STEWART PATON ASSOCIATES

Consulting Engineers and Forensic Investigation Specialists

EAST NETHERSHIELDS ROAD SAFETY REVIEW OF TIMBER EXTRACTION JUNCTION

ROAD SAFETY REVIEW
(SPA Ref No: 5564)

Roads Authority: South Lanarkshire Council

Client: Tilhill

Report prepared by:
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DOCUMENT CONTROL

General

Project	East Nethershields, Road Safety Review of Timber Extraction Junction
Client	Tilhill
Document Type	Road Safety Review
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Report Revisions

	Originator	Date	Reviewer	Date	Status
Draft –Rev 0	Kevin McMahon	17/04/2024	Steven Saunders	18/04/2024	For Review
Final - Rev 0	Kevin McMahon	18/04/2024			Pass to Client

1.0 PROJECT DETAILS

Report title:	East Nethershields, Road Safety Review of Timber Extraction Junction
Date:	April 2024
Document reference and revision:	5564/Timber Extraction-RSR- E Nethershields /RSR/Final-Rev-0
Prepared by:	Stewart Paton Associates Limited
On behalf of	Tilhill

2.0 INTRODUCTION

2.1 Tillhill have requested a review of a potential timber extraction junction on the A723 some 4.25km north of the centre of the town of Strathaven.

2.2 Stewart Paton Associates, as experienced road safety consulting engineers, have been asked to undertake a Road Safety Review (RSR) of the existing access point and the features on the A723 route.

2.3 The intention of the RSR is to provide a first level assessment of the access junction as a potential timber extraction point in some twenty years' time. This involves assessment of the route and the conditions on site and to identify any shortcomings along with initial views on potential improvements.

2.4 The junction under consideration is located at the point of an existing field access on the west side of the A723. A view of the access can be seen in the image below.

View of the existing field access when travelling south on the A723

2.5 The A723 heads north from Strathaven towards Hamilton and eventually terminates at Holytown.

2.6 At the proposed junction the road is a single carriageway that has a lane provided for travel in either direction. The road is subject to the national speed limit of 60mph.

2.7 The road at the proposed access point has a relatively onerous in both the vertical and horizontal planes.

2.8 This is reflected in the provision of a solid white central line system, high friction surfacing and a series of chevron signs at the various bends along this section of the route.

2.9 There are no footway or cycleway facilities on this section of the A723 and the carriageway is generally bounded by grass verges.

3.0 METHODOLOGY

3.1 It was agreed that the Road Safety Review would be undertaken following the principles of the GG 119 Road Safety Audit process.

3.2 That being that the existing road layout, traffic data and collision data would be assessed.

3.3 Any potential road safety problems would be identified with any potential changes to the road network and, where necessary recommendations would be made that may be of assistance to any future design team that is asked to progress matters in the future.

3.4 The Road Safety Review Team membership was as follows:

Kevin McMahon, BSc, MSc IEng FIHE, MCIHT, FSoRSA
Managing Director of Stewart Paton Associates Ltd., Consulting Engineers and Forensic Investigation Specialists
(Certificate of Competency in Road Safety Audit gained in August 2017)

Steven Saunders, HNC, MIHE
Consultant to Stewart Paton Associates Ltd., Consulting Engineers and Forensic Investigation Specialists

3.5 The Road Safety Review instruction was supplied by Olivia Fitzgerald of Tilhill.

3.6 The Road Safety Review took place at the Edinburgh office of Stewart Paton Associates during April2024.

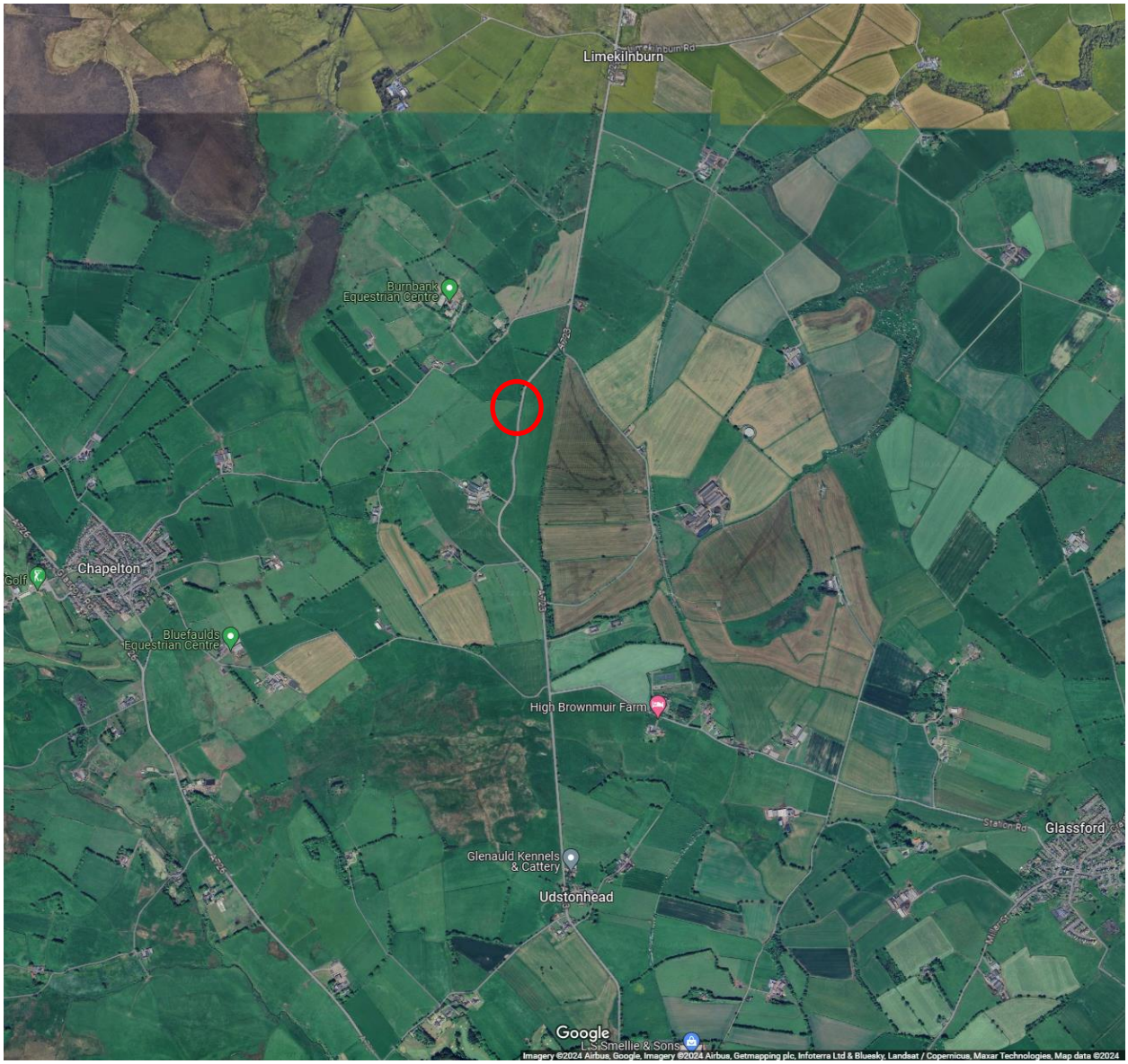
3.7 A site inspection was undertaken on 15 April 2024 commencing at 17:30. At the time of the inspection the weather was overcast with occasional drizzle, the road surface was damp and traffic volumes were light.

3.8 The terms of reference of the Road Safety Review are generally as those as described in GG 119 for a Road Safety Audit. The Road Safety Review Team has examined and reported

only on the road safety implications of the problem identified as presented and has not examined or verified the compliance of the designs to any other criteria.

4.0 THE EXISTING ACCESS ROAD LAYOUT

4.1 The route under consideration is located to the north of Strathaven and is around 1.65km to the south of the junction with Limekilburn Road.



4.2 It can be seen from the image above that, when heading south to north, the A723 is relatively straight. However, to the south and north of the access junction there are a series of bends.

4.3 The sequence of bends are as follows when leaving the straight section of road heading northwards.:

Left
Right
Left

Right
Right
Left

4.4 The bends are clearly defined by the provision of chevron boards, hazard marker posts, solid centre lines, high friction surfacing and SLOW markings on approach.

4.5 A number of bends have been provided with a bend warning sign.

4.6 The image on this report cover shows an example of the above treatment of junctions.

5.0 DESIGN STANDARDS

5.1 The historical and rural nature of the access road means that it does not meet the current design standards for new roads.

5.2 As described in section 4.0 above the road has essentially been provided on a route that has most likely been chosen to tie-in with the local topography and possibly long-standing tracks and routes.

5.3 This then leads to a road with a geometry that includes relatively onerous vertical and horizontal alignments when compared to any new road design standards and layouts.

5.4 An essential design element for single carriageway roads is the stopping sight distance (SSD).

5.5 An appropriate SSD is required to ensure that users have adequate road length to stop should they encounter stationary or opposing traffic and traffic turning at junctions.

5.6 The A723 at this point is subject to the national speed limit sign (60mph). This requires a SSD along the route and a visibility splay at junctions of 215m.

5.7 When considering the northbound approach to the access junction the SSD of 215m is probably just being met in the horizontal plane. However, the view to the lower object height of 0.6m in the vertical plane may be restricted.

5.8 The SSD of around 215m looking northwards can be seen in the image below. The access junction location is highlighted at the trees in the middle of the image.

5.9 When looking southwards the horizontal curvature is more onerous and the 215m SSD cannot be achieved as the view crosses over the field on the east side of the road.

5.10 In this circumstance there may be no control by the roads authority or any 'developer' over the land to the east of the A723.

5.11 It is estimated that the SDD on the southbound approach to the access junction is only in the region of 100mm.

5.12 In addition to this, the image below shows there is a vertical crest that restricts the forward visibility to the carriageway to the south of the junction.

6.0 COLLISION RECORDS

6.1 The Review Team has examined the website www.crashmap.co.uk which holds publicly available records from injury collision records on the public road network.

6.2 Currently records are available to the end of 2022.

6.3 Looking over the last available five year period from 2018 to 2022 there are six injury collisions in the vicinity of the access junction under consideration.

6.4 The location of the collisions can be seen in Annex 1.

6.5 There are three slight injury collision to the south of the access junction. To the north there are two serious collisions and then one slight injury collision.

6.6 Of these collisions, the ones most relevant to the proposed access junction are the slight injury collisions directly to the south of the access junction and the serious collision directly to the north of the access junction.

6.7 The collision that occurred on 16 July 2020 between the two access junctions for Nethershields Farm appears to be related to two opposing vehicles colliding at the bend in the carriageway. It is assumed that there has been a loss of control where crossing of the centre line has occurred.

Northbound view of location of the slight injury collision on 16 July 2020

6.7 The serious collision directly to the north of the access junction on 13 October 2022 appears to be the result on a collision involving turning traffic at the junction that leads to Shotlinn Farm.

Southbound view of location of the serious injury collision on 13 October 2022

6.8 When looking back over a longer period it is clear that the A723 at this section has a long injury collision record and this has resulted in the aforementioned mitigation measures of infrastructure being provided at the bends in the road.

7.0 TRAFFIC MOVEMENTS AND JUNCTION REQUIREMENTS AT PROPOSED ACCESS.

7.1 The review team's experience of junctions for timber extraction works is that they require a relatively large bell mouth to deal with the size of vehicles used.

7.2 The images (from Google Maps) below show typical access junctions provided for timber extraction.

7.3 If a similar sized junction was to be provided on the A723 there would need to be extensive clearing of the verge.

7.4 It is likely that the northern extent of any junction would be restricted by the trees to the north.

7.5 The hedgerow to the south would have to be cleared and it is likely the bell mouth would need to extend to the limits shown below.

7.6 This would then result in the centre of the junction being to the south of the vertical crest at the trees.

7.7 The result of this is that the required visibility splay in both directions is likely to be reduced.

8.0 ROAD SAFETY ISSUES ARISING FROM A NEW JUNCTION LAYOUT ROAD LAYOUT

8.1 GENERAL ALIGNEMENT

8.1.1 The road safety concern is that the vehicles related to timber extraction are generally large and therefore slow moving, especially when fully loaded.

8.1.2 On the stretch of road under consideration other traffic will not normally be expecting slow moving and turning HGV's especially if there is a regular and relatively frequent volume. As such there is the potential risk for side on impacts, especially as the SSD and visibility splay requirements as discussed in earlier sections of the report will not be met.

8.1.3 In addition to this, depending on what junction geometry can be provided, the swept path of larger vehicles may result in them passing into the opposing traffic lanes when undertaking turning movements. This then increases the potential for head on collisions with opposing traffic flows.

RECOMMENDATION

8.1.4 The only recommendation, other than road realignment, would be the provision of vehicle actuated signs to warn traffic of the presence of slow-moving larger loads on this section of road.

8.1.5 There are such systems available but currently these are generally provided in areas that cover all general traffic movements.

8.1.6 To have a specific warning for the presence of timber extraction vehicles there may be a need for a bespoke system of detection and warning.

8.1.7 Detection and classification of any large vehicle (HGV or similar) could be by an inductive loop counter. This would have inductive loops cut into the road surface and connected to a traffic counter positioned in an adjacent cabinet. This would class the vehicle by length and chassis height. This switch output (tigger) would then be sent wirelessly to a sign(s) that would start flashing and warning of the presence of larger vehicles.

8.1.8 The signs and detection points could be operated via sustainable wind and solar power or mains if there were connections close by.

8.1.9 The exact location of the detectors and also warning signs would need to be fully considered, possibly in conjunction with neighbouring residents and other users.

8.1.10 A company such as Clearview Intelligence are well placed to undertake work in relation to investigating if such a system is possible and practical at the proposed access junction location.

8.2 JUNCTIONS - 1

8.2.1 To accommodate vehicles suitable for timber extraction the junction bellmouth will need to be relatively large and wide. The issues for general traffic may be that the junction is be confused as one related to a side road for general traffic .

RECOMMENDATION

8.2.2. As such if a junction was to be provided care would be required regards the type of signing provide. While warning signs would assist in giving general traffic an indication of the junction, additional plates may be required to indicate this is a works/forestry access to deter usage by general traffic.

8.3 JUNCTIONS - 2

8.3.1 In terms of turning movements, any right turns across the carriageway result in a greater risk of collisions. As such, if a junction were to operate on a Left In/Left Out (LILO) basis, this would reduce, but not eliminate, the risk of collisions.

8.3.2 Even if a LILO access junction was provided then there is the possibility of northbound traffic colliding with vehicles slowing down on entry and with merging traffic on exit.

8.3.3 The additional problem with LILO junctions is that a planned route must be developed to accommodate the various trips generations and destinations.

8.3.4 Unless there are adequate turning opportunities, especially for larger HGVs, this can simply result in displacing risks of collisions to other parts of the road network where vehicles may be trying to turn and reverse their direction of travel.

8.3.5 In the case of timber extraction vehicles, there may be objections and concerns over such traffic having to enter more urban and populated areas.

8.3.6 Another issue is that there is also a reliance on adherence to any prohibited right- turns. Therefore, especially with smaller vehicles, or possibly in quieter times, some drivers may choose to simply ignore the intended LILO operation and proposed 'diversion route'. This then results in such users making unexpected at both the access junction or other nearby junctions to reduce journey times.

RECOMMENDATION

8.3.7. As such if a junction was to be provided then work would need to be undertaken to identify a suitable route for vehicles to reverse their direction of travel. This would require swept path analysis for 'U-turn' type manoeuvres

8.3.8 The most obvious and potentially suitable turning points would be as follows:-

North of the access junction – A723 at the 'double roundabout' with Ambelside Drive, Hamilton (3.75km)

South of the access junction – A723 at the roundabout with Beauly Avenue, Strathaven (3.5km)

8.3.9 The use of a LILO junction and a 'diversion' route for reversing directions of travel would need to agreed with the roads authority.

8.4 PEDESTRIANS, CYCLISTS, EQUESTRIANS

8.4.1 There are no footway facilities on the section of road under consideration. It is unlikely the route will be used by equestrians given the onerous road geometry.

8.4.2 However it is possible that cyclists, especially those on road race bikes, may use the route given the challenges offered by the undulating alignment. These users would face the same issues, as discussed above, that would be encountered by general vehicular traffic.

8.4.3 As such the recommendation for vehicle actuated signs and other warning signs also applies.

9.0 CONCLUSIONS

9.1 It is the view of the Review Team that, while the proposed timber extraction access junction would be located at an existing field access, there are a number of issues and road safety risks when considering the increase in the number and frequency of turning movements and the type of vehicles involved.

9.2 The horizontal and vertical alignment of the A723 is onerous and the required visibility requirements could not be met, especially in relation to the north side of the junction.

9.3 It is unlikely that a roads authority would accept a junction at this location given the road geometry, design constraints and the injury collision record for this stretch of road.

9.4 While, looking at the longer-term data, there are only two collisions at the access junction site, there are multiple collisions on the A723 on either approach. As such, this will give the roads authority significant concerns as there may also be objections raised by those familiar with the route and the injury collision history.

9.5 If a junction was to be provided at the proposed location for timber extraction, then more understanding would be needed with regard to how long it would be operational.

9.6 It is often possible to provide temporary access points on roads with onerous geometry where mitigation measures, such as lowering speed limit and temporary signing can assist with operations over a short period. Users of the route can often be accepting of such arrangements if the works are short term.

9.7 However it is anticipated that timber extraction work would not be a relatively short- term operation.

9.8 As such, if the access junction location was to be used then a more sophisticated warning system, such a vehicle actuated signs, would be required to warn users of the presence of larger vehicles turning.

9.9 The introduction of a LILO junction would help reduce some of the risk discussed earlier in the report but would not help eliminate them.

9.10 However, such an arrangement may simply transfer road safety risks to other locations of the road network and, as such, the roads authority are unlikely to accept such a design.

10.0. REVIEW TEAM STATEMENT

We certify that this Review has been carried out generally in accordance with GG 119

REVIEW TEAM LEADER

Name: Kevin McMahon
BSc, MSc IEng FIHE, MCIHT, FSoRSA
Position: Managing Director

Signed: 
Dated: 18 April 2024

Organisation: Stewart Paton Associates Ltd
Consulting Civil Engineers

Address: 69 Barnton Park Avenue
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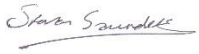
EH4 6HD

REVIEW TEAM MEMBER

Name: Steven Saunders
HNC, MIHE
Position: Consultant

Signed: 
Dated: 18 April 2024

Organisation: Stewart Paton Associates Ltd
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Address: 69 Barnton Park Avenue
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Annex 1 COLLISIONS RECORDS 2018 – 2022

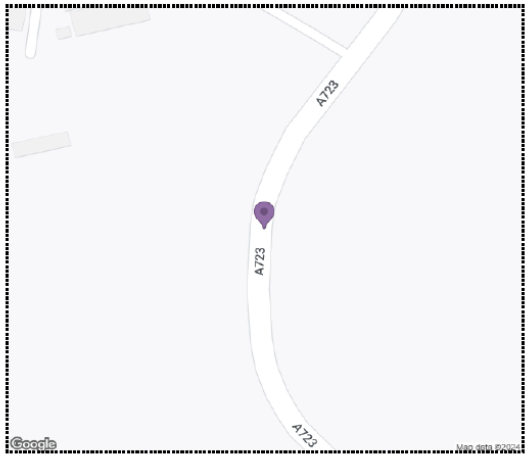
(Map based information of 6 collisions and two site specific details of two collisions closest to the proposed access junction)


crashmap.co.uk
CrashMap Data: Great Britain 1999 - 2022 (verified)
Home
CrashMap Pro
My Account
FAQ
Contact us
Map
Satellite
Hide
Location:
strathaven
Years
5 of 24 years selected
Severity
Casualty Types:
All Casualty Types
Vehicles Involved:
All Vehicle Types
Search
Incident Severity
Slight
Serious
Fatal
13 results found
A723
A726
Crooked Stone
Crookedstone Farm
Glenmuir Cottage
Burnbank Equestrian Centre
Burn Farm
Shawtonhill
Quaker Burial Ground
E:K Aggregates
Grow Organic
Dampaber Burn
Powmillon Burn
Chapelton Parish Church
Chapelton
Broadlees Golf
Chapelton Bowling Club
Bluefaulds Equestrian Centre
Peachfur Beauty Lounge
High Brownmuir Farm
Wellbrae Farm
Jans View Gallops
Glenauld Kennels & Cattery
Udstonhead
Haggs Farm
Glassford
Glassford Cemetery
Glassford Primary School
Frame William
Driving Instructor Training - Tri...
Station Rd
Craighorsehill Rd

crashmap.co.uk

Validated Data

Crash Date:	Thursday, July 16, 2020	**Time of Crash:**	08:30:00	**Crash Reference:**	2020990965038
Highest Injury Severity:	Slight	**Road Number:**	A723	**Casualties:**	2
Highway Authority:	South Lanarkshire			**Vehicles:**	2
Local Authority:	South Lanarkshire			**OS Grid Reference:**	270105 648682
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	60				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Not Applicable				



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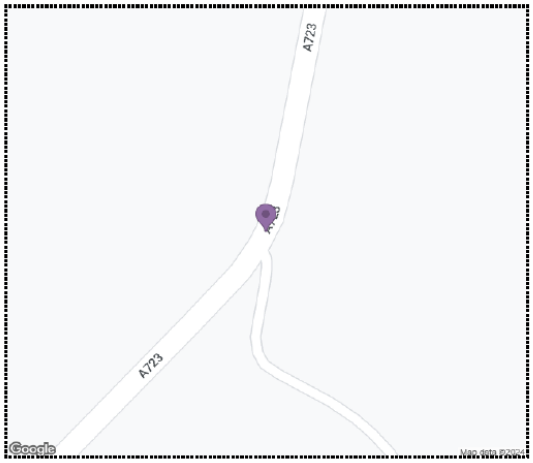
Validated Data

Crash Date:	Thursday, October 13, 2022	**Time of Crash:**	06:46:00	**Crash Reference:**	2022991229813
Highest Injury Severity:	Serious	**Road Number:**	A723	**Casualties:**	1
Highway Authority:	South Lanarkshire			**Vehicles:**	2
Local Authority:	South Lanarkshire			**OS Grid Reference:**	270423 649475
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	60				
Light Conditions:	Darkness: no street lighting				
Carriageway Hazards:	None				
Junction Detail:	Using private drive or entrance				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Single carriageway				
Junction Control:	Give way or uncontrolled				



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