

BRADWELL B

Stage One - Consultation Summary Document

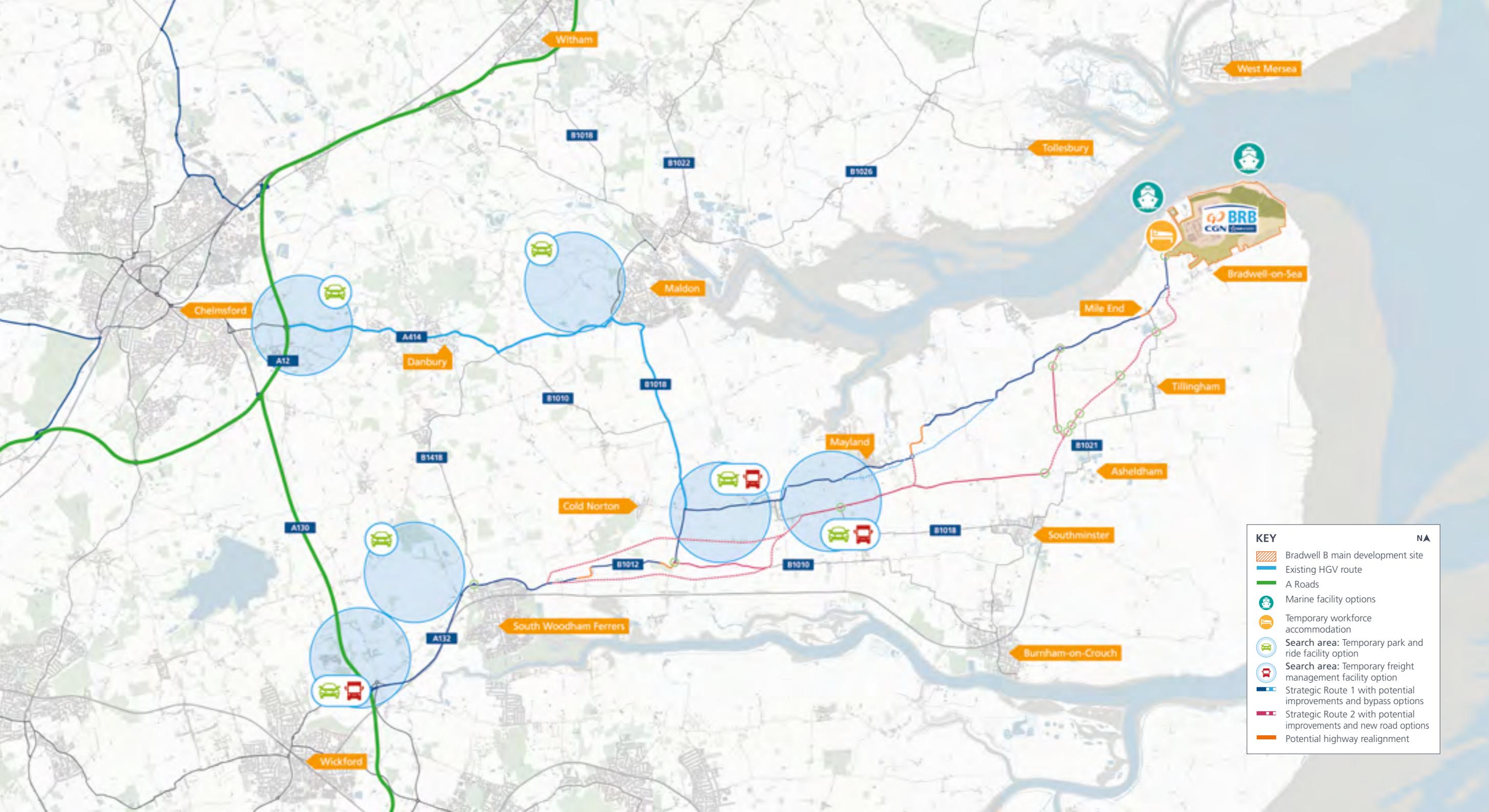


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One questionnaire is enclosed in the
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tion. Alternatively, go to
bradwellb.co.uk to share your feedback.

highlights where there is a question relating to this topic in the questionnaire.





1. Foreword

Bradwell B - Stage One Summary Document

The United Kingdom has a long history in nuclear generation. It is more than 60 years since our first commercial nuclear power station opened and today nuclear power plays an important role in moving towards a carbon-free electricity system. Bradwell B would make a vital contribution to meeting the UK's future need for low carbon, secure and affordable energy and achieving the UK's legally binding target of net zero carbon by 2050. A valuable - and necessary - part of our electricity mix, nuclear power ensures there is reliable and affordable electricity, including when limited wind and solar power is produced.

With 2020 marking 57 years since the opening of the original Bradwell nuclear power station, I am pleased to introduce our proposals for a new nuclear power station at Bradwell-on-Sea.

Bradwell B would build on the long-established history of nuclear power in the area, creating long-term employment opportunities and thousands of construction jobs, along with significant business and training opportunities. It would inject millions of pounds of investment into the local and regional economies and generate enough electricity to power around four million homes, making an important contribution to the UK's future low carbon energy needs.

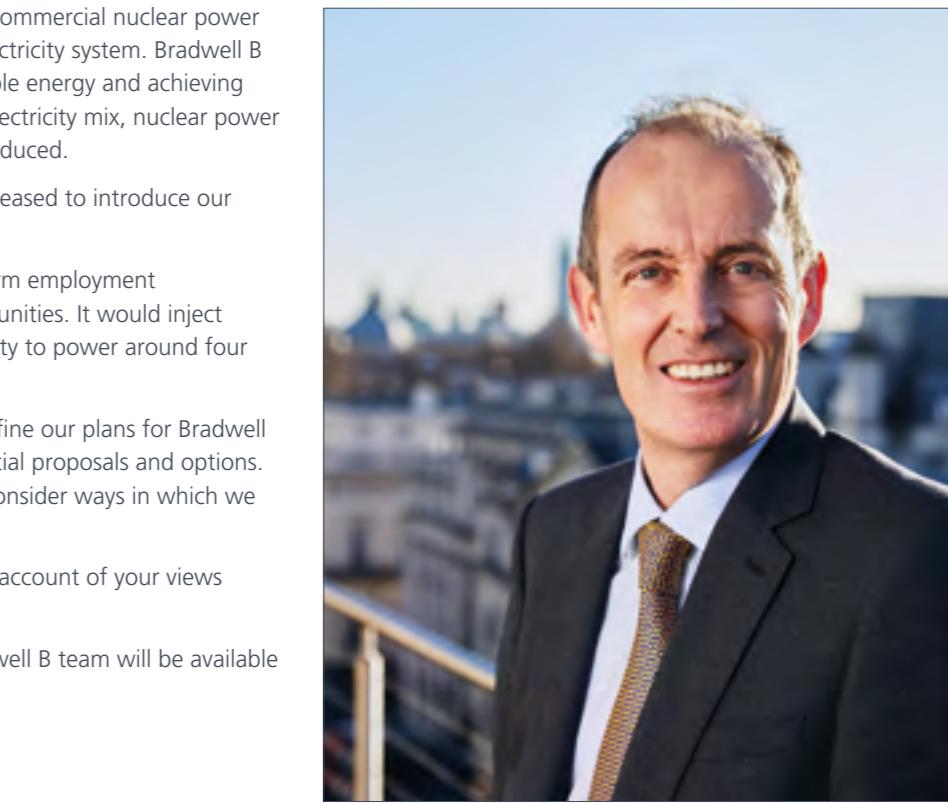
Consulting with local people, businesses and stakeholders is important to the way we develop and refine our plans for Bradwell B. At this early stage we would like to tell you about our work to date and seek your views on our initial proposals and options. We are also committed to working with you to understand the potential impacts of Bradwell B and consider ways in which we can manage impacts and maximise benefits for the community.

Please contribute to this, our first stage of consultation. We will continue to update you and take account of your views through informal engagement and later stages of consultation as our proposals progress.

This document includes information about how to respond to this consultation. In addition, the Bradwell B team will be available at our consultation events to help explain the proposals and answer your questions.

I look forward to hearing your views.

Alan Raymant
CEO, Bradwell B



2. The Consultation

Introduction

Bradwell Power Generation Company Limited (a partnership between CGN and EDF) is developing proposals for a new nuclear power station called Bradwell B at Bradwell-on-Sea in Maldon, Essex. Bradwell B would generate approximately 2.2GW of electricity, providing power for around four million homes across the UK. Bradwell B will use UK HPR1000 technology developed by CGN and currently undergoing Generic Design Assessment (see page 29).

CGN is the biggest builder of new nuclear power stations globally and has more than 30 years' experience of safely delivering nuclear power projects. EDF is the UK's largest producer of low-carbon electricity, operating eight UK nuclear power stations and meeting around one-fifth of the country's electricity demand.

CGN and EDF have a successful longstanding partnership spanning over 30 years. Together in the UK, we are building a new nuclear power station in Somerset (Hinkley Point C) and finalising our proposals for another in Suffolk (Sizewell C).

The consultation process

In order to build the power station Bradwell B will need a development consent order (DCO). We intend to submit an application for development consent to build the Bradwell B power station. The application would also include associated development required to enable construction and operation. This would include, for example, park and ride facilities for construction workers, temporary worker accommodation and road and junction improvements.

Consultation is an important stage in the development consent process as it enables local people to comment on our work as it develops and helps shape our proposals.

The responses and feedback received at Stage One consultation, along with further technical work and environmental studies, will inform the development of our proposals ahead of a second stage of consultation.

Scope of this Consultation

At Stage One we are seeking views on our project aims, and initial proposals and options for the Bradwell B power station and we encourage you to comment and share your views on them. We will also hold a Stage Two consultation, which will focus on our preferred proposals and set out more detailed information on associated development.

This document contains information on the nuclear power station and associated development, together with areas of search and options for different types of associated development such as new transport facilities and temporary accommodation for construction workers.

The proposals fall into two broad groups. There are those where we set out proposals unlikely to change (for example the location of the power station or the design of the reactors,

see page 6 for more information) because of important factors, such as safety or efficiency, which drive these decisions. Then there are those where the proposals could be changed as a result of responses to our consultation, taking account of further technical and environmental studies.

The principle of the need for new nuclear power stations and the choice of Bradwell as a potentially suitable site is a matter for Government policy and outside the scope of this consultation.

This document is the [Stage One Consultation Summary Document](#), outlining our initial proposals and options. More detailed information is available in the [Stage One Consultation Document](#).

If you are unable to attend the exhibitions, copies of the exhibition boards and other consultation materials are available to download from our website: www.bradwellb.co.uk.

Copies of all the consultation documents are available to take away on USB memory sticks and to view in hard copy at our exhibitions. Hard copies will be available to view during normal office hours in local libraries, town halls and other locations.

If you require the consultation information in a different language or alternative format for accessibility reasons, please call **01621 451 451** or email feedback@bradwellb.co.uk.

How to respond to this consultation

Stage One consultation will run for 12 weeks and ends on 27th May 2020.

To learn about our proposals:



Read this [Stage One Consultation Summary Document](#)



Find out more detail in the [Stage One Consultation Document](#)



Attend our exhibitions



Check out the website: www.bradwellb.co.uk



Call **01621 451 451** during normal office hours



Follow us on twitter @CGNBradwellB

Following Stage One consultation, we will consider all responses and feedback we have received and use it to inform the development of our proposals. We will then share our proposals and preferred options in a Stage Two consultation.

We are inviting comments from local communities, including all those living in, working in or otherwise using the local area around the Bradwell B site and associated development site options or search areas.

Respond to the consultation:



Post your written responses to
Freepost Bradwell B Consultation
(no stamp or further address required)



Email your comments to:
feedback@bradwellb.co.uk



Complete a questionnaire at:
www.bradwellb.co.uk or in hard copy
and post it to our freepost address



Call **01621 451 451** during normal office hours

We also welcome feedback from all organisations with an interest, as well as from landowners who may be affected by the proposals.



Question 14

3. The Power Station

We are proposing to build Bradwell B power station on land immediately to the south and west of the existing Bradwell power station, next to the Blackwater Estuary on the Dengie Peninsula. The site for Bradwell B is around 15km east of Maldon and the nearest villages are Bradwell-on-Sea and Bradwell Waterside.

Following receipt of the necessary consents, we expect construction of the power station would take approximately 9-12 years, including restoring those parts of the site required only temporarily for construction.

Components of the power station

The Bradwell B power station would comprise a number of components, each contributing to its safe and secure operation (see Figure 3.1). Together, these components would form the 'permanent development', which would operate for 60 years and include:

- two UK HPR1000 reactor units each comprising a reactor containment building with its associated buildings (the 'nuclear island'), a turbine hall with electrical buildings (the 'conventional island') and associated balance of plant. These units are often referred to as the 'main power blocks';
 - additional 'Balance of Plant' facilities and equipment that facilitate the operation of the power station. Many of these buildings and structures are similar to those that would be found on a gas or coal fired power station;
 - cooling water infrastructure including forebay, pump houses, water treatment and cooling towers, plus cooling water tunnels extending out from the power station into the sea, to abstract and discharge cooling water;
 - Power transmission infrastructure including a connection to a new 400kV substation to be provided by National Grid;
- There may also be a need to locate some additional power station facilities such as emergency response units off-site. These potential requirements are in the very early stages of consideration and we will publish proposals for any such facilities in our Stage Two consultation.



Question 2

- fuel and waste storage facilities, including interim storage for nuclear waste and spent fuel;
- offices, welfare facilities, security and emergency response facilities (some of the latter may also be located off-site); and
- security facilities including fencing and security checkpoints to control access to different areas of the site, as well as security lighting.

In addition to the permanent development works there would be associated infrastructure supporting the operation and maintenance of the power station including:

- primary and secondary access roads, car parking (including contractor car parking for use during maintenance periods) and internal roads;
- sea defences surrounding a raised platform to protect the power station from extreme flood events (taking into account future climate change);
- a marine transport facility for occasional use (once every 5 years or less on average) to bring large components to site by sea; and
- a restored landscape extending across all areas impacted by construction, incorporating elements which would contribute to environmental mitigation, compensation and enhancement.

Locating the development away from the coast would bring the permanent development closer to Bradwell-on-Sea and Bradwell Waterside. We have considered creating a new landscape to provide an appropriate setting for the new power station. Figure 3.1 shows proposed habitat creation, which would form part of this new landscape and provide ecological mitigation, making a positive contribution to biodiversity.

Feedback from consultation and further assessment will help to inform opportunities for enhancement, and development of any necessary mitigation proposals.

Design and environment

We are proposing to locate the power station on the higher ground to the south and west of Bradwell Power Station. The proposed layout (see Figure 3.1) takes account of the environmental constraints of the site and surrounds, while offering a number of benefits, including:

- reducing the amount of engineering fill required to raise the platform, helping minimise HGV traffic on local roads;
- retaining the existing flood embankment and borrow dyke;
- concentrating permanent development on areas of lowest flood risk within the site;
- reducing potential impacts on the Chapel of St Peter-on-the-Wall and Roman Shore Fort of Othona to the east of the site;
- reducing potential disturbance of wintering birds using the coastal mudflats centred on Dengie Flats to the east of the site;
- maximising the availability of land for potential ecological enhancement after the power station has been built; and
- helping to reduce amenity impacts on the proposed England Coast Path.



Cooling water infrastructure

Heat energy from the nuclear reactors at Bradwell B would be used to create steam, driving turbines to generate electrical power. This process requires a cooling system to condense the exhaust steam from the turbines.

We are proposing to use an 'indirect' cooling system, where relatively small volumes of sea water are circulated around the power station, with heat lost to the atmosphere via evaporation in cooling towers. This system is proposed to protect the ecology of the Blackwater estuary.

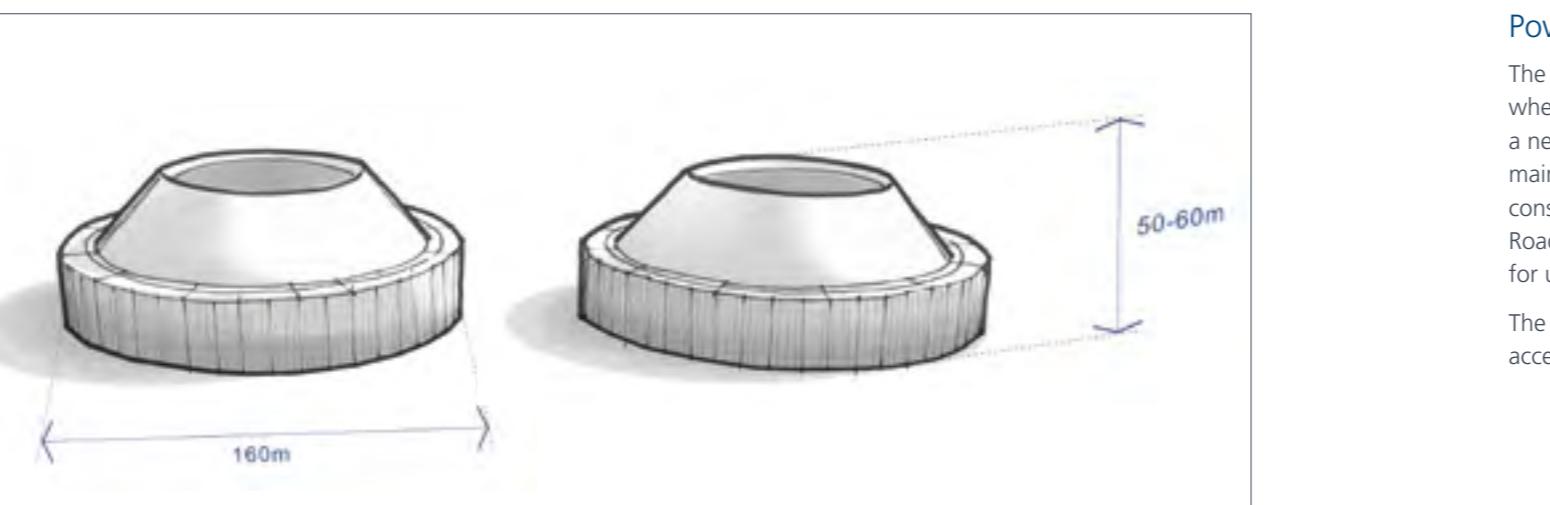
As it is our duty to demonstrate the likelihood of any effects of our cooling proposals for Bradwell B on native oysters (or other wildlife), we are pleased to have funded an independent two-year post-doctorate research programme at the University of Essex to help build a scientific evidence base for use in detailed impact assessments.

Cooling towers

We are proposing to use modern, low-plume hybrid cooling towers at Bradwell B. There are two basic types (circular or rectangular), both are significantly smaller than the height of those often associated with coal-fired power stations and operated to minimise the visibility of the plume of water vapour they produce.

Our work so far suggests that one 50-60m high circular tower for each of the two reactors would be the preferred approach (see Figure 3.2). Circular towers are preferred because they would perform better, occupy less land, and have less environmental impact than rectangular towers. In relation to the visibility of the plume of water vapour, our preliminary analysis of local meteorological data suggests the plume would only be visible on around 18 days a year, on average.

Further technical and environmental work is ongoing to help us assess the likely impact, develop our plans and inform our decision-making. Updates about the design will be published as design of Bradwell B power station develops.



Power station access

The primary route for all road traffic to and from Bradwell B when operational would be along the existing B1021 and via a new access road (see Figure 3.1). This would also be the main route to bring workers and materials onto site during construction. A secondary access route connecting to East End Road, west of the Eastland Meadows Country Park, would be operational to bring in very large or heavy freight that could not be transported by road. Described as Abnormal Indivisible Loads (AILs), large freight deliveries might include, for example, sections of turbine that are too large to be moved by road.

The indicative location and alignment of the proposed new access routes is shown in Figure 3.1.

Beach landing facility

We expect the beach landing facility to be used approximately once every five years or less during the operational phase.

Platform height and sea defences

Bradwell B would sit on a raised platform surrounded by new sea defences, designed to withstand flooding from 1 in 10,000-year extreme weather events over the full lifetime of the plant, and taking account of climate change. The proposed new sea defences (see Figure 3.3) would be positioned inland of the existing flood embankment. They would consist of large earth embankments with 'rock armour' under the seaward-facing surfaces, for extra strength and to protect them from potential erosion. Where appropriate, we will develop landscaping, which may vary on each slope, depending on orientation, exposure, and the surrounding landscape.

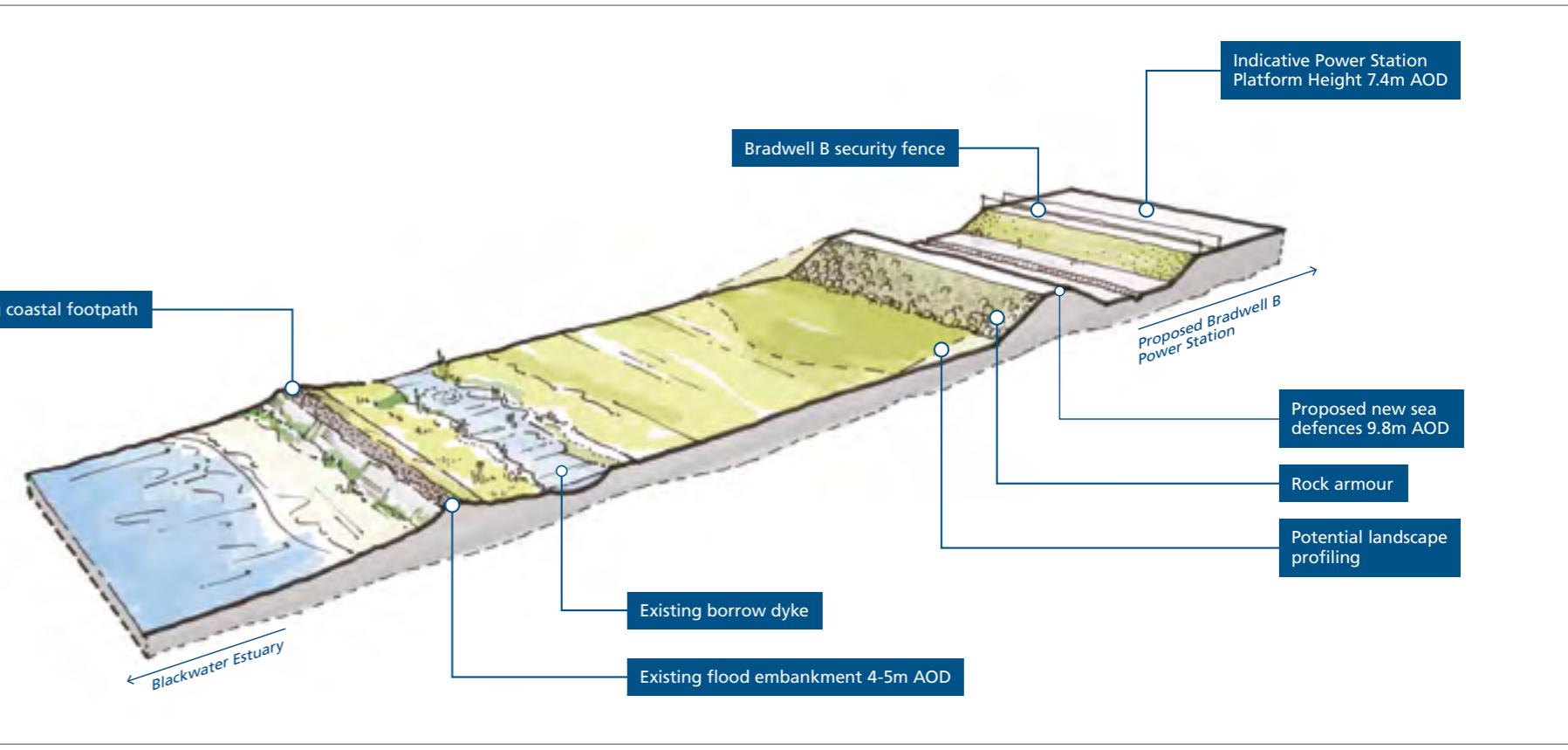


Figure 3.3: Sea defences section

Construction and temporary development

The land near the power station required for construction is shown in Figure 3.5. The construction of Bradwell B would require the following facilities:

- road access including an entrance plaza for HGVs and coaches, security/vehicle search facilities, and car-parking;
- construction site fencing and lighting (including security lighting);
- contractor working areas including materials laydown, workshops, module assembly, equipment storage, offices and welfare facilities;
- storage areas for soil and spoil from earthworks;
- temporary structures including concrete batching plant and associated facilities to stockpile aggregates and cement;
- marine works area for construction of cooling tunnels and headworks;
- internal construction and haul roads, fencing, lighting and security;
- collection, treatment and disposal facilities for surface water and sewage, including a discharge pipe into the marine environment;
- potential infrastructure for the transport of marine dredged aggregate to site for raising the platform. This may include settlement lagoons and a pipeline to discharge sea water back to sea;

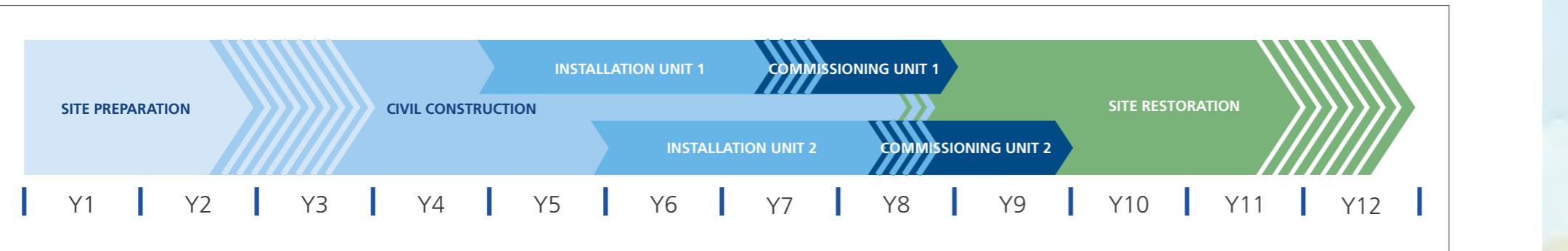


Figure 3.4: Indicative construction phasing

Construction phasing

Construction would take place in five main stages:

- Site preparation (24-36 months): involving, for example, excavation and major earthworks as well as construction of temporary roads, plant, bulk material delivery facilities, canteens, medical facilities and parking;
- Civil construction (29-38 months): including major building construction and installation of the reactor dome.
- Installation (27-33 months): installing the main components of the power station and creating the systems needed for commissioning.
- Commissioning (14-20 months): including testing, fuel loading, and synchronisation to the grid before handover to operations.
- Site restoration (24-36 months): completing landscaping works and restoring parts of the site not needed during operation, including for example, planting, ground reprofiling and removal of temporary construction facilities.

We are also proposing some temporary development - including park and ride (see page 26) and freight management facilities (see page 24) - away from the power station site to support construction.

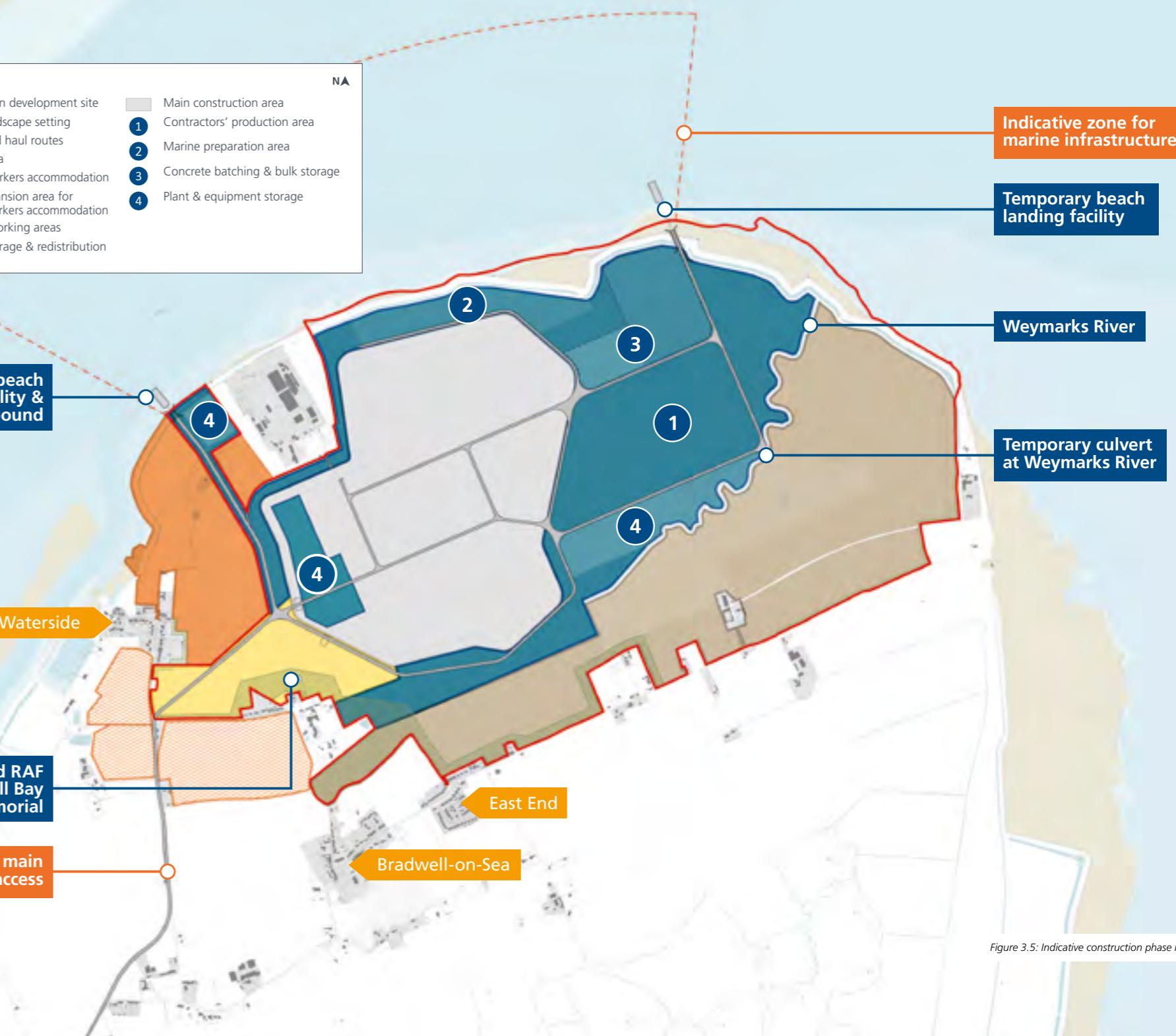


Figure 3.5: Indicative construction phase masterplan

4. People and Jobs

Creating new opportunities and lasting benefits

Building Bradwell B would create tens of thousands of jobs and deliver millions of pounds of investment in the local and regional economies. Many of the skills required for construction would be transferable, opening up new opportunities for further employment and long-term careers once the building phase is completed. A key part of our approach is supporting collaboration within the region to create an environment where people can access these opportunities.

Where possible, we will prioritise opportunities for local people, through new skills training. We will help local businesses be part of the new supply chains Bradwell B would create. We are working with Essex County Council, Maldon District Council and key organisations, such as the Local Enterprise Partnership (LEP) and Federation of Essex Colleges, to understand the current situation and identify areas for investment.

Bradwell B is likely to create other new jobs in the local economy beyond those on the main site. When completed, there will be around 900 permanent jobs in operating the power station, in addition to supply chain services to the site.

Wider economic benefits

Additional jobs will bring further indirect economic benefits, through workers spending in the local and regional economy, during both construction and operation. There will also be opportunities to let accommodation to workers, from hotels and caravan parks, to rental homes and spare rooms, bringing additional income to property owners. At the same time we will develop mitigation measures to avoid adverse effects from excess demand on private housing and tourist accommodation.

There are also likely to be infrastructure improvements delivered as part of Bradwell B, including to roads on the Dengie Peninsula (see page 18). These improvements can provide long-term legacy benefits of improved access to and from the area, and to jobs and services locally - benefitting residents, businesses and tourists.

Workforce

The workforce will be made up of roles in construction, operations and all the areas that enable it to happen, such as security, catering, and drivers.

The number of workers required for Bradwell B will be determined by the type of construction and the length of time it would take to build. At this early stage, we estimate around 9,100 construction workers would be needed during the busiest stage of construction - the peak - which would likely last for less than three years.

While we estimate that around 3,000 of these at-peak jobs could be filled by local people already living within 90 minutes of the site, construction would also bring new workers to the area. We are developing proposals to manage the effects associated with a temporary increase in the local population, including increased demand for accommodation and services, such as health and leisure, along with impacts on social cohesion and local tourism.

We already have significant experience of this from the Hinkley Point C nuclear power station project in Somerset, and will work with local authorities, service providers, local people and businesses, to develop a comprehensive package of mitigation for Bradwell B and the surrounding areas.

Gathering feedback to help understand and help shape what is done about those effects, and also to enhance the positive benefits, is an important part of this consultation.

While work to refine our construction approach continues, we are also considering the effects of a larger peak workforce to ensure we have planned for all potential scenarios. We expect to have a more certain and detailed estimate at Stage Two consultation, including more detail on the makeup of the workforce.

Education and skills

Our approach throughout the construction and operational phases would be shaped by our aspiration to build long-term sustainable skills for individuals and businesses. We recognise the importance of working within the region's existing structures of support for skills and education to deliver the power station, but also to ensure it leaves a legacy.

We will develop education and training measures to enable more local people to access jobs at Bradwell B. Based on experience at Hinkley Point C, measures that could be successfully implemented include:

- Implementing an [Employment, Skills and Education Strategy](#) and a [Jobs Service](#) focused on developing a local skills base that can support the delivery of Bradwell B, and delivering local initiatives that support local people into work on the project, including young people and people who are currently unemployed; and
- A flexible [Asset Skills Enhancement and Capability \(ASEC\) Fund](#) to support local skills providers to deliver appropriate training to support Bradwell B requirements alongside direct support and provision to local training centres. This could be supported by a [Regional Skills Coordinator](#) to provide a link between local providers, supply chain businesses and the Project to deliver an effective, joined-up approach on skills.

Business and supply chain

There will be opportunities for local businesses to benefit from Bradwell B's supply chain, including construction and site services contracts - from small and medium-sized engineering firms, to taxis and security companies, catering and accounting services.

Our ambition is to help local businesses to win contracts for the supply of goods and services to Bradwell B during construction and operation. We would aim to link skills and training initiatives with the supply chain to ensure existing businesses are ready for supply chain opportunities.

We anticipate that Bradwell B will provide similar levels of opportunity to the UK supply chain as other new nuclear developments. As a comparison, since 2016, £8bn has been spent in the UK by Hinkley Point C.

We will be working closely with the local authorities and LEP to actively develop sustainable, high value employment opportunities.

There will also be considerable additional opportunities (sometimes referred to as the 'multiplier effect') generated for supporting businesses, such as catering, facilities management and logistics, during both construction and operation.

The Benefits



Additional 1,000 roles

during outages around every 18 months during operation.

Over 10,000 people years' worth of work available locally during construction.



Tens of thousands of jobs

during construction, approximately 3,000 jobs at peak will be local.



We are committed to creating economic benefit and improving social mobility for the people of Essex, leaving a positive legacy in coordination with key Government and regional policies and priorities.

We will be working closely with the local authorities and local enterprise partnership to actively develop sustainable, high value employment opportunities, and we will work with them to ensure that Essex and the wider east of England region maximise the opportunity from Bradwell B. This includes inputting to the LEPs Strategic Economic Plan and emerging Local Industrial Strategy.



5. Accommodation

We will need to make sure there is sufficient accommodation for the number of workers building Bradwell B during the peak of construction and that appropriate measures are in place to manage accommodation throughout.

We are working to understand where workers are likely to live by combining what we know from other projects about how far people are willing to travel for work, with information on where construction workers live in the area, and how much accommodation of different types there is in each area.

We estimate that, at peak, we will recruit around a third of the Bradwell B construction workforce from people already living within 90 minutes of the power station site. Workers from outside the area will also be needed and the type of accommodation they choose will depend on their different needs and the length of time they will work on Bradwell B.

Long-term workers may choose to buy a home in the area. Others staying for a shorter period might choose tourist accommodation such as hotels or caravan parks, while others will want to rent a home.

We expect that construction workers will take up a small percentage of Maldon District's private rental accommodation at the construction peak. Our aim is to achieve a balance; allowing a reasonable proportion of spare housing capacity to meet the demand from workers without displacing or pricing out local residents.

New accommodation to cater for the Bradwell B workforce will be needed. We are proposing dedicated temporary accommodation for workers, such as a campus on or near the construction site, and provision for caravans. We are also considering other measures, such as the possibility of some permanent new homes.

Question 4 and 5

Temporary accommodation

In the early years and final stages, the workforce will be relatively small but during peak construction the workforce will grow significantly. We are proposing to provide high-quality temporary accommodation - phased to cater for up to 4,500 of these people during peak construction.

A combination of modular style multi-storey campus buildings, touring caravans or static caravans could be provided depending on the needs and preferences of workers. The accommodation would also need some of its own facilities, such as health services, sports facilities, and canteens, to help reduce the effects of large numbers of workers on services in local communities.

A site close to Bradwell B would allow workers to walk to work and also significantly reduce the number of journeys to Bradwell B by private car and bus. A campus would also bring economic benefits for local businesses supplying goods and services.

We have explored two development scenarios (see Figure 5.1) for the temporary accommodation site close to the proposed Bradwell B power station site.

- [Scenario 1: Land west of the existing Bradwell power station site.](#)
- [Scenario 2: Land west of the existing Bradwell Power Station site with extension sites.](#)

Our initial zoning plan for Scenario 1 (see Figure 5.1) includes two zones for accommodation blocks of up to six storeys in height, similar to student campus accommodation and comprising en-suite single bedrooms and shared kitchen/ communal facilities. A location for the provision of static and touring caravan accommodation is also included, along with areas for amenity facilities, car parking and areas for recreation, for example sports fields.

Scenario 2 includes additional land (see area 2 shown on Figure 5.1) - which may not all be required - to provide the same number of bed spaces and facilities. It could also present additional opportunities to mitigate environmental effects such as flood risk and biodiversity, or landscape and visual effects (through reduction of building heights).

After the peak period of construction, the requirement for worker accommodation would reduce. We intend to remove the buildings from the campus site and return much of it to its existing use. However, we could retain some campus sporting facilities, such as the sports fields, for long term use for the local communities and permanent workers from Bradwell B.

Feedback from consultation, along with further technical work and environmental assessment will help us to develop a preferred proposal. Further details on our approach and designs will be provided at Stage Two consultation.

Other accommodation

There may also be a need for other forms of temporary and permanent accommodation. We are considering potential measures to support the local housing market, including, for example:

- grant funding to bring empty homes back into use;
- working with housing associations to support the delivery of new housing; and
- support for growth of the tourist accommodation sector.

The DCO process also allows for the provision of up to 500 new, permanent homes to help meet demand and could be considered to cater for accommodation demand related to Bradwell B.

We will provide more detail on our accommodation proposals in our Stage Two consultation.

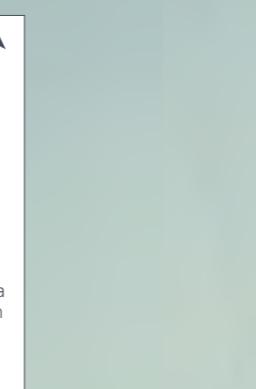


Figure 5.1: Temporary accommodation sites and zoning

6. Transport

Building Bradwell B would involve the daily movement of large numbers of construction workers and significant amounts of construction materials. The Bradwell B site is located away from major roads and there is no existing rail or port infrastructure close to the site. We are developing a transport strategy which aims to address this challenge. Our objectives are to:

- maximise the use of marine and/or rail transport over road transport for movement of freight;
- reduce the distance our construction workforce needs to travel by car;
- provide demand management measures such as park and ride and freight management facilities to reduce traffic on local roads; and
- carry out highway improvements within the local road network to increase capacity, improve safety, and reduce environmental impacts.

We welcome comments on our emerging transport strategy, which remains subject to further development, particularly as a result of feedback at Stage One consultation.



Question 6 and 7

Moving freight

Building Bradwell B would require movement of over six million tonnes of construction materials. We expect that both sea and road transport would play significant roles in moving freight to the site, with rail also potentially moving freight to ports before it is shipped to Bradwell for construction.

Our aim is for over half of bulk construction materials needed for construction to be delivered by sea.

Rail

We have studied the rail network around the site to understand inland and port-based rail freight interchange (RFI) facilities from which freight could be moved by road or sea (or potentially direct to site via a private siding).

Chelmsford and Southminster are the nearest points of access to the site for freight traffic and several RFIs exist in the surrounding area, including a number co-located with port facilities, supporting the movement of materials by sea. Chelmsford has an existing aggregate loading and storage area and the mail line can handle both containers and conventional wagons. Although it has been used to move relatively small amounts of low-level nuclear waste associated with the decommissioning of the existing Bradwell power station, the route between London and Southminster via Wickford is not part of Network Rail's 'Strategic Freight Network' and we understand it may require significant upgrading to accommodate major freight movements.

We also understand that there are significant capacity constraints within the network, particularly around Shenfield, with limited opportunity for improvements. Discussions with Network Rail are ongoing to confirm the potential for moving freight to the site via rail.

Comprising a level platform on the shore, the beach landing facility would allow vessels to be aground to offload cargo (see Figure 6.1). This option may require one or more barges to be beached next to the facility to increase capacity.

Option 1: Beach landing facility

Sea transport

We are investigating opportunities for bringing bulk materials and other construction cargo to site by sea to reduce the number of HGVs on local roads. We are also proposing to use sea transport to move a significant number of very large items - for example steam generators or sections of turbine - that are too large or heavy to be moved by road.

Freight being moved by sea would need to be offloaded close to the site. Our initial assessments suggest that locations to the east and west of the existing Bradwell power station could be well suited for the marine facilities that would support this approach.

Option 2: Bulk material jetty

Comprising a level platform on the shore, the beach landing facility would allow vessels to be aground to offload cargo (see Figure 6.1). This option may require one or more barges to be beached next to the facility to increase capacity.

Option 2: Bulk material jetty

A lightweight jetty with berths located in existing deep water to avoid significant dredging, the jetty would serve small ships and use a conveyor and pipeline to unload bulk materials (see Figure 6.2).

Option 3: Marine offloading facility

Similar to Option 2 but comprising a wider and stronger jetty structure to support a roadway to unload freight. It could also incorporate a conveyor and pipeline (see Figure 6.3).

Option 4: Aggregate pipeline and settlement lagoon

Comprising a vessel positioned offshore and a floating or sunken pipeline, marine dredged aggregate would be pumped to an on-site storage lagoon using sea water (see Figure 6.4).

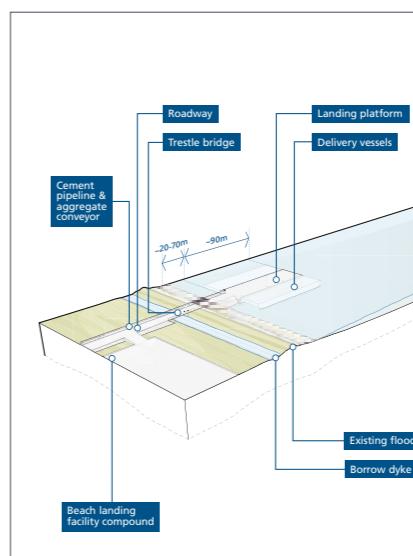


Figure 6.1: Option 1: Beach landing facility

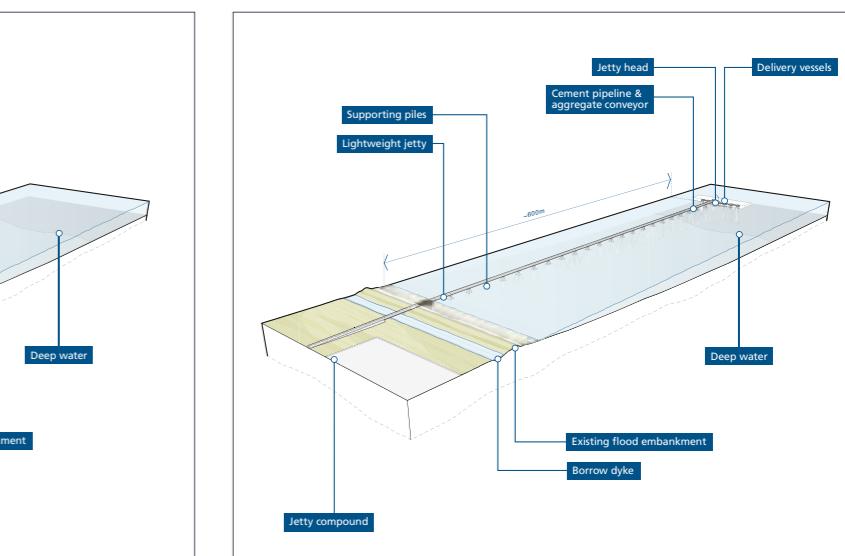


Figure 6.2: Option 2: Bulk material jetty

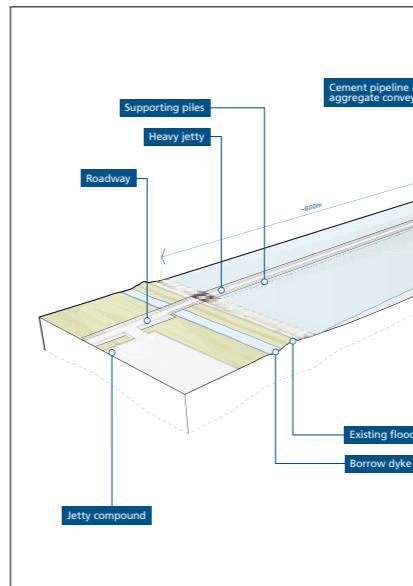


Figure 6.3: Option 3: Marine offloading facility

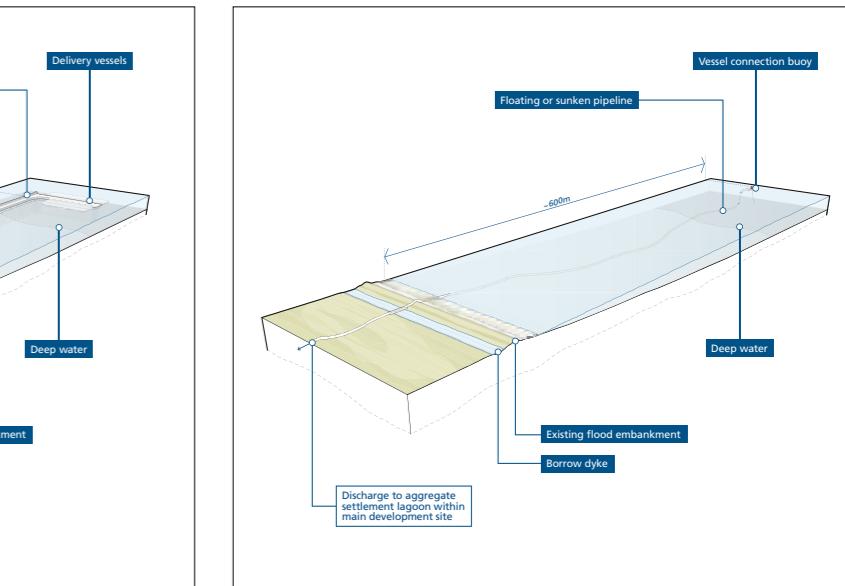


Figure 6.4: Option 4: Aggregate pipeline and settlement lagoon

Road transport

While use of sea transport would significantly reduce the number of HGV movements on local roads, we would still need to bring some freight to site by road.

The number of HGV movements associated with Bradwell B will depend on material quantities, the precise timetable of construction works, the platform height for Bradwell B, the earthworks strategy and the construction sequence. Work to define these areas is on-going, however our initial assessments suggest that the average daily two-way HGV movements at peak could be between 500-700.

HGV movements would likely be spread across the day and, to reduce impacts on local communities, HGV routes would be controlled through the DCO.

At Stage One consultation, we are sharing our initial proposals for the potential improvements to the existing road network that would be required to accommodate construction traffic and mitigate its potential impacts. We are developing a traffic model that will be used, along with feedback from Stage One, and on-going technical and environmental assessment, to inform future proposals.

Early years of construction

During the early years of construction - while building supporting facilities and starting to bring material to the site - we propose to use the existing highway network with improvements (details to be developed), including:

- implementation of HGV management measures including, for example, timing of HGV movements to avoid peak times;
- minor improvements to some existing roads including, for example, signage, improved signalling at junctions, and additional pedestrian crossings in sensitive communities;
- junction and highways improvements at identified pinch points on the existing network; and
- environmental management measures to reduce potential impacts on communities and sensitive receptors, such as homes, community facilities, conservation areas and listed buildings.

We are also considering creation of a one-way in and out routing loop for HGVs for part of the local road network (see Figure 6.5).

Main construction period

With more traffic needing to use the road network during the peak construction period, more significant measures will be required to manage the effects of Bradwell B construction, including potentially:

- upgrading the existing road network, including junction improvements, localised road realignments and road widening;
- bypasses around some towns or villages and sensitive locations; and

- new sections of road where upgrades are not practical due to, for example, locations of existing buildings, or potential environmental effects.

Our early assessment has identified two potential strategic routes for construction traffic to the site (see Figure 6.6). We have identified a number of potential highway improvement options along each of these routes, including minor realignment of the existing road, short bypasses around villages, or longer sections of new road. As some of the options would connect Strategic Route 2 with Strategic Route 1, our final proposed HGV route to the site could be a hybrid of both routes. Feedback from Stage One consultation along with further technical work and environmental assessment will help us to identify the preferred HGV route and options for highway improvements. Our detailed routing proposals will be presented in our Stage Two consultation.



Figure 6.5: Early years routes

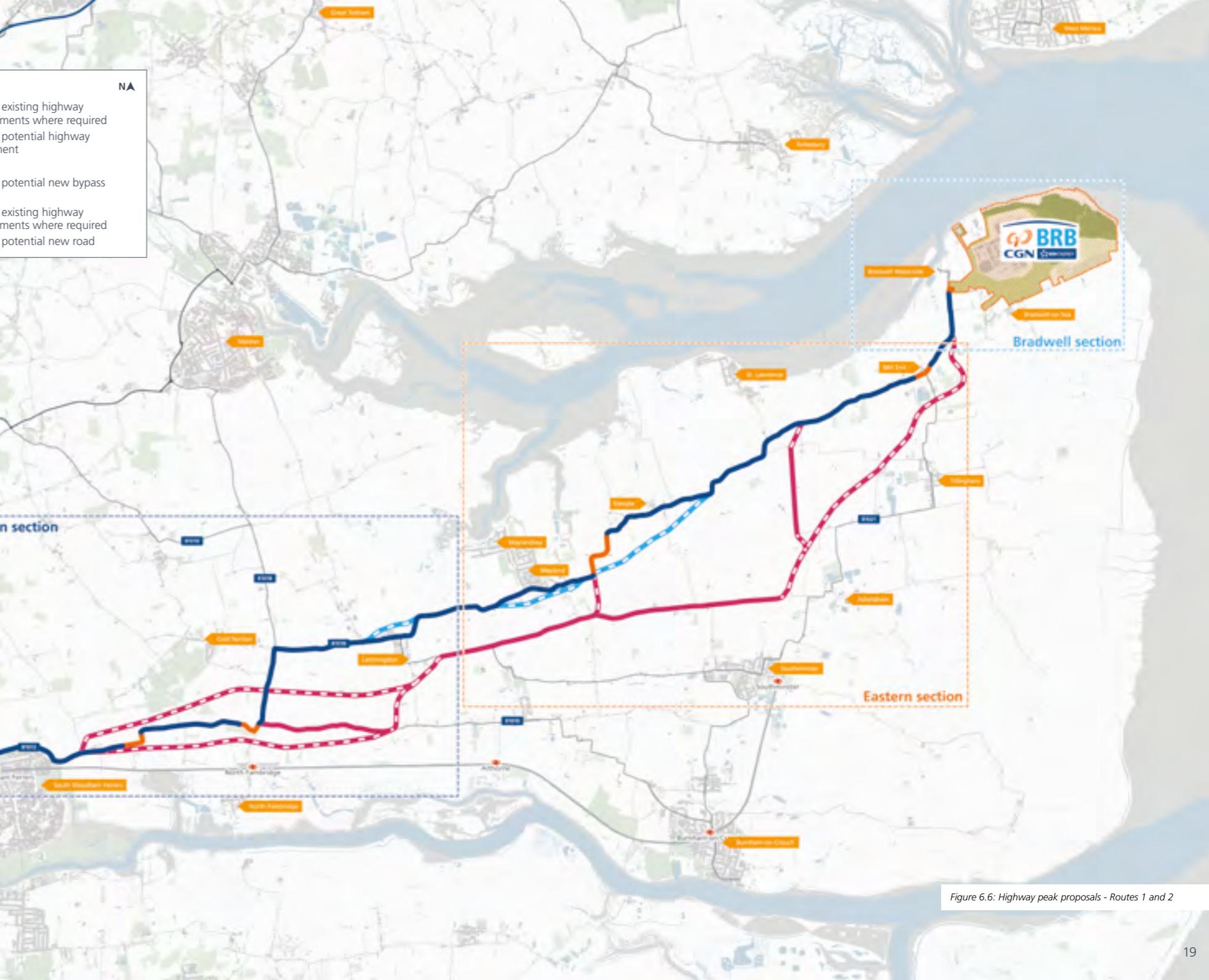


Figure 6.6: Highway peak proposals - Routes 1 and 2

Strategic Route 1

Strategic Route 1 (see Figure 6.7) broadly follows existing roads from the A130/ A132 junction via the South Woodham Ferrers ring road, Lower Burnham Road, Fambridge Road, the B1018 and Steeple Road to the Bradwell B site.

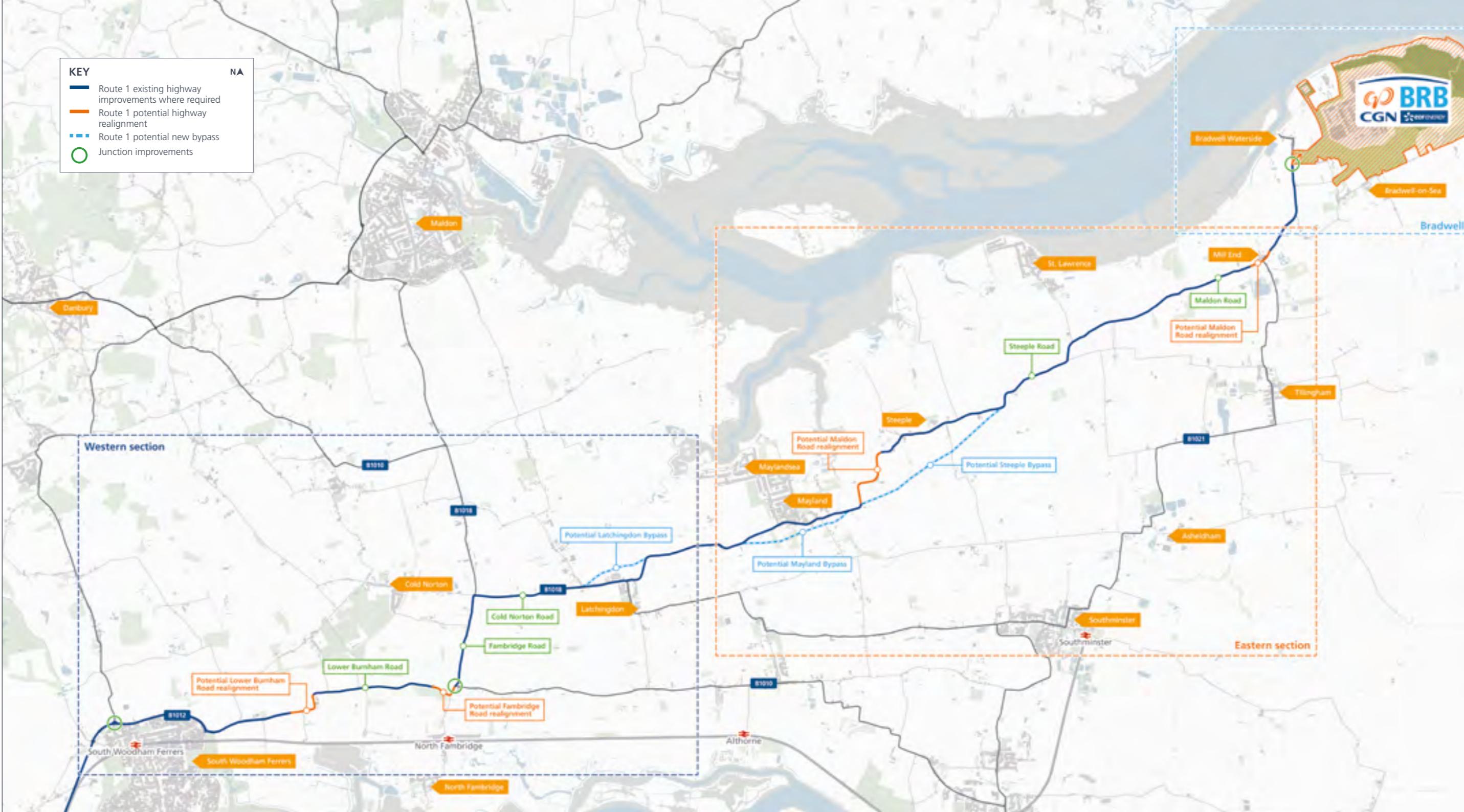
Western and eastern sections

Our proposals for the western and eastern sections would include minor road realignments and junction improvements and a series of potential bypasses around sensitive communities. The locations where we are considering bypasses are:

- Latchingdon (western section);
- Mayland (eastern section);
- Steeple (eastern section).

Bradwell section

Our proposals for the easternmost - or Bradwell - section are the same for both strategic routes. In addition to proposed improvements or widening on parts of the existing roads, we are proposing a new section of road to the north of Trusses Road that would connect the B1021 Waterside Road directly to the site.



Question 8

Figure 6.7: Highway peak proposals - Route 1

Strategic Route 2

Strategic Route 2 (see Figure 6.8) would be a combination of improvements to existing roads and new sections of road, with associated junction improvements. It would run from the A130/A132 junction via the South Woodham Ferrers ring road, Lower Burnham Road, and the B1010 to link back into the eastern part of Strategic Route 1 near the site.

Western section - B1010 options

We are considering three options for part of the B1010 in the western section of Route 2:

- **Option 1:** road widening and improvements to the existing road and a new road joining the B1010 with the B1018 Burnham Road;
- **Option 2 north:** a new northern section of road off the B1012 to the east of South Woodham Ferrers and connecting to the B1018 Burnham Road;
- **Option 3 south:** a new southern section of road off the B1012 to the east of South Woodham Ferrers, proceeding eastwards before re-joining the B1010.

Eastern section - Green Lane options

Within the eastern section of Strategic Route 2 we are considering three options between Green Lane and where the route connects to the Bradwell section:

- **Option 1:** a new road running north-east from Green Lane (near the junction with Mayland Hill) to connect with the existing highway to the west of Steeple or the Steeple bypass; or
- **Option 2:** a new road running north-east from Foxhall Road and connecting to the junction of the B1021 with Maldon Road; or
- **Option 3:** a new road running north-east from Foxhall Road and connecting to Bradwell Road to the north of the Church of St Lawrence. This option would also require improvements to Southminster Road so it could accommodate two-way HGV traffic.

Bradwell section

Strategic route 2 would connect back into Strategic Route 1 prior to the Bradwell section and is therefore the same as described for Strategic Route 1 (see p20).

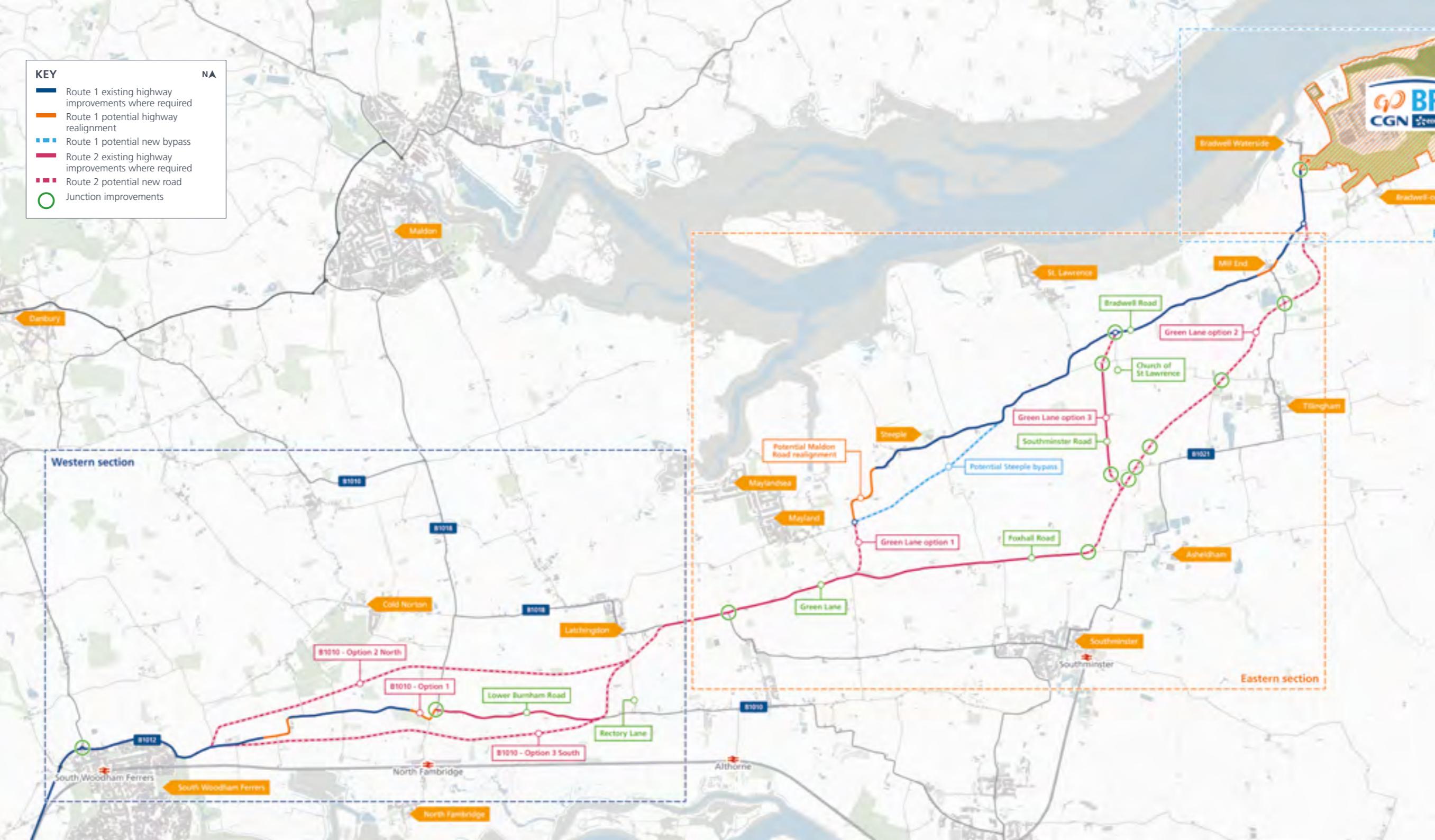


Figure 6.8: Highway peak proposals - Route 2

Freight management facility

We are considering the use of one or more freight management facilities to serve as holding areas for HGVs, helping to manage timing and flow of vehicles to the Bradwell B site and providing welfare facilities for lorry drivers. With parking for approximately 100 HGVs, freight management facilities could also provide a location where vehicles could be held temporarily in the event of an accident on the local road network.

A freight management facility could be located with a proposed park and ride facility, if practical. It would be a temporary facility capable of being restored to its existing use if required.

Freight management facilities for Bradwell B would need to be located close to the designated HGV route and close to the site (up to 30 minutes' travel time) or close to the strategic highway network.

We have identified three search areas (see Figure 6.9) where freight management facilities could be located. Feedback from consultation, along with detailed assessment of traffic impacts and environmental effects will help to identify preferred sites within these areas.

Search area 1

To the west of Latchingdon and east of Cold Norton is within 30 minutes of the site and 20 minutes of the A130.

Search area 2

To the east of Latchingdon and south of Mayland is within 20 minutes of the site and 30 minutes of the A130.

Search area 3

Near the junction of the A130 with the A132. Close to the start of the proposed HGV route to site, it offers direct access to the strategic road network. It would allow out of hours movement for controlled release to the site.

Moving people

Our proposals for temporary accommodation for up to 4,500 workers close to the main construction site (see page 14) would minimise the number of workers using cars to travel to the site and reduce construction workforce traffic impacts.

In addition, we are considering a range of approaches to further reduce the number of daily traffic movements associated with the Bradwell B workforce including:

- temporary park and ride facilities in locations that would intercept workers travelling to site, keeping traffic off local roads;
- direct buses from locations - expected to include rail stations on the Dengie - where there are enough workers to justify regular services; and
- encouraging car sharing and using a permit system for the car park proposed for the construction site.



Question 12

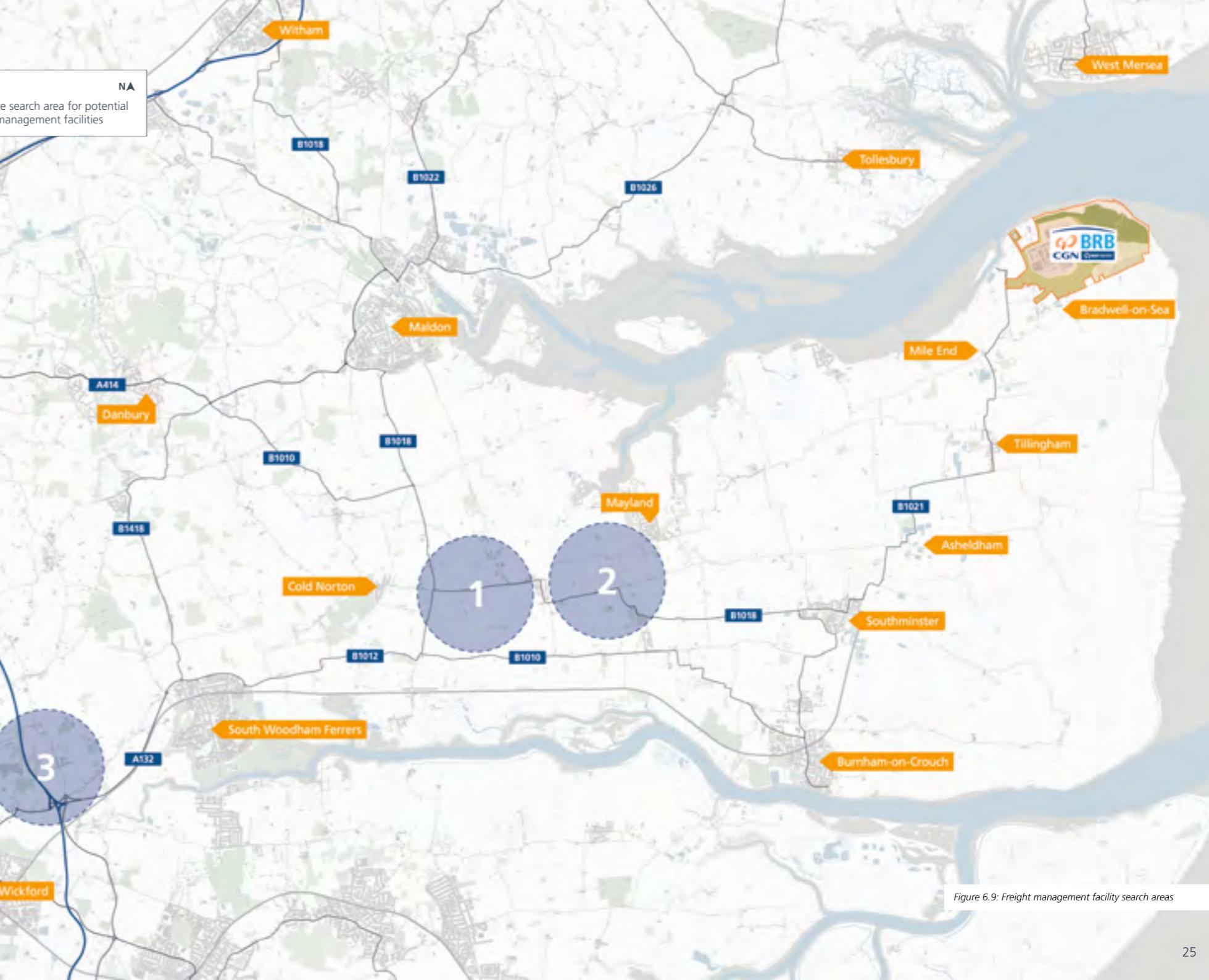


Figure 6.9: Freight management facility search areas

Park and ride

Temporary park and ride facilities would help reduce the number of construction worker cars on local roads. We are working to determine the number and precise size of facilities needed, and our proposals will depend on final workforce numbers, the size of our accommodation campus, and our traffic modelling.

Each facility would:

- include car parking as well as provision for cyclists and motorcyclists;
- be located to intercept workers travelling to the site by car from areas outside the Dengie peninsula;
- include bus transfers - following fixed routes to site - timed to coincide with shift changeover times;
- be managed to avoid delays on surrounding roads, and include lighting, car parking, accessible parking, bus stops, a sheltered waiting area, and a toilet block; and
- be capable of being restored to its existing use if required.

We have identified six search areas (see Figure 6.10) where park and ride facilities could be located. It will not be necessary to provide facilities in all of these; however, we anticipate needing a large site - 20-30ha, accommodating around 1,600 spaces - in search areas 1a or 1b. We would also potentially need one or more smaller facilities in search areas 2, 3, and/or 4.

Feedback from consultation, along with detailed assessment of traffic impacts and environmental effects will help to identify preferred sites within these areas.

Search area 1a: Cold Norton/Latchingdon

Located between Latchingdon and Cold Norton this area includes the B1012, B1010, and B1018 road corridors. It would intercept workers coming from the south and south-west on the A132 and B1012 and from the north on the B1010 from Maldon.

Search area 1b: Latchingdon/Mayland/Althorne

A park and ride facility located between Latchingdon and Mayland around the B1018 corridor would intercept workers coming from the south and south-west (using the A132 and B1012), and from the north (using the B1010 from Maldon).

Search area 2: junction 18 of the A12

A park and ride facility in the area around junction 18 of the A12 would intercept worker traffic coming from areas to the north of the Dengie peninsula and reduce potential traffic impacts on the A414 through Danbury.

Search area 3a: A130/A132 junction

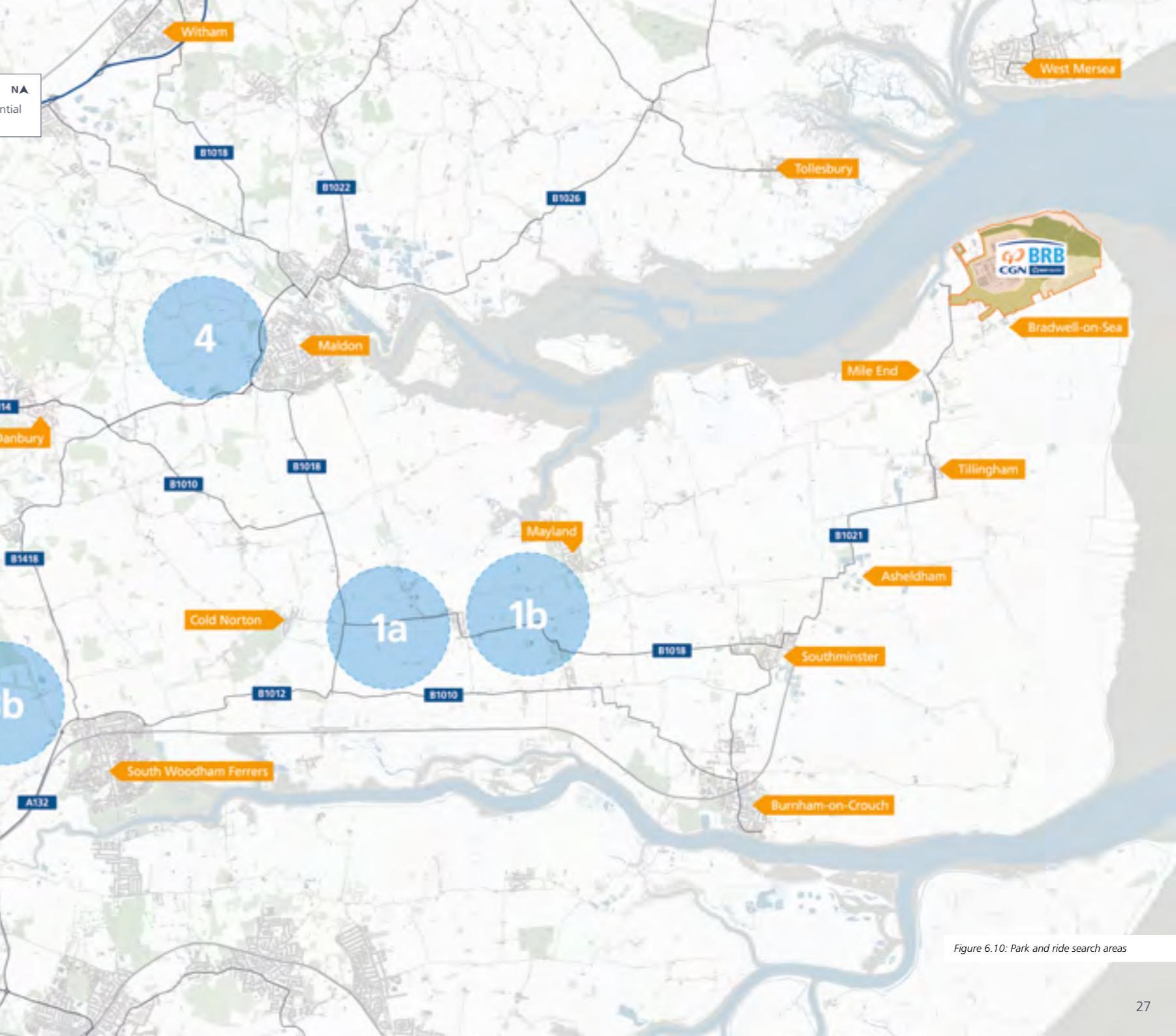
A park and ride facility in this area would intercept traffic coming from areas to the south and west of the Dengie peninsula, it would reduce potential traffic impacts on the B1012 ring road around South Woodham Ferrers.

Search area 3b: north west of South Woodham Ferrers

Located in a search area to the north-west of South Woodham Ferrers, a park and ride facility here would intercept traffic coming from areas to the south and west of the Dengie peninsula and help reduce potential traffic impacts on the B1012 ring road around South Woodham Ferrers.

Search area 4: north-west of Maldon

A park and ride facility to the north-west of Maldon, along the A414 corridor would intercept workers coming from the north, particularly those living to the east of the A12.



Question 13

Figure 6.10: Park and ride search areas

7. Other Information

Developing a new nuclear power station is a major undertaking and there are a number of consents and permissions required for the construction and operation of Bradwell B. In addition, there are other elements that, although not part of this consultation, provide useful context.

Government National Policy Statement for Nuclear (NPS)

The Government has set out policies in relation to Nationally Significant Infrastructure Projects (NSIP) in a series of National Policy Statements (NPS). The following statements are relevant to Bradwell B:

- Overarching NPS for Energy (NPS EN-1); and,
- NPS for Nuclear Energy Generation (NPS EN-6).

Collectively, these policies establish that there is an urgent need for new electricity generating capacity, including nuclear. NPS EN-6 identifies the Bradwell B main development site as one of the eight sites potentially suitable for deployment for a new nuclear power station before the end of 2025.

The Government is in the process of preparing a new NPS for nuclear power. In the meantime, it has confirmed that it continues to support proposals for sites identified in NPS EN-6.

Development consent order

Bradwell B is classed as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008. Following pre-application consultation, we will make an application to the Planning Inspectorate in the form of a development consent order (DCO) application. The Planning Inspectorate will process and examine the application before making a recommendation to the relevant Secretary of State, who will make the final decision on whether or not to grant the DCO for Bradwell B.

More information on the NSIP planning process can be found at: infrastructure.planninginspectorate.gov.uk

The infrastructure to transmit the power generated by Bradwell B, including the substation, is the responsibility of National Grid.

Safety, security and the environment

Nuclear power is one of the most rigorously regulated industries in the UK. In order to construct and operate Bradwell B, we would require a nuclear site licence from the ONR, and environmental permits from the Environment Agency, as well as a development consent order.

A nuclear site licence must be granted by the regulator, the ONR before a new reactor can be built and operated. As part of a licence to operate Bradwell B, we must have rigorous security, emergency preparedness and environmental protection plans in place. We will be working with the ONR and the Environment Agency, in consultation with the local authorities, to develop these plans.

Once it becomes available, a UK geological disposal facility would be used to dispose of spent fuel and intermediate level waste.

To minimise the volume of low-level waste we would treat this on-site, and after appropriate conditioning and packaging, it would be removed for disposal.

Emergency preparedness

Both CGN and EDF make safety the overriding priority of their nuclear power stations. Each operating power station has well-developed plans to deal with emergencies, including contingency plans in the extremely unlikely event of an unplanned release of radioactive material off-site. These plans are underpinned by legal obligations to demonstrate that the risks are as low as reasonably practicable.

We will work with the local authorities to ensure there would be appropriate off-site emergency plans to cover Bradwell B (including our workers during the construction phase), in order to comply with the relevant provisions of the Radiation (Emergency Preparedness and Public Information) Regulations 2001. These emergency arrangements would be regularly reviewed, practised and updated, and assessed by the ONR.

Spent fuel and radioactive waste

Spent fuel and radioactive waste produced by Bradwell B would be managed in a manner that protects people and the environment and is in accordance with the relevant UK policy and legislation. They would be safely stored on-site in an interim spent fuel store, which would be designed for a life of at least 100 years and could be extended if necessary. The interim spent fuel store would be designed to be capable of operating independently of other parts of the power station in recognition that its lifetime would, under current assumptions, extend beyond the operational life and decommissioning of the other facilities on-site.

To minimise the volume of low-level waste we would treat this on-site, and after appropriate conditioning and packaging, it would be removed for disposal.

Decommissioning

At the end of its electricity generation, Bradwell B would be decommissioned. Like all nuclear operators, we have to have an approved Funded Decommissioning Programme in place before construction can start. The programme is legally binding and sets out the arrangements to ensure that the full costs of decommissioning, and the waste management and disposal costs, are met from the funds.

Generic Design Assessment (GDA)

The Bradwell B power station site would include two UK HPR1000 reactor units. The UK HPR1000 reactor (see Figure 7.1) is a third-generation pressurised water reactor (PWR) similar to the Sizewell B reactor in Suffolk. PWR technology has been used successfully and safely for many years, with 227 PWRs operating around the world.

The UK HPR1000 is currently undergoing the Generic Design Assessment process, which is independently controlled by the ONR and the Environment Agency. The process ensures that the design of new nuclear power stations proposed to be built in the UK meet high standards of safety, security, environmental protection and waste management.

We began the GDA process for the UKHPR1000 nuclear reactor in January 2017 and have provided details of the proposed reactor design and safety and environmental aspects. The GDA process takes several years to complete and progress is reported online by the Environment Agency and ONR (www.onr.org.uk) and on the UK HPR1000 website (www.ukhpr1000.co.uk), where you can ask questions and provide comments.

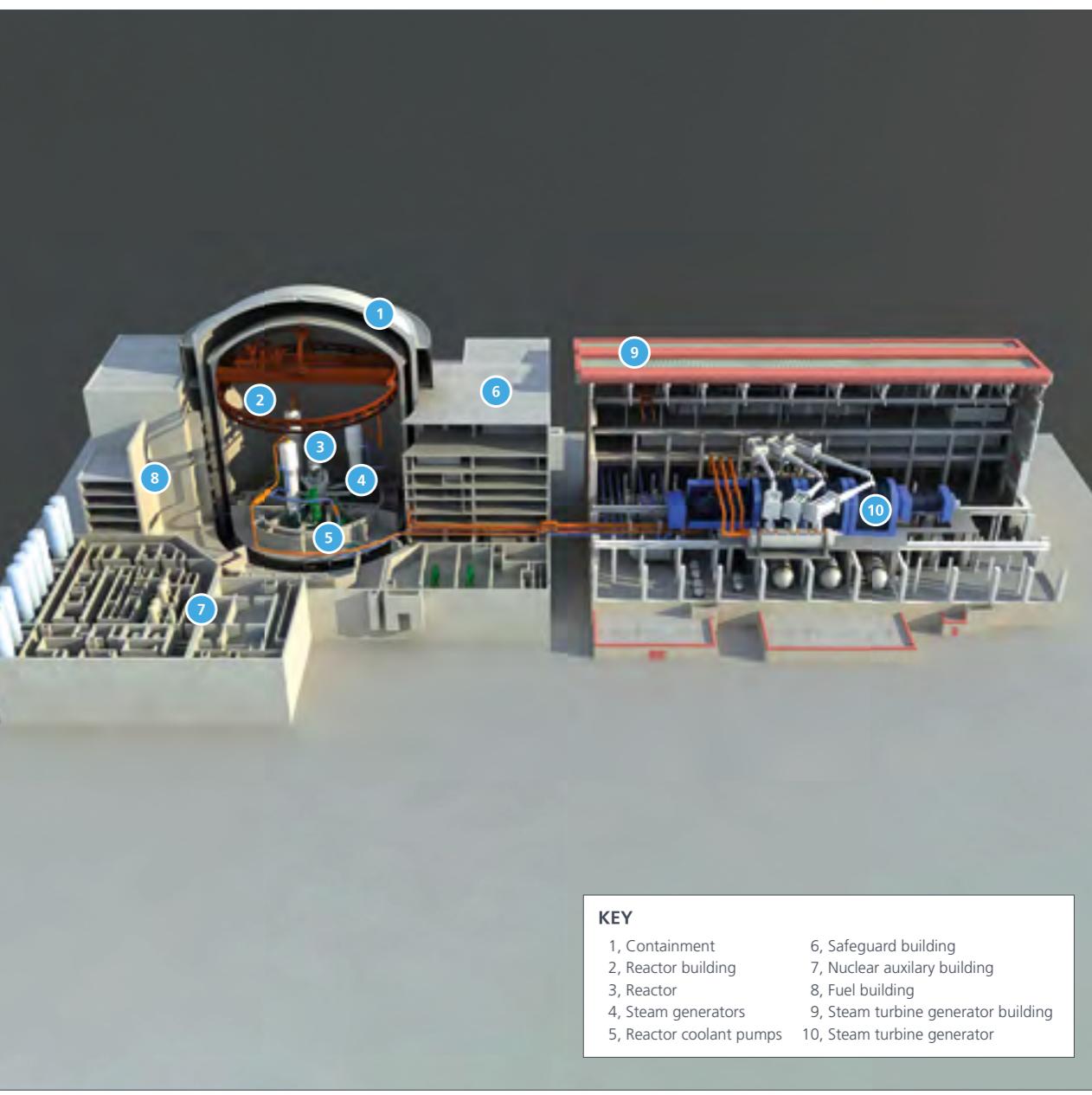


Figure 7.1: UK HPR1000 Reactor

8. Next Steps

Responding to the consultation

Stage One consultation will run for 12 weeks from 4th March to 27th May 2020.

To learn about our proposals:

 Read this [Stage One Consultation Summary Document](#)

 Find out more detail in the [Stage One Consultation Document](#)

 Attend our exhibitions

 Check out the website: www.bradwellb.co.uk

 Call [01621 451 451](tel:01621451451) during normal office hours

 Follow us on twitter [@CGNBradwellB](#)

Respond to the consultation:

 Post your written responses to [Freepost Bradwell B Consultation](#) (no stamp or further address required)

 Email your comments to: feedback@bradwellb.co.uk

 Complete a questionnaire at: www.bradwellb.co.uk or in hard copy and post it to our freepost address

 Call [01621 451 451](tel:01621451451) during normal office hours

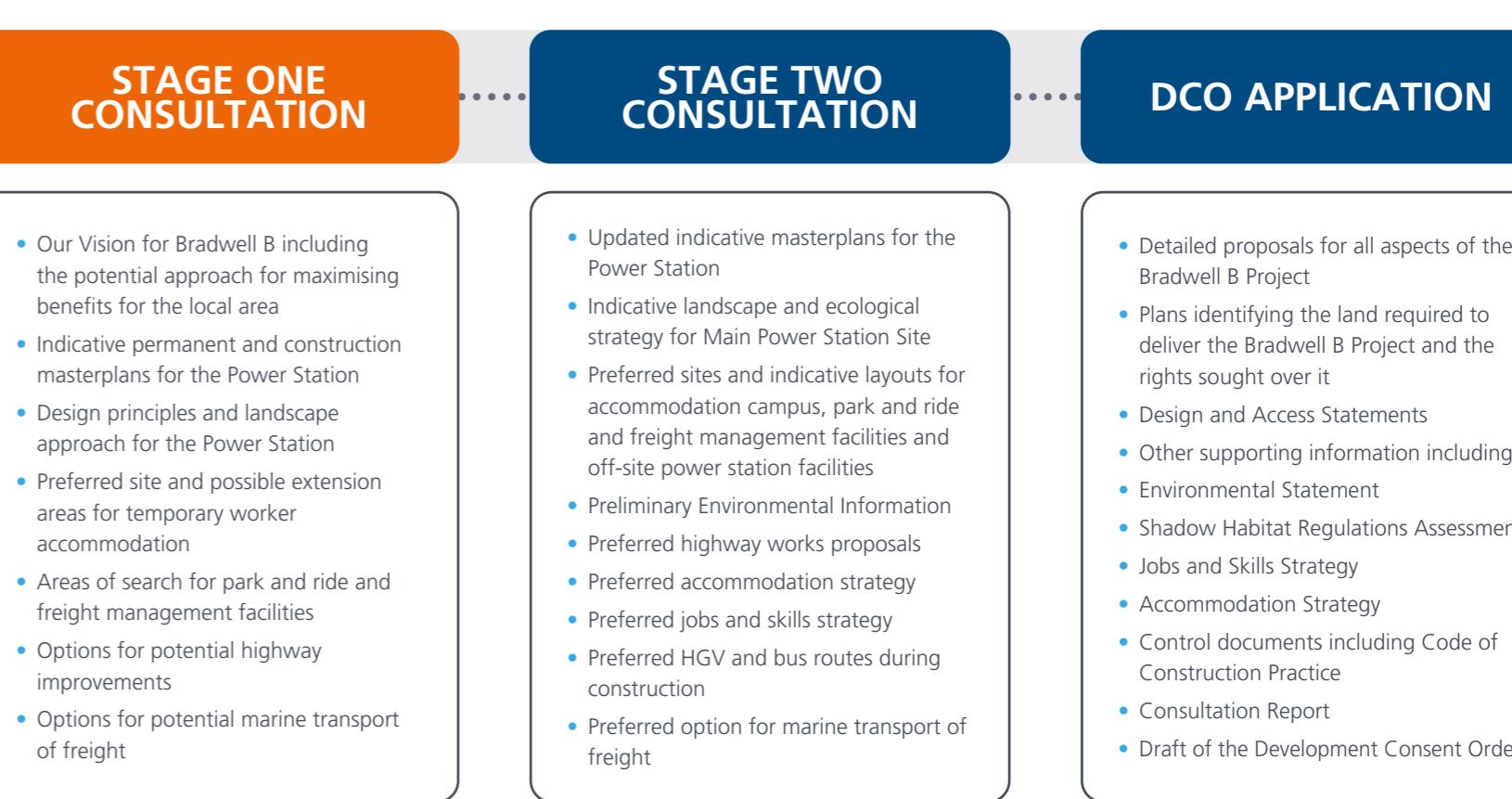
If you are unable to attend our exhibitions, copies of the exhibition boards and other consultation materials are available to download from our website: www.bradwellb.co.uk.

Copies of all the consultation documents are available to take away on USB memory sticks and to view in hard copy at our exhibitions. Hard copies will be available to view during normal office hours in local libraries, town halls and other locations.

If you require the consultation information in a different format for accessibility reasons, please call 01621 451 451 or email feedback@bradwellb.co.uk.

Next steps

Following Stage One consultation, we will consider all responses and feedback we have received and use it to inform the development of our plans. We will then share the preferred options in a Stage Two consultation which will include identification of land likely to be affected by the proposals. Later consultation will also include more detailed environmental information.



Stakeholder Engagement

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