



# Lime Down Solar Farm

TRANSPORT: Report on behalf of  
Stop Lime Down (SLD)

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## 1 INTRODUCTION

- 1.1 Railton TPC Ltd has been commissioned by Stop Lime Down (SLD) to prepare a report for submission to the Examining Authority with regard to the transport and highways impacts during construction of the proposed development of five solar sites (Lime Down A, B, C, D and E), a battery energy storage system (BESS) and a 22km cable connection to the electricity substation at Melksham.
- 1.2 The author is Director of Railton TPC Ltd who has worked for 35 years in the transport planning industry. He is a member of the Chartered Institution of Highways and Transportation (MCIHT). He has dealt with highways and transport matters for a wide range of development types from local to strategic scale. He has given evidence at informal hearings and public inquiries, participated in Local Plan Inquiries and examinations of Nationally Significant Infrastructure Projects (NSIPs).
- 1.3 The opinions expressed are the author's true and professional opinions. In providing expert evidence to the Examination, he is fully fully aware that his duty is to provide his honestly held professional view, irrespective of by whom he is employed.
- 1.4 The author has met with a number of representatives of the local communities affected by the project and has undertaken a number of site visits to both the solar array areas and the cable route.
- 1.5 Relevant national policy is set out in the Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security and Net Zero, November 2023) and the National Policy Statement for Renewable Energy Infrastructure (EN-3) (Department for Energy Security and Net Zero, January 2024). Paragraph 5.14.21 of EN-1 sets out the key policy considerations relating to transport against which the concerns set out below should be judged:
- '5.14.21 The Secretary of State should only consider refusing development on highways grounds if there would be an unacceptable impact on highway safety, residual cumulative impacts on the road network would be severe, or it does not show how consideration has been given to the provision of adequate active public or shared transport access and provision.'*
- 1.6 The assessments are informed by the Institute of Environmental Management and Assessment (IEMA) Guidelines (July 2023), now known as the Institute of Sustainability and Environmental Professionals (ISEP) Guidelines.
- 1.7 The following sections set out a number of concerns relating to matters of highway safety, community severance and non-motorised user amenity:

- 1.8 **Section 2** assesses the impact of the development on the rural lanes that are proposed to be used as access routes for construction HGVs.
- 1.9 **Section 3** reviews the safety and adequacy of the proposed access points.
- 1.10 **Section 4** considers the assumptions that have been made to identify numbers of construction HGVs and presents a revised assessment and an examination of the potential for HGV numbers to be affected by changes in the scheme assumptions.
- 1.11 **Section 5** considers the magnitude of impact of construction traffic across the network and identifies areas where the applicant has under-estimated impacts.
- 1.12 **Section 6** considers the proposed arrangements for Abnormal Indivisible Loads (AILs)
- 1.13 **Section 7** considers the impact of the proposals on vulnerable highway users (pedestrians, cyclists and equestrians).
- 1.14 **Section 8** considers the impact on villages affected by construction traffic.
- 1.15 **Section 9** assesses the potential impact of construction accesses on the A420 and A4.
- 1.16 **Section 10** considers the impact of construction traffic on the Cotswolds National Landscape.
- 1.17 **Section 11** provides a summary of the results of a revised transport environmental impact assessment.
- 1.18 **Section 12** raises concerns about the adequacy of the assessment of the highway safety implications of glint and glare from the solar arrays.
- 1.19 **Section 13** provides a summary and conclusion.
- 1.20 The following documents are referenced in this report:
- **APP-007**: 2.3 Works Plan;
  - **APP-055**: 6.1 Environmental Statement Volume 1, Chapter 3 The Scheme;
  - **APP-059**: 6.1 Environmental Statement Volume 1, Chapter 7 Climate Change;
  - **APP-060**: 6.1 Environmental Statement Volume 1, Chapter 8 Landscape and Visual;
  - **APP-064**: 6.1 Environmental Statement Volume 1, Chapter 12 Cultural Heritage;
  - **APP-065**: 6.1 Environmental Statement Volume 1, Chapter 13 Transport and Access;

- **App-081:** 6.2 Indicative Site Layout Plan;
- **APP-183:** 6.3 Cable Route Construction Method Statement;
- **APP-233:** 6.3 Environmental Statement Volume 3, Appendix 13-1 Transport Assessment (TA);
- **APP-280:** 7.15 Outline Soil Resource Management Plan
- **APP-287:** 7.22 Outline Construction Traffic Management Plan (CTMP).

## 2 IMPACT ON RURAL LANES

### Use of Rural Lanes by Construction Vehicles

- 2.1 The ISEP Guidelines identify vulnerable groups and routes with road safety concerns as requiring consideration when defining sensitive receptors (ISEP Guidelines para. 1.30). These would include the narrow rural lanes that are proposed to be used to reach site access points. As will be shown in the following paragraphs and sections, the primary reason for narrow rural lanes being sensitive to their use by HGVs relates to highway safety. Safety concerns relate to other drivers and to vulnerable groups such as pedestrians, cyclists and equestrians who use these lanes. **Section 7** below focuses on impacts on pedestrians, cyclists and equestrians.
- 2.2 Paragraph 5.14.21 of EN-1 identifies an unacceptable impact on highway safety as a reason to consider refusal of an application. It is therefore important to ensure that highways safety matters are properly and reliably assessed.

### Applicant's Assessment of Sensitivity of Rural Lane

- 2.3 The applicant has identified the sensitivity of the proposed construction routes in Tables 13-4 and 13-5 of the Transport Chapter.
- 2.4 The 'Additional Explanation' column of these tables fails to identify width or standard of a link as affecting its sensitivity. Indeed, the only characteristics of links used to define sensitivity are whether a link passes through the National Landscape (NL) and the presence of a conservation area.
- 2.5 The following links constitute rural lanes of insufficient width to allow two HGVs to pass:
- Alderton Road;
  - Fosse Way;
  - Road East of Hullavington and Bradfield Cottages;
  - Road between Fosse Way and Sherston;
  - Unnamed Road, Sevington;
  - Neeld Court;
  - Fowlswick Lane;
  - Chippenham Lane;
  - Stowell Lane
  - Corsham Road.
- 2.6 The section of the Transport Chapter that described the roads comprising the access routes (paras. 13.7.18 to 13.7.54) make no mention of the available carriageway width

despite this having a very important influence on whether the links are suitable to accommodate HGVs.

- 2.7 It is concluded that the methodology that has been adopted by the applicant fails to recognise the sensitivity of rural lanes. As a result, the sensitivity of such lanes has been under-assessed.

## Sensitivity of Rural Lanes to Construction Traffic

### Ability of Vehicles to Pass

- 2.8 Below a certain width, HGVs are unable to pass each other within the available carriageway. Figure 7.1 of Manual for Streets (MfS) (DfT, 2007) shows that two HGVs are able to pass each other on a 5.5m carriageway. In practice this could only be undertaken at slow speed to avoid a very high risk of collision. The standard width of an HGV is 2.55m excluding wing mirrors. Given that the vehicles must allow some clearance between themselves and the edge of the carriageway and between themselves and another vehicle, it is evident that at widths less than 5.5m HGVs are forced to either mount adjacent verges or footways or one vehicle must reverse to a point where the width is sufficient for passing. This is a highly dangerous manoeuvre, particularly in the presence of sharp bends bordered by trees, vegetation or structures that limit forward visibility and in situations where vehicles are moving at higher speeds.
- 2.9 It is possible to provide passing places for HGVs but these need to be of sufficient size to allow an HGV to successfully pull across to allow another HGV to pass. A typical HGV passing place has a length of around 25m with a 1.0m verge. Inter-visibility would need to be provided to ensure that no HGV passes a passing place and is then confronted by an oncoming HGV that does not, itself have an opportunity to use a passing place. On narrow, winding country lanes inter-visibility is often highly constrained and passing places need to be closely spaced. The applicant's assessment of inter-visibility is discussed further below.
- 2.10 The Design Manual for Roads and Bridges (DMRB) provides standards for motorways and all-purpose trunk roads and is often referred to in the context of local roads. A standard lane width suitable for all traffic is 3.65m. This would give a total carriageway width of 7.3m, a standard that is often adopted for roads expected to carry significant numbers of HGVs. There are, however, many instances where narrower roads are able to accommodate HGVs.

2.11 The HS2 Design Approach Statement<sup>1</sup> confronts the issue of traffic using minor rural roads, a situation comparable with that being considered at Lime Down. The Statement notes at paragraph A.1.1 that *'in many cases, published design standards are not fully relevant to rural roads (especially minor ones'*. It goes on to explain at paragraph A.1.5 that:

*'A set of design criteria have therefore been developed for works on rural roads where no other design basis is suitable, and it is intended to provide a safe, consistent and proportionate approach to help ensure that the character and distinctiveness of such routes is retained as far as is reasonable [sic] practicable'*. (HS2 Design Approach Statement – Road, para. A.1.5)

2.12 The HS2 Design Approach Statement adopts the approach of identifying mandatory requirements in black boxes. Carriageway width for new two-lane roads to replace existing rural roads is dealt with in paragraph A.6.3 (which appears in a black box). It states: Paragraph A.6.3 states:

*'Rural road widths for diversions should generally match the existing, subject to a minimum of 5.5 metres (the minimum for two cars to pass in safety at low speed). This minimum width shall be increased to 6.0 metres for lengths with occasional use by buses or heavy goods vehicles and 6.8 metres for roads where buses or heavy goods vehicles are likely to pass each other on a regular basis'*. (HS2 Design Approach Statement – Roads, para. A.6.3)

2.13 The guidance identifies 5.5m as a minimum with 6.0m appropriate to accommodate occasional larger vehicles and 6.8m when heavy vehicles are likely to meet.

2.14 Rural lanes are therefore often unsuitable for use by HGVs because they often cannot physically and safely accommodate the regular passage of larger vehicles. The applicant does not use road width to inform the categorisation of link sensitivity (see Table 13-4 of Transport Chapter). As a result, the sensitivity of links which do not meet this standard has been under-assessed.

## ISEP Guidelines

2.15 The ISEP Guidelines identify pedestrians, cyclists and equestrians as groups susceptible to changes in traffic flows and the applicant quotes this element of the ISEP Guidelines at paragraph 13.6.20 of the Transport Chapter. However, despite this, the applicant fails to consider the impact of construction traffic on vulnerable users on country lanes and instead concludes that narrow country lanes do not constitute sensitive receptors: *'B Roads and any unnumbered/unclassified roads away from residential areas are categorised as having low sensitivity'* (Paragraph 13.6.24 of the Transport Chapter).

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1 HS2 Design Approach Statement- Roads, 17 July 2012

2.16 The ISEP Guidelines stress the importance of professional judgement in identifying and assessing potential impacts. Paragraph 2.13 states:

*'Early engagement with relevant stakeholders is recommended to benefit from local knowledge and understand key sensitivities.'* (ISEP Guidelines, para. 2.13)

2.17 Evidence is set out below to show that local residents and groups have expressed concern over the potential adverse impacts of using rural lanes to access construction sites.

2.18 Paragraph 3.4 of the ISEP Guidelines makes it clear that appropriate thought should be given to the types of impact that could result from a development:

*'This list [of categories of potential impact] is not exhaustive, however, and further specific aspects can be added to by the competent traffic and movement expert during EIA scoping if appropriate'* (ISEP Guidelines, para. 3.4)

2.19 The potential impacts described above should have been considered by the applicant. The implications of the applicant's failure to recognise the sensitivity of rural lanes to construction vehicles are discussed further below.

### Magnitude of Impact on Rural Lanes

2.20 The following paragraph sets out the applicant's approach to assessing the magnitude of impact identified for the rural lanes used to provide access to the solar array areas:

*'Smaller, rural roads will see a higher percentage increase in daily traffic flows. However, these typically have low baseline traffic flows and still have sufficient capacity to accommodate the anticipated trips.'* (TA, para. 1.9.8)

2.21 The applicant dismisses high percentage increases in HGVs on some rural lanes on the basis of low existing HGV flows without considering the potential importance of the absolute levels of increase in HGV flows. It also appears that the applicant bases the judgement of magnitude of impact on the basis of the *capacity* of the roads. As has been explained above and will be expanded below, it is safety rather than capacity that is the key issue in this situation.

### Proposed HGV Booking System

2.22 Despite dismissing high magnitudes of HGV increase on rural lanes, the applicant suggests that a booking system will be used to avoid HGVs meeting. This is not identified as embedded mitigation in the Transport Chapter of the ES but is described in the oCTMP:

*'All deliveries will be scheduled in advance using a booking system. Drivers will be instructed to stop in an appropriate lay-by or service station and make contact if they are likely to miss their allotted slot to allow the schedule to be adapted in as much as possible [sic]. The intention of this procedure is to avoid instances of HGVs passing each other in opposite directions on the local roads surrounding the Site'. (oCTMP, para. 4.7.2)*

2.23 Paragraph 1.8.6 of the TA states that, *'As HGV arrivals and departures will be managed through a booking system, it is unlikely that HGVs will cross each other on the local highway network'*.

2.24 The extent of the challenge of achieving this level of coordination is significant. The applicant's own calculations indicate around one HGV every 12 minutes in each direction on individual access routes over seven hour working days (see below). This, and the distances travelled on rural lanes suggests that the system would need to be managed extremely efficiently. The system would be made even more complex since there will be multiple construction sites operating at any one time. It is likely that the applicant would be unable to secure this arrangement and that is relevant in properly assessing this approach to managing effects.

2.25 Notwithstanding the difficulties associated with managing construction vehicles, the applicant will, in any event, have no control over the movement of other large vehicles that use the local highway network. Whereas a bus or HGV or agricultural equipment would rarely meet another large vehicle at present, the chances of them meeting a construction HGV would be high.

### Duration of Construction

2.26 The applicant considers that a short-term effect is one that will be experienced for 0-5 years (para. 13.6.35 of Transport Chapter). No justification for this is provided.

2.27 There is no definitive advice as to what constitutes short-, medium- and long-term environmental impacts. Examples can be found of short-term representing between one and seven years and other examples of short-term representing anything between a few days up to a year.

2.28 It is necessary to consider the nature of the impact when deciding on the appropriate method of defining duration. Some environmental impacts are gradual and cumulative. The highway safety issue arising from HGVs using narrow rural lanes does not fall within this category of impact. Collisions between vehicles and collisions between vehicles and vulnerable highway users are sudden and

potentially serious or fatal. The applicant's approach suggests that there is no difference between a highway safety risk that lasts for a few days and one that lasts for 5 years. This is neither methodologically correct nor ethically justifiable.

2.29 It is therefore considered that the application of 'short-term' to down-play the significance of highway safety risks arising from the use of narrow rural lanes by construction HGVs is not justifiable. Were effects properly to be assessed, given the particular concerns identified above, it is likely there would be a considerable uplift in the significance of highway safety risks.

### Solar Array Areas

2.30 **Figures 1-3** illustrate some of the key transport areas of concern during construction.

2.31 **Figure 1** identifies those sections of construction routes that are generally below 5.5m in width. As described above, HGVs cannot safely pass each other on roads less than 5.5m in width.

2.32 The narrow sections of road that are proposed to be used as access routes extend for significant distances. A width of 5.5m or less would not only put HGV drivers at risk but also existing drivers and vulnerable highway users (see further details below) and would lead to severe damage to carriageway margins including verges, embankments and roadside vegetation.

2.33 The applicant's assessments as set out in Annex H of the TA (APP-233) are deficient in this respect since they only consider the ability of an HGV to pass a waiting car along sections of the construction routes. It is not reasonable for the applicant to assume that it will be possible to prevent construction HGVs meeting each other or existing heavy vehicles along the construction routes; the distances and the numbers of HGVs are too great. The applicant has not, therefore, assessed a reasonable worst-case in relation to vehicle conflict and the assessments do not, therefore, comply with Policy EN-1.

2.34 **Figure 1** identifies sections of rural lanes that are less than 5.5m in width. The areas include the Fosse Way, Alderton Road south of the Fosse Way, the road to Sherston north-west of the Fosse Way, the road east of Hullavington, lanes south-west of Rodbourne, the road through Grittleton and the road to the south of Grittleton.

2.35 It is not only the width of the country lanes that raises concerns. Forward visibility is highly constrained in places due to tight bends and hedgerows, trees and other structures located close to the carriageway edge. The sections of road east and north of Hullavington are particularly sensitive in this respect. Drivers would be unaware of an oncoming HGV until part-way around a bend. Since the carriageway is less than 5.5m

in places and HGVs are likely to take up additional road width around bends, this is a highly dangerous situation.

- 2.36 The lanes to the south and west of Rodbourne (Area E) are extremely narrow and will require widening as well as being provided with HGV passing places. The railway bridge south of Rodbourne has a sharp crest that limits forward visibility and is likely to require shuttle working, coupled with widening both sides of the bridge to accommodate waiting HGVs. The steep embankments on the southern side raise serious concerns about the ability to introduce a safe and effective arrangement.
- 2.37 The applicant states, '*On narrower sections of the highway, temporary pass-by bays will be created within the Highway Improvement Areas*' (para. 1.8.6). The Highway Improvement Areas do not include most of the section of the Fosse Way that is proposed to be used, much of the road to Sherston north-west of the Fosse Way, the road east of Hullavington, the road through Grittleton and the road south of Grittleton. The applicant therefore fails to even offer the opportunity of implementing works that would improve the ability of HGVs to pass each other along these highly constrained routes. An HGV meeting an oncoming HGV on a narrow section of rural lane with no verges, such as that east of Hullavington and at Bradfield Cottages would have no choice but to reverse to a point where the lane widened. A vehicle reversing along a lane where forward visibility is limited, as is the case on this link constitutes a significant highway risk to drivers behind.
- 2.38 The applicant suggests that passing bays could be introduced within the Highway Improvement Areas (TA, para. 1.8.6). In many areas, the ability to deliver passing bays of sufficient size to accommodate an HGV (likely to be at least 25m in length including tapers allowing access into and out of the bay<sup>2</sup>) is constrained by roadside vegetation, ditches and embankments. If the applicant were to seek to introduce a series of passing bays, the impacts in terms of vegetation removal, culverts/waterways and landscape could be significant. It is likely that most of the lanes south-west of Rodbourne will need to be widened in addition to providing passing places. The low standard of the lanes suggests that the extent of highway works could be substantial. There has been no assessment made of either the ability to deliver this widening or the impact of such works. In this respect, the assessments do not meet the requirement of a reasonable worst case.
- 2.39 Other features indicated on **Figure 1** will be discussed in other sections below.

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<sup>2</sup> An example of an HGV passing bay recently introduced can be seen on the unnamed road to Sevington/Leigh Delamere just east of the The Street.

## Cable Route

- 2.40 Despite the applicant estimating that the construction of the cable route will generate 77% of the HGVs predicted to be generated by the construction of the solar array areas (see below), very little work has been undertaken to assess the ability of the local highway network to safely accommodate construction traffic.
- 2.41 **Figures 2 and 3** identify a number highways concerns relating to the cable route corridor.
- 2.42 **Figure 2** identifies a section of Fowlswick Lane (Access 109) that is less than 5.0m in width in places and sections of Chippenham Lane that are as little as 3.4m in width. The lane to the south of Chippenham Lane (Access 114) is also less than 5.0m in width in places.
- 2.43 These sections of highway are not designated as Highway Improvement Areas and there has been no assessment of the ability of vehicles to pass each other.
- 2.44 **Figure 3** indicates that the unnamed lane south of the A4, the unnamed lane north of the railway crossing (Accesses 118 and 119) and sections of Corsham Road are also less than 5.5m in width
- 2.45 The applicant suggests that each cable route access point will receive 4 HGV deliveries per day. This, however, overlooks the fact that HGV deliveries will be concentrated at those access points where compounds are proposed. The following table lists the access points at compound locations and identifies the key transport constraints at each location:

**Table 1: Cable Route Compound Access Points and Constraints**

Access	Location	Constraints/impacts
101, 102	East of Grittleton	Increased impact on Grittleton village
109	Fowlswick Lane	Narrow lane and poor visibility at access
114	Lane south of Sheldon	Narrow Lane and impact on Sheldon village
121, 122	South of railway, east of Corsham	Narrow lane and blind summit to the east
126, 127	Substation site	Poor visibility

- 2.46 Rather than 'spreading' the impact of construction vehicles over 29 separate access points, it is likely that the majority of HGV movements will be to five locations.
- 2.47 The implications of the compound east of Grittleton village are discussed below.

- 2.48 The Fowlswick Lane compound access suffers from Fowlswick Lane being less than 5.0m in places. The deficient visibility at the access junction is discussed further below.
- 2.49 The compound access south of Sheldon is difficult to access due to the substandard width of both the unnamed lane on which the access is located and Chippenham Lane that connects with the A420.
- 2.50 The compound south of the railway (east of Corsham) suffers from Corsham Road being insufficiently wide to accommodate two-way HGVs and the blind railway bridge summit on the route to the east.
- 2.51 The substation compound accesses suffer from poor visibility. This is discussed further below.
- 2.52 An assessment of the work that has been undertaken with regard to the cable route reveals that no consideration has been given to the constraints arising from the use of narrow rural lanes and the implications of HGV movements being concentrated at those access points adjacent to compounds.

### Conclusion on Rural Lanes

- 2.53 The applicant's assessment of transport environmental impacts is deficient as it fails to recognise the sensitivity of narrow rural lanes to increases in HGV movements and it underplays the magnitude of impact of construction vehicles on the most sensitive areas.
- 2.54 Examination of the construction access strategy reveals that many construction vehicle routes are not of a standard capable of safely accommodating construction traffic. The applicant's proposed Highway Improvement Areas exclude many of the most sensitive highway links in both the solar array and cable route areas. Where improvements could be identified at a later stage, a reasonable worst case environmental impact is not assessed.
- 2.55 **Sections 4 and 5** below shows that the magnitude of impact is likely to be higher than that suggested by the applicant. **Section 7** considers the sensitivity of pedestrians, cyclists and equestrians to construction traffic. **Section 11** summarises the implications with regards to the significance of adverse transport impacts.

### 3 REVIEW OF ACCESS POINTS

#### Proposed Access Points

- 3.1 The proposed access points have been reviewed. **Appendix 1** contains a summary of this review.
- 3.2 A total of 56 access points are proposed.
- 3.3 There are many instances where drivers leaving the sites do not have sufficient visibility to approaching vehicles to be able to safely pull out onto the highway. There are 24 instances where the applicant is proposing the use of a banksman to overcome these visibility deficiencies. An alternative approach, in some instances would be to remove roadside vegetation and trees to improve visibility splays.
- 3.4 The applicant provides no details of how banksmen are intended to be used to compensate for sub-standard visibility. The following are extracts from appeal decisions where the inspectors point out some of the problems associated with reliance on banksmen:
- ‘The presence of a banksman is a clear proposal before me, and it would partially mitigate the articulated lorry driver’s restricted visibility and serve as an additional safeguard by alerting other highway users. However, the reliance on a banksman positioned within the highway to assist with the manoeuvre would bring with it some inherent risks to the banksman’s own safety. I find it to be a very compromised solution, one which would not act as a suitable substitute for a safer forward-gear egress and, overall, a proposed solution insufficiently robust to address my concerns’. (para. 11 of APP/U2750/W/25/3371455 Decision Notice, 01/12/2025)*
- ‘The [Construction Logistics Plan] states that a full-time banksman/traffic marshal will be available and in attendance to safely supervise vehicles, however no substantive details as to how this would operate have been provided. I cannot therefore be sure that this would sufficiently mitigate the risk to the safety of pedestrians and vehicles utilising the car park’. (para. 15 of APP/M5450/W/25/3361443 Decision Notice, 28/11/2025)*
- 3.5 It is clearly the view of these Inspectors that unless a very clear statement is provided of how a banksman can overcome highway safety concerns, the approach cannot provide certainty and may, on the contrary, introduce new highway safety concerns by requiring the banksman to be present on the highway or in areas where there is risk to their safety. In most instances identified by the applicant, there are no footways present and the banksman may be required to cross a road where there is limited visibility so as to be able to see further than the driver of the manoeuvring vehicle. In such circumstances

the use of a banksman is unlikely to eliminate highway risk, however the arrangement is managed.

3.6 The applicant has not identified the amount of roadside vegetation and trees that would be required to be removed to achieve safe visibility splays and remove the need for banksmen. Since the acceptability of the widespread use of banksmen is not certain, a reasonable worst case for assessment would include the removal of roadside vegetation and trees to allow safe visibility splays. The applicant has not assessed this reasonable worst case.

3.7 The following locations are deemed particularly problematic:

- **Access 4** (Junction of Fosse Way with Road to Sherston): This cross-roads junction has poor visibility in both north-west and south-east directions. There is no single location where a banksman could stand in order to see sufficiently far along the road to Sherston and the road to Norton to be able to provide an egressing driver with the information they need to turn out of the northern part of the Fosse Way safely. There is no verge on the northern side of the lane to Norton where a banksman would need to stand in order to see vehicles approaching from Norton. If a banksman could not be used, significant roadside vegetation would need to be removed on both sides of the junction to achieve safe visibility splays.
- **Access 9** (lane opposite turning to Hullavington village): It is not clear how a banksman could be positioned so as to be able to see vehicles approaching from the south-east where visibility is constrained by bends in the road. A banksman standing on the north-east side of the road, away from the junction where visibility to approaching vehicles is better has little or no verge in which to stand;
- **Accesses 101 and 102** (east of Grittleton): The impact on roadside vegetation would be significant if the use of a banksman were not deemed safe at this location;
- **Access 109** (Fowlswick Lane): The proposed access suffers from extremely constrained visibility to the north-east around a sharp bend with dense vegetation close to the inside of the bend. It is not clear how a banksman would be able to see around the bend sufficiently to allow them to advise a driver of a safe time to pull out. There are no verges along this section of Fowlswick Lane and a banksman would be at risk if they stood on the highway;
- **Accesses 110 and 111** (A420): The A420 is a very busy road carrying fast-moving traffic. The use of banksmen in high speed vehicle environments is not

recommended. The consequences of a lapse in concentration, the temporary absence of the banksman or a delayed response to a signal could be extremely serious;

- **Accesses 118 to 122** (railway crossing east of Corsham): There are five access points proposed within a 200m area at a complex junction arrangement (5 roads meeting). The potential for confusion and risk in this situation is significant;
- **Accesses 123 and 124** (north-east of Gastard): This is a very busy road. A banksman on the northern side of the road would be standing on a very narrow, sloping verge. If a banksman were deemed inappropriate in this location it would be impossible to achieve safe visibility splays without very significant impacts on roadside vegetation, trees and structures;
- **Access 125** (west side of B3353): This road carries fast-moving traffic (particularly in a southbound direction where vehicles are travelling downhill around a bend) and is unsuitable for banksman control. It is not clear how a banksman could be safely positioned so as to safely advise emerging drivers when to pull out.

3.8 It is concluded from an examination of the road environment at the proposed access points that the proposed access strategy is not safe and the potential environmental impacts of achieving safe visibility splays has not been assessed.

### Other Junctions

- 3.9 The proposed construction routes require the use of other junctions on the highway network that have not been assessed for their ability to safely accommodate construction vehicles.
- 3.10 **Figure 1** identifies two junctions south of Grittleton where visibility is very poor. The more northerly junction (Neeld Court) has very poor visibility to the north due to the presence of a dry stone wall. The more southerly junction also has poor visibility to the north due to a bend in the road and an embankment. Traffic approaching from this direction is travelling downhill at speed. Neither of these junctions provides safe visibility splays and there are therefore road safety concerns related to the intensification of their use during construction.
- 3.11 **Figure 2** indicates that the junction of Cromhall Lane with The Street that is on the route to Access 107 has poor visibility in both directions. There are therefore highway safety concerns related to the intensification of its use during the construction period.

## 4 UNDER-ESTIMATE OF HGV TRIP GENERATION

### Policy Context

- 4.1 Paragraph 4.3.12 of the Overarching National Policy Statement for Energy (EN-1) states:

*‘Where some details are still to be finalised, the ES should, to the best of the applicant’s knowledge, assess the likely worst-case environmental, social and economic effects of the proposed development to ensure that the impacts of the project as it may be constructed have been properly assessed’. (EN-1, para. 4.3.12)*

- 4.2 This paragraph is supported by a footnote that outlines relevant case law with reference to the Rochdale Envelope:

*Case law, beginning with R v Rochdale MBC Ex p. Tew [2000] Env.L.R.1 establishes that while it is not necessary or possible in every case to specify the precise details of development, the information contained in the ES should be sufficient to fully assess the project’s impact on the environment and establish clearly defined worst case parameters for the assessment. This is sometimes known as ‘the Rochdale Envelope’. (EN-1, footnote 106)*

- 4.3 The applicant is under an obligation to assess the likely worst-case situation, particularly if there is uncertainty about the possible outcomes.

### Assumptions Underlying HGV Trip Generation

- 4.4 This section considers the applicant’s predictions of HGV movements<sup>3</sup> during construction within this policy context. The table in **Appendix 2** contains a summary of the key determinants of HGV movements during construction, the assumptions that have been made by the applicant and comments on the degree to which these conform to a likely worst case. The final column identifies revised assumptions based on the evidence that is available. The assumptions set out in the final column have been used to undertake an assessment of solar array HGV construction trip generation that is reported below.
- 4.5 The applicant, in response to Relevant Representations, has suggested that further information will be submitted on construction vehicle trip generation. Should this be forthcoming, SLD reserves its right to comment.
- 4.6 The following paragraphs consider the key elements of construction.

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3 Throughout this report an HGV **delivery** refers to a single vehicle that makes an inbound movement (or trip) when arriving and then an outbound movement (or trip) when leaving. A **delivery** is therefore equivalent to **two** HGV movements (or trips) on the external highway network. Comparisons, in this report, are made between numbers of HGV **movements** (or trips). Delivery numbers, when referenced, are therefore doubled.

### PV Module Deliveries

- 4.7 Annex E of the TA (APP-233) identifies 1,178 HGV deliveries associated with solar modules. Paragraph 7.10.11 of the Climate Change Chapter (APP-059) states that the total number of modules is expected to be 598,260. Paragraph 7.10.13 of the Climate Change Chapter suggests the mass of each module would be 38.3kg. These figures suggest that the load per HGV would be a little under 20 tonnes. This load per HGV is high but not unreasonable.
- 4.8 Each module is expected to have a surface area of 3.10m<sup>2</sup> (1.3m x 2.4m)<sup>4</sup>. The total of 598,260 modules would therefore have a combined area of 185.5 ha. The dimensions and spacing of rows of modules suggest that empty space between rows of modules would add 55.5% additional space to the module areas<sup>5</sup>. The total area of modules plus space between modules would therefore be 289 ha (185.5 ha + 55%).
- 4.9 The total area of the site containing modules (Work No. 1) is given as 748 ha<sup>6</sup>. This would mean that 38.6% of the Work No. 1 area would be covered with modules (289 ha/748 ha x 100%).
- 4.10 The Works Plan (APP-007) shows Works No. 1 areas module areas as blue hatched areas. Within this area, solid blue shaded areas contain solar modules, combiner DC boxes, conversion units and cabling<sup>7</sup>. The majority of Works No. 1 area would be expected to comprise solar modules. If the applicant's calculations are correct, less than 40% of Works No. 1 would be shaded solid blue when compared to the total blue hatched area. This does not appear to be the case with the solid blue areas comprising, in most areas, well in excess of the blue hatched areas (i.e. there is greater area covered with modules than not).
- 4.11 On this basis it is concluded that the applicant may have under-estimated the number of modules that will be required and has therefore also under-estimated the number of HGV movements associated with the delivery of modules. A reasonable worst case assessment of solar panel deliveries requires a worst case assumption regarding the density of panels within the solar array areas.

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4 See para. 7.10.15 of Climate Change Chapter (APP-059)

5 Table 3-1 of Chapter 3 The Scheme (APP-055) suggests maximum height of panels is 4.5m and the separation between rows is 2.5m. 2.5m represents 55.5% of 4.5m.

6 See para. 3.2.8 of ES Chapter 3 The Scheme (APP-055)

7 See Section 2 of Schedule 1 of Draft DCO Order.

4.12 An assessment has been made of the number of HGV deliveries made per hectare of the Works No. 1 area identified in relation to a number of other consented solar sites where information is available from the Planning Inspectorate’s website on both the number of HGV deliveries associated with the solar areas and the Works No. 1 area itself. The following table summarises the results:

**Table 2: Ratios of HGV Deliveries to Solar Array Areas**

Site	Works No. 1 Area/ha	HGV Deliveries*	Ratio (HGVs/ha)
West Burton**	734	3,280	4.47
Botley West	839	7,423	8.85
Cottam**	897	4,320	4.81
Green Hill**	1,157	2,817	2.43**
Heckington Fen	292	2,400	8.22
<b>Average</b>			<b>5.76</b>
Lime Down	748	1,740	2.33

\* includes both solar panels and mounting structures

\*\* Green Hill, West Burton and Cottam are Island Green Power schemes as is Lime Down

4.13 It can be seen that the assumption for Lime Down is the lowest of all the sites where relevant information is available. The Lime Down figure is less than half of the average for the other sites. There may be reasons that explain why Lime Down is predicted to generate HGVs at such a low rate but the applicant has not made these available. It therefore appears that there is a risk that a likely worst case has not been assessed.

4.14 The revised assumption that has been made is that there would be 5.76 HGVs/ha of Works No. 1 area.

Solar Module Mounting Structures

4.15 The applicant allows for 506 HGV deliveries for module mounting structures. Table 3-1 of Chapter 3 The Scheme suggests that mounting structures include both the frames containing the modules and the foundations supporting the structures.

4.16 No information is provided that would allow an assessment to be made of the reasonableness of the estimate of 506 HGV deliveries set out in Annex E of the TA and elsewhere.

4.17 The HGV allowance for mounting structures is around 43% of the allowance for the modules themselves (1,178 HGV deliveries). Table 3-1 of Chapter 3 The Scheme

identifies either fixed or tracking systems with foundations comprising either metal posts driven up to 4m into the ground or, where there is potential for damage to underground structures or archaeology, concrete footings. A tracking system is likely to require more HGV movements than a fixed system and concrete footings will generate more HGV movements than metal piles.

4.18 SLD’s submissions on Heritage and Archaeology refer to geophysical and trial trenching evidence of prehistoric and Roman settlements in the solar array areas. This is perhaps not surprising given the scheme’s location, straddling the Fosse Way, one of the most important Roman roads in the country. There is therefore evidence to suggest that it would be reasonable to assume that methods of supporting solar panels that do not rely on piles that disturb underground archaeology would be necessary in some areas. This may require the import of significant quantities of concrete footings.

4.19 The following table summarises the number of HGVs assumed associated with the transport of mounting structures expressed as a percentage of the number of HGVs associated with the transport of solar panels at other consented sites where the applicant has distinguished between these two sources of construction transport:

**Table 3: Mounting Structures HGV Movements as Percentage of Solar Panel HGV Movements**

Site	Mounting Structures HGVs	Solar Panels HGVs	%
Botley West	3,182	4,241	75%
Green Hill	1,240	1,577	79%
Heckington Fen	900	1,500	60%
<b>Average</b>			<b>73%</b>
Lime Down	506	1,178	43%

4.20 The average of the three sites where the relevant information is available is the number of HGV movements associated with mounting structures being 73% of the number of HGVs associated with solar panels. For Lime Down the figure is 43%. The applicant needs to provide the assumptions that have been adopted and demonstrate that they are consistent with the requirement to undertake a worst-case assessment as set out in EN-1.

4.21 The method for identifying HGV movements associated with solar arrays includes an allowance for mounting structures so no additional allowance is made in the revised

calculation of HGVs. This does not, however, make any specific allowance for mounting structures that protect underground archaeology.

#### Waste

- 4.22 The applicant predicts 206 HGV visits to remove waste from the solar array areas during construction. This is based on 1,474,017kg of solar panel packaging and 589,607kg of mounting structure packaging and 10 tonne loads. The applicant assumes that this waste could be removed in 10 tonne loads. This is highly unlikely given the types of materials and the proportion of loads that would constitute void.
- 4.23 Table 20-7 of Chapter 20 lists anticipated types and amounts of waste from construction activities. These include 23,531m<sup>3</sup> of wood, plastic and paper and cardboard. The largest skip available has a capacity of around 27m<sup>3</sup>. It would require 872 of these skips to remove this volume of waste.
- 4.24 All compounds will generate general waste from office and welfare facilities. Although minimal in terms of overall volumes, there will be a requirement for large vehicles to remove this waste on a regular basis. The applicant's estimate of 206 HGVs would allow for only three HGVs per month per compound (9 compounds are expected to be operational for a total of 70 months). This would not even allow for weekly refuse and foul water removal.
- 4.25 Table 20-7 also identifies excavated soil as a waste type (see below) as well as construction material waste (5% of all materials used), general waste from offices and welfare, waste from maintenance activities and chemicals, batteries, solvents and oils.
- 4.26 The revised assumption is 872 HGVs for packaging waste plus two HGVs per week per compound while each compound is operational.

#### Skids/Power Stations

- 4.27 'Skids/power stations' do not appear in the scheme description. It is assumed that this refers to the 166 conversion units that comprise inverters (to convert direct current to alternating current), transformers (to step up voltage) and switch gear.
- 4.28 The scheme description identifies a typical integrated conversion unit as around the size of a shipping container and therefore requiring a single HGV delivery. On this basis the scheme would generate 166 HGV deliveries.
- 4.29 Table 3 of Chapter 3 states that integrated conversion units would sit on a '*A concrete foundation slab, strips or footings up to 16 m by 6 m and a levelling layer of aggregate with a maximum depth of 0.8 m, or a concrete plinth set onto the topsoil where non-*

*ground penetrative works are required*'. The aggregate alone would require around 8 deliveries. A total of 166 conversion units would require over 1,300 deliveries.

- 4.30 The revised assumption comprises one HGV per unit plus the HGVs associated with the foundations.

Cable (for PV Sites)

- 4.31 The applicant identifies 50 HGV deliveries associated with cable delivery. No justification is provided for this figure. No revised assumption is proposed for this element of construction.

Substation/BESS

- 4.32 The applicant allows for around 3,300 HGV deliveries associated with the '*Substation/BESS*'. Annex E of the TA indicates that this includes an allowance for both 132kV and 400kV substations. It is proposed to construct four 132kV substations.
- 4.33 The calculations in Annex E of the TA are based on areas that are significantly smaller than those set out in Table 3-1 and it is assumed that the surfacing over these areas has a depth of 0.3m. This is inadequate to support the heavy components and heavy machinery and equipment that would be involved in construction.
- 4.34 The applicant assumes a total of 94 HGVs to import all the structural and electrical equipment, fencing etc. for all the substations. This is entirely unreasonable.
- 4.35 Chapter 3, Scheme Description indicates that the 400kV substation and the BESS, together, would cover an area of 9.75 ha. Each 132kV substation is expected to have an area of 0.9 ha (100m x 90m) giving a total area of 3.6 ha. The combined area of substations and BESS is therefore 13.35 ha.
- 4.36 The BESS will be required to provide for the storage of fire water, necessitating a very large sealed concrete containment structure filled with gravel.
- 4.37 All of these elements include large quantities of electrical components and other structures that will generate significant numbers of HGV movements.
- 4.38 The revised assumptions are based on the areas set out in Table 3-1, allowance for concrete foundations for BESS units and parts of the substations, a greater depth of concrete/aggregate than assumed by the applicant and higher allowances for other deliveries. Details are provided in **Appendix 2**.
- 4.39 It should be noted that no specific allowance has been made, in these assumptions, for fire water retaining structures, other drainage infrastructure and acoustic fencing. These elements are considered further below.

#### Access Tracks

- 4.40 The applicant assumes 4,915 HGV deliveries associated with access tracks for the solar array areas. The applicant assumes no access tracks are removed at the end of the construction period and has made no allowance for widening of access tracks on bends or to allow vehicles to turn if this is necessary outside of compound areas.
- 4.41 The revised assumption is that the applicant's calculation of HGVs is adopted but with a 5% uplift to allow for widening and a 5% allowance for the removal of a small proportion of access tracks.

#### General (fencing, landscaping etc.)

- 4.42 The applicant estimates 2,685 HGV deliveries associated with the 'general' category. This, on the basis of the applicant's figures, constitutes 21% of total construction HGV deliveries. The applicant does not, however, provide any justification for the figure and it is not, therefore, possible to assess whether it represents a likely worst case.
- 4.43 No revised assumption is adopted for this element.

#### Allowance for Compounds

- 4.44 The applicant makes no allowance for the construction of compounds and their removal at the end of the construction period despite compound areas being included in Table 3-1 of Chapter 3 The Scheme (APP-055).
- 4.45 The scheme plans indicate that there would be a total of 9 compounds within the solar array areas and 7 along the cable route. All compounds will require site preparation, removal of top soil, the laying of a surface suitable to support HGV turning, storage areas, parking areas, water and fuel tanks, offices and welfare facilities, lighting, fencing and security. Compounds will generate HGV movements associated with the transport of materials and equipment and will also receive HGV movements throughout the period when they are operational to deliver potable water and fuel, remove grey water and waste. Waste movements have discussed above.
- 4.46 It is likely that compounds will require sufficient space to allow the turning of abnormal loads. The surfacing will need to be of sufficient depth and strength to support the weight of large equipment such as cranes, HGVs and abnormal load vehicles. Figure 3-2, '*Key Construction Phase Features*' suggests that compounds would have dimensions of at least 100m x 100m.
- 4.47 Compounds are likely be removed in their entirety at the end of the construction period.

4.48 The revised assumptions allow for the construction and removal of compounds with allowances for a range of associated items including welfare facilities, office, potable water delivery, sewerage/grey water removal, fuel delivery, plant and machinery, fencing and security.

#### Treatment of Topsoil

4.49 The scheme will include numerous construction activities that will displace topsoil. These include the following:

- access roads;
- foundations of conversion units, 132kV substation, 400kV substation and BESS;
- compounds;
- cable trench (volume of cables and sand bedding);
- topsoil stripping for ecological reasons (if required).

4.50 No areas are identified on the available plans to show where topsoil could be accommodated within the site. It is stated that '*Topsoil stripping would be required from areas proposed for access tracks, compound locations, the BESS, Conversion Units and all Substations*' (para. 1.7.1 of Outline Soil Resources Management Plan (APP-280)). If all this soil were to be transported off site, it would generate a very significant number of additional HGV movements.

4.51 In its response to Relevant Representations, the applicant states, '*There will be no site wide re-profiling required. It has been assumed that any excavated material will be reused on site. In the event of any spoil being taken off site, this will be undertaken by the same tippers used for incoming supply of aggregate*' (Response WC-178, page 243 of Applicant's Response to Relevant Representation (Part 1), EXAM/9.1). The proposal to use the same vehicles that deliver aggregate to remove topsoil does not constitute a worst case assessment despite it being highly likely that the companies that provide aggregate being unable and unwilling to undertake topsoil removal activities for practical, operational, economic, scheduling and contractual reasons in any event.

4.52 It is not known how the topsoil within the areas containing solar arrays will be managed. No details are provided in the ES. Should it be necessary to reduce the level of nutrients in the upper layer of the soil to support a desirable ecological regime, it may be necessary to strip and remove some depth of topsoil.

4.53 The revised assumption is that 5% of displaced topsoil from the solar array areas is transported off site.

### Highway Improvements

- 4.54 The applicant makes no allowance for the transport of equipment and materials associated with highway improvements. It is likely that off-site highways works and works associated with the numerous site access junctions would generate a significant number of additional HGV movements.
- 4.55 The revised assumption is that there would be 5 HGVs associated with works at each of the construction access points and 20 HGVs per area (A-E) associated with other off-site works such as road widening and the introduction of passing places.

### Drainage Infrastructure

- 4.56 No specific allowance has been made for drainage infrastructure despite elements of the scheme having the potential to significantly affect patterns of run-off.
- 4.57 The AIL Internal Access Road cross-section drawing included in Appendix 3-3 Illustrative Drawings shows a drainage ditch option with an accompanying note stating, '*For waterway slope >5%, ditch to be rock-filled, cemented or with geotextile to avoid erosion*'. Such works could generate significant additional HGV movements.
- 4.58 Chapter 11 states, '*BESS Area and substation areas are served by sealed, lined SuDS-based drainage systems with gravel sub-bases and automatically actuating isolation valves at outfalls. These systems are designed to contain and isolate contaminated run-off during emergency events*' (Chapter 11 para. 11.10.50). No allowance appears to have been made for these important features of the development.
- 4.59 No allowance has been made for additional drainage infrastructure in the revised assumptions.

### Acoustic Fencing

- 4.60 It is not clear whether any allowance has been made for the import of acoustic fencing and the associated support structures.
- 4.61 No allowance has been made for acoustic fencing in the revised assumptions.

## Revised Assessment of HGV Movements during Construction

### Solar Array Areas

- 4.62 The calculation of solar array HGV trip generation during construction based on the revised assumptions set out in **Appendix 2** and described above is attached as **Appendix 3**. The results of the initial assessment are summarised in the following table:

**Table 4: Results of Assessment of Construction Trip Generation (Solar Array Areas)**

	Total HGV Movements
Applicant	26,086
Revised Assessment	65,813
% difference	+152%

4.63 It can be seen that the application of the revised assumptions leads to the conclusion that the HGV trip generation associated with the construction of the solar array areas would be **well over double** the figure presented by the applicant. The applicant has not, therefore considered the potential impacts of a likely worst case situation with regards to construction HGVs.

4.64 Even this figure could be considered to fall short of the requirement to assess the likely worst case for the following reasons:

- No specific allowance is made for fire water retaining structures at the BESS;
- No allowance is made for other drainage infrastructure;
- The allowance for the removal of displaced topsoil is very modest;
- The allowance for the removal of access tracks after construction is very modest;
- No allowance is made for acoustic fencing;
- No allowance is made for the use of concrete block supports in place of metal piles, as may be required to protect archaeology and field drains.

#### Cable Route

4.65 The only information regarding HGV trips associated with the cable route corridor is set out in paragraph 3.3.1 of the CTMP (APP-287) that states that each of the 28 access points along the cable route would accommodate 4 HGV deliveries (8 HGV movements) per day. Paragraph 3.3.3 of the CTMP states that each access point is expected to be open for 90 days and there would be four cable route accesses open at any one time. Taking these figures gives a total HGV trip generation for the cable route of 10,080 deliveries (28 access points x 4 HGVs per day x 90 days).

4.66 The applicant provides no further justification for the stated HGV numbers.

4.67 An assessment of the HGV trip generation of the construction of the cable route is attached as **Appendix 4**. The applicant states that the cable trench would be a

maximum of 1.7m wide and 2m deep (para. 1.4.3 of Appendix 3-2). Quantities and assumptions are based on the length of the route and typical construction specifications. As with the solar array areas, conservative assumptions have been adopted:

- 50% of soil displaced by cement-based sand is removed from site;
- No soil displaced by jointing bays is removed from site;
- 20 HGVs are allowed per horizontal directional drill (HDD). This is likely to be a significant under-estimate for larger sites such as under the M4;
- No allowance is made for construction of access points and off-site highways improvements.

4.68 The total number of HGVs is calculated as 12,714. This is around 26% higher than the 10,080 suggested by the applicant.

4.69 It is concluded that the applicant has under-estimated the likely number of HGV movements associated with the cable route.

### Combined Impact

4.70 The applicant has undertaken no assessment of the combined impact of construction activities associated with the solar array areas and the cable route despite both elements of the scheme are expected to be constructed concurrently<sup>8</sup>.

4.71 The Government's Advice on Cumulative Effects Assessment for Nationally Significant Infrastructure Projects states:

*'The Environmental Statement should set out a table demonstrating where multiple impacts from the proposed NSIP would combine to affect sensitive receptors. Where they are identified, these in-combination effects should be assessed in the Environmental Statement'*. (<https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment>)

4.72 In response to Relevant Representations the applicant has stated, *'The majority of routes for the construction of the Cable Route Corridor use different parts of the highway network from those for the construction route for the Solar PV Sites. The Solar PV Sites are located north of the M4, whereas the majority of the Cable Route Corridor is located to the south of the M4'* (Response SLD-057, page 925 of Applicant's Response to Relevant Representation (Part 1) (PDA-009).

4.73 Figure 13-2, 'Study Area: Cable Route Corridor' (APP-147) shows the section of the cable route corridor accessed via Junction 18 of the M4 and through the Cotswolds National Landscape occupying areas between Lime Down A, B, C and D, both north and south of the railway line, extending south past Grittleton and across the M4 and further

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8 See Table 13-9 'Indicative Construction Programme' in the TA (APP-233)

south to a point north of Yatton Keynell. The section of the cable route corridor that shares a construction route with Areas A, B and C of the solar arrays therefore has a length of around 8km. This is more than a third of the total cable route. The applicant's statement that different parts of the highway network are used is therefore incorrect and does not reflect the evidence in the ES.

- 4.74 The applicant has not identified where the solar array and cable route impacts will combine<sup>9</sup> and has therefore failed to undertake a robust assessment of transport environmental impact. Given that the cable route corridor is predicted to generate around 10,000 HGV deliveries (around 77% of the predicted solar array construction trip generation) and there is clear evidence that the same, sensitive, sections of the highway network are relied upon for construction access, this omission is significant.

### Conclusion on HGV Trip Generation During Construction

- 4.75 It is concluded that the applicant has not adopted a reasonable worst case when assessing the impacts of construction HGVs and the assessments do not, therefore, comply with the requirements of EN-1. There is substantial under-estimation of the number of HGV trips involved in the proposed development, even approaching the matter on a conservative assessment.
- 4.76 The applicant has also failed to assess the combined effects of solar array and cable route construction contrary to the Government's advice.

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<sup>9</sup> It is clear that the HGV movements set out in Table 13-23 of APP-065 relate only to solar array construction despite cable route construction traffic using some of the same highway links used by solar array construction traffic (e.g. B4040 and B4039 through Acton Turville and Burton)

## 5 MAGNITUDE OF IMPACT OF CONSTRUCTION TRAFFIC

### Applicant's Calculations

- 5.1 The applicant provides a table showing the assignment of construction vehicles associated with the solar array areas<sup>10</sup> but does not provide a flow diagram representing this spatially. **Appendix 5** contains a flow diagram translating the applicant's estimates into daily HGV flows on the surrounding highway network. The figures only include HGVs associated with the solar arrays. The plan shows, for example, 50 daily HGV movements on the A46, B4040, B4039 and Fosse Way and 76 daily HGV movements on the unnamed road east of Hullavington.
- 5.2 **Appendix 5** also shows the percentage increase in HGVs on certain routes. The increase on the B4039 is 76%, on the road west of Grittleton the increase it is 102%, on the Fosse Way north of Grittleton the increase is 240%, on Bradfield Cottages the increase is 143% and on the road to Sherston the increase is 38%.
- 5.3 **Appendix 6** contains a flow diagram that includes construction traffic associated with the cable route. This shows that daily HGV movements on the A46, B4040 and B4039 are increased by 32% to 66 per day. The increases in daily HGVs on the B4039 and road west of Grittleton increase to 101% and 135% respectively.
- 5.4 **Appendix 7** contains a flow diagram that assigns the revised estimate of HGV trip generation set out above to the highway network. The following table provides a summary of the increases in HGV flows derived using the applicant's and the revised assessment of trip generation. The locations are shown on **Figure 1**:

**Table 5: Increases in Daily HGV Movements on Links**

Link	Existing Daily HGVs	Solar Arrays only (Applicant's calc.)		Solar Arrays and Cable Route (Applicant's calc.)		Solar Arrays and Cable Route (revised calc.)	
		No.	%	No.	%	No.	%
B4039	63	50	+76%	66	+101%	159	+243%
Road W of Grittleton	47	50	+102%	66	+135%	155	+325%
Fosse Way	20	50	+240%	50	+240%	139	+687%
Sherston Road	40	16	+38%	16	+38%	49	+118%
Road E of Hullavington	130	76	+56%	76	+56%	101	+78%
Bradfield Cottages	46	68	+143%	68	+143%	91	+194%

10 See Table 13-18 of Transport Chapter (APP-065)

	Slight change in HGV
	Moderate change in HGVs
	Substantial change in HGVs

5.5 Paragraph 3.16 of the ISEP Guidelines states:

*'The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic'* (para. 3.16 of ISEP Guidelines)

5.6 Even the applicant's own assessments that exclude cable route construction show substantial increases in daily HGV movements (over 90% increase) on the road west of Grittleton (+50 HGVs/ +102%), the Fosse Way (+50 HGVs/ +240%) and on Bradfield Cottages (+ 68 HGVs/ +143%).

5.7 When cable route construction is added, a **substantial** impact is also shown on the B4039.

5.8 On the basis of the revised assessment of HGV trip generation the levels of impact increase significantly. The Fosse Way experiences more than a four-fold increase in HGV movements.

5.9 The applicant dismisses increases in HGV movements with the following:

*'Smaller, rural roads will see a higher percentage increase in daily traffic flows. However, these typically have low baseline traffic flows and still have sufficient capacity to accommodate the anticipated trips'*. (para. 1.9.8 of Transport Chapter APP-065)

5.10 This statement is deficient both because the base HGV flows on these links are not negligible. On the Fosse Way, that is shown to carry the lowest number of HGVs (20 per day), a person would not experience HGVs as sporadic or unusual since they would be passing roughly every half hour during the day.

5.11 The applicant judges the impact of HGVs in relation to the '*capacity*' of the roads. Capacity refers to only one aspect of transport environmental assessment; driver delay. The applicant's statement suggests that the significance of the increases in HGV movements is dismissed on the basis of link capacity. This approach is not reliable or justifiable.

- 5.12 Notwithstanding the error of focusing on the capacity of links, as discussed above, some sections of the construction routes that have widths less than 5.5m, where no widening or passing places are proposed do not have capacity to accommodate construction flows since two HGVs meeting on a link that is not sufficiently wide to allow them to pass has its capacity reduced to zero until such time that one HGV can reverse to a point where passing is possible.
- 5.13 The relevance of low base flows should also be considered in the context of the **absolute** increase in HGV movements that is predicted. This will be significant and will be well above the threshold where a change in the road environment will be perceived by, and will affect, highway users. For example, an increase of 93 HGV movements per day (Bradfield Cottages) would constitute an average of 13 HGVs per hour or one HGV every 4.6 minutes. Despite the obvious significance of the increases in HGV flows, the applicant concludes that, *'The effect of these changes in traffic flows, which are spread out across local highway network surrounding the scheme, is not forecast to have any significant effect over the course of the working day'* (Transport Chapter, para. 1.9.9).
- 5.14 It is concluded that not only has the applicant failed to acknowledge levels of construction HGVs that have the potential to lead to significant adverse transport environmental effects that are evident from the calculations set out in the Transport Chapter but these effects will be increased by cable route construction traffic and increased further if a more reasonable assessment of HGV trip generation is applied.
- 5.15 The types of transport environmental effects that are likely to arise as a result of construction traffic are discussed further below.

## 6 ABNORMAL INDIVISIBLE LOADS (AILS)

6.1 Abnormal Indivisible Loads (AILS) are expected in relation to transformers at the 132kV and 400kV substations and in relation to the delivery of cable to the cable route.

6.2 Figure 13-5 (APP-150) shows the AIL routes for the solar array areas and Figure 13-6 (APP-151) shows the AIL routes for the cable corridor. Annex G of the TA (APP-233) and Appendix B of the CTMP (APP-287) provide swept paths of AIL vehicles at selected points along the AIL delivery routes. The following are examples where the assessment of AIL access is deficient:

- Figure 13-6-1 shows Cable AIL Route 8 to terminate at Access 2 that is on the eastern side of the Fosse Way just south of the railway. Drawing PL02 rev.B in Appendix B of the CTMP shows only a 16.5m HGV using this access point;
- Figure 13-6-2 shows Cable AIL Route 2 terminating on the B4039 south-east of Yatton Keynell adjacent to the cable route compound that is accessed via Fowlswick Lane (access 109). Drawing PL109 rev B in Appendix B of the CTMP shows the swept path of an AIL vehicle turning into and out of the access on Fowlswick Lane. The turn into Fowlswick Lane is constrained yet there is no drawing showing how an AIL vehicle can access Fowlswick Lane from the B4039;
- There is a significant level difference between Fowlswick Lane and the adjacent field. No indication is provided of the works required to ensure that an AIL vehicle can safely make the required turn;
- Figure 13-6-3 shows Cable AIL Route 4 terminating at access 115 on the A4 west of Chippenham. Drawing PL115 rev C in Appendix B of the CTMP only shows an HGV using this access;
- Figure 13-6-4 shows Cable AIL Route 5 terminating south of the railway way at access points 120/121/122. Drawings PL120 rev C, PL121 rev C and PL122 rev B in Appendix B of the CTMP show only HGVs using these accesses;
- Figure 13-6-5 shows Cable AIL Route 6 terminating at accesses 123 and 124 on the B3353 north-west of Gastard. Drawings PL123 rev C and PL124 rev C in Appendix B of the CTMP shows only HGVs using these accesses;
- The AIL turn at the Salutation Inn at The Gibb (B4039) appears to require the removal of a substantial amount of roadside vegetation and may impact on structures;

- The AIL vehicle negotiating The Street in Grittleton at the bend adjacent to the church appears to conflict with the wall of the churchyard. This manoeuvre may not be possible without causing damage to the wall;
  - The left turn from the northern end of the Fosse Way into the road to Sherston is likely to require the removal of the mature ash tree on the western side of the junction.
- 6.3 The plans showing the swept paths of AIL vehicles entering and leaving the solar array areas include blue dotted lines that provide an indication of the width of corridor at the entry/exit point. At some points the AIL vehicle requires a substantially wider gap in the existing roadside vegetation than the access for standard vehicles. However, the plans do not indicate the width at each entry that would need to be cleared of vegetation. Paragraph 9.10.137 of Chapter 9 states that a total of 327m of hedgerow would be removed to facilitate access to the solar array sites and that this figure has been derived from the drawings in the TA. These drawings do not identify the lengths of hedgerows removed to accommodate the access itself and do not identify the lengths of hedgerow that would need to be removed to achieve safe visibility splays. As described above, several drawings fail to show the path of an AIL vehicle at access points that are proposed to be used by AIL vehicles. If these drawings have been used to assess the amount of vegetation lost, they fail to take account of AIL vehicle impacts in a number of areas;
- 6.4 It appears that the assessment of hedgerows lost assumes the use of banksmen to overcome sub-standard visibility splays. A worst case would constitute an approach that did not rely on banksmen to control vehicle movements at access points and instead assumed that vegetation would be removed to achieve safe visibility splays. The applicant does not supply the information that would allow the approach to be properly assessed;
- 6.5 It is unclear how AIL vehicles will turn within the substation and cable route areas. It is possible that the areas required to allow a turning manoeuvre to be undertaken would be substantial. This would have implications regarding the size of compounds and/or substation construction areas. The applicant needs to demonstrate that turning AIL vehicles have been allowed for in the assessments.
- 6.6 The applicant has undertaken no assessment of the impact of AILs on overhanging trees. There are a number of country lanes, proposed to be used as AIL vehicle routes where, to accommodate a high load, it may be necessary to remove overhanging

branches. Examples of areas where vegetation may be lost are the road to Sherston, the southern section of the Fosse Way, Alderton Road and the road west of Grittleton.

- 6.7 It is concluded that the applicant has failed to properly assess the implications of delivering ALLs both in terms of the impacts on hedgerows and trees and the implications in terms of the areas of hardstanding required to accommodate their movement and turning.

## 7 IMPACT ON VULNERABLE HIGHWAY USERS

### Applicant's Failure to Recognise Sensitivity of Vulnerable Highway Users

7.1 The applicant has not undertaken any surveys of vulnerable highway users who have the potential to be adversely affected by construction traffic.

7.2 Paragraph 13.10.43 of the Transport Chapter states in relation to both the solar array areas and the cable route:

*'As set out in the baseline conditions section, there is little dedicated walking, cycling and equestrian infrastructure within the Study Area. NMU [non-motorised user] flows on these roads are also observed to be low. Therefore, the addition of construction vehicles to the local highway network is not likely to result in any significant delay to NMUs on the local highway network.'* (Transport Chapter paras. 13.10.43 and 13.10.86)

7.3 The applicant makes an assumption, based on a lack of infrastructure that NMU flows are low. It is suggested that there have been observations but no information is provided as to where and when these observations were made and for how long. No **evidence** is provided to support the assertion of low NMU flows. A lack of NMU infrastructure does not necessarily imply a lack of NMUs, it may equally imply that the NMUs that are present are particularly vulnerable to changes in traffic flows such as when pedestrians are forced to walk within carriageways or cyclists travel along narrow, winding lanes. The high vulnerability of NMUs to construction traffic requires a particularly robust approach to assessment; something that the applicant has failed to do. In this respect the applicant has not properly assessed the potential for the development to lead to unacceptable impacts on vulnerable highway users, contrary to the requirements of EN-1

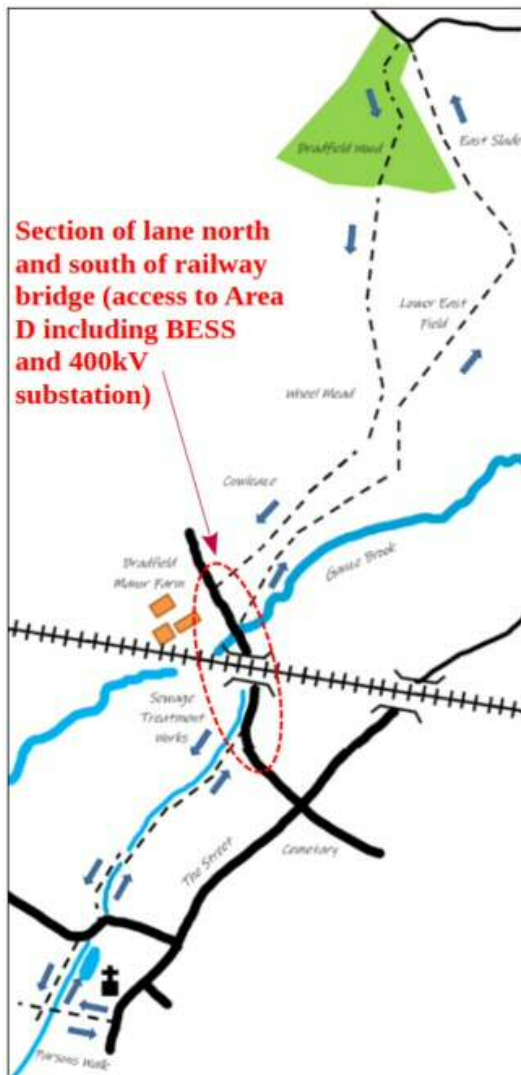
7.4 Despite the applicant identifying a lack of *infrastructure* for NMUs, paragraphs 13.7.8 to 13.7.12 of the TA describe the existing cycle *routes* affected by the proposal and paragraphs 13.7.13 and Table 13-8 describe PRowS affected by the scheme. No comment is made on whether equestrians use the network that is affected by construction traffic. The applicant recognises that routes are available for pedestrians and cyclists but relies on an assumption that these are not used.

7.5 **Figure 1** provides a summary of some of the key transport environmental impacts that are likely to result from construction activities. These include impacts on pedestrians and cyclists using country lanes.

## Impact on Pedestrians

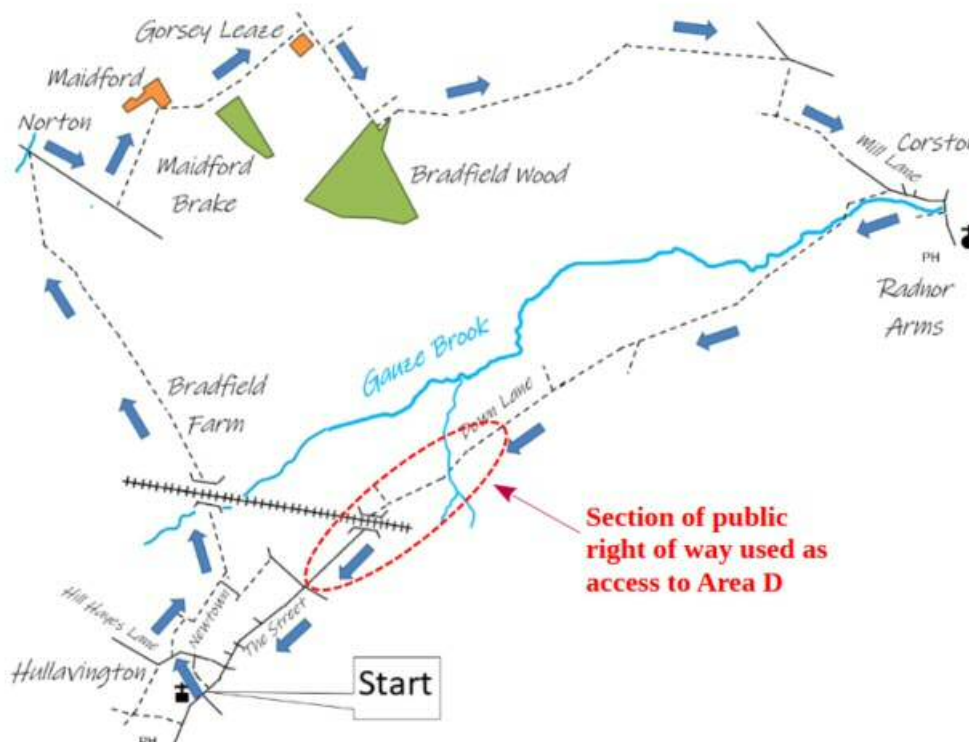
- 7.6 Country lanes are often used by local residents either to access local facilities or to access public rights of way (ProWs). In the absence of footways, pedestrians must walk within the carriageway. When there is no verge, pedestrians are particularly vulnerable to large vehicles since the opportunities to step out of the carriageway may be limited. Where the lane is bounded by a steep embankment, a pedestrian is at heightened risk as they may try to step onto the embankment and lose their footing.
- 7.7 Pedestrians using lanes are also at heightened risk at bends both because of limited forward visibility for both pedestrian and vehicle driver and because the swept path of a vehicle takes up more of the carriageway width at bends. Often a driver will seek to position their vehicle close to the edge of the carriageway around a bend in case they meet a vehicle coming the other way.
- 7.8 The Highway Code states that drivers should allow at least 2.0m between themselves and pedestrians walking within the carriageway. If a pedestrian takes up around 0.5m of space on the lane and an HGV with a width of 2.5m must allow around a 0.5m gap between the edge of the vehicle and the other edge of the carriageway, the safe width for an HGV to pass a pedestrian is 5.5m (0.5m pedestrian width + 2.0m clearance between pedestrian and vehicle + 2.5m HGV width + 0.5m clearance between HGV and edge of carriageway). When the lane width is less than 5.5m, safe margins between HGVs and pedestrians cannot be achieved.
- 7.9 The solar array areas directly impact on at least 12 footpaths, five bridleways and a byway. The cable route corridor directly impacts on over 15 footpaths.
- 7.10 Local lanes are characteristically narrow with no footways and, in places, narrow or absent verges. Table 13-4 of the Transport Chapter states that there are '*No highly sensitive receptors along roads that make up the Study Area*'. However, pedestrians use the country lanes in order to access various destinations and for recreational purposes in order to access public rights of way. The applicant has undertaken no assessment of the potential of construction traffic to conflict with pedestrians on country lanes.
- 7.11 There are six public rights of way joining the road east of Hullavington/Bradfield Cottages. Since there are no footways and limited verges along this section of road, vulnerable highway users are required to walk along some sections of the carriageway. The Hullavington Community website recommends a number of walks around the village (<https://hullavington.org/hullavington-walks/>). One of the nine walks described includes the section of the road east of Hullavington that passes under the railway bridge:

**Recommended 'Walk 8' from Hullavington (Bradfield Wood and Malmesbury Common – 4 miles)**



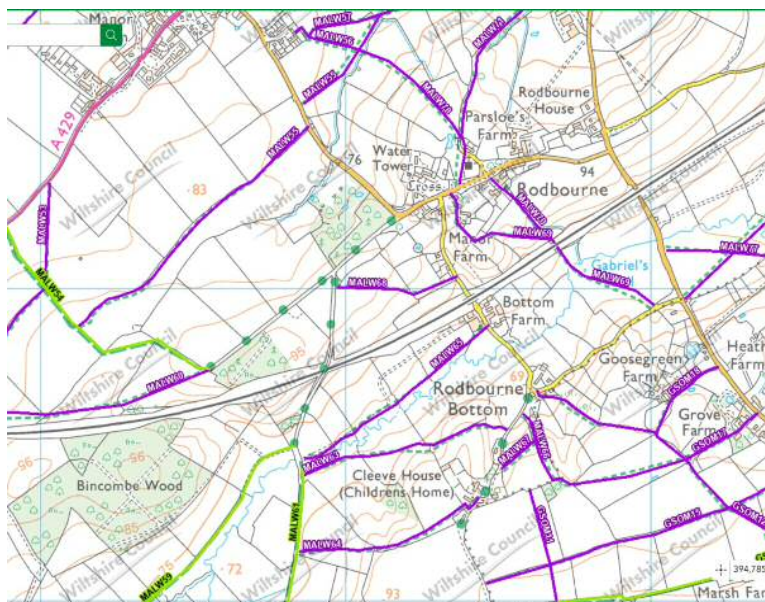
- 7.12 **Table 5** above indicates that there could be a 194% increase in HGVs along this section of road. In absolute terms this would constitute one construction HGV every 4.6 minutes. The distance between the point where the southern PRow connects with the lane and the point where the northernmost PRow connects with the lane is 450m. A pedestrian would take around 5 minutes to walk this distance. On average the pedestrian would be passed by a construction HGV every time they walked this route. There are no footways along this section of road and verges are intermittent and comprise steep embankments in places. The section of road also has several blind bends so that an HGV driver would be unaware of a pedestrian in the road ahead.
- 7.13 Another of the walks includes the section of the lane opposite the turn into Hullavington village:

**Recommended 'Walk 9' from Hullavington (Norton, Maidford, Gorzey Leaze and Corston – 7.5 miles miles)**



- 7.14 The lane that has no footways currently carries very few vehicles. It is proposed to be used to gain access to part of Area D. **Appendix 5** indicates that, on the basis of the revised assessment of HGV trip generation, this access would carry around 10 HGV movements per day. There is therefore a reasonable chance that a pedestrian would meet an HGV while walking along this section of the route.
- 7.15 Other areas that should be identified as having high sensitivity due to the presence of vulnerable highway users include the section of the Fosse Way to the north-east of the turn to Sherston (Access 4). The Fosse Way continues from this point as a byway almost all the way to Cirencester. It is a popular route for walkers and cyclists. Despite this, it is classified as having low sensitivity in the Transport Chapter.
- 7.16 There are numerous ProWs in the vicinity of Rodbourne as is evident from this extract from the Wiltshire Definitive Map. ProWs are shown as purple lines:

## Plan 1: Public Rights of Way around Rodbourne



- 7.17 The ProWs link to lanes to the south-west of the village. Despite the obvious potential for the lanes and ProWs to the west and south of Rodbourne to be used by local residents and others as recreational routes, the applicant fails to undertake any assessment of the potential adverse impacts of the construction activities related to Area E on these vulnerable highway users.
- 7.18 The Outline Public Rights of Way and Permissive Path Management Plan provides no specific mitigation for the ProWs in the vicinity apart from the proposal to temporarily divert PProW MALW54 at Access 18 (south-eastern side of A429).

### Impact on Cyclists

- 7.19 Cyclists are also put at risk by HGVs on country lanes. The Highway Code states that cyclists should position themselves at least 0.5m from the edge of the carriageway. Figure 5.1 of Local Transport Note 1/20 (LTN 1/20)<sup>11</sup> indicates that a cyclist takes up around 1.0m width of carriageway. Paragraph 163 of the Highway Code (10/04/2025) states:

*'give motorcyclists, cyclists and horse riders and horse drawn vehicles at least as much room as you would when overtaking a car (see Rules 211 to 215). As a guide:*

*- leave at least 1.5 metres when overtaking cyclists at speeds of up to 30mph, and give them more space when overtaking at higher speeds' (Highway Code, para. 163)*

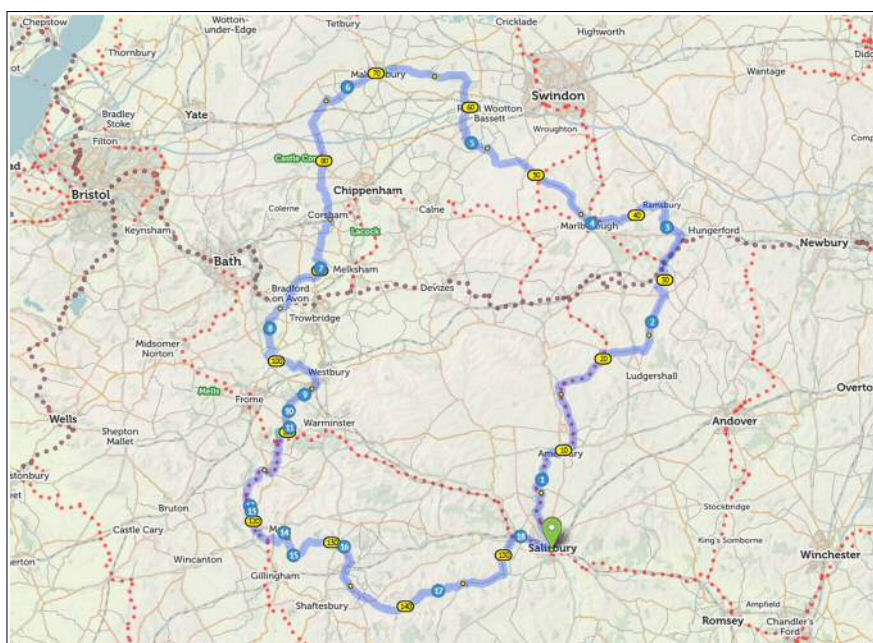
11 LTN 1/20 Cycle Infrastructure Design, DfT, July 2020

7.20 The cyclist therefore requires 3.0m (0.5m gap to kerb + 1.0m cycle width + 1.5m clearance to vehicle) to safely use a carriageway. An HGV has a width of around 2.5m and should leave at least 0.5m between itself and the edge of the carriageway. An HGV therefore takes up 3.0m of carriageway width. The safe width to allow an HGV to pass a cyclists is therefore 6.0m (3.0m for the cyclist and 3.0m for the HGV).

7.21 It is particularly important that HGVs allow sufficient space between themselves and cyclists since the vehicle can exert a powerful sideways force on the cyclists due to displaced air. Such sideways forced risk destabilising cyclists.

7.22 It is evident from site visits that the area is used by significant numbers of cyclists. **Figure 1** shows that the Wiltshire Cycleway<sup>12</sup> passes through the development area. The Wiltshire Cycleway is a 160 miles circular route around the county that links to Sustrans National cycle routes and the South West Historical National Byway:

### Wiltshire Cycleway



**source:** <https://cycle.travel/map/journey/510>

7.23 The Wiltshire Cycleway has been designed to follow lightly trafficked roads where possible. In the vicinity of the proposed development the Wiltshire Cycleway follows the Fosse Way and the road south past Grittleton towards Yatton Keynell.

12 <https://www.wiltshire.gov.uk/article/1231/Wiltshire-Cycleway>

7.24 **Appendix 8** contains a series of photographs taken close to the railway bridge on the Fosse Way over a 35 minute period during the morning of Saturday 25 April 2026. Even over this short period many cyclists were observed using the lane.

7.25 It is not only the Wiltshire Cycleway that is sensitive to changes in traffic. Many cyclists use parts of the Wiltshire Cycleway and surrounding country lanes to access the Cotswolds National Landscape. It is understood from speaking to local residents that cyclists wishing to travel towards Malmesbury often seek to avoid the busy A429 by using the routes that connect with the Wiltshire Cycleway, for example the section of the road east of Hullavington (Bradfield Cottages).

7.26 HGVs are particularly threatening and dangerous to cyclists on narrow roads where the HGV is often forced to pass the cyclist with limited clearance. Paragraph 3.32 of the ISEP Guidelines states:

*'A further environmental impact that affects people is the fear and intimidation created by all moving objects. While the traffic and movement assessment has to consider motorcycles, cars, Lorries and buses, this scope of consideration is not exclusive – it also has to consider other modes of travel, including horses, cycles, mobility scooters and e-cycle, if appropriate'* (ISEP Guidelines, para. 3.32)

7.27 The Guidelines go on to identify the key factors affecting fear and intimidation:

*'The extent of fear and intimidation is dependent on:*

- The total volume of traffic*
- The heavy vehicle composition*
- The speed these vehicles are passing*
- The proximity of traffic to people – and/or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or constraint (such as a wall or fence) preventing people stepping further away from moving vehicles.'* (ISEP Guidelines, para 3.33)

7.28 The ISEP Guidelines sets out one method of defining thresholds of degree of hazard to pedestrians based on vehicle speeds and flows. The Guidelines, however, note that, *'there are no commonly agreed thresholds for estimating these levels of danger – hence fear and intimidation – from known traffic and physical conditions'* (ISEP Guidelines, para. 3.34).

7.29 The applicant adopts the method set out in the ISEP Guidelines but does not consider local factors such as the nature of the narrow lanes that are affected. The applicant also adopts the ISEP method that relates to pedestrians but is not helpful in considering degree of hazard to cyclists and equestrians. The applicant has therefore used a methodology that is limited in scope, in a way that does not reflect local circumstances.

- 7.30 The ISEP Guidelines require the impact of construction vehicles on cyclists to be assessed due to the importance of some construction routes for cyclists, the predicted increases in HGV movements, the proximity of these HGVs to cyclists due to the narrowness of lanes and, in places, the constraining presence of hedgerows or structures very close to the carriageway edge.
- 7.31 As has been explained above, on a road with a width less than 5.5m, a 2.5m wide HGV would be unable to pass a cyclist, leaving a safe margin without travelling dangerously close to the opposite edge of the carriageway.
- 7.32 **Figure 1** shows that much of the Fosse Way, Alderton Road, the road to Sherston and the road east of Hullavington are all less than 5.5m in width. Not only would the substantial increases in HGV traffic on these routes lead to loss of non-motorised amenity and fear and intimidation, but would also lead to highway safety concerns.
- 7.33 Safety concerns are exacerbated where vehicle speeds are higher, something that is likely along the Fosse Way that has a very straight alignment, and where forward visibility is constrained by bends in the road, an issue that is evident along the road east of Hullavington and Bradfield Cottages.
- 7.34 It is concluded that the proposed development will have an adverse impact on cyclists on the Fosse Way, on the road east of Hullavington, on the road to Sherston and potentially on other parts of the local highway network used regularly by cyclists. Cyclists are highly vulnerable highway users. A collision involving a vehicle and a cyclist is typically extremely harmful to the cyclist. Where cyclists are provided with designated facilities such as off-road cycle lanes, their sensitivity to changes in traffic flows is reduced. In situations where cyclists share carriageway with vehicles, sensitivity increases. If a proportion of those vehicles are large vehicles, sensitivity increases. If the road itself is narrow and subject to other constraints such as sections with poor forward visibility and a lack of verges, sensitivity increases further. It is considered reasonable to classify cyclists on narrow rural lanes as highly sensitive to increases in HGV traffic. There is a risk of serious injury and death. The matter is therefore primarily one of highway safety. This is not only one aspect of transport environmental impact but a separate planning consideration as identified in paragraph 5.14.21 of EN-1.
- 7.35 The applicant concludes that the scheme will have a moderate adverse effect on users of the Wiltshire Cycleway. This conclusion is not, however, derived as part of the assessment of transport environmental impacts. The Transport Chapter identifies no adverse impacts on users of the Wiltshire Cycleway. Table 13-4 of the Transport Chapter that identifies the assumed sensitivity of links within the study area makes no

mention of the Wiltshire Cycleway or any other factors relating to cyclists. The Fosse Way, for example, is defined as having low sensitivity on the basis of the assumed lack of any high or medium sensitivity receptors. The Tourism and Recreation assessment identifies a moderate adverse effect on the Wiltshire Cycleway (see para. 16.10.65 of Chapter 16) on the basis that it is a Regionally important long-distance cycle route (see Appendix 16-2 Tourism and Recreation Receptor Tables). The likely significant effects are described as '*Potential loss to amenity and desirability. Likely impacts on accessibility and delay due to traffic from the Scheme*' (Appendix 16-2 Tourism and Recreation Receptor Tables). It is clear that highway safety is not a matter considered in the Tourism and Recreation Chapter.

- 7.36 It is concluded that cyclists using designated routes and surrounding links are put at severe risk of injury or death in the presence of HGVs on narrow and winding rural lanes. This leads to an unacceptable impact on highway safety contrary to para 5.14.21 of EN-1, an effect that has not been properly assessed by the applicant.

### Impact on Equestrians

- 7.37 Equestrians are very vulnerable to HGVs on narrow rural lanes. Paragraph 215 of the Highway Code advises drivers to, '*pass wide and slow, allowing at least 2 metres of space*' when passing an equestrian. On a narrow country lane with a width of 5.5m, it is impossible for an HGV to leave this margin for an equestrian. The situation is made more hazardous if there are no verges, as is the case in some areas and where there are tight bends that limit the forward visibility of drivers approaching an equestrian.

- 7.38 A paper written by Chapman and Musselwhite<sup>13</sup> at Aberystwyth University states:

*'Drivers should only overtake horses where it is safe to do so. However, where road widths are less than 5.5 m, there is no guidance on what drivers should safely do in these circumstances; wait until the road widens to overtake, pass more closely but below 10mph, be directed by the horse rider whether to overtake or wait for the rider to pull over and let the driver past? Drivers' skills can also be impeded by driver frustration (Musselwhite et al., 2010a,b), in this scenario frustration is generated when encountering a slow-moving horse. This may be compounded by the drivers' view that leisure horse riding should not obstruct more 'necessary' vehicle journeys'.*

- 7.39 The following photograph was taken on the Fosse Way at the same time as the photographs of cyclists included as **Appendix 8**:

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13 Chapman, C., & Musselwhite, C. (2025). Equestrian Road Safety: A review of the literature and where next. *Journal of Transport & Health*, 45, Article 102193. <https://doi.org/10.1016/j.jth.2025.102193>

**Photo 1: Equestrians on Fosse Way close to Railway Bridge**



7.40 In addition to the Fosse Way, the author has seen evidence of equestrians using lanes around Rodbourne and Sherston. Further evidence of the potential impact of construction traffic on equestrians on narrow country lanes has been and will be submitted to the Examination by others.

7.41 The applicant provides no information relating to the locations of stables/liveries or any survey data focused on equestrian movements. The assessment is therefore cursory, deficient and dismissive of the possibility that these vulnerable highway users could be adversely affected by the proposals.

### Conclusion on Impact on Vulnerable Highway Users

7.42 The applicant has not properly assessed the impact of the proposed development on vulnerable highway users. No surveys have been undertaken. Evidence suggests that construction traffic will have an unacceptable adverse highway safety impact on cyclists on narrow lanes on and around the Wiltshire Cycleway because HGVs are unable to pass cyclists while leaving a safe margin. Unacceptable highway safety impacts would also affect pedestrians accessing local facilities and PRow on narrow lanes with no footways around Hullavington and Rodbourne. The proposals therefore conflict with paragraph 5.14.21 of EN1.

## 8 IMPACT ON VILLAGES

8.1 There are a number of villages that are directly affected by the proposed construction traffic routes.

### Hullavington

8.2 The applicant assesses the sensitivity of the road east of Hullavington as low ('No high or medium category receptors). Although construction traffic is not proposed to pass through the village, the road to the east of Hullavington is predicted, on the basis of the applicant's calculations, to experience a 56% increase in HGV movements and Bradfield Cottages to experience a 143% increase in HGV movements. The latter represents a **substantial magnitude** of increase in relation to severance.

8.3 It has been explained above that this road has **high sensitivity** because it is used by cyclists and by pedestrians accessing facilities and ProWs. The proposed development would therefore have a **major adverse impact** on this road in relation to severance and an unacceptable highway safety impact during the two years of construction.

8.4 Given the level of construction traffic predicted to use the lane east of Hullavington and Bradfield Cottages, it is possible that drivers will seek alternative routes to avoid delays and risks resulting from meeting HGVs around blind bends, HGVs stationary when confronted with other large vehicles or HGVs being forced to reverse. The narrow and sensitive route (The Street) through Hullavington that passes the primary school and the single track Hill Hayes Lane may therefore experience increased levels of traffic as this becomes an alternative route between the A429 and areas to the north such as Norton, Sherston and the B4040.

### Acton Turville

8.5 The applicant assesses the sensitivity of the B4039 through Acton Turville as medium on the basis that it falls within the CNL. The applicant identifies a 75.8% increase in HGVs on this route. This constitutes a medium magnitude of impact in relation to severance. The combination of medium sensitivity and medium magnitude results in a moderate adverse significance of impact on the basis of the applicant's assessment. Despite this, a negligible significance is identified for the B4039 (Table 13-26).

8.6 With the revised assessment of HGV trip generation set out above, the **magnitude** of impact would be **substantial** (+243%).

8.7 As is explained below, the location of the route within the CNL gives it **high sensitivity** to changes in traffic flows on the basis of the potential impacts on tranquillity. Acton Turville also has a primary school and children are required to cross the B4039 in order

to reach the school. There are no designated crossing facilities on the B4039 within the village. Visibility to the north-west for those seeking to cross towards the residential areas (and post office) in the south-west part of the village is poor due to a bend in the road. There are proposals to schedule deliveries between 09:30hrs and 16:30hrs to avoid network peak hours but no proposals to avoid school finish times. There is therefore no embedded mitigation with regard to school pupils in Acton Turville. In accordance with the ISEP Guidelines, the presence of a school indicates a **high sensitivity** to changes in traffic flows.

- 8.8 On the basis of the revised assessment of magnitude of impact, the significance of effect on the B4039 through Acton Turville would be **major adverse impact** in relation to severance during construction.

### Burton

- 8.9 The applicant assesses the sensitivity of the B4039 through Burton as medium on the basis that it falls within the CNL. The applicant identifies a 75.8% increase in HGVs on this route. This constitutes a medium magnitude of impact in relation to severance. The combination of medium sensitivity and medium magnitude results in a moderate adverse significance of impact on the basis of the applicant's assessment. Despite this, a negligible significance is identified for the B4039 (Table 13-26).
- 8.10 With the revised assessment of HGV trip generation set out above, the **magnitude** of impact would be **substantial** (+243%).
- 8.11 Although Burton does not have a primary school, the B4039 separates the majority of the village from the farm shop and separates the residential development on the northern side of the road from the pub, church and other facilities. There are no controlled crossings or pedestrian refuges to assist with crossing the B4039. Footways are narrow and not separated from the carriageway with any verges and some properties front directly onto the back of the narrow footway. Both east and west of the village there are properties with no footways between them and the village. Road signs to the west of the village warn of pedestrians in the carriageway. It would be reasonable to classify the road environment through Burton as having medium sensitivity with regard to severance. As is described below, the B4039 has high sensitivity with regard to tranquillity within the CNL.
- 8.12 On the basis of the revised magnitude of impact and medium sensitivity, Burton village would experience a **major/moderate adverse impact in relation to severance**. In relation to tranquillity the B4039 would experience a **major adverse impact** during construction.

## Grittleton

- 8.13 The applicant designates The Street Grittleton as having high sensitivity due to its conservation area. It is the only location identified by the applicant within the study area as having **high sensitivity**. The construction route passes a children's playground at the eastern end of the village, a receptor of **high sensitivity**. The width of the carriageway through Grittleton is limited by on-street parking. This allows for one-lane working only. There are no pedestrian crossing facilities on The Street through the village and pedestrians, in many places are required to cross between parked cars. The western end of the main street, adjacent to the church has a tight bend where forward visibility is very limited. The road has a minimum width of around 6.5m in this area. This is unlikely to be sufficient to allow two large vehicles to pass on the bend. The wall of the churchyard sits at the edge of the carriageway on the northern side of the road and a kerb and fence is situated along the southern edge of the carriageway. There is no scope for the wheels or superstructure of vehicles to move beyond the edge of the carriageway. Notwithstanding the Conservation Area designation, it is clear that The Street is **highly sensitive** to changes in HGV movements..
- 8.14 The applicant identifies a 24.2% increase in HGVs through Grittleton. This is based on an assumption of 8 HGV movements per day at each of the cable route access points. A high sensitivity combined with a negligible magnitude of impact results in a maximum minor adverse significance of impact as reported in Table 13-43 of the Transport Chapter.
- 8.15 The applicant predicts 16 HGV movements per day through Grittleton based on an assumption that HGV movements would be spread evenly across all cable route access points. As explained above, the route through Grittleton is likely to receive far more than the average for all cable route access points since it provides access to a compound. The construction and later removal of the compound itself will generate large numbers of HGVs. The compound at Grittleton is also likely to be particularly important since it is likely to provide the only access to the cable route to the north of Grittleton as far as the *Avoidance Area*<sup>14</sup> west of Surrendell Farm.
- 8.16 The magnitude of impact will be far greater than predicted by the applicant. This will increase the significance of the adverse impacts. If the daily number of HGVs were to

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14 'Avoidance Areas' described as sensitive areas 'where the cable installation method will use trenchless technologies rather than open cut trenches' (Cable Route Construction Method Statement para.1.3.1 (APP-183))

be in excess of 40 movements (20 arrivals and 20 departures) the magnitude of impact would exceed 60%. This level of HGV movement is entirely possible and therefore a reasonable worst case, given the importance of the cable route access points east of Grittleton. The **magnitude** of impact would then be **medium** and the **significance of impact major/moderate adverse**.

8.17 It appears likely that the scheme, as proposed, would not have a significant adverse effect on the highly sensitive village of Grittleton.

### Lanes West and South of Rodbourne

8.18 The lanes south and west of Rodbourne are proposed to be used by construction vehicles to access Lime Down E. These lanes are currently very lightly trafficked and easily accessible by residents in and around Rodbourne. The applicant does not include these lanes in the list of links described in the Transport Chapter. The applicant has undertaken no surveys of the use of these lanes by vehicles or NMUs and has therefore undertaken no assessment of the impact of construction works on users of these lanes.

8.19 The applicant proposes to stop up a number of ProWs in the vicinity of these lanes (see Figure 2.5 Rights of Way Plan) but the lanes are proposed to be kept open and could still be used by vehicles and NMUs.

8.20 The lanes are narrow and of a very low standard. They have no footways and are bounded by ditches, hedgerows and trees in many places. Sections of them are identified as Highway Improvement Areas but it is not known what works would be undertaken on these lanes. Pedestrians, cyclists and equestrians using these lanes have **high sensitivity** to vehicles, particularly heavy vehicles using these lanes insofar as they would be put at severe risk if passed by a large vehicle on a narrow section of lane.

8.21 The magnitude of impact is likely to be very high in percentage terms due to existing low levels of vehicle use. In absolute terms the revised assessment of HGV trip generation identifies 47 HGV movements on these lanes per day (one HGV every 9 minutes, on average). A vulnerable highway user is therefore likely to meet an HGV if using the lanes. In this respect, the magnitude of change is not insignificant. A **medium magnitude** of impact would lead to a **major/moderate adverse impact** in terms of severance but potentially an unacceptable impact on highway safety.

## **9 IMPACT ON MAJOR ROADS**

- 9.1 It is proposed that cable route construction access points will be provided on both the A420 and the A4.
- 9.2 It has been explained above that although the applicant suggests that deficiencies in visibility can be overcome at the A420 access points by using a banksman, this approach is entirely inappropriate on a very busy road carrying vehicles travelling at high speed. The need for banksmen to cross the A4 and A420 would itself constitute a highway safety concern.
- 9.3 The consequences of the proposed approach failing would be very significant.
- 9.4 It is proposed to site a construction access on the northern side of the A4 west of Chippenham, at the eastern end of an existing lay-by used by buses. The A4 carries in excess of 20,000 vehicles per day. The introduction of a new access point in this location raises a number of concerns.
- 9.5 It is likely that the lay-by would need to be closed since construction vehicles would be crossing over its eastern end. This would displace the existing bus stop. No alternative arrangements for buses have been identified.
- 9.6 Vehicles approaching the access on the A4 from the east would need to stop in the westbound carriageway and give way to eastbound vehicles. Given the speed of vehicles on the A4 and the presence of another junction 180m further to the west, this arrangement raises serious highway safety concerns. The applicant needs to be able to demonstrate that an access could be achieved without unacceptable highway safety implications.

## 10 IMPACT ON COTSWOLDS NATIONAL LANDSCAPE (CNL)

10.1 **Figure 1** indicates the extent of the CNL. It is clear that the proposed construction route to and from Junction 18 of the M4 passes through the CNL.

10.2 The Cotswolds Conservation Board (CCB) Position Statement on Tranquillity identifies the threshold, above which increases in traffic have the potential to lead to significant environmental effects:

***'The Board recommends that where a development is likely to increase traffic flows – or increase the number of heavy goods vehicles – by 10% or more, this should be considered significant'***. (CCB Position Statement on Tranquillity, p.13)

10.3 This statement is consistent with Rule 2 of the ISEP Guidelines for screening and scoping:

***Rule 2: Include [in the environmental assessment] highway links of high sensitivity where traffic flows have increased by 10% or more'*** (ISEP Guidelines, para. 2.16)

10.4 Transport impact on the CNL was a key consideration for the Inspector involved with the Mitton Public Inquiry<sup>15</sup>. Under the sub-heading of *Tranquillity*, the Inspector stated in his Decision (25 November 2022):

***'48. There is no dispute that an increase in vehicular traffic through the AONB has the potential to affect its tranquillity, with particular regard to noise and light. This is also clear from the Cotswolds AONB Management Plan and Cotswolds Conservation Board Tranquillity Statement. The evidence before me suggests that the amount of traffic expected to use routes through the AONB is relatively small. However, the uncertainties identified in relation to the transport assessment leads to similar uncertainty around the amount of traffic that might utilise routes through the AONB. In such circumstances, I cannot reach an informed judgement on whether the development would result in an unacceptable impact on tranquillity.'***  
(para. 48 of Inspector's Report)

10.5 The Inspector stated the following in his conclusion:

***'50. However, I am not satisfied that the submitted transport assessment has been undertaken using a sufficiently robust approach so that I can be confident that the developments would not result in a severe residual cumulative impact on the road network, or that the tranquillity of the AONB would not be unacceptably harmed'***.  
(para. 50 of Inspector's Report)

10.6 It was the author of this paper who presented evidence at the Mitton Inquiry concerning the failure to provide robust information about the potential impact of traffic on the CNL.

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15 Appeal Decisions APP/H1840/W/22/3301732, APP/H1840/W/22/3301742

10.7 This Decision has also been referenced by the Cotswolds National Landscape Board (CNLB) in their response to the Lime Down proposals dated 19 March 2025:

*'National Landscapes (AONBs) are specifically identified as 'sensitive areas' in the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. As such, Rule 2 should be applied in the Cotswolds National Landscape and should relate to both traffic flows and HGV movements. On this basis, it can be argued that an increase in traffic flows or HGV movements of more than 10% from a development proposal or in combination with other proposals is likely to be significant and have an adverse impact on the tranquillity of the Cotswolds National Landscape. This would apply to traffic movements on roads along the CNL boundary as well as to traffic movements on roads within the CNL.*

*In this respect we would highlight the appeal decisions relating to proposed developments within the setting of the National Landscape at Mitton (appeal refs. 3301732 and 3301742, dated 25 November 2022), to the west of Tewkesbury. These appeals were refused as the Inspector was not satisfied that the submitted transport assessment had been undertaken using a sufficiently robust approach so that he could be confident that the developments would not result in a severe residual cumulative impact on the road network, or that the tranquillity of the National Landscape would not be unacceptably harmed.' (pp 13-14 of pdf of CNLB Response 19 March 2025)*

10.8 It is clear that there is a very strong case to categorise the CNL as having high sensitivity to changes in traffic flows in relation to tranquillity and that increases in traffic flows above 10%, consistent with the ISEP Guidelines, have the potential to lead to unacceptable harm.

10.9 The applicant's own calculations, that fail to assess the cumulative impacts of solar array and cable route construction, identify an impact of +76% in terms of additional HGVs on the B4039 through the CNL far in excess of the 10% threshold identified by the CCB and ISEP. The revised estimate of trip generation described above identifies an increase of 243%.

10.10 Policy CE5 (Tranquillity) of the Cotswolds National Landscape Management Plan 2025-2030 states:

*'CE5.1. Proposals that have the potential to impact on the tranquillity of the Cotswolds National Landscape (CNL) should be delivered in a way that is compatible with and seek to further the conservation and enhancement of this tranquillity, by seeking to avoid and where avoiding is not possible, minimise noise and other aural and visual disturbance.*

*CE5.2. Measures should be taken to remove and where removal is not possible, minimise existing sources of noise and other aural and visual disturbance in order to enhance the tranquillity of the CNL.*

*CE5.3. Proposals that have the potential to impact on the tranquillity of the CNL should have regard to – and be compatible with – the CNL Board's Tranquillity Position Statement'.*

10.11 The Tranquillity Position Statement goes on to identify vehicles as directly related to tranquillity in its Over-Arching Recommendations:

*'All relevant stakeholders should ensure that activities and proposals that affect - or have the potential to impact on - the tranquillity of the Cotswolds AONB:*

*[...]*

*- give great weight to conserving and enhancing the tranquillity of the AONB;  
- assess potential impacts on tranquillity, particularly with regards to noise, vehicle movements, landscape [...]' (p.2)*

10.12 The CCB therefore emphasises the importance of tranquillity, provides a definition, explicitly identifies vehicle movements as having the potential to impact on tranquillity and identifies a 10% threshold, above which increases in HGVs can be significant.

10.13 The Transport Chapter limits itself to the seven impacts identified in the ISEP Guidelines<sup>16</sup>. These do not include tranquillity. However, the ISEP Guidelines do include Section 4, 'Links to other assessments' that includes Landscape and Visual. In this context it is stated:

*'Changes to the type or volume of traffic may give rise to effects on views and/or landscape character (particularly where there is an increase in larger vehicles). The perception of tranquillity, which is characteristic of some landscapes, may be affected by increased vehicle numbers, movements and noise, and the increased presence of lights at night may affect characteristically dark landscapes' (ISEP Guidelines, para. 4.38).*

10.14 Both the Transport Chapter and the Landscape and Visual Chapter of the ES fail to assess the impacts of construction traffic on tranquillity within the CNL. The applicant has submitted a Tranquillity Technical Note (March 2026) (PDA-010). This reiterates the information concerning the applicant's assessment of transport environmental impacts within the CNL and provides no additional information relating to the impact of construction traffic on tranquillity.

10.15 The failure to consider the effects of construction traffic on tranquillity indicates that the applicant has adopted a limited and partial interpretation of the ISEP Guidelines.

10.16 The ISEP Guidelines also point out the potential link between transport and cultural heritage. Paragraph 4.44 of the ISEP Guidelines refers to the IEMA's 'Principles of Cultural Heritage Impact Assessment' (2021). Although this document does not mention

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<sup>16</sup> Severance, driver delay, NMU delay, NMU amenity, fear and intimidation, road user safety, hazardous/large loads

traffic and tranquillity explicitly, it is helpful in establishing a reasoned methodology for assessing potential impacts on heritage assets such as valued landscapes. The ISEP Guidelines identify, very clearly, the link between traffic and heritage: '*These experiential changes are more commonly visual, but the impacts could also relate to sound (traffic noise) or smells (or air quality in general). The impacts may be temporary (such as construction traffic) or permanent; and the effects may be positive (beneficial) or negative (adverse)*' (ISEP Guidelines, para. 4.47).

10.17 The Cultural Heritage Chapter is also silent on the issue of the impact of construction traffic on the CNL.

10.18 Paragraph 1.13 of the ISEP Guidelines states:

*'As the environmental impact of traffic and movement will vary on a case-by-case basis, the experience and expertise of the assessor will remain of primary importance, along with adequate consultation'* (ISEP Guidelines, para. 1.13)

10.19 The applicant not only fails to properly apply the ISEP Guidelines but also fails to respond to the clear consultation response from the CCB.

10.20 It is concluded that the applicant has failed to assess the adverse impacts of construction traffic on the CNL and, given the high magnitude of the increases in HGV flows and the area's high sensitivity, there is no doubt that construction traffic will have a major adverse impact on the CNL in relation to tranquillity.

## 11 GLINT AND GLARE

11.1 The applicant has undertaken an assessment of glint and glare associated with the solar array areas as it potentially affects road users (see ES Vol. 3, Appendix 20-4).

11.2 The applicant's assessment is limited to the A429 and Bradfield Cottages. The applicant's reason for limiting receptors to these two links is as follows:

*'Technical modelling is not recommended for local roads, where traffic densities are likely to be relatively low, under Pager Power's Glint and Glare Guidance. Any solar reflections from the Scheme that are experienced by a road user along a local road would be considered low impact in the worst case in accordance with the guidance presented in Annex D, due to the relative traffic densities and potential impacts. The analysis has therefore considered major national, national, and regional roads that:*

- *Are within the one-kilometre assessment area; and*
- *Have a potential view of the panels'. (Section 4.3.1 of Appendix 20-4)*

11.3 It is evident that Bradfield Cottages is not a major national, national or regional road. There does not, therefore, appear to have been consistency in defining receptors.

11.4 It is not considered reasonable to exclude local roads since users of local roads are as susceptible to the adverse impacts of glare as users of national roads.

11.5 A more comprehensive assessment of impacts on local roads that are in close proximity to the solar array areas is set out in Straten CSL Glint and Glare Assessment (April 2026). This assesses the amount of yellow glare that would be experienced by drivers using the Fosse Way ('Road 1'). This road passes between solar arrays located both to the north-west and south-east. The report finds that the road would be subject to significant periods of the day between August and May when drivers could be subject to yellow glare that has the potential to lead to a temporary after-image. This would constitute a temporary impairment to the driver's ability to see clearly and thus raises highway safety concerns.

11.6 The applicant suggests that the effects of glare could be mitigated by allowing roadside hedgerows to reach heights of 4.5m. This suggestion needs to be justified since a 4.5m hedgerow may not be something that could be achieved and, even if it were, it may not achieve the shielding effect during the winter months when many plants lose their foliage. It should also be noted that such a substantial hedgerow, if feasible, would take many years to achieve the necessary heights.

11.7 It is concluded that glint and glare raises additional highway safety concerns that have not been assessed by the applicant.

## 12 SUMMARY OF REVISED TRANSPORT ENVIRONMENTAL IMPACT ASSESSMENT

12.1 On the basis of the revised assessment of construction trip generation and the revised sensitivity of receptors described above, the following table provides a summary of the adverse transport effects during construction:

**Table 6: Revised Assessment of Transport Environmental Effects (with embedded mitigation)**

Receptor	Sensitivity	Magnitude of Impact	Significance of Effects	Notes
Cotswolds National Landscape	High (tranquillity)	High	Major adverse (temporary, medium term)	
Lane east of Hullavington	High (vulnerable highway users)	Medium	Major/moderate adverse (temporary, medium term)	Unacceptable impact on highway safety
Bradfield Cottages	High (vulnerable highway users)	High	Major adverse (temporary, medium term)	Unacceptable impact on highway safety
Acton Turville	High (CNL and primary school)	High	Major adverse (temporary, medium term)	
Burton	High (CNL and poor footways)	High	Major adverse (temporary, medium term)	
Grittleton	High (Conservation Area)	Low	Moderate adverse (temporary, medium term)	Potentially greater adverse due to access to compound
Lanes east of Rodbourne	High (vulnerable highway users on narrow lanes)	Medium	Major/moderate adverse (temporary, medium term)	Potentially unacceptable impact on highway safety

12.2 Given the nature of the impacts, it has been assumed that the two year construction period constitutes a medium-term impact.

### **13 SUMMARY AND CONCLUSION**

- 13.1 This report has been prepared on behalf of Stop Lime Down (SLD). It deals with the transport impacts of the scheme during the construction phase.
- 13.2 The author has over 35 years' of experience of transport planning, has visited the site and surrounding transport networks on numerous occasions and has met with local residents to understand their concerns.
- 13.3 The key policy considerations are those set out in Policy EN-1, in particular paragraph 5.14.21 that identifies unacceptable impact on highway safety and severe residual cumulative impacts on the road network as reasons to consider refusal of development and paragraph 4.3.12 that requires the applicant to assess the likely worst-case effects of development.
- 13.4 The impacts of construction traffic include those relating to highway safety, community severance and non-motorised user amenity and are assessed in relation to the ISEP Guidelines (July 2023).
- 13.5 It is not possible to access solar array areas and the cable route without HGVs using narrow country lanes. Although the applicant has identified some Highway Improvement Areas, these do not include a number of narrow and sensitive highway links where HGVs are unable to pass other large vehicles, and in some cases, light vehicles. Even within Highway Improvement Areas, no details of improvements are provided.
- 13.6 There are areas, such as the road east of Hullavington where pedestrians use sections of the carriageway without footways to access local public rights of way. The predicted high numbers of HGVs in this area associated with the construction of the 400kV substation and BESS would put these pedestrians at severe risk. The applicant neither acknowledges nor mitigates for this impact.
- 13.7 The construction routes include sections of the Wiltshire Cycleway that, along with surrounding roads connecting to the National Landscape and other popular cycle routes, is well used. The presence of significant numbers of construction HGVs would be both threatening and dangerous to cyclists on narrow country lanes such as the Fosse Way, Alderton Road, The Street and the road east of Hullavington/Bradfield Cottages. The applicant does not recognise this impact and thus offers no mitigation.
- 13.8 A number of lanes proposed to be used for construction access are used by equestrians who are extremely vulnerable to heavy vehicle movements. The

- applicant neither identifies where equestrians are present nor mitigates for risks associated with construction transport.
- 13.9 HGVs on rural lanes that are used by vulnerable highway users leads to unacceptable impacts on highway safety, both an environmental impact that has not been adequately assessed by the applicant and a planning matter that EN-1 identifies as a reason for the Secretary of State to consider refusing development.
- 13.10 The failure of the applicant to consider the transport environmental impacts on vulnerable highway users is contrary to the ISEP Guidelines that states, '*Early engagement with relevant stakeholders is recommended to benefit from local knowledge and understand key sensitivities*' (ISEP Guidelines, para. 2.13).
- 13.11 The applicant relies on the use of banksmen at 24 access locations to overcome safety concerns and to avoid significant impacts on roadside vegetation. In many instances the constant use of banksmen may not be possible, acceptable or safe. The applicant has not assessed the implications of alternative arrangements such as the removal of much greater lengths of roadside vegetation to achieve safe visibility splays.
- 13.12 The applicant suggests that the timing of construction HGVs can be controlled so as to ensure that HGVs do not meet each other on narrow sections of country lanes. Such an approach would not only be extremely difficult to implement and manage due to the lengths of the narrow lanes involved and the number of construction sites and accesses operational at the same time but also because the applicant would have no control of existing heavy vehicle movements on the local highway network.
- 13.13 The applicant fails to provide a clear rationale for the predicted numbers of HGVs during the construction phase of development and has failed to make allowance for significant elements of construction including the installation, operation and removal of compounds, drainage infrastructure and off-site highways works. The allowance for HGV movements associated with significant elements of the scheme including the delivery of solar panels and mounting structures, the removal of waste and the construction of the substations and BESS appear to be significant under-estimates. Important potential additional sources of HGV movements such as the import of concrete footings to support solar panels to protect sensitive underground archaeology, the potential removal of displaced topsoil, the need for acoustic fencing and the removal of some access tracks are not assessed. There is strong evidence to suggest that the applicant has not undertaken an assessment of the *likely worst case* as required by paragraph 4.3.12 of EN-1.

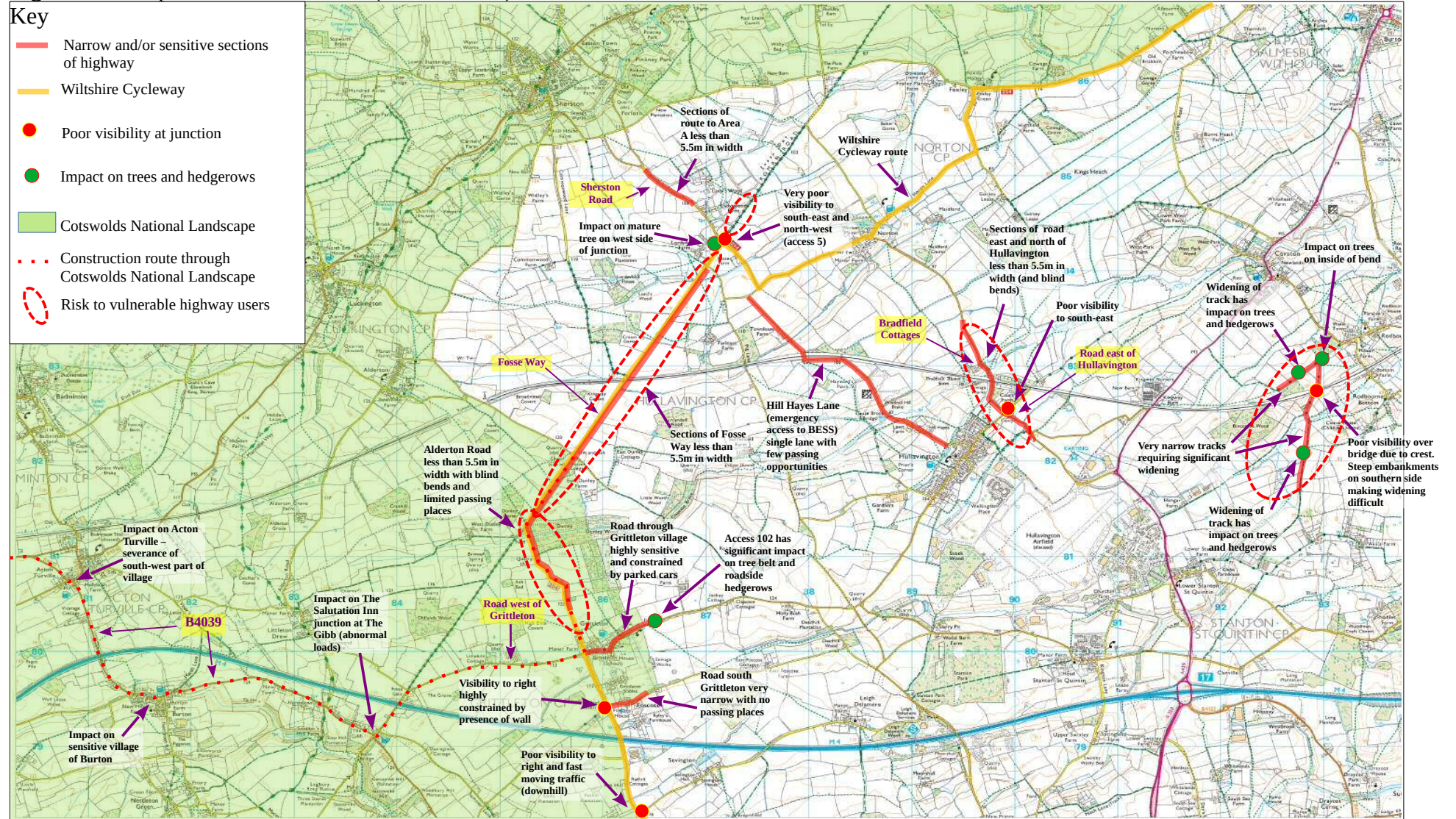
- 13.14 An assessment of HGV trip generation for the solar array areas based on reasonable assumptions identifies a total (65,813 HGV movements) that is 152% higher than that identified by the applicant (26,086 HGV movements).
- 13.15 The applicant has not assessed the **combined** transport impacts of the construction of the solar array areas and the cable route on the basis that they do not share the same access routes. However, over a third of the cable route is proposed to be accessed via the same route through the National Landscape used to access solar array Areas A, B and C.
- 13.16 On the basis of the revised estimate of construction trip generation and the combined impacts of solar array areas and the cable route, it is found that the magnitude of impact has been significantly under-estimated by the applicant on the B4039 (Acton Turville, Burton and the National Landscape), the road through and west of Grittleton, the Fosse Way, the road to Sherston and the road east of Hullavington/Bradfield Cottages.
- 13.17 The applicant has under-estimated the sensitivity of a number of highway links to changes in traffic movements. The applicant defines the Cotswolds National Landscape (CNL) as having medium sensitivity whereas it is evident from the Cotswolds Conservation Board's Position Statement on Tranquillity that it has high sensitivity consistent with the ISEP Guidelines Rule 2. Despite both guidance and the CNL consultation responses making it clear that the impacts of construction traffic should be assessed, no assessment of impacts on tranquillity has been undertaken in the Transport, Landscape and Visual and Heritage Chapters of the ES.
- 13.18 The sensitivity of the road east of Hullavington is defined as having low sensitivity despite it being used by vulnerable highway users (pedestrians and cyclists). Both Acton Turville and Burton are defined by the applicant as having medium sensitivity on account of their location within the CNL but no consideration is given to the presence of primary school in Acton Turville requiring children to cross the B4039 and narrow or absent footways within Burton.
- 13.19 On the basis of the revised magnitude of impact and sensitivity of receptors it is found that with the applicant's proposed embedded mitigation the significance of effects within the CNL, on the lane east of Hullavington, on Bradfield Cottages, in Acton Turville and Burton would be major adverse. These effects are considered unacceptable. Major/moderate adverse effects are predicted on the lane east of Hullavington and on lanes south-west of Rodbourne and moderate adverse effects are predicted in Grittleton. All effects would be temporary. The duration of impact

would be medium-term, albeit two years would be perceived as a significant length of time by those affected.

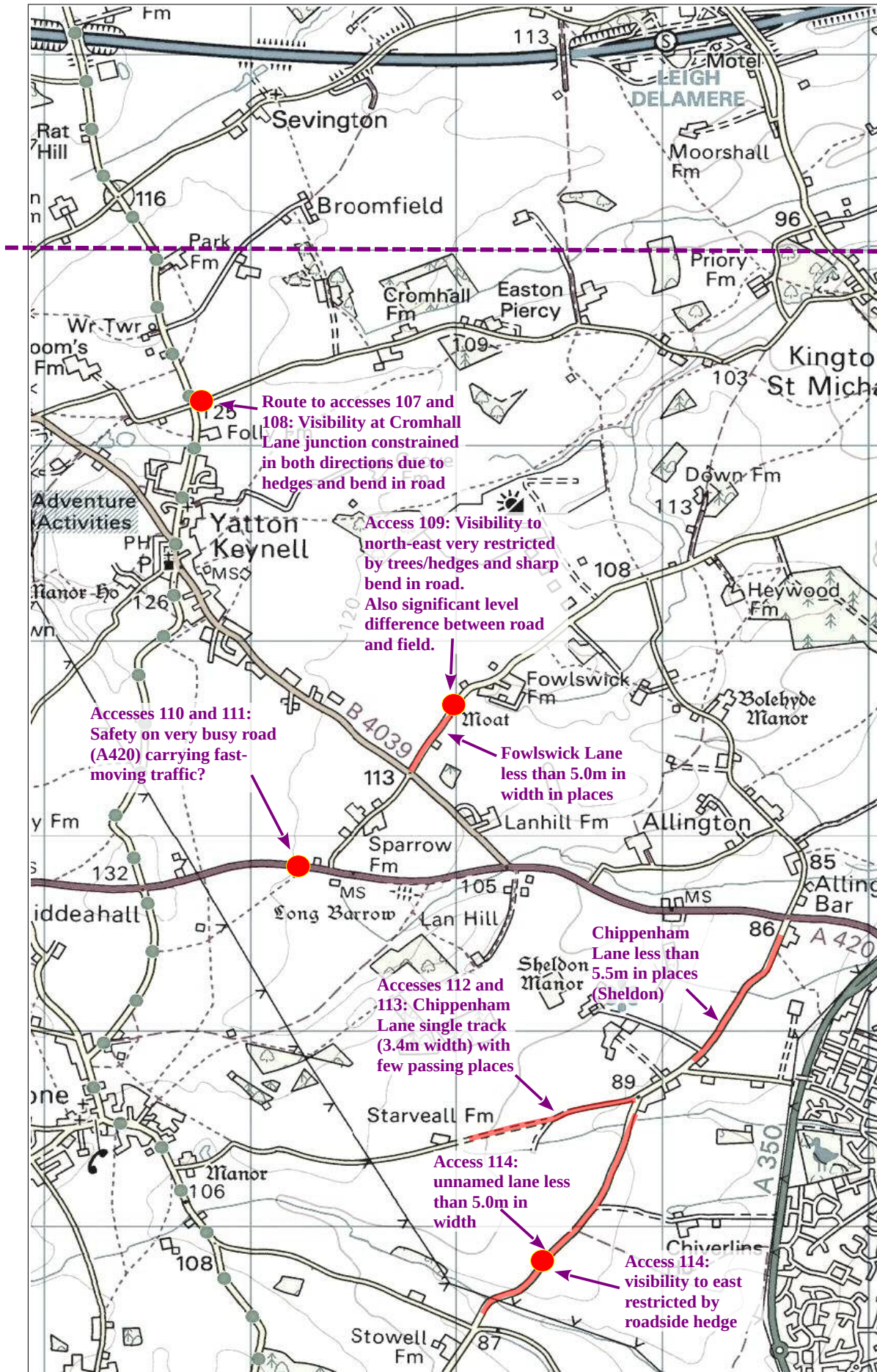
- 13.20 The applicant fails to demonstrate that safe construction accesses can be established on the A420 and A4 that carry high volumes of fast-moving traffic.
- 13.21 The Cotswolds National Landscape is a receptor of high sensitivity. The National Landscape consultation response has made it clear that any increase in traffic levels above 10% within or adjacent to the National Landscape would cause an unacceptable adverse impact in terms of tranquillity. The applicant's own calculations indicate a 76% increase in HGV flows and a revised estimate of construction traffic trip generation suggests an even higher increase of 243%.
- 13.22 Overall it is concluded that there is strong evidence to suggest that the proposed development would have an unacceptable impact on highway safety (impact on vulnerable highway users and inadequate safety arrangements at site access junctions). It is also evident that the applicant's assessments of transport impact do not assess a reasonable worst case and fail to assess the effects of construction traffic on the tranquillity of the National Landscape; likely to be major adverse given the high sensitivity of the National Landscape and the high magnitude of impact in this area. In transport environmental terms, construction traffic is also likely to have significant adverse impacts on settlements including Hullavington, Acton Turville, Burton and Grittleton.

## Figures

**Figure 1: Transport Areas of Concern (northern area)**

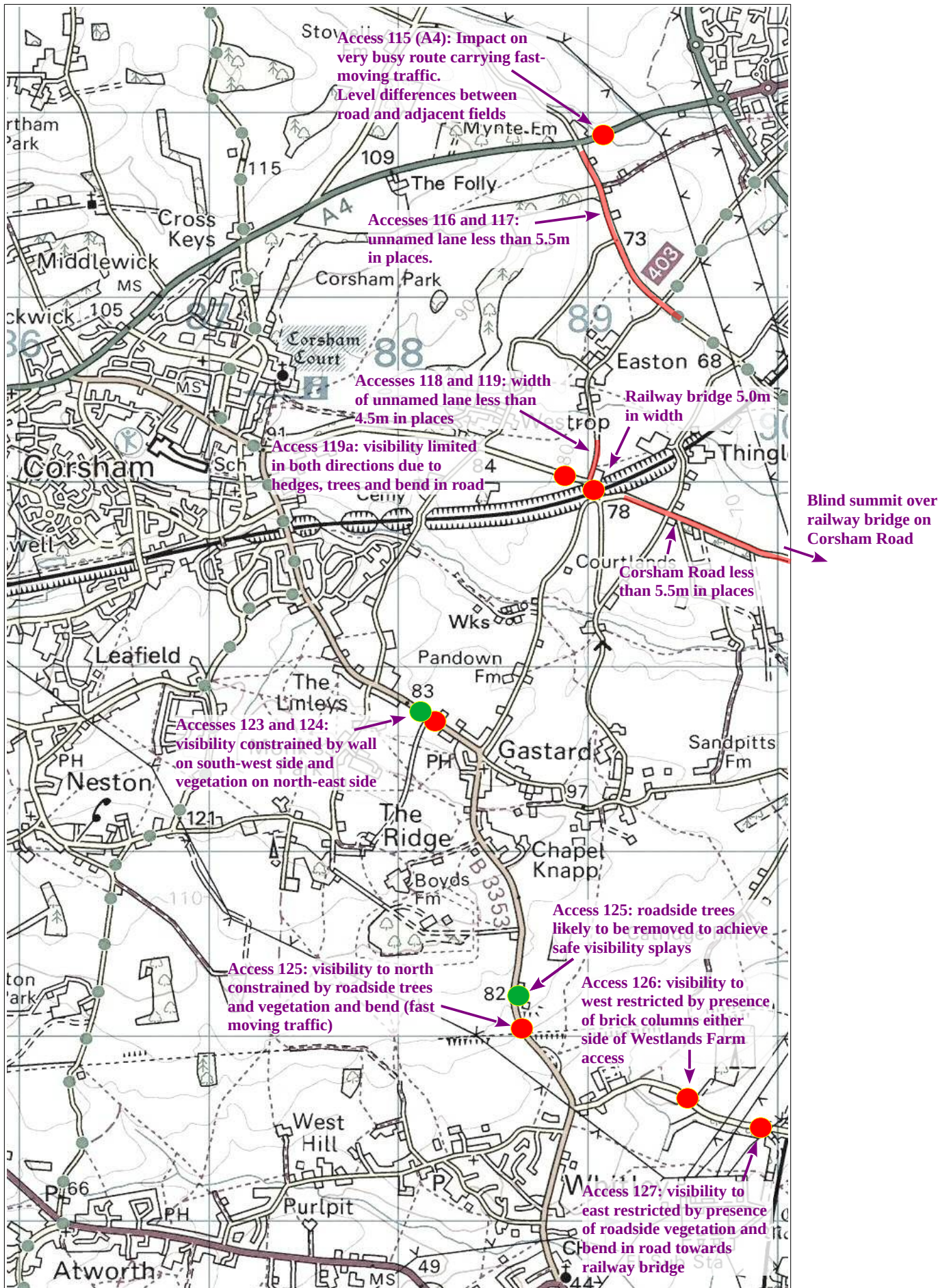


**Figure 2: Transport Areas of Concern (cable route north)**



See Figure 1

**Figure 3: Transport Areas of Concern (cable route south)**



## Appendices

**Appendix 1: Summary Review of Access Points**

## Summary of Review of Proposed Access Points

Access Ref.	Area	Location	stated visibility	Meets standards	Impact on Vegetation	Notes
1	C	NW side of Fosse Way, south of railway	2.4m x 166.5m (NE) 2.4m x 186m (SW)	yes	limited	
2	C	SE side of Fosse Way, south of railway	2.4m x 167m (NE) 2.4m x 186m (SW)	yes	limited	culvert extended
2a	C	SW side of Pig Lane south of railway	2.4m x 46m (NW) 2.4m x 32.1m (SE)	yes	???	new culvert
2b	C	NE side of Pig Lane south of railway	2.4m x 46m (NW) 2.4m x 32.1m (SE)	yes	???	new culvert
3	C	NW side of Fosse Way	2.4m x 120m (NE) 2.4m x 134.5m (SW)	yes	???	
4	B	SE side of Fosse Way	2.4m x 215m (NE) 2.4m x tangent	yes	potentially severe	banksman required
4a	B	SW side of Road to Norton	2.4m x 93.9m (NW) 2.4m x 103m (SE)	yes		
4b	B	NW side of Road to Norton	2.4m x 93.9m (NW) 2.4m x 103m (SE)	yes	potentially severe	banksman required
5	A	SW side of Road to Sherston	2.4m x 122.1m (NW) 2.4m x 130m (SE)	yes	limited	
6	A	NE side of other Road to Sherston	2.4m x 104.6m (NW) 2.4m x 101.8m (SE)	yes	limited	
7	D	E side of Bradfield Cottages	2.4m x 155m (N) 2.4m x 142.7m (S)	yes	limited	
8	D	W side of Bradfield Cottages	2.4m x 155m (N) 2.4m x 142.7m (S)	yes	hedgerow lost to south of access?	
9	D	from track opposite Hullavington turn	2.4m x 102m (NE) 2.4m x 51m (SW)	yes	limited	banksman required (PROW)
10	D	NW side of A429	2.4m x 215m (NE) 2.4m x 215m (SW)	yes	limited	
11	E	NW side of track SW of Rodbourne	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited (see notes)	widening of track likely to have significant impact on vegetation
12	E	SE side of track SW of Rodbourne	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited (see notes)	widening of track likely to have significant impact on vegetation
13	E	NW side of track SW of Rodbourne	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited	culvert to be extended
14	E	NW side of track SW of Rodbourne	2.4m x 90m (NE) 2.4m x 90m (SW)	yes		widening of track likely to have significant impact on vegetation
15	E	SW end of track SW of Rodbourne	-		(see notes)	widening of track likely to have significant impact on vegetation
16	E	W side of track south of railway	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited	issues regarding vehicles over railway bridge
17	E	W side of track south of railway	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited	issues regarding vehicles over railway bridge
17a	E	W side of track south of railway	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited	banksman required
17b	E	E side of track south of railway	2.4m x 90m (NE) 2.4m x 90m (SW)	yes	limited	banksman required
18	D	SE side of A429	2.4m x 215m (NE) 2.4m x 215m (SW)	no	significant hedgerow lost to SW of junction	visibility towards vehicles approaching from NE restricted by bend in road
19	C	NW side of Fosse Way north of railway	N/A			access appears to be for incoming abnormal loads only
20	D	W side of Bradfield Cottages	N/A			access appears to be for incoming abnormal loads only
21	D	Hill Hayes Lane north of railway	N/A		limited	emergency access – single track road approach
101	cable route	N side of lane east of Grittleton	2.4m x 142.7m (W) 2.4m x 130.3m (E)	yes	likely significant loss of hedgerow in both directions	banksman required
102	cable route	S side of lane east of Grittleton	2.4m x 79.1m (W) 2.4m x 130.3m (E)	no	impact on tree belt	banksman required
103	cable route	N side of Neeld Ct south of Grittleton	2.4m x 110.6m (W) 2.4m x 109.7m (E)	yes	limited	
104	cable route	S side of Neeld Ct south of Grittleton	2.4m x 97.8m (W) 2.4m x 97.7m (E)	no	limited	banksman required
105	cable route	N side of lane to Leigh Delamere	2.4m x 110m (W) 2.4m x 120.8m (E)	yes	limited	works on culvert
106	cable route	S side of lane to Leigh Delamere	2.4m x 110m (W) 2.4m x 120.8m (E)	yes	limited	works on culvert
107	cable route	N side of Cromhall Lane	2.4m x 101.8m (W) 2.4m x 103.1m (E)	yes	likely to take hedgerow both sides of access	
108	cable route	S side of Cromhall Lane	2.4m x 28.7m (W) 2.4m x 100.51m (E)	no		banksman required
109	cable route	NW side of Fowlswick Lane	2.4m x 112.7m (W) 2.4m x 36.4m (E)	no		banksman required , swept path only shown for abnormal load although access should provide for all traffic bellmouth shown)
110	cable route	S side of A420	2.4m x 192.6m (W) 2.4m x 208.1m (E)	yes	limited	banksman required but inappropriate on A420, swept path only shown for abnormal load although access should provide for all traffic bellmouth shown)
111	cable route	N side of A420	2.4m x 192.6m (W) 2.4m x 148.4m (E)	no	limited	banksman required but inappropriate on A420, swept path only shown for abnormal load although access should provide for all traffic bellmouth shown)
112	cable route	N side Chippenham Lane	2.4m x 47.5m (W) 2.4m x 24.35m (E)	no	limited	banksman required
113	cable route	S side Chippenham Lane	2.4m x 47.5m (W) 2.4m x 24.0m (E)	no	limited	banksman required
114	cable route	SE side of lane south-west of Sheldon	2.4m x 150.7m (W) 2.4m x 97.7m (E)	no	hedge removal to east of access	banksman required
115	cable route	N side of A4	2.4m x 147.1m (W) 2.4m x 148.1m (E)	yes	limited	would require closure of layby and relocation of bus stop
116	cable route	NE side of lane south of A4	2.4m x 141.7m (NW) 2.4m x 158.8m (SE)	yes	limited	
117	cable route	SW side of lane south of A4	2.4m x 141.7m (NW) 2.4m x 158.8m (SE)	yes	limited	
118	cable route	E side of lane north of railway bridge	2.4m x 104.4m (N) 2.4m x 91.7m (S)	yes	may require additional works	possible blind spot to north
119	cable route	W side of lane north of railway bridge	2.4m x 104.4m (N) 2.4m x 90.38m (S)	no		banksman required
119a	cable route	S side of Lacock Road	2.4m x 60.1m (NW) 2.4m x 9.1m (SE)	no		banksman required
120	cable route	NE side of Coppershell	2.4m x 47.9m (NE) 2.4m x 55.1m (S)	yes	limited	
121	cable route	lane south of railway bridge	2.4m x 20.6m (N) 2.4m x 126.7m (S)	no	limited	banksman required
122	cable route	Corsham Road east of railway bridge	2.4m x 113.0m (W) 2.4m x 121.0m (E)	no	potentially E of access	banksman required
123	cable route	N side of Silver Street Gastard	2.4m x 95.3m (W) 2.4m x 21.1m (E)	no		banksman required
124	cable route	S side of Silver Street Gastard	2.4m x 95.3m (W) 2.4m x 33.6m (E)	no		banksman required
125	cable route	W side of B3353	2.4m x 157.8m (N) 2.4m x 157.8m (S)	yes?	east side of B3353 north of access	banksman required
126	cable route	S side of Westlands Lane	2.4m x 55.1m (W) 2.4m x 93.3m (E)	?	(speeds/visibilities appear to be incorrect)	banksman required
127	cable route	S side of Westlands Lane	2.4m x 55.1m (W) 2.4m x 32.2m (E)	no		banksman required (although not identified on plan)

**Appendix 2: Construction HGV Trip Generation Assumptions**

## HGV Deliveries for Solar Array Construction: Assumptions

Ref	Quantity	Applicant's Assumption	Source	Notes	Revised Assumption
1	PV modules	1,178 HGVs	Annex E of TA	The applicant assumes 500 solar panels per HGV and a total of 588,988 panels. The number of HGVs per hectare of Works No. 1 Area is very low compared with the assumptions adopted for other consented solar farm sites.	Assume 5.76 HGVs per hectare of Works No. 1 area – the average of assumptions adopted for consented large solar farms
2	HGVs for delivery of mounting structures	506 deliveries	Annex E of TA	The applicant does not state what assumptions have been made regarding the type of mounting structures or foundations/supports. The figure suggests that deliveries for mounting structures constitute 43% of deliveries of solar panels.  Examination of other sites reveals that mounting structures have been predicted to generate between 60% and 100% of solar panel deliveries.	Mounting structure deliveries are included in the 5.76 HGVs per hectare so no further allowance made (N.B. HGV numbers are likely to be higher if concrete footings are required in place of metal piles).
3	Waste	206 deliveries	Annex E of TA	Annex E predicts 1,474,017kg of waste associated with solar panels and 589,607kg of waste associated with mounting structures and 10 tonne loads. Given the nature of the waste with light materials and significant void space, it is highly unlikely that 10 tonne loads would be achievable. No allowance is made for any other types of waste (faulty components, excess materials, contaminated soil, foul water etc.) Table 13-9 of the TA indicates that solar array compounds will be operative for 70 months. The applicant's assessment would suggest that there would be, on average 3 HGVs per month at each of the compounds.  Table 20-7 of Chapter 20 identifies 23,531m <sup>3</sup> of wood, plastic and cardboard waste. It would require 872 large skips (27m <sup>3</sup> capacity) to remove this waste. This table also identifies excavated soil as a waste type (139,666m <sup>3</sup> ) and construction material waste (6,217m <sup>3</sup> ).	Assume 872 HGVs associated with the removal of packaging associated with panels and mounting structures and a further 2 HGVs per week per compound based on the predicted 70 weeks that compounds are operative.
4	33KV conversion units (skids/power station)	68 deliveries	Annex E of TA	It is assumed that 'skids/power stations' refers to 33kV conversion units.  Table 3-1 of Chapter 3 indicates that integrated conversion units would have dimensions of 15m x 5m x 3.5m and sit on strips or footings 16m x 6m on a levelling layer of aggregate up to 0.8m thick or a concrete plinth. They will also be elevated on mounting structures above flood levels.	Para. 7.10.21 states that there would be up to 166 conversion units. A calculation based on the specification in Table 3-1 results in 1,441 deliveries (this allows only for a 0.8m depth of aggregate over an area of 6m x 16m per unit with no allowance for structures to elevate units).
5	Cable (for PV sites)	50 deliveries	Annex E of TA	The applicant does not state what assumptions have been made regarding cable deliveries.	Adopt applicant's assumption.
6	Substations/BESS	3,283 deliveries	Annex E of TA	The applicant assumes foundations with a depth of 0.3m whereas the scheme description identifies the conversion units sitting on a 0.8m layer of aggregate. The applicant assumes a total area for these elements of 7.9 ha whereas Table 3-1 identifies a total area of 13.4 ha. The amount of material for foundations is therefore likely to be significantly higher than assumed by the applicant.  No allowance is made for fire water containment (see below).  The applicant assumes a total of 94 deliveries to	<b>400KV substation:</b> assume area of 4.25 ha in accordance with Table 3-1, 50% concrete (0.8m depth) and 50% aggregate (0.5m depth) with 500 other HGVs for structures, control room, fencing, etc.  <b>132kV substations:</b> assume 0.9 ha area in accordance with Table 3-1, and 0.5m

				import all the structural components of the substations and around 20 deliveries for the structure of the 400kV substation. This estimates cannot be correct since these are very substantial structures.	depth of aggregate and 50 other HGVs per substation.  <b>BESS:</b> assume 5.5 ha in accordance with Table 3-1, 270 BESS units each on a concrete platform (0.8m depth) 4m x 14m, 45 PCSs on concrete platforms 5m x 25m (0.8m depth) and remaining area 0.5m depth of aggregate plus 250 other HGVs for equipment, machinery, other infrastructure, control building, fencing etc.
7	Access tracks	4,915 deliveries	Annex E of TA	The applicant assumes a total of 28.1km of general access track (3.5m wide) and 3.8km of BESS/substation access track (6.0m wide). The depth of BESS access tracks is assumed to be 0.5m whereas Appendix 3-3 shows a typical depth of up to 0.65m. The applicant has made no allowance for widening on bends, passing bays or turning areas, if outside of compounds.	Assume applicant's calculations with 5% widening allowance and no allowance for removal.
8	General (fencing, landscaping etc.)	2,685 deliveries	Annex E of TA	The applicant provides no justification for this figure. Given that the figure represents a significant percentage of the total (21% of total HGV deliveries), it is important to understand what reasoning has been used.	Adopt applicant's assumption.
9	Compounds	No allowance	-	There are proposed to be 9 compounds within the solar array areas and 7 along the cable route. These need to be surfaced and will accommodate office and welfare facilities, vehicle parking and turning areas, equipment and materials storage, wheel washing facilities etc. Figure 3-2 'Key Construction Phase Features' indicates that construction compounds would have dimensions of at least 100m x 100m).	Assume 100m x 100m with 0.3m aggregate surfacing with 53 additional HGVs associated with welfare, office, potable water, sewerage/grey water, fuel delivery, plant and machinery, fencing, security. Assume all compounds removed at end of construction.
10	topsoil	No allowance	-	The applicant acknowledges that topsoil will be displaced by many elements of the development including access roads, substations, the BESS, cable trenching and temporary compounds. The applicant assumes that all displaced topsoil is re-used on site and does not, therefore give rise to off-site HGV movements.	Assume 5% of displaced topsoil is removed from site.
11	Highway improvements	No allowance	-	The applicant makes no allowance for works associated with off-site highway improvements (including access points). The extent of these works may be significant given the low standard of many of the country lanes used as construction routes.	Assume 5 HGVs per access and 20 HGVs per area.
12	Drainage infrastructure	No allowance	-	The applicant makes no allowance for drainage infrastructure associated with fire water containment at the BESS site, SUDS features associated with all areas of impermeable surfaces and access road drainage that could comprise ditches that are rock-filled or with cemented sides (see Illustrative Access track to BESS Area drawing in Appendix 3-3).	No allowance made
13	Acoustic fencing	No allowance	-	No allowance is made for acoustic fencing and its supporting structures. This is likely to be required at the BESS.	No allowance made

**Appendix 3: Assessment of Construction Traffic Movements**

**Assessment of Construction Traffic Movements**

blue: Annex E of TA (APP/233)  
red: inputs

**1. PV Modules**

	A	B	C	D	E	tot	
Area containing panels (ha)	94	70	241	212	131	748	748
% of total	12.6%	9.4%	32.2%	28.3%	17.5%	100.0%	
Panel deliveries (HGVs)	541	403	1,387	1,220	754	4,306	1,178 5.76 HGVs/ha
% of total	12.6%	9.4%	32.2%	28.3%	17.5%	100.0%	
Area of panels (ha)	22.95	17.09	58.83	51.75	31.98	182.59	24%
Number of panels	74,019	55,120	189,771	166,936	103,154	589,000	589,260 3.1 Panel 2.4m x 1.3m
Panel deliveries (HGVs)	148	110	380	334	206	1,178	1,178 500
Mounting structures (HGVs)	64	47	163	143	89	506	506 43% ratio of mounting structure HGVs to panels
Skids (power station) (HGVs)	7	5	18	16	10	57	68 5%
DC cable (HGVs)	1	1	4	3	2	12	14 1%
AC cable (HGVs)	4	3	10	9	5	30	36 3%
waste removal	24	18	62	55	34	193	206 16%
Number of deliveries	248	185	637	560	346	1,977	

**2. Mounting Structures**

included in PV modules							506
Solar Panel Concrete Footings							599,260 applicant's estimate of number of panels
Number (one sleeper per 6 panels)	21	17	58	62	35	193	length width height
Weight per sleeper (tonnes)	1.08	1.08	1.08	1.08	1.08	1.08	4.0 0.3 0.3
total weight per area (tonnes)	23	18	63	67	38	208	3.0 tonnes per m <sup>2</sup> of concrete
% of panels on concrete footings	0%	0%	0%	0%	0%	0%	
Total HGVs	0	0	0	0	0	0	0 20 tonnes per HGV

**3. Waste**

	A	B	C	D	E	tot	
wood, plastic, paper, cardboard (m <sup>3</sup> )	2,957	2,202	7,582	6,669	4,121	23,531	
HGVs	110	82	281	247	153	872	27.0 m <sup>3</sup> /HGV
compounds	1	1	2	3	2	9	
weeks operational (Table 1 CTMP)	9	9	17	21	14	70	
other waste	18	18	68	126	56	286	2 HGVs per compound per week
Total HGVs	128	100	349	373	209	1,158	206

**4. 33kV Conversion Units (skids/power stations)**

	width (m)	length (m)	area (m <sup>2</sup> )	depth (m)	HGVs/unit	
foundations (aggregate)	6	16	96	0.8	8	2.0 t/m <sup>3</sup> aggregate density 20 t/10m tipper
number of units per Area	21	16	53	47	29	166
transport of conversion units (HGVs)	21	16	53	47	29	166
Total HGVs	181	135	464	408	252	1,441

**5. Cable (for PV sites)**

information from Annex E of TA	6	5	16	14	9	50
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**6. Substation/BESS**

<b>400kV substation</b>	width (m)	length (m)	area (m <sup>2</sup> )	depth (m)	volume (m <sup>3</sup> )	HGVs
	213	200	42,500		34,000	
percentage concrete	50%			0.8		2550
percentage gravel	50%			0.5		1063
equipment/machinery, piles, cabling, infrastructure, control building, fencing, security etc.						500
Total for substation						4,113
<b>132kV Substations</b>	width (m)	length (m)	area (m <sup>2</sup> )	depth (m)	tippers/132kV SS	other (HGVs)
	90	100	9,000	0.5	450	50
number of 132kV SS per Area	1	0	1	1	1	4
HGVs	500	0	500	500	500	2,000
<b>BESS</b>	270 BESS units		45 Power conversion system units (PCSS)			
	width (m)	length (m)	area (m <sup>2</sup> )	depth (m)	volume (m <sup>3</sup> )	HGVs
total compound	100	950	55,000			
BESS platform	4	14	12,758	0.8	10,206	1021
PCS platform	5	25	5,625	0.8	4,500	450
remaining area			36,618	0.5	18,309	1831
equipment/machinery, cabling, infrastructure, control building, fencing, security etc.						250
Total for BESS						3821

**Total for substations and BESS**

9,934 3,282

**7. Access Tracks**

	width (m)	depth (m)	compaction	vol/km (m <sup>3</sup> )	mass/km (t)	tippers/km	
solar PV access track	3.5	0.3	1.2	1,260	2,520	126	20 t/10m tipper
substation/BESS access track	6.0	0.5	1.2	3,600	7,200	360	2.0 t/m <sup>3</sup> aggregate density
solar PV access track (km)	3.5	2.6	9.1	8.0	4.9	28.1	removal
removal of PV access track	0.18	0.13	0.45	0.40	0.25	1.4	5%
SS/BESS access track (km)	0.5	0.4	1.2	1.1	0.7	3.8	
removal of SS/BESS track (km)	0.02	0.02	0.06	0.05	0.03	0.2	5%
tipper truck deliveries/removals	619	461	1,588	1,397	863	4,928	
allowance for widening/passing places	650	484	1,667	1,466	906	5,174	4,915 5% widening allowance

**8. General (fencing, landscaping etc.)**

	A	B	C	D	E	tot
	337	251	865	761	470	2685

**9. Compounds**

	width (m)	length (m)	depth (m)	compaction	tippers	other (HGVs)	
welfare/office	100	100	0.3	1.2	360		removal 360
potable water							5
sewerage/grey water							14
fuel delivery							0 included in waste
plant and machinery							14
fencing							20
security							0 included in general
Total per compound							360 included in general
							53
number of compounds	1	1	2	3	2	9	
HGV deliveries	798	798	1596	2394	1596	7,182	0

**10. Topsoil Stripping**

	A	B	C	D	E	tot	
volume from access tracks	3,711	2,764	9,514	8,370	5,172	29,530	
volume from BESS/SS access tracks	1,436	1,070	3,683	3,240	2,002	11,430	
volume from compounds	3,000	3,000	6,000	9,000	6,000	27,000	
volume from substations	4,500	0	4,500	4,500	4,500	18,000	
volume from 400kV SS				34,000		34,000	
volume from BESS (gravel and concrete)				28,515		28,515	
Total volume (m <sup>3</sup> )	12,647	6,833	23,697	87,624	17,674	148,475	
% off site	5%	5%	5%	5%	5%		
HGVs	63	34	118	438	88	742	

**11. Highway Improvements**

	A	B	C	D	E	tot	
number of accesses	2	3	6	7	9	27	0 5 per access
off-site works	20	20	20	20	20	100	
HGVs	30	35	50	55	65	235	

**12. Drainage Infrastructure**

TO BE ADDED

**13. Acoustic Fencing**

TO BE ADDED

**Total HGV**

	A	B	C	D	E	tot	
Total HGV deliveries	3,235	2,245	7,013	15,564	4,850	32,907	% higher than TA
Total HGV movements	6,470	4,489	14,026	31,129	9,699	65,813	26,086 152%
number of days	198	198	374	462	308		
average daily movements	33	23	38	67	31	192	96
Average + 50%	49	34	56	101	47	288	148

**Appendix 4: Calculation of Cable Route Construction Traffic**

# Cable Route HGV Trip Generation

## CTMP (APP/7.22) Section 3.3

number of access points	28
HGVs per day	4
number of days open	90
<b>total HGVs</b>	<b>10,080 deliveries</b>

### Calculation from first principles

length of route **22,000 m**

<b>Cable</b>	<b>length</b>	<b>no.</b>	<b>total length</b>	<b>t/km</b>	<b>total tonnes</b>	<b>tonnes per HGV</b>	<b>HGVs</b>	
400kV cables	22,000	<b>3</b>	66,000	<b>18</b>	1,155	<b>20</b>	<b>58</b>	
other cables							<b>14</b>	
<b>Cement-bound sand</b>	<b>length/m</b>	<b>width/m</b>	<b>depth/m</b>	<b>volume/m<sup>3</sup></b>		<b>total mass</b>	<b>HGVs</b>	<b>20 t/10m tipper</b>
	22,000	<b>1.7</b>	<b>0.3</b>	9,350		18,700	<b>935</b>	<b>2.0 t/m<sup>3</sup> aggregate density</b>
	<b>% displaced soil removed from site</b>			<b>50%</b>			<b>468</b>	
<b>cable protection tiles</b>	<b>length/m</b>	<b>width/m</b>	<b>depth/m</b>	<b>volume/m<sup>3</sup></b>		<b>total mass</b>	<b>HGVs</b>	<b>20 t/HGV</b>
	22,000	<b>1.7</b>	<b>0.1</b>	1,870		5,610	<b>281</b>	<b>3.0 t/m<sup>3</sup> concrete density</b>
<b>Jointing bays</b>	<b>per km</b>	<b>length</b>	<b>No.</b>	<b>volume of concrete</b>	<b>total concrete</b>		<b>HGVs</b>	<b>10 m<sup>3</sup> concrete per HGV</b>
	<b>1</b>	22,000	22	<b>65</b>	1,430		<b>143</b>	
	<b>% displaced soil removed from site</b>			<b>0%</b>			<b>0</b>	
<b>Haul road</b>	<b>length</b>	<b>width</b>	<b>depth</b>	<b>volume/m<sup>3</sup></b>	<b>mass/t</b>	<b>passing bay allowance</b>	<b>HGVs</b>	<b>20 t/10m tipper</b>
	22,000	<b>3.5</b>	<b>0.4</b>	30,800	61,600	<b>5%</b>	<b>3,234</b>	<b>2.0 t/m<sup>3</sup> aggregate density</b>
						<b>removal</b>	<b>3,234</b>	
<b>Fencing</b>	<b>length</b>						<b>HGVs</b>	<b>1 HGV per km</b>
	44,000						<b>44</b>	
						<b>removal</b>	<b>44</b>	
<b>Compounds</b>	<b>No.</b>	<b>length/m</b>	<b>width/m</b>	<b>depth/m</b>	<b>volume/m<sup>3</sup></b>	<b>mass/t</b>	<b>HGVs</b>	<b>20 t/10m tipper</b>
	<b>7</b>	<b>100</b>	<b>60</b>	<b>0.4</b>	16,800	33,600	<b>1,680</b>	<b>2.0 t/m<sup>3</sup> aggregate density</b>
	miscellaneous per compound			<b>50</b>			<b>350</b>	
						<b>removal</b>	<b>2,030</b>	
<b>Horizontal directional drilling</b>							<b>HGVs</b>	
number of sites	<b>10</b>		HGVs per drill	<b>20</b>			<b>200</b>	
						<b>TOTAL HGVs</b>	<b>12,714</b>	

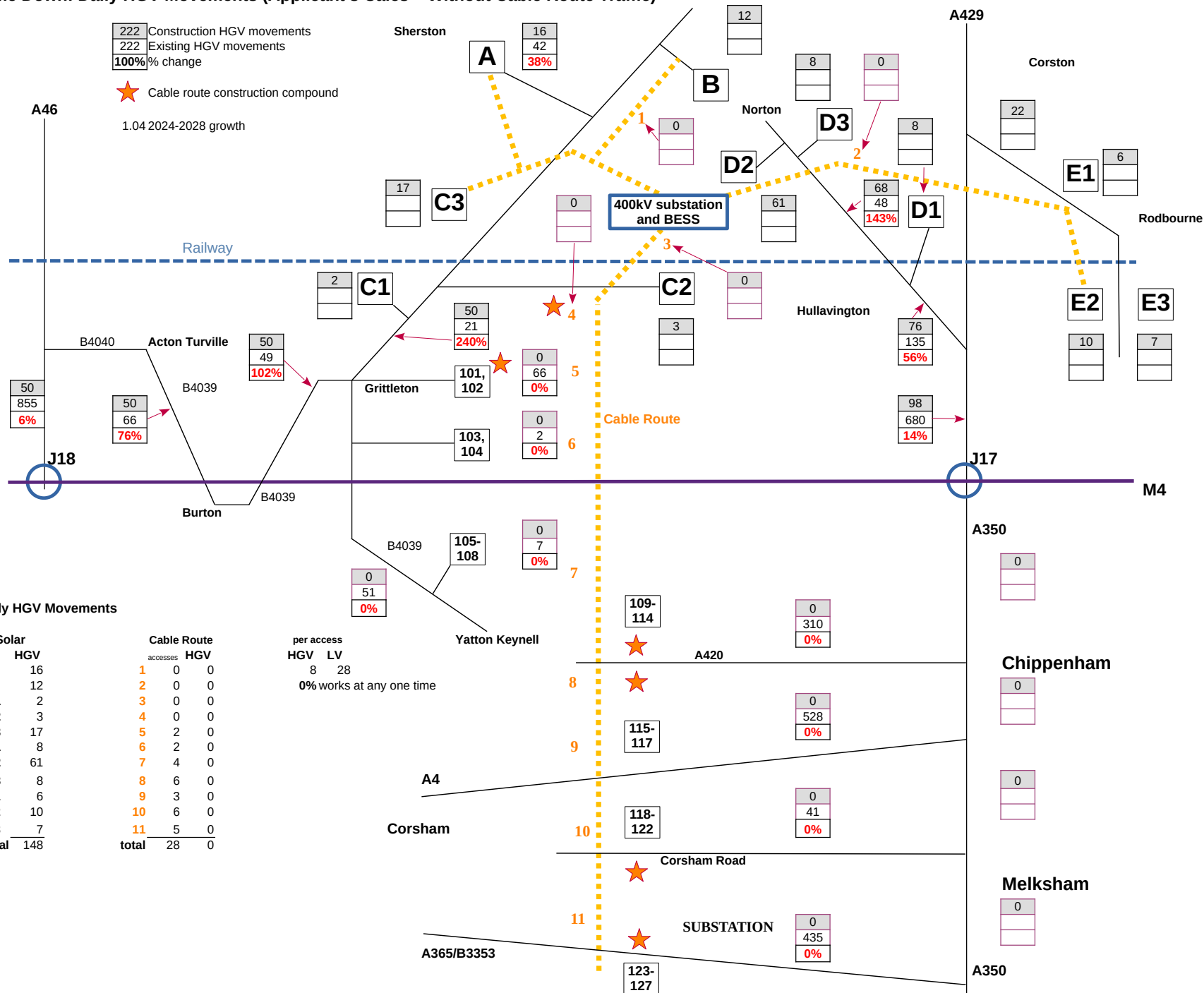
**Appendix 5:** Flow Diagram of Applicant's Assessment of Construction Traffic (no cable route)

# Lime Down: Daily HGV Movements (Applicant's Calcs – Without Cable Route Traffic)

222 Construction HGV movements  
 222 Existing HGV movements  
 100% % change

★ Cable route construction compound

1.04 2024-2028 growth



## Daily HGV Movements

Solar	HGV	Cable Route	HGV
		accesses	
A	16	1	0
B	12	2	0
C1	2	3	0
C2	3	4	0
C3	17	5	2
D1	8	6	2
D2	61	7	4
D3	8	8	6
E1	6	9	3
E2	10	10	6
E3	7	11	5
<b>total</b>	<b>148</b>	<b>total</b>	<b>28</b>

per access  
 HGV LV  
 8 28  
 0% works at any one time

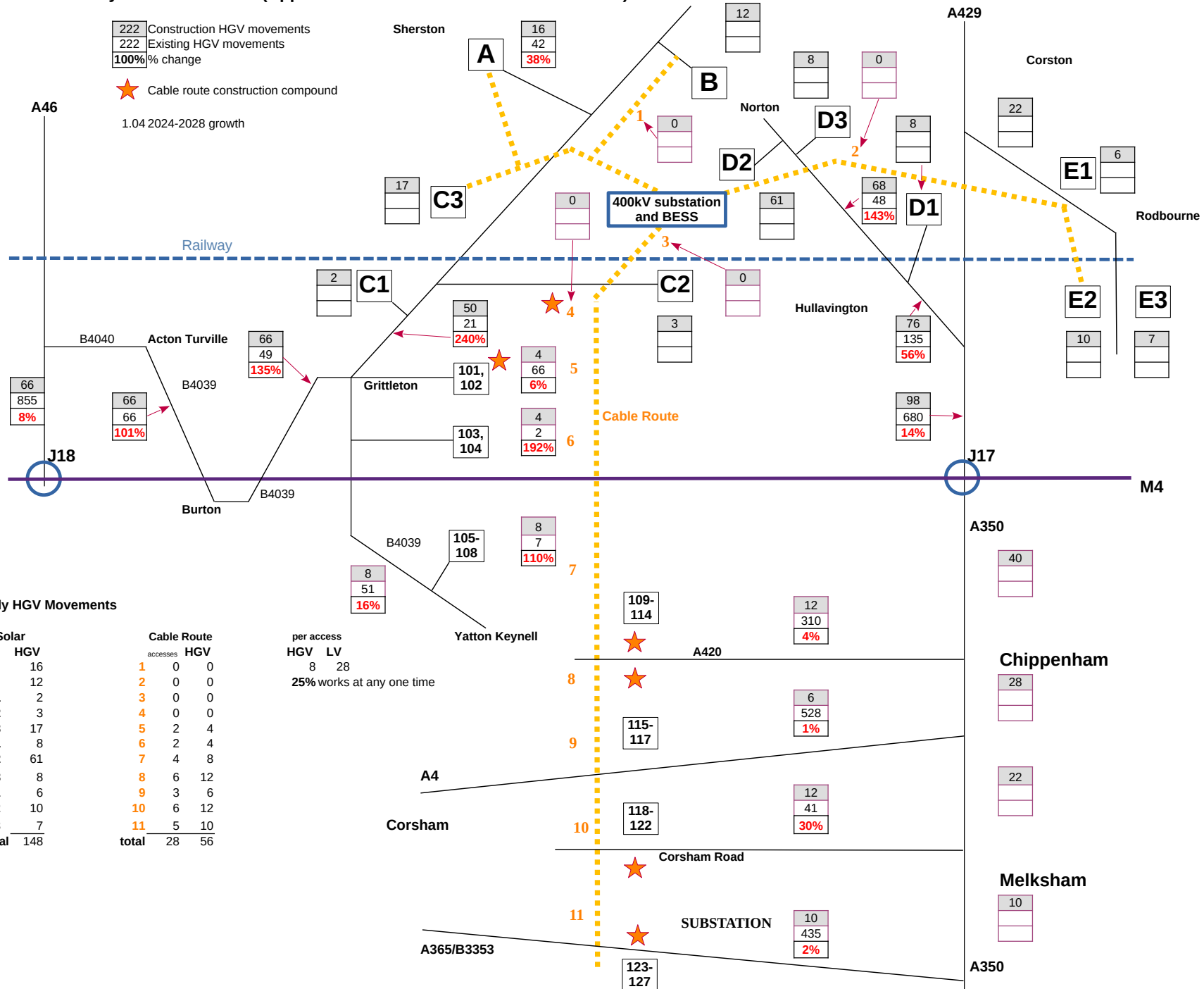
**Appendix 6:** Flow Diagram of Applicant's Assessment of Construction Traffic (with cable route)

# Lime Down: Daily HGV Movements (Applicant's Calcs – With Cable Route Traffic)

222 Construction HGV movements  
222 Existing HGV movements  
100% % change

★ Cable route construction compound

1.04 2024-2028 growth



## Daily HGV Movements

Solar	HGV	Cable Route	HGV
		accesses	
A	16	1	0
B	12	2	0
C1	2	3	0
C2	3	4	0
C3	17	5	2
D1	8	6	2
D2	61	7	4
D3	8	8	6
E1	6	9	3
E2	10	10	6
E3	7	11	5
<b>total</b>	<b>148</b>	<b>total</b>	<b>28</b>

per access  
 HGV LV  
 8 28  
 25% works at any one time

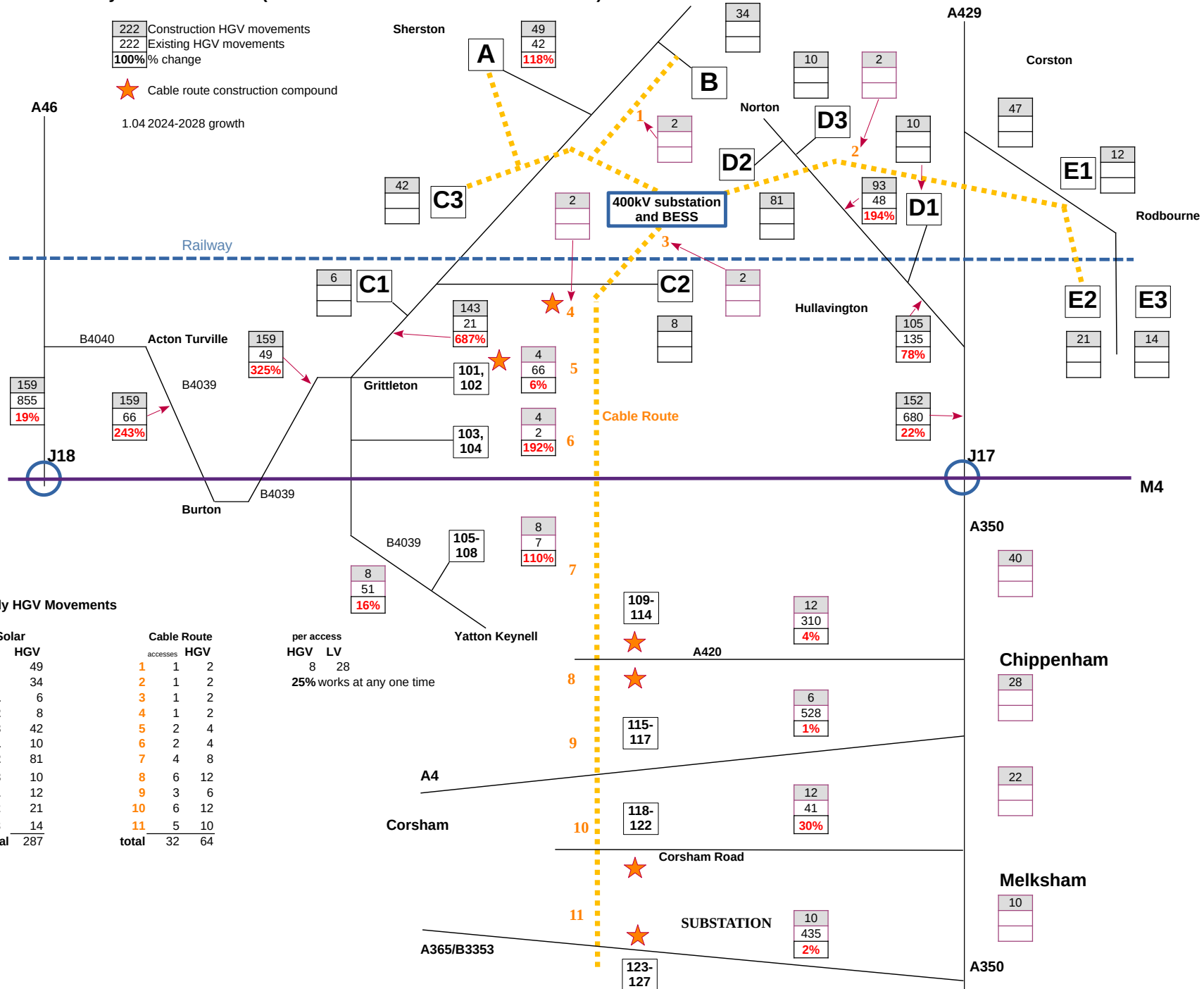
**Appendix 7: Flow Diagram showing Revised Estimate of Construction HGVs**

# Lime Down: Daily HGV Movements (Revised Calcs – With Cable Route Traffic)

222 Construction HGV movements  
222 Existing HGV movements  
100% % change

★ Cable route construction compound

1.04 2024-2028 growth



## Daily HGV Movements

Solar	HGV	Cable Route	HGV
		accesses	
A	49	1	2
B	34	2	2
C1	6	3	2
C2	8	4	2
C3	42	5	4
D1	10	6	4
D2	81	7	8
D3	10	8	12
E1	12	9	6
E2	21	10	12
E3	14	11	10
total	287	total	32 64

per access  
 HGV LV  
 8 28  
 25% works at any one time

**Appendix 8: Photographs of Cyclists on Fosse Way (Saturday 25 April 2026)**

**Cyclists on Fosse Way: Morning of Saturday 25 April 2026 (35 minute period of observation)**

