



**ACORNS
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LIMITED**



**Land at Barnsley Road, Grange Moor, Wakefield
Proposed Site Access Arrangements
Stage 1 Road Safety Audit**

**For Sanderson Associates Consulting Engineering
Prepared by Acorns Projects Limited
Safety Traffic Project Management & Highway Engineering Consultants**

JULY 2024

Acorns Projects Limited

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Revision History

This document has the following history:

Version No.	Version Date	Summary of Changes	Changes marked
1.0	10/06/2024	N/A	N/A
2.0	02/07/2024	DRAFT Version No. 1.0 - Items 2.1.1, 2.5.1 and 2.5.2 removed from Version No. 2.0	No

Approvals

This document requires the following approvals:

Name	Title
Adriano B. Cappella	Audit Team Leader
Lisa Allen	Audit Team Member

Distribution

This document has also been distributed to:

Name	Title & Organisation
Karen Smith	Associate Director - Sanderson Associates
Simon Burkinshaw	Principal Engineer - Sanderson Associates
Ashley Armitage	Assistant Engineer - Sanderson Associates
Adam Darwin	Group Engineer - Kirklees Council
Dean Barker	Principal Engineer - Kirklees Council
Farzana Tabasum	Kirklees Council

1.0 INTRODUCTION

1.1 This report results from a Stage 1 Road Safety Audit carried out on Land at Barnsley Road, Grange Moor, Wakefield, Proposed Site Access Arrangements Project, at the request of the Overseeing Organisation, i.e. the Local Highway Authority, Highway Development Management c/o Kirklees Council, Huddersfield Customer Service Centre, PO Box 1720, Huddersfield, West Yorkshire, HD1 9EL. The Design Organisation is Sanderson Associates Consulting Engineers, Sanderson House, Jubilee Way, Grange Moor, Huddersfield, West Yorkshire, WF4 4TD. The Third Party Organisation is PCS Property Solutions Limited, Unit 12 Jubilee Business Park, Jubilee Way, Grange Moor, Wakefield, West Yorkshire, WF4 4TD.

1.2 The scheme proposals comprise the redevelopment of a site in Barnsley Road, Grange Moor, Wakefield, to create an industrial unit, with a footprint of circa 90,000sqft (8,360m²), along with associated car parking, service area and landscaping. The proposed use of the site will be for warehousing and the assembly of PC related products.

The main site access (the southern access), comprises a priority T-junction with a ghosted right turn facility, which will facilitate access for all vehicle types. Egress at the main site access will be restricted to cars and other light vehicles only. HGV egress manoeuvres will take place via the northern egress point only, where HGV's will turn left so as not to contravene the weight restriction southbound on the A637 towards Flockton village. HGV's are able to access the site from both directions as there is no weight restriction in place northbound on the A637.

The Grange Moor Roundabout to the north of the development site will be the subject of proposed improvements comprising circulatory carriageway width reduction, reduction of approach lane widths on two arms, reduced entry widths, visibility improvements, and the provision of shared use cycle/footways around the perimeter of the roundabout to assist less experienced cyclists, and all cyclists at peak times.

The pedal cycle facilities also connect to the development sites northern access, where a pedestrian/cyclist access gate is proposed to provide direct access to the secure cycle parking provision. Improved pedestrian/cycle crossing points, including pedestrian links to bus stops on Wakefield Road and Liley Lane, and to Grange Moor village beyond are proposed to improve pedestrian and cyclist safety.

To facilitate safe access to the development site and the proposed improvements at Grange Moor roundabout, it is proposed to reduce the speed limits on all approaches to the roundabout junction and the site frontage onto Barnsley Road from 50mph to 40mph.

1.3 The Membership of the Road Safety Audit Team (who are independent of the highway scheme conception, design, construction and operation), was as follows:

Adriano B. Cappella IEng, FIHE, MCIHT, MSoRSA, HA RSA Certificate of Competency
(Audit Team Leader) Director, Acorns Projects Limited

Lisa Allen MSc, BEng (Hons), MCIHT, MSoRSA, HA RSA Certificate of Competency
(Audit Team Member) Associate Consultant, Acorns Projects Limited

1.4 The Audit took place at the Eaton Bray office of Acorns Projects Limited during June 2024. The Audit was undertaken in accordance with the Road Safety Audit Brief contained in the Design Organisation E-Mail to Acorns Projects Limited dated the 30th May 2024. The Road Safety Audit Brief and the Road Safety Audit Team were approved by Adam Darwin of Kirklees Council on the 30th May 2024. The Audit comprised an examination of the drawings and documents provided by the Design Organisation and, are listed in Appendix A.

1.5 The drawings and documents consisted of a copy of the proposed works and junction improvements, visibility splays, existing and proposed deflection, swept path analysis exercises (3 No. sheets), speed limit changes, the architects layout and masterplan and, the May 2024 Sanderson Associates Consulting Engineers Stage 1 Road Safety Audit Brief and Appendices documents. Copies of the scheme drawings at both A3 and A4 size were provided for the Audit Team's use. Road traffic collision information, vehicular traffic flow information, pedestrian and pedal cycle information and public transport information is contained within a combination of the May 2024 Sanderson Associates Consulting Engineers Stage 1 Road Safety Audit Brief document and Appendices.

1.6 A visit to the site was undertaken between 15.05 pm and 16.35 pm during the afternoon of the 6th June 2024 by both Audit Team Members together. During the afternoon site visit, the weather was warm and sunny and, the existing carriageway surface was dry. Vehicular traffic conditions at the time of the afternoon site visit were observed to be moderate. Five pedestrians and two pedal cyclists were observed during the afternoon site visit.

1.7 The terms of reference of the Audit are as described in DMRB GG 119 Road Safety Audit. The 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. However, to clearly explain a safety problem or the recommendation made to resolve the identified problem, the Audit Team may, on occasion, have referred to a Design Standard without touching on technical audit.

1.8 Within the Departures from Standards section of the May 2024 Stage 1 Road Safety Audit Brief, the Design Organisation has made reference to sixteen design related items, eleven of which are associated with the provision of facilities for pedestrians and in the major part, provision for pedal cyclists. In terms of the shared cycle/footways and uncontrolled pedestrian/cycle crossing points, these are not in full accordance with DMRB or LTN 1/20, as stated in the Departures from Standard section of the May 2024 Stage 1 Road Safety Audit Brief document.

The principle is considered acceptable in this instance, due to the relatively low pedestrian/cycle flows that are envisaged. Providing fully compliant facilities (e.g. signalisation and fully segregated facilities) in this location is disproportionate and undeliverable due to highway boundary constraints. Following extensive discussions with Overseeing Organisation, i.e. the Local Highway Authority, Kirklees Council, it is considered that the facilities proposed are in context and suitable in this situation. As such, a strategic decision has been made with regards to the type of pedestrian/cycle infrastructure proposed.

1.9 All Problems and Recommendations are referenced to the design drawings and the locations have been indicated on the A4 plans supplied for use by the Audit Team in Appendix B.

1.10 Issues identified and observations made during this Stage 1 Road Safety Audit and site inspection which the Terms of Reference exclude from this report, but which the Audit Team wishes to draw to the attention of the Overseeing Organisation, i.e. the Local Highway Authority, Kirklees Council, will be set out in a separate letter. These issues could include maintenance items and operational issues. In this regard, the Audit Team have made reference to one issue identified and observation made as referred to in a Covering Letter to the Design Organisation, dated the 2nd July 2024. The Covering Letter should be supplied to the Overseeing Organisation, i.e. the Local Highway Authority, Kirklees Council, and be considered in conjunction with this Stage 1 Road Safety Audit Report.

2.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

2.1 LOCAL ALIGNMENT

2.1.1 PROBLEM

Location 1 - The proposed right turn facility from Barnsley Road into the Blacksmith Arms car park (Drawing Nos. 151716-001 Rev C & 151716-007 Rev C).

Summary - Swept path requirements of larger delivery vehicles waiting within the right turn facility leading to the Blacksmiths Arms public house car park could lead to a potential increased risk of nose to tail shunt type vehicular collisions occurring, whereby vehicle occupants could sustain personal injury.

Detail: The scheme drawings indicate the provision of a right turn facility on Barnsley Road for drivers turning right into the Blacksmiths Arms public house car park area. Whilst a vehicle is not shown to be stationary within the right turn facility leading to the public house car park area, it is not unreasonable to suggest that vehicles, particularly larger delivery vehicles waiting to turn right, may encroach into the south east bound lane of the Barnsley Road carriageway.

Concern arises that the potential swept path requirements of larger vehicles encroaching into the south east bound carriageway of Barnsley Road when waiting to turn right into the public house vehicular access, could lead to a potential increased risk of nose to tail shunt type vehicular collisions occurring, whereby vehicle occupants could sustain personal injury.

RECOMMENDATION

It is Recommended that swept path analysis exercises should be undertaken, particularly for larger delivery vehicles waiting in the right turn facility.

Should the swept path analysis exercises demonstrate that stationary larger delivery vehicles encroach into the south east bound carriageway when waiting to turn right into the public house car park, it is further Recommended that the right turn facility should be modified, in order to reduce or mitigate the above described potential collision scenario.

2.2 GENERAL

2.2.1 PROBLEM

Locations 2 & 3 - Wakefield Road and Liley Lane approaches to the Grange Moor Roundabout (Drawing No. 151716-007 Rev C).

Summary - Departure from Design Standard with regard to the right turning arrows located within the approach lanes to the roundabout junction could result in drivers, particularly those drivers originating from overseas, attempting to enter the circulatory area in the wrong direction.

This could lead to a potential increased risk of head on collisions occurring within the circulatory carriageway area of the roundabout junction, whereby vehicle occupants could sustain personal injury.

Detail - The Audit Brief advises a Departure from Design Standard in that the scheme drawing indicates the provision of right turning directional arrow carriageway markings within the approaches of the northern and western arms of the roundabout junction.

Concern arises that the provision of right turning arrows within the approaches of the northern and western arms of the roundabout junction could result in drivers, particularly those drivers originating from overseas, becoming confused regards which way to proceed into the circulatory area of the roundabout junction.

As a result, this situation could lead to a potential increased risk of head on type collisions occurring within the circulatory carriageway area of the roundabout, whereby vehicle occupants could sustain personal injury.

RECOMMENDATION

It is Recommended that the carriageway markings should be amended to accord with the guidance in DMRB CD 116 Geometric Design of Roundabouts, in order to reduce or mitigate the above described potential collision scenario.

If for whatever reasons the above recommendation cannot be adopted, then it is Recommended that approval for the current proposals should be sought and agreed with the Overseeing Organisation, i.e. the Local Highway Authority, Kirklees Council, via the DMRB GG 119 compliant Road Safety Audit Response Report and Table F.4 Decision Log.

2.3 JUNCTIONS

2.3.1 PROBLEM

Location 4 - The southern priority T-junction for the proposed development site in Barnsley Road (Drawing Nos. 151716-001 Rev C & 151716-012 Rev A).

Summary - Potential restrictions to the proposed visibility splay for drivers emerging from the southern priority T-junction of the proposed development site could result in a potential increased risk of side impact vehicular collisions occurring, whereby vehicle occupants could sustain personal injury.

Detail - The scheme drawing indicates that an existing vehicular access will be modified in order to create a new priority T-junction, which will become the new southern access for the proposed development site in Barnsley Road. In order to accommodate the ghosted right turn facility within the centre of Barnsley Road, carriageway widening will be required. In effect, this will result in the proposed visibility splay of 4.5 x 120 metres being set back significantly when compared to the situation for the existing vehicular access.

The site visit has established the presence of an existing dense hedgerow and stone wall, both of which could impact upon the proposed junction visibility scheme for drivers seeking to emerge from the proposed southern access/egress junction.

Concern arises that any potential restrictions to the proposed visibility splay of 4.5 x 120 metre visibility splay could lead to a potential increased risk of side impact vehicular collisions occurring, between drivers emerging from the proposed development site and north west bound Barnsley Road vehicular traffic, whereby vehicle occupants could sustain personal injury.

RECOMMENDATION

It is Recommended that that the visibility splays should be kept clear of any impediments such as the existing identified site features, in order to reduce or mitigate the above described potential collision scenario.

2.3.2 PROBLEM

Locations 5 & 6 - The Wakefield Road western arm and the Liley Lane northern arm of the Grange Moor roundabout junction (Drawing No. 151716-014 Rev A).

Summary - Swept path requirements of larger vehicles turning left on both arms of the roundabout junction encroach into the adjacent traffic lanes. This situation could lead to a potential increased risk of side swipe type vehicular collisions occurring, whereby vehicle occupants could sustain personal injury.

Detail - The scheme drawing indicates the swept path analysis exercises undertaken for larger vehicles turning left from the Wakefield Road western arm and the Liley Lane northern arm of the Grange Moor roundabout junction. It is evident from the swept path analysis drawings that larger vehicles turning left from Wakefield Road western arm into Liley Lane and from Liley Lane into Wakefield Road eastern arm, encroach into the adjacent traffic lanes when undertaking these respective manoeuvres.

Concern arises that this situation could lead to a potential increased risk of side swipe type vehicular collision occurring, whereby vehicle occupants could sustain personal injury.

RECOMMENDATION

It is Recommended that the junction geometry at these locations should be modified, in order to reduce or mitigate the above described potential collision scenario.

2.4 WALKING, CYCLING AND HORSE RIDING

2.4.1 PROBLEM

Location 7 - The proposed crossing facility on the Wakefield Road eastern arm of the Grange Moor Roundabout (Drawing No. 151716-007 Rev C).

Summary - Potential restriction to intervisibility at the uncontrolled crossing facility on the northern side of Wakefield Road could lead to a potential increased risk of vehicular and pedestrian collisions occurring, whereby pedestrians could sustain personal injury.

Detail - The scheme drawing indicates the provision of an uncontrolled crossing facility on the Wakefield Road eastern arm of the Grange Moor Roundabout. The site visit has established that the existing overgrown vegetation at the rear of the existing footway would significantly impact upon the intervisibility between vehicles turning left from Liley Lane into Wakefield Road and pedestrians crossing from the northern side of the Wakefield Road carriageway.

Concern arises that the restriction to the intervisibility at this location could lead to a potential increased risk of vehicular and pedestrian collisions occurring, whereby pedestrians could sustain personal injury.

RECOMMENDATION

It is Recommended that the existing vegetation should be cut back and removed, in order to ensure the intervisibility at this location remains clear of any impediments, thus reducing and mitigating the above described potential vehicular and pedestrian collision scenario.

2.4.2 PROBLEM

Location 8 - The proposed shared use footway/cycleway at the northern egress junction (Drawing No. 151716-001 Rev C).

Summary - An existing low level wall could restrict the future width of the proposed shared use footway/cycleway, which could lead to a potential increased risk of pedestrian and pedal cyclist collisions occurring with the existing feature, as well as a potential increased risk of pedal cyclist and pedestrian collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.

Detail - The scheme drawing indicates the provision of a shared use footway/cycleway on the northern side of the northern egress junction. The site visit has established the presence of an existing low level wall on the northern side of the proposed egress junction, which could impact the future width of the proposed shared use footway/cycleway at this location.

Concern arises that should the existing low level wall remain within the proposed shared use footway/cycleway, this situation could lead to a potential increased risk of pedal cyclist and pedestrian collisions occurring with the existing feature whereby pedestrians and pedal cyclists could sustain personal injury.

In addition, concern arises that retention of the existing low level wall will restrict the future available width of the proposed shared use footway/cycleway, which could lead to a potential increased risk of pedestrian and pedal cyclist collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.

RECOMMENDATION

It is Recommended that the existing low level wall should be completely removed when the proposed shared use footway/cycleway is constructed, thus optimising the future available width for pedestrian and pedal cyclist use.

2.4.3 PROBLEM

Location 9 - The access to the shared use footway/cycleway on the eastern side of Liley Lane (Drawing No. 151716-007 Rev C).

Summary - The presence of the pedestrian refuge island where the carriageway narrows could lead to a potential increased risk of vehicular and pedal cyclist collisions occurring, whereby pedal cyclists could sustain personal injury.

Detail - The scheme drawing indicates the provision of an access point to the shared use footway/cycleway on the eastern side of Liley Lane. This proposed access point is directly adjacent to a proposed pedestrian refuge island where the width of the south bound vehicular traffic lane will effectively reduce to 3.0 metres.

At this point, pedal cyclists may choose to veer slightly to their offside before turning left onto the shared use footway/cycleway, in order to execute a more perpendicular movement which would provide greater comfort and stability for pedal cyclists. With the pedestrian refuge island in place, a south bound drivers ability to compensate for this scenario and react accordingly will be limited.

Concern arises that this situation could lead to a potential increased risk of pedal cyclist and vehicular traffic collisions occurring, whereby pedal cyclists could sustain personal injury. In addition, there could be a potential increased risk of south bound drivers swerving to their right in order to avoid a pedal cyclist ahead, and subsequently collide with the pedestrian refuge island. This could lead to vehicle occupants sustaining personal injury.

RECOMMENDATION

It is Recommended that the access point to the shared use footway/cycleway on the eastern side of Liley Lane should be relocated further to the south of its currently intended position. It would appear that relocating the access point to the north of the pedestrian refuge island may not be achievable due to existing site constraints.

2.5 TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING

2.5.1 No Problems identified in this category at this Stage 1 Road Safety Audit.

END OF PROBLEMS IDENTIFIED AND RECOMMENDATIONS OFFERED IN THIS STAGE 1 ROAD SAFETY AUDIT

3.0 ROAD SAFETY AUDIT TEAM STATEMENT

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

ROAD SAFETY AUDIT TEAM LEADER

Adriano B. Cappella IEng, FIHE, MCIHT, MSoRSA, HA RSA Certificate of Competency



Signed :

Director

Acorns Projects Limited

Safety Traffic Project Management & Highway Engineering Consultants

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Date : 2nd July 2024

ROAD SAFETY AUDIT TEAM MEMBER

Lisa Allen MSc, BEng (Hons), MCIHT, MSoRSA, HA RSA Certificate of Competency



Signed :

Associate Consultant

Acorns Projects Limited

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Date : 2nd July 2024

APPENDIX A

APPENDIX A

LAND AT BARNSELEY ROAD, GRANGE MOOR, WAKEFIELD

PROPOSED SITE ACCESS ARRANGEMENTS

STAGE 1 ROAD SAFETY AUDIT

LIST OF SANDERSON ASSOCIATES CONSULTING ENGINEERS DRAWING SUBMITTED FOR AUDITING

DRAWING NO.	TITLE
151716-001 Rev C	Proposed Works
151716-007 Rev C	Proposed Junction Improvements
151716-008 Rev A	Swept Path Analysis
151716-009 Rev A	Proposed Speed Limit Changes
151716-010 Rev A	Proposed Deflection
151716-011	Existing Deflection
151716-012 Rev A	Junction Visibility
151716-013 Rev B	Vehicle Swept Paths
151716-014 Rev A	Swept Path Analysis
151716-015	Visibility Splays

LIST OF ACUMEN ARCHITECTS DRAWINGS REVIEWED AT THIS STAGE 1 ROAD SAFETY AUDIT

DRAWING NO.	TITLE
P2753-ACU-XX-DR-A-101-Rev 04	Proposed Block Layout
P2753-ACU-XX-DR-A-102-Rev 04	Proposed Masterplan

LIST OF DOCUMENT REVIEWED AT THIS STAGE 1 ROAD SAFETY AUDIT

Sanderson Associates Consulting Engineers - Land at Barnsley Road, Grange Moor, Wakefield - Stage 1 Road Safety Audit Brief & Appendices - May 2024
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APPENDIX B

