


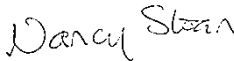


Tees Valley Combined Authority & Middlesbrough Council

Linthorpe Road, Middlesbrough
Proposed Restoration Works



Combined Stage 1 and Stage 2 Road Safety Audit



REPORT CONTROL			
Document	Combined Stage 1 and Stage 2 Road Safety Audit		
Project	Linthorpe Road, Middlesbrough Proposed Restoration Works		
Client	Tees Valley Combined Authority and Middlesbrough Council		
Report Number	NS24/992/RSA1-2		
Primary Author	Kevin Nicholson		
Reviewer	Nancy Sloan		
REVISION HISTORY			
Issue	Date	Status	Checked for Issue
1	23/09/24	Draft - issued to TVCA and MC.	
2	15/10/24	Final - following assimilation of collision data. Issued to TVCA and MC.	



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1. INTRODUCTION

1.1. This report results from a Combined Stage 1 and Stage 2 Road Safety Audit carried out on the highway works associated with the proposal to remove the cycle lanes on Linthorpe Road, Middlesbrough, between Borough Road in the north and Ayresome Street in the south. The proposals seek effectively to return Linthorpe Road to its layout prior to the introduction of the cycle lanes in 2022. Briefly, the works subject to audit comprise the removal of the cycle lanes and the reinstatement of footway and carriageway areas, pedestrian crossing points, bus stops and side road closures, together with associated traffic signs, road markings and drainage.

1.2. The Road Safety Audit was requested by Craig MacLennan of Tees Valley Combined Authority (TVCA) on behalf of that Authority and Middlesbrough Council (MC) and was carried out during September 2024 in accordance with the Stage 1/2 Road Safety Audit Brief issued by MC on 16 September 2024. The Brief approved the Audit Team and was accepted by them. The Audit Team membership was as follows:

Kevin Nicholson Nicholson Sloan Consultancy Limited (Audit Team Leader);

Nancy Sloan Nicholson Sloan Consultancy Limited (Audit Team Member).

1.3. The Audit Team visited the site together on the late afternoon and early evening of Monday 16 September, during which the weather was initially sunny and warm, and the road surfaces were dry. Traffic was steady and free flowing, other than short delays at the signalised junctions, and a large number of pedestrians and some cyclists were observed. Linthorpe Road is a two-way urban road subject to a speed limit of 20mph, and is street lit.

1.4. Historical collision data has been provided for the audit, covering the period January 2015 to September 2024. Some headline figures are shown below: -

- a total of 75 collisions were recorded during this period, generating 88 casualties;
- prior to the scheme opening in 2022, there was an average of 7.7 collisions per year, reducing slightly (but insignificantly) to 7.5 per year post-opening;
- a total of 17 collisions involving cyclists were recorded (14 were slight injury and 3 were serious). Of these, 16 occurred pre-opening (2 per year) and 1 post-opening (0.5 per year); This reduction could be an effect of the scheme offering segregation for cyclists, but a more in-depth analysis would be required to confirm any trends;
- there were 23 collisions (18 slight and 5 serious injury) involving pedestrians. All were struck either by cars, taxis or buses. There were 2.9 pedestrian incidents per year pre-opening and 4 per year post-opening;
- there were no fatalities resulting from any of the 75 recorded collisions.



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- 1.5. The terms of reference for this audit are as described in GG 119 (Revision 2) in the Design Manual for Roads and Bridges. The Team has reported only on the road safety implications of the proposals and has not examined or verified the compliance of the design to any other criteria. However, and without being prescriptive, the Audit Team might refer to a design standard or technical guidance where this would help to clarify a safety problem or recommendation. In addition, there may be alternative methods of addressing a problem that would be equally acceptable in achieving the elimination or mitigation of a problem, and these should be considered in the light of the recommendations in this report.
 - 1.6. The detail provided for the audit is shown in Section 5. All comments and recommendations are referenced to the design drawings and related documents and the locations of the items raised by the audit are shown on the plan in Section 6.
 - 1.7. Where relevant within this report traffic signs will be described either by their reference numbers on the drawings or by their diagram number within the Traffic Signs Regulations and General Directions 2016 (TSRGD).
 - 1.8. Within this report the generic term “pedestrians” can include walking pedestrians, wheelchair users, mobility scooter users, dismounted cyclists, the blind, partially sighted and mobility impaired. Reference may be made to specific groups where appropriate.



2. ITEMS RAISED BY PREVIOUS ROAD SAFETY AUDITS

- 2.1 A Stage 3 Road Safety Audit was carried out on the completed scheme in October 2022 and the resulting report was included with the Brief. None of the issues raised are considered to be still relevant to the current scheme subject to audit.

3. ITEMS RAISED BY THIS COMBINED STAGE 1 AND STAGE 2 ROAD SAFETY AUDIT

3.1 **PROBLEM** *(read in conjunction with 3.2 below)*

Locations: Linthorpe Road along the extents of the scheme.

Summary: Signing of the speed limit on Linthorpe Road and the side streets could confuse motorists.

There are a number of conflicting pieces of information regarding the existing and proposed speed limit on Linthorpe Road and its side streets, summarised as follows: -

- the Brief states that the design speed and speed limit is 30mph (under Section 2), but also states that the road is subject to a 20mph speed limit (under Section 3);
- the existing traffic signs on Linthorpe Road between its junctions with Borough Road and Ayresome Street show the speed limit as 20mph;
- the proposed signs on Albert Terrace appear to show this street as subject to a 20mph limit, and Linthorpe Road as 30mph. In addition, the descriptions of the signs include 'south facing' and 'north facing', when the street runs along an east-west orientation;
- the visibility splays for the side streets are specified as based on a stopping sight distance of 43m, for 30 mph vehicle speeds (as per manual for Streets).

The Audit Team considers that it would be beneficial in road safety terms to retain the existing 20mph speed limit, and not revert to the previous limit of 30mph. However, regardless of the final designation of the speed limit, any conflicting sign information could both confuse motorists and increase the risk of inappropriate or excessive vehicle speeds, with the attendant risk of collisions.

RECOMMENDATION

It is recommended that the speed limit signs are specified on the drawings based on the proposed (or existing) speed limit for Linthorpe Road and the side streets, as appropriate.

3.2 **PROBLEM** *(read in conjunction with 3.1 above)*

Locations: Garnet Street and Waterloo Road.

Summary: Turning collisions could occur.

The one-way signs on Garnet Street and Waterloo are specified as non-illuminated. Notwithstanding that the signs should be illuminated under the regulations if they are within a 30mph limit, in the absence of illumination, motorists might not be aware of the signs and could turn against the flow of traffic, with the attendant risk of collisions.



RECOMMENDATION

It is recommended that, if the signs are within a 30mph speed limit, they are illuminated.

3.3 PROBLEM

Location: The Linthorpe Road northbound approach to its junction with Princes Road and Southfield Road.

Summary: The absence of lane delineation could result in side swipe collisions.

The approach lanes are delineated by warning markings to Diagram 1004. However, they do not extend back to the first lane arrows that motorists will encounter on the approach. The presence of the arrows without lane delineation could result in motorists being unsure of the precise driving line to take, and thus the risk of side swipe collisions.

RECOMMENDATION

It is recommended that either the warning markings are extended to the south to coincide with the lane arrows, or that the arrows are removed.

3.4 PROBLEM

Location: The junction of Park Road North (northern end) with Linthorpe Road.

Summary: The layout of the tactile paving could confuse pedestrians.

While perhaps schematic, the tactile paving slabs on the north and south sides of the road do not fully align with one another. If laid as such, visually impaired pedestrians could fail to identify the tactile paving on the opposite side of the junction, with the attendant risks of disorientation in the carriageway and of them tripping over the full height kerbs opposite, or of conflicts with vehicles.

RECOMMENDATION

It is recommended that the tactile paving is re-aligned on the drawings.

3.5 PROBLEM

Location: The Linthorpe Road southbound approach to its junction with Park Road North (southern end).

Summary: The absence of lane delineation could result in side swipe collisions.

The nearside approach lane has straight-ahead arrows, but no left-turn arrow is included to indicate that the lane can also be used to turn left into Park Road North. This could result in motorists making last minute manoeuvres or braking suddenly, with the attendant risk of collisions.

RECOMMENDATION

It is recommended that left-turn arrow heads are added to the markings.



3.6 PROBLEM

Location: The raised gullies throughout the scheme.

Summary: The pattern of the gully gratings could result in pedestrians tripping and falling.

There are a number of locations where the existing carriageway gullies are to be raised to the level of the new footway. If the existing gratings are retained, pedestrians could trip and fall if they trap their heels in the grating.

RECOMMENDATION

It is recommended that the gratings are specified as types suitable for pedestrian use.

3.7 PROBLEM

Location: The bollards throughout the scheme.

Summary: Making the bollards conspicuous could reduce the risk of kerb strikes and collisions involving pedestrians.

There are bollards specified for the new build-outs throughout the scheme. If they are not clearly visible for motorists, there will be an increased risk of kerb strikes and of them mounting the footway and colliding with pedestrians.

RECOMMENDATION

It is recommended that either the bollards are provided with reflective banding, or specified as types capable of displaying a 'keep right' aspect (and also reflective).

3.8 PROBLEM

Location: The signalised pedestrian crossings throughout the scheme.

Summary: The proximity of the vehicle stop lines to the crossings could increase the risk of collisions.

The distances between the pedestrian crossing studs and the vehicle stop lines are not specified on the drawings, and it is possible that they could be laid in close proximity during construction. Accidents can occur at signal controlled crossings because drivers of high fronted vehicles can pull away unaware of the presence of pedestrians, particularly those who are slow moving and who cross close to their vehicles. This problem can be mitigated by ensuring that adequate visibility of pedestrians is available to drivers and given effect by providing sufficient distance from the stop line to the crossing studs.

RECOMMENDATION

It is recommended that the stop lines are specified as a minimum distance of 3m from the crossing studs (2.5m from the primary signal post) and shown as such on the drawings.



3.9 PROBLEM

Location: The interfaces between the existing and new sections of footway throughout the scheme.

Summary: Differential grip could lead to pedestrians slipping and falling.

Given that a number of different materials will form the finished footway areas, the new surface might have different properties to the existing adjacent surface in terms of their slip resistance in wet or freezing conditions, increasing the risk of slips and falls as pedestrians move from one surface to another.

RECOMMENDATION

It is recommended that the existing and new materials have similar properties in terms of slip resistance in wet or freezing conditions.



4. AUDIT TEAM STATEMENT

We certify that this Road Safety Audit has been carried out in accordance with GG 119.

ROAD SAFETY AUDIT TEAM LEADER

Kevin Nicholson BSc, CMaths, MCIHT, FSoRSA,
HE Certificate of Competency
Director, Nicholson Sloan Consultancy Limited
Cherry Tree Cottage
Hayton, Brampton, Cumbria, CA8 9HT

Signed:

A handwritten signature in blue ink, appearing to read 'Kevin Nicholson'.

Date:

15/10/24

ROAD SAFETY AUDIT TEAM MEMBER

Nancy Sloan MCIHT, MSoRSA
Director, Nicholson Sloan Consultancy Limited
Cherry Tree Cottage
Hayton, Brampton, Cumbria, CA8 9HT

Signed:

A handwritten signature in blue ink, appearing to read 'Nancy Sloan'.

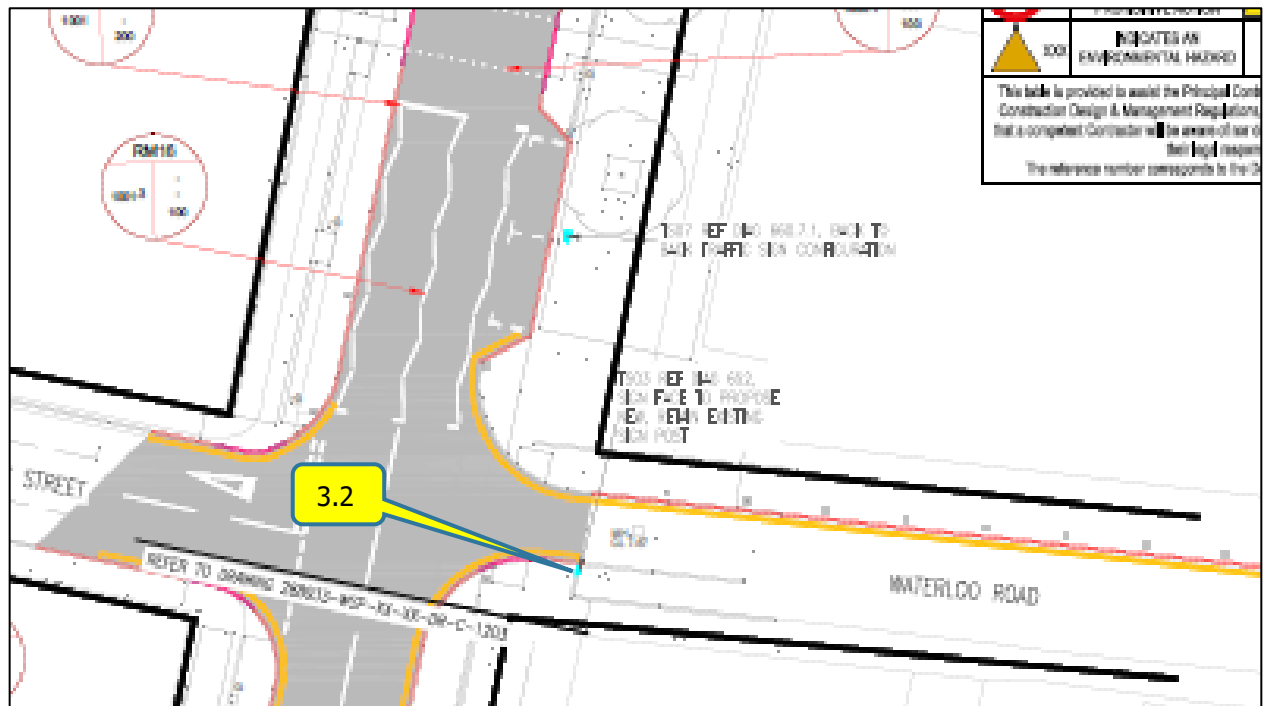
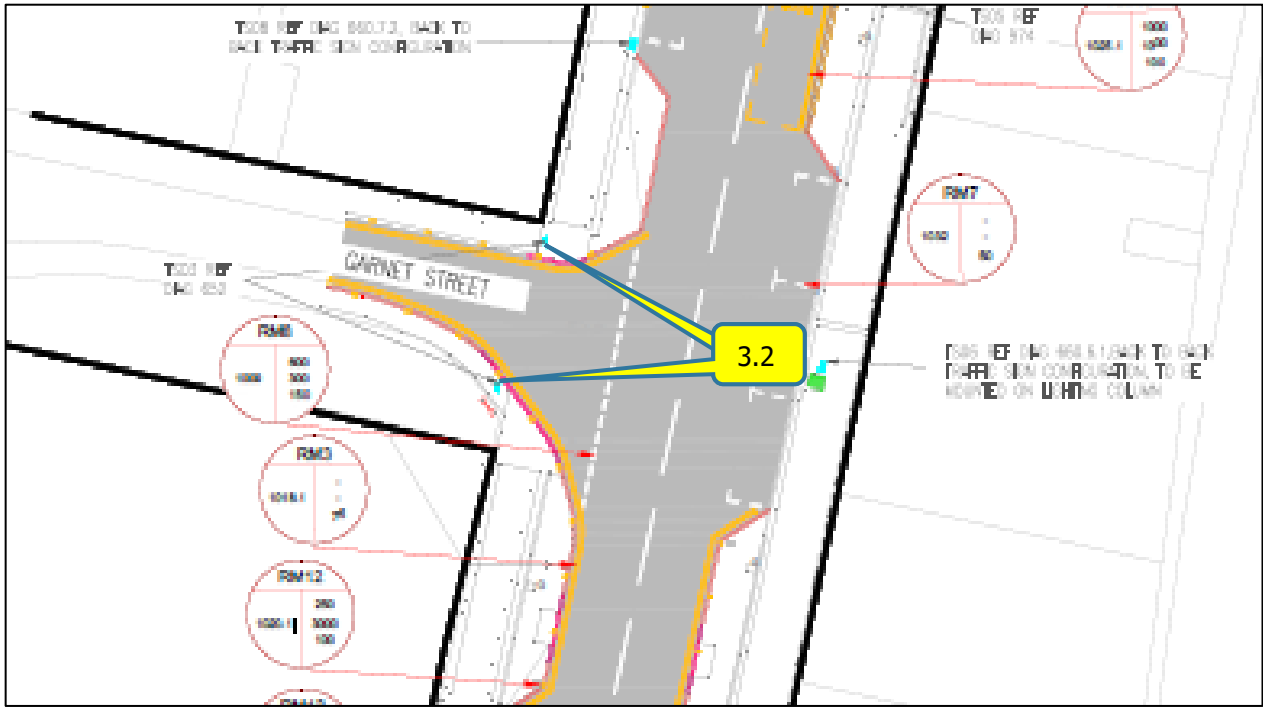
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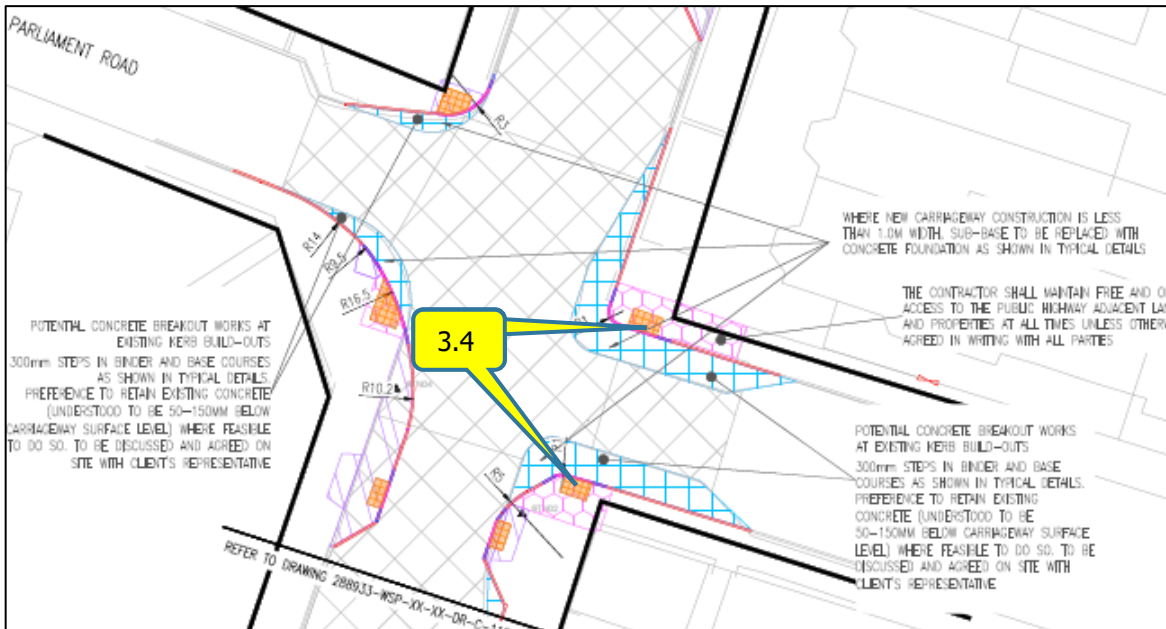
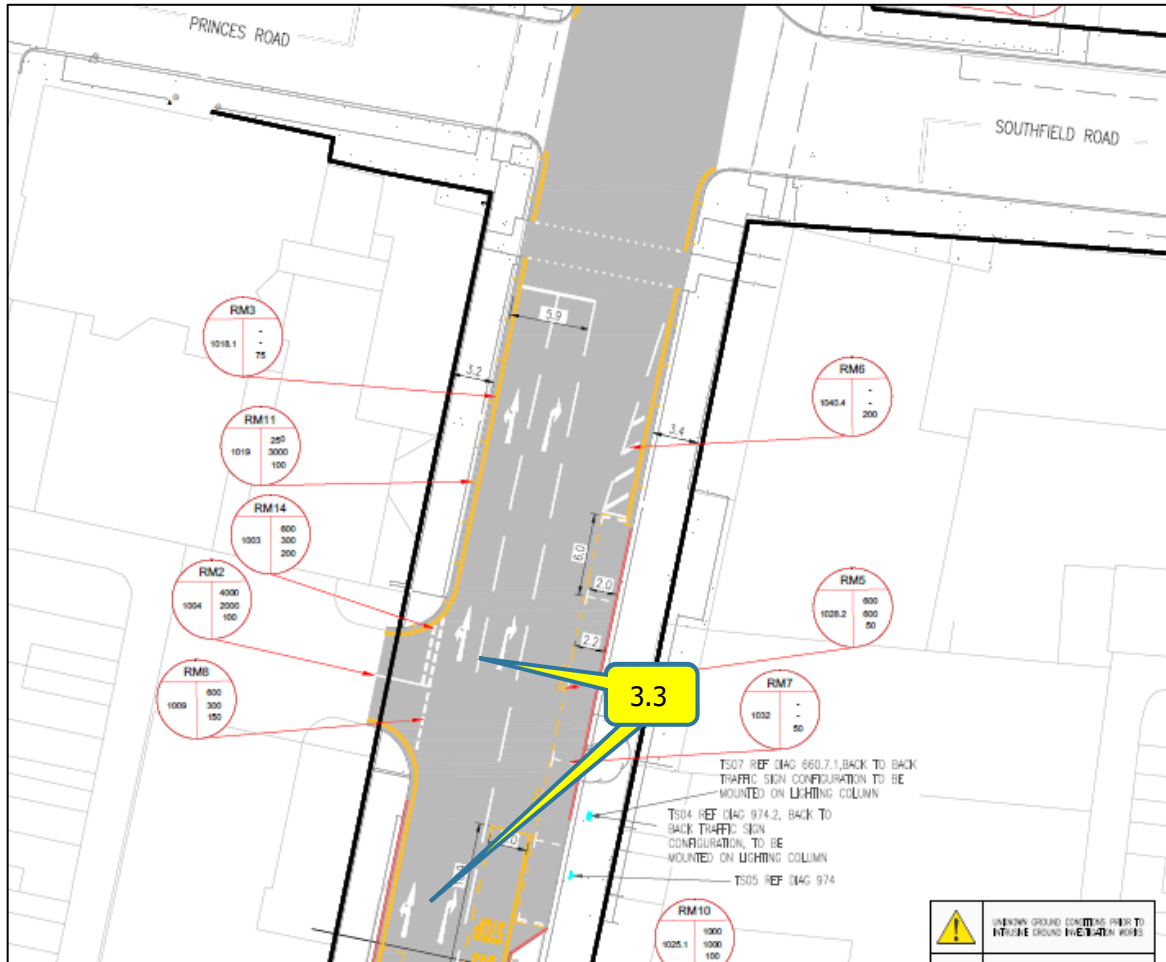
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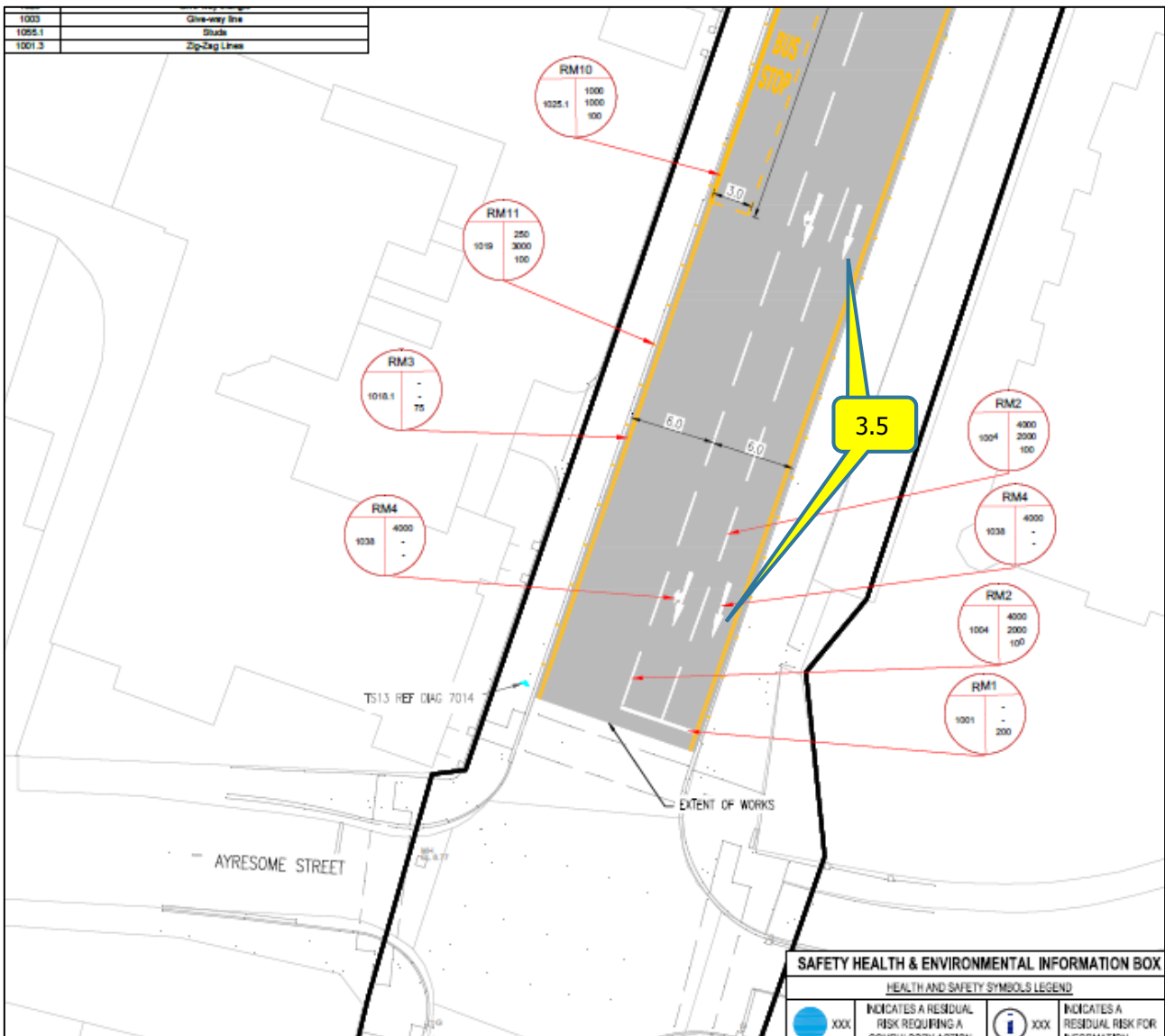
5. DRAWINGS AND DOCUMENTS PROVIDED

DRAWING OR DOCUMENT NUMBER	PROJECT AND TITLE	DATE
288933-WSP-XX-XX-RE-C-0001	LINTHORPE ROAD RESTORATION STAGE 1/2 ROAD SAFETY AUDIT BRIEF	16.09.24
288933-WSP-XX-XX-DR-C-0101 TO 0104 REVISION P02	LINTHORPE ROAD RESTORATION GENERAL ARRANGEMENT (SHEETS 1 TO 4)	31.07.24
288933-WSP-XX-XX-DR-C-0201 TO 0204 REVISION P02	LINTHORPE ROAD RESTORATION SITE CLEARANCE (SHEETS 1 TO 4)	31.07.24
288933-WSP-XX-XX-DR-C-0501 TO 0504 REVISION P02	LINTHORPE ROAD RESTORATION BELOW GROUND DRAINAGE LAYOUT (SHEETS 1 TO 4)	31.07.24
288933-WSP-XX-XX-DR-C-0511 REVISION P02	LINTHORPE ROAD RESTORATION DRAINAGE TYPICAL DETAILS	31.07.24
288933-WSP-XX-XX-DR-C-1101 TO 1104 REVISION P02	LINTHORPE ROAD RESTORATION KERBS, FOOTWAYS AND PAVED AREAS (SHEETS 1 TO 4)	31.07.24
288933-WSP-XX-XX-DR-C-1111 REVISION P02	LINTHORPE ROAD RESTORATION TYPICAL HIGHWAY DETAILS	31.07.24
288933-WSP-XX-XX-DR-C-1112 REVISION P02	LINTHORPE ROAD RESTORATION TYPICAL HIGHWAY SECTIONS	31.07.24
288933-WSP-XX-XX-DR-C-1201 TO 1204 REVISION P02	LINTHORPE ROAD RESTORATION TRAFFIC SIGNS AND ROAD MARKINGS (SHEETS 1 TO 4)	31.07.24
288933-WSP-XX-XX-DR-C-1211 TO 1214 REVISION P02	LINTHORPE ROAD RESTORATION TRAFFIC SIGN DETAILS (SHEETS 1 TO 4)	31.07.24

6. LOCATION PLANS OF ITEMS RAISED BY THIS AUDIT







3.1, 3.6, 3.7, 3.8 & 3.9 – throughout the scheme