

# Road Safety Audit Report

**Incorporating  
Stage 1 Completion of Preliminary Design; and  
Design Organisation Response to items raised.**



## **Proposed highway works and intensification of an existing access to a proposed Clay Pit off Loxwood Road**

**Client:**  
ProTreat Limited

**Client reference:**  
CW/LCP

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**Report Status**    3

<b>Job no</b>	RSA-20-158	<b>Issue no</b>	3	<b>Date</b>	March 2021
<b>Prepared by</b>	JJF	<b>Verified by</b>	FB	<b>Approved by</b>	JJF
<b>Filename and Path</b>	Fenley/Road Safety Audits/RSA-20/RSA-20-158-3				

## 1.0 PROJECT DETAILS

Report Title:	Stage 1 Road Safety Audit
Date:	March 2021
Document reference and revision:	RSA-20-158-3
Prepared by:	Fenley Road Safety Limited
On behalf of the Overseeing Organisation:	West Sussex County Council
Design Organisation:	Nick Culhane
Project Sponsor:	ProTreat Limited

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
0	Stage 1 Road Safety Audit drafted for Audit Team discussions	JJF			4 <sup>th</sup> February 2021
1	Stage 1 Road Safety Audit finalised and issued to the Design Organisation	JJF	FB	JJF	18 <sup>th</sup> February 2021
2	Stage 1 Road Safety Audit Report format amended to incorporate a row for inclusion of a Design Organisation Response in order to maintain a concise record of items raised		JJF		18 <sup>th</sup> February 2021
3	Design Organisation Response incorporated		Nick Culhane on behalf of Nick Culhane Highway Consultant		18 <sup>th</sup> March 2021

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## 2.0 INTRODUCTION

2.1 This report has been prepared by Fenley Road Safety Limited and results from a Stage 1 Road Safety Audit of a proposal to undertake highway works at an existing access off the north side of Loxwood Road to allow for the intensification in use to serve a proposed Clay Pit with. The existing access serves a lay-by, off which a bridleway is accessed as well as a gated entrance to the application site. The proposals are to facilitate access a proposed clay pit that will generate 42 heavy goods vehicle (HGV) movements per day for an estimated period of 31-year period.

2.2 The Audit Brief does not identify any Departures from Standard, whether related to strategic decisions or otherwise.

2.3 The Road Safety Audit was undertaken during February 2021 in accordance with the initial and updated Road Safety Audit Brief provided on the 20<sup>th</sup> November 2020 and 12<sup>th</sup> January 2021 by the Design Organisation, Nick Culhane, on behalf of the Project Sponsor, ProTreat Limited. The Road Safety Audit comprised of a site visit as well as an examination of the documents provided which are identified in **Appendix A1**. The Audit Team were satisfied that that the Audit Brief was sufficient for the purpose of the Audit instructed.

2.4 The Road Safety Audit has been undertaken by an Audit Team whose qualifications and experience accord with the requirements of GG119. The Audit Team consists of the following members:

***Audit Team Leader***

**Jamie Fenning** *BSc(Hons), MIHE, MCIHT, MSoRSA, Highways England RSA Certificate of Competency*  
Road Safety / Highway Engineer

***Audit Team Member***

**Farouk Bhatti** *MCIHT*  
Road Safety Auditor

2.5 The site visit associated with this Road Safety Audit was undertaken during the morning of Wednesday 20<sup>th</sup> January 2021 between 10:45am and 11:15am. The site visit involved walking and driving around the local highway network for a 30-minute period whilst observing local infrastructure and current off-peak traffic conditions. The weather during the site visit was overcast with rain heavy at times, the road surface was wet and visibility was good. A number of pedestrians were observed during the site visit making use of the bridleway but no cyclists were present. Vehicular traffic to include cars, light and medium goods vehicles were also observed, the traffic flow was light which could have been a consequence of the Covid\_19 Pandemic and National Lockdown. During the site visit associated with this Audit, an existing road safety concern was noted in proximity; the trunk of a number of trees along

Loxwood Road, lean across the carriageway which are an obstruction to tall sided vehicles and force the path of a vehicles away from the edge of the road.

- 2.6 The terms of reference of this Road Safety Audit are as described in GG119. The scheme has been examined and this report compiled, only with regard to the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. 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. All comments and recommendations are referenced to the design drawings supplied with the Audit Brief and the location of road safety concerns raised have been illustrated beneath the items along with relevant photographs for clarity, where appropriate, as well as on the Location Plan attached at **Appendix A2**.

***Design Organisation Response***

- 2.7 In accordance with national standards, this Road Safety Audit was finalised and issued to the Design Organisation as per the Road Safety Audit Report Template within Appendix D of GG119, which can be provided upon request from either the Audit Team or Design Organisation. The format of the Audit Report was subsequently revised to incorporate these paragraphs under the sub-heading as well as sufficient space beneath the items and recommendation, within Section 4, for the inclusion of a Design Organisation Response. This is generally contained within a separate Design Organisation Response Report but is included within this document in order to maintain a single record of all problems, recommendations and responses for the benefit of a concise Road Safety Audit trail to be held on file for Quality Assurance purposes.
- 2.8 The Design Organisation Response has been prepared by:  
Name: Nick Culhane  
Position / Organisation: Proprietor, Nick Culhane Highway Consultant
- 2.9 Any drawings or documents associated with the Design Organisation Response are listed at **Appendix A3**, if applicable.

**3.0 ITEMS RAISED IN ANY PREVIOUS ROAD SAFETY AUDITS**

- 3.1 Fenley Road Safety Limited have not been made aware of any previous road safety audits associated with the proposals.

**4.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT**

<b>A.1</b>	<b>LOCAL ALIGNMENT</b>
	<i>No Road Safety Concerns regarding LOCAL ALIGNMENT have been raised at this stage</i>
<b>A.2</b>	<b>GENERAL</b>
<b>A.2.1</b>	<b>PROBLEM</b>
<b>Location:</b>	Lay-by / proposed access road
<b>Summary:</b>	Width of carriageway is insufficient for two vehicles to pass one another
<b>Acc Type:</b>	Sideswipes as well as head-on and rear end collisions
<p>Loxwood Road is single carriageway rural road that is derestricted (subject to a 60mph speed limit), accommodates a number of bends where forward visibility is restricted and forms a link between the A281 at Rudgewick to the east and Loxwood to the west. An off-line lay-by is present off the northern side of Loxwood Road that forms a loop and allows for parking as well as access to a single dwelling and a gated access to Tilhill Forestry. Although the Audit Team are unsure if it is generally the case, observations made during the site visit associated with this Stage 1 Road Safety Audit show that vehicles access the lay-by from the west and exit via the access to the east. The proposals that are subject to this Stage 1 Road Safety Audit include the minor widening of the access to the west and provision of a 5.5 metre wide carriageway to allow access to the existing gated entrance to the application site. The existing lay-by to the northwest of the proposed carriageway, is to be retained for parking. No works are proposed to the section of the lay-by to the east of the existing gated entrance. It is understood that the proposed works are to facilitate the movement of HGV's picking up and dropping off materials within the application site with up to 21 HGV's expected to be observed per day generating 42 HGV movements. The documents provided with the Audit Brief, identify that the proposed minerals extraction site is to operate between 8am and 6pm and as such, an average of 4.2 HGV movements will be observed per hour. The scheme drawings provided with the Audit Brief, illustrate the swept path of the expected vehicles; an 18 metre drawbar truck and a 10.2 metre large tipper and identify shows that the access road is not adequate for two vehicles to pass one-another. Should a vehicle arrive whilst another vehicle is leaving, one would be required to encroach the area either side of the proposed access road which could result in loss of control or sideswipe type collisions with parked vehicles.</p>	
<b>RECOMMENDATION:</b>	
It is recommended that the width of the access road is increased to allow HGV's to pass one another.	

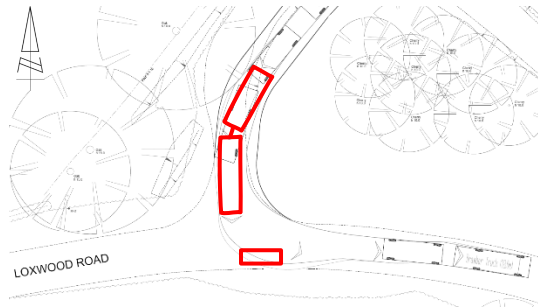
<p><b>Location Plan:</b></p>	
<p><b>DESIGN ORGANISATION RESPONSE</b> provided by Nick Culhane on the 18<sup>th</sup> March 2021 following formal issue of this Stage 1 Road Safety Audit on the 18<sup>th</sup> February 2021</p>	
<p>Accepted - The access with Loxwood Road is existing and two vehicles are not able to pass one another at this junction at present. However, the bell mouth junction is now shown to be widened to accommodate the turning requirements of a large tipper lorry without the need to encroach onto the oncoming carriageway. The scheme will now only utilise type 1, 2 and 3 tipper lorries, 3 being the largest that is illustrated on the revised swept path analysis drawings. Deliveries will be managed so that vehicles will be staggered, but should a lorry arrive when another is seeking to exit the site, the exiting vehicle will be able to do so without impediment of the waiting vehicle.</p>	
<b>A.3</b>	<b>JUNCTIONS</b>
<b>A.3.1</b>	<b>PROBLEM</b>
<b>Location:</b>	Proposed access
<b>Summary:</b>	Width of the bellmouth is insufficient for two vehicles to pass one another
<b>Acc Type:</b>	Sideswipes as well as head-on and rear end collisions
<p>Loxwood Road is single carriageway rural road that is derestricted (subject to a 60mph speed limit), accommodates a number of bends where forward visibility is restricted and forms a link between the A281 at Rudgewick to the east and Loxwood to the west. An off-line lay-by is present off the northern side of Loxwood Road that forms a loop and allows for parking as well as access to a single dwelling and a gated access to Tilhill Forestry. Although the Audit Team are unsure if it is generally the case, observations made during the site visit associated with this Stage 1 Road Safety Audit show that vehicles access the lay-by from the west and exit via the access to the east. The proposals that are subject to this Stage 1 Road Safety Audit include the minor widening of the access to the west and provision of a 5.5 metre wide carriageway to allow access to the existing gated entrance to the application site. The existing lay-by to the northwest of the proposed carriageway, is to be retained for parking. No works are proposed to the section of the lay-by to the east of the existing gated entrance. It is understood that the proposed works are to facilitate the movement of HGV's picking up and dropping off materials within the application site with up to 21 HGV's expected to be observed per day generating 42 HGV movements. The documents</p>	

provided with the Audit Brief, identify that the proposed minerals extraction site is to operate between 8am and 6pm. The scheme drawings provided with the Audit Brief, illustrate the swept path of the expected vehicles; an 18 metre drawbar truck and a 10.2 metre large tipper and identify shows that the access is not adequate for these vehicles or a domestic car and one of these vehicle, to pass one-another. Should a vehicle arrive whilst a vehicle attempts to egress, one would be required to wait within the Loxwood Road carriageway. Whilst a stationary vehicle within the carriageway that where forward visibility is restricted could lead to rear end impact collisions, a vehicle attempting to ingress or egress whilst opposed by another vehicle, could lead to sideswipe or head-on type collisions.

**RECOMMENDATION:**

It is recommended that the width of the bellmouth is increased to allow for a domestic vehicle to enter whilst a HGV waits to exit.

**Location Plan:**



**DESIGN ORGANISATION RESPONSE provided by Nick Culhane on the 18<sup>th</sup> March 2021 following formal issue of this Stage 1 Road Safety Audit on the 18<sup>th</sup> February 2021**

Accepted – It is now proposed to widen the existing bell mouth to allow for a domestic vehicle to wait in the access whilst a large tipper is able to turn without impediment. This is an improvement over the existing situation.

**A.3.2 PROBLEM**

**Location:** Loxwood Road east

**Summary:** HGV's are required to encroach the opposing lane when exiting

**Acc Type:** Head-on collisions

Loxwood Road is single carriageway rural road that is derestricted (subject to a 60mph speed limit), accommodates a number of bends where forward visibility is restricted and forms a link between the A281 at Rudgewick to the east and Loxwood to the west. An off-line lay-by is present off the northern side of Loxwood Road that forms a loop and allows for parking as well as access to a single dwelling and a gated access to Tilhill Forestry. Although the Audit Team are unsure if it is generally the case, observations made during the site visit associated with this Stage 1 Road Safety Audit show that vehicles access the lay-by from the west and exit via the access to the east. The proposals that are subject to this Stage 1 Road Safety Audit include the minor widening

of the access to the west and provision of a 5.5 metre wide carriageway to allow access to the existing gated entrance to the application site. The existing lay-by to the northwest of the proposed carriageway, is to be retained for parking. No works are proposed to the section of the lay-by to the east of the existing gated entrance. It is understood that the proposed works are to facilitate the movement of HGV's picking up and dropping off materials within the application site with up to 21 HGV's expected to be observed per day generating 42 HGV movements. The documents provided with the Audit Brief, identify that the proposed minerals extraction site is to operate between 8am and 6pm. The scheme drawings provided with the Audit Brief, illustrate that the swept path of the expected vehicles; an 18 metre drawbar truck and a 10.2 metre large tipper which identifies that the vehicles encroaches the opposing lane westbound of Loxwood Road when exiting. The level of visibility to and from westbound drivers approaching the access, is restricted due to the horizontal alignment / bend in the road as well as vegetation on the inside of bend within lane not under control. A westbound vehicle travelling in free flowing conditions may become aware of an HGV travelling along the access road but is unlikely to be aware that the vehicle turning out of the access onto Loxwood Road, would block their path. Moreover, due to the achievable visibility of it is unlikely that the driver of an egressing HGV will become aware of an approaching vehicle and will commence their manoeuvre and approaching Loxwood Road, however the driver of an egressing HGV is unlikely to become aware of a vehicle approaching from the west at a safe distance with the achievable visibility restricted to below 90 metres. A vehicle encroaching the opposing lane that is not visible to approaching vehicles, could lead to head-on collisions as well as heavy braking and loss of control type incidents.

**RECOMMENDATION:**

It is recommended that eastern corner radius of the bellmouth is increased to ensure that the expected vehicles are not required to encroach the opposing lane where it would not be visible to approaching traffic.

**Location Plan:**





**DESIGN ORGANISATION RESPONSE provided by Nick Culhane on the 18<sup>th</sup> March 2021 following formal issue of this Stage 1 Road Safety Audit on the 18<sup>th</sup> February 2021**

Accepted – The existing bell mouth is to be widened to accommodate the turning needs of a large tipper lorry exiting the site without having to cross the oncoming carriageway. The westbound carriageway will therefore remain clear, eliminating the possible conflict identified by the Auditors.

**A.3.3 PROBLEM**

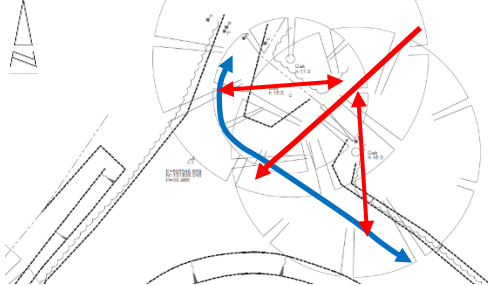
**Location:** Loxwood Road west

**Summary:** Achievable visibility is limited to below the speed limit of the road

**Acc Type:** Rear end impact collisions

Loxwood Road is single carriageway rural road that is derestricted (subject to a 60mph speed limit), accommodates a number of bends where forward visibility is restricted and forms a link between the A281 at Rudgewick to the east and Loxwood to the west. An off-line lay-by is present off the northern side of Loxwood Road that forms a loop and allows for parking as well as access to a single dwelling and a gated access to Tilhill Forestry. Although the Audit Team are unsure if it is generally the case, observations made during the site visit associated with this Stage 1 Road Safety Audit show that vehicles access the lay-by from the west and exit via the access to the east. The proposals that are subject to this Stage 1 Road Safety Audit include the minor widening of the access to the west and provision of a 5.5 metre wide carriageway to allow access to the existing gated entrance to the application site. The existing lay-by to the northwest of the proposed carriageway, is to be retained for parking. No works are proposed to the section of the lay-by to the east of the existing gated entrance. It is understood that the proposed works are to facilitate the movement of HGV's picking up and dropping off materials within the application site with up to 21 HGV's expected to be observed per day generating 42 HGV movements. The documents provided with the Audit Brief, identify that the proposed minerals extraction site is to operate between 8am and 6pm. The scheme drawings provided with the Audit Brief, illustrate that a visibility splay of 2.4x148.1 metres is achievable to the right (west) of the proposed access and that 2.4x104.4 metres is achievable to the northern channel line, to the left (east) with a measurement of 90 metres achievable to the nearside channel line of the approaching lane. This distance accords with the Stopping Sight Distance associated with the observed 85<sup>th</sup> percentile speed of vehicles approaching the access, is as per the existing and hasn't resulted in any recorded personal injury collisions, however, Loxwood Road is derestricted and could therefore observe greater speeds. The driver of vehicle travelling in excess of the observed 85<sup>th</sup> percentile speed will not be aware of the access to the proposed minerals extraction site and the potential for slow moving HGVs blocking the carriageway ahead which could give rise to heavy braking and loss of control type incidents.

<b>RECOMMENDATION:</b>	
It is recommended that an appropriate warning signs is provided.	
<b>Location Plan:</b>	
<p>The diagram shows a plan view of Loxwood Road. A junction is highlighted with a red circle and red arrows pointing towards it from the east. Three visibility splays are shown with dashed lines and labels: 'VISIBILITY SPLAY 2.4x148.1 METRES', 'VISIBILITY SPLAY 2.4x104.4 METRES', and 'VISIBILITY SPLAY 2.4x104.4 METRES'. A north arrow is located in the top left corner.</p>	
<b>DESIGN ORGANISATION RESPONSE</b> provided by Nick Culhane on the 18 <sup>th</sup> March 2021 following formal issue of this Stage 1 Road Safety Audit on the 18 <sup>th</sup> February 2021	
Accepted - The scheme will include appropriate warning signs to be agreed by the highway authority to forewarn drivers approaching from the east, that there is a junction and / or lorries are turning.	
<b>A.4</b>	<b>WALKING CYCLING AND HORSE RIDING</b>
<b>A.4.1</b>	<b>PROBLEM</b>
<b>Location:</b>	Existing lay-by
<b>Summary:</b>	Non-motorised users may not be clearly visible to HGV drivers
<b>Acc Type:</b>	HGV pedestrian collisions
<p>Loxwood Road is single carriageway rural road that accommodates grass verges and allows access to a number of bridleways, public footpaths and other rights of way. An off-line lay-by is present off the northern side of Loxwood Road that forms a loop and allows for parking as well as access to a single dwelling and a gated access to Tilhill Forestry. A bridleway is accessible off the northwest side the lay-by, adjacent to the gates access. Users of the bridleway were observed travelling along the Loxwood Road verge as well as parking within the lay-by. The proposals subject to this Stage 1 Road Safety Audit are to undertake highway works in order to facilitate an access to a minerals extraction site by HGV's with 21 expected throughout the day. No lighting is present in proximity of the lay-by or is it proposed and HGV drivers have a limited view of pedestrians. The access to the existing bridleway is situated immediately adjacent to the existing gates access and intervisibility between the proposed access and users of the bridleway, is restricted by vegetation. Non-motorised users travelling between the bridleway and lay-by may not therefore be clearly visible particularly during the hours of darkness. An HGV driver not slowing to ensure their path is clear before exit from the minerals extraction site to the lay-by, may therefore</p>	

<p>not become aware of a user at a safe distance which could lead to a non-motorised user being struck by a vehicle.</p>	
<p><b>RECOMMENDATION:</b></p>	
<p>It is recommended that intervisibility is provided and measure is provided to ensure egressing drivers stop / slow to an appropriate speed before entering the layby to ensure they become aware of a non-motorised user of the bridleway.</p>	
<p><b>Location Plan:</b></p> 	
<p><b>DESIGN ORGANISATION RESPONSE</b> provided by Nick Culhane on the 18<sup>th</sup> March 2021 following formal issue of this Stage 1 Road Safety Audit on the 18<sup>th</sup> February 2021</p>	
<p>Accepted - The scheme will include appropriate signing at the site egress warning drivers to be cautious of pedestrians using the layby.</p>	
<p><b>A.5</b></p>	<p><b>ROAD SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING</b></p>
<p><i>No Road Safety Concerns regarding ROAD SIGNS, CARRIAGEWAY MARKINGS AND STREET LIGHTING have been raised at this stage</i></p>	

**5.0 STAGE 1 ROAD SAFETY AUDIT TEAM STATEMENT**

5.1 We certify that this Road Safety Audit has been carried out in accordance with GG119.

**Audit Team Leader**

Name: **Jamie Fenning** *BSc (Hons), MIHE, MCIHT, MSoRSA, HE RSA Certificate of Competency*

Signed:



Position: Road Safety / Highway Engineer


Organisation: Fenley Road Safety Limited

Date: 12<sup>th</sup> February 2021

**Audit Team Member**

Name: **Farouk Bhatti** *MCIHT*

Signed:



Position: Road Safety Engineer

Organisation: Fenley Road Safety Limited

Date: 11<sup>th</sup> February 2021

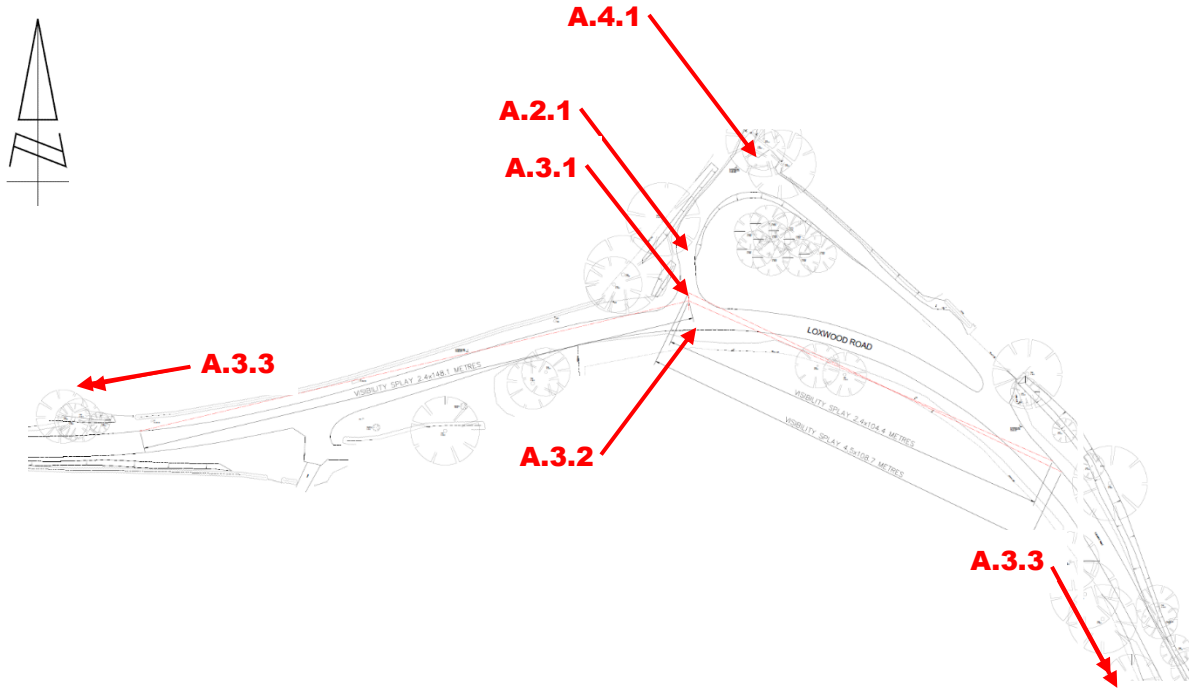
## Appendix A1

### Documents and Drawings provided for this Stage 1 Road Safety Audit

Audit Stage	Doc. No.	Rev	Title
Stage 1	Email dated 20 <sup>th</sup> Nov. '20		Road Safety Audit Brief
	Loxwood Clay Pit		Technical Note in Support of Clay Extraction and Construction Materials recycling Facility
	Dwg No.	Rev	Title
	NJC-001		Swept Path Analysis using 4 Axles Rigid Tipper
	NJC-002		Swept Path Analysis using Drawbar Truck
NJC-003		Proposed Visibility Splays	

## **Appendix A2**

### **Item Location Plan**



## Appendix A3

### Drawings associated with the Design Organisation Response

<u>Audit Stage</u>	<u>Doc. No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1	Doc. Dated March 2021		Technical Note in Support of Clay Extraction and Construction Materials recycling Facility
	<u>Dwg No.</u>	<u>Rev</u>	<u>Title</u>
	NJC-001	Mar. '21	FORWARD VISIBILITY 4 AXLES RIGID TIPPER
	NJC-002	Mar. '21	Swept Path Analysis using 4 AXLES RIGID TIPPER
NJC-003	Mar. '21	Proposed Visibility Splays	



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