FENWICK SOLAR FARM

Fenwick Solar Farm
EN010152

Framework Construction Traffic Management Plan

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1. Introduction

1.1 Background

1.1.1 AECOM has been commissioned by Fenwick Solar Project Limited (the 'Applicant') to prepare a Framework Construction Traffic Management Plan (CTMP) in support of the proposed Fenwick Solar Farm (the 'Scheme') Development Consent Order (DCO) application.

1.1.2 The Scheme would comprise the construction, operation and maintenance, and decommissioning of a solar photovoltaic (PV) electricity generating facility, with a total capacity exceeding 50 megawatts (MW) together with a Battery Energy Storage System (BESS) Area, export and import connection to the national grid via the Existing National Grid Thorpe Marsh Substation. The land on which the Scheme is located is referred to as the Order limits.

1.1.3 The following definitions are used to describe the key areas and elements of the Scheme. These are illustrated in **ES Volume II Figure 1-3: Elements of the Site [EN010152/APP/6.2]**:

a. The Site – the collective term for all land within the Order limits comprising the Solar PV Site, Grid Connection Corridor, and the Existing National Grid Thorpe Marsh Substation;

b. Solar Photovoltaic (PV) Site – the total area covered by the ground-mounted Solar PV Panels, planting and mitigation areas, Field Stations, Battery Energy Storage System (BESS) Area, On-Site Substation, and associated infrastructure;

c. Grid Connection Corridor – the area outside the Solar PV Site in which the 400 kilovolt (kV) and associated cables (the Grid Connection Cables) would be installed between the On-Site Substation to the Existing National Grid Thorpe Marsh Substation (approximately 6 km south of the Solar PV Site); and

d. Existing National Grid Thorpe Marsh Substation – the Existing Thorpe Marsh substation (owned and operated by National Grid) where the 400 kV Grid Connection Cables would connect to the National Electricity Transmission System (NETS).

1.1.4 The Order limits also include a section of highway at the junction of the A19 and Station Road in the town of Askern to allow for abnormal indivisible load (AIL) vehicle access and escort.

1.1.5 The feasibility of connecting the On-Site Substation via a line drop from existing overhead power lines running north to south across the east of the Solar PV Site is also being explored instead of the Grid Connection Corridor. The determination of this option's viability by National Grid will only be possible after the DCO consent has been granted.

1.1.6 Should the Grid Connection Line Drop option be feasible, this would supersede the requirement for Grid Connection Cables exiting the Solar PV Site, and the Grid Connection Line Drop Cables would be confined to the Solar PV Site; in this event, the Grid Connection Corridor would no longer form part of the Scheme. This Framework CTMP covers the entirety of the Order limits which includes the Grid Connection Corridor. Should the Grid

Connection Line Drop be taken forward, the final CTMP will remove any references to the Grid Connection Corridor.

1.1.7 Further information on the Scheme and Site is provided in **ES Volume I Chapter 2: The Scheme [EN010152/APP/6.1]**.

1.1.8 The Solar PV Site is approximately 407 hectares (ha) in size and is located entirely within the City of Doncaster Council's administrative area and comprises land which is predominantly agricultural in nature. Landscape features immediately surrounding the Solar PV Site comprise largely agricultural fields and small rural villages, including Fenwick, Moss and Sykehouse, as well as the hamlet of Topham.

1.2 Purpose of Report

1.2.1 This document sets out the Framework CTMP, which focuses on the management of construction traffic within the vicinity of the Order limits on the local highway network during the construction phase of the works, in order to limit any potential disruptions and implications on the wider transport network, as well as for the existing road users.

1.2.2 It has been informed by extensive consultation with highway authorities (i.e. City of Doncaster Council for local roads) and National Highways with regard to the Strategic Road Network (SRN).

1.2.3 It should be noted that as this is a framework document and as such, certain details remain to be developed as the Scheme progresses into detailed design following DCO consent. The full details of all measures may not be confirmed until after consent for the Scheme has been granted. A detailed CTMP will be required to be produced by the contractor prior to commencement of construction of the Scheme and this is secured by DCO requirement.

1.2.4 This document should be read in conjunction with **ES Volume I Chapter 13: Transport and Access [EN010152/APP/6.1]** and **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]**.

1.3 Objectives

1.3.1 The objectives of this Framework CTMP are to set a framework for the measures that would be developed in a future detailed CTMP to:

a. Minimise the volume of construction Heavy Goods Vehicles (HGVs) and construction staff vehicles as far as reasonably practicable;

b. Maximise the safe and efficient movement of materials and staff required during the construction phase as far as reasonably practicable;

c. Minimise the restrictions imposed and ensure efficient management to the local public rights of way (PRoW) within the Order limits during the construction phase;

d. Minimise the impacts both for the local community and visitors to the area using the road network as far as reasonably practicable; and

e. Set out the measures to be adhered to by those travelling to and from the Order limits to reduce the impact of the construction of the Scheme.

1.4 Report Structure

1.4.1 Following this introduction, the Framework CTMP is structured as follows:

a. **Section 2** provides details of the Solar PV Site location, surrounding area and the existing highway network;

b. **Section 3** summarises the HGV, construction and staff vehicle movements which are expected to be generated by the Scheme across the construction phase, including during the peak of construction;

c. **Section 4** provides details of the proposed site accesses including details of layouts, visibility splays and swept paths, as well as routing arrangements and internal Site layout considerations including access tracks and parking;

d. **Section 5** summarises the proposed measures to manage the highway network and pedestrian and cycle routes during the construction phase, as well as measures directed at HGVs and staff members, as well as for the management, monitoring and review of the CTMP; and

e. **Section 6** deals with compliance and enforcement of the CTMP.

2. Existing Conditions

2.1 Site Location

2.1.1 The Scheme lies within the administrative area of the City of Doncaster. It is located within areas of existing agricultural fields mostly under arable production, with some interspersed areas of pasture, trees hedgerows, woodland and farm access tracks.

2.1.2 The Study Area has been identified to cover a broad area within the surrounding highway network when considering the extent of the Solar PV Site itself, as well as the Grid Connection Corridor.

2.1.3 The Study Area includes areas of the highway network which, based on professional judgement and experience of other DCO solar farm schemes of similar rural nature and size, are considered to be potentially at risk from possible direct and indirect impacts arising from the Scheme. Also refer to **ES Volume II Figure 13-4: Study Area Road Network [EN010152/APP/6.2]**.

2.1.4 An overall Scheme plan is provided in **ES Volume II Figure 2-3: Indicative Site Layout Plan [EN010152/APP/6.2]**.

2.2 Surrounding Area

2.2.1 The landscape features immediately within the Study Area around the Scheme comprise several villages, including Fenwick, Moss and Sykehouse, as well as the hamlet of Topham.

2.2.2 To the west of the Order limits runs the A19, the M62 runs to the north and the M18 runs to the east of the Order limits. Moss Road runs directly to the south of the Solar PV site, in an east-west direction, providing access from the A19 to the access points.

2.2.3 There is an extensive network of PRoW both within the Order limits and the surrounding area. Details of these are set out within Section 4 of this report and in the **Framework PRoW Management Plan [EN010152/APP/7.13]**.

2.3 Site Accessibility

Strategic Highway Network

2.3.1 The M62 forms part of the SRN and is a 172 km motorway that connects Liverpool to Hull via Bradford and Leeds. The motorway generally has three lanes heading in each direction with the inclusion of a hard shoulder. The road is managed by National Highways and provides a link for onward strategic journeys in all directions.

2.3.2 The M18 is also located to the east of the Order limits which runs from Junction 35 of the M62 towards Doncaster towards the east of Sheffield in a southerly direction. The M18 is characterised by two lanes between the M18 Junction 5 and Junction 2 with three lanes on the remainder of the M18.

2.3.3 Furthermore, the M180 joins the M18 at Junction 5 near Stainforth which provides connections in an easterly direction towards the Humber Estuary and Scunthorpe, Grimsby, and Cleethorpes.

2.3.4 The M62 Junction 34 is approximately 14 km to the northwest of Fenwick which provides the nearest vehicular access from the SRN to the Order limits.

2.3.5 The M62 provides access from major urban areas such as Leeds to the northwest of the Order limits, as well as other small surrounding towns.

2.3.6 To the east the M62 meets the M18 at Junction 35, which provides access from areas to the north of the Humber Estuary such as Hull. This then leads to the M18 in which access to the Order limits is then achieved through the local road network which is described in the section below.

Local Highway Network

2.3.7 This section describes detail surrounding the local highway network which is supported by the following figures from **ES Volume II Figure 13-4: Study Area Road Network [EN010152/APP/6.2]**.

2.3.8 The A19 runs for approximately 18 km between the M62 Junction 34 and St Mary's Roundabout in Doncaster to the west of the Scheme. The A19 passes through the more built-up areas of Whitley to the north of the A19 and Askern, where it joins with Moss Road via a 3-arm signalised junction.

2.3.9 The A19 is characterised as a primary route with a single carriageway with a variable speed limit ranging between 60 mph in the areas with limited urban build-up and 30 mph within Askern itself with areas along the link also 40 mph. A level crossing is also present to the north of Askern adjacent to the Aldi store approximately 650 m from the A19/Station Road junction.

2.3.10 Moss Road is a single-carriageway road that runs west to east from the A19 through Askern and the village of Moss before changing to Kirkhouse Green Road just before the New Junction Canal near Kirkhouse Green.

2.3.11 Moss Road has a speed limit of 30 mph within Askern before changing to 50 mph on the eastern edge of the village which then continues until approximately 650 m to the west of the level crossing near the 3-arm priority

with Fenwick Common Lane, where it changes to 40 mph. There are two separate HGV haulage businesses currently using Moss Road, one on Moss Road itself and one on West Lane. This indicates that HGVs are already using this road and that the route is likely suitable for these types of movements.

2.3.12 Fenwick Common Lane runs north from Moss Road for approximately 2 km before entering the village of Fenwick which then forms a junction with Lawn Lane and Fenwick Lane.

2.3.13 Fenwick Common Lane is characterised by a single-lane carriageway with no lane markings and no footways present on either side of the carriageway. The link is also subject to the national speed limit for much of the link before changing to 30 mph before entering Fenwick approximately 225 m on from the priority junction with Shaw Lane.

2.3.14 It is proposed that Fenwick Common Lane will provide access for inbound construction staff (and minibuses) only. Other construction vehicles, including HGVs, will use the main construction access off Moss Road. The main operational access to the Solar PV Site will be via Lawn Lane, while the access to the BESS Area and the On-Site Substation will be from Moss Road.

2.3.15 Approximately 1 km along Fenwick Common Lane, Haggs Lane forms a priority junction that is used as an access to fields. A temporary blockade (heavy tyres/concrete blocks) has been placed across Haggs Lane to prevent vehicles other than those used by farmers from entering the fields. The Scheme proposals would include gating this entrance with a secure gate allowing vehicular access for the Scheme, the local farmers and the Internal Drainage Board (IDB) maintenance staff only.

2.3.16 Additional meetings were held with the Danvm IDB on 19 July 2024 and 4 September 2024 to update the IDB on the proposed crossing strategy for board-maintained watercourses and agree on the PRoW and traffic management proposals at Haggs Lane in order to allow for maintenance of Fenwick Lane Drain (East) (URN AAA892) by the IDB.

2.3.17 PRoW Fenwick 16 exists on the northern side of Haggs Lane and separation between vehicles and the PRoW will be managed through the measures described in the **Framework PRoW Management Plan [EN010152/APP/7.13]**.

2.3.18 From the east, access towards the Scheme is achieved via the A614/Between Rivers Lane priority junction. The A614 runs in a north/south direction in which it forms a roundabout with the A1041 near the village of East Cowick before continuing into the village of Snaith.

2.3.19 The A1041 then continues north towards the A63 near Selby. From here the A63 links to both the A1(M) towards Leeds and north towards York along the A19. To the south, the A614 meets the SRN at M18 Junction 6 which then provides further access to the wider area as described in the SRN section above.

2.3.20 Between Rivers Lane is located approximately 1 km south of the A1041/A614 roundabout and is accessed from the east of the A614 via a large priority Bellmouth junction. Between Rivers Lane is characterised as a rural single-carriageway with verges on either side subject to the national

speed limit. Between Rivers Lane leads onto Oak Road near the PD Tattersall trucking depot.

2.3.21 Oak Road continues in an east/west direction onto Pincheon Green Lane, Marsh Hill Lane, Sykehouse Road, Broad Lane, West Lane, and then Flashley Carr Lane before forming into Moss Road in which the link then continues through Moss before meeting Fenwick Common Lane.

2.4 Other Transport Modes

2.4.1 Details relating to the accessibility of the Solar PV Site via public transport, cycling and on foot are provided within **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]**.

3. Construction Movements

3.1.1 This section provides a summary of the forecast HGV and staff vehicle movements that are expected during the construction phase of the Scheme, based on the proposed construction phase programme.

3.2 Construction Programme

3.2.1 Subject to the DCO for the Scheme being granted, the earliest construction phase could start is during 2028, being built over a 24-month period. The peak construction period is anticipated to occur in 2028 when construction of both the Solar PV Site and the Grid Connection (should it proceed) will occur.

3.3 Construction Vehicle Movements

3.3.1 Full details of the construction traffic movements are provided in **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.1]**. It is anticipated that the maximum daily trip generation will be as follows:

a. 280 daily two-way construction worker vehicle movements, including:
   i. 248 private worker vehicles (two-way) e.g. 124 arriving in the AM and 124 departing in the PM;
   ii. 32 minibuses (two-way) e.g. 8 arriving and 8 departing in the AM (16 two-way) and 8 arriving and 8 departing in the PM (16 two-way);

b. 36 daily two-way HGV movements (18 in and 18 out) are anticipated to be travelling to and from the Solar PV Site daily during this period; and

c. A total of 316 daily two-way vehicle movements.

3.3.2 Should concrete blocks be required to be installed in areas of archaeological mitigation, the delivery of these concrete blocks would require approximately 1 HGV per day (2 two-way HGV movements) as a worst-case scenario based on the **Draft Archaeological Mitigation Strategy [EN010152/APP/7.19]**, although it is likely that trial trenching (e.g. further archaeological investigations) will reduce the extent of areas requiring concrete blocks, and fewer deliveries will be required. Therefore, it has been assumed that the peak HGV count assumption of 36 two-way movements does not need changing to account for the delivery of concrete block foundations.

3.3.3 A summary of the daily traffic movements is provided in Table 1 below.

Table 1: Daily Profile of Generated Trips (Two-way)

Time Period	Cars	Minibuses	HGVs	Total	Total (Two-Way)
	In/Out	In/Out	In/Out	In/Out	
00:00-01:00	0	0	0	0	0
01:00-02:00	0	0	0	0	0
02:00-03:00	0	0	0	0	0
03:00-04:00	0	0	0	0	0
04:00-05:00	0	0	0	0	0
05:00-06:00	0	0	0	0	0
06:00-07:00	124/0	8/8	0	132/8	140
07:00-08:00	0	0	0	0	0
08:00-09:00	0	0	0	0	0
09:00-10:00	0	0	2/2	2/2	4
10:00-11:00	0	0	2/2	2/2	4
11:00-12:00	0	0	2/2	2/2	4
12:00-13:00	0	0	3/3	3/3	6
13:00-14:00	0	0	3/3	3/3	6
14:00-15:00	0	0	2/2	2/2	4
15:00-16:00	0	0	2/2	2/2	4
16:00-17:00	0	0	2/2	2/2	4
17:00-18:00	0	0	0	0	0
18:00-19:00	0	0	0	0	0
19:00-20:00	0/124	8/8	0	8/132	140
20:00-21:00	0	0	0	0	0
21:00-22:00	0	0	0	0	0
22:00-23:00	0	0	0	0	0

Time Period	Cars	Minibuses	HGVs	Total	Total (Two-Way)
	In/Out	In/Out	In/Out	In/Out	
23:00-00:00	0	0	0	0	0
Total	**124/124**	**16/16**	**18/18**	**158/158**	**316**

3.3.4 The above indicates that the Scheme is expected to see a maximum of 140 two-way vehicle trips during the AM development peak hour (06:00-07:00) and PM development peak hour (19:00-20:00) respectively.

3.3.5 There are expected to be no generated trips travelling across the road network between during network AM and PM peak hours of 08:00-09:00 and 17:00- 18:00, respectively.

3.3.6 During the winter months, lower numbers of workers would be expected, possibly arriving at the Solar PV Site later and departing the Solar PV Site earlier and working shorter hours. These traffic movements would still occur outside the network peak hours, so these key periods would not be impacted. In addition, the percentage increase in traffic would likely be lower in this situation due to higher traffic baseline in later hours in the AM period and earlier hours in the PM period. The assessment of worker traffic during the summer months therefore represents a robust worst-case scenario.

3.4 Construction Vehicle Distribution

3.4.1 HGVs will use suitable routes to access the Scheme and for the purposes of the assessment, it is assumed that they will approach from the wider SRN and then enter onto the local road network at Junction 34 of the M62 to the northwest of Fenwick. **ES Volume II Figure 13-3: Indicative HGV Routing [EN010152/APP/6.2]** outlines the predicted routes associated with HGV movements.

3.5 Vehicle Types, Plant Requirements and Abnormal Loads

3.5.1 It is expected that construction vehicles accessing the Solar PV Site will consist of the following:

a. Cars;

b. Small vans (Light Goods Vehicles [LGV]);

c. 10m rigid vehicles;

d. Max articulated lorries (HGVs);

e. Tractor-Trailer vehicle (up to 12m in length) (internal or ad-hoc movements of materials on the road network);

f. Mobile cranes; and

g. AILs.

3.5.2 AILs will be associated with the implementation of the On-Site Substation, with up to five AIL deliveries anticipated during the construction phase.

3.5.3 Swept Path Analysis has been carried out at potential pinch points identified along key roads on the local road network, to ascertain whether HGVs and other vehicles can safely access the Solar PV Site. This analysis has subsequently informed the routing of vehicles.

3.5.4 All large vehicles and other AILs will be required to follow the agreed HGV routing strategy when travelling to/from the Solar PV Site.

3.5.5 Based on the Swept Path Analysis results, some locations were identified to require carriageway widening/vegetation removal and associated traffic management to facilitate safe implementation.

4. Site Access, Layout and Routing

4.1 Site Access

4.1.1 During construction, the Scheme will be served by a main access point along Moss Road and a smaller entrance-only access point from Fenwick Common Lane/Haggs Lane to access the Solar PV Site, as well as separate access points to the Grid Connection Corridor to the south of the Solar PV Site. Access to the Solar PV Site via West Lane will be for emergency use only. Proposed access layouts, visibility splays and swept paths for the Scheme are presented in **Annex A: Proposed Access Layouts, Visibility Splays and Swept Paths** of this Framework CTMP.

4.1.2 The access arrangements to the Solar PV Site are as follows, with access details also shown in **ES Volume II Figure 2-4: Location of Temporary Construction Compounds and Indicative HDD Areas [EN010152/APP/6.2]**:

a. Staff vehicle movements:
    i. 75% of all staff movements enter via Fenwick Common Lane/Haggs Lane access;
    ii. 25% of all staff movements enter via Moss Road access;
    iii. 100% of all staff movements exit via Moss Road access;
b. HGV movements:
    i. 100% of all HGV movements will enter/exit via Moss Lane access.

4.1.3 The access arrangements to the Grid Connection Corridor are as follows, with access details also shown in **ES Volume II Figure 2-4: Location of Temporary Construction Compounds and Indicative HDD Areas [EN010152/APP/6.2]**:

a. Staff and HGV vehicle movements:
    i. 100% of all staff and HGV movements will enter/exit via Trumfleet Lane (South of Moss)/Marsh Road/Thorpe Bank.

4.2 Off-Site Highway Improvements

4.2.1 Where necessary, local off-site highway improvements (e.g. verge clearance, and hedge cutting) will be carried out at access points.

4.3 HGV Routing

4.3.1 The routing strategy for HGVs is shown below and in **ES Volume II Figure 13-3: Indicative HGV Routing [EN010152/APP/6.2]**.

Table 2: HGV Routing Strategy

From the SRN to the Order limits	From the Order limits to the SRN
Leave the M62 at Junction 34.	Leave the farm lane to turn right, and travel westbound along Moss Road.
Exit Junction 34 to travel southbound along the A19 (Selby Road and High Street).	Continue on Station Road into Askern.
Leave the A19 to travel eastbound along Station Road in Askern.	Turn right to travel northbound along the A19.
Continue eastbound to the village of Moss and turn northbound at the junction with the farm track lane at this point (53°37'23.8"N 1°05'26.0" W).	At Junction 34, leave the A19 and join the M62.

4.4 Vehicle Swept Path Analysis

4.4.1 Vehicle swept path analysis has been conducted on HGV routes where pinch points have been noted using the largest vehicle assumed to utilise the roads (maximum legal articulated vehicle). AIL vehicles have also been analysed along these routes to ensure safe journeys along the road network.

4.4.2 All points of access to the Grid Connection Corridor and the Solar PV Area have also been analysed using swept path analysis compared to the largest assumed vehicles to enter the respective areas.

4.4.3 All proposed points of access are provided within Annex A: Proposed Access Layouts, Visibility Splays and Swept Paths of this Framework CTMP.

4.4.4 The vehicle-swept paths demonstrate that construction vehicles will be able to turn in/out of the proposed Site accesses. It should be noted that traffic marshals will be in place to control HGV movements at the access to ensure these movements are carried out safely. An appropriate level of visibility will be achievable to/from the access, as set out above.

4.5 Access Tracks

4.5.1 It is proposed that internal routes through the Solar PV Site where practicable will be utilised as the primary route for deliveries and staff movements across the Solar PV Site. Where necessary, upgrades to existing tracks through widening and resurfacing may be necessary, and construction of additional secondary access to tracks to increase connectivity may be conducted.

4.5.2 It is proposed that within the Solar PV Site internal access tracks will be 6m in width and passing places will be 20m in length and installed at strategic locations to ensure safe passage of construction vehicles. The internal tracks

will enable free-flowing movement within the Solar PV Site whilst removing construction traffic from local roads.

5. Management and Mitigation

5.1 Introduction

5.1.1 This section outlines the construction traffic management measures that will be implemented in support of the Scheme, to avoid any adverse impacts on the surrounding networks during the construction phase.

5.2 Highway Network

Access Works

5.2.1 Access designs have been provided for all locations where vehicles will be required to enter the Solar PV Site. The access drawings are provided within Annex A: Proposed Access Layouts, Visibility Splays and Swept Paths of this Framework CTMP.

Other Improvements

5.2.2 Major carriageway widening works/improvements are not currently planned as part of the construction of the Scheme; however, local off-site highway improvements (e.g. verge clearance, hedge cutting) will be carried out at access points where necessary and on Fenwick Common Lane. At other locations such as the A19/Moss Road junction in Askern, management of street furniture will be required to facilitate access for the AILs.

5.2.3 Pre and post-construction road condition surveys which would include PRoW will be undertaken at identified locations in coordination with the relevant Local Highway Authority, and any surfaces reinstated.

Temporary Traffic Management

5.2.4 The Grid Connection Corridor will require temporary traffic management at several points along the road network during the construction phase, to allow construction vehicles to safely cross and access cable routes sections, as well as organising traffic to avoid impacts on the road network and traffic. Minor temporary works taking place at the A19/Moss Road junction in Askern will also require temporary traffic management.

5.2.5 Where necessary, temporary traffic signals are proposed to mitigate the impact of the laying of the cable, along busier roads. Where roads are less busy, traffic management will be conducted by laymen where necessary.

5.2.6 The Grid Connection Cables would be buried below ground and would typically be installed using an open trench method. At this stage, ten potential HDD locations have been identified. The precise locations of the HDD crossing points within the Solar PV Site will be determined at the detailed design stage post-consent, however, indicative locations are illustrated in **ES Volume II Figure 2-4: Location of Temporary Construction Compounds and Indicative HDD Areas [EN010152/APP/6.2]**. The Grid Connection Corridor will also cross the Network Rail freight line at Thorpe Bank, also using HDD.

5.2.7 Open-cut installation may alternatively be used for these roads which are crossed by the Grid Connection Corridor. These roads will use temporary traffic management measures, such as lane closures to facilitate implementation rather than full road closures.

5.2.8 The exact methodology for implementing temporary traffic management will be determined by the contractor once appointed and designed to minimise any potential effects as far as possible. Further detail will be provided within the detailed CTMP.

Crossing Points

5.2.9 It should be noted that the construction access points will be gated following the implementation of fencing early on in construction, and supporting measures (e.g. traffic marshals and signage) will safely facilitate construction vehicles as they exit or enter the carriageway.

5.2.10 In addition, Network Rail will be consulted prior to any proposed use of level crossings (e.g. on Moss Road and Thorpe Bank).

5.3 Management Measures and Controls

HGV Measures and Controls

5.3.1 The following measures will be considered for implementation as part of the final detailed CTMP to manage HGV deliveries to the Solar PV Site:

a. Delivery management system;
b. Traffic management and monitoring;
c. Suitable (and agreed) HGV routes;
d. HGV timing restrictions;
e. Traffic marshals and Site management;
f. Communications strategy;
g. Appropriate Site access arrangements;
h. Necessary escort, permits and traffic management for AILs; and
i. Interactions with pedestrians and cyclists.

Delivery Management System

5.3.2 A Delivery Management System (DMS) will be considered for implementation as part of the final detailed CTMP to control bookings of HGV deliveries from the start of the construction phase. This will be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance of HGV routing. In addition, adequate space will be made available along the proposed access road to ensure no queuing back onto the surrounding road network occurs.

Traffic Management and Monitoring

5.3.3 A Traffic Management and Monitoring System (TMMS) will be considered for implementation as part of the final detailed CTMP to provide details of the technologies and other means employed to monitor HGVs to/from the Compounds (e.g. Global Positioning System (GPS) and Automatic Number

Plate Recognition (ANPR)). This will enable the Applicant to monitor the following:

a. Compliance with the HGV routes;

b. Compliance with the number of HGV limits in terms of the number of deliveries arriving and departing at any one time and over the course of the day; and

c. Compliance with the timing restrictions.

5.3.4 In addition, the TMMS will also record all LGVs which enter and exit the Solar PV Site, to allow all vehicles to be monitored. In the instance that a complaint has been made in relation to inappropriate routes being used, then this will be cross-referenced with the TMMS to allow appropriate actions to then be taken.

5.3.5 The precise form of TMMS will be determined following the appointment of a contractor and will be set out in the final detailed CTMP. This would include a summary of the contractual requirements that those visiting the Solar PV Site will have to adhere to, along with the measures to be taken for non-compliance.

HGV Routes

5.3.6 HGVs will be required to comply with the agreed routing strategy set out in Table 2, apart from in the case of exceptional circumstances where the proposed routing to the Solar PV Site is compromised due to an incident or road closure for example. In this circumstance, it is considered acceptable for HGVs to be redirected via an alternative route or to deliver outside of the established scheduling if required.

HGV Timing Restrictions

5.3.7 To reduce the potential impact of HGV deliveries, the arrival and departure times will be managed to minimise the number of HGVs travelling to the Solar PV Site during the network peak hours for the local highway network; identified within **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]** as 08:00-09:00 and 17:00-18:00. For example, HGVs could be delayed in the afternoon to avoid being released from the Solar PV Site during the PM network peak hour.

5.3.8 The timing restrictions, considered likely to be implemented within the final detailed CTMP at this stage are:

a. Avoiding arrivals or departures on a weekday during the network peak hours (08:00–09:00 and 17:00–18:00);

b. Limiting deliveries to between the hours of 09:00 and 16:00;

c. No arrivals or departures on Saturday before 08:00 or after 13:00; and

d. No arrivals or departures on Sundays or public holidays.

Traffic Marshalling and Site Management

5.3.9 Suitably qualified traffic marshals will be positioned at the proposed Site accesses, and at any crossing points between the road network and the Solar PV Site during construction to ensure vehicle movements are controlled safely.

5.3.10 Visibility will be maximised between construction vehicles and other users at the crossing points (e.g. through hedgerow clearance), and advanced signage will be provided to warn users of the potential presence of construction vehicles. Staffed controls will be provided at each crossing point (including traffic marshals and gates), with a default priority that construction traffic will give way to other users.

Communications Strategy

5.3.11 A communications strategy will be developed and set out in the final detailed CTMP and will be communicated with those working on the Solar PV Site. This would include an information pack setting out the contractual requirements which will be provided to the contractors. Furthermore, regular meetings will be held with contractors to discuss HGV management and to address any issues associated with travel to/from the Solar PV Site, as well as to relay information including any restrictions and requirements which should be followed.

Site Access Arrangements

5.3.12 The Solar PV Site access layouts have been designed to accommodate HGVs and other construction vehicles as shown by the vehicle swept path analysis, as provided in **Annex A: Proposed Access Layouts, Visibility Splays and Swept Paths** of this Framework CTMP. A hardstanding surface will be provided at the proposed accesses to ensure the weight of the HGVs can be accommodated. In addition, wheel washing facilities will be provided within each temporary construction compound to prevent mud from being trafficked onto the highway.

5.3.13 Vegetation clearance will be carried out at the proposed Site accesses where required in order to achieve appropriate levels of visibility as agreed with the local authorities as shown in **Annex A: Proposed Access Layouts, Visibility Splays and Swept Paths**.

5.3.14 Signage will be positioned on Haggs Lane that makes clear the IDB may need to undertake works to the adjacent Fenwick Lane Drain at any time and will be given priority access.

5.3.15 In addition, the hedge will be trimmed on the south side of Haggs Lane to allow as much width as possible (e.g. the hedge is currently overgrown and overhangs where the temporary PRoW will be located). Further details of PRoW diversions are included in the **Framework PRoW Management Plan [EN010152/APP/7.13]**.

Abnormal Indivisible Loads

5.3.16 AILs will be associated with the implementation of the On-Site Substation, with up to five AILs anticipated to be delivered during the construction phase.

5.3.17 A specialised haulage service will be employed to allow these components to be transported with the necessary escort, permits and traffic management, with the contractor consulting the relevant highways authorities to ensure the correct permits are obtained. The police will also be given advanced notification under the Road Vehicle Authorisation of Special Types Order 2003 (Ref. 1).

5.3.18 Management of street furniture will be required to facilitate access for the AILs at the A19/Moss Road junction in Askern.

5.3.19 All AILs will be expected to follow the agreed HGV routing strategy when travelling to/from the Solar PV Site. Further details related to the AILs will be included within the detailed CTMP for the Scheme.

Pedestrians and Cyclists

5.3.20 Access to all existing PRoW will be retained during the construction phase, however, there will be some diversions. All PRoW considerations will be taken into account within the **Framework PRoW Management Plan [EN010152/APP/7.13]** submitted as part of the DCO application.

5.4 Staff Vehicle Measures and Controls

5.4.1 Staff movements will be managed through the implementation of the following measures:

a. Limited and allocated car parking;

b. Car sharing;

c. Staff arrival and departure times;

d. Parking strategy; and

e. Minibus service.

Staff Arrival and Departure Times

5.4.2 The proposed summer working hours will be between the hours of 07:00-19:00 on weekdays and between 07:00 and 13:00 on Saturdays. They will therefore be travelling along the road network between the hours of 06:00-07:00 and 19:00-20:00, and as such no staff vehicle movements are anticipated during the weekday network peak hours.

5.4.3 During the winter months, worker numbers may be reduced, with the workers possibly arriving at the Solar PV Site later and departing the Solar PV Site earlier and working shorter hours. These traffic movements would still occur outside the network peak hours, so these key periods would not be impacted. In addition, the percentage increase in traffic would likely be lower in this situation due to higher traffic baseline in later hours in the AM period and earlier hours in the PM period. The assessment of worker traffic during the summer months therefore represents a robust worst-case scenario.

5.4.4 Any other on-site works where construction workers are moving outside of the above working hours are anticipated to be limited.

Car Parking

5.4.5 During the construction phase, parking will be provided at the Solar PV Site, as well as at temporary construction compounds for the Grid Connection Corridor.

5.4.6 Limited, but sufficient on-site car and cycle parking to accommodate the expected parking demand of workers for the Scheme will be provided.

5.4.7 Parking on public roads within a defined radius of the Solar PV Site would not be permitted.

Car Sharing

5.4.8 To reduce the potential impact of vehicles associated with staff that are locally based during the construction phase, the contractor will implement measures to encourage car sharing to reduce the number of vehicles travelling to/from the Solar PV Site each day. The benefits of car sharing will be promoted to encourage multi-occupancy vehicle use, such as reduced fuel costs and ease of parking with guaranteed spaces for those workers car sharing onsite.

5.4.9 A Car Share scheme will be implemented to match potential sharers and to help staff identify any colleagues who could potentially be collected along their route to/from the Solar PV Site. It should be noted that parking will be limited to encourage staff to travel together.

5.4.10 A minimum occupancy rate of 1.5 persons per vehicle for locally based staff (an assumption adopted within **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]** is expected; however, the aspiration is to achieve a higher average occupancy level to further reduce the impact of the Scheme on the local highway network and the SRN.

Minibus Service

5.4.11 As detailed within the **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]**, it has been assumed that 40% of staff will travel to the Solar PV Site via minibus, due to living in local villages and towns or staying in hotels within these areas. The locations and routes of the shuttle services are yet to be determined, though drivers would be directed to use the most direct route across the SRN to deliver staff to the Compounds from local areas. Further details will be confirmed as part of the detailed CTMP.

5.4.12 The following assumptions have been adopted for the shuttle service which will be provided for non-local staff travelling to/from the Solar PV Site, with further details to be confirmed as part of the detailed CTMP:

a. The shuttle services will travel between the Solar PV Site and local worker accommodation to transfer all non-local staff to/from the Solar PV Site each day;

b. The shuttle services will depart from the Solar PV Site to pick up construction workers from local worker accommodation and residential areas and return to the Solar PV Site before the start of a shift;

c. The shuttle services will depart from the Solar PV Site to drop off construction workers back at their local worker accommodation within the hour after the completion of a shift (before returning back to the Solar PV Site);

d. The shuttle services will each be expected to have an average occupancy of 25 people when transferring construction workers;

e. A total of 8 shuttle buses will be available to cater for peak demand.

5.4.13 The above is designed to minimise vehicle trips on the surrounding highway network as far as practicable.

Internal Movements

5.4.14 Minibuses will also be used to transport staff around the Solar PV Site by making use of the internal routes wherever practicable to travel between the Solar PV Site and the Grid Connection Corridor. This will minimise trips and will also avoid trips on the surrounding highway network.

5.5 Management Structure

5.5.1 The overall management and implementation of the detailed CTMP will be the responsibility of the Applicant. A Traffic Safety Control Officer will be appointed by the Applicant to develop, implement and manage the CTMP.

5.5.2 On behalf of the Applicant, the Traffic Safety Control Officer will:

a. Implement and monitor the CTMP to identify successful measures and areas for improvement;

b. Promote the CTMP to all staff and contractors travelling to and from the Solar PV Site to ensure compliance with its contents;

c. Liaise as appropriate with local transport and traffic groups, local planning authorities, local highway authorities and National Highways;

d. Monitor data relating to HGV routes, timing of HGV arrivals and departures and compliance with the HGV routing;

e. Manage the Car Share Scheme;

f. Manage the minibus service between local worker accommodation and the Solar PV Site; and

g. Discuss any issues with relevant parties and identify any amendments to the CTMP (including measures) to ensure compliance is maintained.

5.6 Monitoring and Review

HGVs

5.6.1 The detailed CTMP will be monitored and revised to ensure that contractors are complying with the document. This process will be led by the Traffic Safety Control Officer

5.6.2 The Traffic Safety Control Officer will monitor data relating to HGV routes, the timing of HGV arrivals and departures and compliance with the HGV routing plans set out. The results of the data monitoring will be reported to identify any issues which need to be resolved and any additional measures which should be implemented to these from arising again. The reports will be developed by the Applicant as part of the detailed CTMP and shared with the contractor.

Staff Vehicles

5.6.3 Construction staff vehicles will be monitored when entering and exiting the Solar PV Site accesses to determine routes staff may be taking to travel to the Solar PV Site. This monitoring will determine whether any additional measures should be explored to minimise staff trips on the local highway network.

5.6.4 Construction staff will be directed to available parking bays upon arrival to assist them in parking in a timely manner. Given the working patterns identified, it is expected that the car parks at the compounds will be managed between 06:30-07:00 and between 19:00-19:30 in the summer when the majority of staff are expected to arrive/depart. During the winter months, staff parking will be managed accordingly based on varied arrival and departure times.

Additional Monitoring

5.6.5 The following monitoring will also be carried out during the construction phase, and secured as part of the detailed CTMP:

a. Construction vehicles will be monitored to ensure drivers are adhering to the agreed routing strategy; and

b. Vehicle safety will be monitored within the Solar PV Site, including at the PRoW crossing points, temporary PRoW diversion points, and Grid Connection Corridor intersection points.

6. Compliance and Enforcement

6.1 Introduction

6.1.1 This section of the Framework CTMP provides a summary of the mechanisms that will be implemented to maximise compliance with the CTMP.

6.2 Good Practice

6.2.1 The Applicant will use internal management procedures to maximise compliance and its enforcement with the requirements of the detailed CTMP, including:

a. Contractor kick-off meetings: contractors will be reminded of the Applicant's standards and expectations as set out in contract documentation.

b. Site induction: drivers will be briefed on the aims and objectives of the CTMP, including the booking system, designated routes and expected driver behaviour. A copy of the CTMP will be provided to each contractor to provide details of how the Solar PV Site will be managed as well as the rules and regulations.

c. Reporting: incidents of non-compliance will be investigated within the CTMP. Reports from each incident will be raised and shared with the relevant contractor. The CTMP will be updated where necessary to resolve any ongoing issues.

6.3 Contractual Conditions

6.3.1 Each contractor will be provided with a contract setting out their contractual requirements in terms of compliance with this Framework CTMP upon appointment. A copy of the Framework CTMP will be provided along with details of the agreed routing strategy for HGVs to ensure that this route is followed.

6.4 Information Packs and Communications

6.4.1 Information packs will be provided to all contractors once they have been confirmed. The information pack will form part of the agreement between the Applicant and the designated contractors. The information pack will include details of the following:

a. Code of Good Practice;

b. Details of the Traffic Safety Control Officer;

c. Delivery routing restrictions;

d. Worker routing;

e. Emergency procedures;

f. Non-compliance guidance; and

g. Complaint procedures.

6.5 Enforcement

6.5.1 The Applicant will take all reasonable steps to avoid any breach of the detailed CTMP through the implementation of the management measures. However, should any breaches occur, then enforcement procedures will be followed:

a. The Traffic Safety Control Officer will notify the Applicant of any breaches of the detailed CTMP arrangements as and when they occur.

b. The Applicant will issue a warning letter to the relevant contractor outlining what action would be taken in the event of any further non-compliance (in general terms).

c. The Applicant will report the details of the response to the Traffic Safety Control Officer as part of the monitoring report. The monitoring report will be made available to the relevant local planning authorities and relevant highway authorities at their request to ensure compliance and to demonstrate that action is being taken where necessary.

6.5.2 Further detail on the sanctions which could be applied will be included within the detailed CTMP for the Solar PV Site.

7. References

Ref. 1 HMSO (2003). Road Vehicle Authorisation of Special Types Order.

Abbreviations

Abbreviation/Term	Meaning
AIL	Abnormal Indivisible Load
ANPR	Automatic Number Plate Recognition
BESS	Battery Energy Storage System
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DMS	Delivery Management System
GPS	Global Positioning System
ha	Hectares
HGV	Heavy Goods Vehicle
HDD	Horizontal Directional Drilling
IDB	Internal Drainage Board
kV	Kilovolt
LGV	Light Goods Vehicle
MW	Megawatts
NETS	National Electricity Transmission System
PRoW	Public Rights of Way
SRN	Strategic Road Network
TMMS	Traffic Management and Monitoring System

Annex A Proposed Access Layouts, Visibility Splays and Swept Paths

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