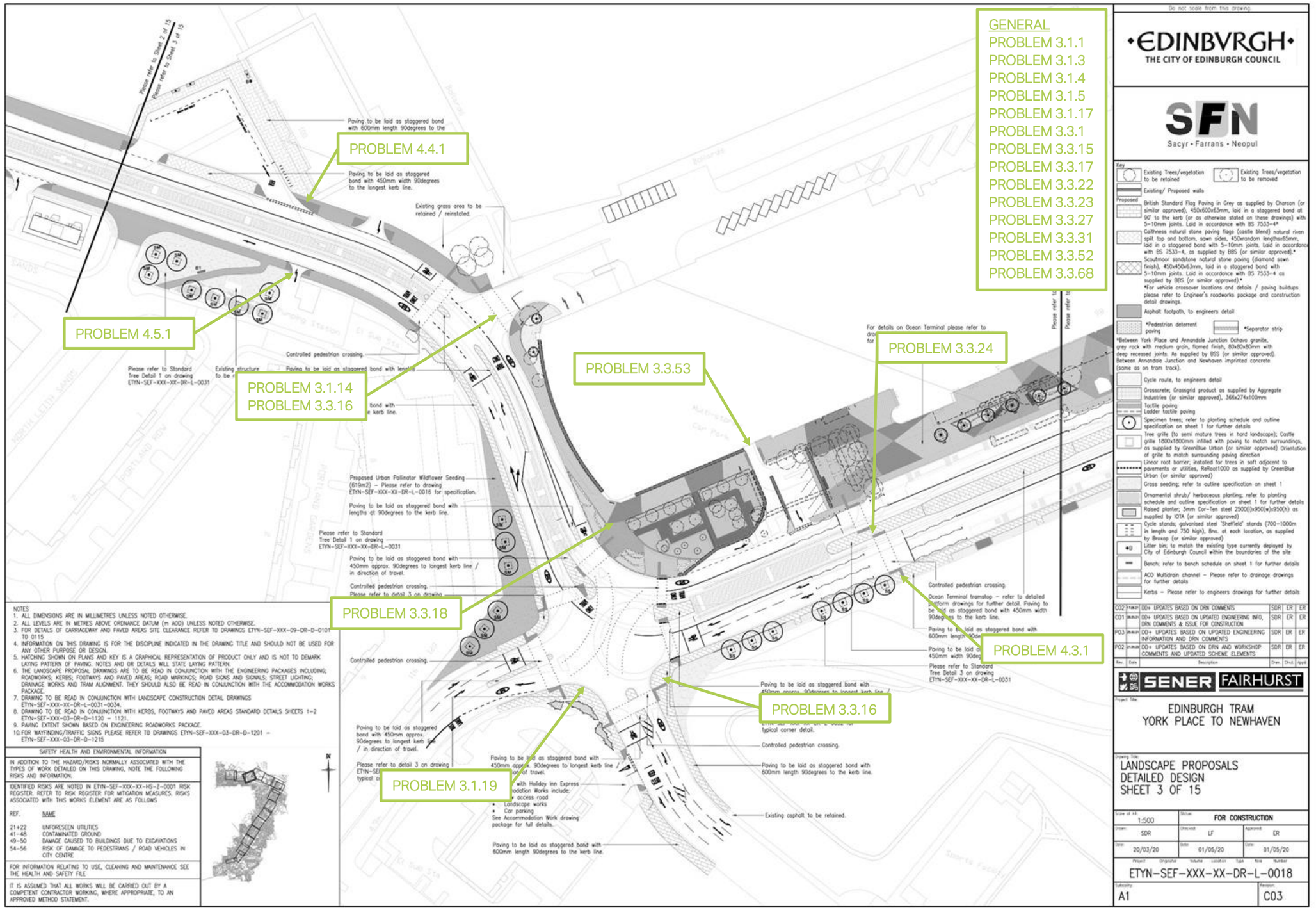

Figure 3 - Problem Location Plan (3 of 15)

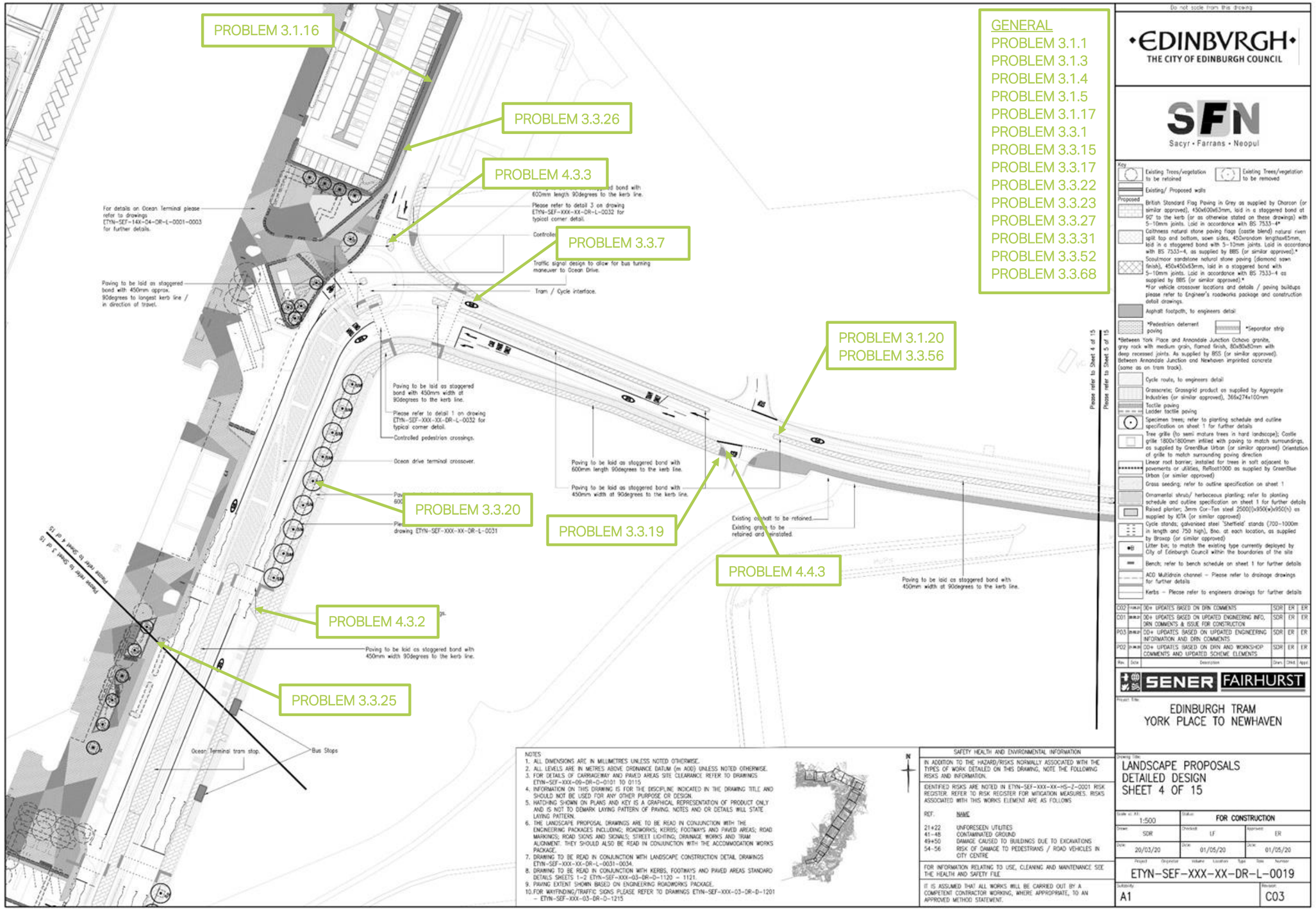

Figure 4 - Problem Location Plan (4 of 15)

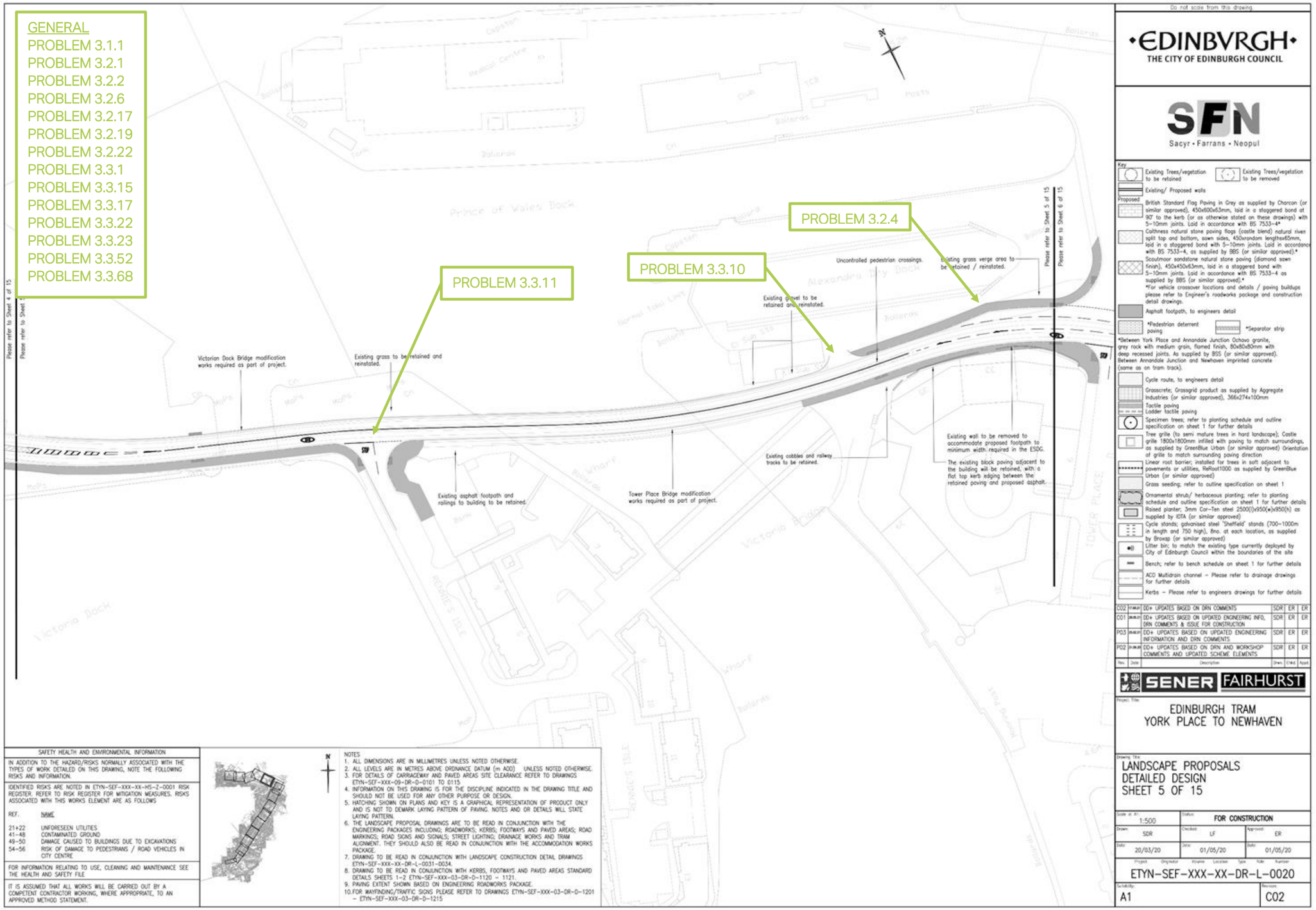

Figure 5 - Problem Location Plan (5 of 15)

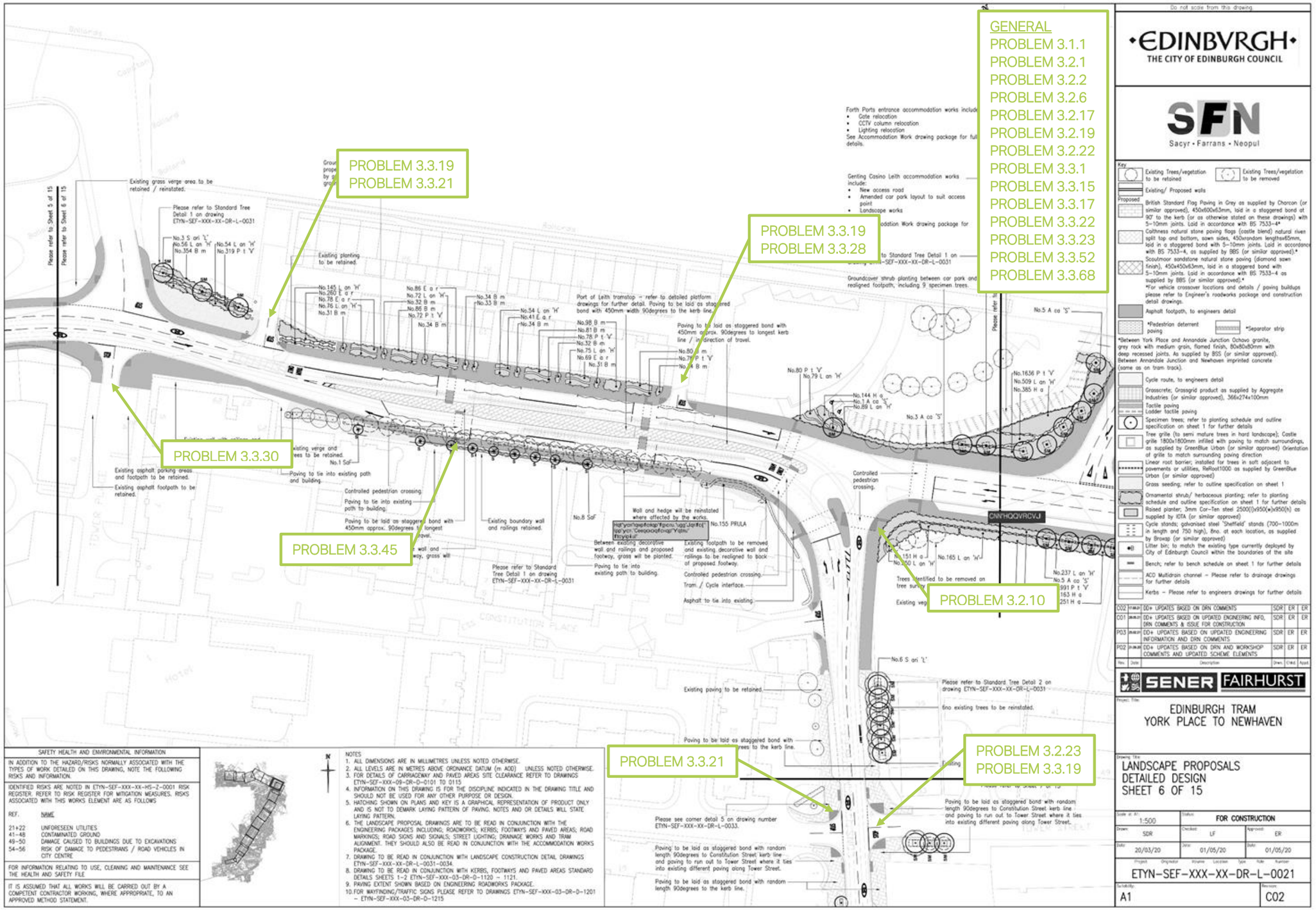

Figure 6 - Problem Location Plan (6 of 15)

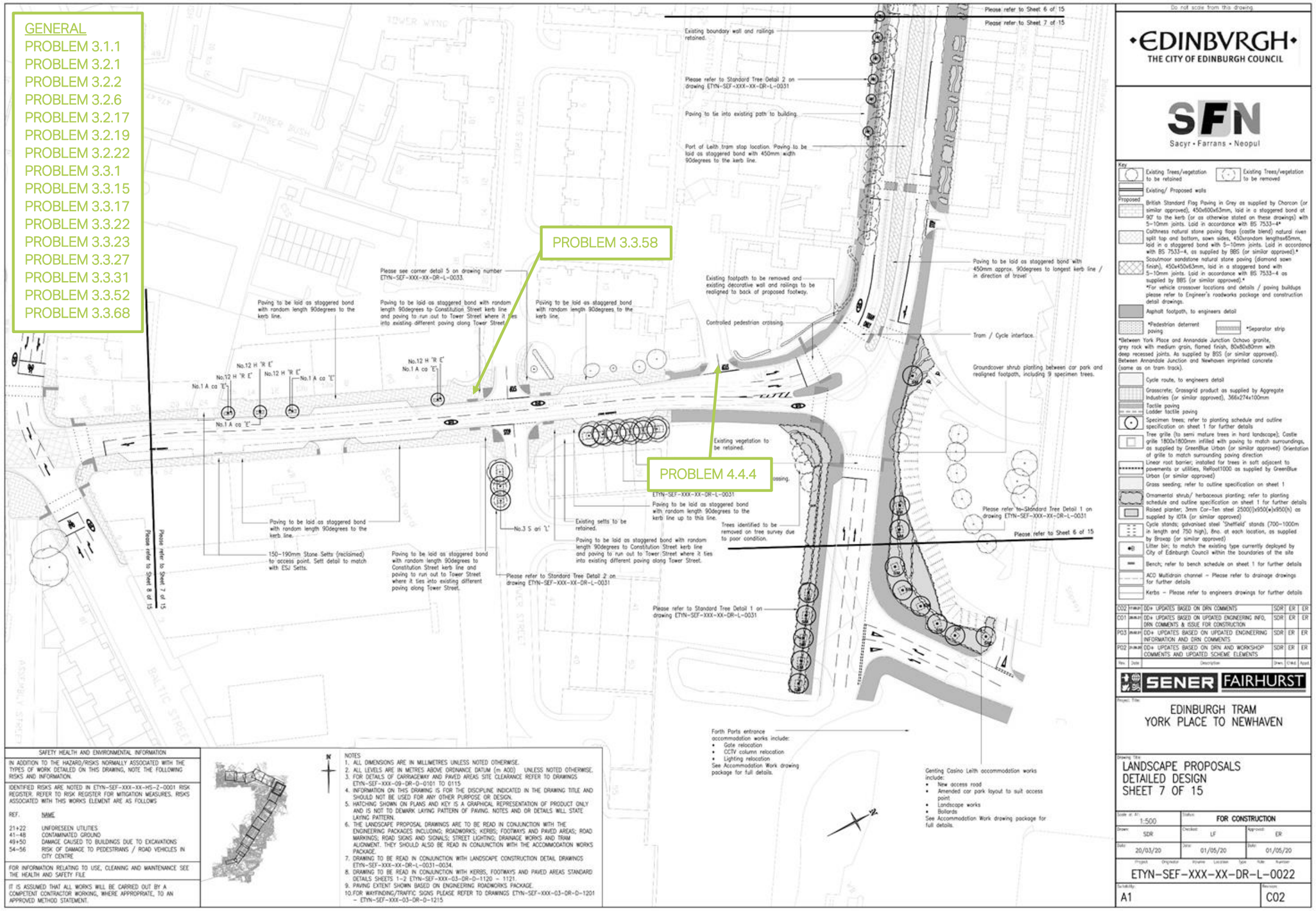

Figure 7 - Problem Location Plan (7 of 15)

GENERAL
PROBLEM 3.1.1
PROBLEM 3.2.1
PROBLEM 3.2.2
PROBLEM 3.2.6
PROBLEM 3.2.7
PROBLEM 3.2.17
PROBLEM 3.2.19
PROBLEM 3.2.22
PROBLEM 3.3.1
PROBLEM 3.3.15
PROBLEM 3.3.17
PROBLEM 3.3.22
PROBLEM 3.3.23
PROBLEM 3.3.27
PROBLEM 3.3.31
PROBLEM 3.3.52
PROBLEM 3.3.68

PROBLEM 3.3.21
PROBLEM 3.3.51
PROBLEM 3.3.15
PROBLEM 4.4.3
PROBLEM 3.3.28
PROBLEM 3.3.12
PROBLEM 3.3.12
PROBLEM 3.2.10

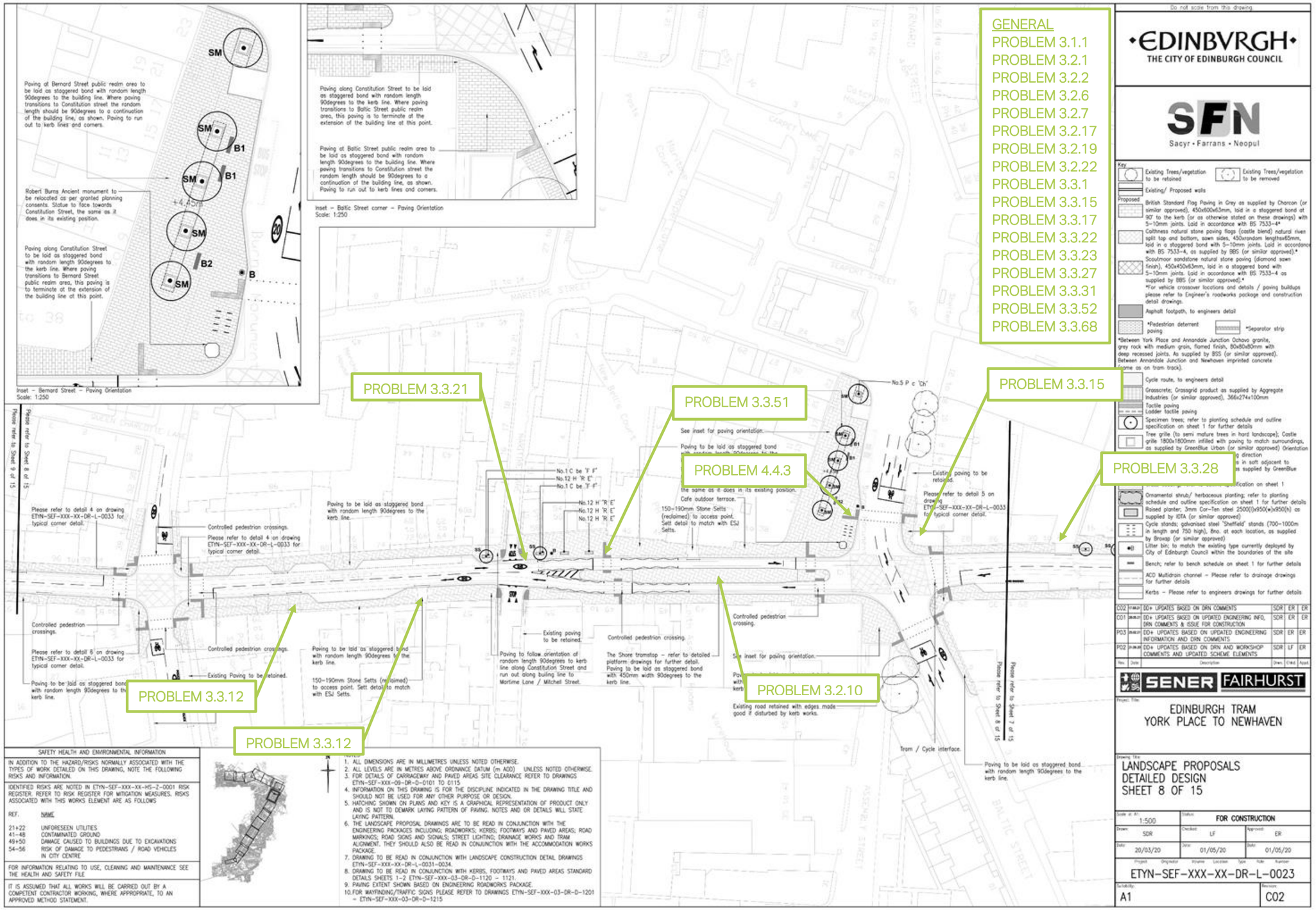

Figure 8 - Problem Location Plan (8 of 15)

GENERAL
PROBLEM 3.1.1
PROBLEM 3.2.1
PROBLEM 3.2.2
PROBLEM 3.2.6
PROBLEM 3.2.7
PROBLEM 3.2.17
PROBLEM 3.2.19
PROBLEM 3.2.22
PROBLEM 3.3.1
PROBLEM 3.3.15
PROBLEM 3.3.17
PROBLEM 3.3.22
PROBLEM 3.3.23
PROBLEM 3.3.52
PROBLEM 3.3.68

PROBLEM 3.3.19
PROBLEM 3.3.55

PROBLEM 3.3.28

PROBLEM 4.3.4

EDINBVRGH
THE CITY OF EDINBURGH COUNCIL

SFN
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SENER FAIRHURST

EDINBURGH TRAM
YORK PLACE TO NEWHAVEN

LANDSCAPE PROPOSALS
DETAILED DESIGN
SHEET 9 OF 15

ETYN-SEF-XXX-XX-DR-L-0024

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Figure 9 - Problem Location Plan (9 of 15)

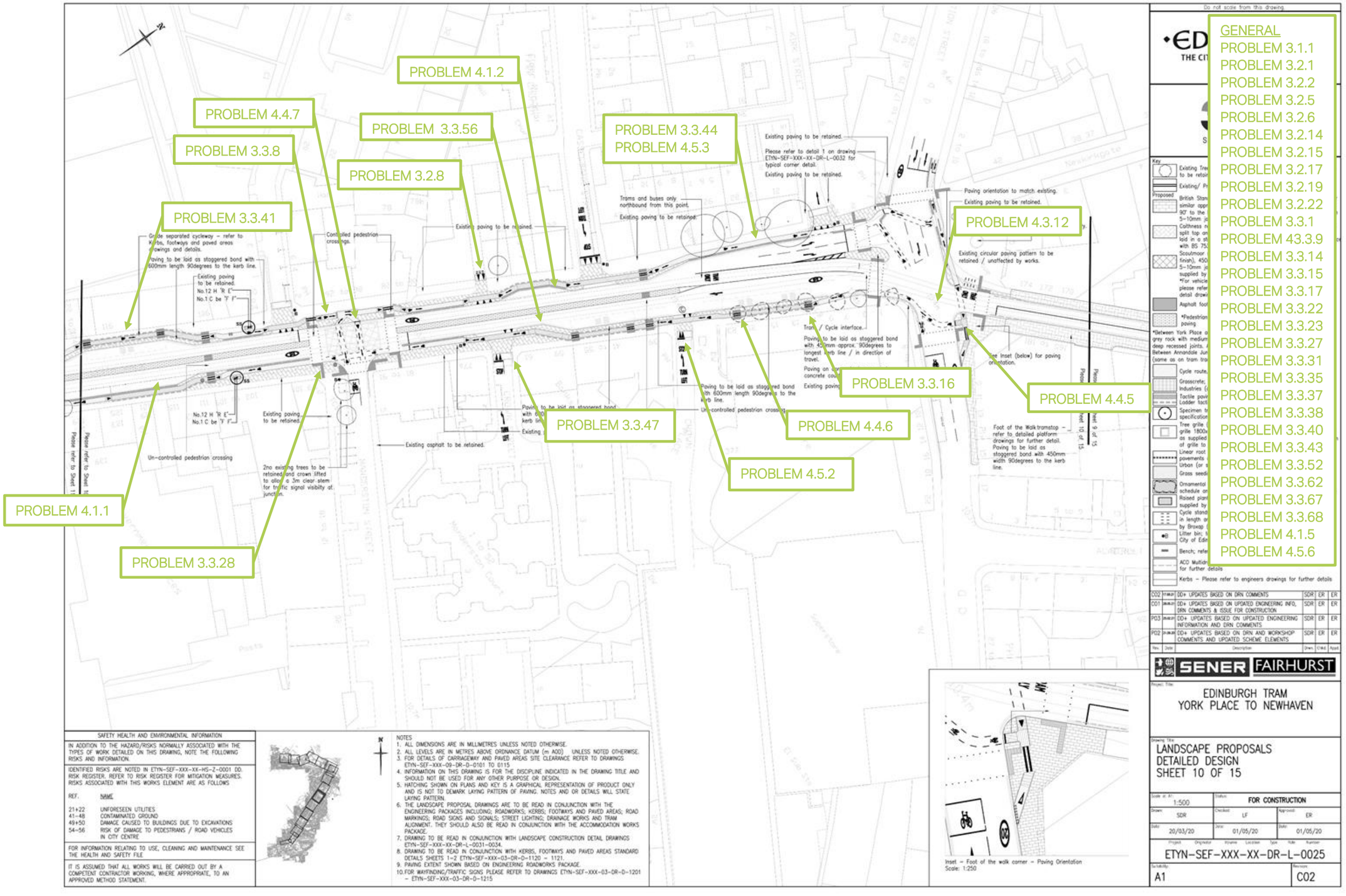
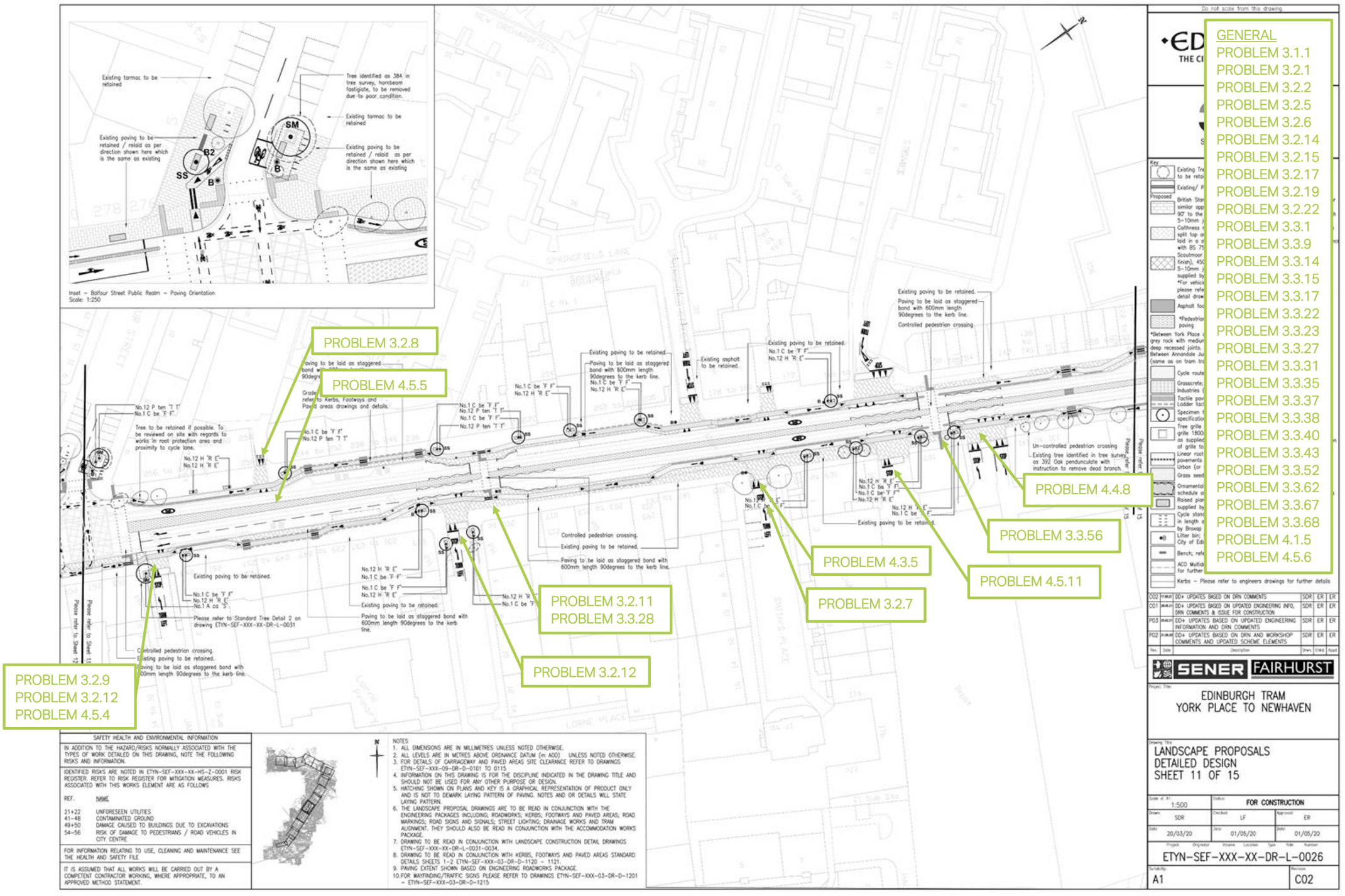


Figure 10 - Problem Location Plan (10 of 15)



GENERAL
PROBLEM 3.1.1
PROBLEM 3.2.1
PROBLEM 3.2.2
PROBLEM 3.2.5
PROBLEM 3.2.6
PROBLEM 3.2.14
PROBLEM 3.2.15
PROBLEM 3.2.17
PROBLEM 3.2.19
PROBLEM 3.2.22
PROBLEM 3.3.1
PROBLEM 3.3.9
PROBLEM 3.3.14
PROBLEM 3.3.15
PROBLEM 3.3.17
PROBLEM 3.3.22
PROBLEM 3.3.23
PROBLEM 3.3.27
PROBLEM 3.3.31
PROBLEM 3.3.35
PROBLEM 3.3.37
PROBLEM 3.3.38
PROBLEM 3.3.40
PROBLEM 3.3.43
PROBLEM 3.3.52
PROBLEM 3.3.62
PROBLEM 3.3.67
PROBLEM 3.3.68
PROBLEM 4.1.5
PROBLEM 4.5.6

Figure 11 - Problem Location Plan (11 of 15)

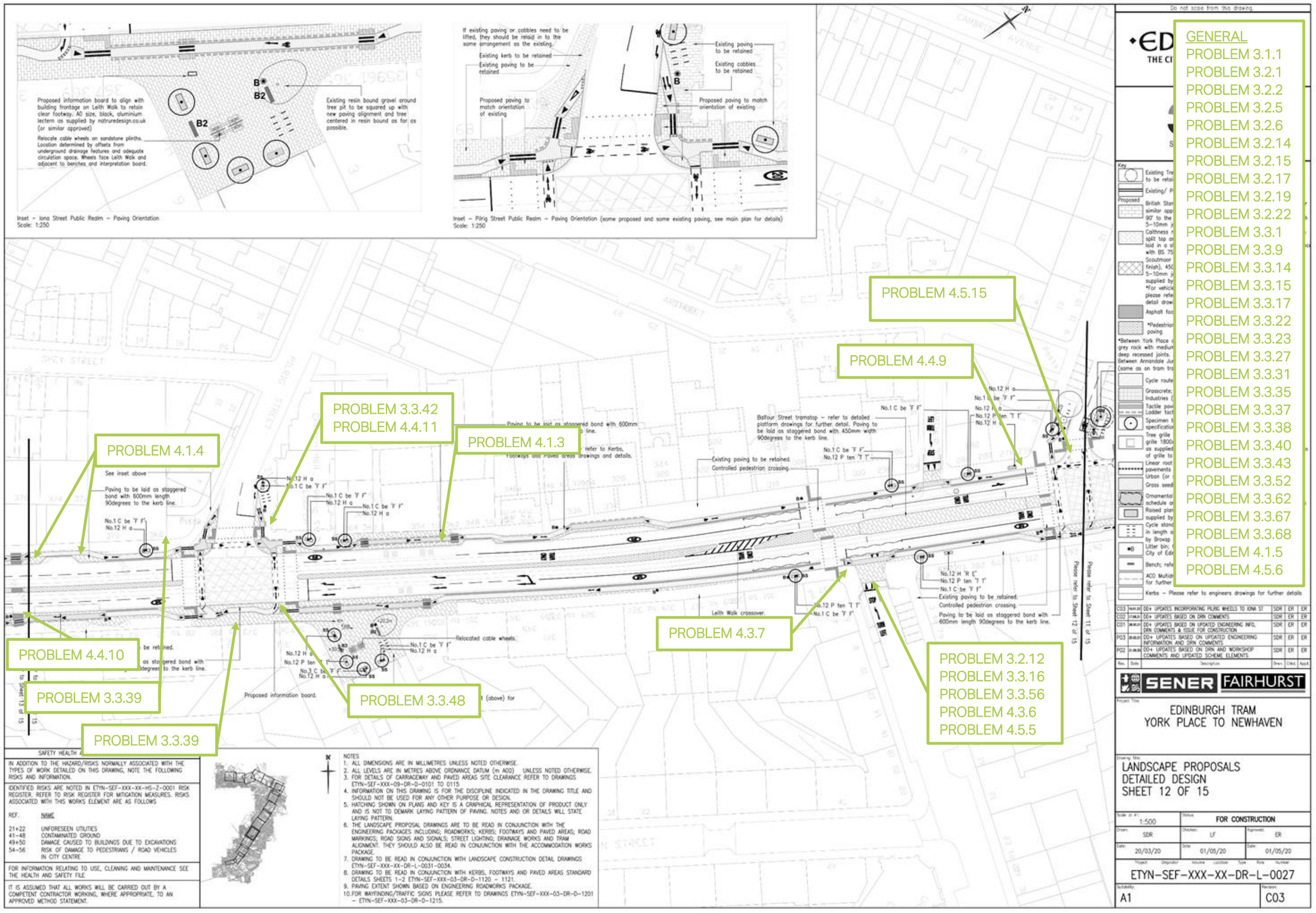


Figure 12 - Problem Location Plan (12 of 15)

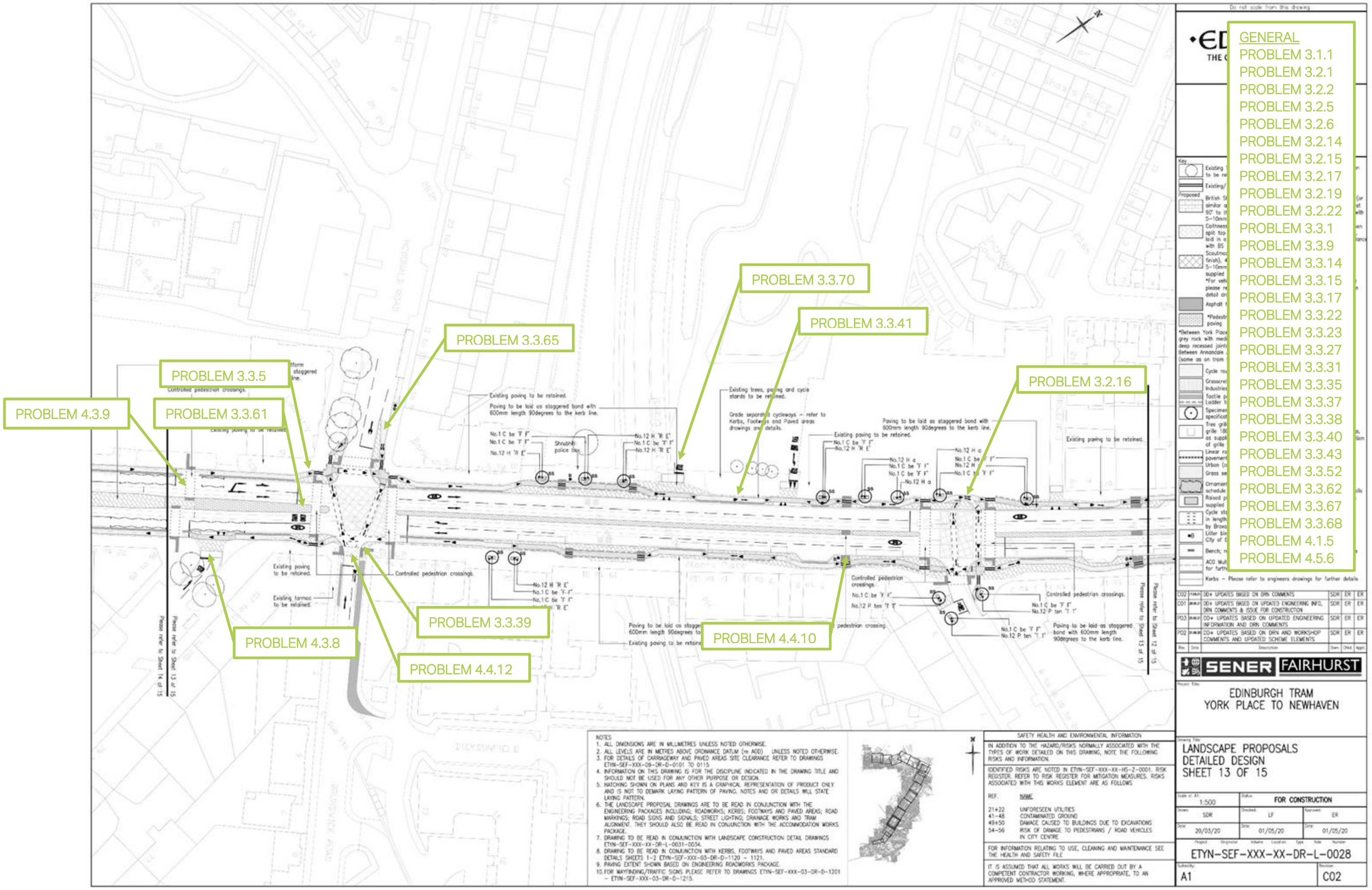


Figure 13 - Problem Location Plan (13 of 15)

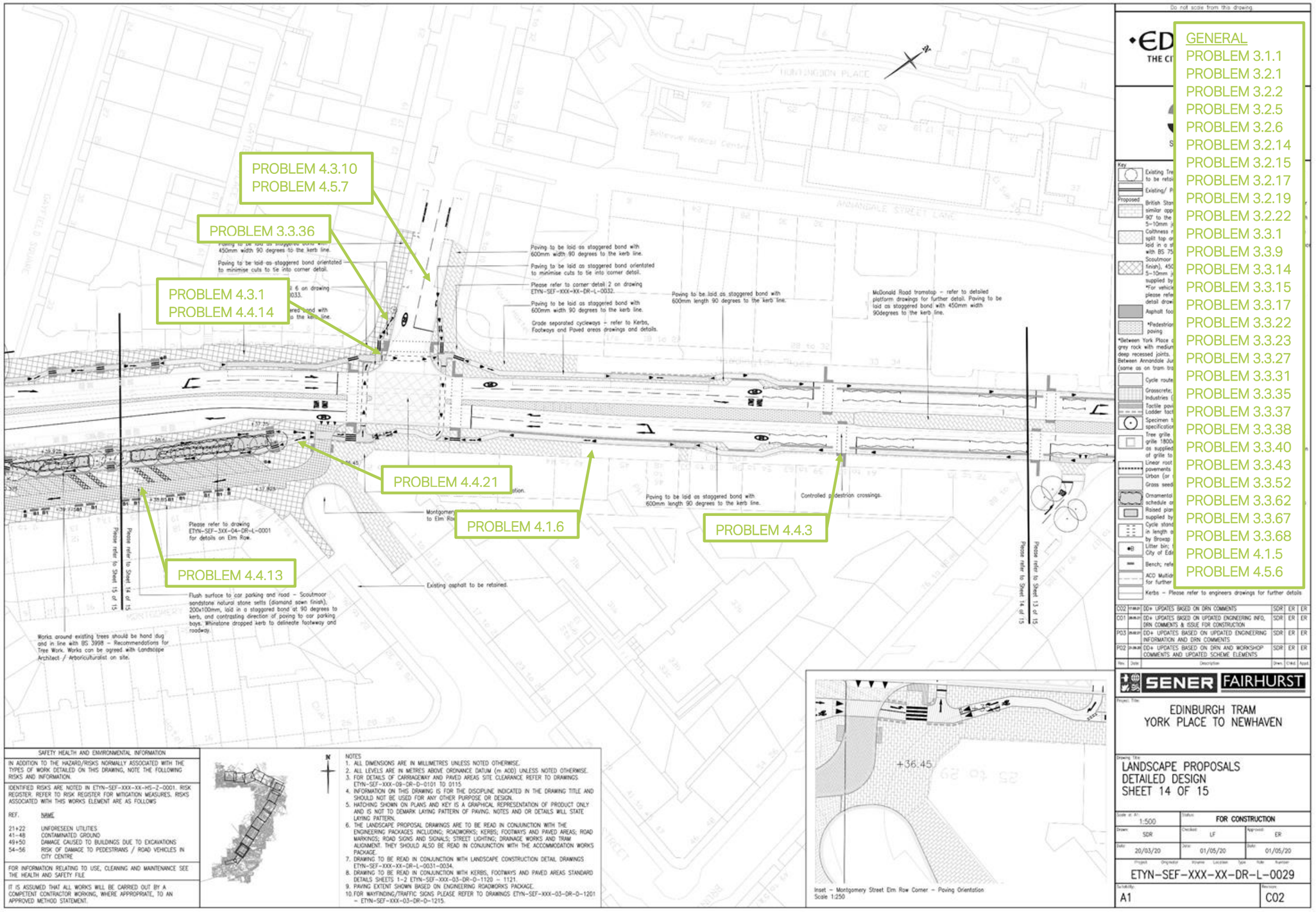


Figure 14 - Problem Location Plan (14 of 15)

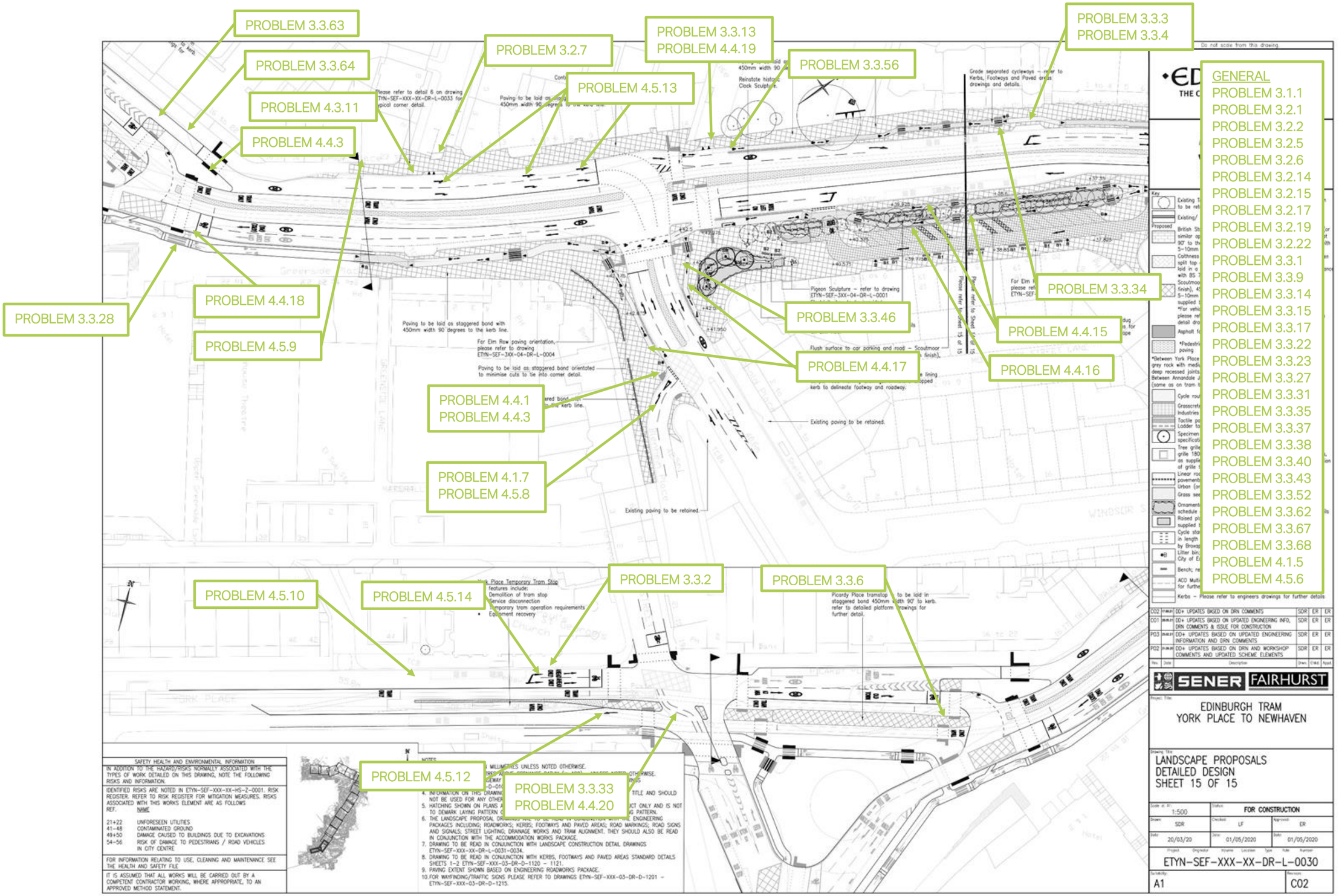


Figure 16 - Problem Location Plan (15 of 15)

Derek Williamson
Associate Director
T: +44-131-301-7800
M: +44-7823-389-896
E: Derek.williamson@aecom.com

AECOM Limited
1 Tanfield
Edinburgh
EH3 DDA
United Kingdom

aecom.com