

Cefndon Farm,
Neath Road, Tonna,
Neath Port Talbot



Road Safety Audit - Stage 2

Barratt Homes /
David Wilson Homes

January
2017

Lime Transport Ltd
5A Andrews Buildings
Stanwell Rd
Penarth, CF64 2AA

t: 02920 700924
e: mail@limetransport.com

www.limetransport.com

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1 Introduction

1.1 Background

- 1.1.1 This report sets out the results of a Stage 2 Road Safety Audit, requested by Barratt Homes South Wales/David Wilson Homes South Wales, of the S278 and S38 works as part of the proposed development at Cefndon Farm, Tonna.
- 1.1.2 The Audit Team comprised:
- Andy Roberts BEng (Hons) MCIHT MSoRSA FFB Lime Transport, Penarth
 - Hywel Purchase BSc (Hons) Lime Transport, Penarth
- 1.1.3 None of the members of the Audit Team were involved in either the preliminary or detailed design of the scheme, and there were no additional members who attended the site visit or undertook a concurrent audit.
- 1.1.4 The audit took place on site on the 3rd January 2016, when the weather was dry/sunny and the road surface was dry, and also by examination of the drawings provided by Hammonds Yates Ltd.
- 1.1.5 The terms of reference of the audit are as described in HD 19/15. This Safety Audit examines the safety implications of the proposed scheme as noted on site. It presents observations and recommendations only where there are identified deficiencies in the safety of the scheme. This Audit report does not verify compliance of the scheme with any other standard or criteria.
- 1.1.6 The documents supplied to the Audit Team comprise:
- E1605/201M Engineering Layout;
 - E1605/207D Longitudinal Sections Sheet 1;
 - E1605/237 Section 278 Agreement Plan;
 - E1605/241 Section 38 Agreement Plan;
 - E1605/249 Road Construction Details Section 38/278 Agreement;
 - E1605/250A Signing and Lining Layout;
 - E1605/251A S278 and S38 Highway Works Layout; and,
 - E1605 252 Tracking Plan Site Entrance;
 - E1605 253 Bus Stop Details
 - Audit response Stage 1 RSA, Tonna, prepared by Hammond Yates; and,
 - T13.138.D1 Transport Assessment prepared by Asbri Transport
- 1.1.7 No details of existing or proposed vehicular or pedestrian flow data was submitted to the Audit Team, and no departures from standards have been reported to the Audit Team.

2 Items raised in the Stage 1 report

2.1.1 The road safety aspects of the s278 and s38 works as part of the development at Cefndon Farm, Tonna, were the subject of comment in the December 2016 Stage 1 Road Safety Audit report as detailed below:

- 2.1.3 Manhole cover within the footway;
- 2.1.4 Manhole cover(s) within the existing carriageway; and
- 2.2.6 Adequacy of the street lighting.

These items remain a problem and are referred to again in this Road Safety Audit Report below. All other issues have been resolved.

3 Items raised at this Stage 2 Audit

3.1 General

Public utilities/service apparatus

- 3.1.1 **Problem** Existing manhole cover slippery when wet
Location Footway along the eastern edge of the B4434 Neath Road

The Audit Team noted from the site visit that there is a manhole cover located within the centre of the footway on the eastern side of the carriageway that will be within the carriageway when the proposed access is constructed. In the absence of any details, the Audit Team is concerned that the cover/chamber is not designed to support vehicular traffic and could deflect under vehicle loads and create a potential hazard for vehicles, resulting in drivers taking sudden braking manoeuvres or evasive action leading to rear-end shunt type accidents.

Recommendation

The Audit Team recommends that the cover/chamber is replaced with a suitable cover/chamber that is capable of accommodating vehicle loads.



- 3.1.2 **Problem** **Manhole will become slippery when wet**
 Location **Footway along the eastern edge of the B4434 Neath Road**

The Audit Team noted from the site visit that there is a manhole cover located within the centre of the footway on the eastern side of the carriageway that will be within the carriageway when the proposed access is constructed. In the absence of any details, the Audit Team is concerned that the cover will become slippery during wet weather, and could lead to drivers (particularly riders of powered two-wheelers) losing control of their vehicles when undertaking turning manoeuvres. This could result in a vehicle hitting an oncoming vehicle or mounting the kerb and striking a pedestrian.

Recommendation

The Audit Team recommends that the cover is replaced or treated with appropriate anti-skid surfacing.

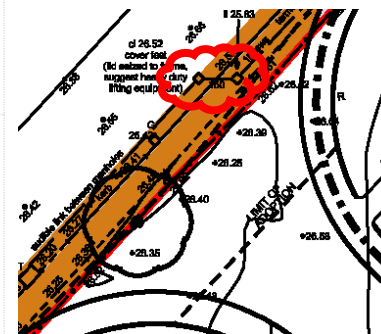


- 3.1.3 **Problem** **Manhole covers may become slippery when wet**
 Location **Within bell-mouth of proposed site access**

The Audit Team notes from the Section 278 Agreement Plan (1605/237) that there are a number of manhole covers shown within the junction bell-mouth of the proposed site access. The Audit Team is concerned that during wet weather the covers will become slippery, and could lead to drivers (particularly riders of powered two-wheelers) losing control of their vehicles when undertaking turning manoeuvres. This could result in a vehicle hitting an oncoming vehicle or mounting the kerb and striking a pedestrian.

Recommendation

The Audit Team recommends that the cover is replaced or treated with appropriate anti-skid surfacing.



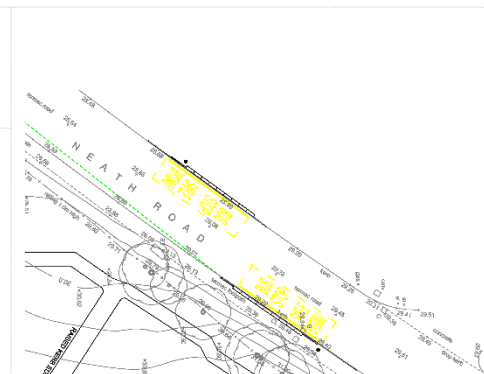
3.1.4 Problem Waiting buses will obstruct forward visibility for overtaking vehicles

Location Proposed bus stops along the B4434 Neath Road, north of the site access

The Audit Team note from the plans that it is proposed to provide northbound and southbound bus stops to the north of the site access junction, with the northbound stop approximately 30m south of the southbound stop. The Audit Team is concerned that in the event that northbound and southbound buses are waiting at the stop at the same time, the buses will obstruct forward visibility for overtaking vehicles. This could lead to vehicles attempting to pass a waiting bus into the path of an oncoming vehicle, resulting in rear-end shunt type accidents or head-on collisions.

Recommendation

The Audit Team recommend that the northbound bus stop is moved north of the southbound bus stop, to prevent both buses obstructing forward visibility for overtaking vehicles.



Access

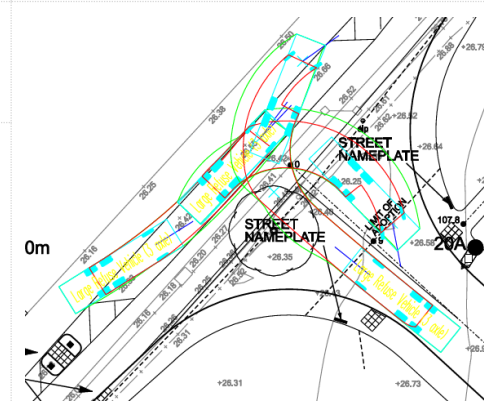
3.1.5 Problem Inadequate swept-path analysis has been provided to Audit Team

Location Proposed site access

The swept-path analysis provided to the Audit Team does not include all turning movements at the proposed site access (does not include left-in/left-out manoeuvres) and therefore the Audit Team is unable to determine whether large vehicles can access the site without conflicting with other vehicles – resulting in side swipe or rear end shunt type accidents, or pedestrians – resulting in pedestrians being hit by vehicles.

Recommendation

The Audit Team recommends that a full swept-path analysis is undertaken to demonstrate that the range of vehicles likely to access the site can do so safely.

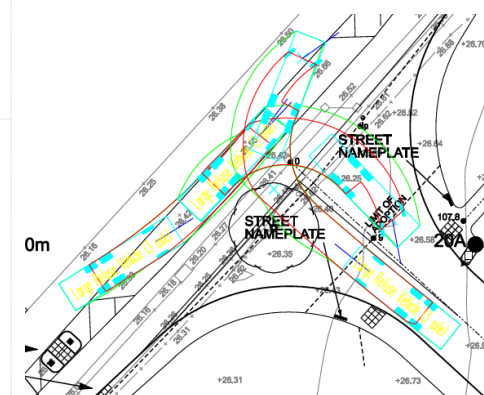


3.1.6 **Problem** **Rear of large vehicles overhang northbound running carriageway**
Location **Proposed site access**

The Audit Team note from the plans that the rear of a large refuse vehicle (turning right in to the site) over-sweeps the northbound running lane. The Audit Team is concerned that this could lead to the refuse vehicle striking a vehicle passing along the nearside edge.

Recommendation

The Audit Team recommends that the swept-path analysis is re-run to determine whether a large refuse vehicle can access the site without the rear of the vehicle over-sweeping the carriageway, and if necessary that the ghost-island right turn lane is widened to avoid potential conflicts.



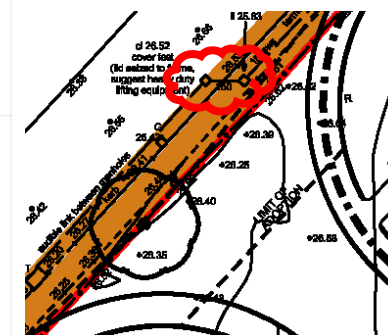
Skid-resistance

3.1.7 **Problem** **Manhole covers may become slippery when wet**
Location **Within bell-mouth of proposed site access**

The Audit Team note from the Section 278 Agreement Plan (1605/237) that there are a number of manhole covers shown within the junction bell-mouth of the proposed site access. The Audit Team is concerned that during wet weather the covers will become slippery, and could lead to drivers (particularly riders of powered two-wheelers) losing control of their vehicles when undertaking turning manoeuvres. This could result in a vehicle hitting an oncoming vehicle or mounting the kerb and striking a pedestrian.

Recommendation

The Audit Team recommends that the cover is replaced or treated with appropriate anti-skid surfacing.



3.2 Non-Motorised User Provision

Pedestrians

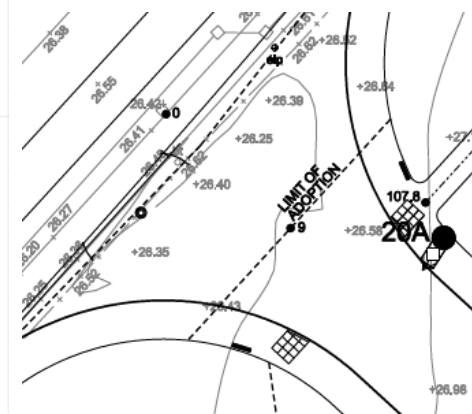
3.2.1 Problem Pedestrian crossing situated at the end of the pedestrian ramp

Location	Adjacent to the proposed site access
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The Audit Team note from the Engineering Layout (1605/201M) that the tactile paving has been relocated further in to the site, at the end of the pedestrian ramp parallel to the B4434. The audit team is concerned that this could increase the potential for pedestrians (and in particular toddlers) entering the carriageway injudiciously into the path of an oncoming vehicle resulting in pedestrians being hit by a vehicle.

Recommendation

The Audit Team recommends that the pedestrian ramp includes a 'dog-leg', level with the footway, so that the ramp does not lead directly to the tactile paving.



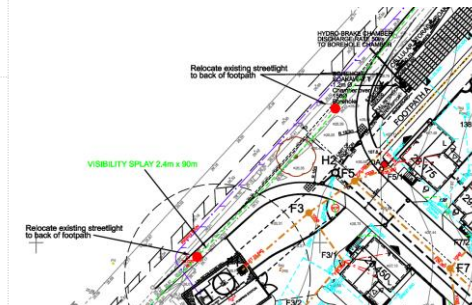
3.2.2 Problem Pedestrians obscured from view as a result of shadowing

Location	Proposed site access junction
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The Audit Team note from the plans that it is proposed to relocate the existing lighting columns to accommodate the site access junction. The Audit Team is concerned that relocating the lighting columns will affect the lighting levels throughout the junction, resulting in shadowing, and could obscure from view pedestrians waiting to cross the road. This could lead to pedestrians being hit by oncoming vehicles.

Recommendation

The Audit Team recommends that the lighting levels through the junction are reviewed, and that the appropriate lighting is provided throughout the junction.



3.3 Road Signs, Carriageway Markings and Lighting

Lighting

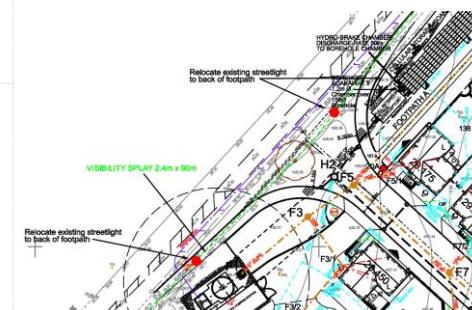
3.3.1 **Problem** Pedestrians obscured from view because of shadowing

Location Proposed site access junction

The Audit Team note from the plans that it is proposed to relocate the existing lighting columns to accommodate the site access junction. The Audit Team is concerned that relocating the lighting columns will affect the lighting levels throughout the junction, could lead to shadowing, and could obscure from view pedestrians crossing the side road of the junction.

Recommendation

The Audit Team recommends that the lighting levels through the junction are reviewed, and that the appropriate lighting is provided.



Carriageway markings

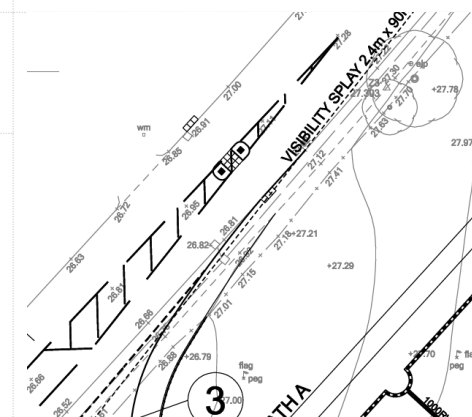
3.3.2 **Problem** Inadequate length of hatched taper

Location Pedestrian refuge north of the proposed site access

The Audit Team note from the plans that the length of hatched taper located at the pedestrian refuge, north of the site access, is inadequate. The Audit Team is concerned that a short taper length may not provide enough warning to oncoming vehicles that the carriageway width is narrowing. This could lead to vehicle conflict with the pedestrian refuge.

Recommendation

The Audit team recommends that the length of the hatched taper be increased to provide sufficient indication to drivers of carriageway narrowing.



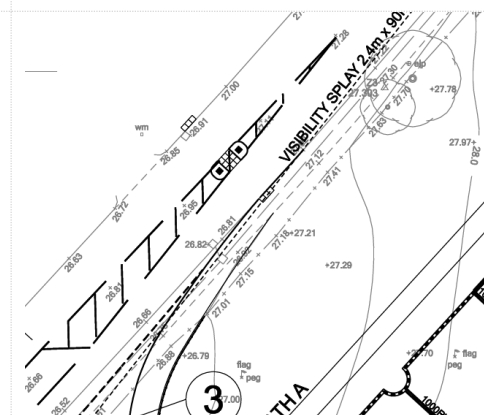
3.3.3 **Problem** Hatched taper markings direct vehicle towards pedestrian refuge

Location Pedestrian refuge north of the proposed site access

The Audit Team note from the plans that the hatched taper markings do not run to the edge of the pedestrian refuge, leaving an element of the pedestrian refuge exposed to oncoming vehicles. The Audit Team is concerned that the positioning of the taper markings may be misleading to passing vehicles, encouraging them to drive within proximity, and potentially coming into contact with the pedestrian refuge.

Recommendation

The Audit team recommends that the alignment of the taper markings be adjusted, to prevent oncoming vehicles from coming into contact with the pedestrian refuge.



4 Audit Team statement

We certify that we have examined the drawings and other information listed in **Appendix 1**. This examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified to improve the safety of the scheme. The problems that we have identified have been noted in the report together with suggestions for improvement which we recommend should be studied for implementation.

Audit Team leader

Name: Andy Roberts BEng (HONS) MCIHT FFB
Position: Director
Organisation: Lime Transport
Address: 5A Andrews Buildings, Stanwell Road
Penarth, CF64 2AA

Signed: 

Date: 03/01/2017

029 2070 0924
andy@limetransport.com

Audit Team member

Name: Hywel Purchase
Position: Transport Planner
Organisation: Lime Transport
Address: 5A Andrews Buildings, Stanwell Road
Penarth, CF64 2AA

Signed: 

Date: 03/01/2017

Tel: 029 2070 0924
e-mail: hywel@limetransport.com

Appendix 1 Documents supplied with Audit brief

Ref no.	Title
E1605/201M	Engineering Layout
E1605/207D	Longitudinal Sections Sheet 1
E1605/237	Section 278 Agreement Plan
E1605/241	Section 38 Agreement Plan
E1605/249	Road Construction Details Section 38/278 Agreement
E1605/250A	Signing and Lining Layout
E1605/251A	S278 and S38 Highway Works Layout
E1605 252	Tracking Plan Site Entrance
E1605 253	Bus Stop Details
	Audit response Stage 1 RSA, Tonna, prepared by Hammond Yates
T13.138.D1	Transport Assessment prepared by Asbri Transport

Appendix 2

Location plan



Appendix 3 Safety Audit comments

This section of the report includes issues identified during the Road Safety Audit which are not in themselves safety problems related to the proposed scheme, but which may be issues related to maintenance, deficiencies with the existing scheme which the proposals do not address, or any other issue on site which is not covered by the Audit Brief but which may be of use/interest to the client.

It should be made clear that issues raised in this section of the report should not be considered to be a comprehensive assessment of the existing highway environment, or of existing maintenance or safety issues.

Comment Visibility splay varies between plans Location Proposed site access	
The Audit Team notes from the plans provided that the S278 & S38 Highway Works Layout and the Whitelining and Signing Requirements plans show a visibility splay with a 'Y' distance of 90m in both directions from the proposed site access, whereas the Section 38 Agreement Plan and the Section 278 Agreement Plan show a visibility splay of 90m (looking left from the site access) and 120m (looking right from the site access). The Audit Team recommends that all plans, received as part of the Road Safety Audit, be updated to show the relevant visibility splays whilst remaining consistent with one another. The visibility splay is likely to have been calculated based on the results of an Automatic Traffic Counter (ATC).	

Appendix 4 Safety Audit Team – CV, training and experience



Andy Roberts
BEng (Hons) MCIHT FFB

Key Skills

Road Safety Audits
Transport Assessments
Transport Statements
Traffic Management Plans
Travel Plans
Highway design and capacity
Negotiating legal agreements
Expert witness

Contact details

t: 02920 700924
m. 07494 442942
e: andy@limetransport.com



Profile

Andy has nearly 25 years' experience of the transport and land use development planning process. He is a Director of Lime Transport, having previously co-founded Asbri Transport in 2011 and held positions at a number of large multi-disciplinary consultancies. He works with private sector developers and land owners providing advice on a wide variety of schemes throughout the UK and overseas. His experience includes undertaking Road Safety Audits, highway design, preparation of local safety schemes and undertaking accident analysis, as well as preparing Transport Assessments, Transport Statements and Travel Plans for development projects.

Andy is both a Member of the Chartered Institute of Highways and Transportation and the Society of Road Safety Auditors, and a Fellow of the Forum for the Built Environment.

Employment history

Director 2015-
Lime Transport

Regional Director
Colin Buchanan 2001-2011

Transport Planner
Mouchel 1994-1996

Managing Director
Asbri Transport 2011-

Principal Transport Planner
Halcrow Fox 1996-2001

Engineer
LB Barking & Dagenham 1992-1996

Road safety audit experience

The following table sets out the Road Safety Audits that Andy has led over the last two years, on a range of projects, for a number of different clients, that have been submitted to a range of overseeing authorities.

Scheme title	Road safety audit	Date	Overseeing authority	Role
Baglan Energy Park	Stage 1/2	March 2014	Neath Port Talbot	Team leader
Bridge Street Abercarn	Stage 2	May 2014	Caerphilly CBC	Team leader
Trane Farm, Tonyrefail	Stage 2	August 2014	Rhondda Cynon Taf CBC	Team leader
Ysgol Bro Dinefwr, Llandeillo	Stage 2	Sept 2014	Cardiff Council	Team leader
Cwrt Yr Ala Road, Cardiff	Stage 1/2	Sept 2014	Cardiff Council	Team leader
Proposed solar park, Shoals Hook Farm, Haverfordwest	Stage 1/2	Nov 2014	South Wales Trunk Road Agents	Team leader
Bryn Garth Barns, Llanellen	Stage 1/2	Nov 2014	South Wales Trunk Road Agents	Team leader
Barry Waterfront – West Pond and Crazy Corner	Stage 2	Dec 2014	Vale of Glamorgan	Team Leader
Proposed foodstore, Bodmin	Stage 2	Jan 2015	Cornwall CC	Team Leader
Wonastow Road, Monmouth	Stage 2	Jan 2015	Monmouthshire CC	Team Leader
Rhoose point		March 2015	Vale of Glamorgan	Team Leader
Barry Waterfront - BILR phase 1, 2 and Mole	Stage 2	March 2015	Vale of Glamorgan	Team Leader
Parc Tyn Y Gollen, St Mellons	Stage 2	March 2015	Cardiff Council	Team Leader
Rhoose point	Stage 2	April 2015	Vale of Glamorgan	Team Leader
Ardwyn Dinas Powys	Stage 2	April 2015	Vale of Glamorgan	Team Leader
Land at Alkerton Road, Eastington	Stage 2	July 2015	Gloucestershire CC	Team Leader
The Channels, Chelmsford	Stage 2	July 2015	Essex County Council	Team Leader
Hampton Vale, Peterborough	Stage 2	Sept 2015	Peterborough Council	Team Leader
Honeypot Lane, Stanmore	Stage 3	Sept 2015	London Borough of Harrow	Team Leader
South Parade, Southsea	Stage 1/2	Sept 2015	Portsmouth and Southsea	Team Leader
Parc Tyn Y Gollen, St Mellons	Stage 3	Oct 2015	Cardiff Council	Team Leader
Cwrt Yr Ala Road, Cardiff	Stage 3	Jan 2016	Cardiff Council	Team Leader
Rhoose, s278 Works	Stage 1/2	April 2016	Vale of Glamorgan	Team Leader
Rhoose Phase II	Stage 1	May 2016	Vale of Glamorgan	Team Leader
Bridge Street, Abercarn	Stage 3	August 2016	Caerphilly CBC	Team Leader
Leonard Stanley, Gloucester	Stage 1	Sept 2016	Gloucestershire County Council	Team Leader

Relevant training

The following table sets out relevant road safety audit, collision investigation and accident analysis training, together with some of the general transport planning and traffic engineering training that Andy has attended since he graduated in 1992.

Organisation	Details	CPD days	Date
London Accident Analysis Unit	Road Safety Officer training	2	1993
Borough Cycle Officer Group	Various seminars on best practice design and infrastructure for cycle routes	2	1993
London Borough of Barking and Dagenham	Road Safety Audit Training	2	1994
TMS Consultancy	Road Safety Engineering training	2	1994
LG Mouchel & Partners	On-going mentoring and training – Road Safety Audits	2	1996
Travers Morgan Accident Analysis Unit	Responsibility for Road Safety	0.5	1996
IHT/ICE	Regeneration – 3 rd Wales Regeneration Conference	1.0	2006
IHT	Demand Management Transport Seminar	0.5	2006
IHT/ University of Glamorgan Transport Research Unit	IHT Annual Seminar 3D modelling		2006
University of Glamorgan Transport Research Unit	Designing out risk	1.0	2009
Transport Statistics Users Group	Welsh Seminar: Latest Developments in Statistics in Wales and Concessionary Fares	0.5	2009
Transport Statistics Users Group	Autumn Welsh Seminar: Travel Plans and the Development Control Process	0.5	2010
ICE/IHT	10 th Wales Transport Conference	1.0	2010
RTPI/Cardiff School of Planning & Geography	Shared Spaces seminar	0.5	2012
ICE/IHT	Transport Solutions Wales 2013 Conference	1.0	2013
Structured learning	Safety issues associated with Home Zones	1.0	2016
CIHT	Working together for Road Safety	1.0	2016
TMS Consultancy	Road Safety Audit (Keeping up to Date)	2.0	2016



Profile

Hywel has nearly three years' experience working in the field of transport planning on a range of development and transport related projects throughout the UK.

His experience includes undertaking Road Safety Audits, highway design, preparation of local safety schemes and undertaking accident analysis, as well as compiling the technical input on a range of Transport Assessments, Transport Statements and Travel plans for large scale residential projects.

Hywel also has extensive experience of using AutoCAD, AutoTrack, as well as undertaking junction capacity assessments using wide range of industry standard software.

Employment history

Transport Planner
Lime Transport, 2016-

Graduate Transport Planner
Asbri Transport 2014-2016

Hywel Purchase

Key Skills

Transport Assessments
Transport Statements
Traffic Management Plans
Travel Plans
Road Safety Audits
Highway design and capacity

Contact details

t: 02920 700924
e:
hywel@limetransport.com

Road safety experience

The following table sets out the Road Safety Audits that Hywel has been involved with over the last two years, on a range of projects, for a number of different clients, that have been submitted to a range of overseeing authorities.

Scheme title	Road safety audit	Date	Overseeing authority	Role
Wonastow Road, Monmouth	Stage 2	Jan 2015	Monmouthshire CC	Team Leader
Parc Tyn Y Gollen, St Mellons	Stage 2	March 2015	Cardiff Council	Team Leader
Barry Waterfront, South Quay Phase 1	Stage 2	November 2016	Vale of Glamorgan	Team Leader

Relevant training

The following table sets out relevant road safety audit, collision investigation and accident analysis training, together with some of the general transport planning and traffic engineering training that Hywel has attended since he started work in 2014.

Organisation	Details	CPD days	Date
Asbri Transport	LinSig Junction Modelling Workshop (JCT)	2	2015
Asbri Transport	Checking Junctions 8, LinSig and Transyt Workshop (JCT)	2	2015
Asbri Transport	TRAAC – Basemap Multi-Modal travel time tool Workshop	1.5	2015