APPENDIX 4/4

TRANSPORT STATEMENT

Anaerobic Digestion Plant No 2

Melton Ross Quarry, North Lincolnshire

Prepared for: Singleton Birch

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1.0 Introduction

SLR Consulting Limited (SLR) has been appointed to provide Highways and Transportation services to support a planning application for the construction of an Anaerobic Digestion Plant on land at the Melton Ross Quarry complex, near Barnetby, North Lincolnshire.

Planning permission was granted for a similar development in May 2019 (planning permission ref. PA/2018/2471), with much of the site to which this planning application relates coinciding with the 2019 permission. The 2019 AD facility sought to treat around 30,000t of agricultural wastes and energy crops. In addition, planning permission has been granted by the LPA in 2013 on land adjacent to the land comprised within this planning application (planning permission ref. WD/2012/1429 dated 11th March 2013). That facility, which has now been developed and is operational, uses agricultural wastes (such as maize) to generate electricity which is supplied to the national grid.

1.1 Site Location

The Melton Ross Quarry complex is located approximately 17km to the east of Scunthorpe and 11km west of Immingham, within the administrative area of North Lincolnshire. To the east of the quarry area, on the southern side of the B1211 is the main plant site area, lime kilns and administrative headquarters of Singleton Birch. The existing Anaerobic Digestion Plant is located around 2.3km east of Melton Ross and around 700 metres west from the village of Croxton; also located on the southern side of the B1211.

1.2 Existing Use

The Melton Ross Quarry complex has been operational since before the introduction of planning legislation, the first consent being an Interim Development Order in 1947; existing operations at the Melton Ross complex currently comprise:

- Quarrying, processing and export of processed calcium carbonate and lime products;
- Treatment of Waste Acids and Air Pollution Control Residues (APCRs);
- Landfilling of non-hazardous residues and various non-biodegradable wastes; and
- Ongoing operation of the existing Anaerobic Digestion Plant (ADP1).

1.2.1 Existing Anaerobic Digestion Plant (ADP1)

Planning permission was granted for the existing ADP1 in June 2013.

The ADP1 was constructed on a 2ha (approximate) area of land within the existing Melton Ross Quarry complex toward its' north-eastern extents. The anaerobic digestion process produces a bio-gas which is combusted within Combined Heat and Power engines (CHPs) generating electricity and heat to feed other concerns within the complex. Any excess energy generated and not used within the complex is exported to the national grid.

The resultant digestate (the material left behind on completion of the anaerobic digestion process) remains rich in naturally occurring nutrients and is exported for use as bio-fertiliser. The ADP1 uses a variety of different feedstocks within the digestion process with the predominant input comprising maize sourced from several farms in the vicinity of the Melton Ross Quarry complex; other various agricultural feedstocks are used in smaller irregular quantities.

2.0 Proposals

The following section outlines the scope of the proposed second Anaerobic Digestion Plant (ADP2) in terms of the relevant structures/components and their dimensions where applicable.

2.1 Proposed Anaerobic Digestion Plant (ADP2)

The ADP2 would produce biomethane, CO_2 and separated digestate (a nutrient-rich by-product) for use as organic fertiliser. It would be located at the Melton Ross Quarry complex on land adjacent to the existing ADP1 to the west of the site.

The ADP2 would accept feedstock in the following forms and quantities:

- 65,000 tpa of liquid food waste soup;
- 5,000 tpa of chicken manure;
- 5,000 tpa of maize; and
- 5,000 tpa of sugar beet pulp.

Essential components of the proposed AD Plant would comprise:

- Feeding system;
- Pump container;
- 3 digester tanks;
- 2 separator/centrifuge tanks;
- Separator/centrifuge building;
- Digestate tank;
- 3 liquid waste reception tanks;
- Pasteurisation tanks building;
- Liquid reception tanker bay;
- Site office and staff facilities;
- Manure tip bunker building;
- CO_2 storage tanks;
- Propane storage tanks;
- Weighbridges; and
- Concrete/tarmac bound surface.

Since the ADP2 would be constructed adjacent to the ADP1, access arrangements would be shared and so no new access would be required from the surrounding highways infrastructure.

The Proposed Site Layout Plan is included as **Drawing 01.**

3.0 BASELINE CONDITIONS

The following section discusses the Melton Ross Quarry complex in context of the various concerns of which it comprises, the local and wider highways infrastructure and its general surroundings.

3.1 Melton Ross Quarry Complex

The Melton Ross Quarry complex as a whole straddles the B1211 between the A18 and A180. The landfill site lies to the north-west of the B1211, while the lime processing plant is located to the south-east of the B1211 and the ADP1, erected in 2017, occupies land immediately south-east of the B1211 at the north-eastern extremity of the Melton Ross Quarry complex. Chalk is quarried at various locations within the boundary of the complex.

3.1.1 Existing Anaerobic Digestion Plant (ADP1)

The ADP1 is located on a 2ha area of land toward the north-eastern extents of the Melton Ross Quarry complex and is accessed via a simple priority junction off the B1211 and areas of hardstanding surround the plant; essential components of the ADP1 development include:

- three silage clamps;
- a digester tank;
- two storage tanks;
- two combined heat and power engines;
- feeding units, and
- weighbridge.

The ADP1 uses a variety of different feedstocks within the digestion process with the predominant input comprising maize sourced from several farms in the vicinity of the complex. The resultant digestate is rich in naturally occurring nutrients and is exported for use as bio-fertiliser.

The ADP1 produces a bio-gas which in turn powers Combined Heat and Power engines (CHPs) generating electricity and heat for use within the complex; the ADP1 produces circa 8,000MWh of clean energy per annum which is used internally within the Melton Ross Quarry complex with any remainder exported to the national grid.

3.1.2 Access Arrangements

There are currently three points of access off the south-eastern edge of the B1211 carriageway which serve the Melton Ross Quarry complex:

- The first point of access constitutes the southern-most vehicular access off the B1211 and is located approximately 150 metres north of the B1211 junction with the A18; it provides access to the car parking area associated with the applicant's offices and caters for light vehicle use only;

- The second point of access caters for HGVs accessing the lime processing plant and is located a further 150 metres north, approximately 300 metres north-east of the B1211 junction with the A18; and

- The third point of access leads to both the existing ADP1 plant and by default to the site of the proposed ADP2 plant. It is located approximately 1km north-east of the B1211 junction with the A18 and is discussed below.

3.1.3 Site Access

This section will discuss only the third point of access as detailed above (hereafter referred to as the Site Access); the first and second points of access are associated with other concerns within the Melton Ross Quarry complex and do not serve the ADP1 or proposed ADP2, nor relate to the subjects addressed within this report.

The Site Access currently serves the ADP1. Since the ADP2 is proposed to be constructed adjacent to the ADP1 both plants would share the same access arrangements and no new installation or alterations to the existing arrangements are necessary.

The B1211 comprises a single carriageway rural road of approximately 6.9 metres in width and is subject to the national speed limit in the vicinity of the Site Access.

The Site Access comprises a simple priority junction configured for HGV usage with generous corner radii on ingress and egress; additionally the egressing lane operates a 'stop' line rather than a give way line at the B1211 carriageway edge.

Figure 3-1 looks south-east toward the site access from the vicinity of the north-eastbound lane of the B1211 carriageway.

Figure 3-1
Existing Site Access off B1211

As visible in the above photograph, the northern site access is configured for access by oversized vehicles including heavy goods vehicles, dump trucks and tractor pulled trailers; both corner radii are extremely wide with the kerblines commencing to widen at a point approximately 17 metres back from the edge of the B1211 carriageway. Also visible within the photograph are instances of street lighting and road signage.

It is noted that there are no footpaths, however, the access is strictly for access by HGVs and other large vehicles/mobile plant machinery and as such this is not considered a deficiency.

3.2 Existing Highway Network

The highways infrastructure in local proximity of the Melton Ross Quarry complex comprises of the B1211, A18, A180 and the A15; the wider highways network also includes the M180, M62, A1(M), M18 and the M1.

3.2.1 B1211

The B1211 runs for approximately 1.8km north-east to south-west between the A18 and Croxton Road. The B1211 in the vicinity of the Site Access is subject to the national speed limit and forward visibility is generally good.

The B1211 between the A18 and the HGV access is approximately 7.0 metres wide and appears to have been widened to accommodate site traffic. This section of road is regularly cleaned by a road sweeper operated by the applicant. To the north of the existing site access, the carriageway narrows to around 6.5 metres and is surrounded on both sides by 1.0 metre grass verging and mature hedgerow. A soil screening mound containing semi-mature trees follows the site boundary on the eastern side of the carriageway.

Figure 3-2 looks north-east along the B1211 carriageway toward the vicinity of the Site Access.

Figure 3-2
B1211, Vicinity of Site Access

The photograph above shows a typical view along the B1211 carriageway in the vicinity of the Site Access to the existing and proposed AD plants. The carriageway at this location is typical of the B1211 in relevant proximity of the application site with a width circa 7.0 metres, central road marking and grass verge flanking the northern edge; the southern edge comprises soil screening mound.

The condition of the carriageway surface is typical of a road serving an active quarry site with signs of minor wear; however, no serious defects were observed during the course of the SLR site audit undertaken in March 2023 either at this location or along the length of the B1211 in relevant proximity of the Site Access.

3.2.2 A18/B1211 Junction

The B1211 joins the A18 at a simple priority junction. The B1211 approach lane is approximately 3.5m wide and widens to approximately 18 metres at the give-way line, thus providing distinct turning streams. The junction layout incorporates white hatching separating ingress and egress. Vehicles waiting to turn right from the A18 block through traffic on the major road.

Figure 3-3 looks north-east across the B1211 / A18 priority junction give-way line from the southern extremity of the ingressing corner radius.

Figure 3-3
B1211 / A18 Priority Junction

As visible in the above photograph the junction between the A18 and B1211 is extremely large in terms of the area at the mouth of the junction and the length of the give-way line which measures approximately 55 metres; the give way line spanning the ingress (at the foreground of the photograph) measures around 33 metres.

The A18 at the point of the junction is approximately 7.5 metres wide. The central road markings in the vicinity of the junction comprise double solid lines prohibiting overtaking. The junction is kerbed and a footpath is located to both the north and west.

The junction is located approximately 100 metres west of a rail bridge, which limits visibility both to and from the junction. Visibility to the east from 4.5 metres behind the major road is approximately 100 metres to the nearside kerb. Visibility is restricted by the vertical and horizontal alignment of the road; visibility from the height of an HGV cab would be slightly improved. Forward visibility to the junction for westbound traffic is also approximately 100 metres and limited by the crest of the rail bridge and the brick walls located on each side. The lack of forward visibility on the approach to the rail bridge necessitates that traffic travels relatively slowly through this section and less than the permitted 40mph speed limit.

Visibility to the west from 4.5 metres behind the major road is approximately 120 metres to the nearside kerb and is restricted by the horizontal alignment of the carriageway and the hedgerow within the northern verge. Visibility to the centre of the carriageway is improved at approximately 140 metres. Forward visibility to the junction for eastbound traffic is approximately 140 metres and is restricted by the hedgerow within the northern verge.

'SLOW' road markings are located on both approaches of the A18, together with direction signs which indicate the presence of the junction.

3.2.3 A18

To the east of the B1211, the A18 proceeds in the direction of Grimsby and provides access to Humberside Airport via a recently constructed roundabout. The carriageway is approximately 7.5 metres wide and is surrounded by grass verges a minimum of 2.0 metres wide. The road is subject to a 40mph speed limit and forward visibility is generally good.

The roundabout to Humberside Airport is located on a straight stretch of road offering good forward visibility both to and from the junction. Street lighting is provided at the airport access and temporary stop signals are located on the A18 as it passes beneath the airport runway flight path.

Continuing east, a crossroads junction provides access to the villages of Kirmington and Croxton. The junction incorporates right-turn facilities for both eastbound and westbound traffic.

To the west of the B1211, the A18 proceeds to the Barnetby Interchange via the village of Melton Ross. The carriageway is approximately 7.5 metres wide and is subject to a 40mph speed limit at the B1211 junction, increasing to 50mph, before reducing to a 30mph limit through Melton Ross.

Pedestrian footways are located on at least one side of the carriageway from the B1211 to the Barnetby Interchange, with extended facilities within Melton Ross. A short section of the footpath within Melton Ross doubles as a cycle path to accommodate the National Cycle Network Route 1 (NCN1) as it crosses the A18. The horizontal alignment of the road varies within Melton Ross which limits forward visibility. Warning signs indicating the presence of both accompanied horses and cyclists are present within the village, as are 'SLOW' road markings at numerous locations.

3.2.4 The Barnetby Interchange and Wider Highway Network

The Barnetby Interchange is a grade-separated roundabout junction, providing access from the A18 to the M180 (west), the A180(T) (east) and the A15 (north). The roundabout also provides local access to Barnetby Lane. The interchange is illuminated to modern standards and slip roads provide access to and from the A180(T) and M180.

The M180 proceeds west towards Scunthorpe and joins the M18 at Junction 5. The M180 varies between two and three lanes; the final section from Junction 4 to the Barnetby Interchange comprises 3 lanes. The motorway classification terminates at the Barnetby Interchange and the A180(T) dual-carriageway proceeds east towards Grimsby.

The A15 is a dual carriageway which proceeds north from the Barnetby Interchange to the Humber Bridge and Kingston upon Hull. Barnetby Lane is a single carriageway road providing local access to Elsham.

3.3 Existing Public Transport Network

Details of bus services operating within the vicinity of the Melton Ross Quarry complex were obtained from the national public transport information service Traveline.

Service 4 operates between Kirmington and Scunthorpe, stopping at Humberside Airport and Melton Ross. Run by Hornsbys Bus & Coach, Service 4 operates Monday to Friday every two hours between 09:09 – 17:13. There are no scheduled services on Saturdays, Sundays or bank holidays.

Service 53 operates between the Demand Responsive Area and Caistor, stopping at Humberside Airport. A demand responsive service run by CallConnect, Service 53 operates Monday to Saturday hourly between 07:35 – 17:35 (although times are notional and must be booked in advance). There are no scheduled services on Sundays or bank holidays.

3.4 Existing Cycle Route Network

There are no dedicated cycling facilities within the immediate vicinity of the Melton Ross Quarry complex.

The National Cycle Network (NCN) Route 1 runs north/south between Barton upon Humber and Barnetby Le Wold, via Melton Ross. This part of the NCN is a signed on-road route and principally follows the path of unclassified rural roads. At Melton Ross, the cycle route crosses the A18 between Middlegate Lane and West Holme Lane; a combined cycle path/footway is provided on this section. To the south of Barnetby Le Wold, the NCN route follows an off-road path.

3.5 Existing Traffic Flows

SLR commissioned Third Party traffic survey specialists Traffic Surveys UK Ltd to install an Automatic Traffic Counter (ATC) at a specified location on the B1211 (Grid Ref) for a period of one calendar week.

Using pneumatic tubes positioned across the carriageway an ATC measures directional traffic flow and vehicle speed, and also classifies vehicles into various groups including cars, motorcycles, and heavy goods vehicles (HGVs).

Data were recorded between the 20th and 26th of February 2023 in order to reflect typical traffic flow conditions on the local highway network (i.e. non-school holiday periods). The traffic count data are attached at **Appendix 01**.

3.5.1 ATC Data Summary

Traffic Surveys UK installed the ATC on the B1211 at a location circa 120 metres north-east of its junction with the A18.

A summary of the 24 hour Average Annual Weekday Traffic (AAWT) flows recorded by the ATC are shown below within Table 3-1.

Table 3-1
Summary of ATC Data

	Northbound		Southbound		Two-way	
	Total	HGV	Total	HGV	Total	HGV
AM 08:00 - 09:00hrs	74	17	74	14	148	31
PM 16:00 - 17:00hrs	57	4	78	7	135	11
24hr 00:00 - 24:00hrs	819	179	823	184	1,642	363

Table 3-1 indicates that ATC 1 recorded an average of 1,642 vehicle movements per weekday of which 363 were classified as HGV, equating to approximately 22% of the total traffic volume.

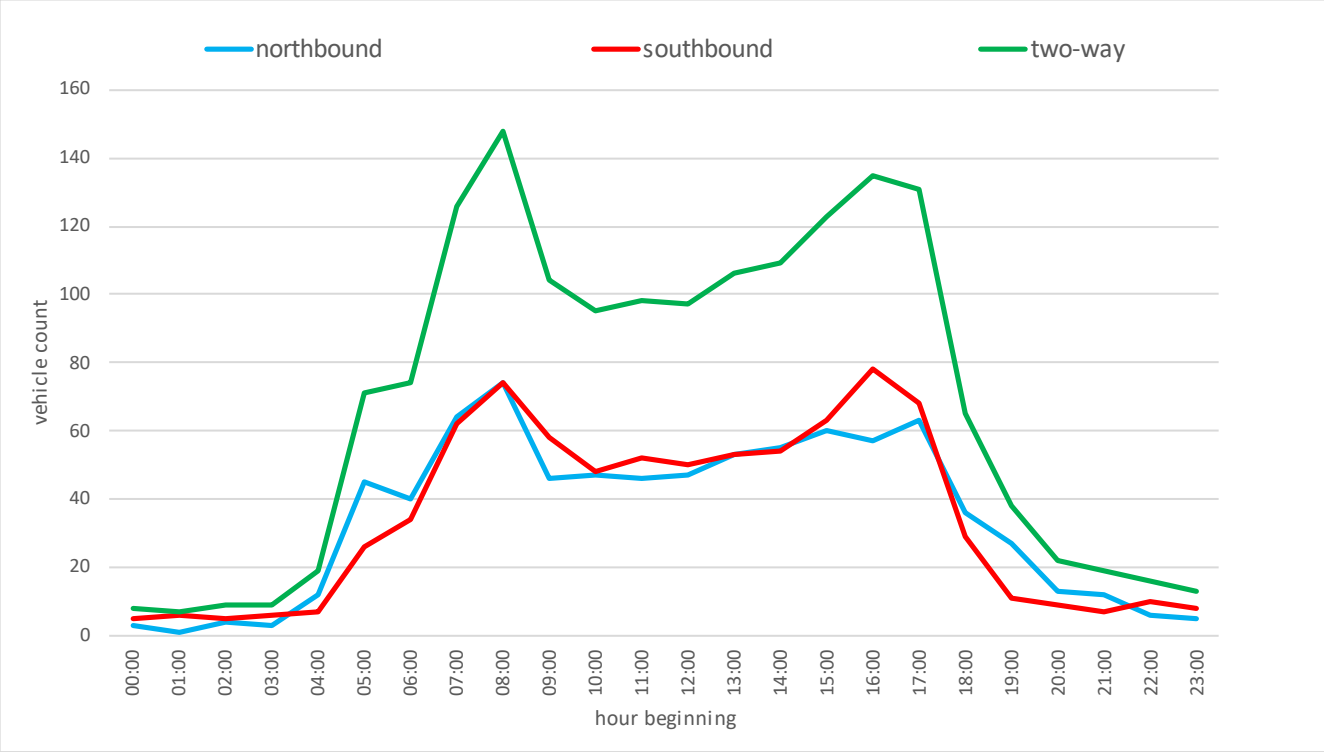
The summary shows that during the average AM peak period, which has been determined as 08:00 - 09:00hrs, a total of 148 movements occurred of which 31 were classified as HGV, equating to approximately 21% of the total traffic volume.

The summary also shows that during the average PM peak period, which has been determined as 16:00 – 17:00hrs, a total of 135 vehicle movements occurred of which 11 were classified as HGV, equating to approximately 8% of the total traffic volume.

The data is presented within the traffic profile graph below within Figure 3-4.

Within the graph outbound traffic values are represented by the red series, inbound by the blue series, and the sum of those two values at any given time index is represented by the green series ('two-way' traffic).

Figure 3-4
Average Weekday Total Traffic Profile Graph



The above Figure 3-4 shows clearly defined AM and PM peak periods in keeping with a typical tidal model.

It can be observed that the levels of traffic moving in either direction are similar. The average AM peak of 148 movements occurs at 08:00hrs; the average PM peak of 135 movements occurs at 16:00hrs. No pronounced inter-peak is present; however this is not uncommon for a road of this type.

Speed Summary

The B1211 is subject to a 40mph limit. A summary of the vehicle speeds recorded by the ATC are presented in the following Table 3-2.

Table 3-2
Average Vehicle Speed Summary

Direction	Speed Measured in Mph	
	Mean	85th %ile
Northbound	38.4	45.6
Southbound	36.3	44.8

The speed summary shown in Table 3-2 above confirms that both the mean vehicle speeds on the B1211 are well within the 40mph speed limit; 85th%ile vehicle speeds are marginally in excess of the limit, but do not present a cause for concern.

3.6 Accident Records

3.6.1 Methodology

Personal injury road traffic incident data covering the five year period to 30th January 2023 were obtained from North Lincolnshire Council. The incident study area includes the A18 between the Barnetby Interchange (including slip roads) and Humberside Airport, as well as the B1211 between the A18 and the existing site access junctions. The data 'as received' is included as **Appendix 02**.

A total of 63 personal injury incidents occurred within the study area during the five year period, comprising 51 incidents classified as slight, 10 incidents classified as serious and 2 fatal incidents.

An assessment of the location and causes of incidents has been undertaken to establish any areas of concern and to be able to determine the likely impact of site traffic on existing incident rates. It should be noted that North Lincolnshire Council were unable to supply detailed incident descriptions and therefore the cause of incidents has been extrapolated from available facts.

3.6.2 Slight Incidents

Fifty-one (51) incidents within the dataset area categorised as 'Slight'. It is noted that incidents categorised as 'Slight' tend to comprise minor contact between vehicles as a result of one or more drivers failing to look properly or other such negligence.

Such incidents occurring at priority junctions are predominantly as a result of a driver failing to look before emerging, or failing to properly judge the speed and distance of an approaching vehicle resulting in an over-estimate of the time available to safely join the main carriageway.

The 51 Slight incidents have been examined individually for any indication, within the limited information available, of the presence of any highway defects. The incidents were also examined in terms of their causation factors; the findings are summarised within Table 3-3.

Table 3-3
Common Causation Factors

Causation Factor	Common example	No. of citations
Failed to look properly	Entering a roundabout, or exiting from a side road without first confirming it is safe to do so	14
Careless/Reckless/In a hurry	Generally poor or unsafe driving, usually with excessive speed	10
Failed to judge other persons path or speed	Incorrectly assuming sufficient time is available in which to emerge from a junction, perform a u-turn etc.	9
Total		33*

*the remaining 18 of the 51 incidents cited primary causation factors including:

- Aggressive driving;
- Impaired by drugs (illicit or medicinal);
- Illness or disability, mental or physical;
- Following too close;
- Junction restart;
- Sudden braking;
- Disobeyed double white line;
- Distraction in vehicle;
- Fatigue;
- Loss of control; and
- Overloaded or poorly loaded vehicle or trailer.

A single incident listed 'Other' within the causation factor field. The term 'Other' is generally used when the cause of an incident does not fit into a definite category: it is noteworthy that there are several categories relating to highway deficiencies, including:

- Poor or defective road surface;
- Inadequate/Masked signs or road markings;
- Defective traffic signals;
- Traffic calming (eg speed cushions, humps, chicanes);
- Temporary road layout (eg contraflow);
- Road layout (eg bend, hill, narrow road);
- Road layout (eg bend, winding road, hill crest); and
- Buildings, road signs, street furniture.

As such, usage of the term 'Other' is highly unlikely to relate to a highway deficiency.

Analysis of the 51 incident reports mentioned above has not revealed any information which can be considered evident of the presence of a highway deficiency at any of the locations of the individual incidents.

The remaining incidents not yet discussed are those categorised as 'Serious' or 'Fatal'.

3.6.3 Serious Incidents

The 10 incidents which were categorised as 'Serious' in nature are summarised within Table 3-4.

Table 3-4
Summary of Serious Incidents

Incident Ref	Coordinates	Date of Incident	Primary Causation Factor	Other causation factors
836681	505006/411003	04/05/2019	Junction overshoot	Rain, sleet, snow, or fog
293411	504995/411070	05/05/2018	Careless/Reckless/In a hurry	Failed to look properly
309735	505190/411022	06/07/2018	Careless/Reckless/In a hurry	<none>
826935	505071/411055	27/03/2019	Careless/Reckless/In a hurry	Careless/Reckless/In a hurry
851117	505161/410906	24/06/2019	Careless/Reckless/In a hurry	Fatigue
855401	509512/411016	08/07/2019	Illness or disability, mental or physical	<none>
994793	505186/411022	31/10/2020	Careless/Reckless/In a hurry	Failed to look properly
1122381	505100/411148	06/12/2021	Rain, sleet, snow, or fog	Travelling too fast for conditions
1196978	505346/411122	04/07/2022	Aggressive driving	Swerved
1197459	506887/410695	10/07/2022	Careless/Reckless/In a hurry	Distraction in vehicle

As demonstrated within Table 3-4 above all 10 incidents are separated from one another in terms of either location and/or date of occurrence, and in most cases by both criteria.

Isolated incidents by nature are not indicative of highways deficiency since a defect serious enough to cause a road traffic incident would almost certainly result in more than one incident over an extended period of time; incidents 309735 and 994793 did occur at the same location; however, chronological separation in excess of 24 months supports the premise that the common location is merely coincidence. Further, it is noted that a junction is far more likely to see road traffic collisions owing to it being by nature a point of vehicular conflict.

Notwithstanding, all said incidents have been scrutinised in terms of the potential presence of a highway deficiency. Analysis of the 10 'Serious' incident reports have not revealed any information which can be considered evident of the presence of a highway deficiency at any of the locations of the individual incidents.

3.6.4 Fatal Incidents

Two incidents resulted in fatality; they are discussed below to ascertain the possibility of a highway deficiency at each respective location as a cause or contributory factor.

Ref: 297544, 31/05/2018, 08:45hrs;

Location: A18 Barnetby Top (505195, 410826);

Conditions: Road Surface - Wet/Damp, Lighting - Daylight, Weather - Fine;

Manoeuvre: Car, S to N, Approaching Roundabout junction;
HGV, N to S, Approaching Roundabout junction.

Causation factors: Distraction in vehicle - Possible;
Illness or disability, mental or physical - Possible.

Likely Course of Events: The available information limits the potential to accurately extrapolate the course of events, however, the orientation of the vehicles as they collide is suggestive of a head-on collision. The location of the incident comprises a short link road between two major roundabout junctions. The link road has no central reservation or other separation between the lanes, as such it is possible that either of the vehicles has drifted into the oncoming lane resulting in collision.

While tragic, there is nothing within the incident report to suggest that this incident occurred as a result of anything other than driver error.

Ref: 1179382, 19/05/2022, 19:25hrs;

Location: A18 East from j/w Castor Road (507336, 410782);

Conditions: <none recorded>;

Manoeuvre: Car, W to E, Ahead, righthand bend;
Motorcycle, E to W, Ahead, lefthand bend.

Causation factors: Careless/Reckless/In a hurry; Motorcycle.

Likely Course of Events: As above, the available information limits the potential to accurately extrapolate the course of events, however, the vehicles' respective directions of travel is suggestive of a head-on collision. The bend in the road has somewhat limited visibility owing to mature trees on the southern edge of the carriageway. It is possible that the motorcyclist approached the bend at speed, taking a wide approach and strayed into the oncoming lane.

Again, while tragic, there is nothing within the incident report to suggest that this incident occurred as a result of anything other than driver error.

3.6.5 Summary

Analysis of the available information pertaining to each incident on an individual basis has failed to reveal any evidence or indication that a highway deficiency exists within relevant proximity of the application site or that any road traffic incident reported within the five year period to 30th January 2023 occurred as a result of anything other than driver error.

As such, it can be concluded that no highway deficiency exists within relevant proximity of the application site entrance or surrounding highway infrastructure that may now or in the future pose a detrimental effect upon highway safety in the vicinity.

4.0 TRIP GENERATION

The following section considers the trip generation potential of the ADP2 and thereafter provides a comparison against baseline flows on the B1211 in order to determine the net traffic increase post-development and assess the impact of the net traffic increase in terms of highway safety and capacity.

4.1 Overview

The ADP2 is designed to accept liquid food waste soup, chicken manure, maize and sugar beet pulp for anaerobic digestion to produce bio-methane gas and CO_2 for industrial usage. Feedstock would comprise a total of 80,000 tpa with imports to the complex arriving solely via HGV.

The liquid food waste soup is supplied in HGV tankers and delivered over an 8 hour period daily for pumping into 4 storage tanks for preheating prior to pumping into the process. The chicken manure, maize and sugar beet pulp, which is available at different times of the year, is transported to site by HGV/tractor trailer. These would be fed via a dry feeding hopper then pumped into the digestors for bio digestion to make biogas.

The gas is then upgraded by stripping out the CO_2 and H_2S. This gas now may be supplemented with propane if necessary to achieve the grid entry calorific value and then is now ready for injecting into the grid as biomethane. The remaining CO_2 would be liquified and sold for use within industry.

Following the refinement/processing of the products/waste products, CO_2 and separated dry and liquid digestate are exported from the site via HGV.

4.2 Proposed Trip Generation

The above process requires the following inputs:

- 65,000 tpa of liquid food waste soup;
- 5,000 tpa of chicken manure;
- 5,000 tpa of maize; and
- 5,000 tpa of sugar beet pulp.

And produces the following outputs:

- 6,000 tpa CO_2;
- 4,116 tpa dry digestate waste; and
- 63,750 tpa liquid digestate waste.

Table 4-1, below, sets out the expected trip generation movements borne of the various inputs and outputs described above.

For clarity, 1 ‘Load’ is equal to 1 ‘Trip’, and 1 ‘Trip’ is comprised of 2 ‘Movements’ - one in and one out.

In the interests of a robust assessment the value within the 'Maximum Daily HGV Movements' column is always equal to the greatest possible* no. of movements required for the import/export of a given feedstock/product - thereby representing a 'worst case scenario'.

**the actual number of movements may often be less than this figure, but never greater. For example, in the case of maize and sugar beet pulp input, these are campaign based delivered at harvest time over a 4 week and 25 week period respectively. However, for the purposes of a robust assessment, it is assumed all vehicle movements occur in the same week/day.*

Where the total number of imports/exports of a given feedstock/product is not perfectly divisible across the operational weeks/days of the year the scenario would inevitably arise whereby one in (*x-number*) of weeks would require one extra load or one fewer loads than is normally expected.

Because one trip comprises two movements, movements are distributed in pairs; as such - using CO_2 product removal as the example - the maximum weekly trips for the exportation of CO_2 equates to 4 trips (8 movements comprising 4 in & 4 out) and therefore it would not require more than 4 days per week to complete a full weeks export.

Table 4-1
Forecast Trip Generation/Movements

Input / Output	Annual Tonnage	Trips per week	No. of weeks	Trips per day	Maximum Daily HGV Movements (5 day week)
Liquid Food Waste Soup	65,000 tpa	42	52	9	18
Chicken Manure	5,000 tpa	4	52	1	2
Maize	5,000 tpa	84	4	17	34
Sugar Beet Pulp	5,000 tpa	7	25	2	4
CO_2	6,000 tpa	4	52	1	2
Dry Digestate Waste	4,116 tpa	6	52	2	4
Liquid Digestate Waste	63,750 tpa	107	30	22	44
TOTAL MAXIMUM DAILY MOVEMENTS (HGV ONLY)					**108**

The summary within Table 4-1 above shows that the potential total trip generation of the proposed development equates to a maximum of 108 HGV movements per day (or 54 two-way trips), based on 260 operational days per year.

In addition to the expected trip generation HGV movements borne of the various inputs and outputs, there would also be a minimal number of vehicle movements associated with the four parking spaces provided on the ADP2 site.

Whilst parking would be provided within the existing main staff car park where there are additional spare places, on the ADP2 site contractor/staff site vans would have a parking area in front of the Site Office and Staff Facilities Building, which would also be used if needed for delivery vehicles.

Based on a robust scenario whereby all 4 parking spaces are used daily, this equates to 8 LDV movements per day (or 4 two-way trips).

4.3 Trip Distribution/Assignment

All HGVs currently access the site from the B1211 and the A18. The future trip generation distribution of traffic in the vicinity of the application site is expected to remain unchanged by the proposals.

4.4 Traffic Impacts

4.4.1 Link Impact

A link impact assessment has been undertaken on the B1211 which has considered the impact of traffic generated by the proposed development.

The IEMA Guidelines provide two thresholds when considering predicted increases in traffic, whereby a full assessment of impact would be required:

- where the total traffic would increase by 30% or more (10% in sensitive areas); and/or
- where the HGV traffic would increase by 30% or more (10% in sensitive areas).

In consideration of the existing conditions of the local highway network and its lack of accident history, for the purposes of this assessment the links studied are not considered to be sensitive. Based on this, the 30% threshold as defined in the IEMA Guidelines is deemed to apply for assessment purposes.

The link impact assessment undertaken indicates that the future trip generation of the development proposals are likely to result in a maximum 7% increase in total traffic and a 29% increase in HGV movement on the B1211.

These traffic impacts are within the 30% threshold advised by the IEMA guidelines indicating that further assessment would not be required. It should also be noted that, as detailed within Section 4.2 Proposed Trip Generation, this is on the basis of a robust assessment.

Outside the B1211, all HGV traffic would be routed on the A18 and the wider strategic road network, which are classified by North Lincolnshire Council as Strategic Freight Routes and carry higher vehicle flows. As such any HGV traffic associated with the operation of the ADP2 would be dispersed across the wider road network and as such do not warrant further assessment.

4.4.2 Road Safety

A review of personal injury accidents recorded on the surrounding highway network over the previous five year period is presented within Section 3.6 of this report.

Analysis of the available information pertaining to each incident on an individual basis has failed to reveal any evidence or indication that a highway deficiency exists within relevant proximity of the application site or that any road traffic incident reported within the five year period to 30th January 2023 occurred as a result of anything other than driver error.

In light of the above, it is concluded that traffic generated by the existing Melton Ross Quarry complex has had negligible detrimental impact on road safety over the past five years of operation and as such the additional traffic generated by the ADF2 would have minimal impact on accident rates.

4.4.3 Driver Delay

Delay to drivers is generally caused at junctions and is only likely to be significant when the network is close to capacity.

Traffic counts show that the B1211 is a lightly trafficked road, predominantly used by traffic accessing the Melton Ross Quarry complex.

The link impact assessment undertaken on the B1211 indicates that the future trip generation of the development proposals are likely to result in a maximum 7% increase in total traffic and a 29% increase in HGV movement on the B1211; as such minimal impact on driver delay is anticipated. No capacity issues are currently experienced on the surrounding highway network and there is sufficient capacity to accommodate additional site traffic.

4.4.4 Pedestrian/Cyclist Amenity

Pedestrian footways are present on the A18 from the junction with the B1211 to the Barnetby Interchange; extended footway provision, street lighting and a 30mph speed restriction are provided within the village of Melton Ross.

As discussed within Section 3.4 of this report, part of the National Cycle Network crosses the A18 in the centre of the village; a combined pedestrian footway/cycle path is provided at this point. Cyclist warning signs are also provided on the A18 within the village.

Given the existing facilities in place and the minimal traffic increase expected from the ADP2, negligible impact on the amenity of pedestrians and cyclists is anticipated.

4.4.5 Public Rights of Way

No Public Rights of Way (PROW) are located within the vicinity of the application site and therefore no impact on the amenity of PROW users is anticipated as a result of the development proposals.

5.0 ACCESS ARRANGEMENTS AND MITIGATION MEASURES

The following section reviews the existing access arrangements with a view to identifying any issues or constraints and potential pre-emptive mitigation thereof.

5.1 Access Arrangements

5.1.1 Site Access

As discussed previously, access to the ADP2 would be shared with the ADP1; the access is taken off the B1211 on the south-eastern side of the carriageway at a location circa 1.0km north-east of the B1211 junction with the A18.

Figure 6-1 looks north-east toward the existing access off the B1211 at the northern vicinity of the Melton Ross Quarry complex.

Figure 5-1
Existing Site Access off B1211

The carriageway at this location is wide, level and free from excessive wear or serious defect; forward visibility is of a good standard in either direction.

Figure 6-2 looks north-east/right on egress of the site access onto the B1211.

Figure 5-2
Visibility on Egress to the Right

As visible in the above photograph visibility on egress to the right/north-east is available far in excess of the requirements and is entirely unobstructed owing to the relative lack of trees, shrubs and other vegetation along the verge flanking the south-eastern edge of the carriageway.

Figure 6-3 looks south-west/left on egress of the site access onto the B1211.

Figure 5-3
Visibility on Egress to the Left

As visible in the above photograph visibility on egress to the left/south-west is available far in excess of the requirements and is entirely unobstructed owing to the relative lack of trees, shrubs and other vegetation along the verge flanking the south-eastern edge of the carriageway.

As demonstrated within the photographs above at Figures 6-2 and 6-3 visibility at the site access junction is free from obstruction in both directions on egress from the access onto the B1211; additionally, it is notable that the vast majority of vehicles egressing at this location would have raised cabins affording drivers/operators a visual advantage.

It is also considered that motorists who regularly use the highways in the immediate vicinity of the Melton Ross Quarry complex would be familiar with the various types of large vehicle using the local road network (HGVs, tractor pulled trailers etc.) and would be comfortable with their presence and employ extra vigilance in general. This premise is supported by the general lack of road traffic incidents in the vicinity, and notably a complete lack of incidents at the existing ADP1 access within the five-year period reviewed.

5.1.2 A18/B1211 Junction

Visibility on egress from the B1121 due east/turning left onto the A18 is available unobstructed over a distance around 75 metres; visibility on egress to the south-west/turning right onto the A18 is available over a distance of more than 100 metres.

In terms of highway safety, the data received from NLC revealed no incidents recorded at the junction over the course of a five-year period. Junctions are the most likely locations to experience road traffic collisions, as by their nature they are points of inter-vehicular conflict, so a junction with no incidents recorded in five years represents a very low frequency of occurrence.

5.2 Mitigation Measures

Given the existing facilities already in place at the Melton Ross Quarry complex and the minimal traffic increase expected from the development proposals, a minimal impact on the surrounding highway network is envisaged as a result of the application.

However, the Melton Ross Quarry complex as a whole does generate a greater level of HGV traffic, which can be of concern to both users of the highway network and local residents.

The applicant would continue to maintain a regular programme of cleaning on the B1211 to ensure that dust, mud and detritus are not transmitted from the site onto the public highway. In addition, all HGVs would be sheeted and be required to pass through a wheel wash facility prior to entering the public highway.

6.0 Summary and Conclusions

SLR was appointed to provide Highways and Transportation services to support a planning application for the construction of a second Anaerobic Digestion Plant on land at the Melton Ross Quarry complex, near Barnetby, North Lincolnshire.

This report has assessed the traffic and transport implications of proposals to erect and operate a second Anaerobic Digestion Plant (ADP2) located adjacent to the existing Anaerobic Digestion Plant (ADP1) south of the B1211. Access to the ADP2 would be shared by the ADP1.

A link impact assessment has been undertaken on the B1211 which has considered the impact of traffic generated by the proposed development. The link impact assessment undertaken indicates that the future trip generation of the development proposals are likely to result in a maximum 7% increase in total traffic and a 29% increase in HGV movement on the B1211.

These traffic impacts are within the 30% threshold advised by the IEMA guidelines indicating that further assessment would not be required. It should also be noted that, as detailed within Section 4.2 Proposed Trip Generation, this is on the basis of a robust assessment.

Outside the B1211, all HGV traffic would be routed on the A18 and the wider strategic road network, which are classified by North Lincolnshire Council as Strategic Freight Routes and carry higher vehicle flows. As such any HGV traffic associated with the operation of the ADP2 would be dispersed across the wider road network and as such do not warrant further assessment.

The application site is located in close proximity and with good access to the strategic road network. The vast majority of HGVs access the Melton Ross Quarry Complex from the west via the A18 and the Barnetby Interchange.

The B1211 has a high proportion of HGV use and is an established link for HGVs accessing the existing Melton Ross Quarry Complex. The development proposals are not expected to generate a significant increase in traffic movements on this link. As such, no significant environmental impact is anticipated.

A review of personal injury accidents recorded on the surrounding highway network over the previous five year period failed to reveal any evidence or indication that a highway deficiency exists within relevant proximity of the application site or that any road traffic incident reported within the five year period to 30th January occurred as a result of anything other than driver error. A minimal impact on road safety has been concluded.

Given the existing facilities already in place at the Melton Ross Quarry complex and the minimal traffic increase expected from the development proposals, a minimal impact on the surrounding highway network is envisaged as a result of the application.

In terms of mitigation measures the applicant would continue to maintain a regular programme of cleaning on the B1211 to ensure that dust, mud and detritus are not transmitted from the site onto the public highway. In addition, access roads would be surfaced (tarmac or concrete) and all HGVs would be enclosed (either by sheeting or would be sealed tankers)..

Overall, it is considered that the development proposals are acceptable from a traffic and transportation perspective.

APPENDIX 01

Traffic Survey Data

APPENDIX 02

Accident Data

DRAWING 01

Proposed Site Layout Plan

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