



# The Sizewell C Project

## 9.50 Written Submissions Responding to Actions Arising from ISH3: Traffic and Transport Part 2 (8 July 2021)

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## 1 ISSUE SPECIFIC HEARING 3: TRAFFIC AND TRANSPORT (PART 2)

### 1.1 Introduction

1.1.1 This document contains the Applicant's written submissions responding to actions arising from Issue Specific Hearing 3 (ISH3) on Traffic and Transport (Part 2) held on 8 July 2021.

1.1.2 This document corresponds to the Applicant's **Written Summaries of Oral Submission made at ISH3** (Doc Ref. 9.43) submitted at Deadline 5.

### 1.2 Construction Programme and delivery of the Associated Developments

1.2.1 At ISH3, SZC Co. committed to provide more detail with regard to the effectiveness of mitigation and controls in the event of some delay in the delivery of mitigating infrastructure.

1.2.2 A note entitled 'Framework of Control and Implementation Plan' included as **Appendix B** of the **Written Submissions Arising from ISH1** (Doc Ref 9.48) deals with this matter.

### 1.3 Transport Review Group

1.3.1 Various matters were raised by the ExA and stakeholders in respect of the role, powers and procedure of the Transport Review Group (TRG) at ISH2 and ISH3. SZC Co. recognises the importance of clarity in respect of these matters and ensuring that the governance arrangements of the TRG allow it to function effectively and expeditiously. The governance arrangements are contained primarily in Schedules 16 and 17 of the **draft Deed of Obligation** (Doc Ref. 8.17(E)). It is SZC Co.'s intention to consider the drafting of the Deed further in respect of these issues to ensure that it achieves what is required and to discuss this with ESC and SCC, before submitting a revised draft at Deadline 6 (6 August 2021).

1.3.2 The matters that will be considered include the following:

- a) **The powers of the TRG.** There was suggestion in the Issue Specific Hearings that the TRG's powers might be limited to drawing down expenditure from Contingent Funds 1 and 2. That is not the case. The TRG's powers also include an important wider power to require remedial steps to be taken to deal with any likely or existing **Construction Traffic Management Plan (CTMP)** [\[REP2-054\]](#) or **Construction Worker Travel Plan (CWTP)** [\[REP2-055\]](#) breaches.

The nature and range of these remedial steps is unrestricted. SZC Co. had considered that this was already apparent from the terms of the CTMP and the CWTP but any further necessary drafting on this issue will be considered.

- b) **The TRG's ability to enforce the controls in the CTMP [REP2-054] and CWTP [REP2-055].** SZC Co. commits in Schedule 16 of the **Deed of Obligation** (Doc Ref. 8.17(E)) to the **CTMP [REP2-054]** and **CWTP [REP2-055]**, and the TRG would be able to hold SZC Co. to the limits in those plans. While the TRG would have power to revise the transport management plans, far from relaxing the controls this power is expressly framed as a means to ensure sufficient mitigation is provided. Again, any further necessary drafting on this issue will be considered.
- c) **The responsiveness of the TRG.** Concerns were raised about the ability of the TRG to respond expeditiously to urgent matters. The **CTMP [REP2-054]** already includes provision for any breaches to be referred to the TRG as and when they occur and for TRG to determine the frequency of its meetings, but SZC Co. will consider how the ability of the TRG to respond expeditiously can be clarified in the Deed. This will also include issues as to attendance at meetings and the TRG's ability to act notwithstanding a party's non-attendance.
- d) **Inability to reach agreement.** Concern was raised as to what would happen if the TRG failed to reach agreement. SZC Co. will consider whether clarification is needed as to the power of the Delivery Steering Group to resolve disputes in this circumstance (in particular by reference to paragraph 3.5.3 of Schedule 17 of the **Deed of Obligation** (Doc Ref. 8.17(E)) and also as to the scope thereafter to utilise the dispute resolution procedure (involving an appointed expert) in clause 8 of the Deed in the very unlikely event that agreement still could not be reached. The drafting around these issues will be reviewed.

## 1.4 Early Years Mode Share Targets

- 1.4.1 Please refer to **Section 1.5(i)** of the **Written Submission arising from ISH2** (Doc Ref 9.49) with regards to the approach to the early years mode share targets.

## 1.5 Car Park – Design and Sizing

### a) Number of car parking spaces

1.5.1 At ISH3, Mr Galloway suggested that there were 5,000 car parking spaces proposed for the Project. SZC Co. agreed to confirm the proposed level of parking applied for during the construction phase. Car parking is summarised in Chapter 5 of the **Consolidated Transport Assessment [REP2-046]** as follows:

- Main development site: 1,000 parking spaces
- Northern park and ride facility: 1,250 parking spaces
- Southern park and ride facility: 1,250 parking spaces
- Accommodation campus: 1,360 parking spaces
- Freight management facility: 12 parking spaces

1.5.2 This equates to 4,872 car parking spaces at peak construction (note that the 600 spaces at LEEIE are only for the early years phase prior to the delivery of the northern and southern park and ride facilities). The proposed parking needs to be considered in the context of the proposed transport strategy as follows:

- It is proposed to provide a 1,000-space car park at the main development site. SZC Co. will implement a permit system to actively manage parking. The number of parking spaces means that at peak construction, only 12% of the construction workforce will be able to park at the main development site.
- The purpose of the park and ride facilities is to intercept worker trips on the A12 and consolidate the workers onto buses for their onward journey to the main development site in order to reduce the impact on the highway network east of the A12. Park and ride facilities are a recognised and effective component of a sustainable public transport solution and have been implemented, for example, by SCC on the outskirts of Ipswich.
- 1,360 car parking spaces are proposed for the 2,400 bed accommodation campus. The workers will walk to work at the main development site adjacent to the accommodation campus and therefore, car trips would be limited to non-work related trips. A free

shuttle bus is proposed to be provided between the accommodation campus and Leiston and workers at the campus would be able to utilise park and ride buses to the northern park and ride facility to access rail at Darsham railway station. In addition, walk and cycle improvements are proposed to connect the campus to local amenities.

b) Car Park Sizing

1.5.3 The ExA requested that SZC Co. summarise how the car parks have been designed and sized and how the allocation of workers operates by reference to journey times and the areas from which they are travelling.

1.5.4 In order to determine the size of car parks, the conventional four-step transport planning process, which is widely used for forecasting travel demands, was used. The four steps are:

- trip generation;
- distribution;
- mode share; and
- trip assignment.

1.5.5 First, all person trips have been derived based on the peak workforce profiled over the course of the day based on shift patterns derived from experience at Hinkley Point C.

1.5.6 Next, the all person workforce trips have been distributed across the study area using a gravity model, which is a tool used to estimate the likely distribution of trips based on a number of inputs and datasets (e.g. skills, accommodation, travel time etc). Those workers living in the proposed campus and caravan park were excluded from the gravity model as their origin is fixed.

1.5.7 Next the workforce trips that have been distributed based on the gravity model were allocated a mode of travel to the main development site. The allocation of mode of travel is set out in Section 4.8 of the **CWTP [REP2-055]** summarised as follows:

- **Walk and cycle:** Any worker living within 800m of a park and ride facility or the main development site will be expected to walk or cycle to that site and will not be issued with a parking permit.

- **Workers in Leiston:** All workers living in Leiston will be expected to walk, cycle or use the direct bus to travel to the main development site and will not be issued with a parking permit for the main development site.
- **Drive to site zone:** Only workers living inside the area bounded by the A12, River Blyth, and River Deben (except those living in the Leiston area or within 800m of the main development site) will qualify for a parking permit for the main development site.
- **Direct bus:** All workers living within approximately 800m of a direct bus stop will be allocated to the appropriate direct bus service.
- **Park and ride bus:** Within the assessment, the gravity model has been used to allocate workers to the northern or southern park and ride facility based on the shortest overall journey time to the main development site.
- **Car share factors** based on Hinkley Point C were applied to derive car driver and passenger trips to the park and ride facilities.

1.5.8 The parking accumulation based on the shift pattern was then calculated in order to derive an appropriate size of the car parks.

1.5.9 Some queries have been raised as to why the maximum occupancy of the car parks has not been assessed. This particular point is addressed in SZC Co.'s response to question **TT.1.58** in the responses to ExQ1 at Deadline 2 [[REP2-100](#)].

1.5.10 As set out above, the traditional four step approach to forecasting travel demand has been taken (i.e. trip generation, distribution, mode share and assignment), based on a reasonable set of assumptions, augmented by evidence from Hinkley Point C. The **Consolidated Transport Assessment** [[REP2-046](#)] has assessed the workforce transport strategy, which seeks to meet the objectives of EN-1 to first remove trips from the highway network (e.g. accommodation campus) and then reduce the need to travel by car (e.g. park and rides, direct buses and walk and cycle improvements). It would be contrary to policy and guidance to work backwards within the **Consolidated Transport Assessment** [[REP2-046](#)] with the assessment based on maximising the use of the car parks (100% capacity) and the residual trips assigned to other modes of travel.

1.5.11 The car park accumulation is summarised **Appendix 7B** of the **Consolidated Transport Assessment** [[REP2-046](#)] at **Table 13** (for peak

construction), **Table 34** (for early years) and **Table 53** (for operational phase).

1.5.12 Car park design at any facility that operates a shift pattern such as proposed at Sizewell C (for example major distribution warehouses) is based on the shift change over time and at other times of the day there is more capacity. Therefore, this situation is not unique to Sizewell C.

1.5.13 A typical rule of thumb for car park operations is that a car park in which 85% of spaces are occupied is operating at its theoretical capacity. Above this level drivers find it difficult to find an available space to park, resulting in excessive circulating traffic and increased driver frustration. This theoretical capacity is described in the Institute of Highways and Transportation (IHT) document ‘Guidelines on the Preparation of Parking Strategies and Management’ (2005).

1.5.14 The assessed maximum accumulation of the main development site car park is 90%, the northern park and ride facility is 84% and the southern park and ride facility is 72%. These figures are within a reasonable range of the IHT guideline figures and indicative of an appropriate approach, particularly given the following considerations:

- the parking accumulation within Table 13 of **Appendix 7B** of the **Consolidated Transport Assessment [REP2-046]** is based on an hourly accumulation and within each hour the parking accumulation could be greater.
- The assessment is based on the distribution of construction workers within the gravity model and allocation of workers to a mode, including allocation to either the northern or southern park and ride facility. The actual split between the northern and southern park and ride facility will depend on the actual location of the construction workers.
- The consequences of under-provision of car parking should also be considered. The construction workers at Sizewell C will be working long shifts and it is important that the transfer between car and park and ride bus is as seamless as possible. Long search times for parking spaces or under-sized car parks may result in workers not using the park and ride facilities and increase the risk of fly parking.

## 1.6 Tracking Worker Car Movements

1.6.1 During ISH3, SZC Co. were asked to provide details as to why tracking worker car movements would be very challenging from an employment law and practical perspective. SZC Co.’s written response is provided as **Appendix B** of this submission.



## 1.7 Further Scenario Planning

1.7.1 As summarised in the **Written Summaries of Oral Submissions made at ISH3** (Doc Ref 9.43), SZC Co. committed to work with the highway authorities and Suffolk Constabulary to undertake further scenario planning as part of the **Traffic Incident Management Plan (TIMP)** [REP2-053]. As part of the ongoing regular engagement with the key transport stakeholders, SZC Co. will provide flow charts setting out the broad sequence of steps that would be followed for various scenarios. A series of scenarios will be agreed with the stakeholders, which will take on board comments made by interested parties at ISH3. This scenario planning will be incorporated into the next version of the **TIMP** [REP2-053].

## 1.8 Operational Travel Plan

1.8.1 During ISH3, the ExA asked SZC Co. to consider preparing a Framework Operational Travel Plan for submission to the Examination.

1.8.2 As set out at ISH3 by SCC, the County Council is content with the approach that has been proposed by SZC Co. that the Deed of Obligation obliges the Applicant to produce an Operational Travel Plan (OTP) closer to the time.

1.8.3 Notwithstanding the previously agreed position, SZC Co. will prepare a Framework Operational Travel Plan, which will set out at a high level the proposed scope of the OTP and potential measures that will be considered by SZC Co. as part of the future development of the OTP. The Framework Operational Travel Plan will be discussed with the local highway authorities and Highways England and submitted to the ExA as soon as possible.

## 1.9 A12 Mitigation

1.9.1 At Deadline 3, SCC submitted an Economic Assessment of the effects of congestion on the economy as an appendix to **ExQ1 SE.1.42**. SZC Co. has reviewed the economic assessment and at ISH3 committed to providing a written submission of the review. This is provided in **Appendix A** of this submission.

## 1.10 Fear/ Intimidation

1.10.1 During ISH3, two points were raised by the ExA, which SZC Co. agreed to provide a written response to as follows:

- whether SZC Co. has applied the IEMA Guidelines correctly by scoping out speed from the assessment of fear and intimidation; and

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- whether SZC Co. has inappropriately recalibrated the IEMA magnitude of effect on fear and intimidation from Extreme, Great and Moderate to High, Medium, Low and Very Low.
- 1.10.2 The 1993 IEMA Guidelines for the Environmental Assessment of Road Traffic set out an approach to assess the environmental impacts arising from changes in traffic levels (paragraph 2.1 IEMA).
- 1.10.3 The IEMA guidance sets out an approach to assessing fear and intimidation at pages 36 and 37. The table on page 37 provides the proposed thresholds to be applied based on average vehicular flow over an 18 hour day (veh/hour), total HGV flow over an 18 hour day and average speed over an 18 hour day (mph).
- 1.10.4 During ISH3, the ExA asked why average speed had been scoped out of the assessment of fear and intimidation. Environmental impact assessments consider the value/sensitivity of receptors that could be affected and the magnitude of impact or change likely to occur in order to classify the significance of effects. With regards to fear and intimidation it is considered that the magnitude of impact is determined based on the change in vehicles, HGVs and speed as a result of a project. The Sizewell C Project will result in a change in average vehicular flow over an 18 hour day (veh/hour) as well as a change in total HGV flow over an 18 hour day but it is not expected to result in a change in average speed over an 18 hour day at the levels set out within the table on page 37 of the IEMA guidance. The thresholds for change in average speed are: Extreme (20+mph), Great (15-20mph) and Moderate (10-15mph).
- 1.10.5 The ExA queried whether the thresholds within the table on page 37 were referring to the absolute speed of vehicles on the road. This would mean that vehicular speeds of over 20mph would result in an extreme magnitude. If this were the case based on the thresholds provided in the IEMA guidance, the majority of roads within the UK would result in an extreme level of fear and intimidation (i.e. the majority of roads have a speed limit and vehicular speeds over 20mph).
- 1.10.6 It should be noted that the fear and intimidation thresholds set out in the IEMA guidelines are also used by ENEVAL, a FORTRAN (FTN95) program, which performs a range of environmental assessments for CUBE and SATURN highway assignment models. The software assumes that the thresholds set out in the IEMA guidelines refer to the change in traffic flows / speed – not the total traffic flows / speed in each assessed scenario.
- 1.10.7 It is for these reasons that consideration of change in magnitude of average vehicular speed has been scoped out of the assessment.

- 1.10.8 Recently SZC Co. has been working to address comments received from SCC with regards to the assessment set out in **Volume 1, Chapter 2** of the **ES Addendum [AS-181]** and an updated assessment will be submitted at Deadline 6. As part of this process the approach to fear and intimidation has been revised to align with the above approach and has been agreed with SCC.
- 1.10.9 With regards to the magnitude of impact of fear and intimidation, the thresholds provided in the IEMA guidance for fear and intimidation are extreme, great and moderate. Across the Sizewell C Environmental Statement, a consistent approach has been taken to the classification of effects based on the matrix included in **Table 1** below.

**Table 1: Classification of effects**

		Value/Sensitivity of Receptor			
		Very Low	Low	Medium	High
Magnitude	Very low	Negligible	Negligible	Minor	Minor
	Low	Negligible	Minor	Minor	Moderate
	Medium	Minor	Minor	Moderate	Major
	High	Minor	Moderate	Major	Major

- 1.10.10 Therefore, SZC Co. has equated ‘extreme’ to ‘high’, ‘great’ to ‘medium’ and ‘moderate’ to low within **Table 1**. Very low would be below the low or moderate thresholds within the IEMA guidance. It is not considered that the terminology used for the magnitude of impact would have an effect on the assessment as, effectively, these are applied to the sensitivity in order to determine the significance of effect and those that are moderate or major effects in Table 1 are considered to be **significant** and those that are negligible or minor effects are **not significant**. In other words, the matrix means that the output of **significant** or **not significant** is not affected by the terminology used for the inputs.

## 1.11 Fordley Road

- 1.11.1 **Chapter 2, Volume 6** of the **Environmental Statement [APP-446]** describes the Sizewell link road highway arrangements proposed at Fordley Road. There were only minor updates to the description of development in the **Environmental Statement Addendum [AS-248]** submitted in January 2021. The Sizewell link road would rise gradually on an embankment up to 3.5m high for approximately 200m until it meets the junction with Fordley Road. Fordley Road would be realigned on the south side of the Sizewell link road so northbound traffic could join the new road. On the north side, Fordley Road would be stopped up where it meets the proposed route of the Sizewell link road. A new footpath and private means

of access would be created on the north side of the proposed route to provide access for Old Abbey Farm, with the new footpath connecting to the diverted Footpath E396/017/0. The proposals are shown on **Sizewell Link Road, Fordley Road Junction – Proposed General Arrangement [AS-137]**.

- 1.11.2 During the Issue Specific Hearing 3, Mr Galloway asked what could be done at Fordley Road to maintain a through route across the Sizewell link road without connection between the two roads, citing what has been consulted upon at Pretty Road. Mr Galloway noted that Fordley Road is to become a Quiet Lane. Richard Bull's response is provided in **Written summaries of SZC Co.'s oral submissions at ISH 3** (Doc. Ref 9.43). In his response, Mr Bull agreed to provide a further response in writing.
- 1.11.3 The design of the Sizewell link road at Fordley Road has been the subject of discussion over many years, and SZC Co. is confident that the right solution has been proposed, noting the need to achieve an appropriate balance between competing elements. The DCO proposals create a connection to the Sizewell link road from the south but interrupt the existing ability for motorised and non-motorised traffic movements along Fordley Road between Middleton Moor and Kelsale.
- 1.11.4 There are three principal options that have been explored to retain Fordley Road as a continuous through route. They are:
- lower the level of Fordley Road beneath the Sizewell link road;
  - raise the level of the Sizewell link road to cross over Fordley Road on a bridge, and maintain the existing Fordley Road level; and
  - continue Fordley Road on a bridge structure over the Sizewell link road.
- 1.11.5 The first option of lowering Fordley Road beneath the Sizewell link road, was considered but would create a localised depression in the landscape which would result in an increased risk of flooding of the road, noting that there is a watercourse running alongside Fordley Road. The clearance from Fordley Road to the underside of the Sizewell link road bridge would need to be 5.5m which would cause a significant depression. Fordley Road would also need to be lowered over a reasonable distance to meet road design standards, potentially increasing the land required within the Order Limits for embankments. There is no proportionate option to mitigate these risks. This option has therefore been discounted on that basis.

- 1.11.6 The second option of the Sizewell link road crossing over Fordley Road (retained at its current level), was considered and a concept design produced. This option would increase the Sizewell link road levels by approximately 4m to create an over-bridge with sufficient clearance to Fordley Road (5.5m). The Sizewell link road is already on an embankment of up to 3.5m, so this arrangement would require a substantial increase in land area required for embankments at Fordley Road. The engineering required to achieve this would result in a 300m long embankment to the east of Fordley Road. To the west the embankment would be 480m long before the vertical alignment could tie in to the current design height. The resulting structure and required embankments would be substantial and not in-keeping with the landscape. Although this option may be deliverable within the Order Limits, there is increased risk of further land being required. This option has been discounted on that basis.
- 1.11.7 The third option of continuing Fordley Road on a bridge structure over the Sizewell link road was also considered, but discounted on the basis that it would require a substantial structure and associated embankments which would require a much greater footprint, and would be likely to extend the project Order Limits. The Sizewell link road levels are fixed due to watercourse and flooding constraints, and allowing for 5.5m clearance, the bridge would need to be a substantial structure, which is not in-keeping with the landscape, and disproportionate to the volume of traffic movements carried by Fordley Road.
- 1.11.8 SZC Co. has therefore concluded that it is not feasible to proceed with these options to maintain Fordley Road as a through route.
- 1.11.9 In his response at ISH3 Mr Bull described that, in order to retain connectivity between Middleton Moor and Kelsale, the DCO proposals created a connection between Fordley Road south and the Sizewell link road, which would require diversion onto the Sizewell link road, but retained connectivity between communities.
- 1.11.10 Fordley Road is not a route promoted for use by any Sizewell C traffic and directional signage will be in place during the construction phase of the project to guide Sizewell C drivers to use appropriate routes, principally the A12 and Sizewell link road. HGVs will be tracked and monitored along prescribed routes as set out in the **Construction Traffic Management Plan** [REP2-054].
- 1.11.11 Connectivity for pedestrians and cyclists would be maintained at Fordley Road across the Sizewell link road via a diversion of the existing Public Right of Way. A new at-grade crossing would be provided across the Sizewell link road approximately 150m west of Fordley Road.

## APPENDIX A



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## 1 INTRODUCTION

### 1.1 Context

- 1.1.1 The Examining Authority (ExA) posed a Socio-Economic question (SE.1.42) to the Applicant, East Suffolk Council (ESC) and Suffolk County Council (SCC) in the first round of questions (ExQ1) [PD-022] in relation to the Freight Management Strategy which asked:

*“A number of RRs including [RR-0040] expressed concern that the original application would cause economic harm by severing communities and reducing the quality of the environment which is an important contributory factor to the tourism sector. Would an increase in rail and seaborne freight provide an economic benefit by reducing such severance?”*

- 1.1.2 In their response at Deadline 2, SCC referred to sections of the Joint Local Impact Report (LIR) [REP1-045] which points to “...economic congestion as a negative impact of the construction period, arising from the increase in road traffic in particular of HGVs, buses, AILs and abnormal loads.” The LIR refers to “... increased congestion and reduced reliability of the routes affected by construction traffic (principally any journey that involved part of the A12 north of Seven Hills interchange) ...”.

- 1.1.3 The original freight management strategy, known as the “integrated freight strategy” is described in the **Planning Statement** [APP-590], submitted with the original DCO Application in May 2020. SZC Co. estimated that based on the integrated freight strategy 61% of material would be moved on road by HGV. In January 2021, SZC Co. submitted a revised **Freight Management Strategy** [AS-280] and proposed a preferred strategy which reduced the proportion of freight moved by road to 40%, and thereby reduced the number of Sizewell C HGVs. SCC acknowledges that “an increase in rail and seaborne freight would reduce the impact of congestion on the highway network”, but considers that there would still be “... residual economic impacts of congestion on the local economy.”

- 1.1.4 SCC commissioned an Economic Assessment by AECOM dated 1 June 2021, concerning the impacts of congestion, which is referenced in SCC Appendix to ExQ SE.1.42 [REP2-192]. SCC claim that the paper “indicates that for the A12 corridor between Seven Hills and A1152 Wood Lane there would be a significant negative cost to the economy as a result of congestion along this corridor during construction, and gives a range of economic impacts based on the high level assessment method.”



- 1.1.5 SCC's LIR [REP1-045] para. 24.26 states that "*consideration should be given to a fund to mitigate/compensate for economic cost of congestion.*"
- 1.1.6 The Economic Assessment paper is also referenced in response to Traffic and Transport question TT.1.82, which refers to some results from SZC Co.'s detailed micro-simulation model (VISSIM) of the A12 corridor.
- 1.1.7 SZC Co. assessed the impact of Sizewell C construction traffic on the A12 using a detailed micro-simulation traffic model (VISSIM), which supplements the strategic highway modelling (VISUM) and isolated junction model assessments. The effect of Sizewell C traffic on the A12 corridor between the A14 Seven Hills interchange and the A1152 Wood Lane is reported in **Chapter 9** and **Appendix 9C** of the **Consolidated Transport Assessment** [REP2-045]. It concludes that under the preferred freight management strategy on a typical day (500 two-way HGVs), journey times along the A12 would increase by up to 32 seconds northbound, and up to 23 seconds southbound. On the busiest day (700 two-way HGVs) under the preferred freight management strategy journey times would increase by up to 37 seconds northbound and up to 28 seconds southbound. The forecast increases in journey time over a length of approximately 14km are not considered to be significant.
- 1.1.8 In SCC's revised response to ExQ1 TT.1.82 [REP2-517] they quote apparently large "total delay" effects, but when compared with total driver travel time through the modelled area, the effect on all drivers within the model extents is forecast to be small in percentage terms. **Table 17** in **Appendix 9C** of the **Consolidated Transport Assessment, Part 6 of 6** [REP2-051] reports from the model a total travel time of 2,524 veh.hrs and 3,387 veh.hrs in the 2023 reference case AM and PM respectively; compared against this an increase in total delay of 46 veh.hrs (1.8% increase) and 27 veh.hrs (0.1% increase) in the AM and PM peaks respectively. **Table 24** and **26** of the same appendix shows the results for 2028: An increase of 67 veh.hrs delay over 2,693 veh.hrs total travel time (2.5% increase) in the AM 'busiest day'; and an increase of 133 veh.hrs delay over 3,747 veh.hrs total travel time (3.5% increase) in the PM 'busiest day'.
- 1.1.9 The average effect on journey times for all drivers in the A12 modelled corridor is forecast to be between 3-5 seconds in the early years and 5-13 seconds in peak construction. This is a commonly adopted measure (i.e. average delay per vehicle), which is helpful to understand the forecast travel time effect on individual drivers. SCC use the same measure to demonstrate the benefits of their proposed improvements in the

consultation on their A12 between A14 'Seven Hills' to A1152 Woods Lane (Ref 1).

- 1.1.10 Based on the VISSIM assessment, no perceptible impact on the A12 is predicted and therefore no mitigation in the form of highway improvements is considered to be required for the A12 corridor between Seven Hills and Melton.

## 1.2 Purpose of this paper

- 1.2.1 In SZC Co.'s response to ExQ1 SE.1.42 at Deadline 3 [REP3-046], SZC Co. raised a number of queries about the Economic Assessment and concluded that "*the effect of Sizewell C on the local transport network is overestimated in the Economic Assessment, and in any case, the Economic Assessment is not an appropriate basis for any fund.*" This paper sets out SZC Co.'s further response to the Economic Assessment, and is intended to provide further evidence to the ExA to assist in determining the Application. SZC Co. confirmed in the Issue Specific Hearings concerning Traffic and Transport that this further written response would be forthcoming at Deadline 5.

## 2 SZC CO. RESPONSE TO ECONOMIC ASSESSMENT

- 2.1.1 Two separate appraisals have been undertaken by AECOM, on behalf of SCC, using two model platforms. These two transport models were developed by SZC Co. to inform the **Consolidated Transport Assessment** [REP2-045] and **Environmental Statement Addendum** [AS-181], and have been agreed with Suffolk County Council, East Suffolk Council and Highways England to be an acceptable basis for the assessment of Sizewell C (see the **Initial Statement of Common Ground with ESC and SCC** [REP2-076]). The Economic Assessment submitted by SCC is based on outputs from these two models. Two assessments were undertaken by AECOM:

- An assessment of the impact of traffic associated with the construction and operation of Sizewell C has been undertaken using SZC Co.'s VISSIM model of a stretch of the A12 from the A14 to just north of Woodbridge. This assessment uses the VISSIM model forecasts (from 2023 and 2028 forecast years) with and without Sizewell C traffic to estimate the disbenefits of the Sizewell traffic on other users.
- An assessment of the impact of Sizewell C associated development (including the Sizewell Link Road, the Two Village Bypass, Sizewell C main access roundabout and Yoxford roundabout) has been

undertaken using a VISUM model which covers a wide area around Sizewell, with forecasts developed for 2028 and 2034 with and without the Sizewell C infrastructure improvements.

2.1.2 To monetise the impacts AECOM re-ran SZC Co.'s models and extracted forecast data from the models: for the VISSIM model, travel times were extracted and values from the TAG Databook v.1.13.1 (July 2020) were used; for the VISUM model, the TUBA (Transport User Benefits Appraisal) programme v. 1.9.14 was used to estimate benefits/disbenefits.

2.1.3 SZC Co. disagrees with the underlying basis of the Economic Assessment, the methodology and assumptions used and the interpretation of its outputs. SZC Co.'s comments on the Economic Assessment are set out below.

## 2.2 Assessment excludes full benefit of Sizewell C infrastructure

2.2.1 There are a number of issues with the Economic Assessment assumptions which mean the benefits of the Sizewell C infrastructure is underestimated. In particular, the two park and ride sites are excluded from the modelling of the proposed infrastructure; this reduces the benefit associated with the proposed infrastructure. This is particularly true in the early years since the park and ride sites will come forward in 2024 as outlined in the **Implementation Plan Update** [REP2-044]. Similarly section 4.2 of the Economic Assessment appears to assume that the Sizewell C highway infrastructure is not in place until 2028, when in fact all Sizewell C associated development (including the Sizewell Link Road, the Two Village Bypass, Sizewell C main access roundabout and Yoxford roundabout) will be in place by 2024 as shown in the **Implementation Plan Update** [REP2-044]. A substantial proportion of the benefit (c. three years) of these improvements are therefore omitted from the assessment. **Therefore by omitting SZC infrastructure entirely or by failing to recognise the full period during which it is operational the assessment overestimates the implied net effect of the Sizewell C traffic.**

## 2.3 Number / profile of HGV and workforce movements

2.3.1 The Economic Assessment assumed that there will be 1,000 two-way HGVs per construction day between 2028 and 2034 (section 3.2). However, the preferred freight strategy is forecast to generate 500 two-way HGVs on a typical day during the peak construction phase and up to 700 two-way HGVs on the busiest day. **Plate 4.2** of the **Freight Management Strategy** [AS-280] provides an HGV profile over the construction phase based on the preferred freight strategy (i.e. four trains per day and temporary beach

landing facility). An updated HGV profile of the construction phase is shown in **Figure 2** of the **Materials Import and Modal Split note** (Appendix A of Doc Ref. 9.49), which will be submitted at Deadline 5 in response to questions raised at the Issue Specific Hearings on Transport. It shows that the level of HGVs per day is far less than the 1000 two-way HGVs assessed in the Economic Assessment. In addition, workforce profile (**Plate 1.1** of the **Construction Worker Travel Plan** [REP2-054]) varies significantly over the construction period, and the Economic Assessment does not properly take account of this. **The use of the wrong HGV numbers significantly overestimates the effect of Sizewell C.**

## 2.4 Over-estimate of economic effects in operational year

2.4.1 The report states in Section 2 that: "It should be noted that the micro-simulation models for the 2034 Reference Case and 2034 'Operational' scenarios have not been assessed, as it is assumed that by 2034, no traffic associated with Sizewell C will be travelling to and from the site via this corridor." This means by 2034 that Sizewell traffic will have no impact on the A12 corridor covered by the VISSIM model. However in Section 3.2 the report states that: "It is assumed in the A12 corridor assessment that the change in traffic volume would follow a linear profile between 2023 and 2028 but then a flat profile between 2028 and 2033 i.e. traffic would increase from 2023 volumes to 2028 volumes incrementally each year but the volume of traffic between 2028 and 2033 would remain the same each year. This would not occur in reality but is an assumption for this assessment given the absence of any intermediate modelled years." By making this assumption, disbenefits are included for 2034 (which are higher than any other year – see Figure 3.1 of the Economic Assessment) when they should be zero. This assumption will also overestimate disbenefits in other years since the Sizewell C construction traffic demand does not follow a linear profile. **Figure 2** of the **Materials Import and Modal Split note** (Appendix A of Doc Ref. 9.49)), which will be submitted at Deadline 5 in response to questions raised at the Issue Specific Hearings on Transport, shows that HGV traffic falls steeply in the years leading up to 2034. **Overstating impacts in the operational year and the years leading up to it will lead to a very significant overestimate of disbenefits between 2028 and 2034.**

## 2.5 'Central case' forecast not adopted

2.5.1 The forecasts include 2028 as 'peak construction' using a 'busiest day' estimate (with 1000 HGV trips per day). This is not the central case forecast, which is what would normally be used for an economic appraisal that is aiming to capture an average impact over a longer time horizon. **By**

**not using the central case, the Assessment will overestimate the impact.**

## 2.6 Convergence of transport models

2.6.1 The report states that the VISUM models “do not display a suitable level of convergence for economic assessment ... Consequently, there may be areas in the model which experience a benefit or disbenefit which is not related to the proposed infrastructure or changes in traffic volumes. These benefits / disbenefits have not been masked during the assessment.” (Section 3.3). It is therefore unsuitable to use the models to estimate the economic effect; in this case the transport user (dis)benefits. **The models used are not fit for this purpose and this undermines confidence in the findings of the assessment.**

## 2.7 Lack of wider re-assignment on A12 corridor

2.7.1 The VISSIM micro-simulation model of the A12 corridor was intentionally constrained to not allow the reassignment of A12 traffic away from the corridor in direct response to Sizewell C traffic. This approach was taken in order to produce a robust (i.e. upper-end) forecast of journey time effects due to Sizewell C on the A12, and was agreed with SCC. , The VISSIM model also does not take account of other demand responses in the forecasts, for the same reasons of robustness. The demand forecasting approach is described in **Appendix 9C** of the **Consolidated Transport Assessment [REP2-045]**. This approach is reasonable for the operational assessment documented in the **Consolidated Transport Assessment [REP2-045]** and **Environmental Statement Addendum [AS-181]** but for an economic appraisal this will not account for the real life impacts of rerouting and demand responses that would reduce the impact of Sizewell traffic on other users on the A12. **By omitting reassignment the Assessment will have potentially overestimated the economic impact.**

## 2.8 Method used to extract travel times from VISSIM

2.8.1 There is no detail provided in the Economic Assessment to show that the method used to extract ‘Total Travel Time’ from the VISSIM model has dealt appropriately with trips in each modelled period and demonstrate that checks and balances are included to ensure no double counting of trips across modelled periods. **Potential double counting adds significant uncertainty to the assessment.**

## 2.9 No checking of journey times / speeds by origin-destination pair

2.9.1 There is no evidence in the report of a detailed review of the level of change in journey times, speeds, etc. by origin-destination pair between model runs (akin to error and warning messages from the TUBA), which one would expect to ensure appropriate checking in an economic appraisal. **Lack of a detailed review of TUBA inputs adds significant uncertainty to the assessment.**

## 2.10 Use of uplift factors

2.10.1 The Economic Assessment states that factors were used to uplift the model time periods to cover 'standard' morning peak (7:00-10:00), interpeak (10:00-16:00) and evening peaks (16:00-19:00) based on local traffic count data. Particularly for the interpeak, where the model covers only the 15:00-16:00 part of the period, this approach may overestimate Sizewell C effects. The Economic Assessment recognises this point, stating: "*Given the lower background traffic volumes and the reduced number of cars and LGVs associated with Sizewell C within the interpeak hours, the disbenefits may be over-estimated.*" It further states that "*The interpeak period is extrapolated from the 15:00 to 16:00 period which contains a noticeable volume of Sizewell C related traffic and therefore assumes that a similar volume of Sizewell C traffic will be present on the network throughout the interpeak period. This may not be the case in reality, as construction traffic volumes may reduce at certain periods of the working day e.g. between 11:00 and 13:00.*" The report also states: "*Therefore, a range should be considered for the interpeak period, this is discussed further within the economic results.*" The way in which this range of disbenefits (£7.1M to £11.0M) is calculated is not discussed. The application of the factors to convert modelled time period outputs to appraisal periods will have a direct bearing on the calculation of benefits, and these are not reported. **Lack of clarity around uplift factors adds significant uncertainty to the assessment.**

## 2.11 Application of values of time and discounting method

2.11.1 SZC Co. have not had access to the economic analysis underlying data or calculation sheets so are not able to verify that the assessment has been done correctly. There is no evidence in the Economic Assessment to demonstrate that values of time and other salient factors in the appraisal have been applied correctly, and it is unclear what price base/discounting has been used in the analysis. **The lack of transparency over the use of the value of time adds significant uncertainty to the assessment.**

## 2.12 Critical peaks and effects of signalisation schemes on the A12

2.12.1 The Economic Assessment states in Section 3.3: “It should also be highlighted that the critical peak switches between 2023 and 2028 within the VISSIM model, with the majority of disbenefits in 2023 occurring in the AM peak period, however by 2028 the majority of the disbenefits are experienced in the PM Peak, which includes 15:00 – 16:00 which forms the basis of the interpeak assessment.” The report further states: “From inspection of the VISSIM models, there is a noticeable increase in queuing in the PM peak period, the contributing factors for this are difficult to identify, however between 2023 and 2028 the introduction of signalisation to a number of key junctions along the corridor may have impacted the operation more severely in the PM peak compared to the AM peak, also between 2023 and 2028 the 15:00 to 16:00 background traffic increases by around 6.5% compared to around 5% in other hours, which may marginally increase the queuing prior to the start of the PM peak.” The signalisation of junctions on the A12 is not associated with Sizewell C and its effects should not be included within an assessment of economic effects of Sizewell C. **Attributing delay from signals unrelated to SZC is not appropriate and adds significant uncertainty to the analysis.**

## 2.13 Annualisation factors and future assessment years

2.13.1 There are a number of other potential issues with the analysis which add significant uncertainty, including, for example, lack of detail on the annualisation factors used to convert modelled data to appraisal periods, lack of detail on reconciliation of demand inputs between the model and TUBA, forecast years which do not align with TAG advice in Unit M4 Forecasting and Uncertainty at para. 1.2.2 which states “*For economic appraisal it is best if the final forecast year is as far into the future as possible.*”, however **as the model is not fit for purpose for economic appraisal these and any further issues have not been considered in detail.**

## 3 CONCLUSIONS

3.1.1 SZC Co. has assessed the impact of Sizewell C construction traffic on the A12 using a detailed micro-simulation traffic model (VISSIM), which supplements the strategic highway modelling (VISUM) and isolated junction model assessments. All models were developed in consultation with ESC, SCC and Highways England, and accepted by those authorities as an acceptable basis for the assessment of Sizewell C, as reflected in the **Initial Statement of Common Ground with ESC and SCC** [REP2-076].

- 3.1.2 The effect of Sizewell C traffic on the A12 corridor between the A14 Seven Hills interchange and the A1152 Wood Lane is reported in **Chapter 9** and **Appendix 9C** of the **Consolidated Transport Assessment** [REP2-045]. It concludes that under the preferred freight management strategy on a typical day (500 two-way HGVs), journey times along the A12 would increase by up to 32 seconds northbound, and up to 23 seconds southbound. On the busiest day (700 two-way HGVs) under the preferred freight management strategy journey times would increase by up to 37 seconds northbound and up to 28 seconds southbound. The forecast increase in journey time over a length of approximately 14km are not considered to be significant. Based on the VISSIM assessment, no perceptible impact on the A12 is predicted and therefore no mitigation in the form of highway improvements is considered to be required for the A12 corridor between Seven Hills and Melton.
- 3.1.3 In SCC's response to ExQ1 TT.1.82 [REP2-517] they quote apparently large "total delay" effects, but when compared with total driver travel time through the modelled area, the effect on all drivers within the model extents is forecast to be small; of the order of 1-2%. The average effect on journey times for all drivers in the A12 modelled corridor is forecast to be between 3-5 seconds in the early years and 5-13 seconds in peak construction. This is a commonly adopted measure (i.e. average delay per vehicle), which is helpful to understand the forecast travel time effect on individual drivers. SCC use the same measure to demonstrate the benefits of their proposed improvements in the consultation on their A12 between A14 'Seven Hills' to A1152 Woods Lane.
- 3.1.4 As described in the **Freight Management Strategy** [AS-280] and above in this paper, SZC Co. has worked closely with ESC, SCC and HE to develop a set of proposals that minimise the number of HGVs on the Suffolk highway network. SZC Co.'s preferred freight management strategy requires additional investment into rail and sea infrastructure, but demonstrates that materials moved by road could be reduced to 40%, from the original 61% in the integrated freight strategy. In addition, the management measures brought by the **Construction Traffic Management Plan** [REP2-054], **Construction Worker Travel Plan** [REP2-055] and transport contingency funds, made available to the Transport Review Group (TRG), will establish monitoring and a route to implementation of mitigation measures should they be required.
- 3.1.5 SCC's Economic Assessment submitted in response to SE.1.42 at Deadline 3 proposes that "*consideration should be given to a fund to mitigate/compensate for economic cost of congestion ... in addition to measures to mitigate tourism impacts through the proposed Tourism Fund.*"



As explained above, SZC Co., disagree with the findings of the Economic Assessment, and consider that the local transport network impact is overestimated and that the assessment is not an appropriate basis for an additional mitigation or compensation fund.

3.1.6 In summary:

- By omitting SZC infrastructure the Economic Assessment overestimates the implied net effect of the Sizewell C traffic.
- The use of the wrong HGV numbers significantly overestimates the effect of Sizewell C traffic.
- By not using the central case, the assessment will overestimate the impact.
- The models used are not fit for this purpose and this undermines confidence in the findings of the assessment.
- By omitting reassignment the assessment will have potentially overestimated the economic impact.
- Potential double counting adds significant uncertainty to the assessment.
- Lack of a detailed review of TUBA inputs adds significant uncertainty to the assessment.
- Lack of clarity around uplift factors adds significant uncertainty to the assessment.
- The lack of transparency over the use of the value of time adds significant uncertainty to the assessment.
- Attributing delay from signals unrelated to SZC is not appropriate and adds significant uncertainty to the analysis.
- Overstating impacts in and leading up to the operational year will lead to a very significant overestimate of disbenefits between 2028 and 2034.
- There are a number of other potential issues with the analysis which add significant uncertainty, and are yet to be explored. As the model is not fit for purpose for economic appraisal these and any further issues have not been considered in detail.



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## REFERENCES

1. Suffolk County Council. Consultations: A12 improvements: A14 'Seven Hills' to A1152 Woods Lane. Available from <https://www.suffolk.gov.uk/council-and-democracy/consultations-petitions-and-elections/consultations/a12-improvements/> (accessed 21 July 2021).

## APPENDIX B

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## Briefing note

# Workforce GPS tracking

Project	SZC: Sizewell C	Teamcenter ID	1XXXXXXXXX
Teamcenter Contract	Choose an item.	Teamcenter Rev	001
Client	NNB Generation Co.	Contractor Reference	SZC-XXXXX-CWA-XX-000-XXXXXX-XXX-XXX-XXXXXX
Contractor	Civil Works Alliance	Contractor Rev	P01
Purpose of Issue	Choose an item.	Suitability Status	Choose an item.
Supplier	N/A	Originators Ref	N/A
Prepared by	Insert Name	Role	Insert Role
Reviewed by	Insert Name	Role	Insert Role
Approved by	Insert Name	Role	Insert Role

Choose an item.

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### REVISION HISTORY

Revision	Purpose	Amendment	Prepared By	Date
001	Choose an item.	First issue of document	John Davies	08/07/21

## 1. Introduction

At the Traffic & Transport Issue Specific Hearing 3 (ISH) on Thursday 8<sup>th</sup> July 2021, the Examining Authority (ExA) requested that SZC Co. provide a written response in relation to the subject of workforce tracking. This issue was raised in the context of a question from Mr Arthur Stansfield who had concerns about SZC Co. workers deviating from main roads through villages such as Wickham Market en route to the southern Park and Ride facility and whether some form of GPS tracking could be used to monitor these movements.

## 2. SZC Co. response

At the ISH Mr Davies, representing SZC Co., advised that the Project had met with Mr Stansfield on 8<sup>th</sup> February 2021 to discuss this particular issue. Whilst the tracking of company owned vehicles and devices is possible (provided employees have been made aware of it), there are a number of challenges with trying to replicate this with non-company assets. These include:

- Hours of work – SZC Co. workforce do not commence work until they clock in at the Main Development Site (MDS). To this extent, their journey to work (to the Park and Ride) is conducted in their own personal time and the project would need to request an individual's permission to monitor their movements outside of their working hours. This is likely to be viewed as an intrusion into that individual's privacy and the legal implications would need to be considered.
- Technology – in order to be able to “track” movements an individual would need to download a Global Positioning System (GPS) tracking app (or similar) onto their own mobile device (as they will not have company mobile devices) in order for a Project tracking system to be able to identify their location and key locations. SZC Co. would need acceptance from the individual that they were prepared to download apps to their personal devices and for the Project to track this device at times deemed appropriate by the Project. There are likely to be legal issues with the tracking of non-company owned devices as well as issues of inconsistency with some members of the workforce complying with instructions and others not.
- General Data Protection Regulation (GDPR) - Mobile number and location (GPS Data) are explicitly categorised as personal data under GDPR. An organisation can only use this data through applying one of the six legal bases as follows:
  - Consent – employees need to provide their consent
  - Contract – making tracking a condition of an employment contract. This is difficult to apply as SZC Co. will not be the employer.
  - Legal obligation – reserved for organisations like HMRC, Police etc.
  - Vital interests – used only for protecting your safety/well-being or that of others
  - Public task – used by Councils for electoral services, Public Health (Covid), etc. It would appear unlikely to apply, at least without detailed further legal consideration.
  - Legitimate business interests – similar to consent and permission can be withdrawn by individual at any time.

In the present circumstances, only ‘consent’ is worthy of further consideration. However consent has to be based on clear communication and understanding of how personal data will be used/shared and permission can be removed at any time. It would

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be highly unlikely the Project would be able to enforce workforce consent to use mobile phone data for the purpose of tracking their location whilst staying in the area.

- Industrial Relations - At Hinkley Point C the unions had close involvement with the On-Boarding process and 'what is' and 'is not' reasonable for a worker to be asked and subjected to. For this and GDPR reasons mentioned above, the Project keeps personal data to a minimum and only mandates it if for vital interests (such as ID/Verification Checks, Competence/working safely, Safety, Etc.). It is highly unlikely that mandating mobile phone data for tracking workforce location by a third party would meet the criteria for mandating, or even as a basis for asking consent in the first place. This is not something the unions would be likely to accept.