



The Sizewell C Project

6.6 Volume 5 Two Village Bypass Chapter 2 Description of Two Village Bypass

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2. Description of Development

2.1 Introduction

- 2.1.1 This chapter of the **Environmental Statement (ES)** has been prepared in respect of the proposed two village bypass (referred to throughout this volume as the ‘proposed development’). The proposed development refers to both the route of the proposed bypass and the associated features contained within the site boundary, including a roundabout connecting the two village bypass to the A12 at the western end, the River Alde overbridge, the Foxburrow Wood footbridge, side roads off the two village bypass, a roundabout connecting the two village bypass to the A12 at the eastern end, drainage and landscape design, as illustrated in **Figure 2.1**. The ‘route of the two village bypass’ or ‘route of the proposed bypass’ refers to the proposed road alignment. This proposed development would be retained following completion of the Sizewell C main development site as a lasting legacy of the project.
- 2.1.2 The route of the two village bypass would comprise a new, permanent, 2.4 kilometre (km) single carriageway road, with a design speed of 60 miles per hour (mph) that would depart from the A12 to the south-west of Stratford St. Andrew before re-joining the A12 to the east of Farnham. The two village bypass would create a new route around the south of Stratford St. Andrew and Farnham, thus bypassing the two villages. Once operational, the two village bypass is proposed to be a permanent bypass that would form a new section of the A12.
- 2.1.3 The two village bypass site (herein referred to as the ‘site’), forms part of the Sizewell C Project to which this application for Development Consent Order (DCO) relates. The two village bypass would play an important role in significantly reducing the amount of construction traffic travelling through Farnham and Stratford St. Andrew during peak construction of the Sizewell C Project. Further detail on the two village bypass, in the context of the wider construction transport strategy, is provided in the **Transport Assessment** (Doc Ref. 8.5).
- 2.1.4 The proposed development would be constructed in the early years of construction of the Sizewell C Project, as shown in the Indicative Phasing Schedule in the **Implementation Plan** (Doc Ref 8.4i). Once operational, it would be open to the public and would be used by SZC Co. during the construction phase of the Sizewell C main development site to transport construction workers arriving by car, buses from the southern park and ride site, and goods vehicles (both light and heavy) delivering freight to the Sizewell C main development site. It would continue to be used during the operation of Sizewell C.

2.1.5 This chapter presents a description of the proposed development, including:

- the general site layout, the route of the bypass and associated earthworks and structures, landscaping, utilities and drainage, security and lighting;
- the parameters which identify defined envelopes within which future development would be undertaken;
- the sequence and methods for construction, including material quantities and number of construction personnel and vehicles; and
- operation of the proposed development.

2.2 Proposed development description

a) The proposed route of the two village bypass

2.2.1 The site is approximately 54.8 hectares (ha) and comprises predominately agricultural land (which accounts for approximately 50.3ha of the site) as well as highway land. Approximately 39.2ha of agricultural land would be required permanently for the proposed development, with a further 11.1ha required temporarily to facilitate construction.

2.2.2 The proposed route of the two village bypass would comprise a new single carriageway, approximately 2.4km in length. The proposed route of the two village bypass would be 7.3 metres (m) in width, with additional 1m hardstrips and 2.5m grassed verges. Swales approximately 3-3.5m wide would also be proposed along the earthworks for the length of the proposed route of the two village bypass for highway drainage, except for the extent of the River Alde floodplain. The side roads off the two village bypass would be approximately 6m in width and would be of sufficient width so that vehicles could pass one another without the requirement for laybys.

2.2.3 The proposed route of the two village bypass runs across predominantly agricultural land to the south of the existing A12. In a west to east direction, it would begin at the A12 to the west of Stratford St. Andrew via a new four-arm roundabout, east of Parkgate Farm and Stratford Plantation, and re-join the A12, via a new four-arm roundabout, to the east of Farnham at the A12 and A1094 (Friday Street) junction.

2.2.4 The two village bypass has been split into three main sections as follows:

- Western section – A12 / Tinker Brook to Pond Wood;

- Central section – Pond Wood to north of Farnham Hall; and
- Eastern section – north of Farnham Hall to A12 / A1094 (Friday Street).

2.2.5 Please refer to **Figure 2.1** for the location of each of these main sections, with further detail shown on **Figures 2.2 to 2.4**.

2.2.6 The following sections (**sections i. to iii.**) provide an overview of the proposed development in these three areas. All dimensions are approximate. The heights of embankments or depths of cuttings described are based on the proposed vertical alignment profiles of the proposed development shown in **Appendix 2A** of this volume. There is some flexibility during detailed design to alter the vertical alignment shown by up to 1m. Further detail of this flexibility is provided in **section 2.3** of this chapter.

2.2.7 Indicative planting locations and drainage (including infiltration basins) are shown on **Figures 2.1 to 2.4**, with further detail provided in **sections 2.2 b)** and **c)** respectively.

i. **Western section - A12 / Tinker Brook to Pond Wood**

2.2.8 An illustrative masterplan for the western section of the proposed development is provided on **Figure 2.2**.

2.2.9 In this section, the route of the proposed two village bypass would connect to the A12, via a new roundabout located to the east of Parkgate Farm and Stratford Plantation. The route would rise on an embankment to cross the River Alde on an overbridge at approximately 7.5m in height above ground level. After crossing the River Alde, the route of the proposed two village bypass would continue in a north-easterly direction, intersecting Nuttery Belt and passing Pond Wood, and decreasing in height to grade level.

2.2.10 Key features of the two village bypass in the western section include:

- A four-arm roundabout located to the east of Parkgate Farm and Stratford Plantation. The north-eastern and western arms would connect to the A12, the southern arm would provide a connection to Tinker Brook and the eastern arm would connect to the proposed route of the two village bypass. The A12 would be realigned over a length of approximately 450m to meet the new roundabout, and an approximately 300m long section of Tinker Brook would also be realigned to accommodate existing access to the south, including access to Parkgate Farm.
- A crossing of the River Alde via an overbridge. The overbridge would be 60m in length and have two concrete intermediary piers. The

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overbridge would be 7.5m in height above ground level to the road surface.

- Eight 5.4m long, 3m wide flood relief culverts proposed (four on either side of the River Alde overbridge) passing through the embankment within the width of the flood plain. There would also be two further culverts within the embankment, including:
 - a culvert on the western side of the River Alde overbridge outside the floodplain extent (approximately 200m south-east from the existing A12), which would be approximately 5.4m wide by 3m high and would allow an existing watercourse and livestock access track to pass beneath the road (on the alignment of an existing accommodation access track which would be diverted under the proposed bridge)); and
 - a mammal migration culvert on the east side of the River Alde overbridge outside the floodplain extent (approximately 5.4m by 1.2m).
- Flood compensation areas would be provided to the north side of the route of the proposed bypass on both sides of the River Alde, if required.
- Alterations to an accommodation access track connecting Parkgate Farm to land on the east side of the River Alde. The accommodation access track would be diverted (for all users) along the southern edge of the embankment, under the River Alde overbridge to connect to the existing accommodation access track to cross the River Alde at its existing crossing point to the north of the bypass route. On the west side of the river, the access track (for all users) would be diverted south under the River Alde overbridge and around the southern edge of the embankment before connecting back to the existing track on the south site of the route of the bypass. However, there would also be a separate livestock track which would follow the existing accommodation access track through the new culvert on the western side of the River Alde overbridge (not suitable for vehicular users). The proposed River Alde overbridge would maintain a headroom clearance of 6m from river bank level to the underside of the bridge to allow agricultural vehicles to use the diverted track. Non-motorised users (pedestrians, cyclists and equestrians) would also be able to pass beneath the bridge on this track.
- Footpath E-243/001/0 would be permanently realigned approximately 25m to the east to cross the route of the two village bypass.

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- A staggered junction would be provided between Nuttery Belt and Pond Wood to maintain access on both sides of the route of the proposed two village bypass. On the south side, this includes the realignment of the accommodation access track from Pond Barn Cottages for approximately 75m. On the north side, the accommodation access track would be realigned for approximately 350m to provide access to Farnham Hall.

2.2.11 Signage and road markings would also be provided, as required.

ii. **Central section - Pond Wood to north of Farnham Hall**

2.2.12 An illustrative masterplan for the central section is provided on **Figure 2.3**.

2.2.13 The route of the proposed two village bypass would continue in north-easterly direction passing into a cutting for the length of this section. The cutting would be approximately 4.5m in depth below ground level as it passes between Farnham Hall and Farnham Hall Farmhouse.

2.2.14 Key features of the two village bypass in the central section include:

- On the south side of the route of the bypass, an access track would be provided for approximately 400m from Pond Barn Cottages to Farnham Hall Farmhouse to maintain access to the property.
- An footbridge would be provided across the route of the proposed two village bypass approximately 150m east of Farnham Hall, referred to as the 'Foxburrow Wood footbridge'. The Foxburrow Wood footbridge would be approximately 2.5m in height above ground level to the overbridge surface, approximately 7m in height above the route of the proposed two village bypass (maintaining the minimum headroom clearance of 5.7m). The proposed Foxburrow Wood footbridge would serve non-motorised users only.
- Footpath E-243/003/0 would be permanently realigned to cross over the route of the proposed two village bypass via the proposed Foxburrow Wood footbridge, exiting along the western side of Foxburrow Wood. Footpath E-243/003/0 would ramp up to the proposed Foxburrow Wood footbridge. Foxburrow Wood county wildlife site ancient woodland will be retained in its entirety. A 15m buffer from proposed earthworks to the ancient woodland would be maintained.
- Footpaths E-243/003/0 and E243/011/0 (on the east side of the proposed route of the two village bypass) would be upgraded to a bridleway, with agreement from Suffolk County Council. However, other

than the crossing, no physical changes would be required to footpaths E-243/003/0 and E243/011/0 to facilitate the change to a bridleway.

2.2.15 Signage and road markings would also be provided, as required.

iii. [Eastern section - north of Farnham Hall to A12 / A1094 \(Friday Street\)](#)

2.2.16 An illustrative masterplan for the eastern section of the proposed development is provided on **Figure 2.4**.

2.2.17 The route of the proposed two village bypass continues in a north-easterly direction, passing to the south-east of Mollett's Farm towards the A12 and A1094 (Friday Street) junction, rising to grade level.

2.2.18 Key features of the two village bypass in the eastern section include:

- Footpath E-243/004/0 would be diverted south-west to cross over the route of the two village bypass on the proposed Foxburrow Wood footbridge.
- Footpath E-137/029/0 between Mollett's Farm and Friday Street Farm would be permanently realigned to cross the route of the bypass approximately 25m south of its existing alignment.
- A four-arm roundabout would be provided to allow the route of the proposed two village bypass to join the A12. The roundabout would replace the existing junction of the A12, with the A1094 (Friday Street). The A12 would be realigned over a length of approximately 600m to meet the north-western and north-eastern arms of the proposed roundabouts, with the route of the proposed two village bypass joining on the south-western arm. The A1094 (Friday Street) would be realigned over a length of approximately 150m to meet the proposed roundabout on the south-eastern arm. This section of the proposed route of the two village bypass moving east would rise to grade level on approach to the eastern roundabout.
- Footpath E-137/028/0 would be maintained on its existing alignment.

2.2.19 Signage and road markings would also be provided, as required.

b) [Landscaping strategy](#)

2.2.20 The proposed landscaping for the site has been designed specifically to minimise potential effects on ecological, heritage and landscape and visual receptors through planting. The illustrative landscape plan is shown on **Figure 2.1**.

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- 2.2.21 Existing vegetation would be retained where possible, except where the route of the proposed two village bypass crosses field boundaries. Native hedgerow planting is proposed along the route of the proposed two village bypass road to integrate the road with the surrounding landscape, compensating for the loss of hedgerows severed by the route. These would connect into the existing hedgerow network, where possible.
- 2.2.22 Safe crossing points for bats and other mammal species (such as badgers) would include oversized culverts where the route is on embankment. Such culverts would be suitable for use by commuting bats and would also benefit other mammal species. Where the proposed route of the two village bypass is in cutting, if important bat flight lines are severed, bat hop-over features would be used whereby planting would be installed as close to the carriageway edge as possible to encourage an inter-linking canopy in the long-term that would keep bats at height and away from the path of vehicles using the road.
- 2.2.23 The provision of up to four ponds is also proposed along the route, which would provide additional pond habitat in the area and contribute to biodiversity net gain. Indicative locations are shown on **Figures 2.1 to 2.4**.
- 2.2.24 Further details of the indicative planting in each area are provided in the following sections.
- i. [Western section- A12 / Tinker Brook to Pond Wood](#)
- 2.2.25 Grass verges are proposed along the length of the route on this section, including on the embankments of the River Alde overbridge, and on all sides of the proposed roundabout. Additional grassed areas are proposed around the infiltration basins as well as native tree and shrub planting to help them integrate into the surrounding landscape.
- ii. [Central section- Pond Wood to north of Farnham Hall](#)
- 2.2.26 Native tree and shrub planting is proposed along the western side of the cutting as the route of the proposed two village bypass road passes Farnham Hall and residential properties, as well as along the western side of the proposed embankment up to the overbridge, to provide visual screening.
- 2.2.27 Native tree and shrub planting is also proposed on the east side of the overbridge, adjacent to Foxburrow Wood and Farnham Hall Farmhouse to provide visual screening and ecological connectivity.
- 2.2.28 Grass verges are proposed along the length of the route on this section, including on the cuttings.

iii. Eastern section- north of Farnham Hall to A12 / A1094 (Friday Street)

2.2.29 Grass verges are proposed along the length of the route on this section as well as around the proposed roundabout.

2.2.30 Additional native tree and shrub planting is also proposed around the infiltration basin, to help integrate this feature into the landscape.

c) Utilities and drainage

2.2.31 The route of the proposed two village bypass crosses the River Alde at a location where there is an extensive functional floodplain (1 in 20-year flood event) on either side of the watercourse. The route of the proposed two village bypass road would cross the river via a multi-span River Alde overbridge, allowing for the river to flow under the bypass. On either side of the River Alde, the embankment would form a causeway that would include flood relief culverts, as shown on **Figure 2.1**. As described above, there would also be a culvert on the western side of the River Alde overbridge (approximately 200m south-east from the existing A12), which would be 5.4m by 3m which would allow an existing watercourse and accommodation access track (used for livestock) to pass beneath the road (on their existing alignment).

2.2.32 As the route of the proposed two village bypass intersects the floodplain associated with the River Alde, allowance for flood compensation has been provided in areas north of the bypass route to compensate for that loss, if required (refer to **Figure 2.1** for further details on the locations). These areas could provide up to 19,000m³ if required, which would cater for 1 in 100 year with climate change (35%), which would equate to almost twice the floodplain lost (9,800m³). The conclusion of the **Two Village Bypass FRA** (Doc Ref. 5.5) is that the flood compensation areas are not necessary to mitigate the impacts of the proposed development. Flood risk is also assessed in Chapter 12 of this Volume. In response to consultation, the Environment Agency has stated that written consent from the landowner must be obtained for the increased flood depth, hazard and velocity that would be experienced in localised areas. SZC Co. will continue to engage with the land owner with the view to reaching such an agreement. However, as this agreement has not been obtained at the time of submission of the application, the proposed development includes areas within the site to the north of the proposed bridge that could provide flood compensation. It is not considered that this flood compensation land is required for the proposed development. It is nevertheless being put forward as part of the DCO application in case the Secretary of State disagrees with this position and takes the view that it is in fact required. Therefore, the provision of flood compensation areas is appropriately assessed in this Volume.

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- 2.2.33 Sustainable urban drainage systems (SuDS) would be implemented to attenuate surface water run-off and minimise sediment generation and provide water treatment. It is envisaged that surface water run-off would be contained within the site, with drainage to ground via infiltration using infiltration basins and swales.
- 2.2.34 Swales would be provided alongside the proposed route of the two village bypass road, except along the River Alde overbridge and along the embankment within the floodplain. The swales would attenuate and infiltrate to ground the surface water runoff.
- 2.2.35 It is envisaged that three infiltration basins would be located along the length of the route. The exact location, footprint and depth of the infiltration basins will be confirmed at the detailed design stage. The infiltration basins would be designed to cater for a 100 years flood event plus a 40% allowance for climate change.
- 2.2.36 The indicative locations, as shown on **Figures 2.1, 2.2 and 2.4** for proposed infiltration basins, are as follows:
- within grassland on the south side of the western roundabout, as illustrated in **Figures 2.1 and 2.2**;
 - south of the bypass to the east of Whin Covert, as illustrated in **Figures 2.1 and 2.2**; and
 - south-east of the A12/Friday Street roundabout, as illustrated in **Figures 2.1 and 2.4**.
- 2.2.37 Surface water from the roundabouts would be collected via gullies and discharge via an outfall drain to the adjacent infiltration basins.
- 2.2.38 It is envisaged that existing local drainage from surrounding fields would be culverted. Field drains located at the western end of the bypass, either side of the proposed River Alde overbridge, would be diverted along the base of the embankment to the River Alde where possible with additional/excess water culverted through the embankments. The swales and infiltration basins would provide a certain level of treatment for highway runoff. The adequacy of these facilities for removal of pollutants will be assessed as part of detailed design. If necessary, additional treatment measures such as Class 1 bypass separators would be provided.
- 2.2.39 The section of road between the eastern end of the embankment and the River Alde bridge would be drained either by underground drainage or drainage channel towards the bridge and then outfall with discharge into the river. Discharge would be fixed at greenfield rates and infrastructure for the

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removal of highway runoff pollutants would be provided, if required as determined at detailed design stage.

2.2.40 The section of road between the River Alde bridge and the western end of the embankment would be drained either by underground drainage or drainage channel to the west and then discharge into the infiltration basin.

2.2.41 Existing utilities within the site may require diversion. Discussions with utility providers are underway to confirm whether utility infrastructure would need to be diverted or whether there will be sufficient clearance from the works that they will not be affected. An appropriate approach will be agreed with the relevant statutory undertaker (i.e. the utility company) through a formal application and will include appropriate protective measures where required.

2.2.42 Connections would also be made to existing local utility services (such as electricity for lighting) in the public highway, where practicable. Engagement is ongoing with utility companies to confirm suitable points of connection within the highway.

d) **Security and lighting**

2.2.43 The route of the proposed two village bypass would be mostly unlit, however, lighting would be provided at the A12 western roundabout and the A12/A1094 eastern roundabout to highlight the junction to approaching vehicles, see **Figures 2.1 to 2.4**.

2.2.44 Lighting is required at the proposed roundabouts to ensure road safety as it is a dark area and the proposed road introduces a new deviation of the existing route. The lighting columns would be up to 10m in height and would be designed to comply to technical standards, including Design Manual for Roads and Bridges (Ref. 2.1) and the Code of Practice for the Design of Road Lighting, Lighting of Roads and Public Amenity Areas British Standards (BS) 5489-1:2013 (Ref. 2.2).

2.2.45 The remaining junctions would have low minor road flows and be similar to existing unlit rural junctions, and would therefore remain unlit to minimise light spill.

2.2.46 Fence lines along the route of the proposed development would generally be positioned approximately 5m back from the top of any cutting or swales or toe of an embankment, to provide forward visibility in accordance with standard technical requirements and to provide space for maintenance (Ref. 2.1).

2.3 Parameters

2.3.1 SZC Co. has adopted a parameters approach which defines the envelope for the proposed development. A parameter approach has been adopted in order to ensure that the design process has adequate flexibility in order that the project can be delivered. This approach has followed the Rochdale Envelope, as set out in the Planning Inspectorate (PINS) Advice Note Nine (Ref 2.3). These parameters have informed the assessment presented in the **ES** and the flexibility being sought is consistent with the findings of the **ES**. The assessment has used a reasonable worst case basis on which to assess and mitigate potential adverse impacts arising from the scheme.

2.3.2 The site location plan and illustrative masterplan are shown in **Figure 1.1** and **Figures 2.1 to 2.4** respectively. These details show one possible iteration of a scheme delivered within the defined parameters set out within the application. The parameters of the site assessed within the **ES**, within which the proposed development may be constructed, operated and maintained are then shown on the **Work Plans** (Doc Ref. 2.3), as seen in **Appendix 2A** of this volume.

2.3.3 Schedule 1 of the **Draft DCO** (Doc Ref. 3.1) describes the authorised development. The **Draft DCO** states that the development will be: constructed, operated and maintained anywhere within the area as shown on the **Work Plans** (Doc Ref 2.3) (showing lateral limits of deviation) and to a maximum of +/- 1 metre vertically; carried out in accordance with the relevant plans set out in Schedule 7 of the **Draft DCO**; and carried out in general accordance with the design principles set out in the **Associated Development Design Principles** document (Doc Ref 8.3), save to the extent that alternative plans or details relating to siting, scale or appearance are submitted by the undertaker and approved by the local planning authority.

2.4 Description of construction

2.4.1 This section presents key details of the proposed construction activities that are anticipated to be an overview of the construction process, including:

- construction sequence and durations;
- temporary contractor compounds;
- estimated construction vehicles;
- a description of road, rail and footpath realignments/diversions/closures;

- anticipated construction plant;
- anticipated construction workforce;
- indicative material quantities;
- an overview of construction waste;
- an overview of construction environmental and traffic management arrangements; and
- construction lighting.

2.4.2 The construction arrangements described in this chapter provide the basis for the assessment presented in this volume. Details of construction are necessarily broad and may be subject to modification during the detailed design stage or once a contractor has been appointed. The construction proposals are therefore indicative only but are sufficient to enable robust assessment of a realistic ‘worst case’ assessment of likely significant effects.

2.4.3 Construction works would take place during Monday to Saturday 07:00 to 19:00 hours, with no working on Sundays or bank holidays. However, some activities may require 24 hour working and East Suffolk Council would be notified in advance.

a) **Construction sequence and duration**

2.4.4 It is expected that construction work for the proposed development would take up to 24 months to complete, during the early years of construction of the Sizewell C Project as shown in the Indicative Phasing Schedule in the **Implementation Plan** (Doc Ref 8.4i).

2.4.5 It is envisaged that the construction of the proposed development is anticipated to start at the north-eastern end of the bypass, at the A12/A1094 (Friday Street) junction where a roundabout is proposed. It would then move in a south-westerly direction to the proposed roundabout, north of Parkgate Farm.

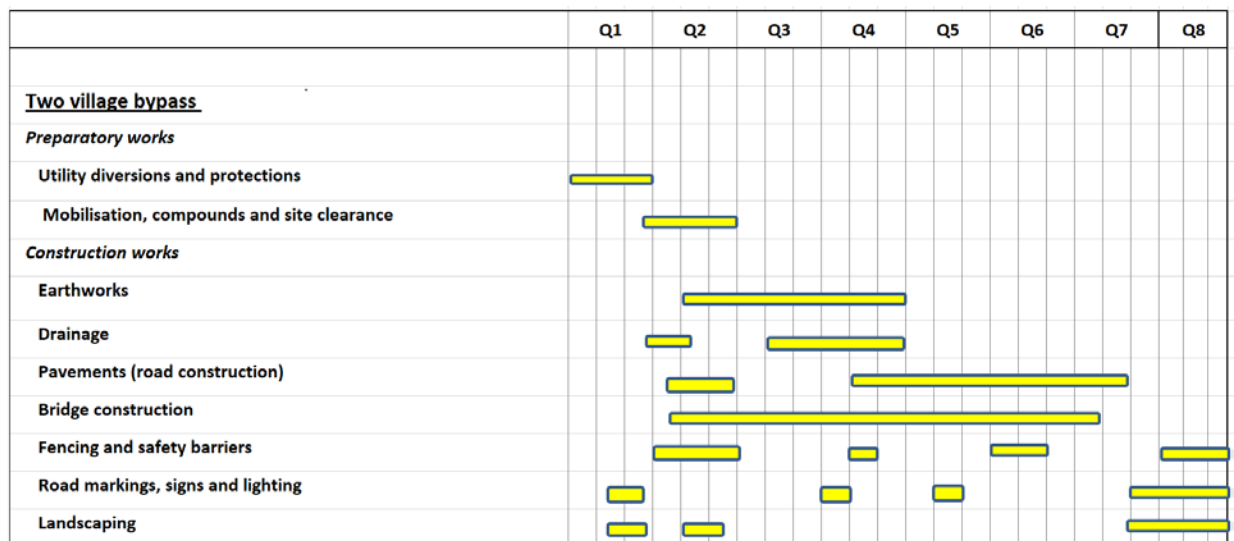
2.4.6 The anticipated construction sequence would be:

- preparatory works: site set up and clearance, including trees and hedgerows, the erection of temporary fencing on land required for construction and the creation of alternative access arrangements and rights of way, setting up of the temporary contractor compounds including security, welfare facilities, and temporary utilities;

- construction works: earthworks, road construction and surfacing, breaking of hardstanding, construction of bridges and civil structures (including piling), utility and drainage installation, construction of pavements, kerbs, footways and paved areas, installation of permanent fencing, road signs and marking, and road lighting, permanent connections to existing road networks, and landscaping.

2.4.7 **Plate 2.1** illustrates the above anticipated construction sequence.

Plate 2.1: Anticipated construction sequence



2.4.8 Working areas within the site would be secured with fencing. Early during the construction, swales and infiltration ponds would be used as appropriate to ensure that surface water run-off would be contained within the site.

2.4.9 At the end of construction, agricultural land required temporarily for construction of the proposed development would no longer be required and would be returned to agricultural use, where it is reasonably practicable to do so.

b) **Temporary contractor compound**

2.4.10 It is envisaged that all construction works would be managed from a temporary contractor compound proposed at the eastern end of the bypass, west of the A12 / A1094 (Friday Street) roundabout. The proposed location for this temporary contractor compound is shown on **Figure 2.1**.

2.4.11 The temporary contractor compound would be used as the base to manage works on the site, and depending on the nature and extent of the works, the temporary contractor compound could include:

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- office and welfare facilities for staff and operatives;
- parking for staff and operatives;
- secure storage of construction plant;
- laydown and storage of materials and components prior to installation and use;
- secure storage containers for weather-sensitive and high-value materials (e.g. signalling equipment); and
- safe turning space for vehicles and plant.

2.4.12 It is assumed that all contractor vehicles would enter the temporary contractor compound from the A12 or A1094 and the compound would support 100 construction workers and up to 90 parking spaces.

2.4.13 The compound would have wire mesh boundary fencing, approximately 2m high. Temporary site utilities comprising power, water, drainage and telecommunications would be provided as required. Since there is no available public water main in the vicinity, it is envisaged that water would be supplied by tanker and held in a service reservoir tank. Surface water runoff would be treated and disposed by infiltration. Foul water would be either treated and disposed by infiltration to ground or removed by tanker for treatment at designated licensed facility.

2.4.14 Where reasonably practicable, the movement of construction material, construction plant and/or construction workers to work sites would be through temporary roads within the area of land required for construction (known as haul routes), from the temporary contractor compound along the line of the route of the proposed two village bypass, or running parallel to it.

c) **Estimated construction vehicles**

2.4.15 It is anticipated that contractor vehicles would enter the temporary contractor compound from the A1094. Access to the site for contractor vehicles would also be from the A12 junction with Tinker Brook near Parkgate Farm.

2.4.16 It is anticipated that up to 60 heavy goods vehicles (HGVs) would arrive per day during the construction period (120 movements). It is proposed that vehicles would travel from the temporary contractor compound along a temporary access route to reach the remainder of the site.

d) Road/footpath closures or diversions

- 2.4.17** The route of the proposed two village bypass would be largely constructed offline, avoiding the need for long-term temporary road closures. Traffic management would be required during construction of the tie-ins on both roundabouts back to the A12 and the A1094 once the roundabouts are constructed. This would likely comprise shuttle working under traffic light control when the tie-ins are being undertaken. Each tie-in is anticipated to last up to a month.
- 2.4.18** The highway to the south of Pond Wood would be temporarily diverted during construction, with access to Pond Barn Cottages, Hill Farm and Farnham Hall Farm House via the A12, A1094 and the unnamed road to Greenwood Burial Ground, turning north at the railway bridge. It is anticipated that this diversion could be required for up to 3 months and would enable the construction of the staggered junctions south-west of Farnham Hall. Once the staggered junctions across the route are open, users would then be diverted to this route and the 150m section of the existing road north of the bypass would be stopped up.
- 2.4.19** Four footpaths cross the route of the proposed two village bypass: E-243/001/0, E-243/003/0, E-243/004/0 and E-137/029/0.
- 2.4.20** Two of these footpaths (E-243/003/0, E-243/004/0) would be temporarily diverted for up to 24 months during construction.
- Footpath E-243/003/0 would be temporarily diverted south to cross the work area at grade, approximately 350m south of its existing location. Once construction is complete, users would be permanently diverted via the Foxburrow Wood footbridge.
 - Footpath E-243/004/0 would be temporarily diverted north to cross the work area at grade, approximately 200m north of its existing location (on the same alignment as footpath E-137/029/0). Once construction is complete, users would be permanently diverted via the Foxburrow Wood footbridge.
- 2.4.21** Footpaths E-243/001/0 and E-137/029/0 would be maintained on their existing alignment until the permanent diversion is constructed, and therefore no temporary diversion is required. Footpath E-243/001/0 would be permanently realigned to cross the route of the proposed two village bypass approximately 25m east of its existing alignment. Footpath E-137/029/0 would be permanently realigned to cross the route of the proposed two village bypass approximately 25m south of its existing alignment.

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2.4.22 Footpath E-137/028/0 is also within the site, however it would not require any temporary or permanent diversions because no works are proposed that would result in a change of route of this footpath.

2.4.23 For further details see the public rights of way plan in **Appendix 2A** of this volume.

e) **Construction workforce**

2.4.24 The number of workers needed to construct the two village bypass would change during the course of the construction programme. Peaks would be related to specific activities, for example road surfacing. It is estimated that the peak construction workforce would be approximately 100 persons on the construction site at any one time.

f) **Anticipated construction plant and equipment**

2.4.25 The anticipated plant and equipment required for construction is set out in **Table 2.1**.

Table 2.1: Anticipated plant and equipment for construction

| Activity | Plant Equipment |
|---------------------------|---|
| Site set up and clearance | <ul style="list-style-type: none"> • Lorry loader crane • Diesel / petrol generators • Bunded fuel tanks • Mobile / static welfare units • Containers / lock ups • Heras type fencing • Low loaders • 360 wheeled / tracked excavators • Excavator accessories and attachments • 180 backhoe loaders • Dump trucks • Telehandlers • Chainsaws and brush-cutters • Wood chippers • Road weeper / gully sucker • 4x4 site vehicles • Vibratory tamping rollers |
| Earthworks | <ul style="list-style-type: none"> • Tracked dozers • Wheeled loading shovels • 360 tracked excavators • Excavator accessories and attachments |

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| Activity | Plant Equipment |
|---------------------------------|--|
| | <ul style="list-style-type: none"> • Motor graders / scrapers • Articulated haulers / dump trucks • Vibratory tamping rollers • Dust suppression bowsers • Road tipper waggon |
| Drainage | <ul style="list-style-type: none"> • Lorry loader crane • 360 tracked excavators • Excavator accessories and attachments • 180 backhoe loaders • Trench boxes • Manhole boxes • Dump trucks • Wheeled loading shovels • Concrete mixer trucks • Compressors and pneumatic hand tools • Submersible pumps • Settlement tanks • Trench rammers |
| Pavements | <ul style="list-style-type: none"> • Cold planer / milling machines • Motor graders / dozers • Wheeled loading shovels • Dump trucks • 360 tracked excavators • Excavator accessories and attachments • 180 backhoe loaders • Asphalt pavers (and tipper lorries) • Concrete mixer trucks • Compressors and pneumatic hand tools • Deadweight / vibrating rollers • Vibrating plate compactors • Road sweeper |
| Kerbs, footways and paved areas | <ul style="list-style-type: none"> • Lorry loader crane • Telehandler • Cold planer / milling machines • Concrete mixer trucks • Compressors and pneumatic hand tools • Mini Asphalt pavers (and tipper lorries) • Deadweight / vibrating rollers • Vibrating plate compactors |

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| Activity | Plant Equipment |
|------------------------------|---|
| Bridges and civil structures | <ul style="list-style-type: none"> • Lorry loader crane • Telehandler • 360 tracked excavators • Excavator accessories and attachments • Concrete mixer trucks • Concrete pumps • Concrete compaction plant • Dump trucks • Deadweight / vibrating rollers • Piling rigs (including equipment for closed end driven cast in-situ piling, and continuous flight augering / bored piles and driven sheet piles where required) • Compressors and pneumatic hand tools • Mobile all terrain cranes • Mobile Elevating Work Platforms (MEWP) - vehicle mounted or self-propelled |
| Road restraints | <ul style="list-style-type: none"> • Lorry loader crane • Telehandler • Concrete mixer trucks • Mini excavator • Excavator accessories and attachments • 180 backhoe loaders |
| Fencing | <ul style="list-style-type: none"> • Lorry loader crane • Telehandler • 180 backhoe loaders • Backhoe accessories and attachments • Concrete mixer trucks |
| Traffic signs | <ul style="list-style-type: none"> • Lorry loader crane • 180 backhoe loaders • Mini excavator • Excavator accessories and attachments • Telehandler • Tower scaffolds • MEWP's - vehicle mounted or self-propelled |
| Road lighting | <ul style="list-style-type: none"> • Lorry loader crane • Mini excavator • Excavator accessories and attachments • Small crane / backhoe • Telehandler • MEWP's - vehicle mounted or self-propelled |

g) Indicative construction material quantities

2.4.26 The anticipated construction material quantities are set out in **Table 2.2**.

Table 2.2 Anticipated construction material quantities

| Material | Mass of material required (tonnes) |
|-----------------------------|------------------------------------|
| Concrete | 2,700 |
| Granular sub-base | 35,000 |
| Steel | 350 |
| Asphalt (including bitumen) | 30,000 |
| Other | 50 |

2.4.27 Earthworks would be designed to maximise cut and fill balance across the Sizewell C Project. It is envisaged that the required fill material for the earthworks would be provided from material won across the Sizewell C Project, therefore negating the need to import fill materials to the site.

h) Waste

2.4.28 Waste generated from the construction and earthworks activities associated with the proposed two village bypass is likely to include:

- vegetation;
- packaging, including wood pallets, plastics, cardboard, tins;
- plasterboard;
- rubble (broken bricks, blocks, tiles etc.);
- timber (excluding pallets);
- cement;
- insulation;
- metal;
- dry concrete products (blocks, slabs etc.);
- plaster products (excluding packaging);

- ceramic materials; and
- hazardous waste (e.g. remedial wastes, paint cans, oil/lubricants etc.)

2.4.29 Earthworks would be designed to maximise cut and fill balance in order to prevent material being sent off-site. Furthermore, contractors would be required to investigate opportunities to minimise and reduce waste generation.

2.4.30 Any inert and non-hazardous waste material that cannot be reused on-site would be removed by licensed waste carriers and sent for reuse, recycling or recovery or for disposal at appropriately licenced facilities (these are expected to be inert waste landfill sites) in accordance with the Waste Hierarchy, as defined in the EU Waste Framework Directive (2008/98/EC). However, works would be carried out in such a way that, as far as is reasonably practicable, to minimise the amount of waste to be disposed at landfill.

2.4.31 It is estimated that approximately 49,300 tonnes of construction waste would be created through the construction of the proposed development. The proposed route would require both cut and fill earthworks to deal with existing ground levels. Refer to **Chapter 8 of Volume 2** of the **ES** (Doc Ref. 6.3) for further details.

i) **Construction and environmental management**

2.4.32 A **Code of Construction Practice (CoCP)** (Doc Ref. 8.11) has been included in the Sizewell C DCO application for the Sizewell C Project, which sets out the measures and controls that SZC Co. will require its contractors to adopt during construction of the proposed development, where appropriate. In summary, the **CoCP** sets out the following:

- general construction environmental management arrangements, including details of the environmental management system;
- how construction environmental management arrangements will be implemented, reviewed and monitored;
- community and stakeholder engagement that will be implemented during the construction period;
- general measures relating to topics such as training and competence, construction consents, workforce code of conduct, working hours and construction site layout;

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- measures relating to waste management and resource use, land quality, ecology, landscape, cultural heritage, noise and vibration, air quality, water environment, traffic and transport, amenity and recreation, carbon emissions, and emergency arrangements; and
- any site-specific controls to be applied at any of the Sizewell C Project sites.

2.4.33 The management measures and controls included in the **CoCP** have been identified through the Environmental Impact Assessment (EIA) process and will minimise impacts on the environment and human receptors, as far as reasonably practicable.

2.4.34 In addition to the **CoCP**, the arrangements for the management of construction traffic and workforce travel are set out in the **Construction Traffic Management Plan (CTMP)** (Doc Ref. 8.7) and **Construction Worker Travel Plan (CWTP)** (Doc Ref. 8.8) respectively. These documents include a series of measures to reduce the impact of construction vehicle traffic upon the highway network and for the sustainable travel of construction workforce to the Sizewell C Project sites.

2.4.35 The CoCP is secured by a requirement in Schedule 2 of the Draft DCO (Doc Ref. 3.1) and the appointed contractors will be required to undertake the construction works in accordance with the arrangements set out within the **CoCP**. The **Section 106 Heads of Terms** (Doc Ref 8.4j) then secures the **CTMP** (Doc Ref 8.7) and **CWTP** (Doc Ref 8.8). Any work undertaken by a contractor would be reviewed and approved by relevant SZC Co. personnel prior to the work commencing.

2.4.36 In addition, there may be a need to apply for additional permits, consents or licences prior to and during the construction works (such as land drainage consents, environmental permits or protected species licences, if required). As the programme of works and design are progressed, these permissions will be identified and scheduled in a timely manner to enable determination by the appropriate regulatory body. Any requirements of a granted permit, consent or licence will be provided to contractors undertaking the work to ensure compliance with those requirements.

j) **Construction lighting**

2.4.37 During construction of the proposed development, lighting would be required for certain periods to enable the safety and security of the site, construction staff and members of the public. Construction lighting would be designed to comply with relevant regulations and standards and would meet health and safety requirements. In accordance with the **CoCP**, lighting would be

positioned to minimise the potential impact upon the surrounding area as far as practicable.

2.4.38 Artificial lighting during the construction of the proposed development would only be used during the hours of darkness, low levels of natural light or specific construction methods or phases to ensure the health, safety and welfare of construction staff and members of the public.

2.4.39 It is envisaged that construction lighting would generally be required to provide illumination for:

- access/roads where required to meet safety requirements;
- safe movement of construction workers and pedestrians around the construction work site boundaries;
- specific construction tasks;
- site security; and
- temporary contractor compounds, materials storage facilities, and construction plan and equipment where required.

2.4.40 Where required, construction lighting would be provided at the minimum luminosity and would be designed, positioned and/or directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors or habitat used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, passing motorists, or the navigation lights for air. In addition, at construction sites where potentially significant effects are identified, the lead contractor will develop and implement lighting controls as part of their environmental management plan, which could include measures such as shielding of luminaires to reduce backward spill of light or use of sensors or timing devices to automatically switch off lighting where appropriate.

2.4.41 It is envisaged that closed board fencing would be provided where the site abuts existing woodland such as along Whin Covert, Nuttery Belt and Foxburrow Wood where necessary.

2.5 Description of operation

2.5.1 This section presents details of the operation of the proposed development. The two village bypass would be open for public use and for construction traffic associated with the Sizewell C Project and would have a 60 mph speed limit.

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a) Road usage

- 2.5.2 Once operational, the proposed development would remove all Sizewell C HGV related traffic and a significant amount of existing traffic from the villages of Farnham and Stratford St. Andrew, providing a legacy benefit to the area.
- 2.5.3 Existing traffic on the A12 in this location is approximately 18,900 vehicles daily. Once the two village bypass is operational, during the peak construction period of the Sizewell C Project, the existing road through Stratford St. Andrew and Farnham is predicted to be used by 250 vehicle movements per day, representing a 99% reduction in traffic through Stratford St. Andrew and Farnham, including during peak hours (98% reduction between 07:00-09:00 and 99% reduction between 16:00-18:00 on a typical day).
- 2.5.4 During peak construction period of the Sizewell C Project it is anticipated that approximately 22,200 vehicle movements per day would use the two village bypass. Of these movements, it is estimated that there would be 1,550 vehicle movements per day from all Sizewell C-related traffic (including workers, light goods vehicles, HGVs, buses, etc) on the two village bypass, with the remainder being vehicle movements by the general public. On the busiest day, the Sizewell C-related traffic flow is estimated to be 1,850 vehicles.
- 2.5.5 On a typical day during the peak construction period of Sizewell C, this would include an estimated 1,430 HGV movements and 250 bus movements respectively. On the busiest day, the number of HGV movements would increase to an estimated 1,720; the bus movements would remain at 250 on the two village bypass.
- 2.5.6 Once the Sizewell C main development site has been completed, it is anticipated that, on a typical day, approximately 22,450 vehicles (of which 200 would be Sizewell C related) would use the two village bypass, including 920 HGV movements.

b) Site maintenance

- 2.5.7 During operation, routine maintenance of the proposed development would be undertaken to maintain appropriate standards. Subject to the adoption of the highway by the highway authority, routine highway maintenance would be carried out by the highway authority. However, prior to the adoption, SZC Co. would be responsible for carrying out any required highway maintenance.
- 2.5.8 Periodic inspection and maintenance of the SuDS would be undertaken to ensure the continued efficiency of the drainage system. Routine maintenance would also include vegetation clearance, maintenance of road

signs and road marking, and litter collection. Periodically, maintenance activities such as resurfacing would be required.

- 2.5.9 Material use and waste generation from these maintenance activities are expected to be minimal during operation of the proposed development, and would generally be the same (in both type and quantity) as that generated by the existing roads in the area. The wastes will be managed using the established procedures and facilities adopted by local authority

2.6 Post-construction of Sizewell C

- 2.6.1 The proposed development would be permanent and is expected to become part of the adopted highway network. Therefore, there would not be a 'removal and reinstatement' phase.

References

- 2.1 Highways England, Design Manual for Roads and Bridges (last updated 2018) Available at:
<http://www.standardsforhighways.co.uk/ha/standards/dmrb/>
- 2.2 British Standards Institute, Code of Practice for the Design of Road Lighting, Lighting of Roads and Public Amenity Areas BS 5489-1:2013 (2012)
- 2.3 PINS Advice Note Nine: Rochdale Envelope, July 2018. Available at:
<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf>