

FULL PLANNING APPLICATION FOR THE CONSTRUCTION OF A SOLAR FARM AND BATTERY STATIONS TOGETHER WITH ALL ASSOCIATED WORKS, EQUIPMENT AND NECESSARY INFRASTRUCTURE

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

COTMOOR SOLAR FARM

ON BEHALF OF JBM SOLAR PROJECTS 6 LTD

Pegasus Group

First Floor | South Wing | Equinox North | Great Park Road | Almondsbury | Bristol | BS32 4QL T 01454 625945 | F 01454 618074 | W www.pegasusgroup.co.uk

Birmingham | Bracknell | Bristol | Cambridge | Cirencester | East Midlands | Leeds | Liverpool | London | Manchester

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1. INTRODUCTION

- 1.1 Pegasus Group (PG) has been commissioned by JBM Solar Projects 6 Ltd to provide transport and highways advice in the form of a Construction Traffic Management Plan (CTMP) to support the installation, operation, and decommission of a renewable energy scheme comprising ground mounted photovoltaics and battery storage which could produce up to 49.9 MWp on two separate parcels of land near Halloughton, Nottinghamshire.
- 1.2 The proposed solar farm is located approximately 250m north of Halloughton and approximately 2km south of Southwell. The proposed access for construction vehicles is located off Bridle Road Farm in the southeast corner of the site boundary.
- 1.3 The construction programme has not yet been determined and so precise details concerning the construction schedule, delivery vehicle types and temporary internal access road works will need to be confirmed. It is considered that the provision of these details can be addressed by an appropriately worded planning condition.
- 1.4 It is envisaged that the construction programme will take approximately six months (up to 26 weeks) based on the construction of similar developments. It is estimated that the construction of the solar farm could generate up to 12 two-way vehicle movements per day. However, it is typical with schemes of this nature that deliveries decrease as construction progresses.
- 1.5 It will be the responsibility of the applicant and appointed contractor to comply with all statutory regulations and guidelines as appropriate, in relation to construction and movement activities.



2. EXISTING SITUATION

Site Location and Existing Arrangements

- 2.1 Centred at OS grid reference SK 68497 52362, the site comprises two separate parcels of land to the northwest of the village of Halloughton at which the panels and associated infrastructure would be located, comprising a total of 106.39 hectares (total site area 107.81 hectares) of land.
- 2.2 The site is comprised of large arable fields, most of which are divided by hedgerows or dirt tracks. The site is largely bound by fields to the east and west. To the north the site is bound by fields fronting the B6386, accessed via the access lane to New Radley Farm. The south eastern portion of the site is adjacent to Stubbins Lane and Bridle Farm Road approximately 300m further to the south.
- 2.3 The site location plan is included at Appendix A.

APPENDIX A - SITE LOCATION PLAN

- 2.4 The site is split into two land parcels, referred to as the southern and northern land parcels for the purpose of this report.
- 2.5 The southern land parcel is located to the north of the village of Halloughton, which comprises four large linear fields with boundaries at their edge, including copses at the western and part of the southern boundary.
- 2.6 The current access arrangements into the southern land parcel are in the form of agricultural gates, located along Stubins Lane located in the south eastern corner of the site.
- 2.7 The northern land parcel lies to the north-west, comprising seven separate fields of various sizes. The parcel includes buildings associated with New Radley Farm, accessed from the lane to the north.
- 2.8 The northern parcel of land is accessed via the access lane to New Radley Farm and is bound by fields to the east and west and connects to the southern parcel in its south eastern corner, which is currently segregated by hedgerow.
- 2.9 As indicated at Appendix B, Public Right of Ways (PROWs) pass through the southern portion of the parcel and along the western and northern boundaries.

APPENDIX B - PUBLIC RIGHTS OF WAY



Local Highway Network

Bridle Farm Road

- 2.10 Bridle Farm Road is a no-through road providing existing access only to the village of Halloughton and a farm to the west. It is rural in nature with soft verges and hedgerow located on both sides. Bridle Farm Road is subject to the National Speed Limit (NSL) within the vicinity of the site access, reducing to 30mph approximately 100m to the south-west. The carriageway of the Bridle Farm Road is approximately 4.5 metres wide.
- 2.11 Bridle Farm Road in turn accesses Highcross Hill Road to the east via a priority Tjunction. Highcross Hill Road is subject to the NSL.

(A612) Highcross Hill Road

2.12 The A612, situated to the east of the site, is the principal rural connection between Southwell and Thurgaton. The carriageway is approximately seven metres wide and forward visibility is good along the length of the route with no sharp bends in the road. The road name changes to (A612) Southwell Road at Lowdham where it joins with (A6097) Bridgford Street via a four-arm roundabout, seven kilometres south of the proposed site access. A further five kilometres south, (A6097) Bridgford Street links to the A46 dual carriageway at Newton. The (A46) Fosse Way is a trunk road between Bath and Cleethorpes and provides access to the wider Strategic Road Network (SRN).

Local Highway Safety

- 2.13 A review of the Crashmap website has been undertaken to assess the Personal Injury Accidents (PIA) on the local highway network within the vicinity of the site access in the most recent five-year period. There have been no accidents within the vicinity of the access or the Bridle Farm Road/Highcross Hill Road junction.
- 2.14 It is therefore, concluded there is no evident accident pattern or problem on the local highway network in the vicinity of the site that would be affected by the forecast development trips which are discussed in Chapter 6.



3. PROPOSED SITE ACCESS

3.1 The proposed access will serve both parcels of land which will be connected via an internal access road. The proposed access will be located off Bridle Farm Road in the southeast corner of the site which in turn connects to Highcross Hill Road. The indicative site layout plan can be viewed at Appendix C.

APPENDIX C - SITE LAYOUT PLAN

- 3.2 The proposed temporary site access will be located off Bridle Farm Road in the southeast corner of the site boundary and will be in the form of a dropped kerb vehicle crossover junction. The proposed access crosses an existing pedestrian footway, as such it is proposed to provide dropped kerbs and tactile paving if deemed necessary by the Local Highway Authority (LHA).
- 3.3 The proposed access will be suitable for HGVs which will enter and exit the site in a forward gear as there will be appropriate space within the site compound for vehicles to turn and manoeuvre. The client is in full control of the access and fencing to make any necessary amendments.
- 3.4 Vehicles will turn right into and left out of the site access on to the Bridle Farm Road bounding the south of the site to access the wider road network via Highcross Hill.
- 3.5 Visibility looking left out of the access to the nearside carriageway edge of the adopted highway is approximately 2.4 x 45 metres (appropriate for 85th%ile vehicle speeds of circa 30mph based on guidance set out in Manual for Streets) and looking right out of the access is approximately 2.4 x 160 metres (appropriate for a 50mph road based on DMRB guidance), as detailed in Figure 1.

FIGURE 1 – PROPOSED SITE ACCESS AND VISIBILITY SPLAYS

3.6 As set out in paragraph 3.5 above, a visibility splay of 45 metres can be achieved to the left of the proposed access junction to the Highcross Hill/Un-named Road Bridle Farm Road priority junction. It is considered vehicles will likely be travelling slower than this in reality, due to a combination of the existing narrow width of the Bridle Farm Road carriageway and having turned and navigated into the Bridle Farm Road from Highcross Hill Road or slowing down in preparation to turn at the junction.

- 3.7 If considered necessary by Nottinghamshire Highway Officers, banksman can be present at the site access in order to ensure no oncoming traffic is approaching before guiding the construction traffic safely in/out of the site.
- 3.8 Figure 2 shows a swept path analysis (SPA) for a 15.4 metre articulated heavy goods vehicle (HGV), the largest vehicle associated with this development turning in and out of the proposed site access.

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FIGURE 2 – SWEPT PATH ANALYSIS: SITE ACCESS - HIGHCROSS HILL
ROAD FOR 15.4M ARTICULATED VEHICLE
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- 3.9 It is considered that this development will generate 12 vehicle movements per day during the construction phase and will not cause disruption to this junction and the likelihood of two construction vehicles passing one another is extremely low.
- 3.10 In order to ensure two construction vehicles do not meet at the site access, exiting vehicles will be held at the site compound until entering construction vehicles have arrived on site. This will be communicated between vehicles/site management via CB radio.
- 3.11 It should be noted that construction vehicles will not turn left into the site or right out of the site owing to the fact Bridle Farm Road is a no-through road and therefore construction vehicle will not be travelling along the road to or from the west.



4. SITE COMPOUND AND INTERNAL ROUTING

Contractor's Compound

- 4.1 Due to the nature of the site, the applicant has confirmed that there is sufficient space to allow the construction compound to remain in place throughout the entire construction phase. Therefore, there will be no requirement for external operation or storage of construction materials, machinery or vehicles.
- 4.2 Precise details regarding the turning of articulated lorries within the site will be completed when a proposed compound plan is drawn up by the appointed contractor.
- 4.3 No parking by contractors, visitors or delivery vehicles will be permitted on any roads in the vicinity of the site or the access track leading to the site compound during the construction phase. Visitors will be advised of the parking arrangements in advance of travelling to the site. The site manager will monitor that parking is taking place in the designated area within the compound up to four times a day.

Internal Roads

- 4.4 The solar farm layout will include permanent four-metre-wide access tracks throughout the site allowing for the movement of construction and maintenance vehicles, widening to approximately 5m at the site entrance. These will be completed during the initial stages of construction, so temporary haul routes will not be necessary.
- 4.5 The tracks will enable the HGVs and plant and reduce the propensity of debris being taken on to the adjacent access track and highway. Internal access tracks will be constructed of graded stone on top of permeable matting.
- 4.6 If ground conditions dictate, wheel washing facilities will be provided at the contractor's compound or close to the site access onto the local highway network. This will reduce fouling of the local highway network and a road sweeper will be deployed, should it become necessary.
- 4.7 Wheel wash facilities will be provided in the form of a portable automated highpressure washer with motion sensors to conserve water. All construction vehicles will therefore have to exit through the wheel wash area and as such will reduce the spread of mud and dirt onto the local highway network.



5. INDICATIVE CONSTRUCTION PROGRAMME

Construction Phase

- 5.1 The construction phase is anticipated at this stage to take approximately six months (up to 26 weeks) and includes the preparation of the site, including the installation of the access, erection of fencing, assembly and erection of the PV strings, installation of the inverters / transformer and grid connection.
- 5.2 The construction phase for the solar farm is expected to include the preparation of the site, installing the access tracks, erection of security fencing, assembly and erection of the PV strings, installation of the inverters / transformers and grid connection.
- 5.3 Deliveries to the construction compound will be outside of the traditional weekday peak hours at the access (i.e. delivery hours: 10:00hrs to 16:00hrs or 18:00 to 20:00hrs).
- 5.4 The construction period will include the use of HGVs to bring the equipment onto the site and this will be strictly managed to ensure that vehicle movements are controlled and kept to a minimum. It should be noted that unlike wind farms, the construction of a solar farm does not require equipment to be delivered in abnormal loads (i.e. vehicles over 16.5m in length).
- 5.5 Deliveries to the site shall be reported to the site manager and will be made on the smallest possible vehicles for each particular item of plant or material to ensure that vehicles can manoeuvre safely.
- 5.6 The components which are required to construct the solar farm will arrive in 40ft containers by 15.4m long articulated vehicles. Around 140 articulated vehicles of 15.4 metres in length are required for every 10MWp at the site, split equally between the modules and mounting structures. The site is proposed to generate 49.9MWp and as such this will equate to approximately 699 deliveries by 15.4 metre articulated delivery vehicles. Assuming all deliveries arrive within a 26-week period and Monday to Saturday, this equates on average to around 6 deliveries (12 movements) per day by the largest vehicles.
- 5.7 The largest items expected to be transported to the site are the battery storage containers. They will be 13.72m long, 2.69m high and 2.5m wide. The proposed solar farm could have a total of up to 22 battery storage containers and it is

assumed that each will be transported by a vehicle no longer than a 15.4m articulated HGV. The battery storage containers will be transported individually to divide their weight and as such this would equate to a total of up to 22 deliveries.

- 5.8 In addition, the Distribution Network Operator (DNO) will install a 132kv substation, which connects the solar farm to the distribution network. Equipment will arrive at the site by the smallest possible vehicles, which typically could be a 10m rigid lorry, with larger HGVs required for some plant to be installed
- 5.9 It is anticipated at this stage that the material required for the access tracks will arrive by 10m rigid vehicles. The precise number will depend on the type and the amount of material required, but for the purpose of this assessment we have assumed that one delivery is required per five acres, resulting in a total of 54 deliveries.
- 5.10 A number of front-end JCBs will also be required to transport equipment around the site and distribute stone as necessary. This is a similar size to a tractor and will be either transported or driven to the site.
- 5.11 A maximum of between 60 and 80 construction workers are anticipated to be onsite during the peak times during the construction period. A temporary construction compound will be provided for storage, parking for contractors and the turning of HGVs.
- 5.12 Staff travel origins are unknown at this stage as it will depend on the appointed contractor. However, it is envisaged that many of the non-local workforce will stay at local accommodation and be transported to the site by minibuses to minimise the impact on the strategic and local highway network.
- 5.13 In summary, the following heavy good movements could be associated with the construction of the solar farm, as set out in Table 5.1 below.



ΑCΤΙ VΙ ΤΥ	VEHICLE TYPE	TOTAL NUMBER OF DELIVERIES	
Solar Modules & Mounting Structures	15.4m HGV	699 (1,398 movements)	
Battery Storage	15.4m HGV	22 (44 movements)	
Inverters	12m Rigid	20 (40 movements)	
132kv Substation	10m Rigid	1 (2 movements)	
Customer Switchgear Cabinet	10m Rigid	1 (2 movements)	
DNO Combiner Box	10m Rigid	2 (4 movements)	
Access Tracks	15.4m HGV	54 (108 movements)	
General	Front End JCB by low loader	4 (8 movements)	
Storage Containers	15.4m HGV	2 (4 movements)	
Total	805 deliveries (average of 6 deliveries per day or 12 one-way movements per day)		
*Deliveries taking place over a 26-week period (130 working days)			

- 5.14 Table 5.1 confirms that 805 deliveries (1610 movements) could be made by HGVs associated with the construction of the solar farm, at an average of around 6 deliveries, or 12 movements per day.
- 5.15 In addition to the HGV movements identified in Table 5.1, there will also be a number of construction movements associated with smaller vehicles such as the collection of skips for waste management, the transfer of materials and plant between areas of the site, and the transport of construction workers and sub-contractors.



Construction Phase Summary

5.16 Based on the above, it is expected that there will be approximately six deliveries per day accessing the site over the 26-week period when deliveries will occur. Staff trips will be minimised as many non-local workforce will stay near to the site. The level of traffic during the temporary six-month construction phase is not considered to be significant and it is considered that this will not have an impact on the safety or operation of the local highway network.

Decommissioning Phase

5.17 It is expected that decommissioning the site will involve a similar profile of vehicles as the construction phase, with processes predominantly in reverse of those which will be undertaken during the construction phase.



6. OPERATIONAL PHASE

- 6.1 It is anticipated that the site will operate predominantly by remote access and only visited on an occasional basis with minimal impact to the surrounding local network. However, the specific details cannot be confirmed at this stage.
- 6.2 The largest vehicles that are likely to be used during the operational phase is expected to be no larger than a 7.5t van.
- 6.3 There will be sufficient space within the site to allow for operational vehicles and service vehicles to enter, manoeuvre, turn and exit the site in a forward gear.



7. PROPOSED MITIGATION MEASURES

- 7.1 The contractor appointed to carry out the development will introduce measures to minimise the impact on the local road network resulting from construction activities. These will be managed by the Project Manager and Site Manager.
- 7.2 The Site Manager will assume responsibility for the operation of the site.
- 7.3 Mitigation measures at the proposed access point (only) will be likely to include a variety of measures to be agreed between the contractor and highways authority in due course and such details could be controlled by an appropriately worded Condition. This could typically include:
 - A compound area for contractors will be set up on-site including appropriate parking spaces. Contractors and visitors will be advised that parking facilities will be provided on-site in advance of visiting the site and that they should not park on-street or the access tracks;
 - ii. The site will be secured at all times with Heras fencing;
 - iii. A requirement for engines to be switched off when not in use;
 - iv. If considered necessary by highway officers, banksmen can manage any clashes with vehicles and pedestrians. The following locations are recommended:
 - Proposed access off the Bridle Farm Road bounding the south of the site; and
 - v. If ground conditions dictate, wheel washing facilities will be provided at the contractor's compound or close to the site access onto the local highway network. This will reduce fouling of the local highway network and a road sweeper will be deployed, should it become necessary.

Wheel wash facilities would be provided in the form of a portable automated high-pressure washer with motion sensors to conserve water. All construction vehicles will therefore have to exit through the wheel wash area and as such will reduce the spread of mud and dirt onto the local highway network;



- vi. A road sweeper will be provided as necessary, for the surrounding local roads along the construction traffic route to remove any residual debris generated during the construction phase;
- vii. Spraying of areas with water supplied as and when conditions dictate to prevent dust;
- viii. Vehicles carrying waste material off-site to be sheeted; and
- 7.4 If considered necessary by Nottinghamshire County Council a pre-commencement walk-over condition survey could be carried out with local highway officers on the local highway network to assess the baseline condition of the adopted highway before construction activities commence.
- 7.5 The survey will incorporate photographic records as appropriate. This would be followed by a further condition survey with highway officers with a further photographic record covering the same extent at the end of construction activities, in order to identify and agree remedial work relating to any damage reasonably attributable to construction activities.

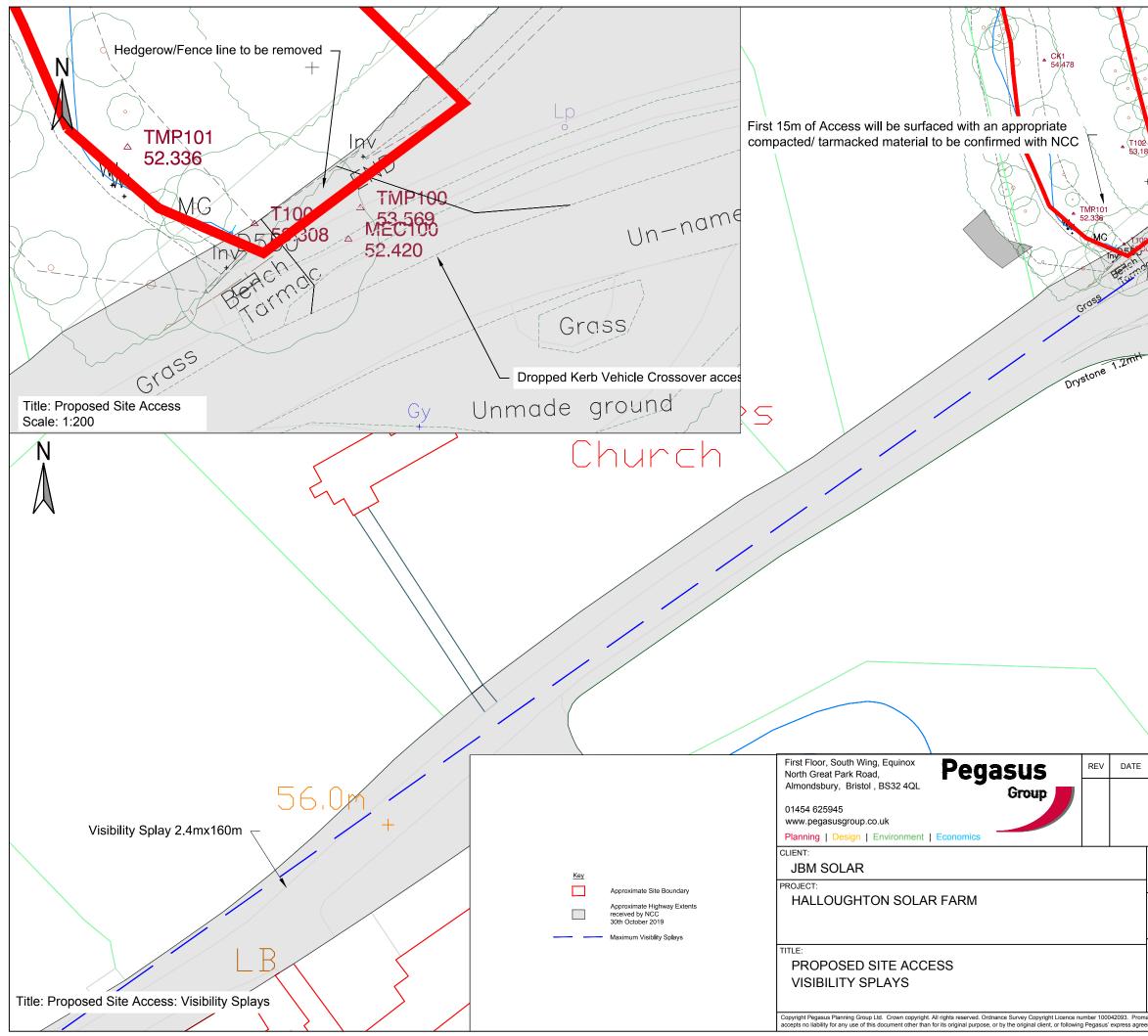


8. CONCLUSION

- 8.1 Pegasus Group (PG) has been commissioned by JBM Solar Projects 6 Ltd to provide transport and highways advice in the form of a Construction Traffic Management Plan (CTMP) to support the installation, operation, and decommission of a renewable energy scheme comprising ground mounted photovoltaics and battery storage which could produce up to 49.9 MWp on two separate parcels of land near Halloughton, Nottinghamshire.
- 8.2 The proposed access for construction vehicles located on Bridle Road Farm Road in the southeast corner of the site boundary is considered acceptable for the HGVs associated with this development.
- 8.3 It is estimated that the construction of the solar farm could generate up to 12 twoway vehicle movements per day. However, it is typical with schemes of this nature that deliveries decrease as construction progresses.
- 8.4 It is deemed that the Highcross Hill Road/Bridle Farm Road junction is satisfactory for the low hourly numbers of vehicles associated with the construction phase of this solar farm.
- 8.5 Details regarding the construction programme and delivery vehicles types have been provided by JBM Solar Projects Ltd based on its experience in supporting the development of similar sites elsewhere in the UK.
- 8.6 It is concluded that suitable routing and measures can be provided in conjunction with traffic associated with construction activities at the scheme.



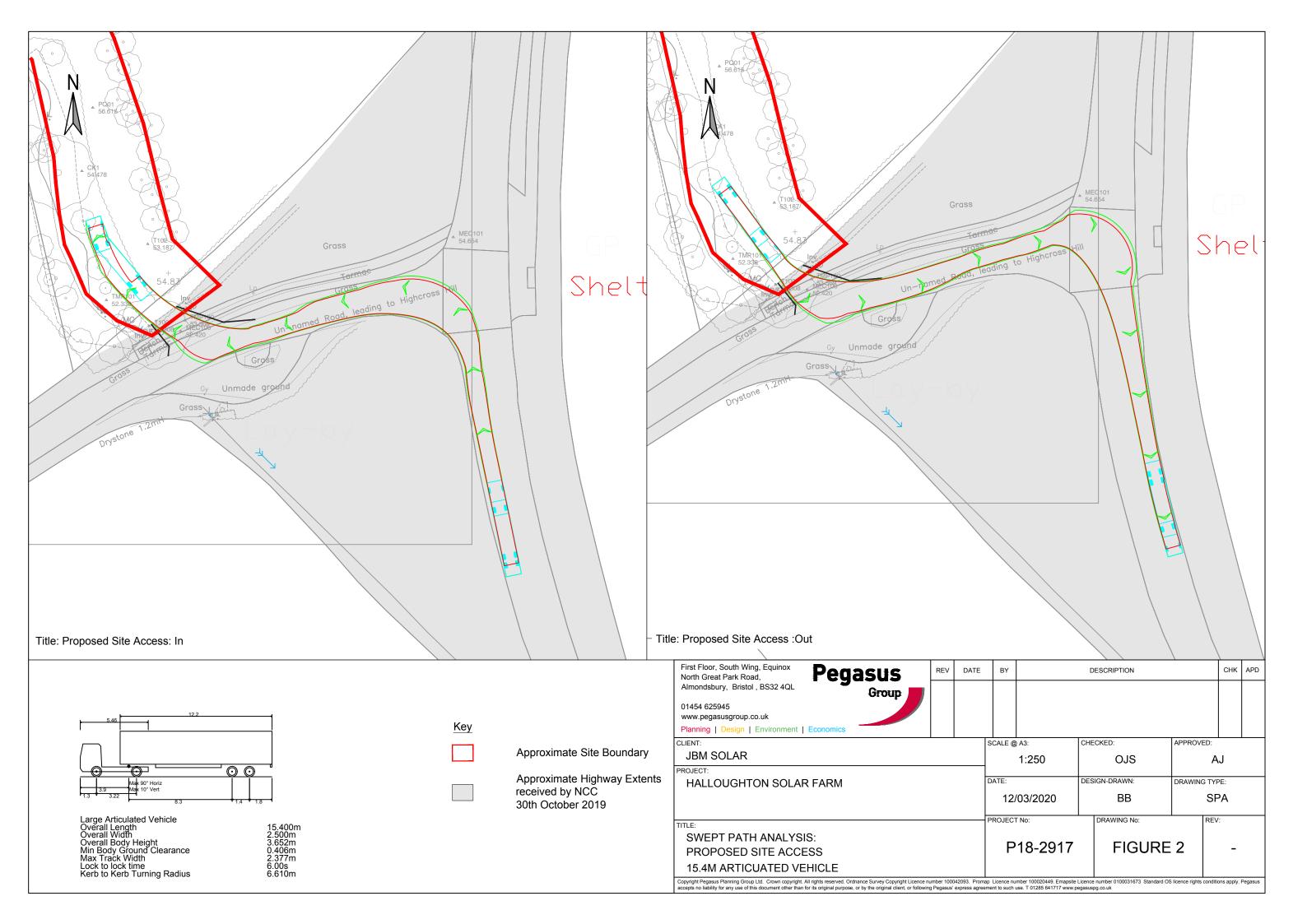
FIGURE 1: PROPOSED SITE ACCESS AND VISIBILITY SPLAYS



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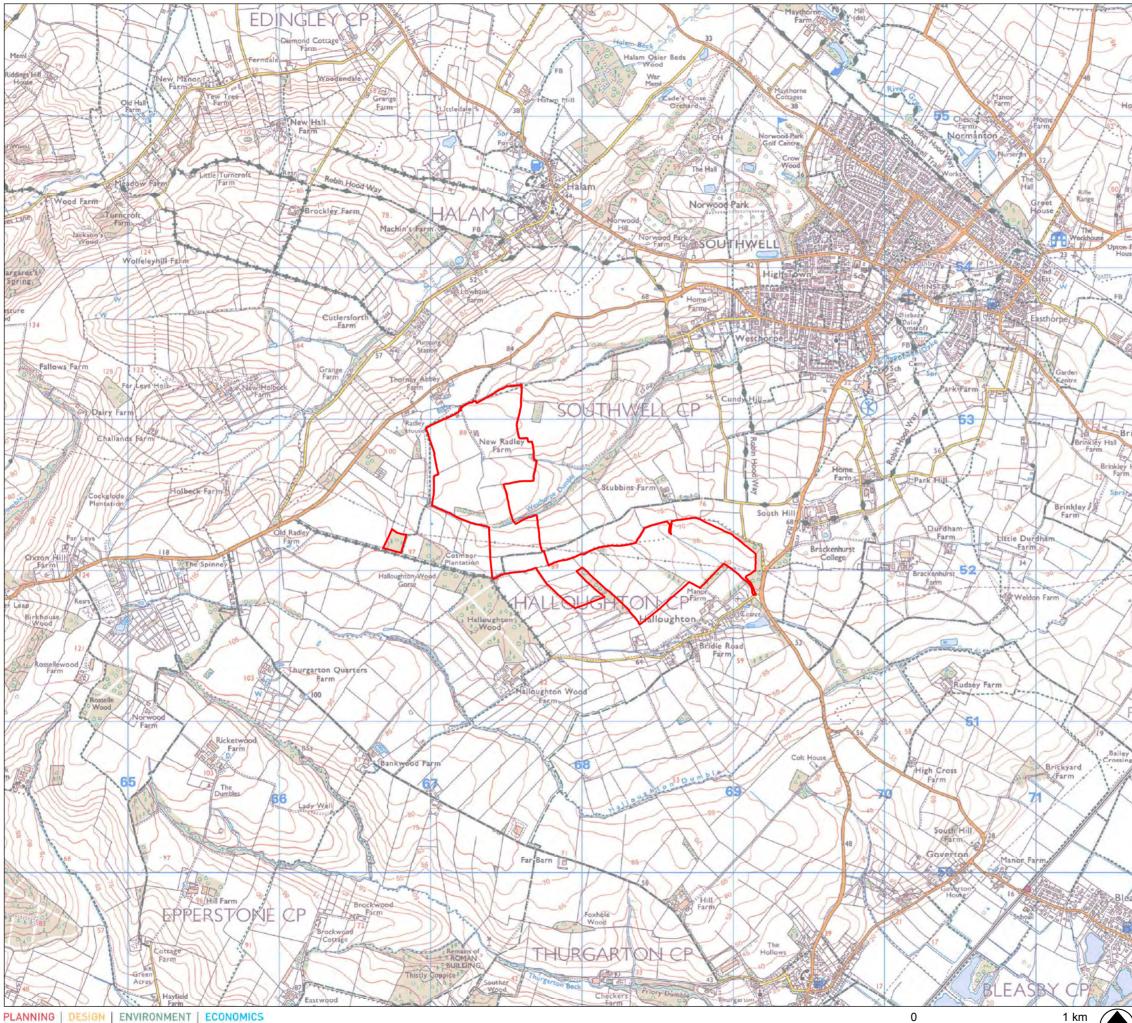


FIGURE 2: SWEPT PATH ANALYSIS





APPENDIX A: SITE LOCATION PLAN



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Site Boundary

Revisions: First Issue- 04/03/2019 JS A - (09/08/2019 JS) Boundary amended B - (17/03/2020 JS) Boundary amended C - (27/03/2020 JS) Boundary amended D - (15/04/2020 JS) Boundary amended

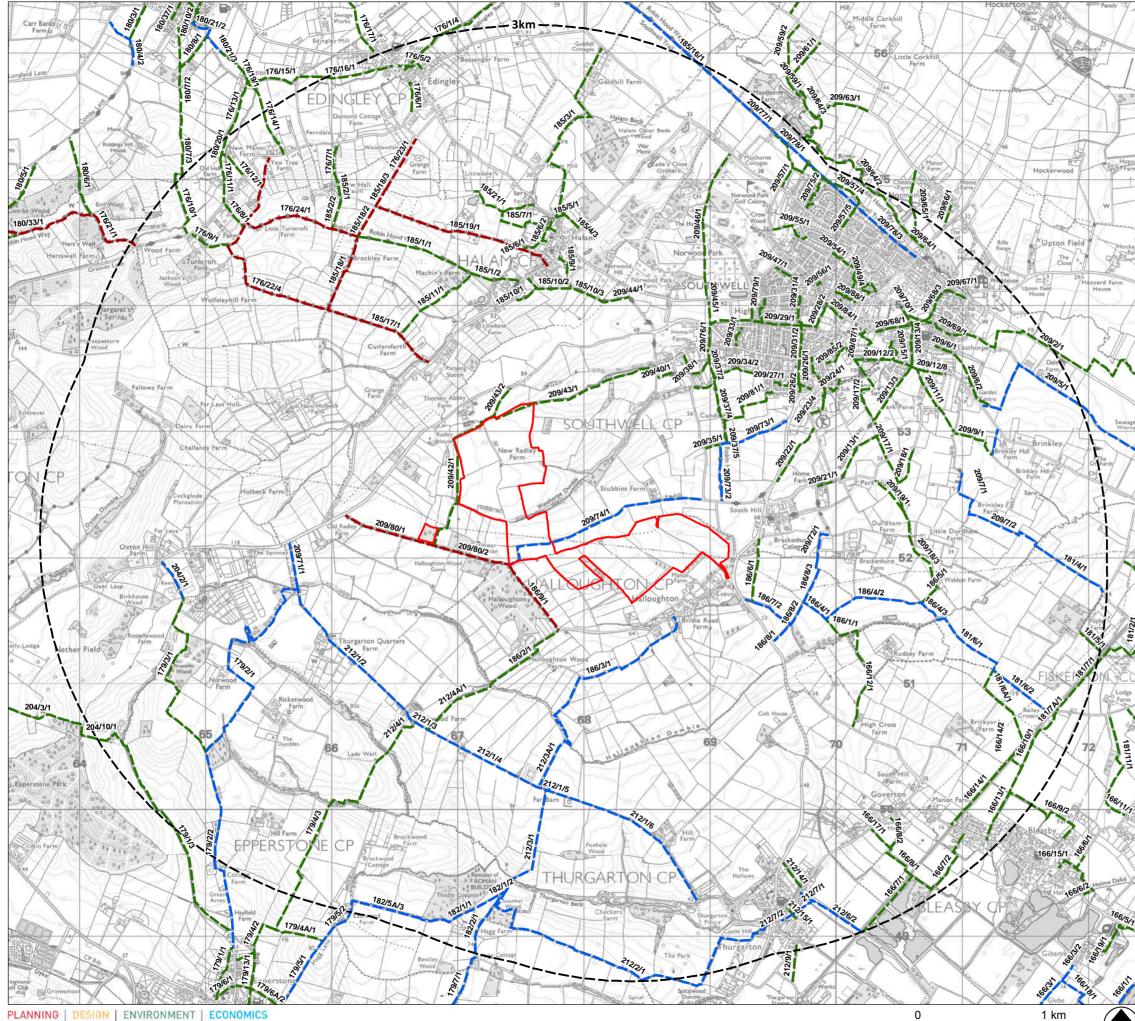
#### Site Location Plan

#### Cotmoor Solar Farm

JBM Solar Projects Ltd Client: DRWG No: **P18-2917_02** Sheet No: - REV: **D** Approved by: SC Drawn by: JS Pegasus Date: 15/04/2020 1:25,000 @ A3 Environment Scale:



APPENDIX B: PUBLIC RIGHTS OF WAY



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KEY			
	Site Boundary		
	Footpath		
	Bridleway		
	BOAT		

Revisions: First Issue- 14/08/2019 AD A - (17/03/2020 JS) Boundary amended B - (02/06/2020 JS) Boundary amended

# Public Rights of Way Plan

### Cotmoor Solar Farm

JBM Solar Projects Ltd Client: DRWG No: **P18-2917_07** REV: B Sheet No: -Approved by: CR Drawn by: JS 02/06/2020 Pegasus 1:30,000 @ A3 Environment Date: Scale:



APPENDIX C: SITE LAYOUT PLAN



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