The Sizewell C Project

8.1 Main Development Site Design and Access Statement - Tracked Changes Version - Part 3 of 3

September 2021

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Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Junction of Footpaths, The Walks

Chapter 9

Site Access

9.0 Site Access

9.1 Introduction

9.1.1 This chapter sets out how access to the main development site would be provided during the operational stage of Sizewell C. It describes how the relevant design principles could be implemented; and the key infrastructure required to access the main development site, including the inherited road and marine components from the construction stage, and provisions for access to Sizewell B relocated facilities. Some of these key design principles are highlighted in the red boxes within this chapter.

9.1.2 The chapter sets out the operational stage access strategy with reference to the following considerations:

- workforce access, including specific facilities to serve outage periods;
- deliveries and plant maintenance access including road and marine operations;
- emergency access requirements;
- visitor access; and
- Estate maintenance access (serving the wider estate where this is impacted by the Sizewell C works).

9.1.3 The construction phase access strategy is briefly summarised below whilst key construction phase requirements relating to the main development site are set out in **Chapter 3** of this statement. The recreational access strategy covering rights of way provision is set out in **Chapter 6** and **Chapter 8** of this statement. Pedestrian and vehicular circulation within the nuclear island is covered in **Chapter 7** of this statement. Reference should be made to the **Transport Assessment** (Doc Ref. 8.5) and the **CWTP** (Doc Ref. 8.8) which accompany the DCO application.

9.2 Construction Phase Access Strategy

9.2.1 The key components of the construction phase access strategy (see **Figure 9.1**) relate to:

- the efficient and sustainable movement of the construction workforce including provision of park and ride facilities at satellite locations away from the main development site; and
- management of the delivery of freight and materials, including provision of new marine and road infrastructure to minimise impact on local highways and communities.

9.2.2 Workforce Strategy

9.2.3 Details relating to the construction worker access strategy are set out in the **CWTP** (Doc Ref. 8.8). This is predicated on the use of purpose-built temporary park and ride facilities at Darsham and Wickham Market as the primary means of transporting workers to the main development site. These facilities would be removed at the end of the construction phase. In addition, the **CWTP** (Doc Ref. 8.8) includes proposals to promote walking or cycling to the main development site via new and permanent rights of way; these routes are illustrated in **Figure 9.1**.

9.2.4 Freight Strategy

9.2.5 The delivery of freight to the main development site would utilise a combination of roads (existing, new and upgraded); new rail facilities (extending from existing lines); and purpose-built marine facilities. These elements would serve different phases of construction activity. With the exception of the majority of the road improvement works, much of this infrastructure would be removed at the end of the construction phase; details are provided in the following section.

9.2.6 The principal works to deliver the freight strategy include:

9.2.7 Road access

9.2.8 Road access to the operational site is required. Elements of the proposed construction phase road access infrastructure would be retained for the operational phase and the remainder removed following completion of the construction phase. The main elements of proposed road infrastructure comprise the following:

- A package of junction and highway improvements, some of which would be temporary in nature; together with a permanent bypass of Farnham and Stratford St Andrew (the two village bypass) and a new permanent link road (the Sizewell Link Road) which would bypass Theberton and Middleton Moor and extend to join the A12 south of Yoxford.
- A freight management facility is proposed at Seven Hills, accessed via Old Felixstowe Road, which would provide spaces for up to 154 HGVs and allow a controlled pattern of deliveries to the main development site. The freight management facility would be removed at the end of the construction period.
- Freight carried by road would predominantly enter the main development site via the main site entrance roundabout. A new roundabout west of Upper Abbey Farm and south of the accommodation campus would provide a permanent access route to the Sizewell C main development site from the B1122 and Eastbridge Road. This new roundabout would act as the primary site access point for Sizewell C including for HGV and light good vehicle (LGV) deliveries, worker and visitor vehicles, and external bus connections. The roundabout would be modified at the end of the construction period with the loss of one spur.

Legend

- Sizewell C Main Development Site Boundary
- Demarcation Line
- Temporary Caravan Park
- Temporary Campus Accommodation
- Freight Management Facility
- Temporary Rail Terminal Option
- Temporary Park and Ride Facility
- Beach landing facility
- Green rail route
- Rail improvements
- Road proposals
- Road junction proposals
- Existing primary road routes
- Existing rail line

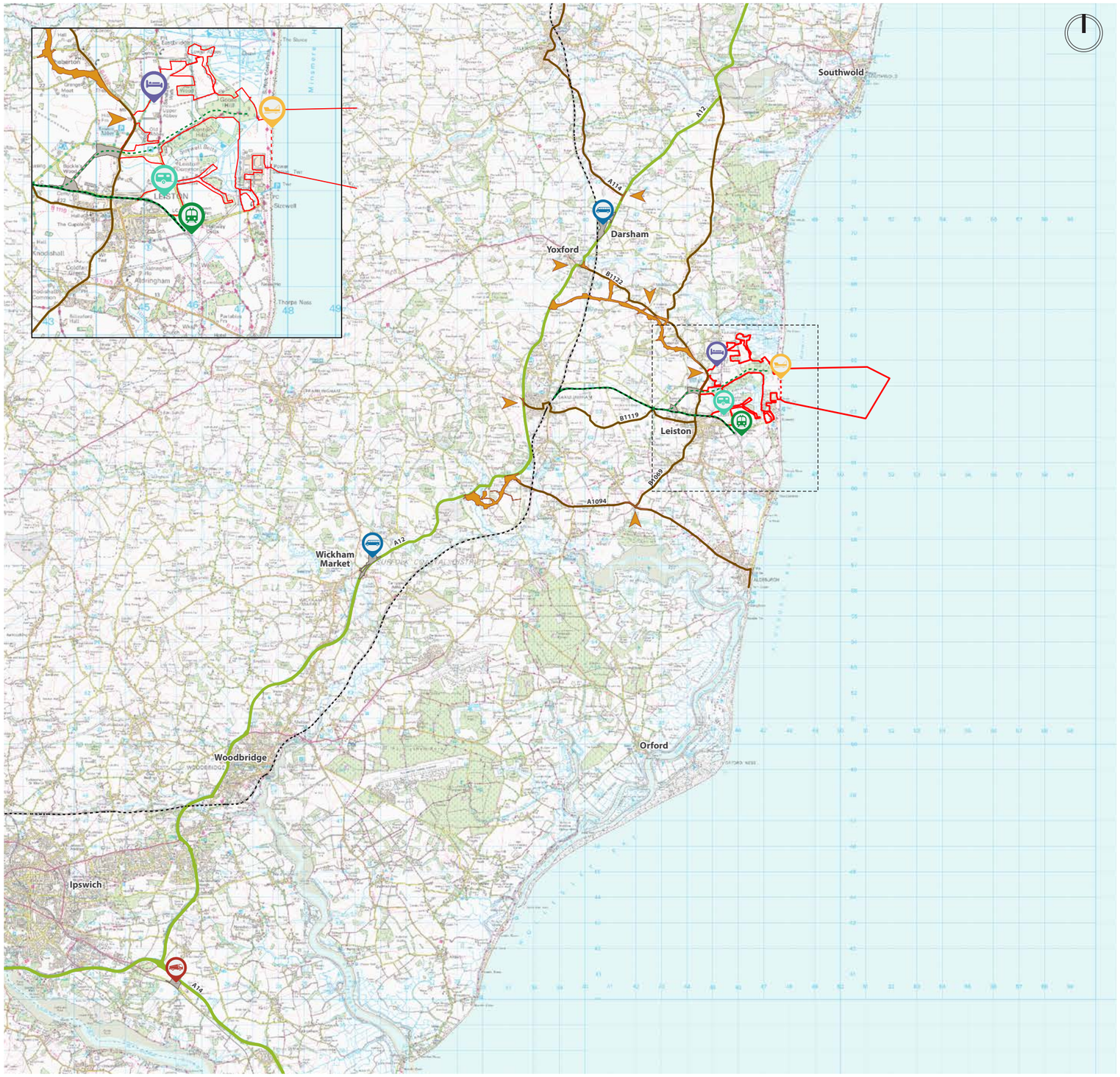


Figure 9.1: Access strategy (Construction phase)

- Secondary access to the main development would be provided along Lover's Lane, east of the B1122 Abbey Road. This would connect the main development site from Lover's Lane to the LEEIE during the construction phase, facilitating the delivery of materials from the rail spur at LEEIE. This access would also serve as an emergency access point in the event of an obstruction at the main development site entrance. This access would be removed post construction and the LEEIE returned to agricultural use.

9.2.9 **Rail access**

- Rail connections are proposed in the form of a new rail spur at LEEIE, facilitating early construction access and activity, as well as a new rail line directly into the main development site which would be delivered in a later construction phase. Both facilities would be removed at the end of the construction period.

9.2.10 **Marine access**

- A BLF would be constructed for use in both the construction and operational phases. This would be in place from the early construction phase to support construction of the initial sea defences. Offloaded materials would access site using the haul routes into the construction platform – this would be retained and form part of the reconfigured mound at the northern end of the sea defences.

9.3 Operational Phase Access Strategy

9.3.1 The relevant design principles relating to access during the operational phase are as follows:

DETAILED BUILT DEVELOPMENT DESIGN PRINCIPLES 50.

The external lighting design will respond to the maintenance and security brief but where practicable will minimise light spill beyond the perimeter of the power station site, particularly on the eastern side of the platform.

DETAILED BUILT DEVELOPMENT DESIGN PRINCIPLES 68.

A power station access road will be provided to the B1122 (Abbey Road) from the north-west of the main platform, which will take into account the surrounding environment.

DETAILED BUILT DEVELOPMENT DESIGN PRINCIPLES 70.

A second independent access point to the power station will be provided, for security purposes.

DETAILED BUILT DEVELOPMENT DESIGN PRINCIPLES 71.

Access to the main platform will be provided for workers on foot and by cycle.

9.3.2 The design indicatively responds to these principles in the following manner with key components of the access strategy illustrated in **Figure 9.2**.

9.3.3 **Primary Access**

- Construction of a dedicated access road (1) is required to facilitate workforce and road-based delivery and maintenance access, including access for the outage workforce. This access would link the main development site platform to the B1121 via a new roundabout junction (2) off the B1122 to the west. The roundabout would be constructed as part of early enabling works to serve the accommodation campus and main construction site. The junction would retain design features to allow future delivery of AILs (refer to **Figure 8.19**).

- The access road route follows the alignment of the construction haul road and would be downgraded to an unlit single carriageway with footpath/cycle track on one side and associated drainage, crossing points. A secure entry point to the Nuclear and Conventional Island would be provided at the eastern limit of the road (6).

- The access road would enter the Nuclear and Conventional Island at the SSSI causeway crossing (7), which would be downgraded from the design implemented at construction phase. The design of the causeway and associated landscape treatment and mitigation is described in **Chapter 8** of this statement (refer to **section 8.8.20** of this statement).

- The design of the new road and associated landscape treatment and mitigation is described in **Chapter 8** of this statement (refer to **section 8.8.2** of this statement).

9.3.4 **Parking**

- Parking is required on the Sizewell C site. A multi-purpose car park at Goose Hill (5) is to be provided including workforce parking (735 spaces), training centre visitor parking (35-spaces), and outage parking (600 spaces). Pedestrian routes connecting the car parks with the nuclear and conventional island are proposed and form part of the car park design which is described in more detail in **Chapter 8** of this statement (refer to **section 8.8.17**).

- Parking for the Sizewell B relocated facilities is proposed on the Coronation Wood Development site as part of the Option 1 proposals and on Pillbox Field (9) for the Option 2 proposals which is accessed from Sizewell Gap. Pillbox Field would be used for parking for outage purposes only and would not be used during other periods, in the unlikely event that the Sizewell A land does not become available.

9.3.5 **Secondary Access**

- Upper Abbey Farm (3) and the proposed Sizewell C substation (4) would be accessed from the Sizewell C main site access road via single track lanes.

9.3.6 **Emergency Access**

- A separate emergency access route for Sizewell C is provided along Sizewell Gap (8).

9.3.7 **Marine Access**

- The proposed BLF (10) at the Northern Mound would be implemented during the construction phase but would be retained for operation. The BLF would be used to deliver large components via a towed barge. Materials offloaded from the barge would be placed onto vehicles and transported via a dedicated access road (11) which connects the BLF with the main development site via the Northern Mound. The main structure of the BLF is demountable with the structural piers retained in the intertidal area. The landing area comprises a permanent concrete hardstanding which would be uncovered for infrequent AIL deliveries.

9.3.8 **Estate Access (landscape management and maintenance)**

- Access to newly created areas (within the development site boundary) for management purposes (including grazing purposes where applicable) would typically be via the access road (serving the main development site), from Bridleway 19 / Sizewell Gap, or from other points of entry which are not impacted by construction works. Further details of management arrangements are described in the **oLEMP**, which accompanies this application.

Legend

1. Access Road
2. New Roundabout Junction
3. Upper Abbey Farm
4. Substation
5. Car Park
6. Offsite Delivery Checkpoint
7. SSSI Crossing
8. Sizewell Gap Road
9. Pillbox Field Outage Car Park
10. Beach landing facility
11. Beach landing facility Access Road

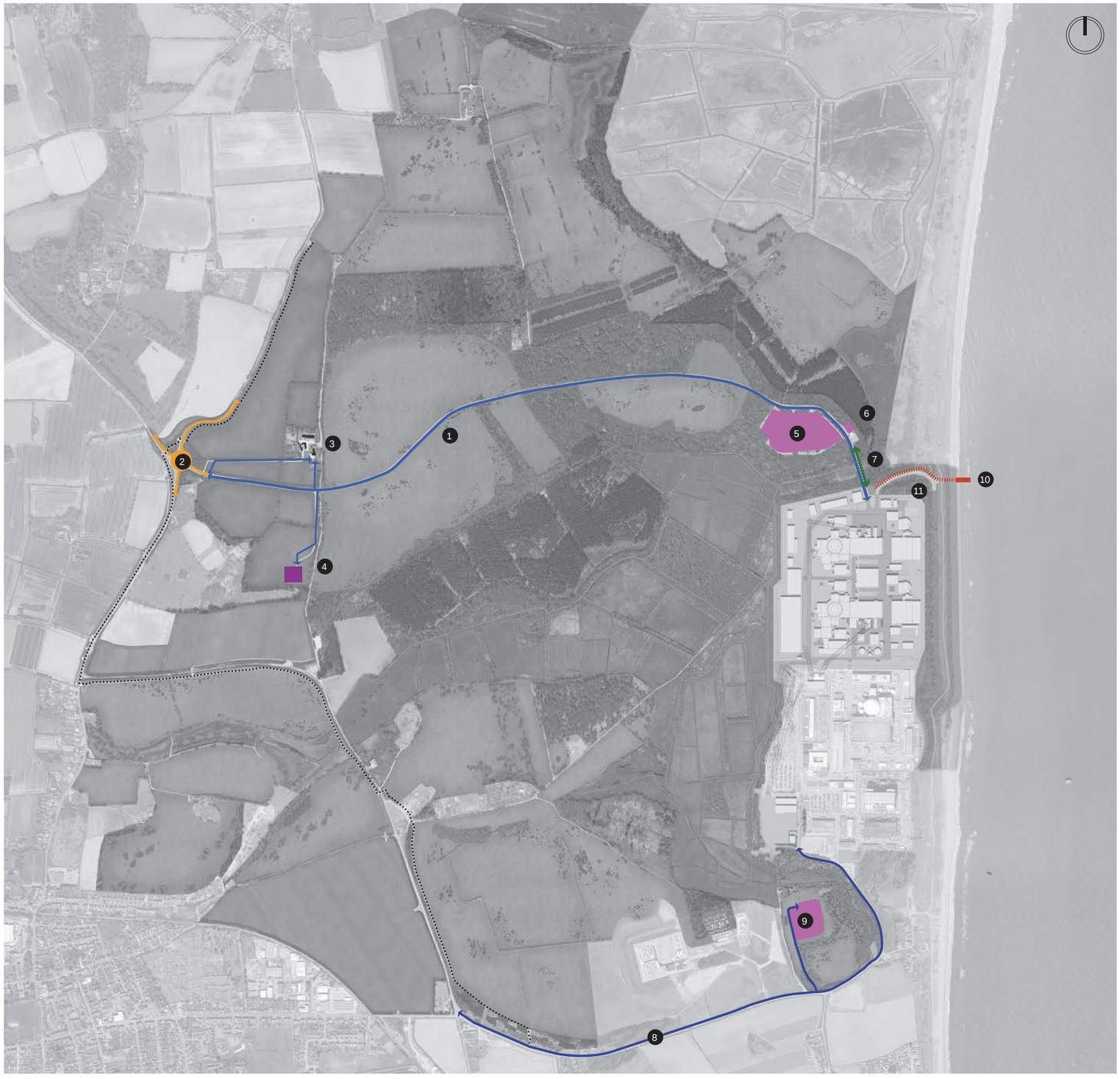


Figure 9.2: Access Strategy (Operational phase)
(SZB relocated facilities Option 2 layout)

View to Sizewell B

Chapter 10

Parameters for Implementation

10.0 Parameters for Implementation

SZC Co.'s central assumption is that where detailed designs have been proposed for individual buildings they are and will remain appropriate. On approval of the relevant application plans through the DCO, construction of those buildings can simply proceed in accordance with the approved plans, without the requirement to submit further details of their scale, height, massing or elevations.

10.1 Introduction

10.1.1 The status of the plans, drawings and documents included within the DCO is set out within **Section 4** of the **Planning Statement** (Doc Ref. 8.4). This notes that PINS Advice Note 9 "Using the Rochdale Envelope" (Ref. 1.51) recognises that large scale infrastructure projects may require an element of flexibility within clearly defined parameters. Those parameters can set defined envelopes within which the development can take place, such as maximum and minimum heights and the location of buildings.

10.1.2 Sizewell C, like most other NSIPs consented through the DCO process, is a complex development that must satisfy a wide range of operational and regulatory requirements. The design process is lengthy, subject to extensive consultation, and requires continuous refinement. This refinement process extends beyond the granting of the DCO.

10.1.3 In addition, experience at Hinkley Point C has been that even the most carefully prepared application can require revision when the process of contracting and detailed design for project implementation is engaged. The scale and intensity of the project once construction has begun is such that unnecessary delays must be avoided if possible. The DCO consent has a critical role in fixing the environmental parameters for the project but does not need to control the detail of project implementation, as long as that implementation remains within the boundaries of those parameters.

10.1.4 Therefore, in order to take account of changes resulting that may arise from complying with the Nuclear Site Licence, or the design development process, SZC Co. proposes a parameter-based approach for the construction and operation of the power station. Parameters are also provided for both construction and operational of the associated developments.

10.1.5 Some elements of the Sizewell C Project require minimal flexibility (i.e. location and dimensions of the nuclear reactors) owing to the advanced stage of design, and their potential to cause significant adverse environmental effects. Parameters for these elements are, therefore, relatively constrained compared with other elements of the project where designs are less advanced, and/or less likely to cause significant adverse effects.

10.1.6 Further details on how the parameter plans will be used to control the project are set in **Section 1.3** of this document.

Sandlings Walk north of Upper Abbey Farm

Chapter 11

Sustainability and Climate Change

11.0 Sustainability and Climate Change

11.1 Introduction

11.1.1 Through amendments to the Climate Change Act (2008), the UK Government is legally obliged to achieve net zero CO_2 by 2050. The scale of this challenge is immense. In 2018, the UK's total emissions were provisionally estimated as being 364.1 $MtCO^2e$[1]. In 2018, carbon dioxide emissions from power stations, at 65.2 $MtCO^2e$, accounted for 18 per cent of all carbon dioxide emissions[2]. Decarbonising the electricity supply is less challenging than decarbonising other sectors, and it is likely that electrification remains the only optimum solution to decarbonising road transport and the heat sector. This implies that the UK's electricity demand will continue to rise and will necessitate a larger cut in emissions than other sectors. In order to do this the UK requires a virtually carbon free power sector. New nuclear, alongside renewable energy, remains a key part of the solution.

11.1.2 The sustainability of nuclear new build is founded on its attributes of low carbon emissions and secure electricity supply, once nuclear power stations are constructed, and the creation of tangible socio-economic benefits, for example, through skills creation and employment opportunities. These are very important benefits in sustainability terms, towards which Sizewell C would contribute significantly. Building on these inherent benefits, a sustainability strategy has been developed for the project, to identify opportunities in the design and construction proposals to maximise sustainability benefits.

11.1.3 The project wide vision is that:

SZC Co. intends to deliver a nuclear power station at Sizewell C that would make a major contribution to the nation's low-carbon energy needs. The development, operation and ultimate decommissioning of the power station would be undertaken in a manner consistent with the highest standards of safety, reliability and sustainability.

11.1.4 Many definitions of sustainable development exist, although the common objective for all involves striking a balance between social, economic and environmental objectives to meet the needs and aspirations of people today, without comprising the needs of future generations. The themes addressed by the project's sustainability strategy cover a range of relevant areas, including:

Cross Cutting Issues, such as:

- Climate Change – Mitigation and Adaption.
- Resources and Waste.
- Movement of People and Materials.

Social and Economic Considerations, such as:

- Skills and Employment.
- Health and Wellbeing.
- Community Services.

Environmental Design Considerations, including;

- Biodiversity and Ecosystems.
- Water Environment.

11.1.5 A separate **Sustainability Statement** (Doc Ref 8.13) has been prepared as part of the application for development consent, which explains how these thematic areas are being addressed by the project proposals. The Statement also demonstrates how three overarching sustainability principles have been developed for Sizewell C to address key areas of focus. These are:

- Principle 1 – Design and Construct for a Low Carbon Future.
- Principle 2 – Adopt a circular economy model.
- Principle 3 – Use Water Wisely.

SZC Co. intends to deliver a nuclear power station at Sizewell C that will make a major contribution to the nation's low-carbon energy needs. The development, operation and ultimate decommissioning of the power station will be undertaken in a manner consistent with the highest standards of safety, reliability and sustainability.

[1] 2018 UK Greenhouse Gas Emissions, Provisional Figures – Statistical Release. 28th March 2019. 2018 annual provisional emissions results

[2] 2018 UK Greenhouse Gas Emissions, Provisional Figures – Statistical Release. 28th March 2019. Energy Supply


Sizewell A

11.2 Key Drivers

11.2.1 In 2015, the United Nations General Assembly passed a resolution to adopt the 2030 Agenda for Sustainable Development, with 17 Sustainable Development Goals (SDGs) at its core. The Sustainable Development Goals reflect an urgent call for action by all countries - developed and developing - in a global partnership. They span goals to end poverty and other deprivations which must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change.

11.2.2 The UK Government is committed to tacking climate change and is the first major economy to sign legally binding agreements to achieve net zero emissions by 2050. The electricity supply sector is a significant contributor to UK Greenhouse gases. The Committee on Climate Change's report 'Net Zero – The UK's Contribution to stopping Global Warming'[1] recognises that the decarbonisation of the grid is an essential part of the zero carbon strategy, requiring a quadrupling of the supply of low carbon energy by 2050 in order to meet a fully decarbonised electricity supply. Whilst a range of technologies will be vital to achieving this, nuclear power will have an important role to play, as unlike wind and solar power, nuclear energy is able to provide a stable base load of power. The Sizewell C Project would be capable of meeting 7% of the UK's energy demands, enough for 6 million homes in an affordable and secure way.

11.2.3 The Government has identified Sizewell as a potentially suitable location for a new nuclear power station. The reasoning has been informed through the Government's Strategic Siting Assessment (SSA) and tested through an Appraisal of Sustainability (AoS), undertaken by the Government at a Strategic level. SZC Co. is promoting development at Sizewell in recognition that the Sizewell C Project fulfils a number of SSA criteria.

11.3 Sustainability Considerations for the Sizewell C Main Development Site - Cross Cutting Issues

11.3.1 Climate Change Mitigation and Adaptation

11.3.2 Climate change has the potential to impact social, economic and environmental objectives of sustainable development and, therefore, this issue may be seen as an overarching consideration for the Sizewell C Project - both in ensuring that Sizewell C can be developed so that it can make the fullest contribution to carbon reduction, but also that the development itself is undertaken to be resilient to the effects of future climate change. An in-combination assessment of climate change, including an assessment of climate change resilience is provided **ES, Volume 2, Chapter 26** (Doc. Ref. 6.3)**.**

11.3.3 Mitigation

11.3.4 On a life cycle basis, the carbon intensity of electricity generated from Sizewell C would be similar to wind, lower than solar and much lower than fossil fuels fitted with carbon capture and storage.[2]

11.3.5 **Figure 11.1** shows the life cycle emissions for Sizewell C, which is comparable to Hinkley Point C.

11.3.6 Whilst there are inherent carbon reduction benefits in the operation of the Sizewell C power station, as with any large infrastructure project, the construction phase would give rise to emissions of greenhouse gases (GHGs). These emissions would occur from various elements of the Sizewell C Project, particularly from embodied GHGs in materials required for the build. GHGs associated with the construction phase have been considered by SZC Co. in a lifecycle greenhouse gas impact assessment (**Volume 2, Chapter 26** of the **ES**, Doc. Ref. 6.3). The **Sustainability Statement** (Doc Ref. 8.13) illustrates a hierarchy that SZC Co. would employ across the Project with the aim of promoting a culture of sustainability throughout the lifecycle of the Project. This allows future contractors to develop proposals to mitigate construction emissions where possible, alongside the wider benefit of the integrated transport strategy, which aims to consolidate and reduce vehicle movements wherever possible.

Figure 11.1: Assessment of the Life Cycle Emissions from Hinkley Point C

11.3.7 It is important to recognise, however, that construction emissions, especially those associated with the main development site, are in many cases unavoidable. Given the urgent need to deliver the Sizewell C Project on time, coupled with certain restrictions unique to nuclear power station development, for example materials and construction processes fixed under the GDA, decarbonising the construction process may be impractical and potentially detrimental. Notwithstanding this, the construction of Sizewell C needs to take steps where it can to minimise impacts from GHG emissions. A project principle has been established to Design and Construct for a Low Carbon Future. The activities that would be employed to achieve this are explained further in the **Sustainability Statement** (Doc Ref. 8.13).

[1] Net Zero, The UK's Contribution to Stopping Global Warming. Committee on Climate Change. May 2019

[2] Committee on Climate Change (2013) Reducing the UK's Carbon Footprint

11.3.8 Adaptation and Resilience

11.3.9 The UK Climate Projections 18 (UKCP18)[1] identifies the likely consequences of climate change by assessing a range of GHG emission scenarios on matters including mean summer and winter temperatures, and mean summer winter and annual rainfall. The assessment also considers marine projections, including sea level rise. The key risks to the built environment, as summarised by the UK Climate Impacts Programme[2] can be summarised as follows:

- An increase in mean summertime temperatures and a decrease in summer precipitation. This may lead to greater threat of droughts and higher ambient air temperatures at ground level, as well as increased risks if building subsidence in areas already prone to this, and risk of fire.
- An increase in winter temperatures with greater intensity of winter rainfall. This may lead to more frequent flash flooding.
- Changes in mean temperature could lead to sea level rise, a greater risk of storm surges and an increased tendency for higher winds and storminess.

11.3.10 The design of Sizewell C must ensure that the main development site is appropriately resilient to future climate change throughout its life cycle stages. The station would be designed to be resilient to sea level rise and coastal change through the land platform and through the integration of sea defences. The main platform would be at a level of 7.3m AOD, which is similar to the 1 in 1000 annual probability extreme still water levels in the year 2110 for the worst credible climate change scenario. The sea level defences would be installed to comply with the joint Environment Agency and ONR Principles for Flood and Coastal Erosion Risk Management[3], capable of being adapted to up to 14.2 m AOD in the future which exceeds worst case predictions. The main platform would therefore be safe and resilient for its whole operational life against the current worst credible climate change predictions, with the sea level defences capable of being adapted in the future.

11.3.11 With regard to surface water flows, the main platform area, once constructed, would comprise predominantly impermeable surfaces. Sizewell C has a boundary with Sizewell B to the south, both platforms are at differing ground levels, a retaining wall would be constructed to prevent surface water discharging from Sizewell C to Sizewell B. The surface water drainage design would have sufficient capacity that surface water could be discharged from the site to the sea while ensuring:

- In a 1 in 200 annual probability rainfall event, critical site access and transport links to Sizewell C would be capable of operating safely and staff can operate the power station without surface water flood risk. For events up to this magnitude, the platform would drain to the sea through the main cooling water infrastructure.
- In a 1 in 1,000 annual probability rainfall event, staff and visitors to Sizewell C site would remain safe from the effects of surface water flooding, though design of surface water exceedance flow paths.
- In a 1 in 10,000 annual probability rainfall event, no flood water that builds up within the site would reach a level where it could flow into safety classified buildings. Any surface water drainage network relied upon to achieve this would also be safety classified.

11.3.12 Drought risk is also an important consideration, particularly in Suffolk which is already within one of the most water stressed regions in the country. Nuclear power stations require significant volumes of water in construction and operation. In construction, water use will vary depending on the works being carried out. Average demand is expected to be 1.2 million litres per day, however at peak demand this could increase up to 2.5 million litres per day. Innovative measures would be explored to manage demand, where possible, including exploring potential sources of water for reuse, including from groundwater abstracted from the deep excavation, the harvesting of rainwater from roofs and treated effluent and runoff contained in Water Management Zone attenuation ponds.

11.3.13 The mains water supply would be the Project's potable water source, however, in order to develop a sustainable supply of water, SZC Co. have further developed a strategy for non-potable water. As a result, proposals are included to construct a water resource storage area to store non-potable water for use during construction.

11.3.14 In operation the very large majority of water required would be supplied via cooling water from the sea (approximately 65 m^3 per second), however there is still significant demands for process water, which is used to create steam in the turbine and reactor system. Up to 2 million litres of fresh 'towns water' would be required each day to operate Sizewell C. In order to provide security of supply, and to ensure that all the water requirements of the project can be met, SZC Co have worked with stakeholders to assess several supply options. Using a combination of options, in addition to demand reduction measures through water efficiency, will ensure security of supply and help to reduce the demand for potable water from mains supply. Further details on the potential sources of supply are provided under the theme 'Water Environment'.

11.3.15 Resources and Waste

11.3.16 Constructing Sizewell C would require significant quantities of materials and has the potential to generate substantial waste. In recognition of this, the Project has developed a sustainability principle - To move to a circular economy.

11.3.17 A circular economy is an emerging alternative to a traditional linear economy (make, use, dispose) to maximise the ongoing value of resources through the careful design and specification of materials. The aim is to ensure that resources remain in use for as long as possible, that maximum value is extracted whilst in use, and would be recovered and regenerated at the end of each service life as products and materials that maintain rather than degrade resource value. Due to the cross-cutting implications of resource use and depletion, the pursuit of a circular economy is a central theme of the project's sustainability strategy.

11.3.18 It is important to consider that the permanent buildings would have a design life of at least 70 years, however may be operated beyond this. In order to deliver the Project, there would be a need for temporary facilities, which are being designed for deconstruction and off-site reuse. In addition, the proposals include:

- a waste consolidation centre on-site, which would include adequate bailers, compactors and compostable materials;
- a project materials and waste strategy has been developed, including policies and targets for resource efficiency and proposals for end of life / reuse of temporary structure;
- a neutral cut and fill balance would be achieved across the main development site, reducing the need for off-site material disposal;
- the project would include targets for the use of recycled aggregates, where practical, for non-nuclear buildings and hard landscaping;
- 100% of clean topsoil would be reused on-site; and
- an operational waste management strategy would be put in place with the aim to eliminate single use plastic in welfare operations, specifically catering.

11.3.19 Movement of People and Materials

11.3.20 The transport strategy promotes social and economic benefits, whilst reducing environmental harm to local communities from traffic related impacts, such as poor air quality and nuisance. The implementation of the transport strategy would have implications across a range of cross cutting sustainability themes.

11.3.21 The main site benefits from a range of on and off-site measures to limit the impacts of movement of materials and people. This includes:

- The location of the on-site accommodation campus to reduce the number of workforce journeys;
- park and ride facilities at key locations on the A12 for workers constructing the main site to travel by bus;

[1] UK Climate Projections 18 (UKCP18). Met Office

[2] UK Climate Impacts Programme. Tools. Part 3. Future Climate Vulnerability

[3] Principles for Flood and Coastal Erosion Risk Management. Office for Nuclear Regulation and Environment Agency Joint Advice Note. July 2017

- direct bus services from Ipswich and Lowestoft and from Saxmundham station;
- operate working patterns that minimise workers travelling at peak times;
- provide road improvements where necessary to mitigate the impact of construction traffic to the main site;
- employ an electronic web-based Delivery Management System (DMS) to allocate HGV delivery slots and ensure compliance with agreed controls and limits;
- use mandatory routes for Sizewell C HGV construction traffic, enforced with the use of Automatic Number Plate Recognition (ANPR) camera; and
- in permanent operation the buildings would be designed to be fully future proofed for EV infrastructure.

11.4 Social and Economic Considerations

11.4.1 In addition to the clear national and global benefits that Sizewell C has for mitigating climate change, the construction and operation of Sizewell C presents opportunities to promote social and economic benefits, particularly at the local and regional levels. At peak, the project would be one of the largest construction projects in the UK. SZC Co. has developed a series of strategies which aim to minimise potentially significant detrimental effects, whilst promoting positive socio- economic outcomes, particularly for the communities around Sizewell.

11.4.2 Skills and Employment

11.4.3 Sizewell C would bring significant economic and employment opportunities, supporting the security of the UK's economic future as well as producing a long-term boost for the local economy through increased employment and skills provision. Construction of Sizewell C would create approximately 25,000 roles on the main development site during construction and 900 permanent roles. There would also be a need for a significant workforce in non-construction roles, both directly and in the supply chain, including in the tourism, hospitality, food production and business support sectors.

11.4.4 Wherever possible, the project aims to ensure local businesses can compete for the significant number of contracts needed to build, support and operate Sizewell C. Hinkley Point C has already generated £1.5 bn of contracts in the south-west, with £4 bn expected to the regional economy over the project life. Similar if not greater levels of regional investment are expected for Sizewell C. The project has taken active steps to engage with Suffolk Chamber of Commerce to build and operate a supply chain database enabling local businesses to register and get 'Fit for Nuclear' - the industry benchmark for nuclear-ready manufacturers. An economic strategy has been developed to help steer these positive social impacts.

11.4.5 Health and Wellbeing

11.4.6 Ensuring the health and wellbeing of the population and the construction workforce is of paramount importance. The UK Nuclear Industry is extremely tightly controlled. The process for implementing EPR™ Reactor technology in the UK is extensive and has required a process of Regulatory Justification, whereby the use of new type of an ionising radiation practice must be justified against potential risks to population. The process has been completed for Hinkley Point C. The UK EPR™ reactor is required to include diverse systems for safe reactor shut down in the event of any faults, and essential buildings are required to withstand a range of human and natural hazards and comply with an extensive regulatory regime, including the GDA process and Government guidelines for delivering new nuclear power stations. In addition, the security arrangements at the site must be approved by the ONR Civil Nuclear Security (CNS), and physical security protection features such as fencing CCTV, Access controls and intruder alarms, as well as a security presence from the Civil Nuclear Authority.

11.4.7 To promote health and wellbeing within the construction workforce, a range of sports facilities and amenities would be provided within the construction workforce campus and in Leiston for use by the workforce.

11.4.8 Community Services

11.4.9 A workforce of around 8,500 workers is anticipated at the peak of the construction phase, of which 7,900 workers would be needed to construct the main development site. A workforce of this scale has the potential to impact upon basic services within the locality of the site.

11.4.10 To manage the workforce and avoid adverse effects, the following strategies have been developed:

- Construction Workforce Accommodation Strategy – this sets out the approach to managing the Sizewell C construction workforce, provision of temporary worker accommodation, with the campus and caravan site as well as an accommodation management system and other initiatives which aims to strike a balance to make sure the local community derives economic benefits from worker spend in area, while avoiding negative effects on accommodation capacity, affordability and community cohesion.
- Social and Community Strategy – established to help manage the potential effects on communities and community facilities, public services and social cohesion. This includes:
  - the provision of sports facilities with shared community access in Leiston;
  - occupational healthcare package for workers to avoid pressure on local services;
  - community safety management plan; and
  - a range of community integration initiatives based on the recommendations in the Government's Integrated Communities Strategy Green Paper.

11.5 Environmental Design Considerations

11.5.1 Biodiversity and Ecosystems

11.5.2 From the outset, one of the design principles for Sizewell C has been that the development would be designed with the aim of avoiding significant harm to biodiversity (habitats and species), particularly features of nationally and internationally designated sites, protected and priority species. Where likely significant effects cannot be avoided or reduced, mitigation measures would be applied as necessary. Enhancements to existing habitats would be incorporated where reasonably practicable. This principle has informed early decision making in the project, including the location of the permanent development site and temporary works. An optioneering process has been undertaken to develop a strategy, which limits land take on ecologically valuable habitat as far as possible. However, some land take has been unavoidable. In response to this, the project is creating new habitat at Aldhurst Farm as part of a long-term proposal to ensure habitats are created and have time to become established before any land take from the Sizewell Marshes SSSI occurs. In addition:

- the design of the permanent development site includes coastal defence features, which incorporate relevant ecological design measures;
- cooling water infrastructure is designed to include a fish recovery and return system;
- lighting, both during the construction phase and the permanent works, is designed to limit light spill and impacts on nocturnal species;
- the integrated landscape and ecology masterplan would deliver ecological benefits in the permanent works, which would include a monitoring programme to ensure its long-term success.

11.5.3 Water Environment

11.5.4 The maintenance and enhancement of water quality is an important consideration, linked to many aspects of sustainable development. In the UK the principal policy framework is derived from the EU Water Framework Directive. The proposals to maintain ground and water quality are assessed within **Volume 2, Chapter 19** of the **ES,** and marine water quality in **Volume 2, Chapter 21** of the **ES**.

11.5.5 Sizewell is located in one of the driest parts of the country. The project must take steps to ensure that water is treated as a valuable resource and safeguarded. A principle has been established to 'Use Water Wisely'. This would help to ensure a resilient and sustainable fresh water supply to the site.

11.5.6 Water is supplied to the area by Essex and Suffolk Water, classified as being seriously water stressed. SZC Co have developed a Site Water Supply Strategy by engaging with stakeholders including the Environment Agency, Essex & Suffolk Water and Anglian Water to discuss and assess potential sources for this water supply. In order to provide security of supply, and to ensure that all the water requirements of the project can be met, SZC Co have worked with stakeholders to assess several supply options. Using a combination of options, in addition to demand reduction measures through water efficiency, will ensure security of supply and help to reduce the demand for potable water from mains supply.

11.5.7 Mains water supply would be provided by Essex and Suffolk Water from within the Blyth Water Resource Zone (WRZ), however the supply may also be provided from within the Northern/Central WRZ via new pipeline transfer connection to the Blyth WRZ, as well as additional mains water supply enabled by licence trading with local licence holders and storage of non-potable water in a water resource storage area on-site. Water from this storage area may be derived from a number of sources, including water pumped from a new pumping station at Minsmere Sluice, effluent from Sizewell B or Sizewell C power station, or greywater from Sizewell C power station.

11.5.8 Additionally, other options, such as desalination of seawater or water from dewatering, would provide additional temporary supply in times of high demand, for example during the tunnelling phases, or during periods of drought.

11.5.9 In pursuing the principle to use water wisely, the project will also take steps to ensure that water is treated as a valuable resource and safeguarded. Measures include:

- the implementation of a site wide integrated water management strategy to ensure efficient use of water resources, and provide climate change resilience;
- there is a proposal to establish centralised water supplies at an early stage, limiting the need for tankers off-site;
- water collected from dewatering would be used for dust suppression and other uses, for example greywater use in WCs for welfare buildings; and
- low water fixtures and fittings would be installed in all buildings, including water leak detection systems and separate water metering.

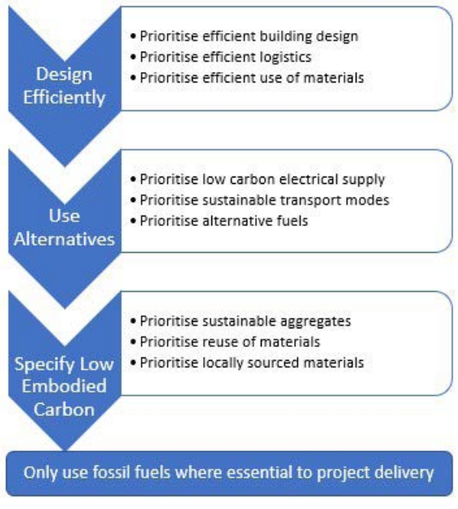
11.6 Sustainability

11.6.1 Through the sustainability appraisal undertaken for the project, it has been identified that various aspects of sustainability are already well controlled by existing regulatory processes and by SZC Co's strategic proposals for its transport, workforce accommodation and economic strategies. A key focus should therefore be given to the management of wider resource use issues, such as energy and emissions, material consumption and water. Three overarching sustainability approaches have been adopted by the project to address this. These approaches would drive delivery of further improvements, by providing a broad framework to evaluate sustainability options.

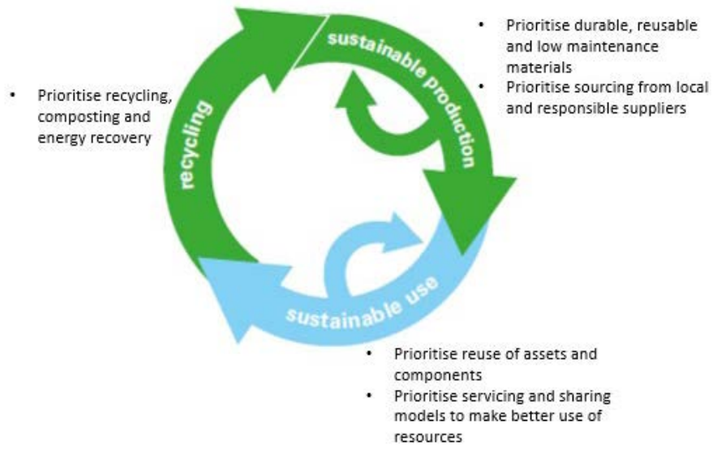
11.6.2 Each approach is supported by a hierarchy of 'priorities'. These establish how the most sustainable options would be pursued, where possible and appropriate, whilst ensuring that the project can be delivered on time and budget.

11.6.3 The **Sustainability Statement** (Doc Ref. 8.13) provides further information on how these approaches are to be applied, including how opportunities to promote more sustainable outcomes would be developed.

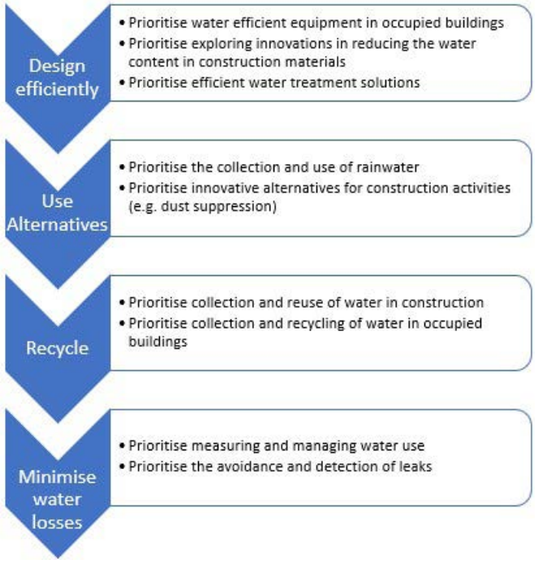
Approach 1: Design and Construct for a Low Carbon Future



Approach 2: Move to a Circular Economy



Approach 3: Use Water Wisely



Brick Kiln Farm

Chapter 12

Post Operational Use

12.0 Post Operational Use

12.1 Post Operational Use

12.1.1 As part of its vision for Sizewell C, SZC Co. has set out the intention to *"ensure that the inherent benefits of its investment in Sizewell C are captured in a way which maximises its practical contribution to the local and regional economy"*. It follows that, where possible and appropriate, Sizewell C should seek to lay the foundations for positive and sustainable use of the development sites after they have served their original operational purpose.

12.1.2 At the end of generation at Sizewell C, the reactor buildings and their auxiliary buildings would be decommissioned and the site made available for reuse. The UK European Pressurised Reactor (EPR™) has been designed with maintenance and decommissioning in mind, enabling radiation doses to workers and radioactive waste quantities to be minimised when decommissioning takes place.

12.1.3 Approved plans for decommissioning must be in place before construction work on buildings with nuclear safety significance commences. These plans support the Sizewell C Funded Decommissioning Programme, which ensures that SZC Co. sets aside sufficient funds over the operating life of the power station to cover the costs of decommissioning, spent fuel management and disposal.

12.1.4 Before decommissioning can take place, there is a requirement for the operator to obtain consent from the ONR under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (EIADR 99). This requires the submission of an ES, following an EIA and a period of public consultation. For the Sizewell C UK EPR™s this would take place over a three year period, immediately prior to the End of Generation, i.e. at the cessation of energy generation at Sizewell C, anticipated to be approximately 2090, and would consider fully the impacts of decommissioning.

12.1.5 This chapter provides an outline of the key aspects of the post operational phase and identifies how the site may be restored for reuse following the end of decommissioning. Further details of the decommissioning strategy and process can be found in **Volume 2, Chapter 5** of the **ES** (Doc. Ref 6.3).

12.2 Decommissioning Strategy and Process

12.2.1 The decommissioning strategy to be employed for Sizewell C would be early site clearance. Fundamentally, the strategy means that decommissioning would commence as soon as practicable after End of Generation at the site, and would proceed without significant delay to complete the process of decommissioning of the site. The decommissioning plans for Sizewell C estimate that the decommissioning of the site, with the exception of the Interim Spent Fuel Store (ISFS), could be achieved approximately 25 years after the end of electricity generation.

12.2.2 The ISFS would not be decommissioned during the initial decommissioning period due to the requirement for interim storage of spent fuel until a UK Geological Disposal Facility is available for disposal and spent fuel characteristics are suitable to allow disposal to the GDF (i.e. the spent fuel has sufficiently cooled to allow disposal to GDF). Spent fuel would continue to cool for a period of approximately 50 years after End of Generation. Further details of the management of spent fuel during the post operational phase are presented in **Volume 2, Chapter 7** of the **ES** (Doc. Ref 6.3).

12.2.3 **Volume 2, Chapter 7** of the **ES** introduces a decommissioning plan for Sizewell C with six major elements, as follows:

- Activity 0: Pre-Closure Preparatory Work (including submission of the Decommissioning EIA).
- Activity 1: Spent Fuel Management – Spent fuel management after End of Generation, including interim storage and disposal.
- Activity 2: Site Operation and Plant Preparation – Management and 'operation' of the shutdown site during decommissioning.
- Activity 3: Management of Operational Wastes – Management of operational wastes after End of Generation, including interim storage and disposal.
- Activity 4: Plant Decommissioning - Decommissioning of all plant, equipment, buildings and facilities and management and disposal of the radioactive and other hazardous wastes arising.
- Activity 5: Site Clearance and Release for Re-use – Remediation and de-licensing of the site to the agreed end state.

12.2.4 In many cases the activities above overlap significantly in time and are not necessarily sequential.

12.3 Evolution of Site During the Post-Operational Phase

12.3.1 It is anticipated that all decommissioning activities would take place within the boundaries of the Sizewell C site. This would help to ensure that impacts on land surrounding the site would be of minor to negligible significance. At the end of the decommissioning phase there would be a significant reduction in the amount of land occupied by buildings and other structures. Buildings would be progressively demolished from the site until only the ISFS remains.

12.3.2 In order to facilitate standalone functioning of the ISFS, a number of new support facilities (adjacent to the ISFS) may be required, potentially increasing the footprint of this facility. Following a period of spent fuel interim storage, the ISFS would also be decommissioned and removed.

12.3.3 Plant systems and buildings would have been maintained in a stable condition to permit safe access for dismantling activities, and all redundant site infrastructure services would have been made safe for removal, with decommissioning supplies made available as necessary. As decommissioning continues, modifications to site access roads and the on-site road layout to accommodate changed requirements during decommissioning would occur.

12.3.4 It is anticipated that in the early stages of decommissioning the turbine hall of Unit 1 would be converted into a decommissioning waste management facility for the management of radioactive waste during decommissioning.

12.3.5 Visually there would be changes throughout the decommissioning period, as buildings are progressively removed from the site until the reactor buildings and their auxiliary buildings have been fully decommissioned.

12.3.6 Site clearance monitoring, remediation, de-licensing and landscaping would be undertaken in two phases. The first and largest phase would be undertaken following completion of the decommissioning of the power station and intermediate level waste store. At this stage the ISFS would still be operational. The second phase would be undertaken on completion of emptying and decommissioning of this facility.

12.4 Interim Spent Fuel Store

12.4.1 The ISFS is a facility that would provide long-term safe and secure storage for spent fuel until it is removed from Sizewell C. The fuel store would be designed for a life of at least 100 years. The fuel store would be near to the intermediate level waste storage facility to facilitate security zoning during operation of Sizewell C and after decommissioning of all other buildings associated with Sizewell C.

12.4.2 The ISFS would comprise a ‘dry’ fuel store with spent fuel loaded into a stainless steel cask and then welded shut, before being placed and stored in a large, steel and concrete overpack for radiological shielding. No gaseous discharge stack or external heat sink equipment are necessary.

12.4.3 Following the end of the main site decommissioning, the spent fuel would remain within the ISFS.

12.4.4 The facility would continue to be licensed and would include the potential requirement for a number of additional facilities adjacent to the ISFS to accommodate the needs of a small workforce to operate the storage facility, ensure security of the site, and maintain the continuation of all safety and environmental obligations.

12.4.5 Only when all the spent fuel has been removed from the ISFS, and decommissioning of the facility is completed, would this remaining part of the site be de-licensed and the land released for alternative use.

12.4.6 It is therefore assumed that the date for start of transfer of spent fuel from the Sizewell C site to a GDF, following encapsulation, is approximately 2130. The process of transfer from the site would take approximately 10 years; therefore, all fuel would be removed from the site by approximately 2140. On completion of transfer of the spent fuel from site for encapsulation and disposal, the ISFS would be decommissioned.

12.5 Site De-licensing, Reinstatement and Landscape Restoration

12.5.1 The final stage of decommissioning would be the removal of the nuclear licensing requirements from the site. Following site clearance and de-licensing, all areas of the site would be acceptable for access accessible by members of the general public.

12.5.2 As previously described, site clearance monitoring, de-licensing and landscape restoration would be undertaken in two phases. The first and largest phase would be undertaken following completion of the decommissioning of the Sizewell C UK EPR™s and auxiliary buildings (in about 2100). At this stage the ISFS would still be operational, therefore a second delicensing and landscape restoration phase would be undertaken on completion of emptying and decommissioning of this facility (in about 2140).

12.5.3 Site reinstatement and landscape works would be carried out following the completion of site clearance monitoring. As previously stated, a full Decommissioning EIA would be submitted as part of decommissioning preparations, the consenting process would include consultation with statutory and non-statutory bodies to determine final landscape restoration plans. For decommissioning planning purposes, it has been assumed that the landscape restoration of the site would consist of returning the site to grassland.

12.5.4 On completion of the final phase of landscape works, the site would be made available for reuse, thus completing the decommissioning process.

Sizewell A, B & C Visualisation

Chapter 13
Conclusion

13.0 Conclusion

13.1.1 This Design and Access Statement describes our design and access proposals for the proposed Sizewell C main development site and our approach to securing delivery of good design to accord with National Policy Statement requirements in EN-1 and EN-6. SZC Co. have clearly stated a commitment to design quality in the principles outlined in this document and summarised below:

Design Principle 33:

SZC Co. will continue to be dedicated to good design for the Sizewell C development

13.1.2 The project design has been developed using a layered approach to govern design development and accords with best practice defined by the National Infrastructure Commission. Our principles were published for consultation at Stage 2 and have matured over time as a result of consultation and to ensure sufficient control on quality design delivery post approval of the DCO.

13.1.3 Our approach to securing good design is to provide clear structured governance to give certainty. Its governance comprises the following:

- Defined project parameters for the entire project for approval.
- Justification for parameters and flexibility.
- Detail for key areas of the proposals for approval.
- Defined Principles.
    - Project Brief.
    - High Level Design Principles.
    - Generic Design Principles.
    - Site Specific Principles.

13.1.4 Our project design is by necessity, based on defined parameters and the reasons for this have been explained in **Chapter 10**. Elements of the project are submitted for approval with greater levels of detail where it is considered these matters are of sufficient importance to provide greater certainty and where the extent of flexibility can be limited.

13.1.5 Securing an excellent understanding and appreciation of the environmental and landscape context of the project site has been fundamental permitting a landscape led approach to drive the design. National policy correctly identified that good design for Sizewell C needs to demonstrate 'sensitivity to place' and securing a 'good aesthetic'.

13.1.6 Our design process has included extensive statutory and informal consultation with stakeholders to ensure amongst other things, that our appreciation of the site's AONB context is agreed and that we have explored design flexibility and our design rationale in an open and transparent manner.

13.1.7 Our design process has been the subject of design review by the Design Council, who have noted: "The extension of the Sizewell Nuclear Facility to create Sizewell C is a significant intervention in a sensitive and remarkable landscape. Extensive steps are being taken by the project team to carefully integrate the Sizewell C site into its historic, coastal setting. Overall, we think the proposal is being approached with great care and attention across architecture, engineering, landscape design and ecology."[1]

13.1.8 The principle of the need for new nuclear power stations, and that this need is urgent, is firmly established in NPS EN-1 and NPS EN-6. In accordance NPS EN-1, substantial weight should be given to the contribution which projects would make towards satisfying this need. In addition, the UK Government have concluded that Sizewell C is potentially suitable for the deployment of a new nuclear power station.

13.1.9 It is considered that, on this basis, the DCO application for the Sizewell C Project benefits from up to date, authoritative policy support. Not only does national policy establish an urgent need for new, low carbon energy generation, it specifically identifies Sizewell C as potentially suitable to meet that need.

13.1.10 The benefits of Sizewell C would include:

- when operational, the new power station would help to bring a stable supply of low-carbon electricity to the UK;
- SZC Co. has worked closely with stakeholders in the region to develop economic strategies with a range of measures that combine to create an environment in which education, skills and workforce development can flourish, to the benefit of both the Project and the region;
- employment for construction workers for up to 8,500 workers (7,900 on the main development site and 600 on the associated development sites), comprising approximately 25,000 roles on the main development site during the construction phase, including an aim to meet 40% female workforce;
- employment for 900 new workers once the station becomes operational including an aim to meet 40% female workforce; 700 employees directly employed SZC Co. and a further 200 as contractors. This would provide a major, long-term boost to the local economy. The 900 jobs at Sizewell C equate to just under 1% of all the jobs in East Suffolk District and 0.3% of the jobs in Suffolk;
- SZC Co. are also committed to take all reasonable steps to limit the adverse environmental effects of the Sizewell C Project. Mitigation and good practice measures are proposed in order to avoid, reduce or compensate for adverse impacts wherever possible;

[1] Design Council letter dated 28 November 2019

- extensive apprenticeship opportunities equating to a minimum target of 1,000 apprentices;
- continuing work with Suffolk colleges and businesses to maximise the opportunities for their involvement in Sizewell C; and
- maximising the opportunities arising from at least £100 million a year entering the regional economy during peak construction and £40 million per year during its 60 years of operation.

13.1.11 Throughout the development process, we have put mitigation and compensation at the heart of the Sizewell C proposals, embedding environmental principles as part of good design. We have identified how negative impacts can be avoided or reduced, and how positive impacts can be further enhanced.

13.1.12 Our masterplan strategy secures comprehensive reimagining of the entire SZC Co. estate landscape through a new management plan and in areas immediately associated with the construction of Sizewell C (representing approximately 40% of the estate) physical works to support delivery of the strategy. Our strategy replaces intensive arable farmland with grassland habitats and woodland appropriate to the Sandlings landscape of the AONB, adding to the AONB landscape whilst providing a naturalised setting for the new and existing nuclear power structures.

13.1.13 It is therefore the conclusion that the benefits of the scheme, particularly the delivery of new nuclear power generating capacity, are greater than the residual adverse effects. There is therefore a clear and compelling case in favour of the DCO being made.

Figure 13.1: Illustrative view south towards the Sizewell C site from the Suffolk Coast Path adjacent Minsmere Sluice (refer to Figure 13.10.57 of **Volume 2, Chapter 13** of the **ES**)

Appendix A

Accommodation Campus

Accommodation Campus

A.1 Introduction

A.2 Purpose

A.2.1 This Appendix to the Sizewell C Design and Access Statement has been prepared in order to set out the indicative proposals for the accommodation campus and the rationale behind them.

A.2.2 Delivery of the accommodation campus will be carried out in general accordance with the design principles set out in Table A.1 and in accordance with the Parameter Plans set out in Schedule 6 of the draft DCO. Further details on how this document controls the design of the project are set out in Section 1.3.

A.2.3 Level 1 control documents will either be certified under the DCO at grant or annexed to the Deed of Obligation (DoO). All are secured and legally enforceable. Some Level 1 documents are compliance documents and must be complied with when certain activities are carried out. Other Level 1 documents are strategies or draft plans which set the boundaries for a subsequent Level 2 document which is required to be approved by a body or governance group. The obligations in the DCO and DoO set out the status of each Level 1 document.

A.2.4 Table A.1 of this Appendix is a Level 1 document as are Chapters 5, 7 and 8. Requirement 17 of the **dDCO** requires a statement of compliance demonstrating how the detailed design principles in Table A.1 have been incorporated into the details submitted to and approved by ESC for the accommodation campus before any works on the accommodation compus commence.

A.2.5 The accommodation campus forms part of the wider Sizewell C development site and will provide accommodation and amenity facilities for up to 2,400 non-home based workers during the 9-12 year construction period of Sizewell C. As set out in Chapter 3 of this document, it is part of a worker accommodation strategy for non-home based workers, which also includes a caravan site, private rented accommodation and serviced and self-catered tourist accommodation, as well as park and ride facilities for transporting workers to the site.

A.2.6 The proposals for the accommodation campus include the strategy for the site once the construction of Sizewell C has been completed, with further details provided within **Chapter 12** of this document.

A.2.7 All drawings shown in this section of the Design and Access Statement are for illustrative purposes only.

A.3 Relationship with the Design and Access Statement

A.3.1 This Appendix should be read in conjunction with the main part of the Design and Access Statement, which will form part of a suite of supporting documents for the Development Consent Order (DCO) application. Before reviewing this Appendix specific reference should be made to the following Chapters, which have informed the accommodation campus proposals:

- Chapter 2: Site context
- Chapter 3: Project requirements
- Chapter 4: Consultation and evolution of design
- Chapter 5: Design principles
- Chapter 6: Site response
- Chapter 7: Building proposals

A.4 Document structure

A.4.1 The structure of this Appendix to the Design and Access Statement is as follows:

NAME	PURPOSE OF SECTION
Introduction	Not for approval except Table A.1, which is for approval.
Site and planning context	
Site analysis	
Design proposals	

A.5 Site and planning context

A.6 Site location and context

A.6.1 As shown in **Figure A.1** the accommodation campus site is located to the north west of the existing Sizewell C power station, approximately 2km north of the town of Leiston and 1km south of the village of East Bridge.

A.6.2 The setting of the site largely comprises open agricultural fields, though there are some large parcels of woodland located to the east and south east of the site. The closest buildings to the site are: Abbey Cottage, which is located off the junction between Eastbridge Road and the access lane to Upper Abbey Farm; Old Abbey Farm, located approximately 300m to the south of the site, and Potter's Farm, located approximately 250m to the west. Leiston Abbey, which is a Scheduled Monument is located approximately 0.5km to the south west of the site.

A.6.3 The site is defined to the west by Eastbridge Road, which connects the settlement of East Bridge with the B1122, and to the south by the access lane leading to Upper Abbey Farm. The eastern periphery of the accommodation campus site is defined by Bridleway 19, which also marks the westernmost extent of the Suffolk Coast and Heaths AONB. There are a number of other Public Rights of Way located within the vicinity of the site, including route E-363/010/0 which runs on a north to south axis to the west of the site and passes by Leiston Abbey.

A.7 Site description

A.7.1 The accommodation campus site is essentially flat and, as shown in **Figure A.3**, principally comprises open agricultural fields. On the eastern edge of the site, approximately half way up, there is a former sand pit, which comprises rough grassland and hawthorn scrub, as well as a cluster of trees in the south east corner. Aside from the pit, vegetation within the site is largely restricted to the hedgerows and trees located around the periphery, the rectangular field boundary located in the south east corner of the site, and Upper Abbey Farm.

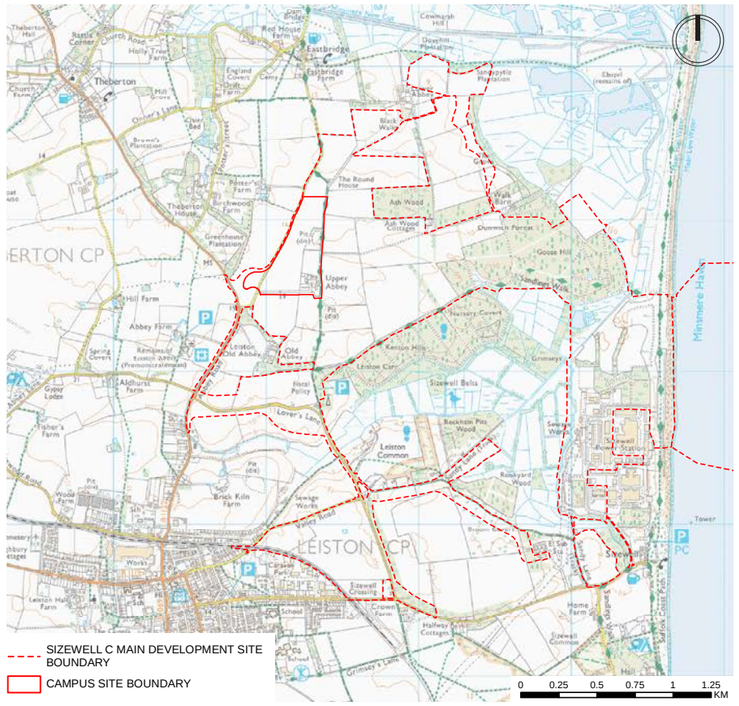


Figure A.1: Site Location Plan

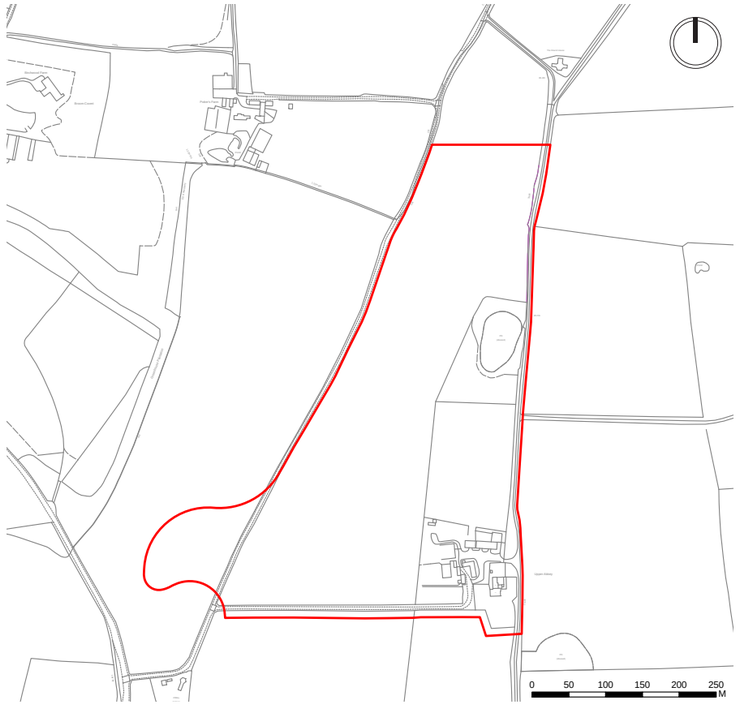


Figure A.2: Site Plan (Ordnance Survey Mapping)

Figure A.3: Site Plan (Aerial Photograph)

A.7.2 Vehicular access into site is currently provided via the access lane which connects Upper Abbey Farm with Eastbridge Road. The farm features a number of buildings, including two grade II listed structures, as well as a number of outbuildings and barns, several of which are in poor condition. Non-vehicular access into the site is also provided by Bridleway 19, which runs along the eastern edge of the site and forms part of Sandlings Walk, a long distance walking route.

A.8 Planning history and consultation process

A.8.1 As set out in **Chapter 4** of the main body of this Design and Access Statement, the proposals for Sizewell C have gone through an extensive consultation process prior to the DCO stage, helping to shape the concept put forward.

A.8.2 The indicative proposals set out for the accommodation campus in this Appendix have developed the scheme presented in the Sizewell C Stage 3 Pre application Consultation report (January 2019), taking into consideration the feedback on this received from the various stakeholders. They have also responded to the various issues that were raised at the stakeholder meeting, which took place on 10th July 2019 at the East Suffolk Council offices in Melton.

A.9 Site analysis

A.10 Access and movement

A.10.1 The accommodation campus site is located immediately east of Eastbridge Road, which links the B1122 with Eastbridge to the north. Vehicular access into the site is currently only possible via the access lane to Upper Abbey Farm, which feeds off Eastbridge Road.

A.10.2 It is considered that the most appropriate location for a vehicular access into the accommodation campus site is at the south west corner of the site, to the north of the junction between the B1122 and Eastbridge Road. This would create the opportunity to establish a combined new junction / roundabout providing a vehicular access into the main construction site.

A.10.3 Non-vehicular access into the site is currently provided via Bridleway 19, which runs along the eastern periphery and forms part of the Sandlings Walk, a long distance walking route. The development of the site as an accommodation campus will require Bridleway 19 to be closed for the 9-12 year construction period and, as such, an alternative route will be provided during this period.

A.10.4 This route could potentially be provided along the western edge of the accommodation campus adjacent to Eastbridge Road (see **Figure A.6**).

A.11 Topography

A.11.1 As shown in **Figure A.4**, the accommodation campus site is essentially flat with the exception of the sand pit, which is located half way along its eastern edge. There would not be any structural issues associated with filling in the pit if required to accommodate development.

A.11.2 Within the immediate vicinity of the site, the landform remains relatively flat. However, beyond this the topography is more pronounced and the significance of this in terms of landscape and visual impact should be given careful consideration in the design of the accommodation campus proposals.

A.12 Landscape

A.12.1 The accommodation campus site principally comprises open, agricultural fields, with the exception of Upper Abbey Farm and the sand pit, which comprises rough grassland and hawthorn scrub, as well as a cluster of trees (hawthorn, oak, ash, wild cherry and elm). Aside from the pit, vegetation within the site is largely restricted to the tree clusters located between the buildings at Upper Abbey Farm and the hedgerows and trees located along the site periphery and along the rectangular field boundary located in the south east corner. Beyond the site, the immediate setting largely comprises open agricultural fields, though there are large parcels of woodland located to the south east of the site, as well as some smaller pockets of woodland located to the west and south. Various visual receptors have been identified in close proximity to the site with potential for views to the accommodation campus during its operation, including visitors to Leiston Abbey and users of the local Public Rights of Way network.

A.13 Arboriculture

A.13.1 As shown in **Figure A.5**, there are a total of 6 category A trees, 15 category B trees and 3 category B tree groups located within or overlapping with the accommodation campus site boundary. The majority of these are located within Upper Abbey Farm or around the periphery of the site. However, there are two large category B trees located within the hedgerow that runs on a north to south axis to the north of Upper Abbey Farm. The proposals for the site should seek to retain all of the existing category A trees and as many of the category B and C trees as possible.

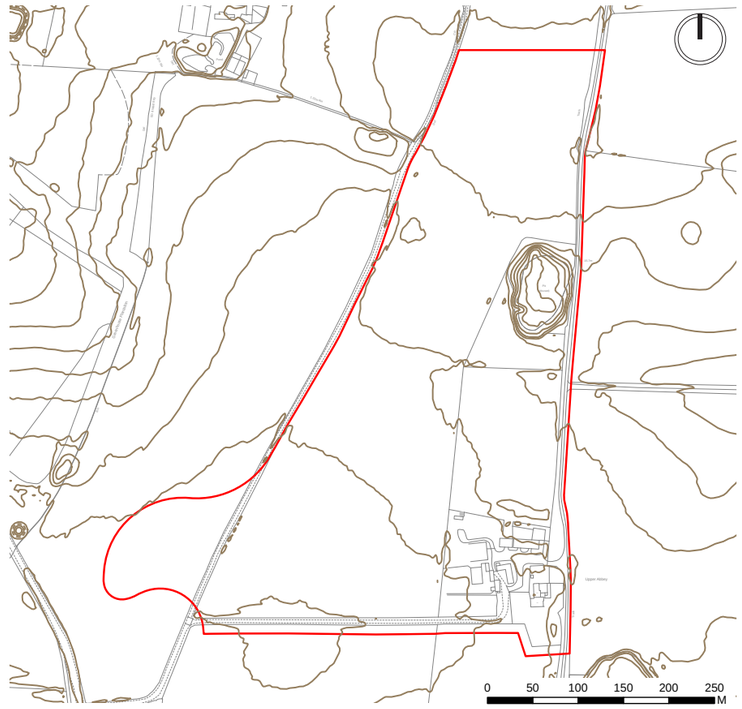


Figure A.4: Topography (1m contours)

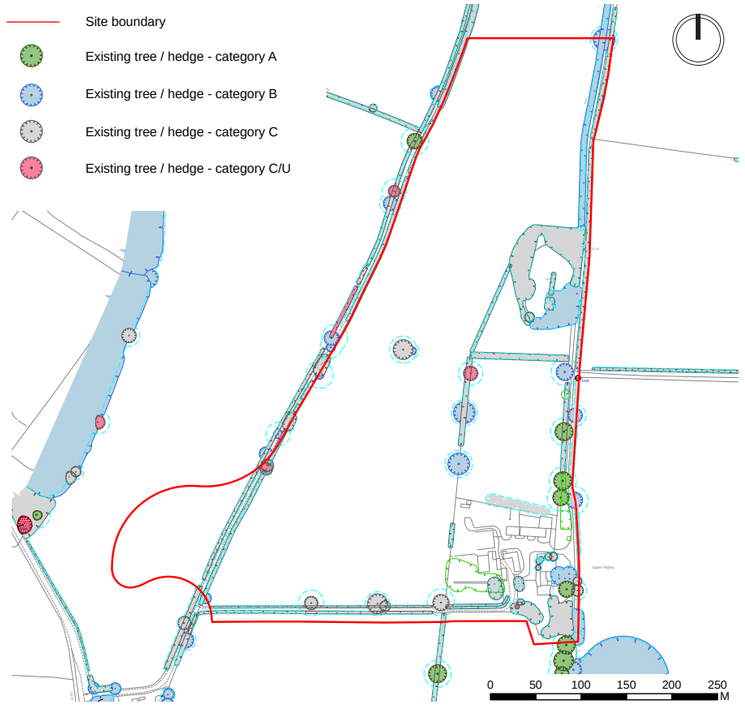


Figure A.5: Arboricultural Survey

Figure A.6: Opportunities and Constraints

A.14 Ecology

A.14.1 The accommodation campus site is not covered by any statutory designations.

A.14.2 A survey of the former sand pit has been carried out. The base of the pit supports a common coarse grassland community (MG1a in the National Vegetation Classification (NVC)) dominated by False Oat Grass (Arrhenatherum elatius) and Cock's foot (Dactylis glomerata) with locally abundant Red Fescue (Festuca rubra). The grassland is herb poor although there is a small stand of Houndstongue (Cynoglossum officinale). The pit slopes are dominated by hawthorn (Crataegus monogyna) scrub over Ivy (Hedera helix) with frequent Elder (Sambucus nigra) on the lower edge and some large stands of bramble (Rubus fruticosus agg) invading the margins of the grassland. The Hawthorn scrub is typical of the widespread habitat type W21 in the NVC (Crataegus monogyna - Hedera helix scrub).

A.14.3 There is a small group of planted Cypress (probably Cupressus × leylandii) and a mature Cherry (Prunus avium) in the south-east corner which would be lost if the pit is infilled, but it should be possible to retain the mature trees located along the western side of Bridleway 19.

A.14.4 The habitats within the pit are common habitats throughout most of lowland Britain and Suffolk and of only local value in their own right. Bird species recorded during survey visits to-date have included both Yellowhammer and Bullfinch, both of which are relatively widespread in the wider landscape.

A.15 Noise

A.15.1 Detailed modelling of construction noise has been used to predict noise levels on the accommodation campus during phases 3 and 4 when the accommodation campus will be operational. **Figure A.7** shows the predicted noise levels on the site without the accommodation campus buildings (which will reduce levels further). The predicted noise levels are not particularly high and it will be possible to achieve a reasonable standard of internal and external acoustic amenity (defined in accordance with BS 8233) through appropriate acoustic design and specification of the building envelope. Acoustic performance specifications for the external building envelope of accommodation campus buildings (including façades, roofs, windows, door and ventilators) could be provided for individual blocks and / or façades at a later stage once the accommodation campus design has been finalised, contractors are on board and the main development site construction noise predictions have been refined and finalised.

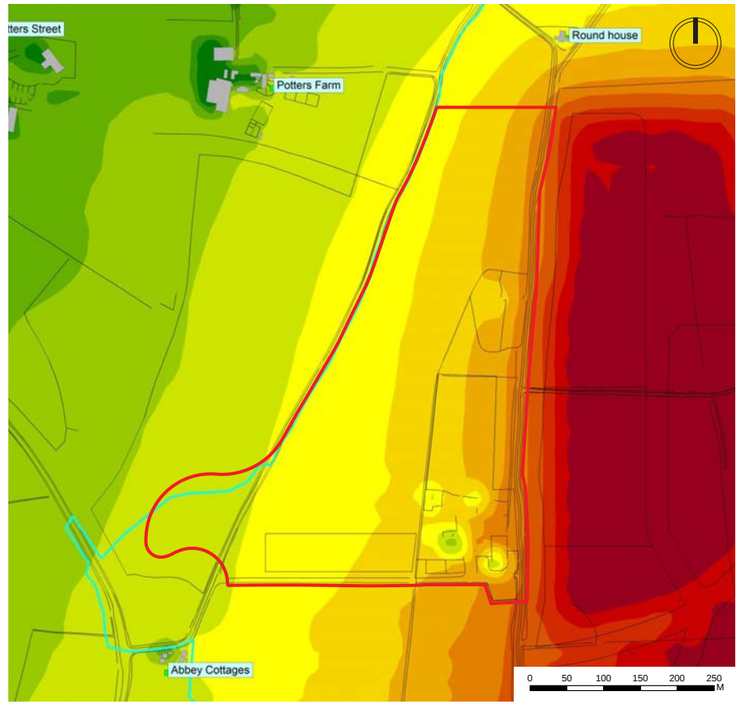


Figure A.7: Noise Contours (site baseline)

A.16 Archaeology

A.16.1 A programme of archaeological evaluation, comprising desk-based appraisal (regression mapping and archival / documentary research) and field survey (comprising geophysical survey followed by archaeological trial trenching) has been undertaken across the main development site, including the accommodation campus location. Results indicate that within the accommodation campus area there is potential for remains associated with prehistoric activity which could be of low to medium heritage importance. Remains of medieval activity, which could be of regional, or medium heritage importance, including medieval agricultural and industrial exploitation associated with Leiston Abbey may also be present to the west of Upper Abbey Farm.

A.16.2 Disturbance or removal of archaeological heritage assets as a result of the proposed development could give rise to loss of archaeological interest. However, no archaeological remains have been identified where policy would require preservation in-situ and mitigation can be achieved through an agreed programme of archaeological investigation and recording.

A.17 Built form and heritage

A.17.1 Upper Abbey Farm is located in the south east corner of the site and consists of the farmhouse (recently restored following fire damage) and barn, both Grade II listed, plus a number of outbuildings and one other residential property. Suffolk Wildlife Trust currently operate from Upper Abbey Farm in their management of the SSSI.

A.17.2 The key buildings at Upper Abbey Farm are arranged in clusters around a number of yards on the east side of the farm complex. The main farmhouse is situated within its own 'garden' setting, with a low wall and fence boundary and is surrounded by a number of mature trees. The most westerly barn is a more recent addition to the farm complex and is not laid out as part of a cluster or around a yard. Similarly, the house in the north-west corner of the farm complex is removed from the main collection of farm buildings and yards.

A.17.3 A historian has recently completed a survey of the Upper Abbey Farm site and identified a number of buildings that are considered of no heritage value, some of which are in poor condition. These buildings could be demolished if required, either to accommodate development or as part of a conservation strategy for the farm. The access lane to Upper Abbey Farm is considered an important part of its setting and should be retained in the accommodation campus proposals.

A.17.4 Beyond the site, Leiston Abbey (second site) is located approximately 0.5km to the south west. The Abbey dates from the mid-14th century, 15th century (the Barn and Guesten Hall) and 17th century (the Retreat House, formerly a farmhouse). The Abbey is a Scheduled Monument and the impact of the accommodation campus on its rural setting will be given careful consideration in the proposals.

A.18 Drainage

A.18.1 Due to the absence of any watercourses in the vicinity of the accommodation campus which could provide a suitable connection for surface water discharge, it will be necessary to store rainfall runoff below ground and allow gradual infiltration. This has been considered as part of a high level risk assessment and subsequent drainage strategy, which seeks to implement sustainable drainage (SuDS) features, such as permeable surfacing, infiltration trenches and soakaways.

A.18.2 The depth to ground water is sufficient to explore the opportunity to utilise methods of surface water management including rainwater harvesting and treating surface water at source through detention and infiltration.

A.19 Foul water

A.19.1 The welfare facilities provided as part of the accommodation campus will require a foul water network and sewage treatment. However, because the work force numbers will not exceed 10,000 they will not be required to comply with the Urban Waste Water Directive.

A.19.2 The proposed sewage treatment plant located within the construction site will receive and treat all domestic foul water generated by the accommodation campus during the construction period. A foul water pump station will need to be accommodated within the accommodation campus site to convey the foul water to this treatment plant.

A.20 Other utilities

A.20.1 Investigations have shown that there are no existing utilities located within the accommodation campus site that will affect or constrain the layout of the proposed accommodation campus and that there are no issues with providing the required infrastructure for the operation of the accommodation campus e.g. communications, potable water and power. Options for these are discussed further in the Design Proposals section.

A.21 Design process

A.22 Site selection

A.22.1 The selection of the accommodation campus site has been given careful consideration as part of the design process. **Figures A.8 to A.10** show the three site options that were considered at Stage 2 of the consultation process. These were:

- Option 1: Campus buildings and sports facilities located on both sides of Eastbridge Road.
- Option 2i: Campus buildings consolidated to the east of Eastbridge Road and sports facilities located to the west of Eastbridge Road.
- Option 2ii: Campus buildings consolidated to the east of Eastbridge Road and sports facilities located off-campus at Leiston Leisure Centre.

Figure A.8: Site option 1

Figure A.9: Site option 2i

Figure A.10: Site option 2ii

A.22.2 Following analysis of the three site options, option 2ii was taken forward and forms the basis of the proposals set out in this Design and Access Statement. The principle reasons for its selection were:

- The benefits of reducing the land-take in terms of the impact on the setting of the AONB and Leiston Abbey and the effects on key visual receptors to the west of the site were considered to outweigh the potential need to build the accommodation blocks one storey higher.
- Locating the sports facilities at Leiston offers the potential to leave a positive legacy for the town post construction.

A.23 Design development

A.23.1 Following selection of the site, the indicative design and layout of the accommodation campus process has gone through a number of iterations in getting to the DCO stage. **Figures A.11 to A.13** show the three principal arrangements (options 3, 4 and 5) that were explored following the Stage 2 consultation. Variables explored at this stage included the location and arrangement of the different accommodation campus facilities, as well as building heights.

A.23.2 The heights analysis work included the preparation of wireframe visualisations for each of the three options from the following three key locations:

- Leiston Abbey;
- The Public Right of Way located to the north of Leiston Abbey (see **Figures A.14 to A.16**); and
- Whin Hill.

A.23.3 Following the completion of this appraisal work and consideration of the feedback received from the consultees, the decision was made to take option 4 forward for the Stage 3 consultation. The principal reasons for the selection of this option were:

- The consolidation of the amenity hub facilities at the main entrance to the site creates a clearly defined, attractive gateway into the accommodation campus.
- The visual impact was significantly lower from the Public Right of Way viewpoint and similar or lower than options 3 and 5 for the other two viewpoints assessed.
- Locating the amenity hub at the entrance to the site provides the most practical location for the reception building and avoids the need for vehicles servicing the recreation building to travel past the accommodation areas.
- Consolidating the amenity hub utilities with the CHP generator at Upper Abbey Farm is the most practical/efficient arrangement and ensures that the CHP generator is largely screened by the recreation building in views from within the campus and from the sensitive visual receptors to the west of the site.
- It provides a better-defined entrance space and more attractive entrance vista than option 3.
- It allows the Upper Abbey Farm access road and adjacent hedgerows to be largely retained.
- It contains the fewest 5 storey accommodation units of the three options.

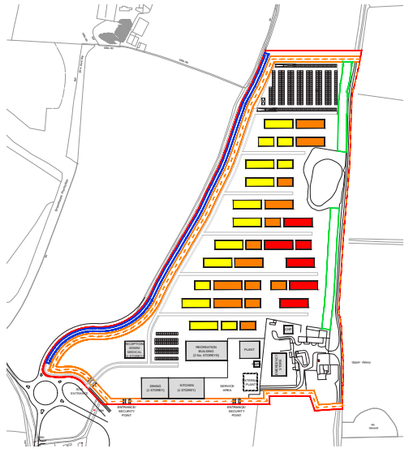
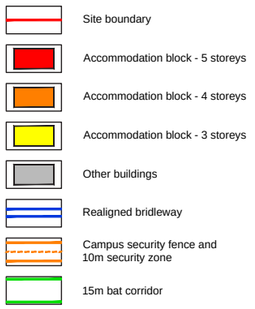


Figure A.11: Layout option 3

Figure A.12: Layout option 4

Figure A.13: Layout option 5



A.23.4 Following on from the Stage 3 consultation, the proposals underwent further analysis and refinement as part of the design process. This included a formal survey of the sand pit to investigate the opportunity to build on this area of the site in order to reduce accommodation building heights.

A.23.5 As set out in **section A.14**, the survey results showed that there are no significant ecological constraints associated with the pit, while testing showed that filling it in would allow the accommodation blocks to be reduced from a maximum of five storeys down to four, reducing visual impact. It was therefore decided that, in balance, the scheme should be amended to build on the pit, whilst seeking to retain the majority of the trees located along its eastern edge.

Figure A.14: Footpath north of Leiston Abbey - Option 3

Figure A.15: Footpath north of Leiston Abbey - Option 4

Figure A.16: Footpath north of Leiston Abbey - Option 5

A.24 Design proposals

A.25 Illustrative layout

A.25.1 **Figure A.17** shows an illustrative layout for the proposed accommodation campus. The proposals incorporate the following key components:

- Up to 2,400 bed spaces, including 60 ground floor accessible bed spaces;
- A two storey recreation building, including a restaurant, kitchen, 2 bars, gym, multi-functional room, prayer / quiet room, plant and services;
- A two storey reception building, incorporating administration / management space and a medical facility;
- A CHP generator (optional depending on the energy strategy taken forward);
- A total of 1,643 car park spaces (excluding drop-off spaces within the accommodation access streets), including a 1,278 space, two level car park and 60 disabled spaces within the accommodation access streets; and
- 120 motorcycle parking spaces and 120 cycle parking spaces.

A.25.2 The layout of the accommodation campus has been informed by the analysis set out in the Site Analysis section above, previous consultation with stakeholders, and extensive option testing. Further detail on the proposals are set out in the rest of this section, but the key design principles incorporated within the concept are set out in the table opposite.

A.26 Parameters

A.26.1 The accommodation campus layout shown in **Figure A.17** is for illustrative purposes only. A separate parameters plan including the accommodation campus is referred to above and contained within **Main Development Site Plans** (Doc. Ref. 2.5).

A.26.2 The parameter plan indicates the maximum extents and heights of the building envelope for the following development areas within the accommodation campus site: the accommodation blocks; the decked car park; and the amenity buildings.

ACCOMMODATION CAMPUS DESIGN PRINCIPLES	
1.	Creation of high quality internal and external environments which promote the health and well-being of workers. This is to include provision of informal green space within the accommodation block area within which workers can rest and socialise between shifts.
2.	Development contained within the land to the east of Eastbridge Road, reducing the visual and heritage impact, including those on the setting of the AONB.
3.	Orientation of accommodation blocks (siding on to Eastbridge Road) and massing (units of up to 3 storeys closer to Eastbridge Road) to minimise the visual impact on sensitive receptors to the west of the site, including Leiston Abbey (second site) and the realigned section of Bridleway 19.
4.	Visual impact of the accommodation blocks, including that on the setting of the AONB, minimised by limiting heights to four storeys.
5.	Accommodation blocks (the tallest buildings on the accommodation campus) consolidated generally towards the middle of the accommodation campus area to minimise the visual impact from Leiston Abbey (second site) and Public Right of Way E-363/010/0.
6.	No built development or perceptible light spill within 15m of the eastern edge of the accommodation campus area to establish a bat corridor.
7.	Retention of the majority of existing trees and hedgerows to help establish an attractive, high quality environment for workers and minimise the visual impact of development.
8.	Realignment of Bridleway 19 to run adjacent to Eastbridge Road. Configuration and landscape treatment to minimise views to the accommodation campus buildings and help retain its rural character as far as reasonably practicable.
9.	Provision of a footpath generally around the inner edge of the perimeter of the site, where appropriate, to allow workers to exercise within the accommodation campus boundaries.
10.	Recreation building designed to create a well-defined entrance to the accommodation campus, with a strong relationship between the internal uses and open space.
11.	Parking (with the exception of drop-off points and disabled parking) provided within a two level decked car park and adjacent to non-residential buildings to minimise the disturbance to workers on different shifts.
12.	A reasonable standard of internal and external acoustic amenity (defined in accordance with BS 8233) will be achieved through acoustic design and specification of the building envelope. Plant associated with the accommodation campus, for example a combined heat and power unit (CHP) plant, air source heat pump network (ASHP) and/or back-up generator will be designed to achieve a rating level of noise not exceeding 35dB LAr,15mins at the closest off-site residential receptor, when assessed in accordance with British Standard 4142: 2014+A1: 2019.
13.	Building colour palette to be discussed and agreed with East Suffolk Council and to include consideration of the Suffolk Coast and Heaths AONB Guidance on the Selection and Use of Colour in Development document.
14.	Use of building materials that respond to the local vernacular and help to integrate the larger structures into the landscape.
15.	Design of the distinct built elements of the accommodation campus (i.e. accommodation blocks, amenity hub and decked car park) to deliver a coherent architectural narrative in terms of colour, materiality and style.
16.	Demonstrate a sustainable approach to development in terms of: use of materials; methods of construction; energy and water supply; waste management; water treatment; drainage; deconstruction; post-construction phase re-use of materials; and site remediation.

Table A.1 Key design principles

1 Main entrance / security point
2 Reception / administration / medical
3 Parking for operations work force / residents
4 Recreation building
5 Main campus square
6 Service area
7 Foul water pump station
8 External plant
9 CHP generator
10 Parking for operations work force / residents
11 5m wide security zone and fence
12 Landscape buffer
13 Accommodation buildings
14 Green streets
15 Realigned bridleway
16 Access streets, including disabled parking and drop-off bays
17 15m wide bat corridor
18 Emergency vehicular access
19 Two level car park for residents
20 Landscape buffer

Figure A.17: Illustrative Layout

A.27 Landscape and green infrastructure

A.27.1 **Figure A.18** shows an indicative landscape strategy for the accommodation campus proposals. The concept incorporates the following key features:

- A 15m wide bat corridor located along the eastern edge of the accommodation campus. This will incorporate existing vegetation, as well as supplementary planting. The orientation and design of the accommodation blocks (side elevations will not feature any fenestration or entrances) will ensure that any noise and light disturbance will be minimised.
- Bridleway 19 is realigned to run along the western edge of the accommodation campus, adjacent to Eastbridge Road. As shown in **Figure A.19**, the existing vegetation along the edge of the road will be supplemented and additional planting introduced between the bridleway and the security fence. This will help to retain the rural character of the bridleway and minimise the visual impact of the proposed built development in views from key receptors e.g. Leiston Abbey, Public Right of Way E-363/010/0, and the realigned bridleway.
- A landscape buffer along the northern edge of the site to help screen the accommodation campus in views from key receptors to the north e.g. Whin Hill.
- Green streets (see **Figure A.20 and A.21**) are provided on the non-street side of the accommodation blocks. These spaces will provide workers with an attractive, informal space to enjoy between shifts, as well as an alternative route between the accommodation blocks, the amenity hub and the parking areas.
- Tree planting between the disabled parking spaces and drop-off points within the access streets, helping to integrate the parking into the streetscape and provide an attractive, leafy environment between the accommodation blocks.
- A formal tree planting arrangement is provided within the space defined by the recreation building in order to help create an attractive setting for the amenity facilities at the entrance to the accommodation campus.
- All existing category A trees and all but three of the existing category B trees / tree groups are retained in their entirety and integrated within the accommodation campus proposals, helping to retain the mature landscape character of the site and establish an attractive setting for workers.
- The majority of the existing hedgerows within the site are retained, including those located along: the access lane to Upper Abbey Farm; the periphery of the Farm; the existing bridleway; and Eastbridge Road. This will help to retain existing ecological corridors and the mature landscape character of the site.

Figure A.18: Landscape Strategy

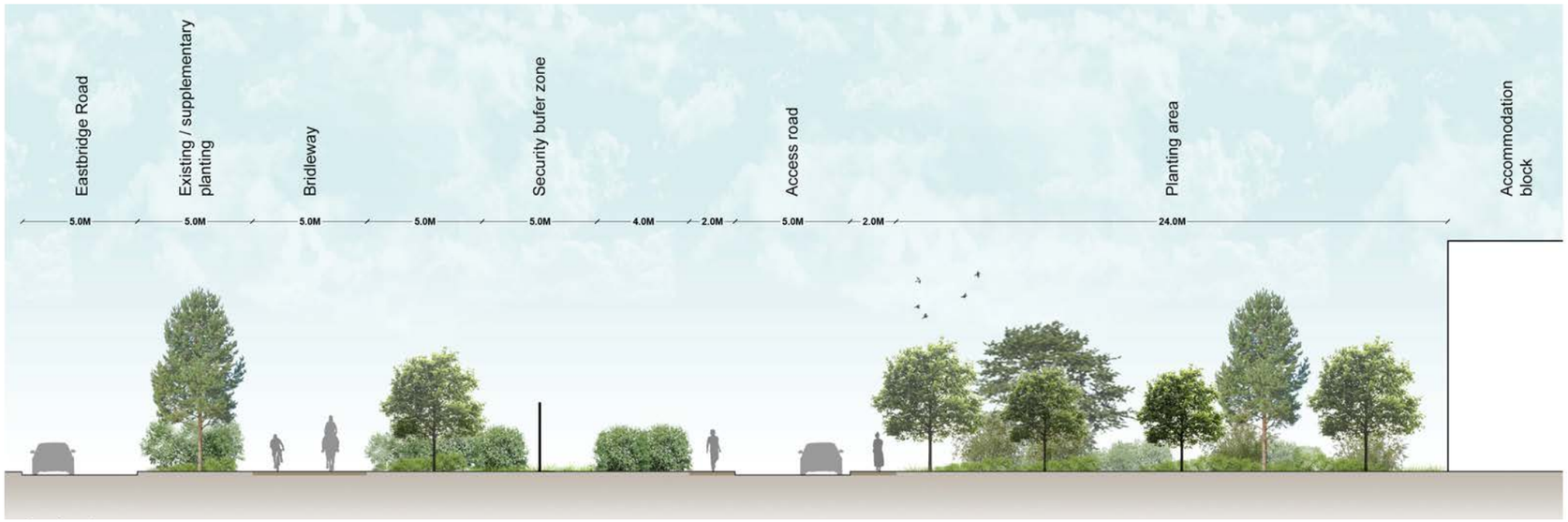


Figure A.19: Typical Section Through Interface With Eastbridge Road

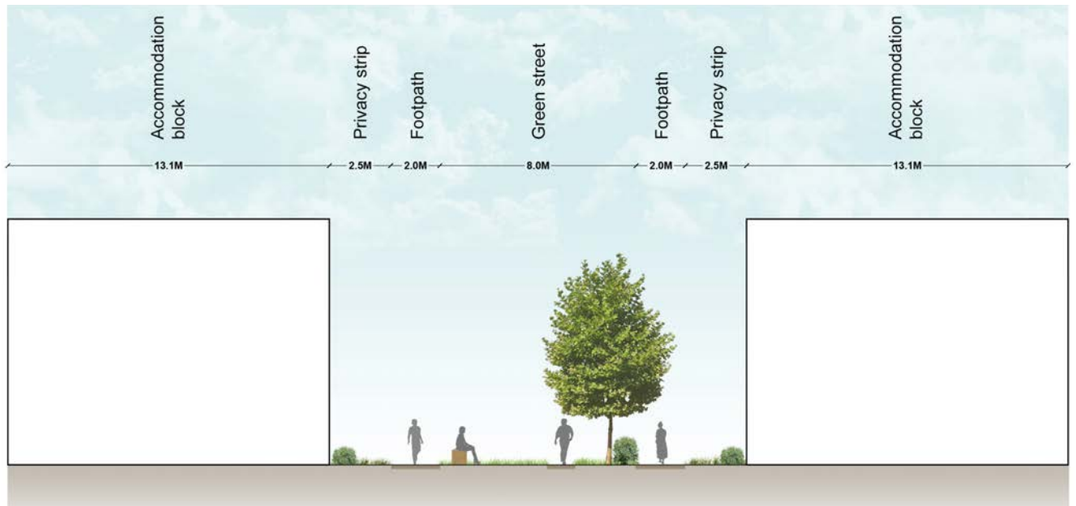


Figure A.20: Typical Section Through Green Street

A.27.2 **Green streets**

A.27.3 The green streets that run along the non-access side of all of the accommodation blocks are a key component of the green infrastructure strategy. As shown in **Figures A.20 and A.21**, the green streets will provide workers with an attractive, informal recreational space to enjoy between shifts, incorporating lawns, tree planting, seating and opportunities for informal recreation e.g. table tennis. At the centre of each amenity street there will be a hard space that could be used for any informal events or gatherings and will link in with the main north to south footpaths through the accommodation area of the campus, helping to enhance the legibility of the routes. The green streets will also provide an alternative to the access streets for east-west movement. Direct access from the accommodation blocks into the green streets will be provided from the entrance hallways.

A.27.4 As shown in **Figures A.22 to A.24**, the proportions of the green streets (17m wide and enclosed by accommodation blocks of a maximum of 4 storeys) will ensure that they benefit from good levels of daylight throughout the day.

A.27.5 **Landscape detail**

A.27.6 **Figure A.25** shows an illustrative landscape detail plan for the proposed accommodation campus. This plan shows possible treatments for the various hard and soft landscape features that are incorporated in the proposals. The intention will be to establish a high quality, attractive and robust public realm in which workers can rest and socialise between shifts, whilst recognising that the accommodation campus will be dismantled at the end of the 9-12 year construction period.

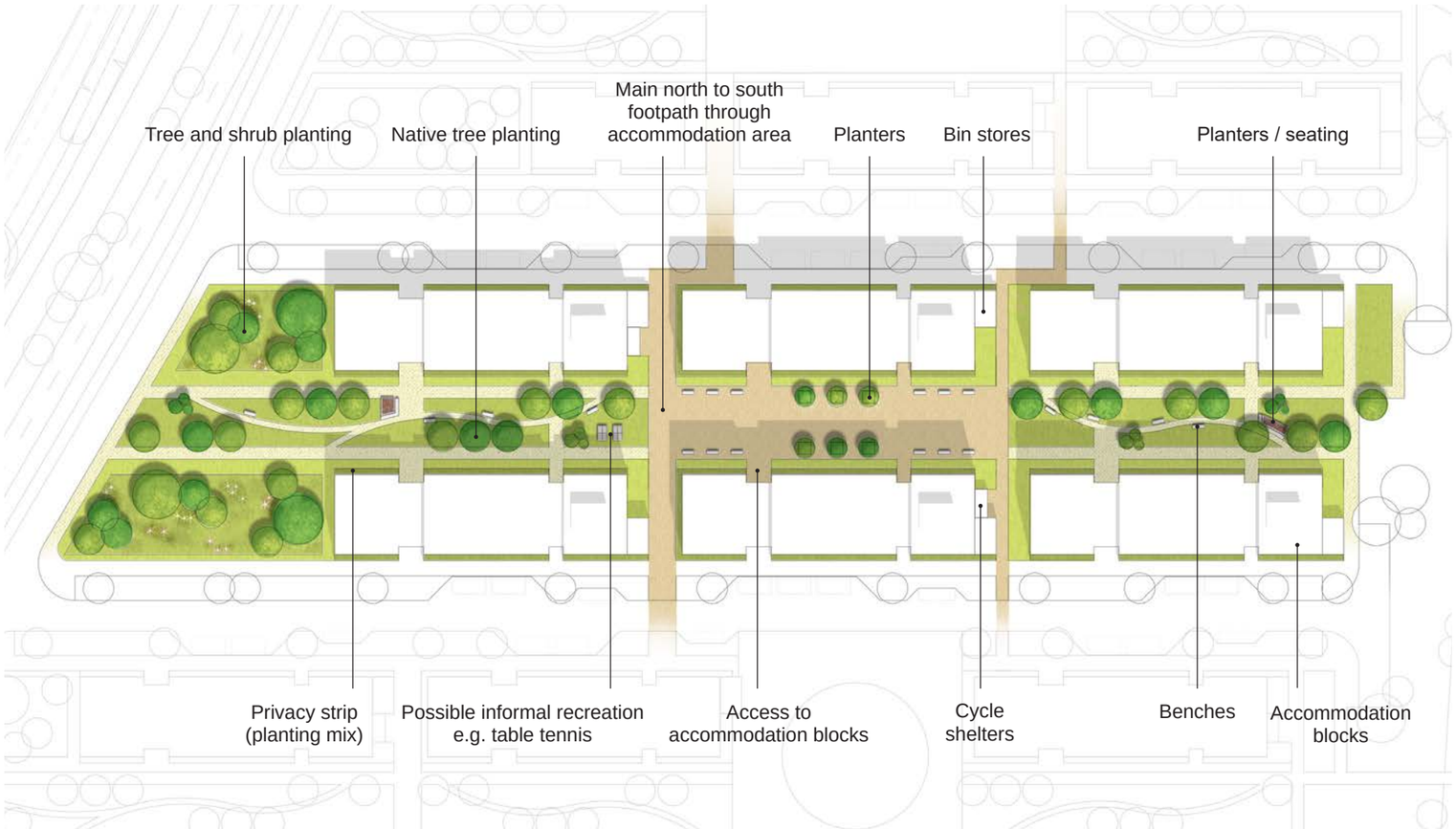


Figure A.21: Illustrative plan of typical green street

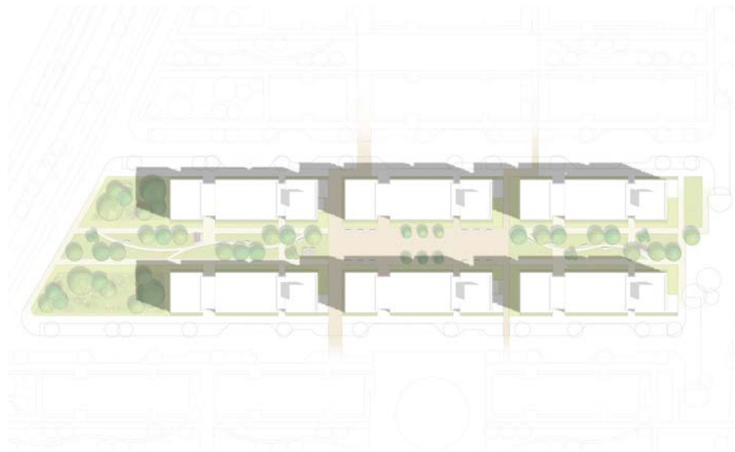


Figure A.22: Green street shadow plan (9am)

Figure A.23: Green street shadow plan (12 noon)

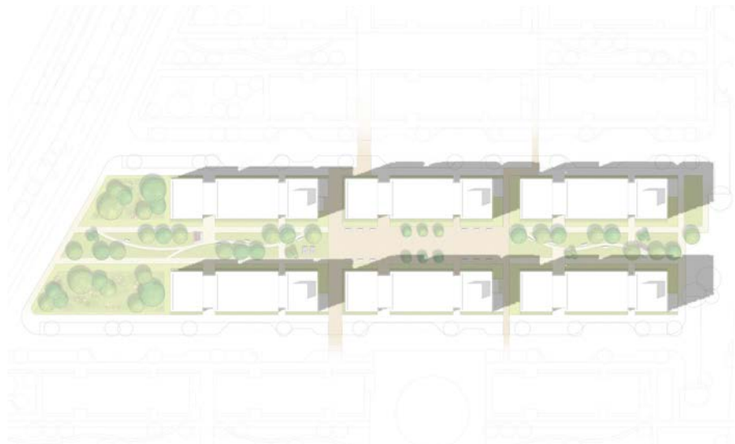


Figure A.24: Green street shadow plan (4pm)

Figure A.25: Illustrative Landscape Detail Plan

A.28 Access and movement

A.28.1 **Figure A.26** shows an indicative access and movement strategy for the accommodation campus proposals.

A.28.2 Vehicular access

A.28.3 A single, barrier-controlled vehicular entrance point into the accommodation campus is provided in the south west corner. This will be accessed via the north eastern arm of the proposed new roundabout located at the junction of Eastbridge Road and the B1122. An additional emergency access from Eastbridge Road will be provided at the northern end of the accommodation campus, where there is a gap in the existing hedgerow.

A.28.4 Vehicular movement

A.28.5 Within the site, the access lane to Upper Abbey Farm is retained and used to service the existing buildings, as well as the CHP generator. Due to the limited capacity of the Upper Abbey Farm access lane, a separate road is provided to allow access to the service area behind the proposed recreation building. This could potentially also serve the CHP generator during the 10 year construction period, but would subsequently be removed.

A.28.6 The accommodation blocks are served by a series of east-west access streets feeding off the main access road located along the western edge of the accommodation campus. The roads in these streets are 5m wide and feature turning heads at their eastern end to allow refuse vehicles and fire appliances to access the accommodation blocks and refuse stores.

A.28.7 Vehicles parking

A.28.8 The vehicle parking strategy for the accommodation campus has been designed to minimise the disturbance to workers caused by parking within the access streets. The access streets still provide drop-off points, as well as parking for the 60 accessible bed spaces. However, the majority of the parking (1,278 spaces) is provided within a two-level car park at the northern end of the site. This is located within 5 minutes walk of all accommodation blocks, though with workers being employed on-site and having immediate access to the accommodation campus facilities, they will not require regular access to their vehicles. An additional 305 parking spaces are provided within the amenity hub at the southern end of the site, providing a total of 1,643 spaces (excluding the drop-off points). Electric vehicle charging points will be provided in line with the Transport Strategy.

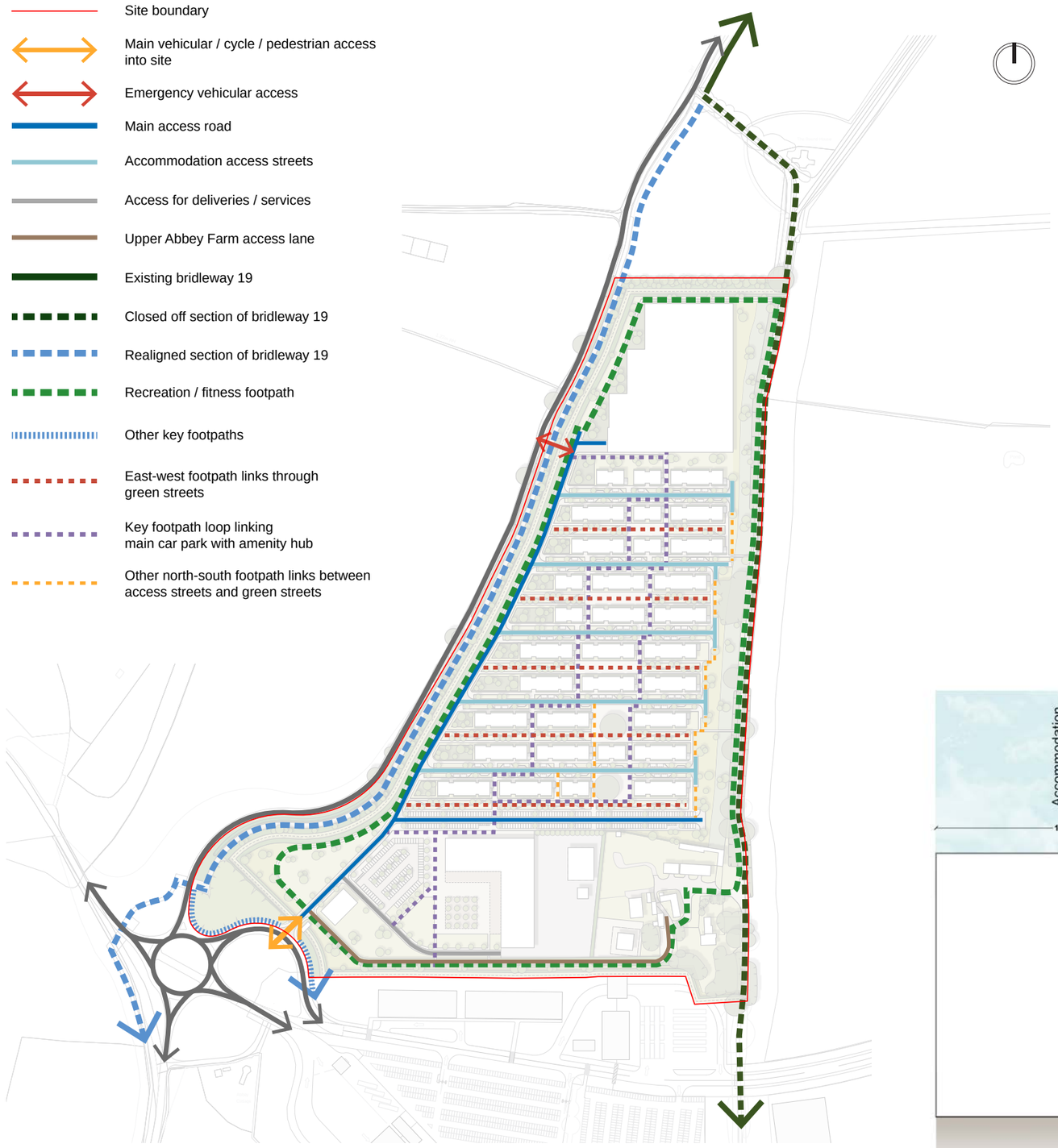


Figure A.26: Access and Movement Strategy

A.28.9 Pedestrians and cyclists

A.28.10 Access into the accommodation campus for pedestrians and cyclists is provided via controlled gates located at the main vehicular entrance in the south west corner.

A.28.11 Bridleway 19 will be realigned for the duration of the construction period to run between Eastbridge Road and the western edge of the accommodation campus. At the northern end of the accommodation campus the bridleway will exit the site via the northern boundary and continue separate from Eastbridge Road until it re-joins the original Bridleway 19 alignment. To the south it will cross the realigned section of Eastbridge Road and continue along the B1122 as shown in **Figure A.26**.

A.28.12 Within the site, a network of footpaths is provided adjacent to the road network. Footpaths are also provided within the green streets and on a north to south axis between the accommodation blocks to ensure high levels of accessibility for workers between the various facilities. As shown in **Figure A.26**, this includes a key footpath loop linking the main car park in the north with the amenity hub and the open spaces incorporating the two retained category B trees. An additional footpath running around the periphery of the accommodation campus site is provided to give workers an outdoor exercise opportunity within the site.

A.28.13 Parking spaces for 120 cycles is provided within the accommodation campus, including shelters within the amenity hub and attached to the gable ends of the accommodation blocks.

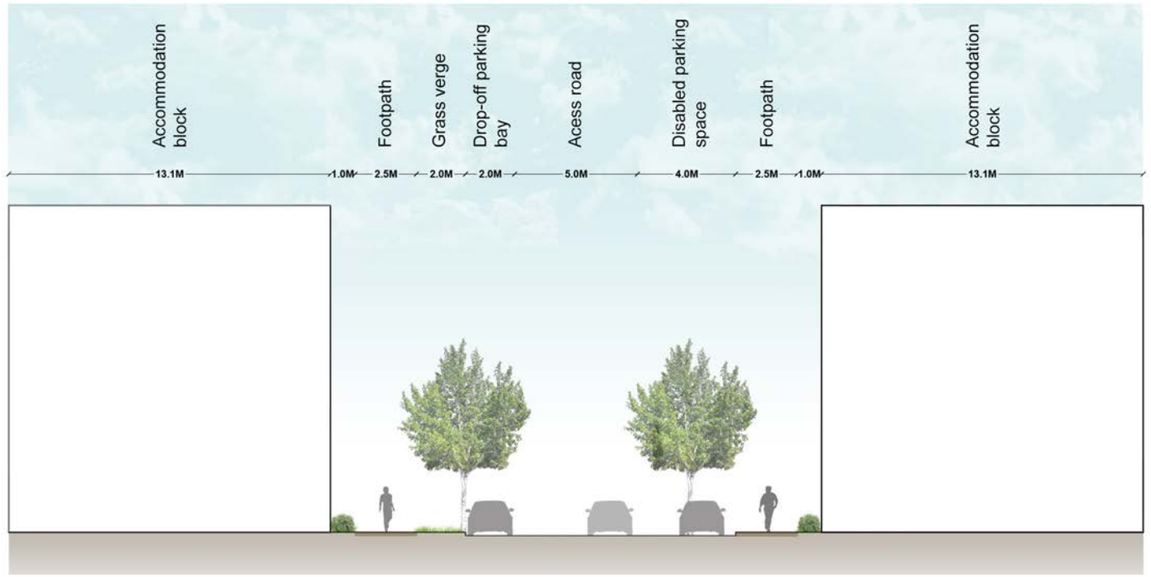


Figure A.27: Typical Section Through Access Street

A.28.14 Access streets

A.28.15 The access streets that run on an east-west axis and serve the accommodation blocks are a key component of the access and movement strategy.

A.28.16 As shown in **Figures A.27 and A.28**, the access streets incorporate disabled parking spaces as well as drop-off bays for convenience, but in order to minimise noise disturbance to the workers the main parking provision will be in the decked car park at the northern end of the site and within the amenity hub at the southern end.

A.28.17 The parking bays provided are set within generous grass verges featuring native tree planting in order to help establish an attractive and positive street setting for residents. Bin storage and cycle shelters are located on the gable ends of the accommodation blocks where they will be convenient to access but have minimal impact on the street scene.

A.28.18 As shown in **Figures A.29 to A.31**, the proportions of the access streets (20m wide and enclosed by accommodation blocks of a maximum of 4 storeys) will ensure that they benefit from good levels of daylight throughout the day.

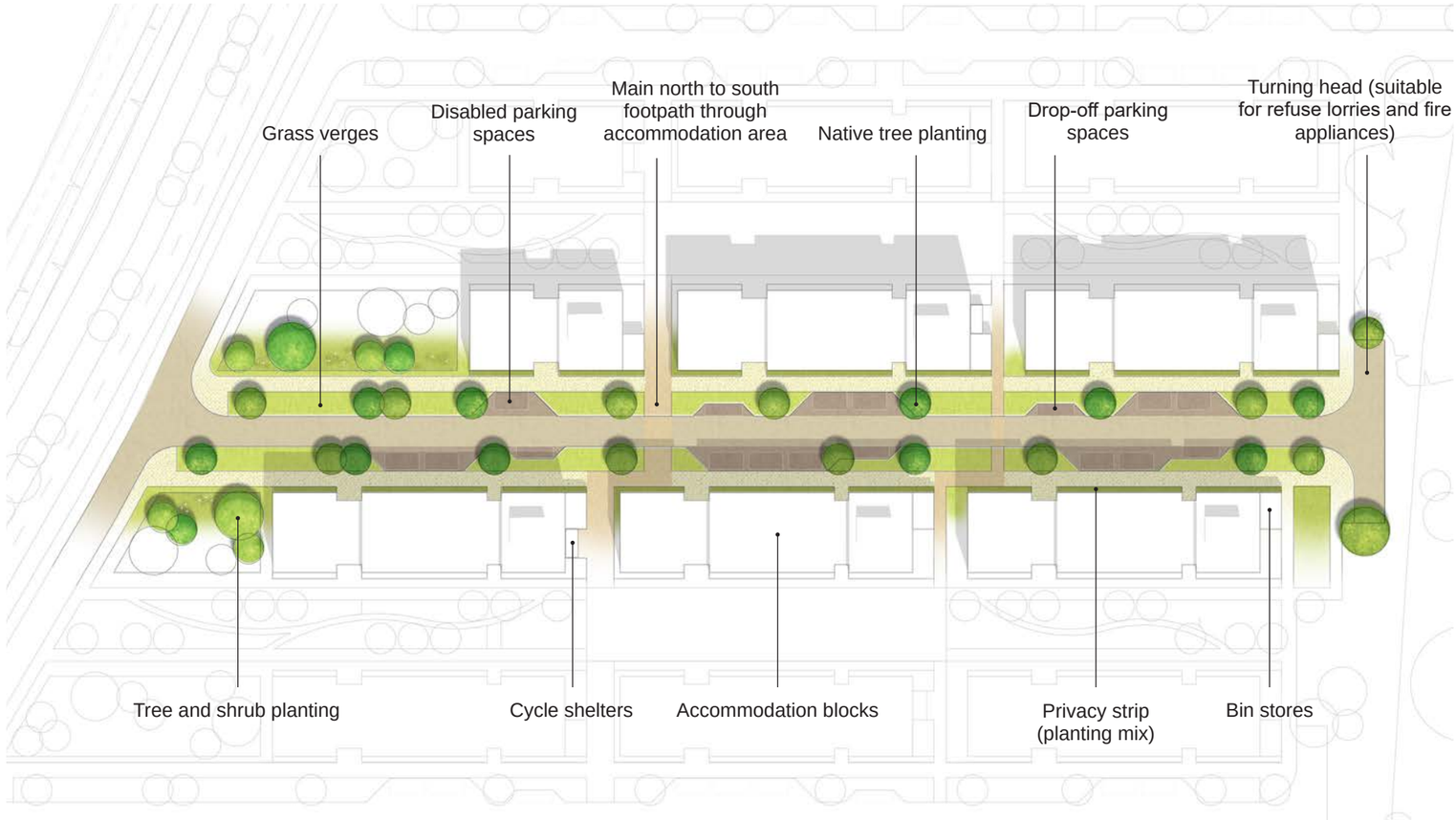


Figure A.28: Illustrative plan of typical access street

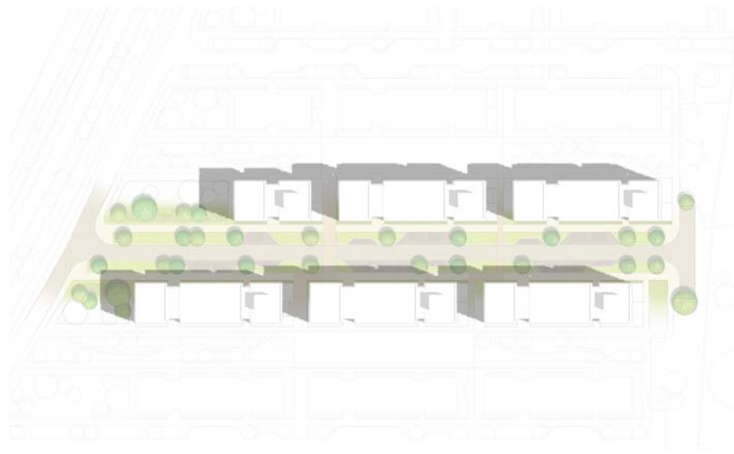


Figure A.29: Access street shadow plan (9am)

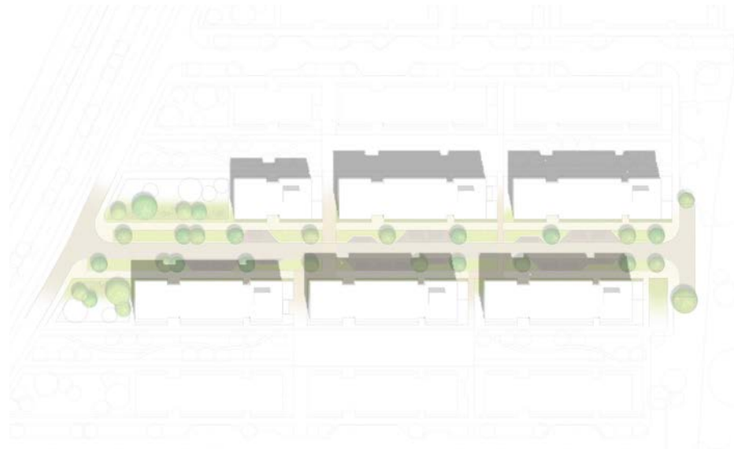


Figure A.30: Access street shadow plan (12 noon)

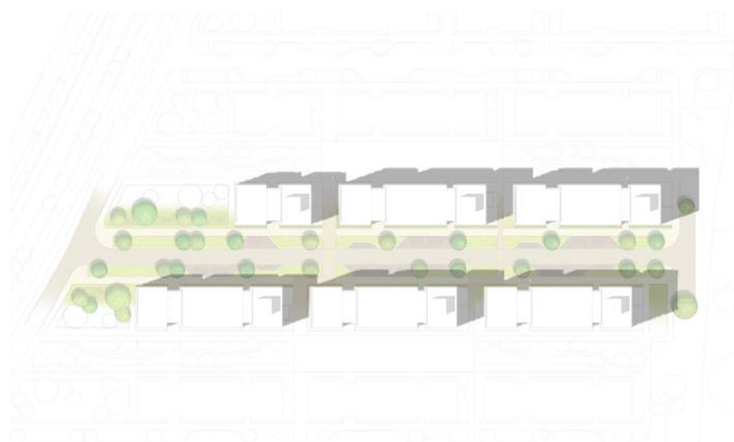


Figure A.31: Access street shadow plan (4pm)

A.29 Building layout, massing and heights

A.29.1 The massing and scale of the proposed buildings within the accommodation campus have been carefully considered, with particular attention given to potential visual and heritage impacts.

A.29.2 Accommodation blocks

A.29.3 As shown in **Figure A.32**, all of the accommodation blocks are aligned on an east to west axis. This ensures that the visual impact of the accommodation campus when viewed from the key receptors to the west of the site (e.g. Leiston Abbey and the realigned bridleway) is minimised. As shown in **Figure A.33**, this alignment also ensures that the accommodation blocks on the eastern edge of the accommodation campus 'side on' to the adjacent stock piles, thereby minimising their impact on views from within the accommodation (there will be no fenestration on the gable ends).

A.29.4 As shown in **Figures A.32 and A.34**, the three storey accommodation blocks are located on the western edge of the accommodation campus in order to minimise the impact of the four storey blocks on views from key receptors west of the site. To address stakeholder feedback 5 storey accommodation buildings were removed from the proposals between Stage 2 and 3 of the consultation process by building on the pit.

A.29.5 Visual impact has also been considered in the location of the accommodation blocks. These are the tallest buildings on the site and have been consolidated in the middle of the accommodation campus, which visual impact assessment work (see Stage 3 pre application report) has demonstrated to be the least visible area of the site from key receptors to the west.

A.29.6 Amenity buildings

A.29.7 As shown in **Figure A.32**, the recreation and reception buildings, both of which are 2-storey, are located at the southern end of the accommodation campus to reduce visual impact from the vicinity of Leiston Abbey.

A.29.8 The recreation building has been designed as a single building due to the benefits of collocating the various uses (see **section A.30** of this statement for further details). The L-shape is provided to define a well-enclosed, south facing open space that marks the entrance to the accommodation campus and could be used for the adjacent restaurant (and other uses) during the warmer months (see **Figure A.35**).

A.29.9 The two storey reception building is located at the main entrance to the site in a position that will allow staff to monitor and assist vehicular and pedestrian traffic heading to: Upper Abbey Farm; the service area behind the recreation building; and the accommodation area.

Figure A.32: Illustrative Massing

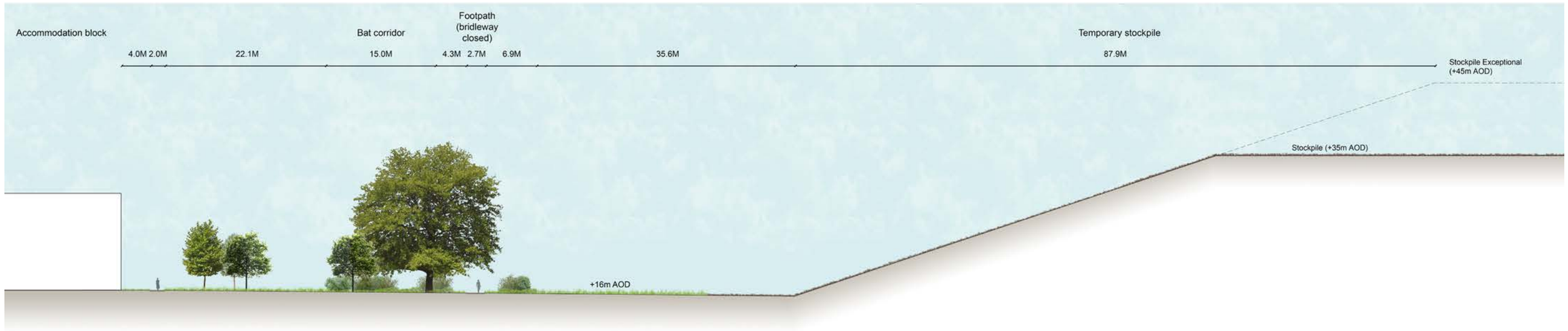


Figure A.33: Typical Section Through Eastern Edge of Campus and Temporary Stockpile

Figure A.34: Storey heights plan

Figure A.35: Illustrative view of main campus square (see location 1 shown on Figure A.32)

A.29.10 CHP generator

A.29.11 The CHP generator will be located within the western portion of Upper Abbey Farm. It will not require the demolition of any existing structures and would either be accessed via an additional entrance from the access lane to Upper Abbey Farm or via the service area to the rear of the recreation building. The CHP generator would be largely obscured in views from the west of the site by the recreation building, although the exhausts may be visible above it.

A.29.12 Decked car park

A.29.13 A two storey decked car park is provided at the northern end of the accommodation campus. The western edge of the building would be staggered to break up the massing of the building and replicate the staggered edge created by the accommodation blocks. The car park would be approximately 7m high and is located at the northern end of the accommodation campus in order to reduce visual effects from elevated locations to the north. The upper deck of the car park would be covered to minimise the potential visual impact of lighting.

A.30 Building design and appearance

A.30.1 Accommodation blocks

Layout and uses

A.30.2 **Figures A.36-A.38** show illustrative plans for the small and large 3 and 4 storey accommodation blocks. Both the 3 and 4 storey blocks incorporate accessible bed spaces on the ground floor. Store rooms are provided on all levels and a plant room is provided on ground floors (the exact sizing of this will be determined once the energy strategy for the accommodation campus is confirmed). All standard and accessible bed spaces include an en-suite bathroom. Standard bed spaces have a gross internal area of 17m^2, while the accessible rooms have a gross internal area of 26m^2.

A.30.3 **Table A.2** provides a summary of the accommodation provided with the proposed accommodation campus.

Appearance and materials

A.30.4 Illustrative elevations and perspectives of the proposed small and large 3 and 4 storey accommodation blocks are shown in **Figures A.39-A.44**. Fenestration is limited to the front and rear elevations of the blocks to minimise the impact of lighting on views from key visual receptors to the west of the site and on the bat corridor to the east.

A.30.5 Modular construction will be considered for the accommodation blocks and a simple, clean and contemporary architectural language is proposed, which responds to the local vernacular in terms of use of materials and colour palette (see **section A.31** for further details on colour strategy).

A.30.6 The materials palette will not be fixed at this stage of the design process.

BLOCK TYPE	NUMBER OF BLOCKS	NUMBER OF STANDARD BED SPACES	NUMBER OF ACCESSIBLE BED SPACES	TOTAL NUMBER OF BED SPACES
Small block 3 storey (1 accessible bed space)	3	96*	3	99
Small block 4 storey (1 accessible bed space)	5	225	5	230
Large block 3 storey (1 accessible bed space)	7	483	7	490
Large block 4 storey Type A (1 accessible bed spaces)	3	276*	3	279
Large block 4 storey Type B (3 accessible bed spaces)	14	1260	42	1302
TOTAL	32	2340	60	2400

Table A.2 Bed space provision

* Assumes one ground floor bed space per block given over to additional storage provision

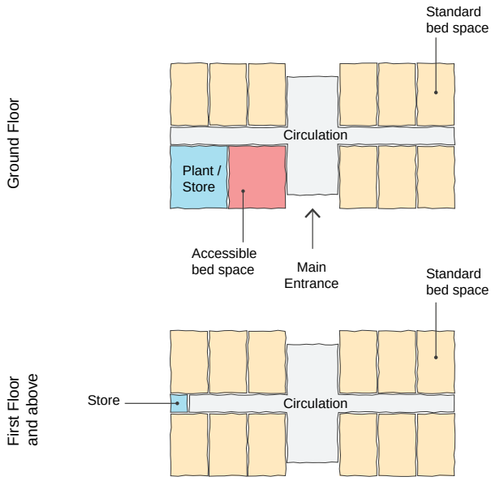


Figure A.36: Small Accommodation Block Layout (3 and 4 Storey)

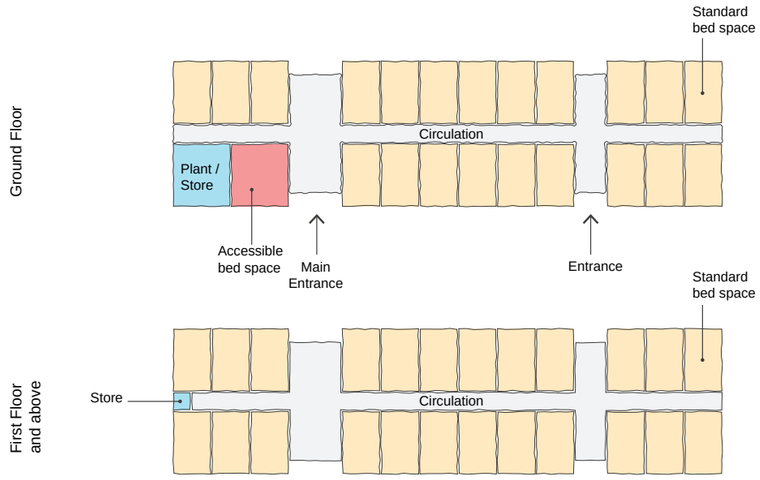


Figure A.37: Large Accommodation Block Layout (3 and 4 Storey) - Type A

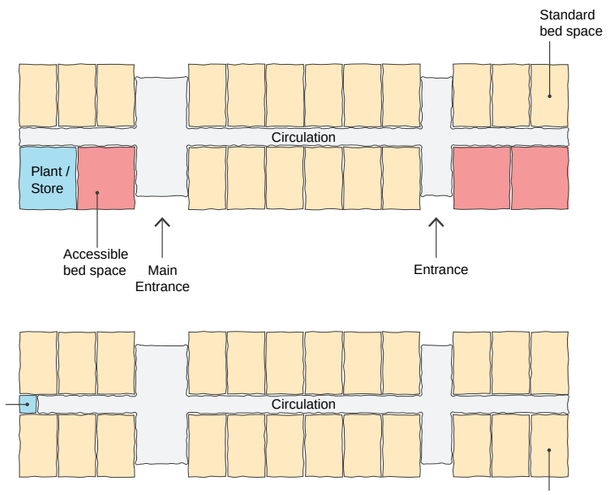


Figure A.38: Large Accommodation Block Layout (3 and 4 Storey) - Type B

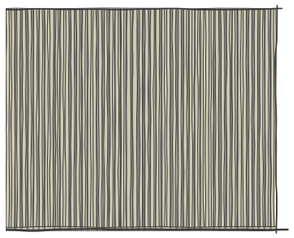


Figure A.39: Accommodation Block End Elevation (3 Storey)

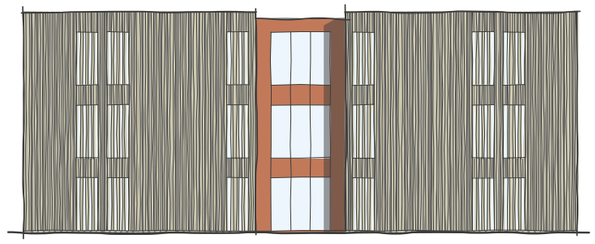


Figure A.40: Accommodation Block Front Elevation (3 Storey)

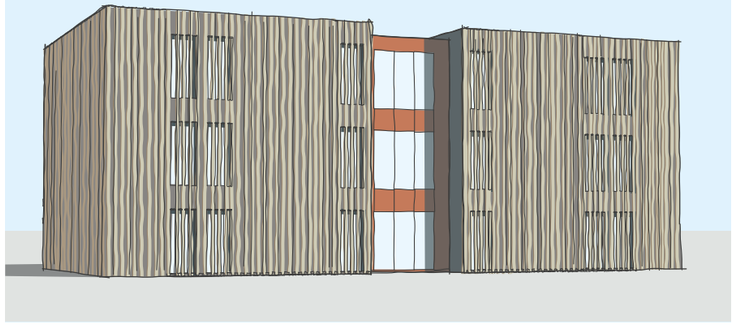


Figure A.41: Accommodation Block Perspective (3 Storey)

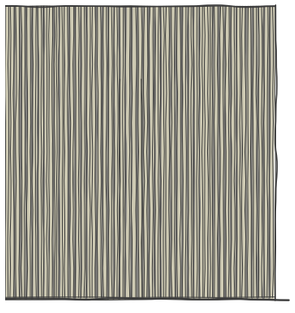


Figure A.42: Accommodation Block End Elevation (4 Storey)

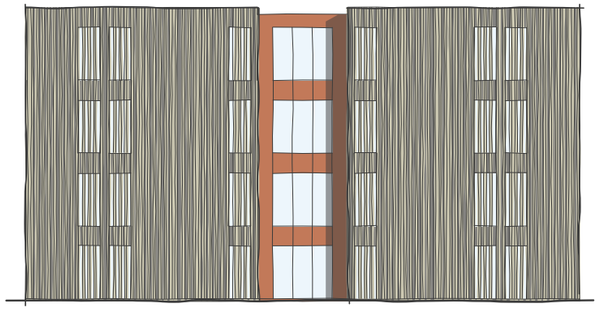


Figure A.43: Accommodation Block Front Elevation (4 Storey)

Figure A.44: Accommodation Block Perspective (4 Storey)

A.30.7 Recreation building

Layout and uses

A.30.8 An illustrative layout of the proposed two storey recreation building is shown in **Figures A.45 and A.46**. The kitchen and restaurant were originally shown as a separate building in the Stage 3 Consultation. However, the decision has been made to combine these within a single recreation building following discussions with the accommodation campus operators, who outlined the benefits of collocating the facilities.

A.30.9 An L-shaped building is proposed in order to define a well-enclosed, south facing open space that provides an appropriate entrance to the accommodation campus. The internal layout of the recreation building shown in **Figures A.45 and A.46** is illustrative only, but demonstrates how the key uses, e.g. restaurant, bars, gym and multi-function room could be distributed to ensure that they benefit from the most positive aspects onto the open space, with the services and plant located to the rear of the building. Providing the restaurant on the ground floor will allow this to spill out onto the open space during warmer months.

Appearance and materials

A.30.10 **Figures A.47-A.49** show illustrative elevations and an illustrative perspective of the proposed recreation building. As with the accommodation blocks, modular construction will be considered for the recreation building and a simple, clean and contemporary architectural language is proposed.

A.30.11 Materials to be considered for the recreation building include glass and metal cladding finished in two tones of grey (see **section A.31** for further details on colour strategy).The intention is that the ground floor will feature a predominantly glazed frontage in order to establish a strong relationship between the building and the main open space, and create an open and light internal restaurant space.

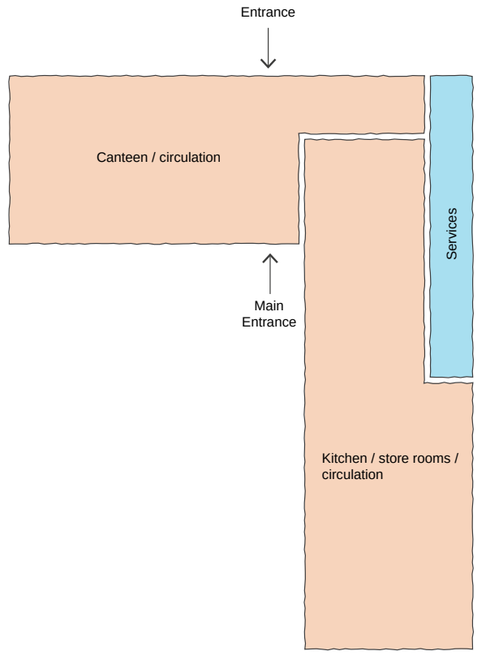


Figure A.45: Recreation Building - Ground Floor Layout

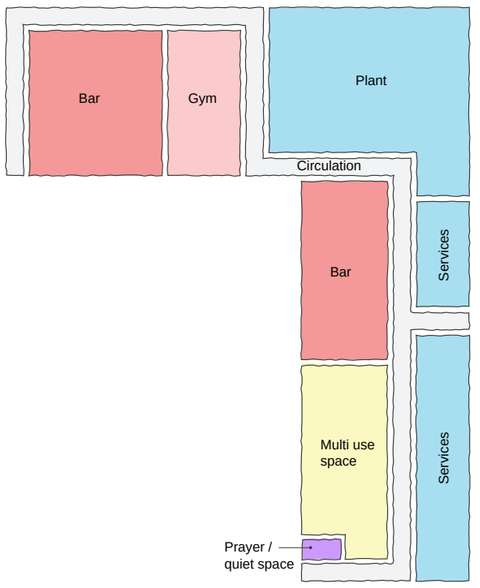


Figure A.46: Recreation Building - First Floor Layout

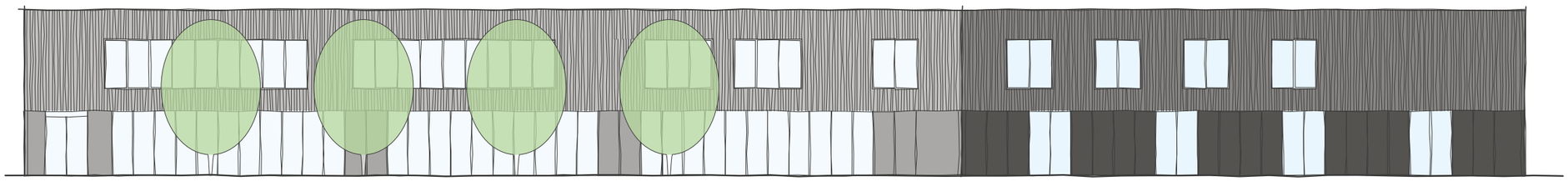


Figure A.47: Recreation Building South Elevation

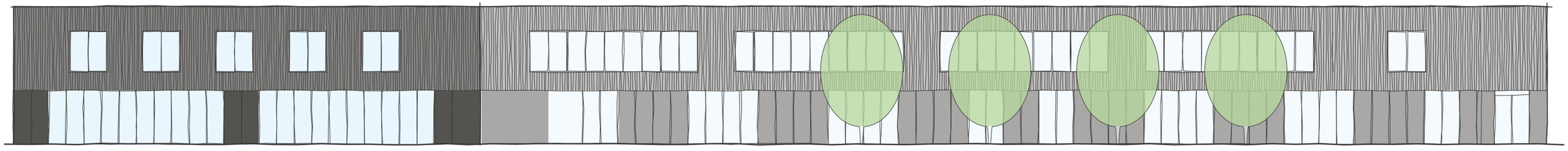


Figure A.48: Recreation Building West Elevation

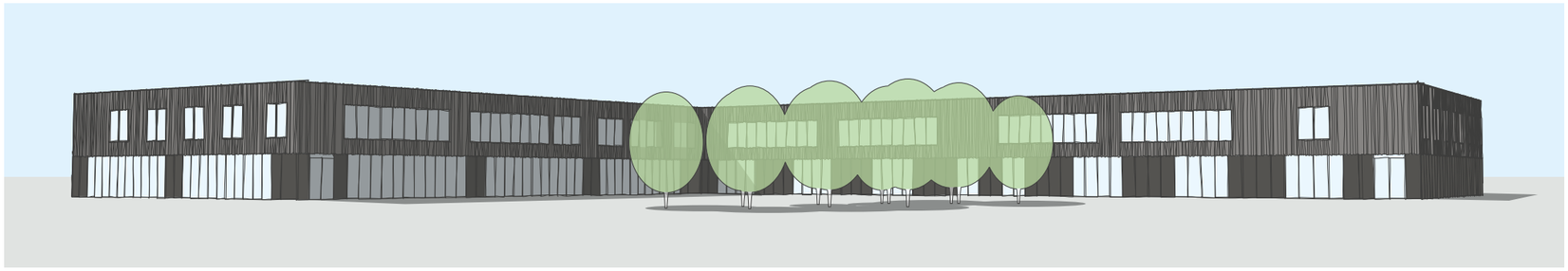


Figure A.49: Recreation Building Perspective

A.30.12 Reception building

Layout and use

A.30.13 **Figures A.50 and A.51** demonstrate how a two storey reception building could provide a reception and medical facility on the ground floor and administration facilities for the accommodation campus across both floors.

Appearance and materials

A.30.14 **Figures A.52-A.54** show illustrative elevations and perspectives of the proposed reception building.

A.30.15 The architectural language and use of materials and colour being considered for the reception building are consistent with those set out above for the recreation building. The intention is that the ground floor will feature a predominantly glazed frontage in order to help staff monitor and assist vehicles and pedestrians entering the site.

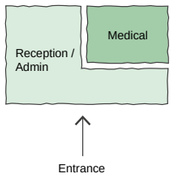


Figure A.50: Reception Building Ground Floor Plan

Figure A.51: Reception Building First Floor Plan

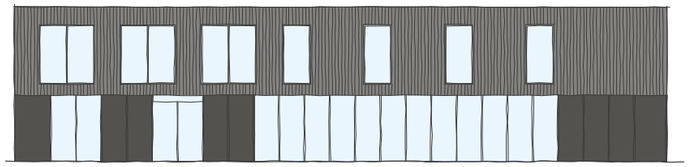


Figure A.52: Reception Building North-West Elevation

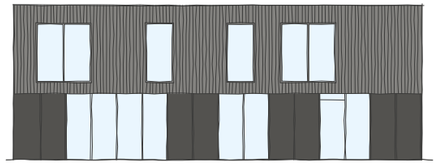


Figure A.53: Reception Building North-East Elevation

Figure A.54: Reception Building Perspective

A.30.16 **Other structures**

Decked car park

A.30.17 The decked car park is likely to be of modular, steel framed construction and will feature a flat roof above the top deck in order to minimise light spill from the building.

A.30.18 Cladding treatments being considered include vertical timber slats or other materials that would respond to the local vernacular and help to integrate the building into the landscape.

Combined Heat and Power (CHP) generator

A.30.19 The CHP generator is likely to comprise of gas-fired generators installed side by side in modular containers. Each generator would have its own exhaust extending above the roof of the container. There would likely be additional smaller modular buildings to contain electrical switchgear, control systems, transformers, etc. All of this would be contained in a compound with vehicular access. The generators would be approximately 5m in height, and the exhausts up to 15m high.

A.30.20 Materials being considered for the screening of the CHP generator include stained timber cladding, which would be sympathetic to the surrounding context.

Security building

A.30.21 A dedicated security building is provided at the main entrance into the accommodation campus site. This will be a single storey structure with sufficient glazing to allow good visibility of the security barriers, turnstiles and gates. The building will also potentially feature an external canopy to provide security staff with some shelter when checking vehicles entering the site. Materials will be consistent with the palette used for the recreation and reception buildings.

Plant

A.30.22 An area of plant is provided within the service area located to the rear of the recreation building. This will potentially incorporate facilities including a refuse store and back up boilers for the CHP generator (if provided).

A.30.23 Timber cladding or other materials that help to integrate the plant into its context would be considered to match the finish of the car park and CHP generator screening, although it will largely be screened from the public areas of the accommodation campus by the recreation building and the adjacent existing and proposed planting.

Foul water pump station

A.30.24 A foul water pump station is provided within the service area located to the rear of the recreation building.

A.31 Colour strategy

A.31.1 The proposals for the buildings on the accommodation campus site set out above give careful consideration to the Suffolk Coast and Heaths AONB Guidance on the selection and use of colour in development document.

A.31.2 The accommodation campus site itself falls under the 'estate farmlands, clayland edge, farmed estate sandlands' landscape character type identified in the guidance, while the site context to the north and south and within the AONB to the east lies within the 'estate sandlands, woods and heath' landscape character type. Importantly, due to existing landscape features and the relatively flat topography of the site and its context, the later landscape character type will remain largely unseen in key views from receptors to the west of the site.

A.31.3 The guidance also identifies a 'buildings and settlements' landscape character type. The accommodation campus site is not located within, or immediately adjacent to any areas of this type. Importantly, however, it is located immediately adjacent to Upper Abbey Farm, which incorporates a number of buildings similar to those which have been used to derive the colour palette for this landscape character type and it will form the immediate context to any development located in the south east corner of the site.

A.31.4 Based on the above, careful consideration of the checklist set out in the guidance, analysis of the local vernacular (including Upper Abbey Farm), and the construction requirements for the various accommodation campus buildings, it is proposed that the following colour palette is considered for the accommodation campus buildings (see colour swatches overleaf):

- S 8000-N (buildings and settlements developed palette)

A.31.5 It proposed that this integration colour is used for the main elevations of the accommodation blocks and amenity buildings. It is informed by the local vernacular, including painted timber and corrugated metal cladding, and will help the massing of the larger buildings e.g. recreational building to recede in key views.

- S 6000-N (buildings and settlements developed palette)

A.31.6 This is the associated grey neutral for S 8000-N. The intention is to provide an additional colour beyond the accent and trim colour (see below) to help provide variation and break up the larger building facades.

- S 2005-G90Y (buildings and settlements developed palette)

A.31.7 This is the accent and trim colour and could be used for any timber cladding provided.

- S3030_Y60R (buildings and settlements / estate farmlands, clayland edge, farmed estate sandlands developed palette)

A.31.8 This colour could be used to inform any use of brick and responds to the colour of the brick used in the immediately adjacent buildings at Upper Abbey Farm.

A.31.9 It could also be used to provide an additional accent / trim colour for the accommodation units to help create a positive and vibrant feel to the accommodation campus. As shown in the illustrative elevations and perspectives (**Figures A.39-A.44**), one option would be to use this colour for the panels around the entrances to the accommodation blocks, which would also help to enhance their legibility.

A.32 Lighting

A.32.1 In order to minimise the potential for light pollution, the accommodation blocks are orientated on an east-west alignment so that the gable ends present unlit facades towards key visual receptors to the west, including Leiston Abbey and locations on the local Public Rights of Way network.

A.32.2 The lighting strategy for the wider accommodation campus area, including the access road and car park, will ensure that external lighting is only used where strictly needed and that the intensity of the lighting is matched to the need / use (with the potential for adjustment in level). Luminaires would be mounted as low to the ground as possible and shields will be provided where necessary to minimise light spill.

A.32.3 Retained vegetation along both sides of the realigned bridleway, and new planting immediately west of the accommodation blocks will contribute to the filtering of views to lighting within the accommodation campus area.

A.33 Waste collection

A.33.1 As shown in the illustrative landscape detail plan (**Figure A.25**) and also **Figures A.21** and **A.28**, dedicated refuse stores are provided on one of the gable ends of each of the accommodation blocks, where they will be easily accessible for both residents and refuse collection vehicles.

A.33.2 The refuse stores will be approximately 2m high and will potentially feature timber cladding. A larger refuse store will be provided within the plant area to the rear of the recreation building.

A.33.3 The road widths and hammerheads at the end of access streets are designed to ensure that refuse vehicles are able to manoeuvre as necessary to access all refuse stores.

A.34 Power and heating

A.34.1 A number of low and zero carbon options to meet the energy needs of the accommodation campus have been considered. Initial studies have shown combined heat and power (CHP) and air source heat pumps (ASHP) to be the most appropriate options and flexibility in the design of the accommodation campus has been provided to accommodate either.

A.34.2 CHP

A.34.3 CHP generators burn a fuel (natural gas) to run an internal combustion engine, which then turns a generator to produce electricity. The heat from the combustion engine is piped away from the engine and used as a heat source for providing heating and hot water. CHP was initially the preferred option for the accommodation campus and, as shown in the illustrative layout (**Figure A.17**), a CHP generator could be accommodated within the Upper Abbey Farm site. An example of a typical CHP generator plant can be seen in **Figure A.55**.

A.34.4 However, the government has recently provided amended Figures that more than halve the CO^2 value apportioned to grid electricity. This will potentially make air source heat pumps a more viable solution for the accommodation campus.

A.34.5 Air source heat pumps

A.34.6 Air source heat pumps (see **Figure A.56**) use a refrigerant cycle to gain energy from the available air temperature. They are powered by grid electricity, are very efficient and their service life fits well with the proposed accommodation campus lifespan. Their scalable and building mounted technology also offers greater flexibility in dealing with a accommodation campus population that will rise to a peak and then decline.

A.34.7 If this option is proceeded with, an enclosure of up to approximately 3m in height would be required on part of the roof of all buildings as they would be too large to accommodate between the accommodation blocks. The exact sizing of this would need to be determined, but it is likely to be a relatively small part of the overall roof space and could be recessed from the edge of the building.

Figure A.55: CHP Generator

Figure A.56: Air Source Heat Pumps

A.35 Drainage and water strategy

A.35.1 The drainage strategy for the accommodation campus seeks to incorporate sustainable urban drainage systems where possible. This will potentially include providing storage and infiltration opportunities through permeable paving e.g. below parking areas and other hard open spaces; shallow infiltration trenches along the perimeter of the accommodation campus and within the green spaces between the accommodation blocks; and the use of tree pits.

A.35.2 Consideration is being given to the application of grey water recycling e.g. the re-use of water from showers, baths, sinks and washing machines for uses such as toilet flushing, landscape irrigation and other non-potable uses. Consideration will also be given in the design of the accommodation campus buildings to the integration of rainwater harvesting systems that allow the collection and re-use of roof water.

A.36 Site clearance and demolition

A.36.1 **Figure A.57** shows the buildings, trees and hedgerows that will be removed as part of the proposed accommodation campus development.

A.36.2 The only building that will be demolished is the modern structure located immediately south of the dwelling in the north west corner of Upper Abbey Farm. This is not considered in the assessment to be of any heritage value and will be demolished as part of the Conservation strategy for the Farm (though it is not required to accommodate any new development).

A.36.3 As referred to in **section A.27**, all existing category A trees, and all but three of the category B trees / tree groups, are retained in their entirety and integrated within the accommodation campus proposals. The category B tree group affected is located within the existing pit and would need to be partially removed to accommodate the accommodation blocks. The individual category B trees to be removed are a small oak located in the centre of the site, to the west of the existing pit, and another oak located close to the site entrance.

A.36.4 The majority of the existing hedgerows within the site are retained within the accommodation campus proposals, helping to retain existing ecological corridors and the mature landscape character of the site. The key hedgerows that would need to be removed are those located adjacent to the realigned section of Eastbridge Road at the southern end of the site, and the field boundary hedgerows located between the existing pit and Upper Abbey Farm.

Figure A.57: Clearance and Demolition Plan

A.37 Post construction

A.37.1 Following the completion of the construction phase, temporary development, which includes the accommodation campus, would be removed. The details of the restoration and landscape design are secured by requirements included in Schedule 2 of the Draft DCO (Doc Ref. 3.1).

A.37.2 As shown in **Figure A.58**, the only buildings that would be retained on the accommodation campus site would be the structures at Upper Abbey Farm, which would be accessed via the farm access lane.

A.37.3 In terms of vegetation, the existing north to south and east to west sections of the hedgerow located to the north of Upper Abbey Farm would be reinstated, as would the short sections of hedgerow located at the western end of the realigned section of the Upper Abbey Farm access road. All of the existing trees retained in the accommodation campus development proposals would be retained post construction.

A.37.4 In order to return the site to its current open landscape character, the new tree and hedgerow planting located within the internal areas of the site will not be retained post construction.

A.37.5 The following features around the periphery will be retained and reinforced:

- The bat corridor along the eastern edge of the site;
- The retained and supplemented vegetation along the eastern edge of Eastbridge Road and the new landscape strip between the realigned bridleway and the (removed) security fence. This will help to retain the rural character of the bridleway, which will remain open post construction and form one of the main positive legacies of the accommodation campus. As shown in **Figure A.58**, the original bridleway located along the eastern edge of the site will be re-opened.

A.37.6 It is considered that the tree species that will be suitable for planting within the accommodation campus (e.g. within the main campus square and along the access streets and green streets) will not be appropriate for replanting as part of the restoration strategy for the wider Sizewell site due to the different character of the proposed landscape. However, the opportunity to relocate these trees within nearby settlements will be explored through liaison with the relevant authorities and organisations.

Figure A.58: Site Restoration Plan

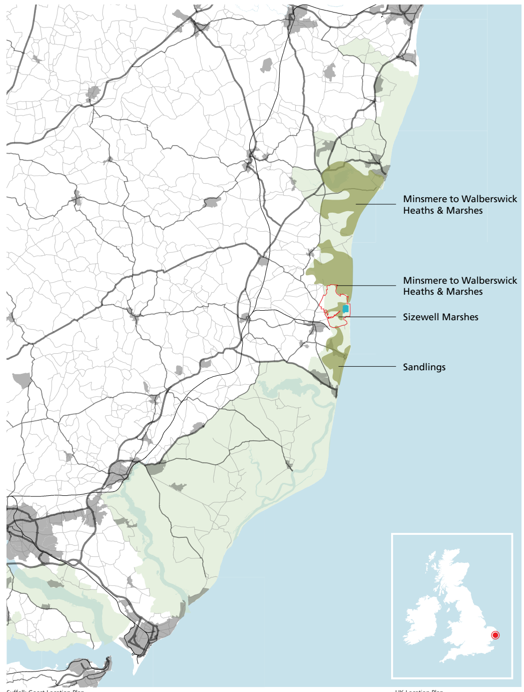
Appendix B

Design Council Review

2014

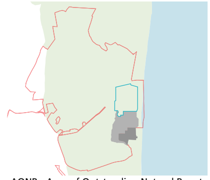
01 ENVIRONMENTAL CONTEXT

- SURROUNDED BY VARIOUS ENVIRONMENTAL DESIGNATIONS
- LIMITING THE IMPACT ON THE AREAS OF SENSITIVITY
- WHERE POSSIBLE ENHANCING THE BIODIVERSITY THROUGH THE MANAGEMENT OF THE SIZEWELL ESTATE

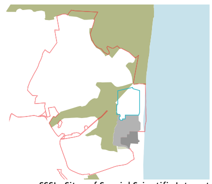


Suffolk Coast Location Plan

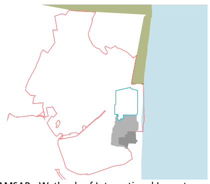
UK Location Plan



AONB - Area of Outstanding Natural Beauty
The AONB consists of a mosaic of different habitats and land uses including farmland; heathland; ancient woodland; commercial forestry; reedbeds; estuaries; grazing marsh; small towns and villages; low, crumbling cliffs and shingle beaches. It is described as a rich mixture of unique and vulnerable lowland landscapes, many of which are under pressure of change.



SSSI - Sites of Special Scientific Interest
This composite site is situated on the coast of Suffolk between Southwold in the north and Sizewell in the south. It contains a complex series of habitats, notably mudflats, shingle beach, reedbeds, heathland and grazing marsh, which combine to create an area of exceptional scientific interest.



RAMSAR - Wetlands of International Importance
A mosaic of coastal habitats consisting of shingle beaches, dunes, estuarine mudflats, grazing marshes, lagoons, reedbeds, and heathland. The marshes support the largest continuous stand of reedbed in England and Wales. The site supports an outstanding diversity of breeding birds, including a number of nationally rare species which winter at the site, as well as rare species of marshland flora and insect fauna. A flagship reserve, in which a well-developed system of trails and hides are maintained.

02 LANDSCAPE CONTEXT

- VISIBLE FROM ALL DIRECTIONS
- AN ELEMENT IN A VARIETY OF LANDSCAPES
- IN SOME CASES OBSCURED BY LANDSCAPE FEATURES

03 BUILT CONTEXT

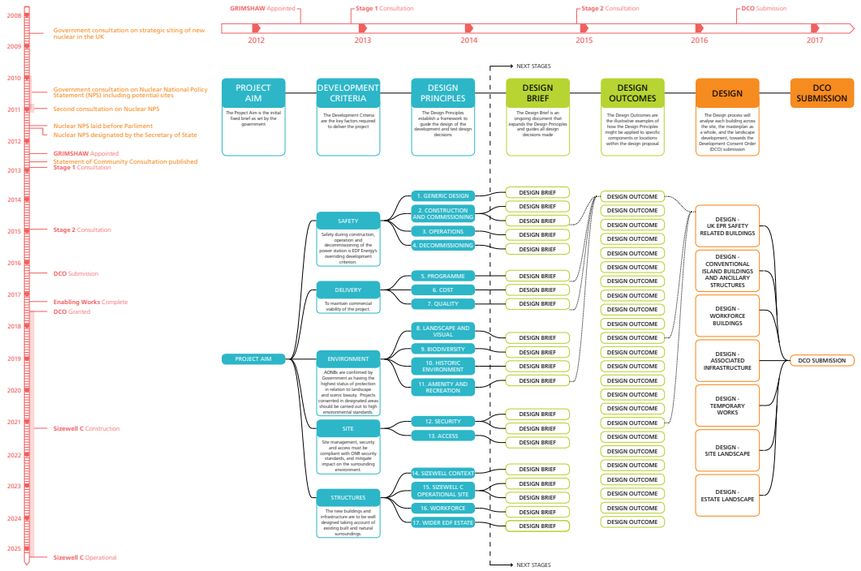
- SIZEWELL A & B ARE THE DOMINATE BUILT FORMS WITHIN THE LANDSCAPE
- OTHER BUILDINGS ARE SMALL IN SCALE AND SPARSELY DISTRIBUTED IN THE LANDSCAPE

04 LANDSCAPE MASTERPLAN

- HABITAT CONNECTIVITY
- ESTATE MANAGEMENT
- STEWARDSHIP

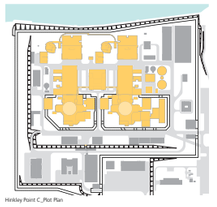
Figure B.1: CABE REVIEW 2014 - Presentation Boards

05 PROGRAMME TIMELINE

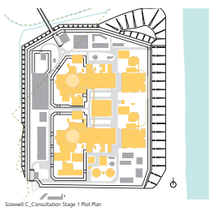


06 UK EPR & PLOT PLAN DEVELOPMENT

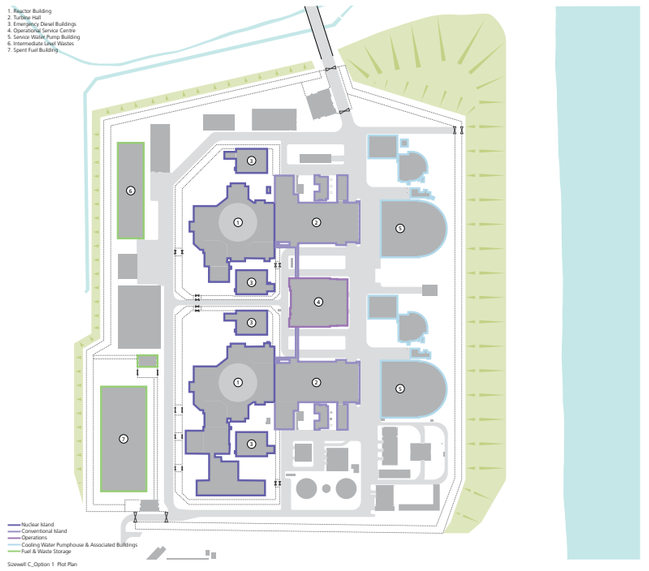
- STANDARD EPR DESIGN FOR ALL NEW NUCLEAR POWER STATIONS
- SIZEWELL PLOT PLAN DERIVED FROM THE EDF PROPOSAL AT HINKLEY POINT
- CERTAIN ASPECTS DEVELOPED



Hinkley Point C_Plot Plan

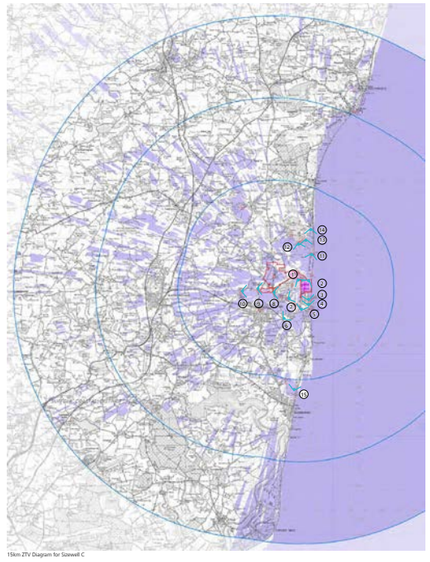


Sizewell C_Consultation Stage 1 Plot Plan



Sizewell C_Option 1 Plot Plan

07 VISUAL IMPACT



15km ZTV Diagram for Sizewell C

Viewpoint 01

Viewpoint 02

Viewpoint 03

Viewpoint 04

Viewpoint 05

09 VISUAL IMPACT

Viewpoint 06

Viewpoint 11

Viewpoint 07

Viewpoint 12

Viewpoint 08

Viewpoint 13

Viewpoint 09

Viewpoint 14

Viewpoint 10

Viewpoint 15

08 WIREFRAME PROCESS

Solecum eost, entio. Aximin eicatis aperum, comnien denimus dest, exceatecto odipsa dis alibusda venis alia ducim quias ipissi dis dolo comnit, tempore sequidunt pelessi necum hillabori ate verro iliae perovid et as que.

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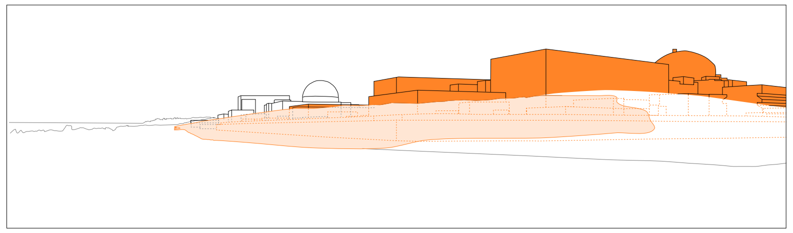
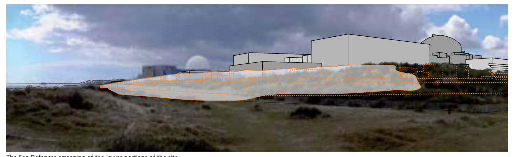
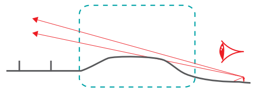


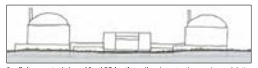
11 EMERGING CONCEPTS

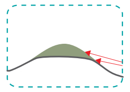
Design Outcome Exploration:
Can the visual impact of Sizewell C be reduced through the use of landscape features within the Sizewell estate?

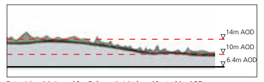

The Sea Defences screening of the lower portions of the site

- The existing Bent Hills screen many of the low level buildings and activity at Sizewell A and B from vantage points along beach.
- Extending the Proposed Sea Defences to the north could allow a similar function for Sizewell C.
- Design of new Sea Defences will facilitate integration with existing profile and character of Bent Hills

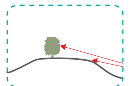

Section A-A through proposed Sea Defences


Sea Defences raised above 10m AOD locally to allow for natural appearing undulations


Design Outcome - Raise Sea Defences



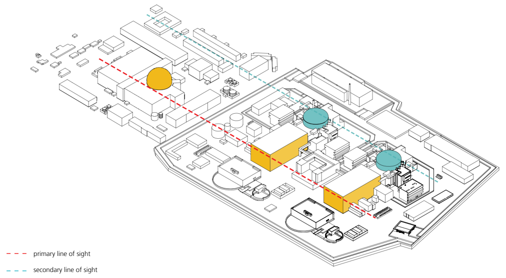
Potential undulations of Sea Defences height from 10m to 14m AOD


Design Outcome - Plant Sea Defences

Emerging Design Concept
Utilising the Bent Hills as a screening device means some of the site's operational activity and a number of buildings can be fully or partially screened from the eastern approaches.

Design Outcome Exploration:
Are the Domes the most prominent feature of the Sizewell C development?

- The rectilinear elevations of the Turbine Halls reduce the impact of the Reactor Domes from the north.
- These facades have more scope for influence in design terms than the concrete of the Domes.
- The design of these facades has the maximum potential for affecting the views from the north and from the coast.

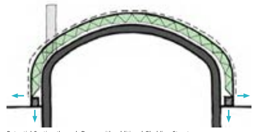


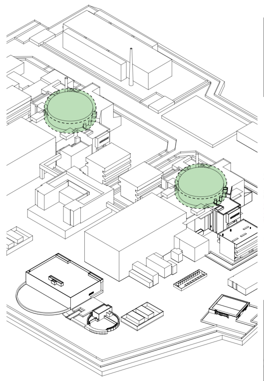
Emerging Design Concept
Where as the Domes are Sizewell B's prominent visual feature, the Turbine Halls are Sizewell C's. The GDA restrictions are less onerous for the Turbine Halls so there is greater design flexibility to lessen their impact.

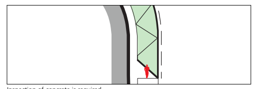
10 EMERGING CONCEPTS

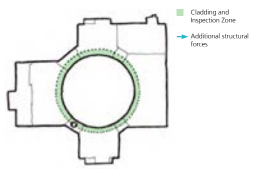
Design Outcome Exploration:
Should the Domes be clad?

- The UK EPR Domes require concrete inspection and maintenance from the outside.
- Cladding would allow greater control over the appearance of the external surface.
- The additional weight of a clad structure is likely to require significant structural change to the Reactor Building and potentially open up the GDA.

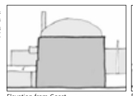

Potential Section through Dome with additional Cladding Structure

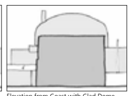

Potential Axonometric showing Domes with additional Cladding Structure


Inspection of concrete is required



Potential Plan showing Dome with additional Cladding Structure


Elevation from Coast


Elevation from Coast with Clad Dome

Emerging Design Concept
UK EPR Safety Related Buildings to retain their pure engineered form.

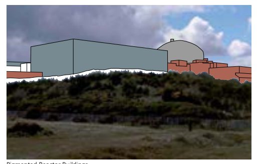
Design Outcome Exploration:
Should the concrete of the UK EPR Safety Related Buildings be pigmented to differ in colour from the domes?

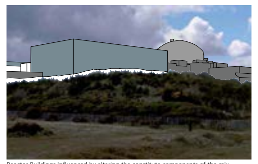
- Colour could reduce the visual impact of the site by complementing the existing landscape or structures.
- However, using pigments may compromise the quality of the concrete.
- EDF Ceidre TEGG do not recommend designing cast-in place coloured concrete, as it may open up the GDA.


Contrasting colours of Sizewell B's dome and associated buildings.


Concrete colour can be influenced by pigmentation additives


Colour can be influenced by aggregates, cement and additives, and water/cement ratio


Pigmented Reactor Buildings


Reactor Buildings influenced by altering the constitute components of the mix.

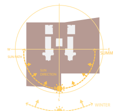
Emerging Design Concept
The concrete of the UK EPR Safety Buildings should retain their natural finish to allow focus on the Turbine Halls.

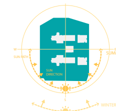
12 EMERGING CONCEPTS

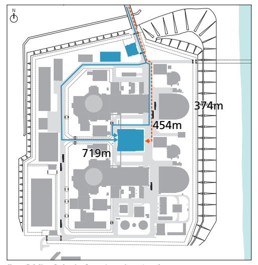
Design Outcome Exploration:
Is the inherited design for the OSC suitable and relevant for its location and context within Sizewell C?

- The non-nuclear safety related buildings at Sizewell have been designed for the Hinkley setting.
- The design could be made appropriate to the Sizewell setting through measures such as orientation, access location and cladding methods and materials.
- These adaptations may address local concerns such as wilderness character and light spill.


Operational Service Centre Visibility from Coast

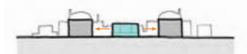

Hinkley Point C Site: Orientation North - South

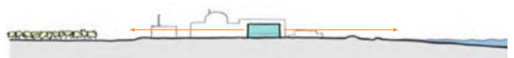

Sizewell C Site: Orientation East - West



Sizewell C Site - Pedestrian Route Approximate Lengths

Workforce Buildings — Pedestrian Route as proposed — Potential Pedestrian Route





Emerging Design Concept
There are a number of design developments that could take place to in order to develop the OSC for Sizewell. Developments investigating: the location of staff entrances; the orientation of the glazing to take into account solar gains and views.

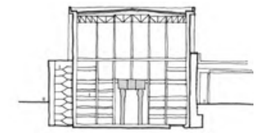
Design Outcome Exploration:
Can the visual impact of the Turbine Halls be affected through material choices and manipulation?

- Reduce effect on wilderness character through light spill by minimising glazing on the facades of the Turbine Halls.
- This will also limit the visibility of operational activity, replicating the 'static nature' of Sizewell A and B.


Blank facades of Sizewell B


Hinkley Point C - Proposed Turbine Hall


Prominent facades of Turbine Halls viewed from the north - colour in the landscape


Section through Turbine Hall showing internal operations

Emerging Design Concept
By carefully considering the choice of materials and limiting the amount of visible glazing, for the Turbine Halls it will be possible to better control their visual impact.

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28 March 2014

[redacted]
Head of Land Use Planning
Project Development Directorate
EDF Energy – Nuclear New Build
The Qube, 90 Whitfield Street
London W1T 4EZ

Our reference: DCC/0493

Nationally Significant Infrastructure Project: Sizewell C Nuclear Power Plant

Dear [redacted]

Thank you for presenting to Cabe's review meeting on 07 March 2014. We are delighted to have the opportunity to comment on this significant scheme at this early stage of the planning process. We are impressed by the collaborative approach and the client's commitment to commissioning a high quality design and applaud the design thinking that has informed the project. We encourage the design team to develop a strong, imaginative narrative for the proposal that relates to the context, the Suffolk coastline, and manages to demonstrate the project's national significance in a simple, compelling fashion. An inspiring approach, both to the landscape around the plant and the additional benefits it can bring to the area, will help root the project firmly in its surroundings, and we urge the client and the design team to continue exploring creative design options.

The design narrative

Building a power station that supplies a substantial part of the nation's energy demand while being located within an area of outstanding natural beauty overlooking a beautiful stretch of the coast presents a unique design opportunity. We urge the client and the design team to make the most of this exciting potential, and encourage the team to continue developing their design ideas. A clear design philosophy will bring together the building mass and form, the coastal setting and the landscape mitigation works. This will support the client and design team in helping explain the project to planners, the local community and to their growing team of specialists, contractors and workmen who will build the plant.

Sizewell B, for example, speaks a strong, simple design language. Its blue boxes with the white domes have become a well-integrated focal point in the views along the coast. We suggest establishing a design narrative for Sizewell C that combines functional requirements with an equally strong, simple sculptural form without relying on decorative and gratuitous elements – similar to the straightforward design of Sizewell B. Materials, colour and the quality of finishes and details, particularly of the domes, will play a key role in terms of creating a compelling and

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well-designed plant. We recommend the design team continues testing different options for the materials and colour palette and bold detailing to achieve an interesting view from a distance and close-up viewing. The energy centre within the Olympic site, for example, demonstrates how materials and colour can be used intelligently to great effect.

The operational service centre appears less constrained than the nuclear safety related buildings by functional requirements and could become the compelling heart of the site. We suggest exploring in more detail how it will relate to the other buildings, whether it offers views over the coast and how it will be perceived from the sea and from different distances. It will also be important to reassess how the different structures are located on the site to establish a well-composed site diagram with clearly defined spaces. The success of the scheme will depend on how the proposed buildings will relate to the adjacent plants, Sizewell A and B, and how this context will evolve over time. For a project of such significance it will also be important to have a lighting strategy in place to control light pollution bearing in mind the sensitive nature reserves adjacent to it.

Approach to nature

This project will have a significant impact on the surroundings in terms of construction works and temporary facilities, decommissioning the older plants and changing and enhancing the environment. In combination with the fact that most of the land along this stretch of the Suffolk coastline has been altered and cultivated by mankind over many centuries, the approach to nature and the landscape design presents an interesting intellectual challenge which we think should be reflected in the new proposal. The building could be considered as an object set in the landscape surrounded by the re-formed and artificially recreated nature around. The landscape will change dynamically over time with the plant buildings. We believe that the proposed landscape should retain some of the marks of the industrial processes that occurred within the area, similar to the dramatic character of the IBA-Emscher-Park project in the Ruhr region, for example, where the enormity of the industrial processes that once dominated is still recognisable.

The vast site is in single ownership and permits creating a cohesive landscaped space, offering a rich habitat for flora and fauna, which needs to be underpinned throughout all work phases by a long-term management and maintenance strategy.

It will also be important to develop a landscape design strategy for the open spaces between the plant buildings and, given the large number of people who will be working on this site, create small pocket gardens within the compound to provide employees with breakout spaces where they can enjoy the views over the sea, for example.

The added value

While the outcome of the project in terms of generating energy is significant, we think the scheme has not yet fully exploited the potential to give something back to the local community. It needs to demonstrate added benefits for the region over the next decades. We suggest developing an inspiring and ambitious programme and recommend

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Figure B.2: CABE REVIEW 2014

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exploring how the power station could be complemented with other activities around it. It could be interesting to test whether new businesses could be attracted to the area, for example, which would benefit from the co-existence with a large scale industrial plant or to look at the marine off- loading facility and other structures and their adaptability for alternative purposes in the future.

The proposed landscape park with a power station at its centre overlooking the North Sea has the potential to become a new tourist destination and we encourage the client and design team to develop the park in this respect, providing some elements of surprise and interest, for example. We also suggest commissioning an artist to think about how to enhance the site and develop a piece of landscape art, for example, to celebrate the special character of Sizewell C, its role in terms of energy generation and its location within the Suffolk Coast and Heath Area of Outstanding Natural Beauty.

We understand that temporary housing will be developed and retained for a ten year period to support the development of Sizewell C. This will have a significant impact on the local community and we would welcome the provision of information on these proposals for subsequent reviews. We are particularly interested to understand how the temporary housing can make a positive contribution to both the site and needs of the local community.

Thank you for consulting us and please keep us informed of the progress of the scheme. If there is any point that requires clarification, please telephone us.

Yours sincerely

[redacted]

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cc (by email only)

[redacted]
Grimshaw Architects
Grimshaw Architects
LDA Design
EDF Energy
Suffolk Coastal District Council
Suffolk County Council
Suffolk County Council
Natural England

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Review process
Following a site visit and discussions with the design team and local authority, the scheme was reviewed on 07 March 2014 by [redacted] These comments supersede any views we may have expressed previously.

Confidentiality
Since the scheme is not yet the subject of a planning application, the advice contained in this letter is offered in confidence, on condition that we are kept informed of the progress of the project, including when it becomes the subject of a planning application. We may share confidential letters with our affiliated panels only in cases where an affiliated panel is taking on a scheme that we have previously reviewed. We reserve the right to make our views known should the views contained in this letter be made public in whole or in part (either accurately or inaccurately). If you do not require our views to be kept confidential, please write to designreview@designcouncil.org.uk.

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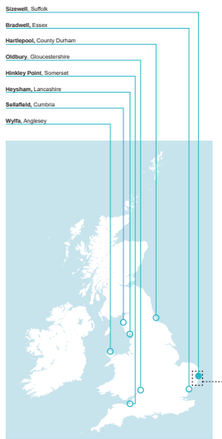
2019

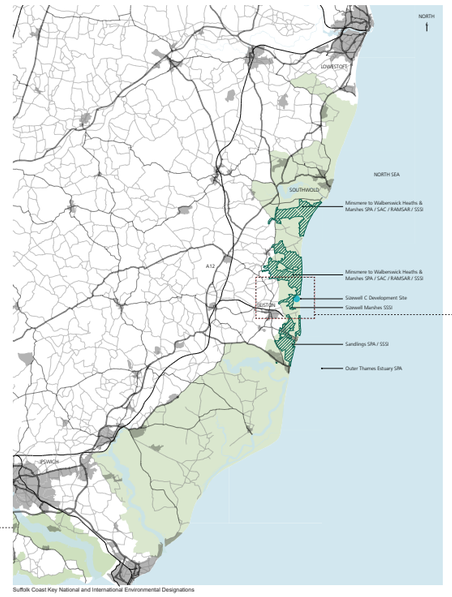
Sizewell C Context

NOVEMBER 2019

- The Sizewell site has been identified by the Government in the National Policy Statement for Nuclear Power Generation (NPS EN-6) as one of eight sites potentially suitable for the deployment of new nuclear.
- This is one of a series of sites to be developed across the country.

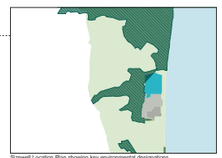


Location Plan of Government identified sites for new nuclear

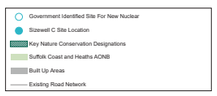


Suffolk Coast Key National and International Environmental Designations

- The Sizewell C site is located within the Suffolk Coast and Heaths AONB and lies partly within the Suffolk Heritage Coast and several biodiversity designations.
- The site is adjacent to the Minsmere and Walberswick Heaths and Marshes SPA / SAC/ RAMSAR and is close to the Sandlings SPA.
- The Suffolk Coast Path runs along the shoreline adjacent to the site.



Sizewell Location Plan showing key environmental designations



EDF ENERGY GRIMSHAW LDA DESIGN

Built Context

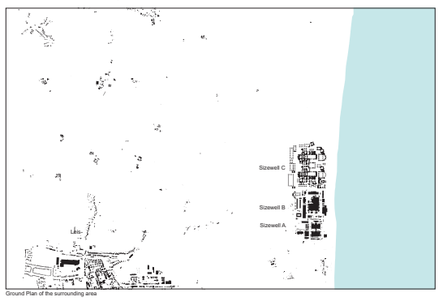
NOVEMBER 2019

View of Sizewell A and B from the south along the Coast Path

- Sizewell A and B are the dominant built forms in the local landscape.
- Sizewell A began generating electricity in 1966. It operated for 40 years before the Nuclear Decommissioning Authority began the decommissioning process in 2006.
- Sizewell B began generating in 1995 and is owned and operated by EDF Energy.
- The wider built environment includes villages, farms and historic monuments including Leiston Abbey and war time defences.

Leiston Abbey

Leiston Abbey (First Site)



Ground Plan of the surrounding area

View of Sizewell B and A from the north along the Northern Mound/sea defences

Sizewell A

Sizewell B

EDF ENERGY GRIMSHAW LDA DESIGN

Figure B.3: CABE REVIEW 2019 - Presentation Boards

Landscape Context

NOVEMBER 2019

Coastal shingle and Minsmere levels to north of Sizewell B

Shingle beach to south of Sizewell A

Agricultural landscape to west of Sizewell A and B

Wet Grassland and tree belts to north-west of Sizewell B

Farmland and tree belts to west of Sizewell A and Sizewell B

Farmland and tree belts to west of Sizewell A and Sizewell B

Wetland to north-west of Sizewell B

EDF ENERGY GRIMSHAW LDA DESIGN

Sizewell Estate Masterplan

NOVEMBER 2019

- The Sizewell Estate lies mainly in the Suffolk Coast and Heaths AONB and comprises farmland, sandlings grassland, mixed woodland, wetland, wet grassland, coastal dunes and shingle beaches.
- The aim of the Sizewell Estate Masterplan is to repair the landscape affected during construction of Sizewell C and embed measures to mitigate the adverse effects of the proposed development.
- A mosaic of habitats that are characteristic of the Suffolk coast landscape are proposed, articulating a transition from farmlands in the west, through Sandlings to the coast.
- Coastal access and rights of way are maintained and enhanced through the provision of new permissive routes.

Aerial Photograph

Sizewell Estate Masterplan

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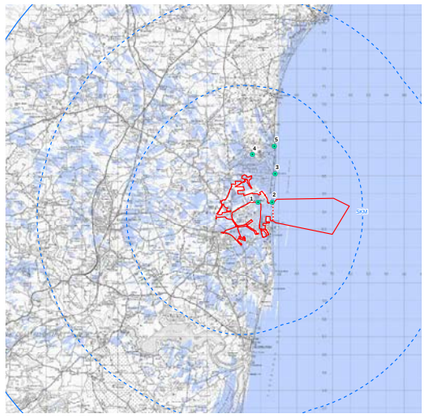
Visual Impact

NOVEMBER 2019



Zone of Theoretical Visibility (ZTV)

- The draft Zone of Theoretical Visibility (ZTV) model illustrates the potential extent of visibility of the proposed operational development.
- Site visits and consultation identified viewpoints to be used in the LVIA and for the production of visualisations.
- Draft wireframe models illustrate the proposed development from several locations, including Whin Hill and the National Trust Coastguard Cottages which were included on the site visit.

Areas from which proposed development may be visible

Wireframe locations

Sandlings Walk at Goose Hill

Suffolk Coast Path east of Goose Hill

Suffolk Coast Path at Minsmere Sluice

RSPB Minsmere (Whin Hill)

National Trust Dunwich Coastguard Cottages Car Park

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Main Platform

NOVEMBER 2019

- The Sizewell operational layout comprises the UK EPR™ generic design, the essential elements of which replicate Hinkley Point C.
- A Generic Design Assessment (GDA) has determined the design and inter-relationship of the UK EPR™ Safety Related Buildings. These are fixed design elements.
- The Sizewell layout has been further developed around these fixed buildings to maximise efficiency of land use.
- There is architectural cladding design flexibility for the Turbine Halls and the Operational Service Centre

Nuclear Island
Conventional Island
Operations Buildings
Ancillary - Plant, Office/Access, Storage, Fuel and Waste Buildings
Cooling Water Pumphouse and Associated Buildings
1 Nuclear Reactors
2 Turbine Halls
3 Operational Service Centre
4 Cooling Water Infrastructure
5 Ancillary Structures
6 Operational and Outage Car Park
Perimeter Security Fence
Area within Platform

Hinkley Point C Indicative Operational Layout

Sizewell C Indicative Operational Layout

Illustrative UK EPR™ Nuclear Reactor and Turbine Hall layout

Operational Site Layout, identifying key building groups

Illustrative view of the east elevation of Sizewell C

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Site Response & Screening

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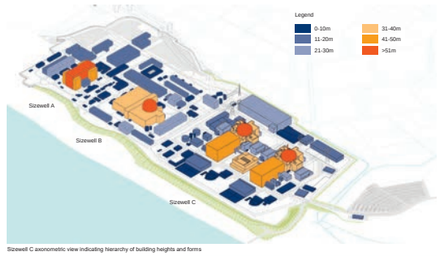
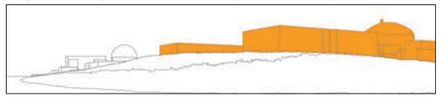
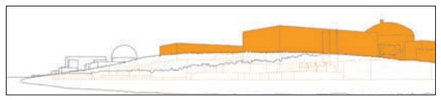


Sizewell C axonometric view indicating hierarchy of building heights and forms

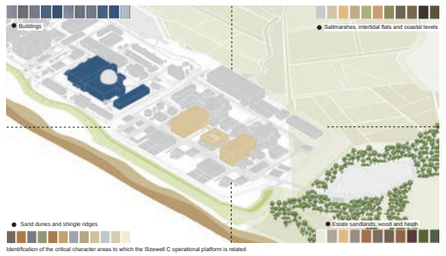
Cladding contrast between the existing Sizewell A and B forms to enhance the definition of geometric infrastructural elements along the coast





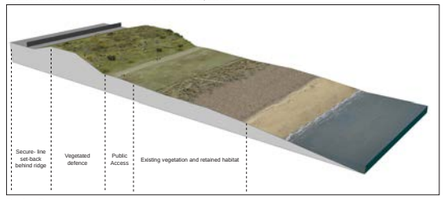
Design Response

Utilising the Bent Hills as a screening device enables some of the site's operational activity and a number of low level buildings to be fully or partially screened from the eastern approaches.



Identification of the critical character areas to which the Sizewell C operational platform is related

The different contexts and environments that Sizewell C responds to and is integrated within



Design Response

The new sea defences will be planted with appropriate species to integrate the new defensive structure into its sensitive coastal landscape and enhance screening over time

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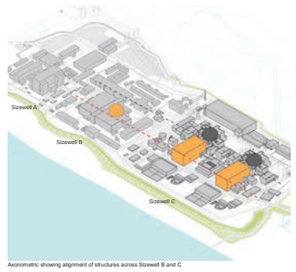
Turbine Halls

NOVEMBER 2019

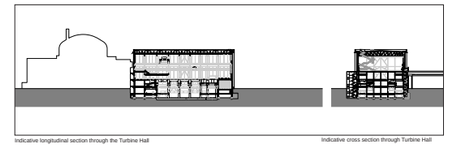
- The Sizewell C Domes sit back from the primary line of sight along the coast, whilst the Sizewell C Turbine Halls align through with the Sizewell B dome.
- The Turbine Hall façades have more scope for design than the concrete of the domes as they are clad structures which are not constructed of nuclear safety concrete.



Axonometric showing alignment of structures across Sizewell B and C

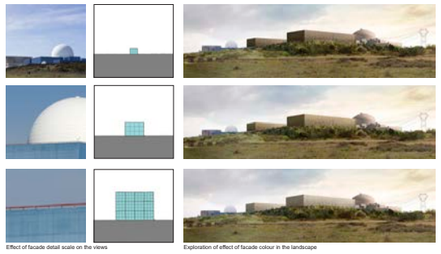
- The effect of the development on the local wilderness character can be reduced by minimising light spill from the site and limiting visibility of operational activity.
- This is achieved by minimising visible glazing on the façades of the Turbine Halls and replicating the 'static nature' of Sizewell A and B.
- Colour and scale in the façades will also affect the overall visual impact of the development.

Blank façades of Sizewell B



Indicative longitudinal section through the Turbine Hall

Indicative cross section through Turbine Hall



Effect of façade detail scale on the views

Exploration of effect of façade colour in the landscape

Design Response

The Turbine Halls form the most prominent feature in the Sizewell C development and are expressed as bold platonic forms

The Turbine Halls geometric panel texture and detail is perceptible at close range

Design Response

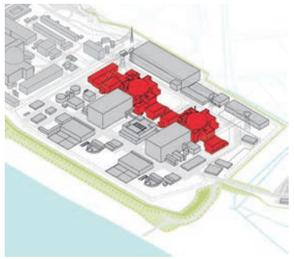
Surface treatment to the Turbine Halls cladding design will have a responsive surface treatment which changes in colour and tone, subject to surrounding lighting and climatic conditions

EDF ENERGY GRIMSHAW LDA DESIGN

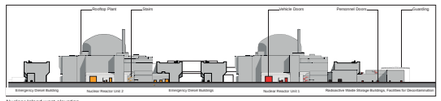
Nuclear Island

NOVEMBER 2019

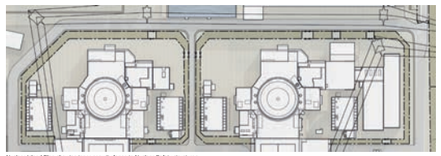
- The UK EPR™ domes require inspection and maintenance of the concrete from the exterior.
- The additional weight of a clad would require significant structural change to the Reactor Building and will open up the GDA process.
- Addition of colour pigments is not recommended by Office for Nuclear Regulation (ONR). White portland cement is required to achieve a whiter colour, this can result in high levels of heat from hydration, which can lead to cracking and defects.
- Even small mix variations can have a significant impact on the compliance of the nuclear safety concrete make up.
- Inspection of the outer surface of the Sizewell B dome is not required for the safety case, and hence the Sizewell B dome was able to be clad.



Axonometric showing the massing of domes



Nuclear Island west elevation



Nuclear Island Plan showing inner security fence to Nuclear Safety structures

Nuclear Island conceptual arrangement and east elevation

Dome Construction Exploration: Painting, Cladding, or Screening from view

UK EPR™ Safety Related Buildings aerial view

Design Response

The structural concrete of the safety related buildings must be exposed, without additional finishes and easily accessible without obstruction for ease of maintenance and inspection.

Design Response

Exposed concrete is to have a consistent pale grey finish as far as reasonably practicable. Careful on-site attention should be given to the change in batch of aggregates and setting-out of day joints to ensure a consistent even finish can be achieved.

Operational Service Centre

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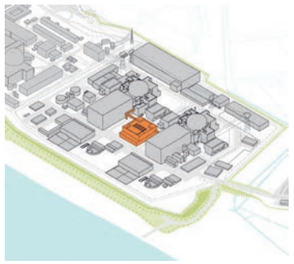
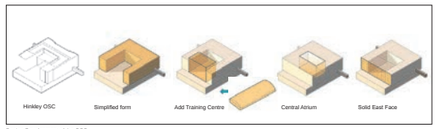
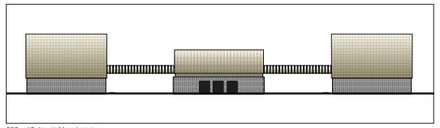
- The Operational Service Centre (OSC) forms the central block of the trio of Sizewell C buildings which are visible along the Suffolk energy coast
- The OSC consolidates the operational sites workforce and training requirements into a single centrally located building
- Skybridges physically link the building to the adjacent Turbine Halls forming wings which complete the classical set-piece
- The 'black box' simulator trainer facility is located along the eastern facade, negating the requirement for windows which serves to protect the special qualities of the AONB 'dark skies'



Axonometric showing Operational Service Centre



Design Development of the OSC



OSC and Turbine Hall formal set-piece

View of Eastern Elevation to the Operational Service Centre within the context of the Turbine Halls

Windows and human scale openings removed from the Eastern Elevation to minimise light spill

Aerial view of Sizewell C Operational Site

Design Response

Eastern façades are to be formed of solid components without glazed openings to reduce light spill in order to protect the special qualities of the AONB and Suffolk Coast 'dark skies'.

Design Response

The design will remove the appearance of human habitation, human scale openings and external fixtures from views along the coastal path as far as reasonably practicable.

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EDF Energy – Nuclear New Build
The Qube
90 Whitfield Street
London
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28 November 2019

Our reference: DCC/5074

Sizewell C: Landscape Masterplan, Turbine Halls, Operational Service Centre, and Workers Accommodation

Dear [redacted]

Thank you for providing Design Council with the opportunity to advise on the Sizewell C Nuclear Power Plant at the Design Review on 8 November 2019.

We are pleased to have engaged in the proposal once again following the previous Design Review of this Nationally Significant Infrastructure Project on 7 March 2014 (letter dated 28 March 2014). We are also pleased to see the progress that has been made to date on the proposal. The client and project team have remained diligent and thorough in developing this complex and sensitive proposal over a number of years. We think it is being approached with rigour within the challenge of the generic design and technical constraints.

We hope you find the letter summarising the Design Review helpful and an apt summary of the strategic feedback from the meeting. If there are any areas you would like further clarification on, please do not hesitate to contact us.

Yours sincerely,

[redacted]
Lead Programme Manager
Architecture and the Built Environment
Design Council

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About the Design Review for Sizewell C

The Design Review of Sizewell C was delivered over a 2-day period. Day 1 (4 November 2019) included a visit to the existing nuclear power plant site in Sizewell and a number of key viewing points where the power plant is visible from the wider area. Day 2 (8 November 2019) comprised of a full day Design Review held at Grimshaw Global which was attended by key client and project team members, representatives from statutory authorities and the Design Council.

As outlined in the brief to Design Council, the Design Review sought to assess particular aspects of the proposal: the Landscape Masterplan, the Turbine Halls, the Operational Service Centre and the Worker's Accommodation. The panel's strategic advice and recommendations on those aspects of the proposal are based on the information presented by the team within the timeframe and scope of the review.

The following advice and recommendations are set in the context of a strategic Design Review. We acknowledge that significant work has been undertaken to date and which is far too extensive to be presented within the timeframe and scope of a full day review. In addition, we also recognise the technical parameters within which the project team are working which fix particular elements of the building design, landscape and infrastructure. A follow-up response to the relevant statutory authorities can be made on points that have already been addressed through previous studies and design assessments, and on those that are yet to be addressed in the design development.

Executive Summary

The extension of the Sizewell Nuclear Facility to create Sizewell C is a significant intervention in a sensitive and remarkable landscape. Extensive steps are being taken by the project team to carefully integrate the Sizewell C site into its historic, coastal setting. Overall, we think the proposal is being approached with great care and attention across architecture, engineering, landscape design and ecology. The proposed height, massing, layout and form of buildings on the power plant site and landscape approach are broadly successful, as a result of a robust design process. At this crucial stage of the design process, we offer two key recommendations to the project team which underpin the panel discussions on the day:

Firstly, that key design decisions for Sizewell C – the siting and scale of buildings and infrastructure, and their treatment – have a collective visual impact, and therefore should be made based on their 'composition' within the landscape. In this way, design decisions on particular elements are not made in isolation as the whole is greater than the sum of its parts. This includes the approach to the colour and texture of the external panels and their detailing. In the overall composition of Sizewell C in its landscape, we strongly recommend the inclusion of the dry fuel store as a detailed component of the DCO application given its key role.

Secondly, that the health and well-being of users, particularly staff living and working on the site, be considered more comprehensively and enhanced in the development of the

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Figure B.4: CABE REVIEW 2019

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overall proposal. Whilst we recognise the significant impact a project of this scale and use can potentially have on the landscape and its ecology therein, the impact of those design decisions on humans within and beyond the site must also not be forgotten. In particular, the current design of the Operational Service Centre (OSC) appears to address the wider site considerations of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) at the expense of the staff within the proposed building. In a separate but related example, the site layout of the worker's accommodation does not appear to have been designed with the users in mind. We recommend that the design approach to the worker's accommodation is re-evaluated and that this aspect of the proposal returns for a follow-up review at an appropriate stage.

The strategic points summarised above are described in further detail in the letter below.

Composition of Sizewell C and its integration into landscape setting

At this stage, we recommend the project team further finetunes the arrangement, form and height of the proposed building and infrastructure elements as a composition in woodland context. Whilst these proposed elements seem to broadly work well in their setting, we think that slight adjustments in their siting and scale could further enhance their relationship to the landscape. Using the different silhouettes within the landscape from different positions around the local area, the overall impact on views can be assessed. We recommend continuing to test the composition based on the key views from the wider area given they offer quite distinctive and different visual perspectives of the nuclear power plant.

We recommend that the composition of Sizewell C is considered in tandem with its neighbouring two facilities at Sizewell A and B. The design emphasis should be on visual enjoyment from long-range views in which the composition of different elements of Sizewell A, B, and C will be framed by the landscape setting. Building on this concept, we encourage the project team to consider whether the composition of these long-range views constitutes three (Sizewell A, B and C) or four elements (Sizewell A, B and the two reactors of C). We also recommend a focus on how the composition changes over time, as Sizewell B is decommissioned and demolished.

Ancillary buildings

We recognise that the project team has arrived at the proposed design of ancillary buildings though testing of a number of options, technical constraints and planning considerations over the previous years of design development. However, we urge the project team to consider the dry fuel store, like the nuclear reactor or OSC, as a major building element. The dry fuel store can significantly impact on the overall composition of the buildings, in both near and distant views given its proposed width, height and location on the site. As such, we recommend that the project team considers integrating the dry fuel store as a more detailed element within the DCO submission and providing greater detail on the rationale for its height, form and appearance.

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Pylons

We accept the technical rationale of above-ground pylons connecting to the reactors at Sizewell C. These structures could help in visually dwarfing the proposed buildings when viewed from near and far, and compliment and contrast these buildings with their unique and distinctive forms. However, we question the incongruence of the proposed types of pylons within the power plant site. We think the proposal to position the pylons tightly within the site is better than locating them outside this immediate boundary. We suggest the design team demonstrate the two options for the pylons' positions, further away from and closer to the site, to help justify this decision and demonstrate the same rigour in this aspect of design process.

Workers accommodation

We welcome the efforts to build upon the approach and learning from Hinckley Point in the proposal for the worker's accommodation. The transport plans for the workers being developed is positive. We also acknowledge that the proposal is in response to concerns of the local community and demand from workers themselves.

Notwithstanding these crucial details, we are concerned that the current proposal is largely constraints-driven, suboptimal in terms of its use of land and does not create a welcoming sense of place. The proposal also seems to prioritise car movements and car parking within the site, and is constrained by sightlines and key views, potentially to the detriment of the quality of life on the site. The rigid layout and zoning within the site, and long, rectilinear blocks with north-south orientation are a few key concerning aspects of the worker's accommodation scheme. We also believe that detail is required on how the accommodation has responded to the social needs of workers and enhances the everyday lives of residents.

In the design development, we suggest giving the site a more legible 'heart', creating more definition between public and private space and developing a clear strategy for the wellbeing of workers. In this regard, Option 5 – which includes communal open space at the centre of the site – could be explored more in terms of the site layout. To enable more flexibility in the site layout, we suggest removing the existing few trees on site to facilitate a better social and natural environment in the future.

We think the proposed site layout of the worker's accommodation should be led by its legacy well beyond the 10-year period for its temporary housing and amenities. This legacy use should be taken forward, for example, in the tree planting and energy use strategy. Air source heat pumps, rather than combined heat and power, and integrated charging points for electric vehicles, could be considered to better ensure a sustainable, low-impact development. In addition, the site contours and topography, access routes and infrastructure for the future use of the site should also inform the design approach much more at this stage.

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Landscape Masterplan and Design Approach

The design ambition for the landscape and its ecological stewardship is exemplary. The landscape character analysis across the masterplan and local area, and appreciation of the ecological merits and opportunities for enhancement is well demonstrated in the current proposal. This has resulted in a coherent design narrative and approach that factors in long-term landscape enhancements with short-term requirements for construction. We support the approach to the sea defences to the east of the Sizewell C, which could integrate appropriate planting in a realistic and ecologically feasible time-frame, while also hiding some of the lower-level infrastructure within Sizewell C. We also support the steps to enhance the existing managed, monocultural landscape to one with greater ecological value.

While necessary for construction and safe access to Sizewell C, the proposed road through the AONB can undermine the historical and ecological value of the AONB. We recommend the narrative around the requirement for this road is demonstrated and communicated clearly. To help mitigate its impact on the AONB, the project team should consider how it could be designed to contribute more positively to the landscape character, for example in tree planting and in terms of key views. We recommend the rationale for the position and route is demonstrated in more detail, as well as the steps taken by the landscape team to ensure it is another opportunity for enhancement rather than mitigation.

Elevational Treatment

The size, shape, and orientation of the panels will greatly inform how the reactor buildings are perceived in terms of their scale and relationship with the landscape. We welcome the extensive tests in the design of the panels for the façade, not only in colour but in shape, material and orientation. The square panelled façade has its merits and can work in this location. However, the horizontal and vertical banding that the panels create within the façade should be explored further to ensure they are not stark elements that overly dominate the façade. The panelled façade can also appear overly gridded and uniform, which can potentially conflict with the simplicity and calm building form and character of the coast.

We therefore recommend continuing to test the scale and orientation of panels, their reflectivity and fixing details. For example, are the corner, top and bottom panels different to those in the centre? How does the spacing between the panels affect its overall appearance from near and far? Further exploration of the size and number of panels may be required, as well as the expertise of an artist to help create a randomised façade treatment using the panels. The maintenance and cleaning of the panels should be given greater consideration as dirt and debris, particularly in a coastal environment, can affect the appearance and integrity of the panels.

We think the colour of the panels should relate more to the sky rather than the earth. A colour reflecting the earth can potentially make the building appear overly 'heavy' in this landscape. The current colour palette is limited and seems only to take references from

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Autumnal colours. We therefore recommend testing other colours that represent conditions of other seasons of the year to compare with those currently selected. As glinting on the façade may be a concern, we suggest also investigating matt colours and/or other textures. We also recommend a large-scale mock-up of panels is built to test how well a panelled façade works and integrates with the landscape in situ. The analysis of the in-situ panels should be clearly demonstrated within the DCO submission.

Operational Service Centre

We understand the technical constraints on the Operational Service Centre (OSC) and the forthcoming detail on internal layout within the parameters of the DCO submission. The architecture and external appearance of the Operation Service Centre (OSC) at Sizewell C is developing well, with the darker lower ground floor creating a more legible building than the reactor buildings. More variation between the OSC and reactor buildings could be investigated in the design development of the elevations.

We strongly urge the design team to be creative in their approach to the indoor and outdoor experience for the staff in developing the elevational treatment of the OSC. We understand the concern that this would affect perceptions of scale and external light could affect the AONB's special dark sky status. However, we recommend the design team consider how these conflicting priorities could be reconciled, and a view east to sea from inside the OSC integrated in the façade design. Denying workers the opportunity to look out of the building can impact on their health and wellbeing, particularly for those working in this environment over long periods of the day and for a number of years.

Thank you for consulting us and please keep us informed of the progress of this nationally significant proposal. If there is any point that requires clarification, please contact us.

Review process
Following a site visit, (and) discussions with the design team and local authority, the scheme was reviewed on 8 November 2019 by [redacted] and [redacted] These comments supersede any views we may have expressed previously.

Confidentiality
Since the scheme is not yet the subject of a planning application, the advice contained in this letter is offered in confidence, including when it becomes the subject of a planning application. We reserve the right to make our views known should the views contained in this letter be made public in whole or in part (either accurately or inaccurately). If you do not require our views to be kept confidential, please write to dc.abe@designcouncil.org.uk.

cc (by email only)

Attendees

[redacted]	*EDF Energy*
	EDF Energy
	EDF Energy
	Lead Advisor for Sizewell C, Suffolk County Council
	Senior Landscape Officer, Suffolk County Council
	Energy Projects Manager, East Suffolk Council

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[redacted]

Arboriculture and Landscape Manager, East Suffolk Council
Design and Conservation Manager, East Suffolk Council
AONB Partnership
LDA Design
LDA Design
LDA Design
LDA Design
Grimshaw Global
Grimshaw Global
Grimshaw Global
Design Council
Design Council

Appendix C

Abbreviations

Abbreviations

A

AIL	Abnormal Indivisible Load
ALARP	As Low As is Reasonably Practicable
ANPR	Automatic Number Plate Recognition
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
AoS	Appraisal of Sustainability

B

BLF	Beach landing facility

C

CABE	Commission for Architecture and the Built Environment at Design Council
CCTV	Closed-circuit television
CDO	Combined drainage outfall
CDM	Construction Design and Management
CHP	Combined heat and power
CWS	County Wildlife Site
CWTP	Construction Worker Travel Plan

D

DAC	Design Acceptance Confirmation
DCO	Development Consent Order
DMS	Delivery Management System
DRS	Direct Rail Services

E

ECA	Environmental Colour Assessment
EDF	Electricité de France
EIA	Environmental Impact Assessment
EPR	European Pressurised Reactor
ES	Environmental Statement
ESC	East Suffolk Council
ESIDB	East Suffolk Internal Drainage Board

F

FRR	Fish Recovery and Return

G

GCSE	General Certificate of Secondary Education
GDA	Generic Design Assessment
GRC	Glass-fibre Reinforced Concrete

H

Ha	Hectare
HGV	Heavy goods vehicle
HSA	High Security Area

I

ISFS	Interim Spent Fuel Store

K

km	kilometre
kV	kilovolt

L

LEEIE	Land east of Eastlands Industrial Estate
LEMP	Landscape and Ecological Management Plan
LGV	Light Goods Vehicle
LVIA	Landscape and Visual Impact Assessment

M

m	Metre
MCA	Main construction area
MW	Megawatt

N

NCA	National Character Area
NG	National Grid
NPS	National Policy Statement
NPS EN-1	Overarching National Policy Statement for Energy (EN-1)
NPS EN-6	National Policy Statement for Nuclear Power Generation (EN-6)
NSIP	Nationally Significant Infrastructure Project

O

oLEMP	Outline Landscape and Ecological Management Plan
ONR	Office for Nuclear Regulation
OS	Ordnance Survey

P

PRoW	Public Right of Way
PWR	Pressurised Water Reactor

R

RSPB	Royal Society for the Protection of Birds

S

SAC	Special Area of Conservation
SCC	Suffolk County Council
SCDC	Suffolk Coastal District Council
SoCC	Statement of Community Consultation
SoDA	Statement of Design Acceptability
SPA	Special Protection Area
SSA	Strategic Siting Assessment
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System

T

TCA	Temporary construction area

U

UK	United Kingdom
UKCP18	United Kingdom Climate Projections 2018
UK EPR™	United Kingdom European Pressurised Reactor

W

WWII	Second World War

Z

ZTV	Zone of Theoretical Visibility

Appendix D

Figure List

Figure List

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