



# The Sizewell C Project

## 6.9 Volume 8 Freight Management Facility Chapter 3 Alternatives and Design Evolution

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### 3. Alternatives and Design Evolution

#### 3.1 Introduction

3.1.1 In accordance with Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the ‘EIA Regulations’) (Ref. 3.1), this chapter of the **Environmental Statement (ES)** presents a description of the main alternatives considered by SZC Co. in relation to the proposed freight management facility (FMF) (herein referred to as the ‘proposed development’).

3.1.2 The site selection and design evolution process for the proposed development has been iterative and informed by consultation with statutory consultees and the public.

3.1.3 This chapter provides details of the supporting studies that have informed the final design choices for the proposed development, taking into account the environmental and transport impacts, where relevant. In summary this includes the following:

- alternative sites considered for the proposed development; and
- alternative layouts, including sizing, land uses, access and landscaping.

3.1.4 This includes details of how the choice of site and layout have been influenced by environmental and transport considerations. Due to the operational requirements of the site, requiring good connections with the likely HGV routes on the A12 and A14, socio-economic considerations were not deemed to be a relevant factor for the FMF. Such a facility would not be suited to town centre locations close to existing businesses, and vehicles stopping at the site would only be held temporary before moving on to the Sizewell C main development site.

3.1.5 This chapter should be read in conjunction with **Volume 1, Chapter 5** of the **ES**, the **Transport Assessment** (Doc Ref. 8.5), and the **Planning Statement** (Doc Ref. 8.4), which provides further details on the strategic site selection process for the proposed development. Further details of the formal Stage 1 consultation, Stage 2 consultation, Stage 3 consultation and Stage 4 consultation are described in the **Consultation Report** (Doc Ref. 5.1).

## 3.2 Alternative sites

### a) Background

3.2.1 The rationale for proposing the FMF is to accommodate approximately 150 heavy goods vehicles (HGVs) on-site at any one time, to allow a controlled pattern of deliveries to site, with reduced movements during peak or sensitive hours on the network. The facility would provide ancillary buildings and structures where paperwork, and goods can be checked prior to delivery to the Sizewell C main construction site. The facility would also provide a location where, in the event of an accident on the local road network HGVs could be held.

3.2.2 In considering appropriate locations for an FMF site, good links to the port of Felixstowe would be required as it is expected to play a major role in the delivery of materials to the Sizewell C main development site. Therefore, the FMF site location would need to consider HGVs arriving on the A14 from the port to the east, in addition to road-freight in HGVs arriving on the A14 from the west. HGVs would then need to continue their journey to the Sizewell C main development site via the A12. Therefore, the FMF needs to be located with close proximity to the A14 and A12.

3.2.3 Having identified the benefits of intercepting construction vehicle movements in these general locations, SZC Co. commenced a site selection exercise to identify potentially suitable locations. This exercise is described in the **Site Selection Report**, provided at **Appendix A** of the **Planning Statement** (Doc Ref. 8.4).

3.2.4 A number of sites were considered to be potentially suitable for a standalone FMF, provided in **Table 3.1**. These sites were presented as options at the Stage 1 and Stage 3 consultations.

**Table 3.1: Description of the FMF sites considered in the Stage 1 and Stage 3 consultations.**

Option 1 (Orwell Lorry Park West) – Stage 1 consultation
<ul style="list-style-type: none"> <li>• Option 1 was approximately 11 hectares (ha) and located immediately to the north-west of the existing Orwell Crossing Lorry Park close to Ipswich.</li> <li>• The site consisted of arable fields with occasional patches of scrub, bare ground and ruderal vegetation, with scattered mature trees around the periphery.</li> <li>• The site was effectively enclosed by the A1156, railway corridor and residential settlement to the north, the A14 to the south, and industrial/mixed land uses to the east and west. The residential properties were relatively well screened by the railway and the road.</li> <li>• There would have been no public rights of way (PRoWs) passing through the site or adjoining its boundaries.</li> <li>• There would not have been any designated heritage assets located within the site or within a radius of 250 metres (m). However, prehistoric archaeology (Neolithic/Bronze Age) remains may have</li> </ul>

been present due to the proximity of the Seven Hills Barrow Cemetery (c. 800m – 1 kilometre (km) from the centre of the site to the east).

- The site would have been approximately 150m to the west of the closest part of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). The site would have been largely screened from the AONB due to the presence of intervening woodland, existing development and boundary vegetation. Ipswich Heaths Site of Special Scientific Interest (SSSI) was located approximately 800m to the north of the site. No other ecologically designated sites would have been located within the vicinity.

**Option 2 (Orwell Lorry Park East) – Stage 1 consultation**

- Option 2 was approximately 11ha in area and located immediately to the east of the existing Orwell Crossing Lorry Park, near Ipswich, which is accessed from the A14 eastbound carriageway before the A12/A14 junction.
- The site consisted of arable fields with occasional patches of scrub, bare ground and ruderal vegetation, with scattered mature trees around the periphery.
- The site was bounded by a railway line along its northern boundary, beyond which there were residential properties fronting onto the A1156. To the west of the site there was the Shepherd and Dog Farm and mixed-use land.
- A PRoW would have run diagonally through the middle of the site, arising mid-way along the site's southern boundary with the A14 and leaving in the north west corner of the site across the railway.
- No designated heritage assets were located within the site or within a radius of 250m.
- There would have been three consented discharges to groundwater within 500m of the site, the nearest of which was located approximately 80m from the site boundary.
- The site would have been generally flat and within an isolated fragment of the Suffolk Coast and Heaths AONB, cut off from the wider area by the A14 road corridor. Ipswich Heaths SSSI was located approximately 1km to the north of the site. No other ecologically designated sites fell within the vicinity.

**Option 3 (A12/A14 Seven Hills) - Stage 1 consultation**

- Option 3 was approximately 12ha in area, and located to the southeast of the A12/A14 junction near Ipswich with local roads along its western (A1156) and southern (Old Felixstowe Road) boundaries.
- The site consisted of generally flat arable land with a very slight slope up from south to north of around 2-3m.
- The surrounding area principally consisted of agricultural fields separated by hedgerows and pockets of woodland. There would be no PRoWs passing through the site or adjoining its boundary.
- There would have been numerous Scheduled Bowl Barrows (part of the Seven Hills Barrow Cemetery – Scheduled Monument) in the close vicinity of the site, the nearest of which being approximately 200m west of the site, beyond the A1156/Felixstowe Road
- The site would have been approximately 100m to the north-east of the Suffolk Coast and Heaths AONB and the Mill River Special Landscape Area (SLA) would have been approximately 1km to the north of the site.
- The woodland and trees which border the site to the south and the west may have had the potential to support bat roosts.

**Option 1 (Seven Hills) - Stage 3 consultation**

- Option 1 at Stage 3 was approximately 9.9ha and located to the south-west of the A12/A14/A1156 Seven Hills junction near Ipswich.
- The site comprises arable land.

- The surrounding area is dominated by agricultural fields separated by hedgerows and pockets of woodland.
- A number of PRowWs would adjoin the boundary of the site.
- There would be numerous Scheduled Bowl Barrows (part of the Seven Hills Barrow Cemetery - Scheduled Monument) in the close vicinity of the site, the nearest of which is approximately 110m to the south-east of the site.
- The Suffolk Coasts and Heaths AONB is located approximately 670m to the south-west of the site at its closest point. The Mill River SLA lies approximately 1.2km from the site at its closest point.

**Option 2 (Innocence Farm) - Stage 3 consultation**

- The whole site measures approximately 115ha in area. Option 2 would have occupied approximately 9ha as an FMF.
- The site was located adjacent to the communities of Kirton and Trimley St Martin at Innocence Farm and immediately north of the A14.
- The site comprised arable land.
- The majority of the surrounding area was arable farmland, with well-defined hedgerow field boundaries, interspersed with areas of woodland and smaller copse.
- The site would not have any PRowWs passing through it or immediately adjoining its boundary.
- The Suffolk Coasts and Heaths AONB would have been located approximately 400m to the south-west of the site at its closest point. The Mill River SLA would have been approximately 400m from the site at its closest point.
- There would have been no designated heritage assets or listed buildings within or immediately adjacent to the site.

**3.2.5** No options were considered at the Stage 2 consultation, at which SZC Co. instead proposed that HGV deliveries and movements to and from the main development site could have been effectively managed without the requirement for an external off-site FMF, or lorry park. A number of measures to manage and control HGV movements to and from the main development site were proposed at Stage 2, including the implementation of an electronic web-based Delivery Management System, and use of Automatic Number Plate Recognition technology.

**3.2.6** Suffolk Coastal District Council stated that they strongly supported the principle of a physical dedicated FMF, and were not satisfied that the proposed electronic systems would be satisfactory.

**3.2.7** Also, many consultation respondents noted that there would have been a need to administer, monitor, and control HGV movements with these electronic interventions, and raised concerns that vehicles would not stick to specific, clearly defined, designated routes.

**3.2.8** As such, the options for Stages 1 and 3 detailed in **Table 3.1**, were the sites considered for the FMF.

- 3.2.9 Since the Stage 1 consultation, outline planning permission (local planning authority ref: DC/17/4257/OUT) was granted in June 2018 for employment development of both the Orwell West and East sites (Options 1 and 2 at the Stage 1 consultation). Discussions were held with the landowner and it was strongly suggested that the land would no longer be available to SZC Co. by the time development consent for the Sizewell C Project may have been granted.
- 3.2.10 The site for Option 3 in the Stage 1 consultation forms part of an allocation (Policy Ref: SCLP12.20A) within the emerging Suffolk Coastal Local Plan (Final draft, 2019 (Ref. 3.2)) for a high-quality business park, as is therefore no longer available as an option.
- 3.2.11 For the reasons summarised below, SZC Co. considers the site at Seven Hills (Stage 3 consultation) to be the most appropriate site out of the two remaining options for the location of the FMF, and it has, therefore, been selected as the location for this facility for the purposes of the Development Consent Order application.
- 3.2.12 The analysis of environmental and transport impacts associated with the two options presented at the Stage 3 consultation is set out below.
- b) **Environmental considerations**
- 3.2.13 At the Stage 3 consultation the two options for the FMF were situated in close proximity to each other and the broader environmental constraints in both locations are similar.
- 3.2.14 The Preliminary Environmental Information (PEI) report presented at Stage 3 identified that no significant effects would be anticipated on designated sites, plants and habitats, invertebrates, reptiles, breeding birds, otters, water voles and badgers for either Option 1 (Seven Hills) or Option 2 (Innocence Farm). Great crested newts and bats were considered a possibility at both locations, but the assessments noted that any potential residual effect could be mitigated against.
- 3.2.15 With regards to landscape and visual considerations, the PEI noted that, for both options, any effect during construction, and removal and reinstatement would be unlikely to be significant. During operation it was considered that there would be a localised effect on the character of the landscape within the sites of both Option 1 (Seven Hills) and 2 (Innocence Farm), arising from the change from arable fields to an HGV parking area with associated infrastructure. Whilst it was considered that the effect would be significant for both options, the effect would be temporary in nature. Furthermore, the effect would be localised and, beyond the site boundaries for both options, the effects on the landscape rapidly reduce. The PEI noted no significant

residual visual effects for either Option 1 (Seven Hills) or Option 2 (Innocence Farm).

- 3.2.16 With regards to the historic environment, the PEI noted that, providing an agreed scheme of archaeological investigation is implemented, no significant residual effect would be anticipated at either Option 1 (Seven Hills) or Option 2 (Innocence Farm). No significant residual effects arising from a change to setting of the heritage assets would have been anticipated at either option.
- 3.2.17 No significant effects on Air Quality Management Areas were predicted during all phases from construction to removal and reinstatement. The PEI also noted that there would be no significant effects on flood risk at either Option 1 (Seven Hills) or Option 2 (Innocence Farm).
- 3.2.18 However, the PEI identified that Option 2 (Innocence Farm) was more likely to generate a significant (albeit short-term) noise effect (at one receptor) during both the construction and removal and reinstatement phases, compared to no effects for Option 1 (Seven Hills).

#### c) Transport

- 3.2.19 Option 1 (Seven Hills) could be considered the most convenient given its closer proximity to the A12/A14 junction. However, further analysis was undertaken following consultation feedback to assess the potential for impacts on the A12/A14 junction.
- 3.2.20 The analysis identified that the westbound slip of the junction was slow moving during the AM and PM peak hour. However, the only slip of the Seven Hills junction to be used by HGVs for the FMF at Option 1 (Seven Hills) would be the eastbound off-slip. Therefore, the FMF in this location would not put any additional pressure on the westbound slip. Option 1 (Seven Hills) would also offer a shorter detour of HGVs required to access/egress the FMF (circa 1 mile) when compared to Option 2 (Innocence Farm).
- 3.2.21 Option 2 (Innocence Farm) would have formed part of a wider proposed 67ha allocation within policy SCLP12.35 of the emerging Suffolk Coastal Local Plan (Final draft, 2019 (Ref. 3.2)) for port related businesses, including HGV parking. The policy states that the site could, in exceptional circumstances, be used to assist in the delivery of nationally significant infrastructure projects.
- 3.2.22 Further analysis identified that Option 2 (Innocence Farm) would have resulted in HGVs taking a 9.5-mile detour to access/egress the FMF. HGVs arriving from the east would have needed to U-turn at the Seven Hills roundabout, requiring all arms of the roundabout junction to give way to the

HGVs. Similarly, westbound traffic exiting the Innocence Farm site would have needed to travel east along the A14 and U-turn at either the Kirton/Trimley St Martin junction (Junction 59) or the Dock Spur roundabout (Junction 60), again substantially increasing the journey length for construction vehicles. These movements would have placed additional pressure on the relevant roundabouts and associated slip-roads on the A14 junctions, particularly during the AM and PM peak hour, and would have created unnecessary additional movements.

3.2.23 Consultation feedback raised concerns regarding how Options 1 (Seven Hills) and 2 (Innocence Farm) would be managed when Operation Stack is active. The arrangements regarding the movements of Sizewell C-related traffic during Operation Stack have been considered and can be found in the **Traffic Incident Management Plan (TIMP)** (Doc Ref. 8.6).

3.2.24 The local authorities also put forward two additional sites for an FMF to the west of the Orwell Crossing, these were:

- Option 3 (Sproughton); and
- Option 4 (Stowmarket).

3.2.25 Option 3 (Sproughton) would have been accessed off Sproughton Road via Junction 54 of the A14. Whilst this option would have limited HGV movements at the Seven Hills junction, HGVs arriving from the east would have been required to cross the Orwell Crossing twice (to visit the FMF and then join the A12 towards the Sizewell C main development site) and would have needed to undertake a 20-mile detour. SZC Co. anticipated that the Port of Felixstowe would play a major role in the delivery of materials to Sizewell C and therefore, a large proportion of HGVs would arrive on the A14 from the east. As such, Option 3 (Sproughton) would have put additional pressure on the Orwell Crossing and, should the crossing be closed, the HGVs would not have been able to be held anywhere off of the road network.

3.2.26 Furthermore, outline planning consent for an enterprise park comprising 90,000 square metres (sqm) of employment floorspace, retail uses and a hotel (local planning authority ref: 17/05687) was granted by Babergh and Mid Suffolk District Councils in December 2018. This consented scheme encompassed land for Option 3 (Sproughton) and did not include space specifically for HGV parking. It should also be noted that a number of pre-commencement conditions have been submitted by the developer and approved by the local planning authority indicating that the consent is coming forward and is unavailable for an FMF site.

3.2.27 Option 4 at Stowmarket would have been circa 45 miles from the Sizewell C main development site, and would have been a 60-minute drive via the

A14 and A12 in uncongested conditions. This would have been too far from the site to provide operational efficiency, and too far from the A14/A12 junction to effectively manage HGV movements on the local road network.

**3.2.28** Overall, Option 1 (Seven Hills) was considered to be preferable from a transport perspective, as it would result in minimal detours of HGVs, no unnecessary HGV movements across the Orwell Crossing, and would not result in additional HGVs on the westbound slip of the Seven Hills junction. Furthermore, Option 1 (Seven Hills) is located to the east of the Orwell Crossing, which would allow the FMF to continue to operate in the event of a bridge closure.

### **3.3** Alternative designs and design evolution

**3.3.1** This section provides a summary of the evolution of the design of the proposed development, including the alternative designs considered and modifications made throughout the design process to address any environmental considerations. As explained above, the chosen Option 1 at Seven Hills was first presented at the Stage 3 consultation as the potential sites consulted on at Stage 1 were no longer available. It was the most favourable of the sites considered from a transport perspective due to having the simplest route to and from the site for HGVs, and thus resulting in no unnecessary HGV movements.

#### **a)** Stage 3 consultation

**3.3.2** At the Stage 3 consultation, SZC Co. had an initial concept for the layout of the site, as shown in **Plate 3.1**. The concept included indications of where the hard surfacing would be located on each site, 10m landscape buffers around the site boundary behind planting and grassed embankments, and that access would be provided centrally to the site from Felixstowe Road on the southern boundary.

Plate 3.1: Stage 3 consultation: FMF Seven Hills – Masterplan.



3.3.3 At the Stage 3 consultation SZC Co. continued to undertake further feasibility work in order to prepare a more detailed masterplan for the site.

3.3.4 The Stage 3 PEI found that the proposed development had the potential for effects on the landscape character within and immediately around the site during operation. However, further detailed design, including layout, landscaping and boundary treatment would help to mitigate any effects.

b) Stage 4 consultation

3.3.5 At Stage 4 the proposal for the Seven Hills site, provided in **Plate 3.2**, remained largely unaltered from Stage 3, other than some minor changes to the site boundaries as a result of further design development. The alterations were:

- the site boundary was extended along Felixstowe Road to facilitate widening of a ghost island junction to accommodate right turning traffic (if this work is deemed necessary following further analysis);
- the site boundary was reduced to exclude an existing drainage feature to the north-west of the site;
- minor site boundary alterations to align more accurately with land ownership boundaries; and
- the access point to the site was also moved further west on Felixstowe Road to allow for the ghost island junction.

**3.3.6** The Stage 3 PEI was reviewed in light of these proposed changes, and it was found that the changes and amended land take would not substantially alter the baseline, mitigation proposals, and the assessment of potential impacts and residual effects for any of the relevant environmental assessment topic areas (terrestrial ecology and ornithology, soils and agriculture, and geology and land quality).

**3.3.7** The widening of Felixstowe Road to provide the ghost island junction would not impact traffic flow during construction. Once operational, the provision of the ghost island junction would reduce delays to through traffic compared to the Stage 3 proposal for the Seven Hills site.

Plate 3.2: Stage 4: FMF Seven Hills – Masterplan.



c) The proposed development

3.3.8 The design for the proposed development is described in **Chapter 2** of this volume and illustrated in **Figure 2.1**.

Plate 3.3: Final design: FMF Seven Hills – Masterplan.



3.3.9 Since Stage 4 consultation, the design has developed as more information, and detail, on its precise operational requirements and environmental context has become available.

3.3.10 The proposed masterplan, provided in **Plate 3.3**, includes provision for parking areas, internal road network, pedestrian walkways, four welfare buildings, covered search area, smoking shelter, cycling shelter, fencing, landscape bunds, swales and planting.

3.3.11 The buildings and shelters have been positioned adjacent to landscape bunds and the proposed planting so that they are screened from the surrounding area.

3.3.12 In terms of access arrangements, the access to the site remains unchanged from Stage 4 consultation.

- 3.3.13 A lighting strategy was developed following Stage 3 consultation which restricts lighting to the to the parking areas, and along the main access road for security and safety reasons. Regard was given to minimising potential effects on ecological receptors.
- 3.3.14 The landscaping scheme developed further following Stage 3, and was designed specifically to minimise potential effects on ecological, heritage and landscape and visual receptors. The site masterplan shown in **Plate 3.3** shows the provision of up to 3m high landscape bunds on the eastern and western boundaries of the site, which would provide a buffer between the FMF, and the surrounding area.
- 3.3.15 A drainage report was also prepared and sustainable drainage systems (SuDS) have been incorporated into the design, including swales to the north and south of the site, to minimise water run-off and control discharge to existing water courses.
- 3.3.16 The current design, assessed in this **ES**, has attempted to reduce, as far as practicable, the potential for significant environmental effects, whilst maintaining operational effectiveness.

## References

- 3.1. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.
- 3.2. Suffolk Coastal District Council. Suffolk Coastal Local Plan. Final Draft. 2019.