Bubney Solar Farm

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

On Behalf Of Renewable Connections Developments Limited

March 2021 | P20-1083

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BUBNEY SOLAR FARM

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

BUBNEY FARM, GRINDLEY BROOK, WHITCHURCH, SY13 4QJ

ON BEHALF OF RENEWABLE CONNECTIONS DEVELOPMENT LIMITED

Pegasus Group

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DESIGN ENVIRONMENT PLANNING ECONOMICS HERITAGE

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Registered Office: Pegasus House, Querns Business Centre, Whitworth Road, Cirencester, Gloucestershire, GL7 1RT

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1.0 INTRODUCTION

1.1 This Construction Traffic Management Plan (CTMP) has been prepared by Pegasus Group on behalf of Renewable Connections Development Limited to address the transport issues associated with the construction of a solar farm at Grindley Brook in Whitchurch, Shropshire, SY13 4QH. This CTMP describes the access arrangements that are proposed for the period of construction activities at the site.

1.2 The proposal is for the construction, operation, maintenance and decommissioning of a ground mounted solar park with a maximum export capacity of up to 30 MW (megawatts). Further details of the proposal and the technology used together with the proposed site layout are provided separately as part of the planning application.

1.3 As a result of the development proposals, approximately one third of the overall landholding at Bubney Farm will be temporarily lost for the lifespan of the solar farm.

1.4 The site covers an area of approximately 65.2 hectares of open land. The site is located 2.5 kilometres north west from the centre of Whitchurch and 26 kilometres south east of Wrexham. The site is accessed from A41 Chester Road which links to Chester in the north.

1.5 This CTMP sets out the following:

i. Site access arrangements ;
ii. Routing for construction HGVs;
iii. HGV numbers and vehicle frequency; and
iv. Future condition surveys.

1.6 It will be the responsibility of the appointed contractor to comply with all statutory regulations and guidelines as appropriate, in relation to construction and movement activities.

1.7 The CTMP will form part of the information provided as part of construction personnel's on-site induction processes. The contact details of the contractor and those of the highway department at Shropshire County Council will be exchanged before commencement of the works on site.

2.0 SITE ACCESS

2.1 A site location plan is included at **Figure 1**, with the internal site layout included at **Appendix A.** Access to the proposed solar farm will be via the existing priority junction farm access off the A41. The junction serves access to an access track which routes into the site.currently used by vehicles accessing Bubney Farm.

Access

2.2 The existing priority junction currently provides access to Bubey Farm for large agricultural vehicles. There are around 135 large agricultural vehicle movements per month associated with the existing operations at Bubney Farm. These are predominantly HGVs transporting feed and milk to and from the farm. Additional movements are made by tractors with and without trailers and other farm vehicles daily. For two days in May, June, August, and for the entire month of October, there are on average an additional 100 vehicles movements per day.

2.3 It is therefore considered to be appropriate to be used on a temporary basis by HGVs associated with the construction of the solar farm.

2.4 Visibility as the existing site access looking right out of the junction measures 2.4 x 120 measures which is commensurate a 40mph speed limit in accordance with DMRB, however looking right out of the junction the maximum achievable visibility splay is 2.4 x 62 metres as indicted on **Figure 2**.

2.5 All construction vehicles will enter and exit the site in forward gear. **Figure 3** shows a swept path analysis for a 15.4 metre articulated vehicle, the largest HGV associated with this development, turning 'left in' and 'right out' of the site via the existing site access.

2.6 A review of crashmap.co.uk has confirmed that there have been no accidents on the A41 Chester Road within 100 metres in either direction of the proposed access. It is considered that the highway network in the vicinity of the proposed access has no existing safety issues associated with the highway.

2.7 It is proposed that temporary traffic signals and banksmen will be provided to facilitate construction access, if deemed necessary by Shropshire County Council. This would ensure no oncoming traffic is approaching before guiding the HGV in/out of the site. Temporary traffic signals and banksmen would remain in place for the duration of the construction period and will also be used during the decommissioning period. This would be agreed between the contractor and Highway Officers.

Construction Phase Mitigation

2.8 Temporary signage will be erected in the vicinity of the site during the construction phase. Diagram 7301 'WORKS TRAFFIC ONLY' in the Traffic Signs Regulations and General Directions (TSRGD) will be used to indicate that heavy construction vehicles are turning. Signage will be white text and red background 1050 x 750mm mounted in 'A' frames, as illustrated at **Appendix B**.

2.9 Wheel washing may be required until the internal access tracks are completed. A hose will be provided within the site before vehicles exit on to the local highway network.

Public Rights of Way

2.10 Footpath (0234/85/1) runs east to west through the centre of the site connecting to Sandstone Trail in the east and ending at the site boundary in the west as shown on **Figure 1.**

2.11 There are also several bridleways that run through the site. Bridleway (0234/86/1) runs north to south along the eastern site boundary running from the access to the north of the site towards Hadley farm in the south east corner past the site boundary. Bridleway (0234/90/1) also runs through the site running from bridleway 0234.86/1 in the centre of the site towards the south western boundary of the site.

3.0 ROUTING

3.1 The solar farm components will be shipped in 12.2 metre containers which are typically carried to the site on a 15.4 metre long articulated vehicles. This is the largest vehicle which will access the site.

3.2 Heavy Goods Vehicles are anticipated to access the site from the M5 and M6. The designated routes for all traffic associated with the construction is via the Chester Road (A41) A41 and M54 is accessing from the south and via the A41, A55 and M56 from the north as illustrated on **Figure 1**.

3.3 These routes will ensure, as far as practicable, that construction vehicles associated with the site will not pass through the centre of any villages or small towns. There are no signed weight or height restrictions on the route, and no road closures will be required.

3.4 The A41 connects to the M54 and provides access to the motorway network.

Pedestrian Access

3.5 All existing PRoWs will be maintained at all times, as described in paragraph **2.10** and **2.11** and shown on **Figure 1**. When construction plant and machinery are accessing the site, a banksman will be employed to control both pedestrian movements and traffic control throughout the duration of the construction phase. If considered necessary, discussions will be held with SCC PRoW officers.

4.0 VEHICLE TRIP ATTRACTION

Construction Phase

4.1 Based on experience of solar farm developments elsewhere in the UK, it is anticipated that the solar farm will take approximately six months to complete. This includes the preparation of the site, the temporary access roads (if necessary), erection of security fencing, assembly and erection of the PV strings installation of the inverters/ transformers and grid connection.

4.2 Deliveries to the construction compound will be outside of the traditional weekday peak hours at all accesses. Deliveries will be made between 10:00-16:00 and 18:00-20:00 Monday to Friday, with Saturday deliveries between 10:00-13:00.

4.3 A maximum of up to 50 construction workers are forecast to be on site during peak times during the construction period. A temporary car parking area and minibus area will be provided on the site within a contractor's compound. It is envisaged that parking will be contained within the site and no unnecessary parking will occur on the local highway network.

4.4 The location of where staff will travel from is unknown at this stage and will be determined by the appointed contractor. It is anticipated at this stage that any non-local workforce will stay at local accommodation. The number of car trips to the site will be minimised to those senior staff such as project managers and health and safety executives.

4.5 The construction period will include the use of Heavy Goods Vehicles (HGVs) to bring equipment onto the site and this will be strictly managed to ensure that vehicle movements is controlled and kept to a minimum. Vehicles delivering to the site area of a size regularly using the A41 and as set out in **Chapter 3**, the route identified for construction traffic means that large vehicles will not pass through any villages or small towns.

4.6 Based on experience elsewhere, the applicant has confirmed that around fifteen 15.4m articulated vehicles are required for every MWp at the site, split equally between the modules and mounting structures. The site is proposed to generate 30MW and as such this will equate to a total of around 450 deliveries by 15.4m articulated vehicles.

4.7 A substation measuring up to five metres long and three metres wide is also required and will be delivered to site individually by a 15.4 metre articulated vehicle due to its size.

4.8 Assuming a 6-month construction period and a six-day working week, this equates to a total of 451 vehicles and on average, around three deliveries per day by the largest vehicle, 15.4 metre articulated.

4.9 The proposed solar farm will have a total of 10 inverters and it is assumed that each will arrive at the site by the smallest possible vehicle, which would be a 10-metre long rigid HGV. It is assumed that inverters will be transported individually due to their weight and as such would equate to a total of 10 deliveries.

4.10 Some deliveries will be associated with the preparation of the access tracks within the site. As a worst case, stone may be required to construct a temporary access tracks on the site. Stone is likely to arrive on 10-metre long tipper trucks. 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 two hectares, resulting in a total of 30 deliveries. This is considered to provide a robust estimate of the likely number of deliveries for the access track as in reality, it is likely that temporary access matting will be used instead resulting in fewer deliveries.

4.11 A front end JCB will also be required to transport equipment around the site, and to distribute stone as necessary. This is a similar size to a tractor and will either be transported to the site or be driven to the site.

4.12 It is envisaged that up to around two 15.4 metre long articulated vehicles will also be required to transport the compound portacabins/ storage to the site.

4.13 In summary, the following heavy goods movements could be associated with the construction period as set out in **Table 4.1**.

Table 4.1 – Heavy Goods Vehicle Movements - Construction Period

Activity	Type of Vehicle	Total Number of Deliveries	Two-way movements
Solar Farm Components	15.4 metre Articulated	450	900
Sub-Station		1	2
Contractors Compound		2	4
Access Tracks	10 metre Tipper Trucks	30	60
Inverters	10 metre Rigid	10	20
General	Front End JCB	1	2
Total		**494**	**988**

4.14 In addition to the HGV movements identified in **Table 4.1**, there will also be a small number of construction movements associated with smaller vehicles such as the collection of skips for waste management, the transport of construction workers and sub-contractors.

Operational Phase

4.15 After commissioning, there are anticipated to be around one visit to the site per month for equipment maintenance. These would typically be made by light van no larger than 7.5t or 4x4 type vehicles. Whilst the contractor compound will have been removed, space will remain within the site for such a vehicle to enter, manoeuvre, turn and exit the site in a forward gear.

4.16 In addition, as a result of the development proposals an additional 300 slurry movements and 150 feed wagons are anticipated to be generated due to the temporary loss of farm land. This equates to an average of just over one additional HGV delivery per day and will not have a detrimental impact on the safety or operation of the local or strategic highway network.

4.17 As set out in **paragraph 2.2**, during harvest in May, June, August and October, the number of vehicle movements is around 100 per day. As a result of the temporary loss of one third of Bubney Farm land associated with the solar farm, these numbers will reduce by approximately one third. As such, during harvest periods the number of vehicles movements generate by the farm operations will be reduced on average by 33 vehicles movements per day.

Decommissioning Phase

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

Summary

4.19 It is expected that there will be a maximum of around 988 two-way movements by large vehicles at the site (494 arrivals and 494 departures) over a six-month period. There will also be construction workers arriving at the site first thing in the morning and departing in the evening,

although the numbers involved are forecast to be relatively low on a day-to-day basis and minibuses will be provided for general operatives. The level of traffic during the temporary six-month construction phase is not considered to be material and it is considered that this will not have a detrimental impact on the safety or operation of the local or strategic highway network.

5.0 CONDITION SURVEY

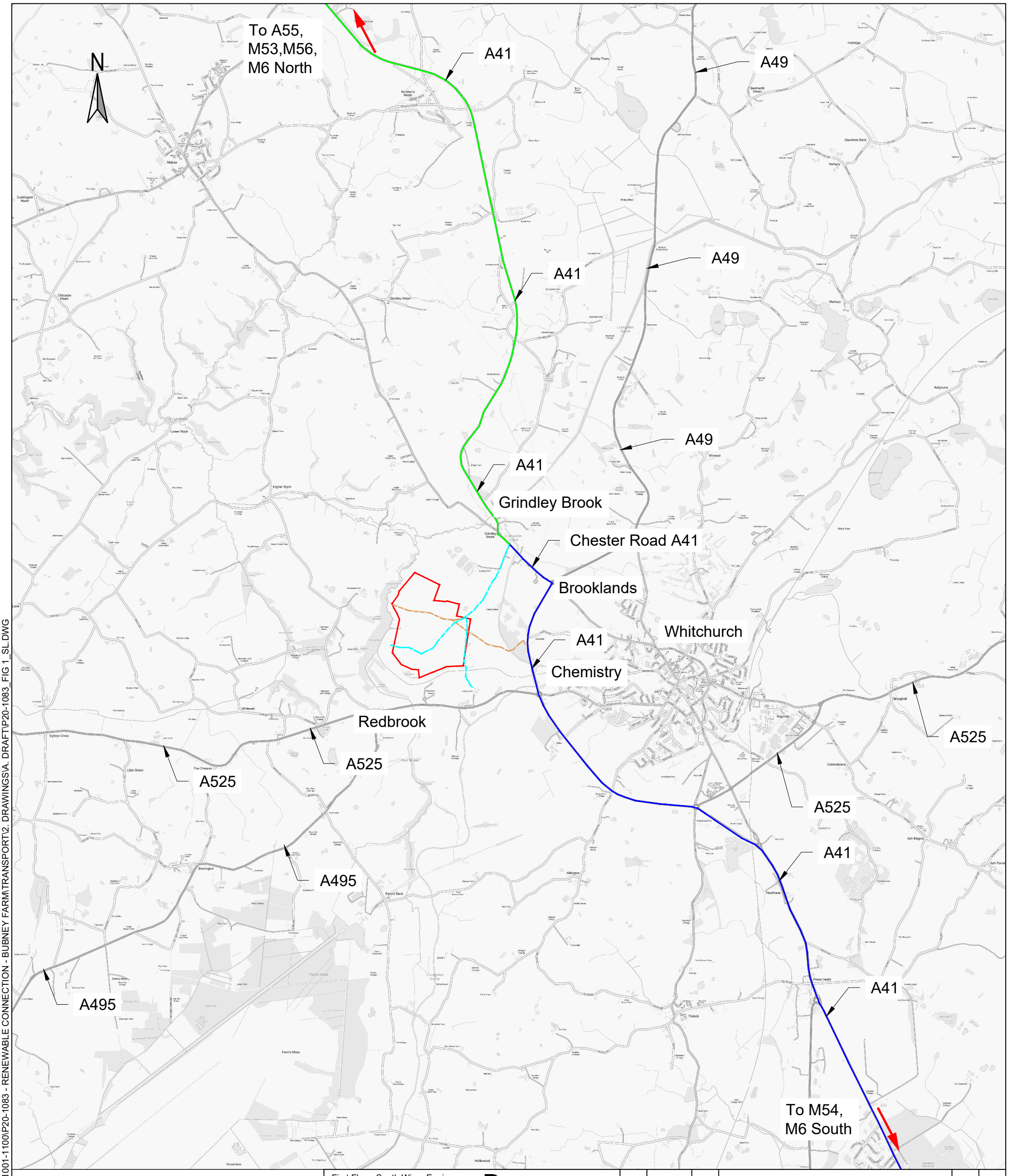
5.1 A Walk-Over Condition Survey on the local highway network will be conducted with Highway Officers at SCC prior to commencement of development, in order to assess the baseline condition of the A41 Chester Road in the vicinity of the junction serving the site access track. This will incorporate a photographic record as appropriate. The report will be a stand-alone document submitted to the highways department for their approval.

5.2 This process will also be carried out Public Rights of Way Officers in order to assess the baseline conditions of the bridleway/access track and the footpath which crosses the site.

5.3 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.

FIGURE 1

SITE LOCATION AND ROUTING PLAN



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Almondsbury, Bristol , BS32 4QL

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www.pegasusgroup.co.uk
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REV	DATE	BY	DESCRIPTION	CHK	APD

CLIENT: RENEWABLE CONNECTIONS DEVELOPMENT LIMITED

PROJECT: BUBNEY SOLAR FARM

TITLE: SITE LOCATION AND ROUTING PLAN

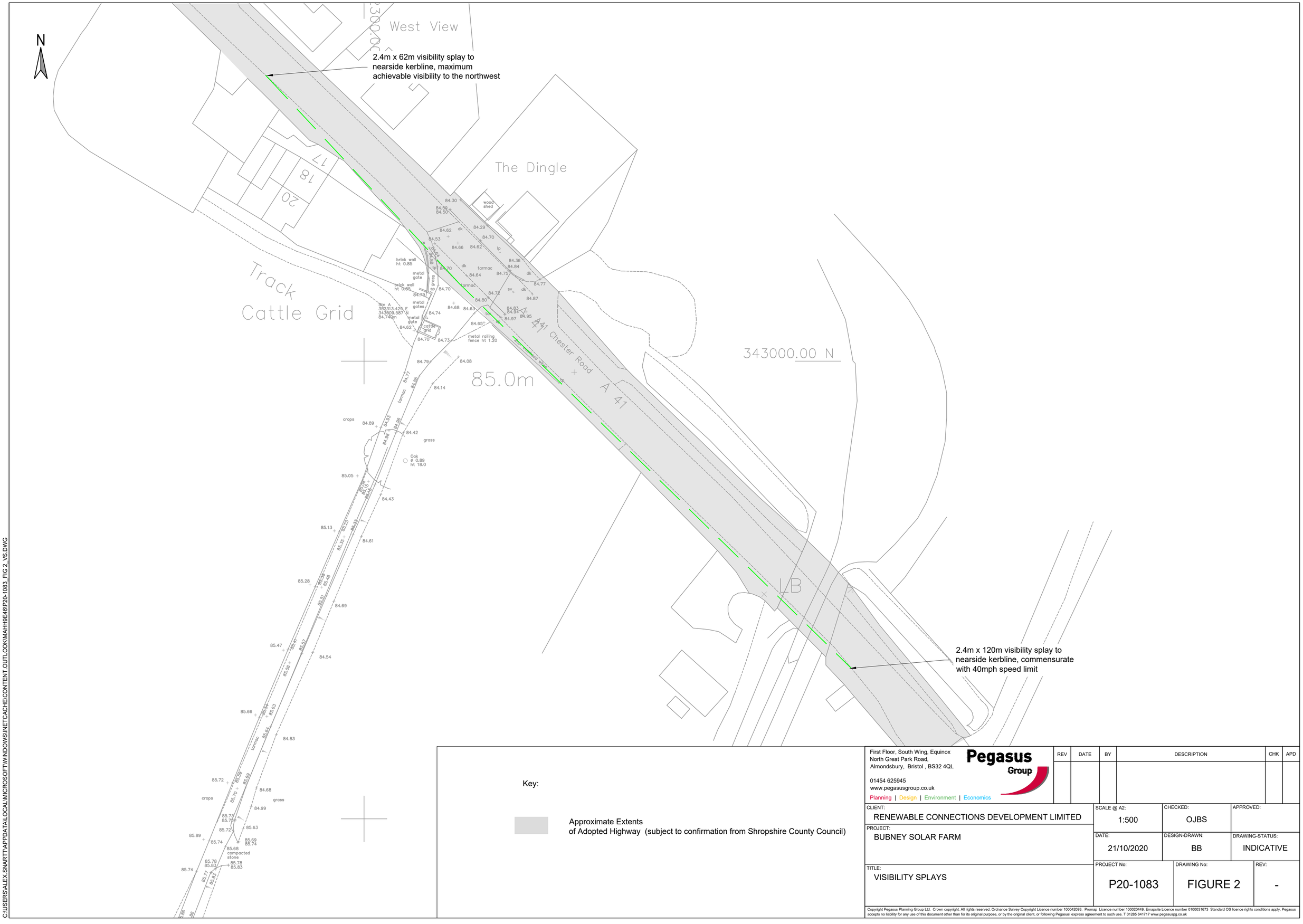
SCALE @ A3:	CHECKED:	APPROVED:
NTS	OJBS	OJBS
DATE:	DESIGN-DRAWN:	DRAWING-STATUS:
26/10/2020	BB	-

PROJECT No:	DRAWING No:	REV:
P20-1083	FIGURE 1	-

X:\BRISTOL PROJECTS\BRISTOL - LIVE PROJECTS\P20\P20-1001-1100\P20-1083 - RENEWABLE CONNECTION - BUBNEY FARM\TRANSPORT\2. DRAWINGS\A. DRAFT\P20-1083_FIG 1_SL.DWG

FIGURE 2

VISIBILITY SPLAYS



Key:

Approximate Extents
of Adopted Highway (subject to confirmation from Shropshire County Council)

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REV	DATE	BY	DESCRIPTION	CHK	APD

CLIENT: RENEWABLE CONNECTIONS DEVELOPMENT LIMITED	SCALE @ A2: 1:500	CHECKED: OJBS	APPROVED:
PROJECT: BUBNEY SOLAR FARM	DATE: 21/10/2020	DESIGN-DRAWN: BB	DRAWING-STATUS: INDICATIVE
TITLE: VISIBILITY SPLAYS	PROJECT No: P20-1083	DRAWING No: FIGURE 2	REV: -

C:\USERS\ALEX.SNARTT\APPDATA\LOCAL\MICROSOFT\WINDOWS\INETCACHE\CONTENT.OUTLOOK\MAHH9E46\P20-1083_FIG 2_VS.DWG

FIGURE 3

SWEPT PATH ANALYSIS OF 15.4M ARTICUALTED VEHICLE

Left In

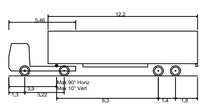
Right In

Left out

Right out

Key:

Approximate Extents
of Adopted Highway (subject to confirmation from Shropshire County Council)



Large Articulated Vehicle	
Overall Length	15.400m
Overall Width	2.500m
Overall Body Height	3.652m
Min Body Ground Clearance	0.406m
Max Track Width	2.377m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.610m

First Floor, South Wing, Equinox
North Great Park Road,
Almondsbury, Bristol , BS32 4QL

01454 625945
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REV	DATE	BY	DESCRIPTION	CHK	APD

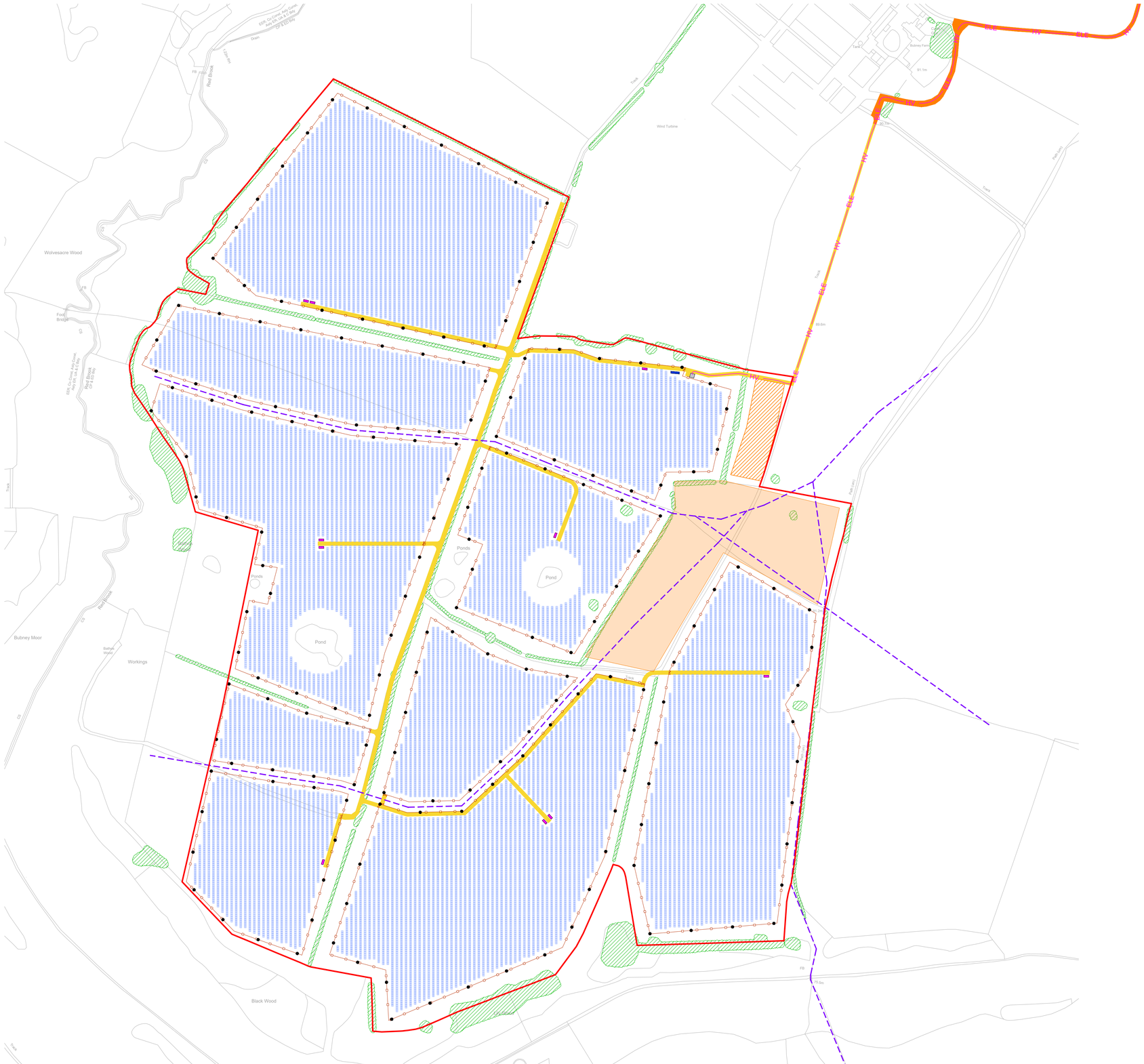
CLIENT: RENEWABLE CONNECTIONS DEVELOPMENT LIMITED	SCALE @ A1: 1:250	CHECKED: OJBS	APPROVED:
PROJECT: BUBNEY SOLAR FARM	DATE: 26/10/2020	DESIGN-DRAWN: BB	DRAWING-STATUS: -
TITLE: SWEPT PATH ANALYSIS SITE ACCESS 15.4M ARTICULATED LORRY	PROJECT No: P20-1083	DRAWING No: FIGURE 3	REV: -

X:\BRISTOL PROJECTS\BRISTOL - LIVE PROJECTS\P20\P20-1001-1100\P20-1083 - RENEWABLE CONNECTION - BUBNEY FARM\TRANSPORT\2 DRAWINGS\A DRAFT\P20-1083_FIG 3_SPA.DWG

APPENDIX A

ILLUSTRATIVE MASTERPLAN

A1



Revisions:

Revision	Date	Revision Notes	Drawn	Inspected
01	10.02.21	First Issue	PL	TG
02	25.02.21	Site Layout Revised	HN	TG
03	09.03.21	Site Layout Revised	HN	TG
04	10.03.21	Site Layout Revised	HN	TG

LEGEND:

- PROPOSED SITE
- EXISTING ACCESS
- PROPOSED ACCESS
- PERIMETER FENCELINE
- PUBLIC FOOTPATH
- AREA FOR GROUND NESTING BIRDS
- CONSTRUCTION COMPOUND

SOLAR SITE INFRASTRUCTURE:

- DNO SUBSTATION
- CUSTOMER SWITCHGEAR
- SOLAR PANEL MODULES
- SECURITY GATE
- CCTV CAMERA
- INVERTER

SERVICES:

HV — ELE — HV — PROPOSED CABLE ROUTE — ELE — HV — ELE —

VEGETATION:

EXISTING VEGETATION

1 BUBNEY OVERALL SITE LAYOUT

Scale: 1:2500@A1

0 50 100 150 200 250m

SCALE 1:2500

Status: **FOR PLANNING**

Project: **Bubney Solar Farm**

renewable connections

3rd Floor, 141 – 145 Curtain Road, London, EC2A 3BX
Tel: +44 (0)20 7749 2400
enquiries@renewableconnections.co.uk
www.renewableconnections.co.uk/

Drawing Title: **Bubney Solar Farm Indicative Layout Plan**

Drawn:	Checked:	First Issued:
PL	TG	10.02.2021

Project Code: **RNC002- PL-01** Drawing Number:

Sheet Size:	Scale:	Revision:
A1	1:2500	04

APPENDIX B

CONSTRUCTION SIGNAGE

1. Temporary Construction Traffic signage (Diagram 7301 'WORKS TRAFFIC' in the TSRGD)

Pegasus Group

PEGASUS GROUP BRISTOL

First Floor, South Wing, Equinox North,
Great Park Road, Almondsbury, Bristol, BS32 4QL

E Bristol@pegasusgroup.co.uk
T 01454 625 945

PEGASUSGROUP.CO.UK

LinkedIn Pegasus Group
@pegasusgroup