TRANSPORT STATEMENT

SWEETBRIAR SOLAR FARM

January 2022

Prepared By:

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1 INTRODUCTION

1.1 Background

This Transport Statement has been prepared by Arcus Consultancy Services Ltd (Arcus) on behalf of Lightrock Power Ltd ('the Applicant') to accompany the planning application submitted to North Lincolnshire Council ('the Council') for the installation of a solar photovoltaic array/solar farm with associated infrastructure ('the Development') on land at Sweetbriar Farm, approximately 6 kilometers (km) north west of Immingham, North East Lincolnshire, centred on British National Grid Reference E 511196 N 417199 ('the Site').

This Transport Statement provides an overview of the Development in relation to traffic and will assess the anticipated impact of the Development on traffic and transportation resources within the local area.

1.2 Overview of the Development

The Development is located on existing farmland, occupying an area of approximately 44.58 hectares (ha) and will have a capacity of circa 39 Megawatts ('MW').

Construction of the Development will involve the installation of ground mounted solar PV arrays and associated infrastructure including inverters, a substation compound, fencing, security cameras, cabling, storage containers and access tracks.

Construction and operational access to the Development would be taken from Carr Lane, via the existing farm access junction to the Site which is currently used by large agricultural vehicles. There are adequate visibility splays in either direction from the proposed access point. **Figure 1** in Appendix **A** shows the proposed access location.

1.3 Consultation

Consultation was initiated in June 2021 with North Lincolnshire County Council (NLCC) to discuss the Development proposal, access arrangements, and route to Site. A summary of the consultation response is provided below:

- The Development proposal is acceptable in principle, however a Transport Statement and Construction Phase Traffic Management Plan, detailing how the impact of construction traffic in Ulceby will be minimised, should be submitted.

2 LEGISLATION, POLICY AND GUIDANCE

A summary of the legislation, policy and guidance considered during preparation of this Transport Statement is provided in Table 2.1.

Table 2.1 - Legislation, Policy and Guidance

Policy or Author	Title	Policy Description	Notes
Ministry of Housing, Communities and Local Government	National Planning Policy Framework (2021)	The NPPF (2021) is the over-arching national statement of the Government's approach to planning. The document contains several paragraphs outlining policies in relation to transport provision for new developments. Paragraph 111 states: *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."*	N/A
Department for Transport (DfT)	Design Manual for Roads and Bridges (DMRB) – CD 123	Details the geometric design standard for at-grade priority and signal-controlled junctions.	Has been used within this report to appraise the standard of existing infrastructure, in particular the Site entrance junction.
Department for Transport (DfT)	Guidance on Transport Assessment (2007)	Sets out the methodology for preparation of a Transport Assessment.	Transport Assessments are normally associated with developments which are expected to cause a long-term, or permanent, change in traffic flow or composition. It is therefore of limited relevance for this Development, where the principle traffic effects will be short-term and associated with construction.
Institute of Environmental Management and Assessment (IEMA, 1993)	Guidelines for the Environmental Assessment of Road Traffic	Sets out guidelines for determining the appropriateness and significance of traffic effects as a result of a proposed development. The following criteria should be applied for determining where further assessment is required: • Routes where traffic is predicted to increase by 30% or more; and • On highly sensitive routes where traffic is predicted to increase by 10% or more.	This guidance is primarily intended to apply to Environmental Impact Assessments; however, the quoted thresholds are useful for determining where traffic increase may be significant.

3 EXISTING CONDITIONS

3.1 Highway Infrastructure

Construction traffic is expected to arrive from the south via the A180 at the Brocklesby Interchange. This assessment will consider effects on routes between the Site entrance and the A180.

3.1.1 A180

The A180 is a primary route that runs from the M180 motorway to Cleethorpes. The A180 is a dual carriageway road and operates at the national speed limit.

Construction traffic will exit the A180(M) at the Brocklesby Interchange onto the A160. As this road is a major transport link it is expected that any increase in traffic numbers due to construction of the Site will be negligible.

3.1.2 A160 Road

The A160 is a short dual carriageway road in North Lincolnshire which links the A180 to Immingham Docks in South Killingholme. The road is designated as a traffic distributor which carries traffic from the A180 via the Brocklesby Interchange to the existing port facilities in the region. The A160 is generally subject to the national speed limit.

As the road is a main traffic distributer providing access to the port facilitates in the region, it is likely that the road is reasonably used by Heavy Goods Vehicles (HGV) hence temporary increases in HGV traffic are not uncommon and any increase in traffic numbers due to construction of the Site will be negligible.

3.1.3 A1077 Ulceby Road

The A1077 is a single carriageway road designated as a local traffic distributor road carrying traffic from the A160 through towns such as Scunthorpe, Winterton, Barton-upon-Humber and Ulceby. The road is subject to the national speed limit and has centre line markings which indicate that the road is wide enough for HGVs to pass each other safely. It is likely that the road is reasonably used by HGVs as it is home to a truck stop outside the town of Ulceby and that temporary increases in HGV traffic are not uncommon.

3.1.4 Carr Lane

Carr Lane is a rural single carriageway road operating at 30 miles per hour after the junction with the A1077 and throughout the residential area of Ulceby Skitter. Once passed Ulceby Skitter, the road then carries over to the national speed limit in the Site area. The road is a single-track road with no passing places and has no centre markings, indicating that it is not safe for HGVs to overtake and that incoming construction vehicles may hamper the flow of traffic on this road. However, as this road connects to the Site access and Temporary Construction Compound (TCC), appropriate traffic management procedures will be put in place in order to ensure the impact of construction traffic on the existing road network is kept to a reasonable level. As shown in Figure 1 in Appendix A, one existing access point is proposed from Carr Lane into the Site.

3.2 Site Access Junction

Access to the Site will be via an existing access point on Carr Lane. Figure 1 in Appendix A shows the proposed access location.

A Visibility splay assessment (*Drawing No. 4157-DRP-0001* included in Appendix B) has been undertaken using the minimum setback distance of 2.4 m for a simple priority junction. Vegetation is to be maintained at a height below 0.26 m to prevent visual obstruction and maintain clear visibility.

The results of this assessment indicated that the achievable splays without the need for third party land for this junction location are; 2.4 m by 69 m to the north & 2.4 m by 215 m to the south.

Carr Lane in the vicinity of the access location is subject to the national speed limit. Therefore, the visibility splay of 215 m for a 60-mph design speed is required.

It is acknowledged that the visibility splay to the north of Junction Access 1 does not meet the DMRB standard for a 60-mph design speed. However, it is not anticipated that any delivery vehicles associated with the Development will be approaching from the north (due to the weight restriction and the 90 degree bend over the level crossing). Any non-Site traffic related vehicles approaching from the north would be accelerating following the 90-degree bend after navigating a manually controlled level crossing, so a visibility envelope of 69 m, which equates to a speed of circa 35 mph, is not unreasonable. Additionally, traffic management measures including appropriate signage (and/or presence of a Banksman) will be put in place during the construction phase as part of the Construction Traffic Management Plan for the Development. Following construction, this access will only be used during the operational phase where vehicle movements to the Site will comprise activities associated with inspection, maintenance and general Site up-keep. This will be infrequent and will not involve HGVs.

The swept path assessment (*Drawing No. 4157-DR-P-0003 included in* Appendix C) undertaken demonstrates that the access junction can be successfully accessed in a forward gear.

3.3 Road Traffic Collision Assessment

A study of all 'serious', 'fatal' and 'slight' reported Road Traffic Collisions (RTCs) within the last five years between the route to Site and the Site entrance junctions was undertaken[1]. Figure 1 included in Appendix A indicates the location of each identified RTC.

Collisions are categorised according to the severity of injuries sustained by those involved:

- 'Slight' are those which are reported but do not meet any of the below criteria;
- 'Serious' injuries are those which result in hospitalisation or death more than 30 days after the incident; and
- 'Fatal' results in the death of one or more persons at the scene of the collision or within 30 days of the incident.

A total of one 'fatal', eleven 'slight', and three 'serious' RTCs in total were recorded within or near to this study area. No RTC's were identified within the immediate vicinity of any of the proposed access locations.

Five of the 'slight' RTCs were located at different locations of the Brocklesby Interchange, along with one 'serious' and one 'fatal' RTC occurring just before the slip road. Four 'slight' RTCs were noted on the roundabout connecting the A1077 and the A160. One 'slight' and two 'serious' RTCs at close vicinity to the junction into the truck stop on the A1077, and the final 'slight' RTC located just inside the town of Ulceby on Station Road.

While a review of the available RTC reports did not identify a common cause of the RTCs, it was noted that the majority of the 'slight' RTCs recorded were located at different points of the various roundabouts along the proposed route to Site and this is not uncommon for these types of junctions to have accidents occur. The 'fatal' RTC occurred before the slip road at the Brocklesby interchange and this was found to be caused by an overtaking error.

[1] Study was undertaken using data compiled from crashmap.co.uk [Accessed 15/11/2021]

No trends or hotspots have been noted which would otherwise indicate the road to be unsafe. As such it is determined that the road network along the route is working as intended and does not pose any significant safety concerns.

4 THE PROPOSED DEVELOPMENT

4.1 Construction Traffic Composition

Development construction traffic will primarily be associated with the importation of construction materials including solar panels, support structures, electrical equipment and other construction materials. It is expected that the majority of these materials will be transported to the Site by HGVs.

Other vehicles associated with construction of the Development can be expected from construction workers and other personnel accessing the Site. Construction Vehicle Routing

All construction vehicles approaching the Site will be directed to use the approved approach route to Site. All heavy vehicles and other construction traffic will approach the Site from the A1077 to the south via the A180. The proposed route is indicated on Figure 1 included in Appendix A and is summarised below:

- Exit A180(M) at the Brocklesby interchange onto the A160 northbound;
- Continue along the A160 until the A1077 / A160 Habrough Road Roundabout (Habrough Roundabout);
- Turn left at the first exit onto the A1077 westbound;
- Continue along the A1077 through Ulceby Skitter until its junction with Carr Lane;
- Turn right into Carr Lane;
- Continue along Carr Lane until the Temporary Construction Compound; and
- Turn left into the Site.

All construction vehicles departing the Site are expected to use the same route as on approach in reverse. No traffic will be allowed to turn left when exiting the Site due to the unsuitable 90-degree bend and weight restriction.

4.2 Construction Traffic Volume

An indicative programme of anticipated construction traffic associated with the Development is provided in Table 4.1 and is expected to run for approximately 6 months. The following sub-sections provide detail for each element of work. Detailed assumptions have been made in estimating material quantities.

4.2.1 Site Mobilisation and Demobilisation

At the commencement of the project, plant, equipment and welfare facilities will be brought to the Site and the TCC will be formed. This is expected to require up to 15 HGV deliveries or 30 two-way HGV movements at the commencement of the project.

During Site demobilisation, the majority of this equipment will be removed from Site. Vehicle movements for demobilisation will result from empty HGVs and low loaders travelling to Site and then departing loaded.

4.2.2 Junctions and Access Tracks and Hardstanding

As per the Site layout, it is estimated that 5,379 m^2 of new access track with allowance for wider areas of track to accommodate turning will be required for the Site. For the purposes of this assessment, it has been assumed that all access tracks, the TCC and hard standings will be formed to a depth of 0.45 m using Type 1 aggregate. This results in roughly 2,420 m^3 of material required to construct the access tracks.

The proposed TCC will make up an area of approximately 10,000 m² and will be formed at a depth of 0.45 m using Type 1 aggregate. This results in roughly 4,500 m³ of material required to construct the TCC area.

In total, approximately 6,920 m³ of aggregate will be imported via tipper lorry with an assumed volumetric capacity of 13 m³ which will result in 532 vehicle loads or 1,064 two-way HGV movements for this element of works.

4.2.3 Frames and Inverters and Storage Containers

The solar arrays will be ground mounted, and each string of panels will be supported on a frame. Electrical inverters/transformers and other electrical equipment will be imported and installed with the panels. It is assumed that approximately 16 inverters and three storage containers will be required and these will be transported to Site via standard HGV resulting in 11 deliveries (2 per HGV) or 22 two-way vehicle movements.

4.2.4 Control Building (Substation)

Construction of the substation will commence once the access tracks and panels are largely complete. The substation will be built on the TCC. A hardstanding area of roughly 260 m² will be constructed. Allowing for a depth of 0.45 m, this will require approximately 117 m³ of Type 1 aggregate, resulting in 9 HGV deliveries or 18 vehicle movements with an assumed volumetric capacity of 9 m³. A further 15 HGV deliveries has been assumed for materials, namely concrete, to be imported to form the foundations of the building structure, roof materials and internal electrical cabling importation of concrete, to form the foundations of the building structure, roof materials and internal electrical cabling, resulting in an additional 30 vehicle movements.

4.2.5 Panels

Solar panels will be imported to the Site by HGV and this is assumed to be the maximum size 16.5 m length HGV. Panels will be delivered and stockpiled on-site prior to installation. It has been assumed that 67,848 individual panels are required and that 600 panels can be delivered per HGV load. Therefore, 113 deliveries will be required for panels resulting in 226 two-way HGV movements.

4.2.6 Staff

Staff levels are likely to vary through construction depending on the operations being undertaken. It is anticipated that during the peak period of construction, 40 staff will be required onsite per day, during the other phases of work this is anticipated to be 20 staff. For the purposes of this assessment, the most recent available National Travel Survey[2] private vehicle occupancy rate of 1.5 people per vehicle was used, equating to 27 vehicles during the peak period and 13 vehicles during the non-peak period. This equates to 54 movements per day during the peak period and 26 movements per day during the non-peak period.

Assuming 26 workdays per month, this will result in 1,404 movements per month during the peak period and 624 movements per month during the non-peak. Staff will be encouraged to car share, so it is anticipated that the figure for car or van movements is likely to be considerably lower than the above estimates in practice.

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017064/nts0905.ods [Accessed 15/11/2021]

4.2.7 Fuel

Fuel for plant will be required on the Site regularly through construction - this is estimated to result in one HGV fuel tanker delivery per week (4 per month) or eight vehicle movements per month.

4.2.8 Overall Delivery Programme

Table 4.1 shows an indicative construction programme and schedule of deliveries.

Table 4.1 - Anticipated Construction Programme

Activity	Month						
	1	2	3	4	5	6	Total**
Site Mobilisation/Demobilisation	30					30	60
Access Track and TCC	355	355	355				1,065
Solar Frames/Inverters			16	16	16		49
Panel Installation			75	75	75		226
Substation			12	12	12	12	48
Miscellaneous Delivery	10	20	20	20	20	10	100
Staff	624	624	1,404	1,404	1,404	624	6,084
Fuel	8	8	8	8	8	8	48
Total (All Vehicles)	1,027	1,007	1,891	1,536	1,536	684	7,680
Total (HGV Only)	403	383	487	132	132	60	1,596
Average Total Traffic per Day*	39	39	73	59	59	26	
Average HGV Traffic per Day*	15	15	19	5	5	2	

**ASSUMES 26-DAY WORKING MONTH; ** TOTALS MAY NOT ADD UP DUE TO ROUNDING*

As indicated in Table 4.1, the peak month for construction is expected to occur in Month 3. During this month there are 1,891 two-way vehicle movements, made up of 1,404 car movements and 487 HGV movements. Assuming a 26-day working month, this would equate to a maximum of 73 two-way vehicle movements per day which would consist of 54 car movements and 19 HGV movements on average. In other months, the daily average HGV movements are between 2 and 15.

We would comment that staff will be encouraged to car share, so it is anticipated that the figure for car or van movements is likely to be considerably reduced. Furthermore, it should be noted that deliveries associated with HGV movements will be distributed throughout the working day. Therefore, this temporary change in traffic volume on routes approaching the Site is likely to be minor in terms of the existing traffic flow. These impacts would also be short term and after the first three months, all HGV impacts would significantly drop from a maximum of 19 HGV movement per day to a maximum of 5 movements per day. The effect of the temporary increase in traffic during construction of the Development on routes within the vicinity of the Site is therefore expected to be negligible.

4.3 Effect on Highway Safety

No hotspots were identified in relation to RTCs. The increase in traffic flow due to construction of the development has been assessed and was found to be not significant. As such this will have no impact on highway safety.

4.4 Operational Traffic

Vehicle movements to the Site during the operation of the Development will comprise activities associated with inspection, monitoring and general Site up-keep. It is anticipated that such visits will occur once per week on average and be via small van or other similarly sized vehicles.

The Site will not be manned and is not intended to attract visitors for any reason, and therefore it is not anticipated to generate other types of trips. Due to the very low numbers of vehicle movements anticipated it is unlikely that the operation of the Development will have any significant impact on the road network.

The effect of operational traffic is therefore expected to be negligible.

5 TRAFFIC MANAGEMENT

A number of traffic management procedures will be implemented to ensure safe operation of routes within the vicinity of the Site.

Once appointed, the Principal Contractor will be responsible for implementing specific traffic management policies and procedures. The following sub-sections of this report will outline the general principles of the traffic management measures which will be implemented.

5.1 Route to Site

Drivers of all delivery vehicles will be provided with a driver's card clearly showing the approved route to the Site, and any restrictions. Drivers of HGVs and other vehicles will be made aware that only the approved route is to be used and that access from non-approved routes is prohibited.

5.1.1 Site Entrance Junction/Carr Lane

In order to allow safe HGV egress from the Site entrance junctions and also to limit conflict between vehicles travelling past the Site access, the Principal Contractor will be required to implement traffic management procedures for the duration of construction. Measures that should be considered include:

- Install temporary traffic signals on Carr Lane before the bend during the construction period. For the duration of construction, all vehicular egress from the Site entrance junction will occur only when traffic on Carr Lane has been stopped by the temporary signals. These signals should have manual activation, or automatic detection, for vehicles exiting the Site entrance and at all other times should show green signals to traffic on Carr Lane;
- Employ the services of traffic marshals/Banksmen who, through the use of appropriate communication, would hold traffic, co-ordinate movements and communicate with personnel through radios;
- Deliveries should be booked for arrival onto the Site at a specific time to ensure opposing vehicles, including third parties, do not meet on Carr Lane;
- Close liaison with the local farm and other users of the road as appropriate should be maintained before and for the duration of construction;
- Implementation of delivery vehicle hold-off areas. A safe area (for example service station or lay-by) where approaching delivery vehicles can pull over and contact the Site manager to obtain clearance to make a final approach to the Site.

It is considered that implementation of the above measures would allow Carr Lane to operate safely, and this demonstrates that the assessed risk can be mitigated. Which measures are most appropriate, considering site-specific conditions and the operational requirements, should be determined by the Principal Contractor prior to construction.

5.2 Temporary Warning Signage

All contractors will be monitored to ensure they follow the correct access route identified and all routes will be clearly signposted. Temporary warning signage and directional signage will be installed on the route to the Site in order to prompt delivery drivers to use the correct route, and to enforce the proposed traffic management procedures. Pedestrian and road user safety will be enhanced via the installation of signage and the maintenance of sight lines. This will minimise any adverse impacts caused by construction traffic on the local road network associated with the Development.

5.3 Wheel Washing

If required, in order to prevent the deposition of mud on the public highway, the Principal Contractor will install and operate wheel washing facilities at the Site entrance junctions.

Depending on the time of year, and conditions on the Site, wheel washing facility requirements will vary.

- During summer or dry conditions, wheel washing facilities should include a pressure washer with suitable drainage.
- During winter or wet conditions, wheel washing facilities should include ride on/off wheel washers if required.

These facilities will remain in place for the duration of the construction phase of the Development. The Site construction manager will also monitor the public highway conditions and will assess if further measures are required to maintain road cleanliness, such as road sweeping.

5.4 Construction Traffic Management Plan (CTMP)

Prior to the commencement of construction works on Site, a CTMP will be prepared and submitted to the Council for approval. It is assumed the requirement for the CTMP would be secured by an appropriately worded planning condition. This CTMP will provide specific timings of construction phases and will consider the specific details of how construction will be managed.

6 CONCLUSION

This Transport Statement has considered the likely impact of traffic generated by the Development on the local transport network. A detailed review of the type and quantity of vehicles associated with each element of the construction project has been provided along with an approximate programme of construction. The route to Site for all construction traffic has also been provided.

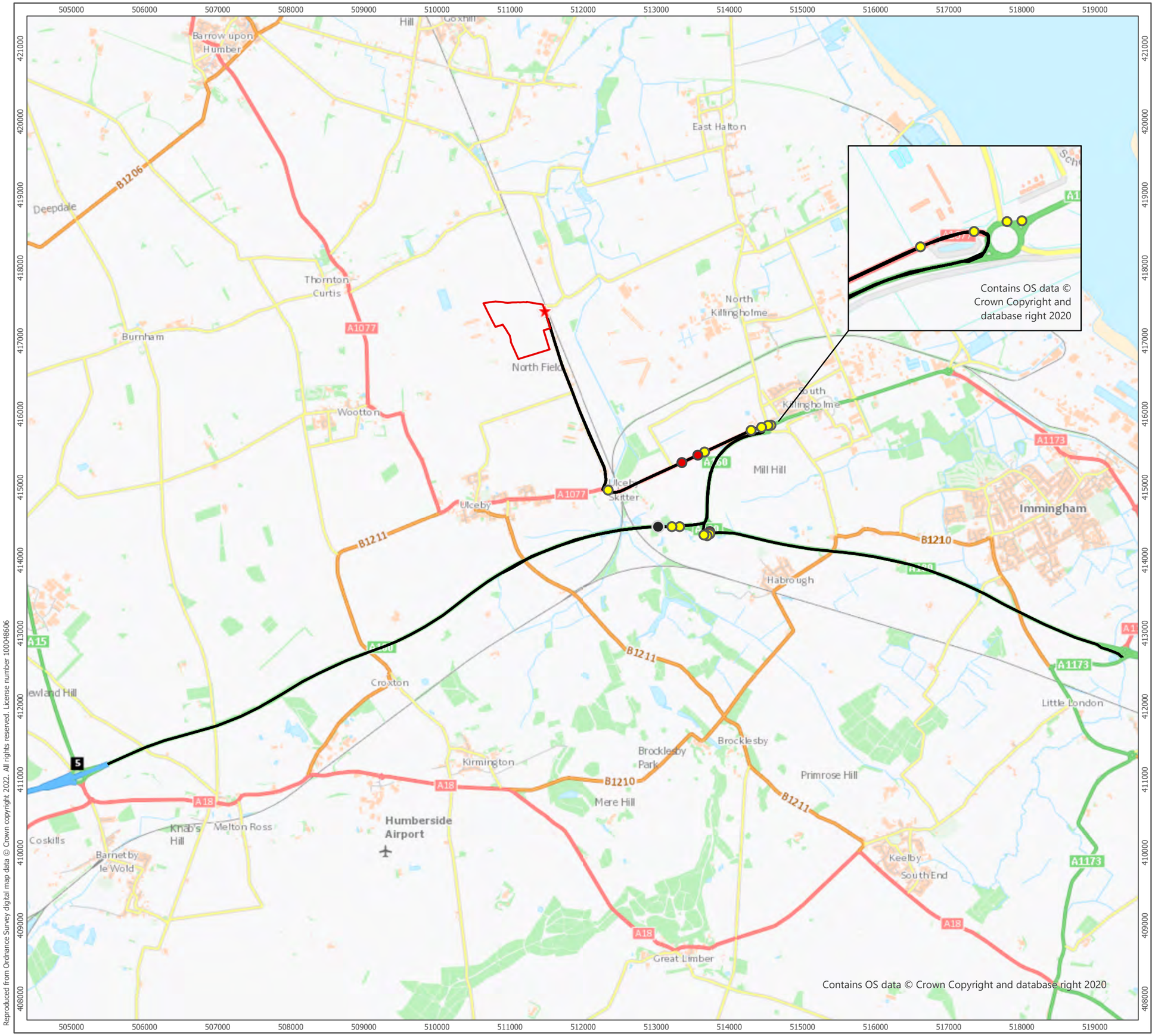
Construction of the Development will generate approximately 7,680 vehicle movements during the 6-month construction period. It is expected that during the peak month of construction (Month 3), 73 two-way vehicle movements per day will occur at the Site, consisting of 54 car movements and 19 HGV movements on average.

Carr Lane does not provide sufficient space for opposing HGVs to pass each other and is likely to see an increase in existing HGV traffic. However, the predicted increase is temporary and would cease following completion of the short-term construction of the Development. Therefore, the predicted increase in traffic flow on routes within the study during construction of the Development is expected to be of negligible effect.

Traffic management procedures have been proposed within this report which would ensure the safe operation of the approach route to the Site during construction. Determination of the final details of these traffic management measures will occur once the Principal Contractor has been appointed and can be secured via an appropriately-worded condition of consent.

Operational traffic is expected to be minimal and would be conducted by smaller vehicles. The impact of this on the wider highway network is therefore expected to be negligible.

APPENDIX A – FIGURES



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LIGHTROCKPOWER

ARCUS

- Site Boundary
- Site Entrance Location
- Route to Site

RTC Severity

- Fatal
- Serious
- Slight

1:50,000 Scale @ A3

0 1 2 km

NORTH

Produced By: CR	Ref: 4157-REP-009
Checked By: FO	Date: 27/01/2022

Transport Plan
Figure 1

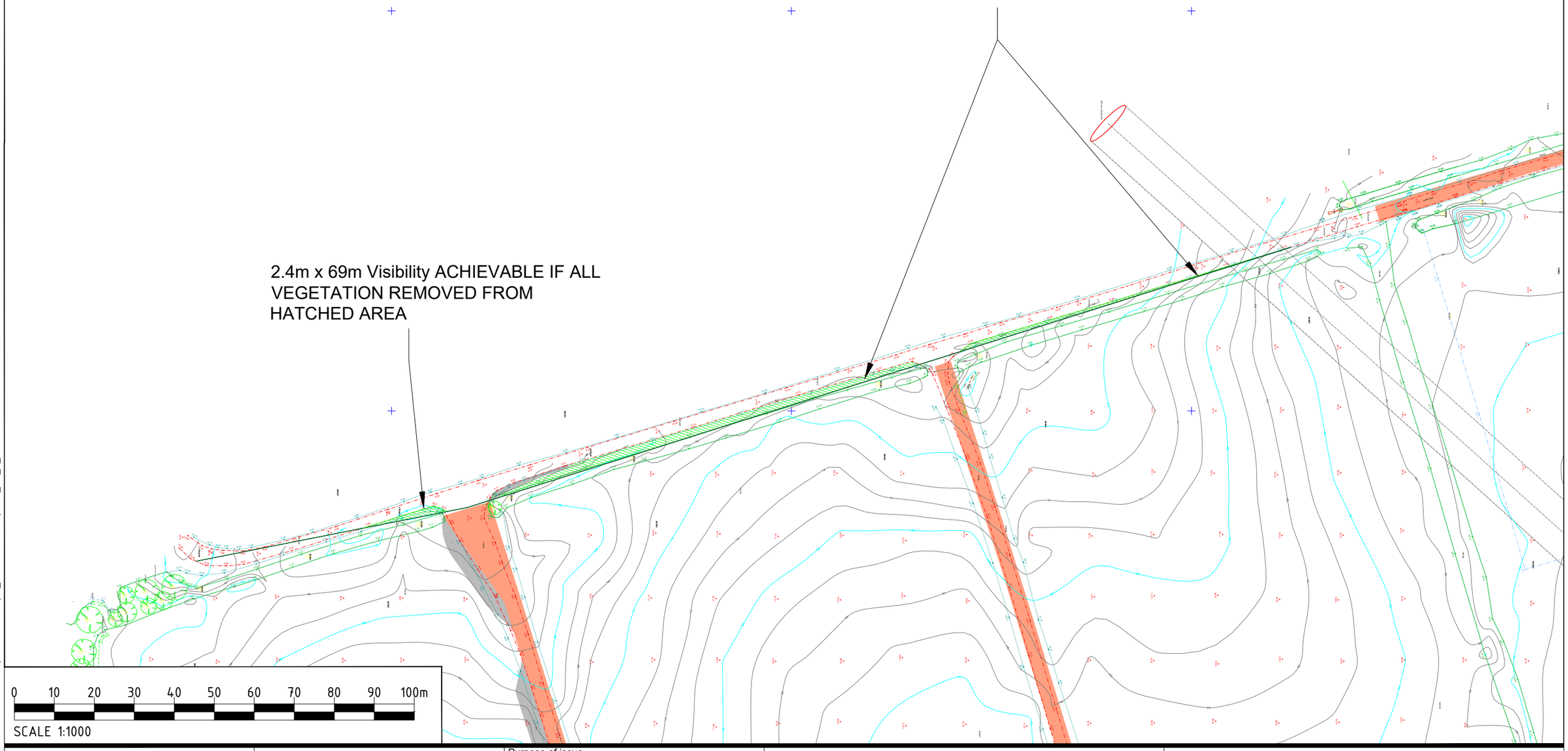
Sweet Briar Solar Farm
Transport Statement

APPENDIX B – VISIBILITY SPLAY ASSESSMENT

N

2.4m x 215m VISIBILITY ACHIEVABLE IF ALL VEGETATION REMOVED FROM HATCHED AREA

2.4m x 69m Visibility ACHIEVABLE IF ALL VEGETATION REMOVED FROM HATCHED AREA



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		Arcus Internal Project No.: 4157	Date: 17/11/21
		Scale @ A3: 1:1000	

Drawing Number: 4157-DRP-0001

Rev: -

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ARCUS

Plot Date : 13 December 2021 14:22:57
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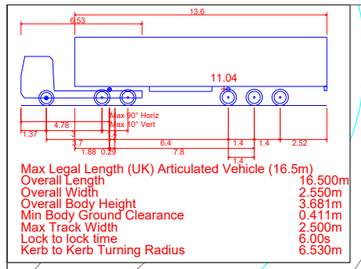
APPENDIX C – SWEPT PATH ANALYSIS



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

N

HGV ENTERING SITE SOUTH

HGV EXITING SITE SOUTH

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