

The Great Grid Upgrade

North Humber to High Marnham

National Grid Electricity Transmission needs to upgrade the electricity grid between the north of England and the Midlands by building North Humber to High Marnham, a proposed new overhead line.



Scan the QR code to be directed to our website. Here you can view all consultation materials, our interactive map and the online feedback questionnaire.

Our proposals will contribute to the UK's commitment to connect 50 GW of offshore wind by 2030 and 70 GW of solar power by 2035. They will also help to meet government targets to reduce carbon emissions, increase our country's energy security, and carry cleaner and more affordable energy to where it is needed.

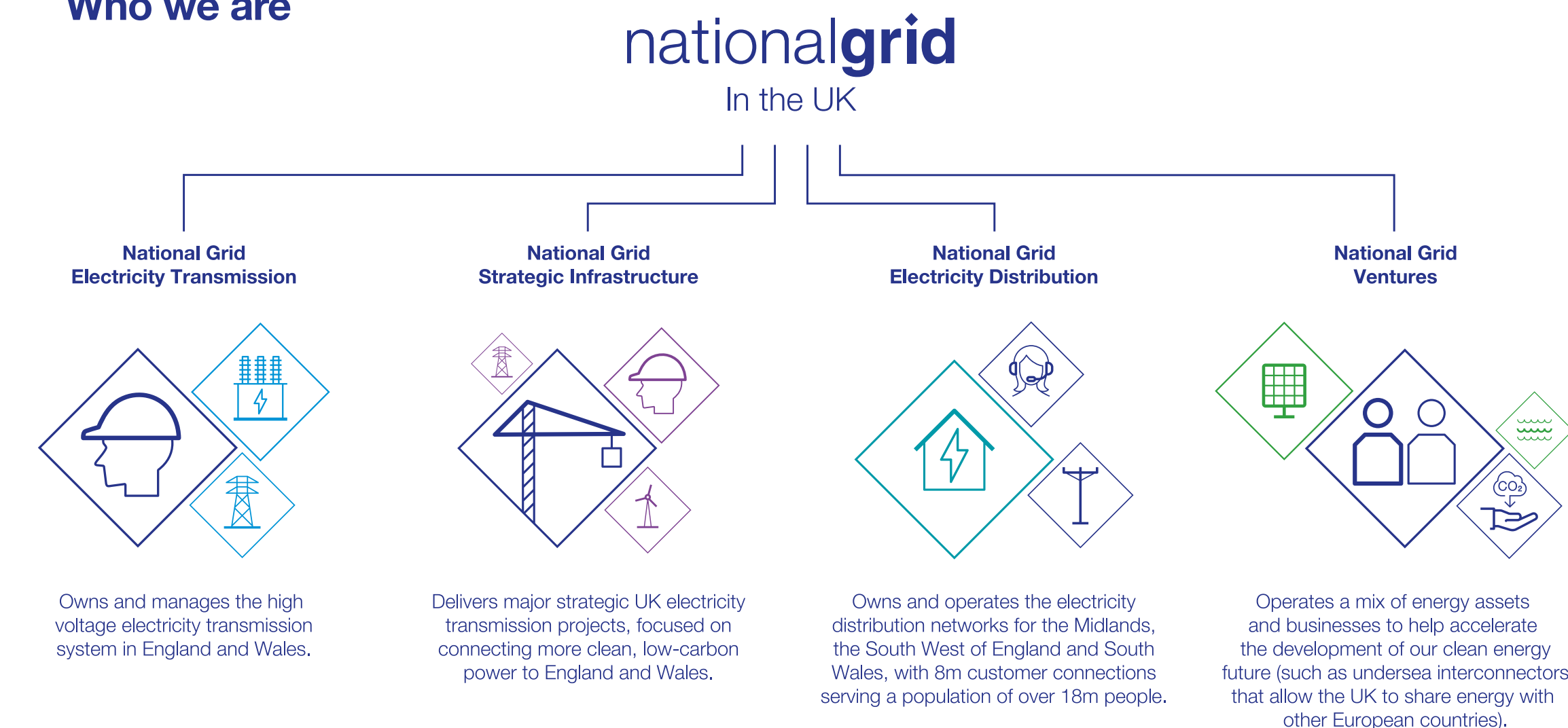
Our consultation

We'd like to hear your thoughts about our proposals as we finalise our plans and prepare to submit our application for development consent. Our consultation runs until 11:59pm on **Tuesday 15 April 2025**.

At today's event you can learn more about our proposals and speak to members of our team. There are also a range of other ways that you can take part in the consultation:

- visit our website at nationalgrid.com/nh-hm, where you will find all the maps, technical documents and materials produced as part of this consultation
- **attend a webinar** where you can learn more about our proposals. Details on how to sign up for a webinar are available on our website or by contacting us by email or phone
- **complete and return a feedback questionnaire**. You can do this online through our project website, in person at today's event, or by sending your feedback questionnaire or a letter to Freepost NH TO HM (no stamp required).

Who we are



What is The Great Grid Upgrade?

As we transition to clean, green energy, we need to build new infrastructure, as well as upgrading the existing grid, to bring this power from where it's generated to where it's needed in homes and businesses.



Contact us

nationalgrid.com/nh-hm

contact@nh-hm.nationalgrid.com

0808 189 1346

Call us to request paper copies of the materials or materials in a different format

The need

North Humber to High Marnham would help make sure the grid is ready to transport more secure, cheaper and cleaner forms of energy. It's part of The Great Grid Upgrade – the largest overhaul of the electricity network in generations.

The network today

Like much of the high voltage electricity transmission network across the country, the network between the north of England and the Midlands was largely built in the 1960s, carrying electricity from Scotland and the north, and connecting coal fired generation in the Aire and Trent Valleys with the main population centres. The way electricity is generated has now changed, so we need to make changes to the grid.



Increasing network boundary capability

To help show current and future demands on the electricity network, we use the concept of network boundaries. A boundary splits the system into sections and shows where there are high power flows between different parts of the network. When flows across a network boundary are forecast to be above the capability of the network, we have two options:

- pay electricity generators to reduce the energy they produce in one area while paying others elsewhere to generate. These are called 'constraint payments'
- increase the capability of the network to allow more electricity to flow.

The B8 network boundary runs east to west and separates the northern generation zones, including Scotland, northern England and north Wales, from the Midlands and southern demand centres. Over the next decade, various works to upgrade existing infrastructure are planned to increase capability over this boundary.

These works will increase the amount of electricity that can flow across the boundary to around 16 GW, but this won't be enough to accommodate the expected north-south power flows, with up to 28 GW of boundary transfer capability needed by 2030.

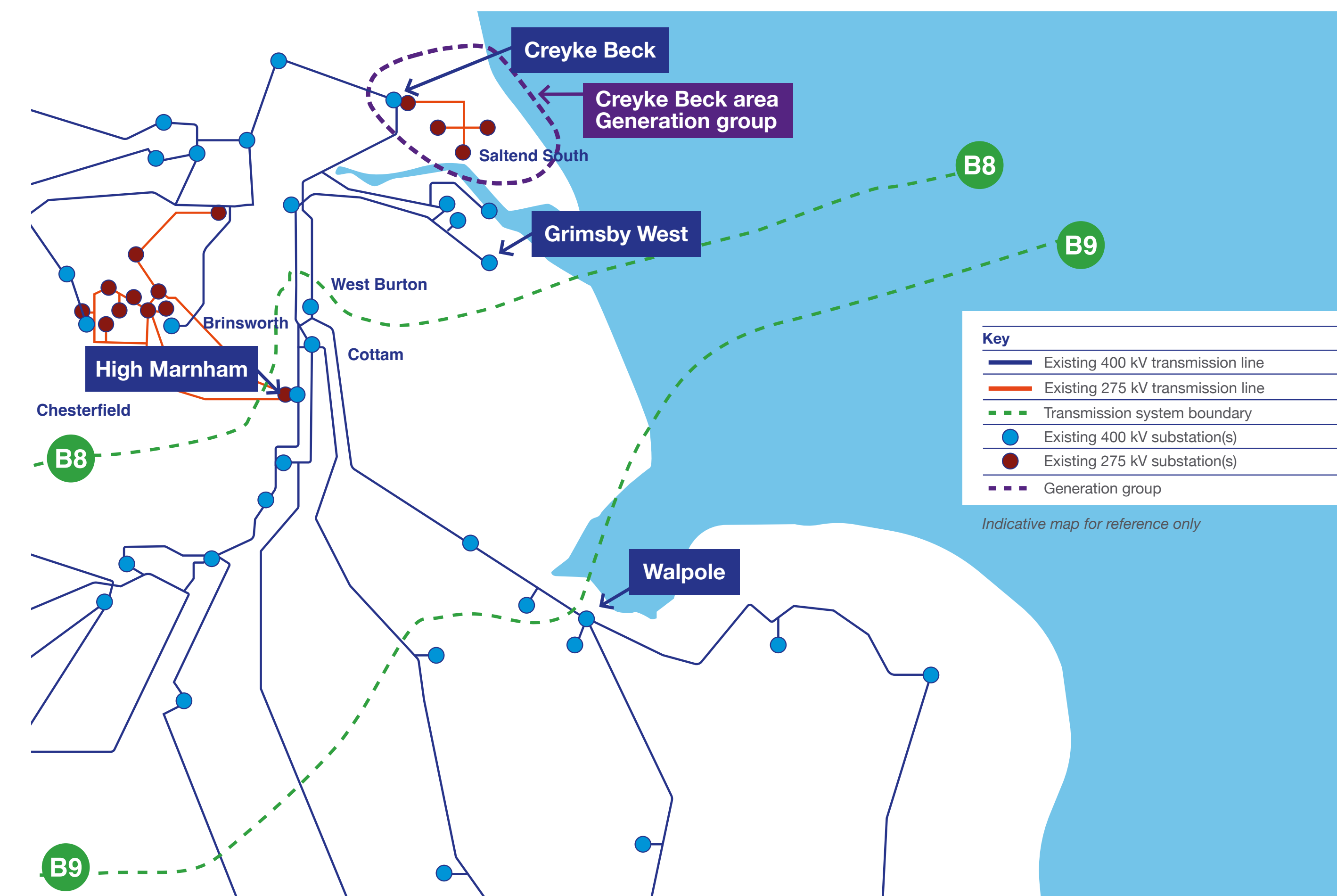
Why does the network in this region need upgrading?

Small-scale change isn't enough – upgrading the existing network as it is today (such as through replacing cables to carry more power) won't be enough to meet future energy demand whilst meeting the required standards

Demand for energy is rising – as the way we power our homes, businesses, industry and transport changes, demand for electricity is set to significantly increase

How we generate electricity is changing – the existing network was built to connect coal fired power stations with the main centres of population. In the future, much more of our energy will come from clean sources of energy, including out at sea

Net zero – the UK has set a world-leading target to achieve net zero carbon emissions by 2050. This means that we will remove the same amount of greenhouse gases from the atmosphere as we will produce.



Our proposals

Our proposals include a new 400 kV overhead electricity transmission line approximately 90 km in length between two proposed new substations, Birkhill Wood 400 kV substation and High Marnham 400 kV substation.

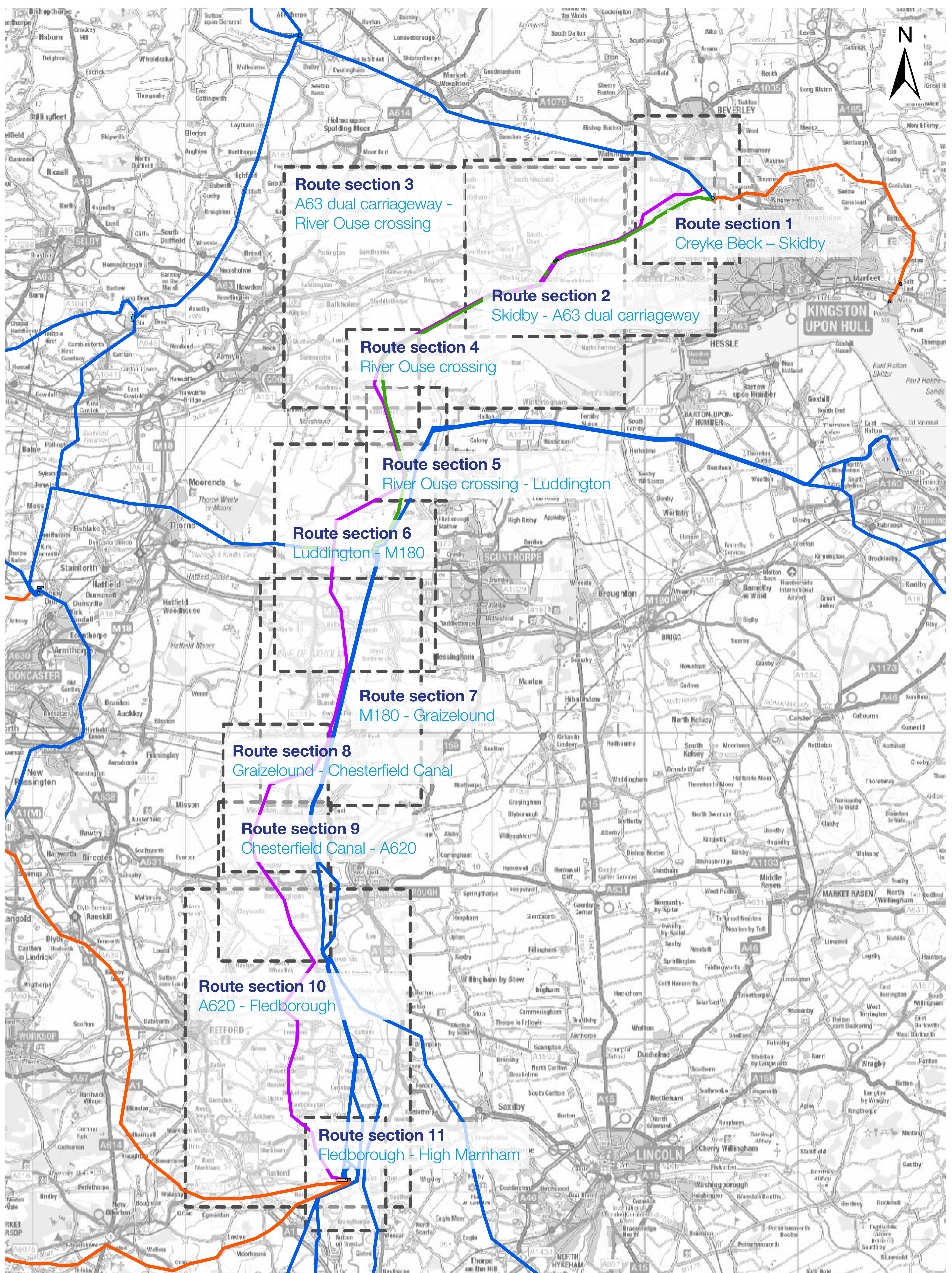
The key elements of our plans are:

-  approximately 90 km of new overhead line between the proposed new Birkhill Wood and High Marnham 400 kV substations
-  replacement and realignment of a section of the existing overhead lines, to allow connection into the proposed new High Marnham substation
-  replacement and realignment of a section of the existing 400 kV overhead line between Brantingham and east of Broomfleet, and the modification of a section of the overhead line route between Ealand and west of Keadby
-  other works, such as temporary diversions on existing overhead line routes, temporary access routes, highways works, construction compounds and work sites
-  new 400 kV substations at Birkhill Wood (gas insulated switchgear) and High Marnham (air insulated switchgear)
-  environmental mitigation, compensation and enhancement works, including the delivery of a minimum of 10% biodiversity net gain. This means that our work needs to result in more, or better quality, natural environment than before development.
-  replacement and realignment of a section of the section of the existing 400 kV overhead line to allow connection into the proposed new Birkhill Wood substation

Substation technology: There are primarily two different types of substations – one uses air to insulate the electrical components (air insulated switchgear, or AIS) and the other uses gas to insulate the electrical components (gas insulated switchgear, or GIS). AIS substations require more space between the equipment, so occupy a larger footprint than the GIS equivalent. The decision on which type of substation we construct depends on several factors including availability of space, potential environmental impacts, cost, safety and maintenance requirements.

Project map

Our proposals have been split into 11 route sections to make it easier for people to give feedback about any particular areas they may wish to comment on. The sections are the same as used at our non-statutory consultation.



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Key:

- Indicative new overhead line
- Existing overhead line not affected
- Existing overhead line to be reconducted
- Existing overhead line to be dismantled
- Proposed substation
- 400 kV overhead line
- 275 kV overhead line
- Existing 400 kV substation
- Existing 275 kV substation

Our proposals in Route sections 1 – 3 (incl. Birkhill Wood substation)



A line swap-over is proposed between Route sections 2 and 3. This is where a length of existing overhead line is removed, allowing the two newly formed 'ends' of existing overhead line to be connected to two lengths of new overhead line. The two resultant routes would then both comprise of lengths of newly built and existing overhead line.

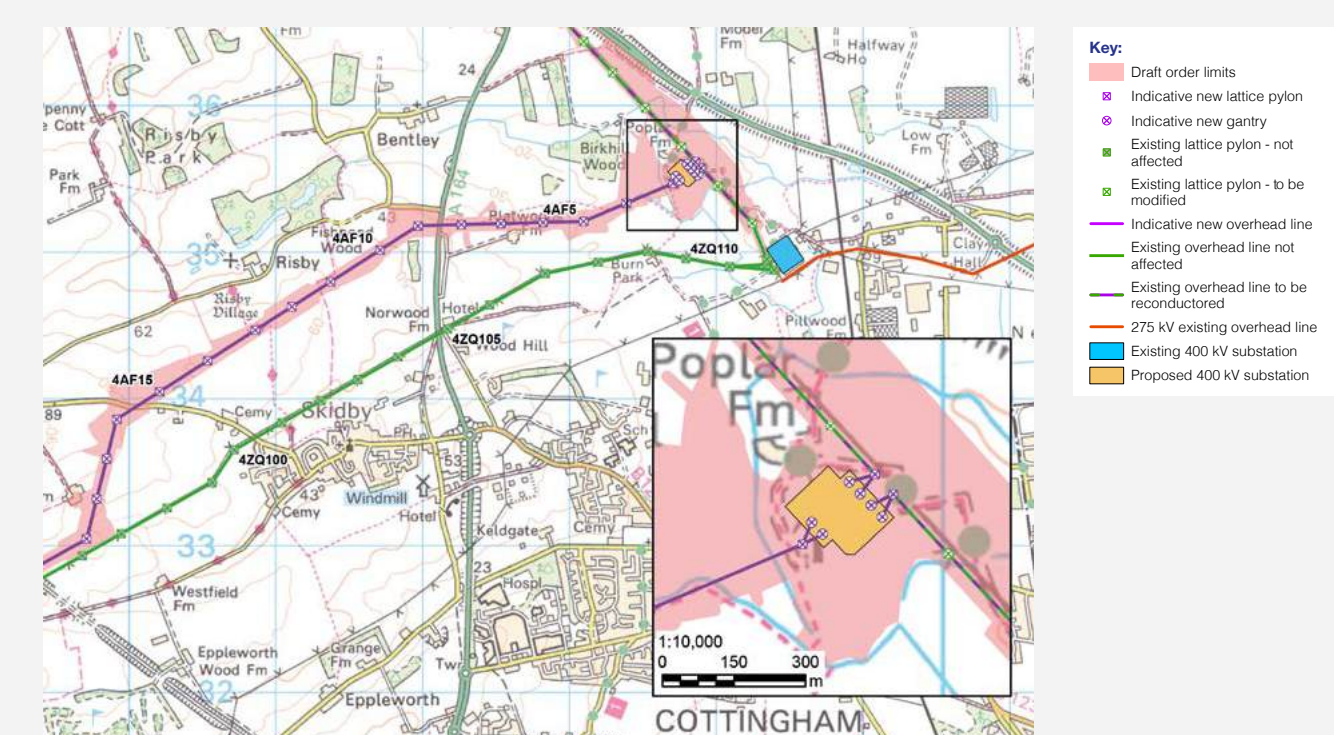
Birkhill Wood substation

A new substation is required approximately 700 metres to the north of the existing Creyke Beck substation. This substation will connect new sources of electricity, including the proposed Dogger Bank South and Dogger Bank D offshore wind farms, to the grid. A separate planning application under the Town and Country Planning Act will be required for the substation, meaning that we did not include it in our proposals at previous consultations. However, we have decided to now include it within our proposals for North Humber to High Marnham. You can provide feedback on the substation in this public consultation.

Route section 1 Creyke Beck - Skidby

From the new Birkhill Wood substation, the preferred alignment routes west for approx. 1.6 km to the crossing of A164 Beverley Road south of Jillywood.

The preferred alignment is then routed to the southwest for a further 1.5 km, passing to the north of Platwoods Bar Plantation and Skidby and south of Dunflat Road.

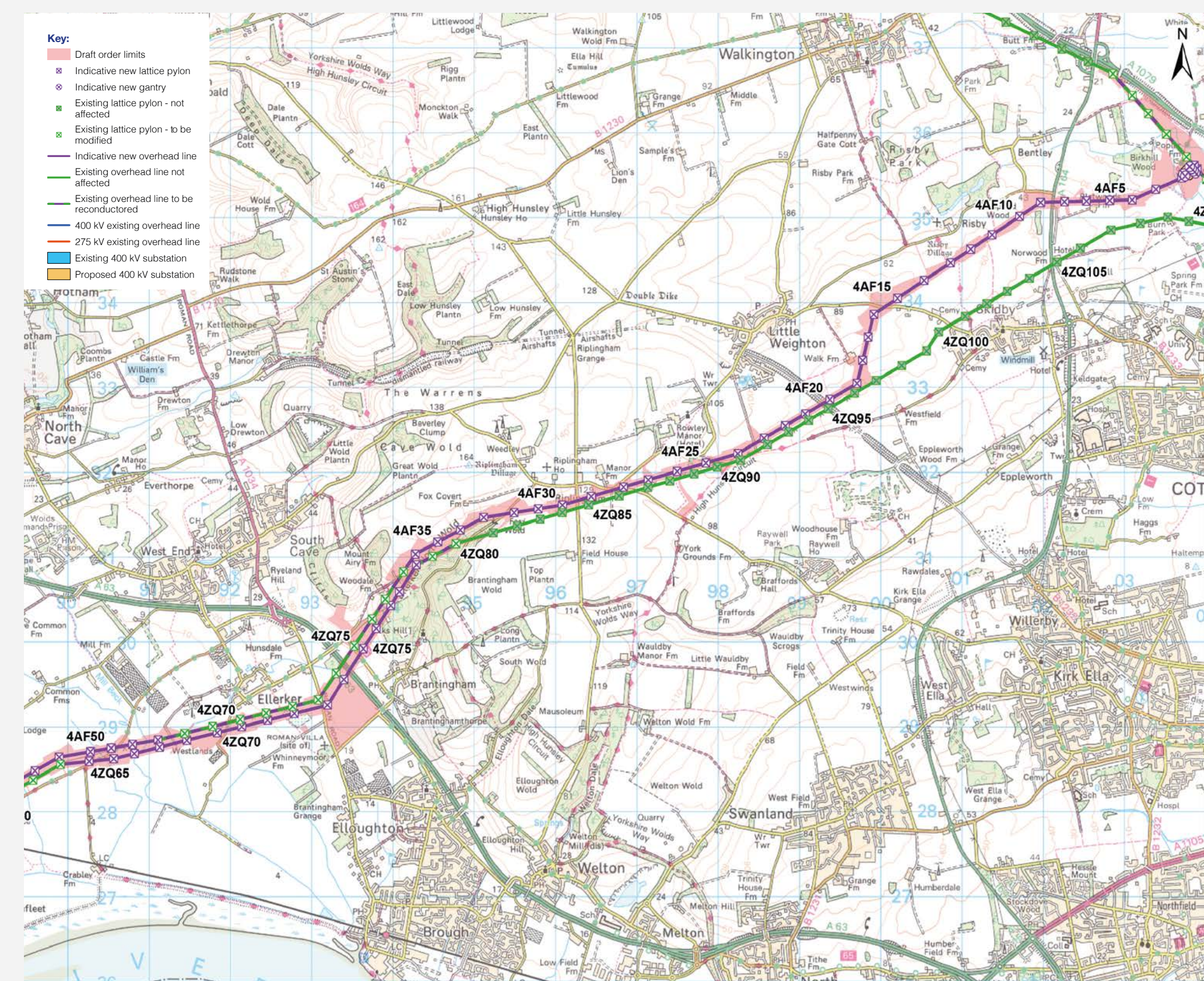


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Route section 2 Skidby – A63

The preferred alignment continues southwest for approx. 1.1 km, crossing Little Weighnton Road to proposed pylon 4AF16. From here, the alignment is routed south for approx. 850 m before running in close parallel with the existing overhead line for approx. 6.1 km. The alignment then routes north of Brantingham Dale SSSI to proposed pylon 4AF37.

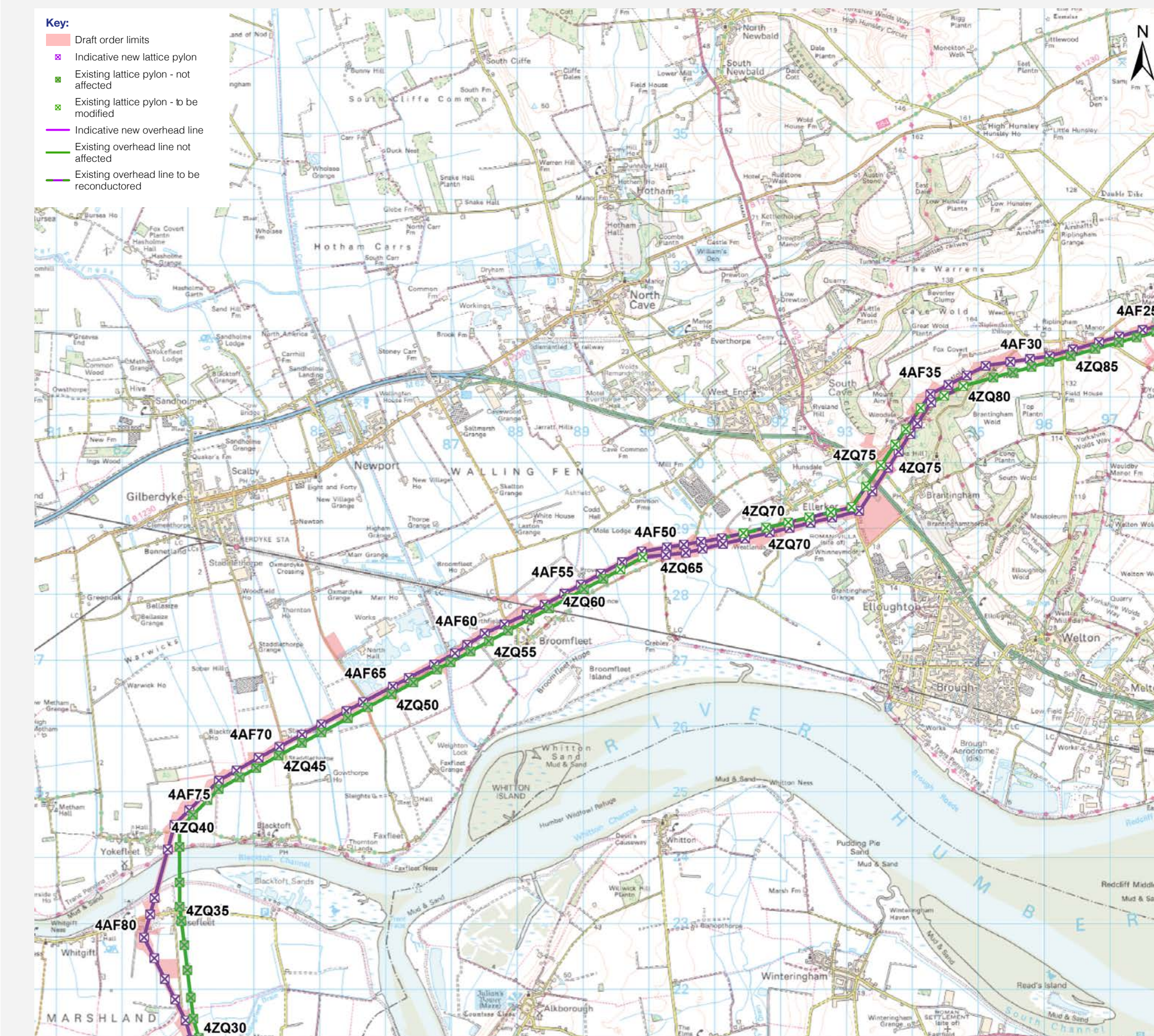
At the end of this Route section, the preferred alignment transfers onto the existing pylons, once the existing circuits have been transferred onto new pylons to the south.



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Route section 3 A63 – River Ouse crossing

The preferred alignment swaps onto the existing overhead line to the south and west of Ellerker. The existing line in this location swaps onto the new alignment, south of and close parallel to the existing pylons. The existing and new line then swap back before Broomfleet.



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Our proposals in Route sections 4-7

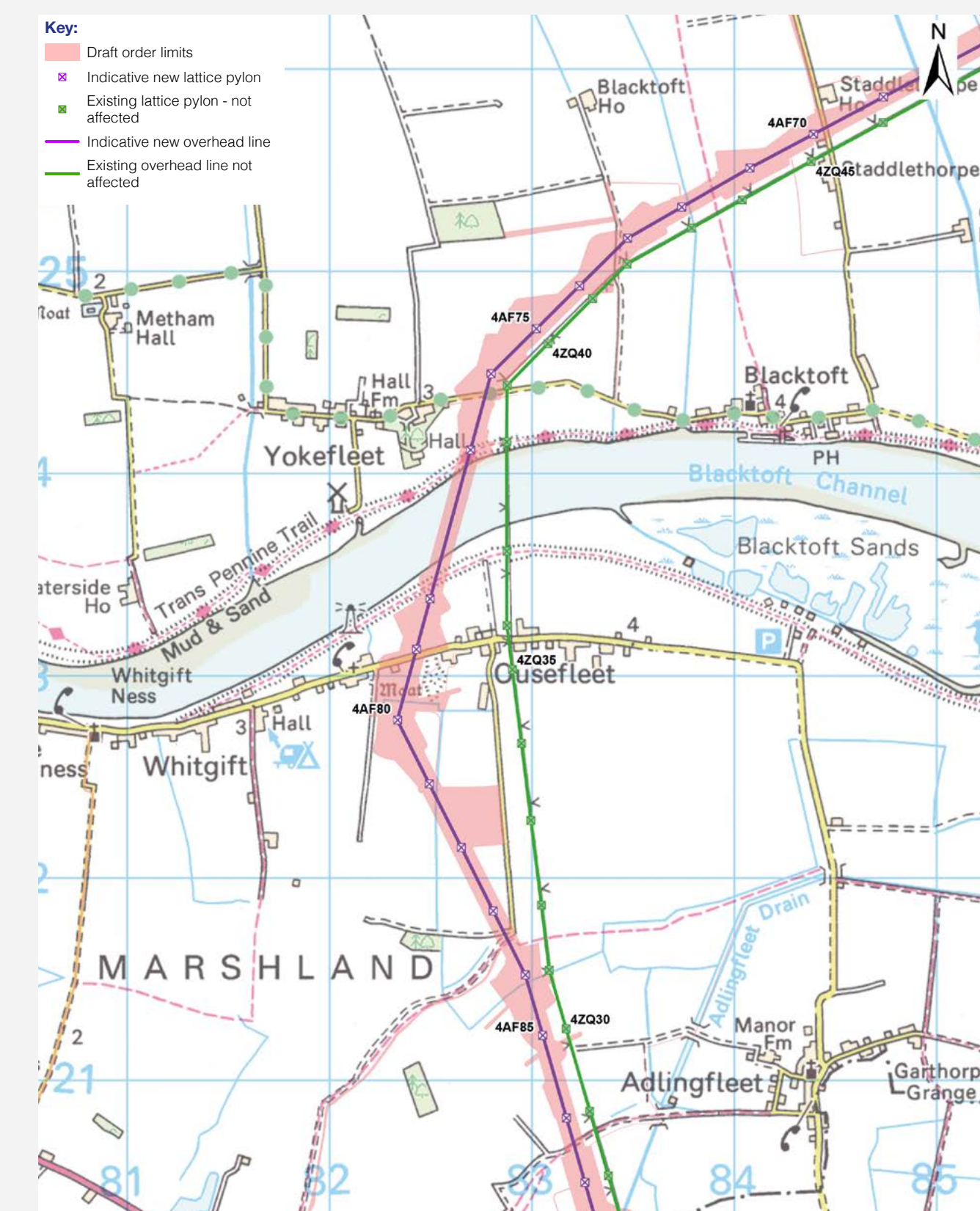


In Route section 6 we are proposing a diamond duck under crossing, which is where the existing ZDA overhead line will be modified by replacing two existing pylons with two new pylons and two sets of lower height structures. Each new pylon/structure pair will carry an individual electrical circuit so that the proposed new overhead line can maintain sufficient electrical safety clearance to the existing ZDA overhead line.

Route section 4 River Ouse crossing

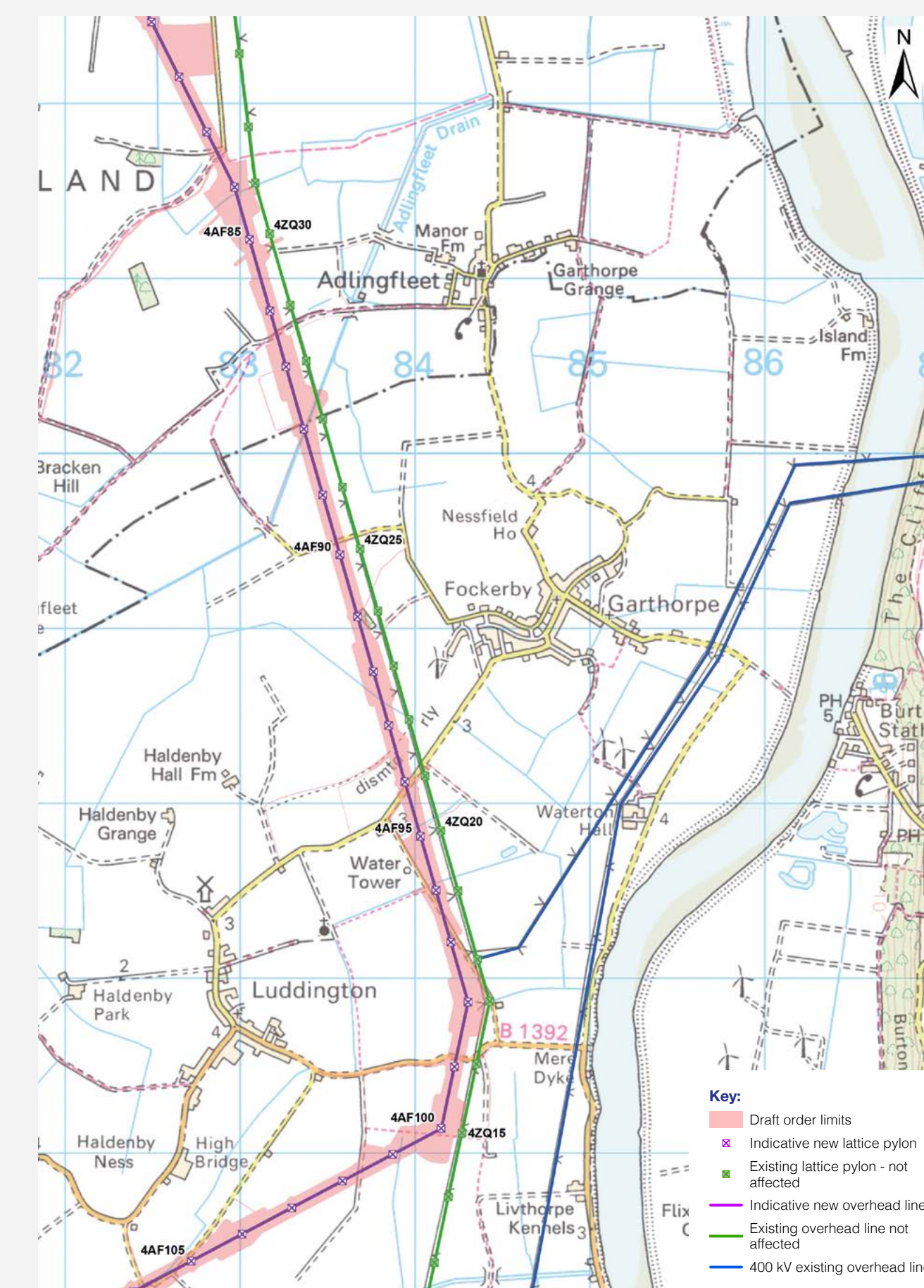
From the start of the Route section, the preferred alignment runs in a general southerly direction, crossing the River Ouse and Townsend Causeway between Ousefleet and Whitgift.

The preferred alignment remains broadly parallel with the existing 400 kV overhead line, but deviates around Ousefleet to avoid oversailing residential properties.



Route section 5 River Ouse crossing - Luddington

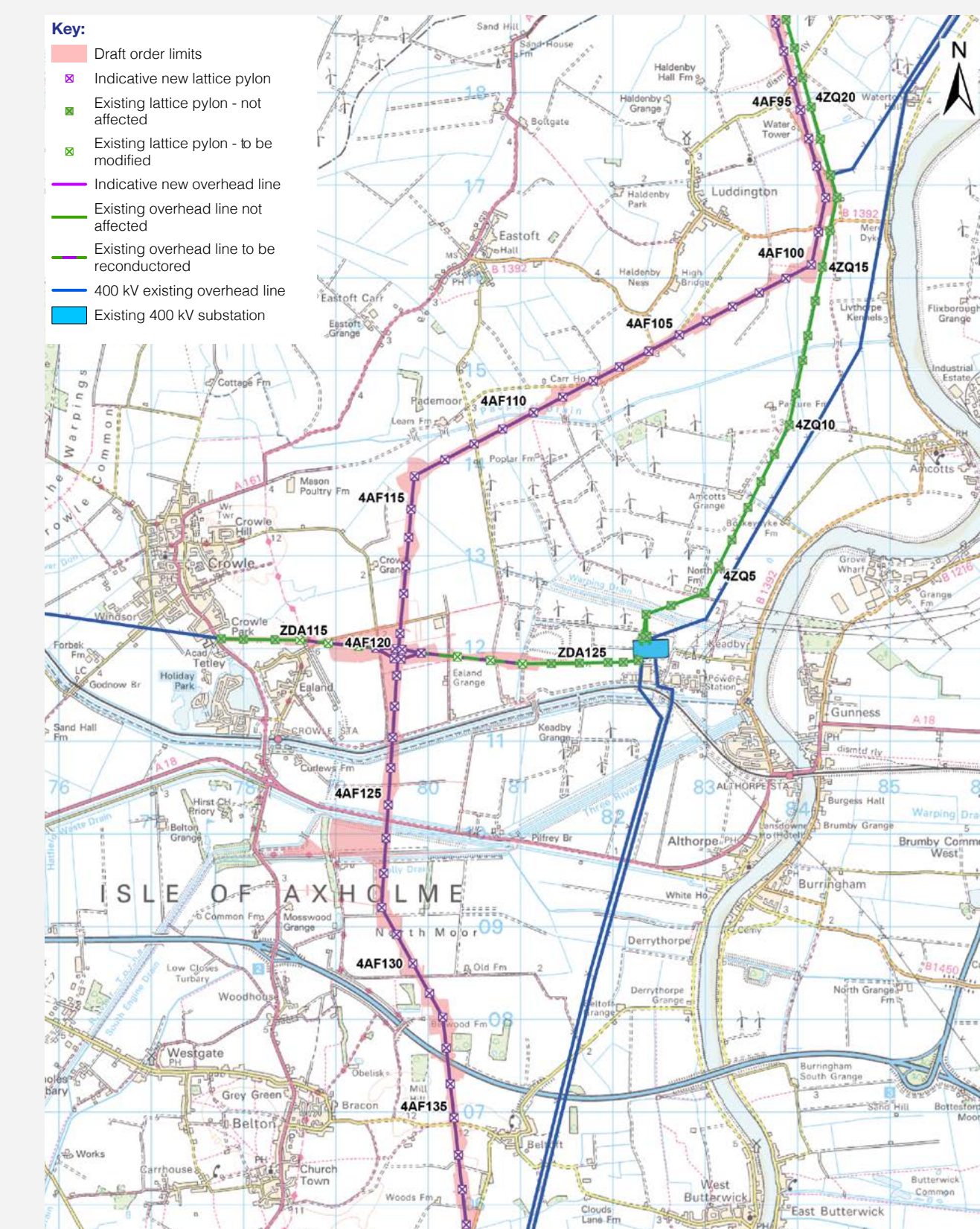
From the start of the Route section, the preferred alignment is routed broadly southeast, running west of Garthorpe and east of Luddington before finishing at Meredyke Road.



Route section 6 Luddington – M180

The preferred alignment is routed southwest, running south of Luddington and Eastoft for approx. 4.8 km to proposed pylon 4AF114.

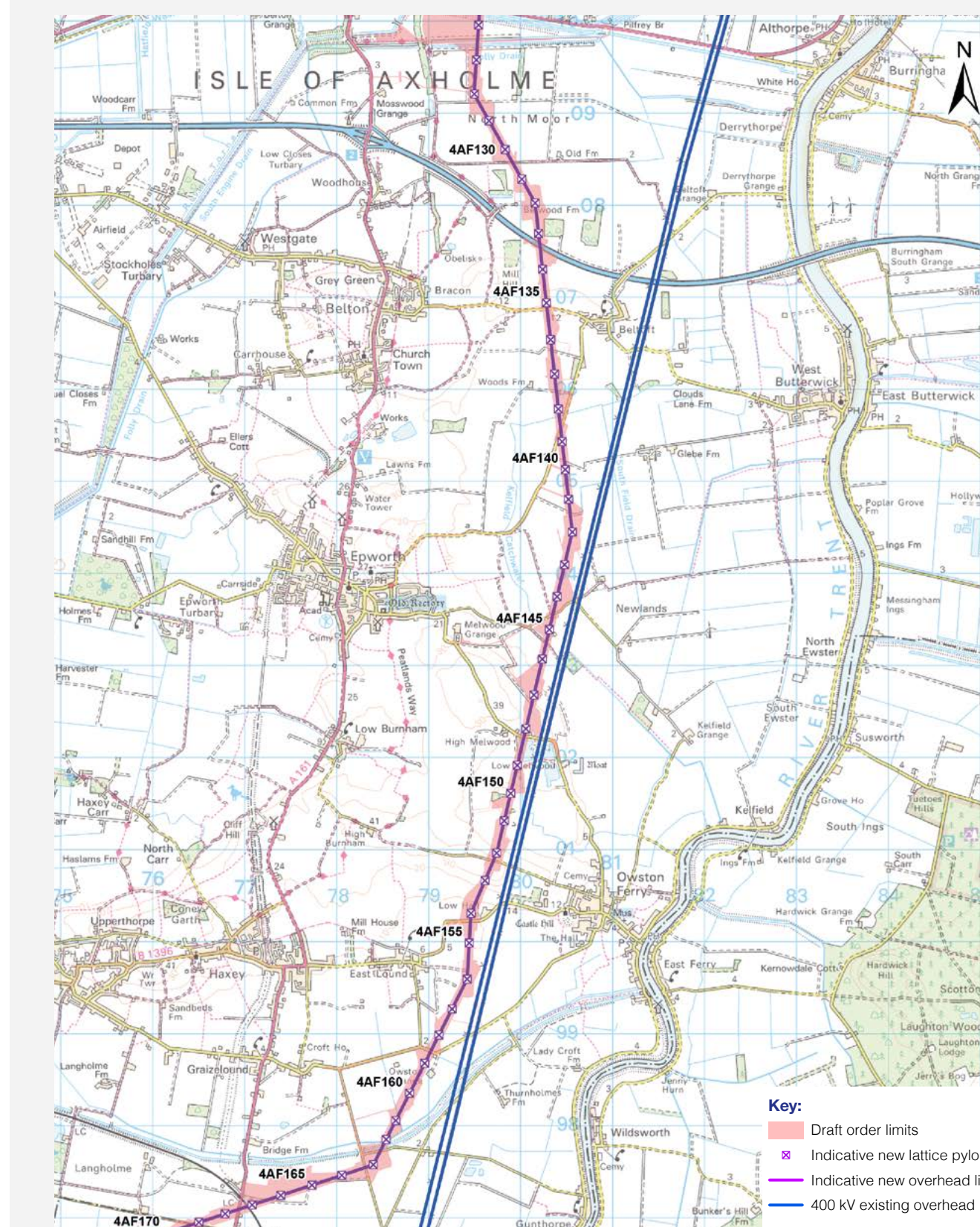
The preferred alignment then heads south, running east of Crowle for a further 6.4 km and crossing Outgate, the existing overhead line, the Sheffield and South Yorkshire Navigation and the A18 before ending at the M180.



Route section 7 M180 - Graizelound

From the M180, the preferred alignment is generally routed south, running west of Beltoft and Owston Ferry and east of Belton, Epworth, East Lound and Graizelound.

Between proposed pylons 4AF142 and 4AF156, the preferred alignment runs in close parallel with the existing 400 kV overhead line for approx. 5 km.



Our proposals in Route sections 8-11 (incl. High Marnham substation)

High Marnham substation

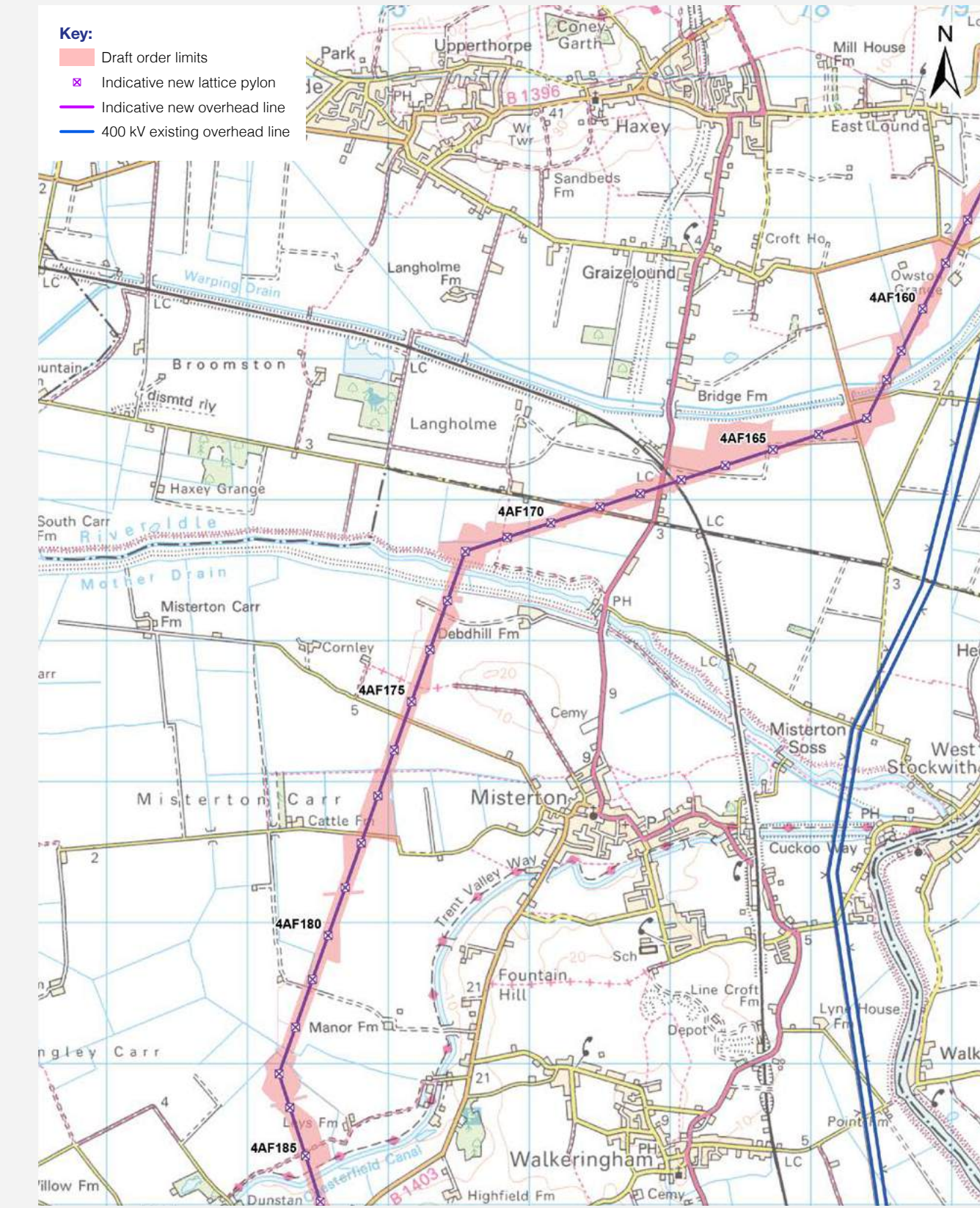
A new substation is proposed to the west of the former High Marnham power station. This substation will connect several new customers and play an important role in building a more secure and resilient energy system.

Planning permission under the Town and Country Planning Act will be required for the substation, meaning that it did not feature in our proposals at previous consultations. We have decided to now include it within our proposals to demonstrate that our project can be delivered and can connect to the network.

Route section 8 Graizelound – Chesterfield Canal

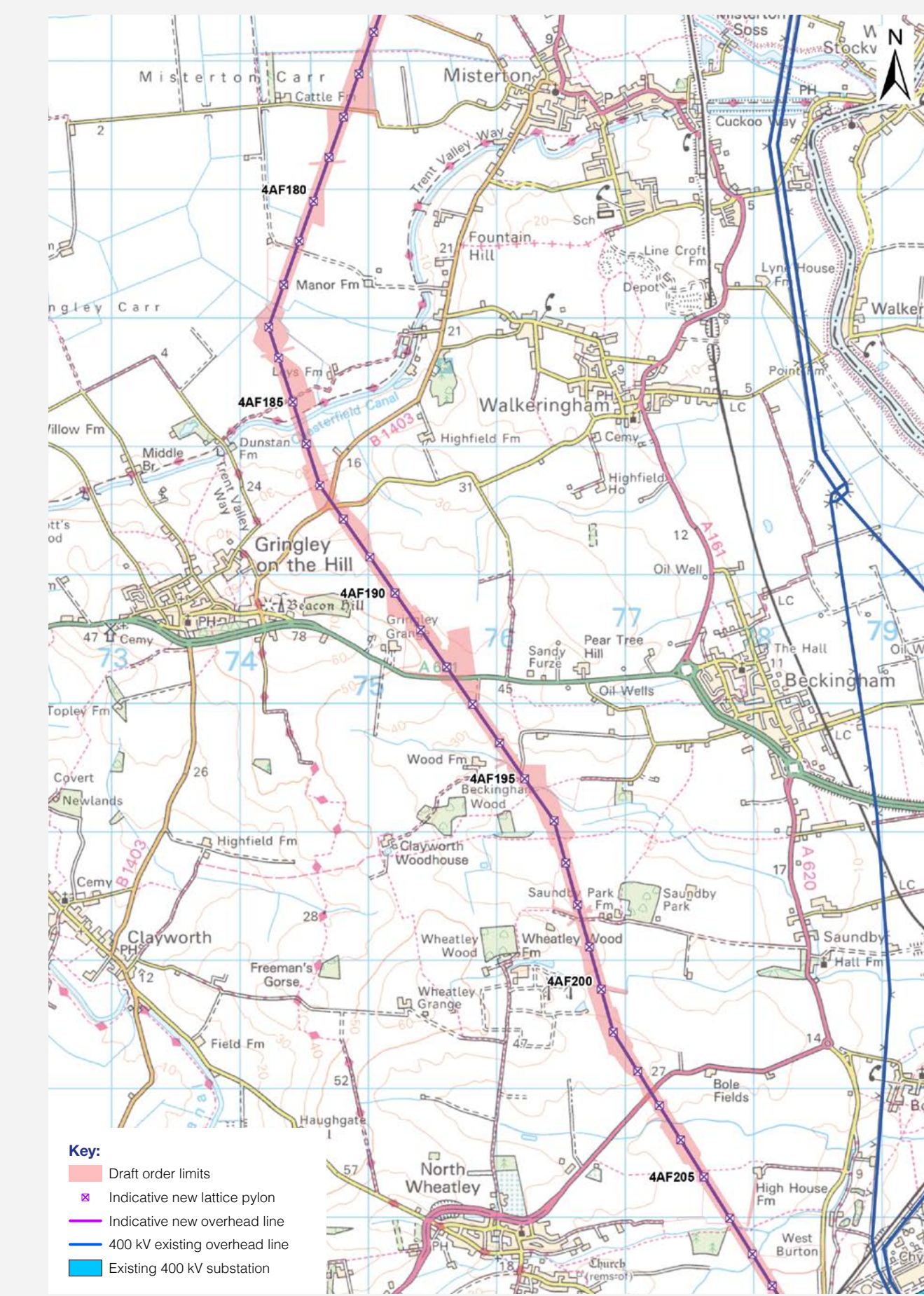
From the start of the Route section at Stockwith Road, the preferred alignment is routed generally west for approx. 3 km, crossing a railway line and Tindle Bank Road to proposed pylon 4AF172.

From proposed pylon 4AF172, the preferred alignment is then routed generally south for approx. 4.6 km from the west of Misterton to the Chesterfield Canal.



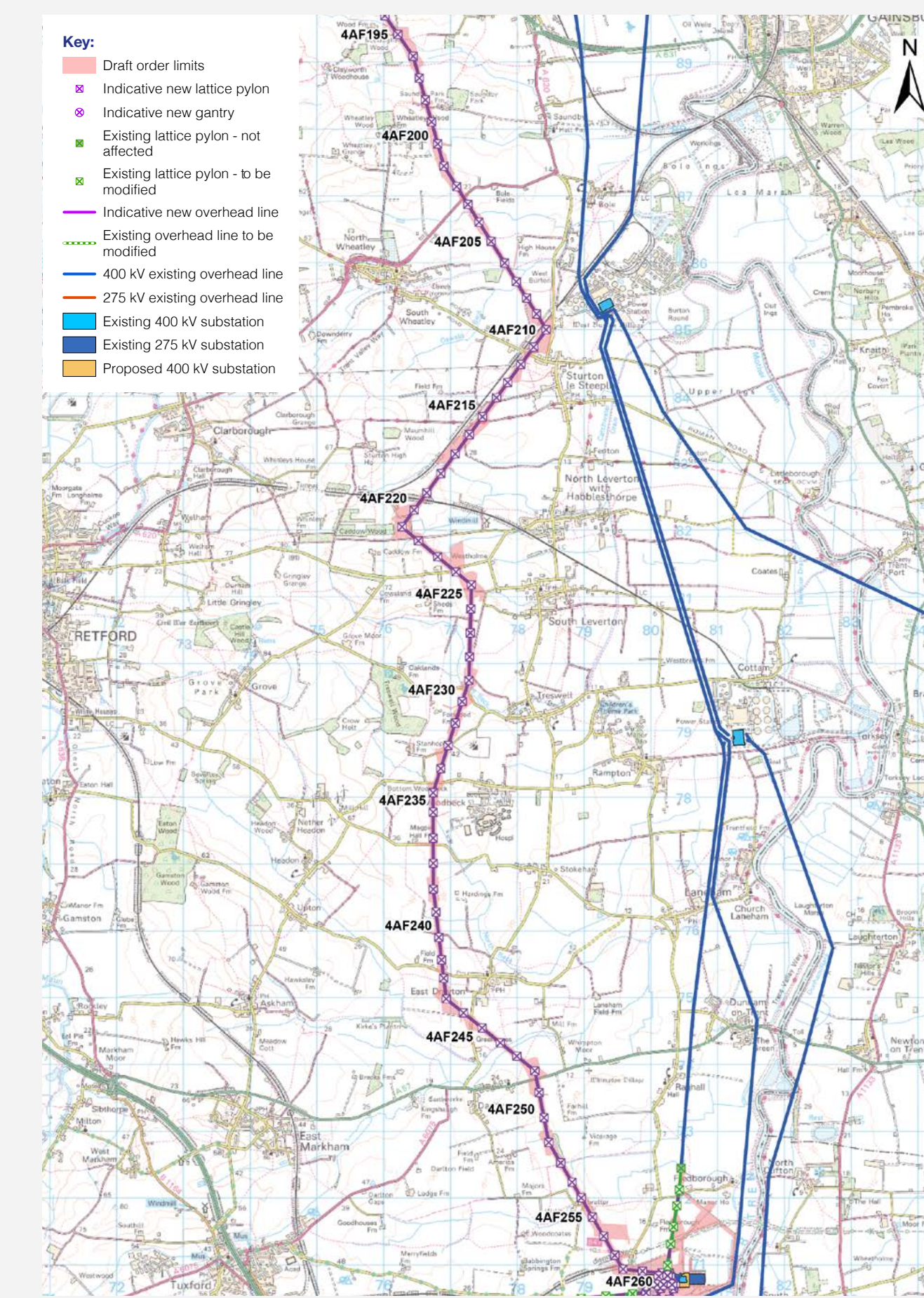
Route section 9 Chesterfield Canal – A620

The preferred alignment is routed in a general southeasterly direction for approx. 6 km to the west of Walkeringham and Beckingham and east of Gringley on the Hill to the end of the Route section at the A620.



Route section 10 A620 - Fledborough

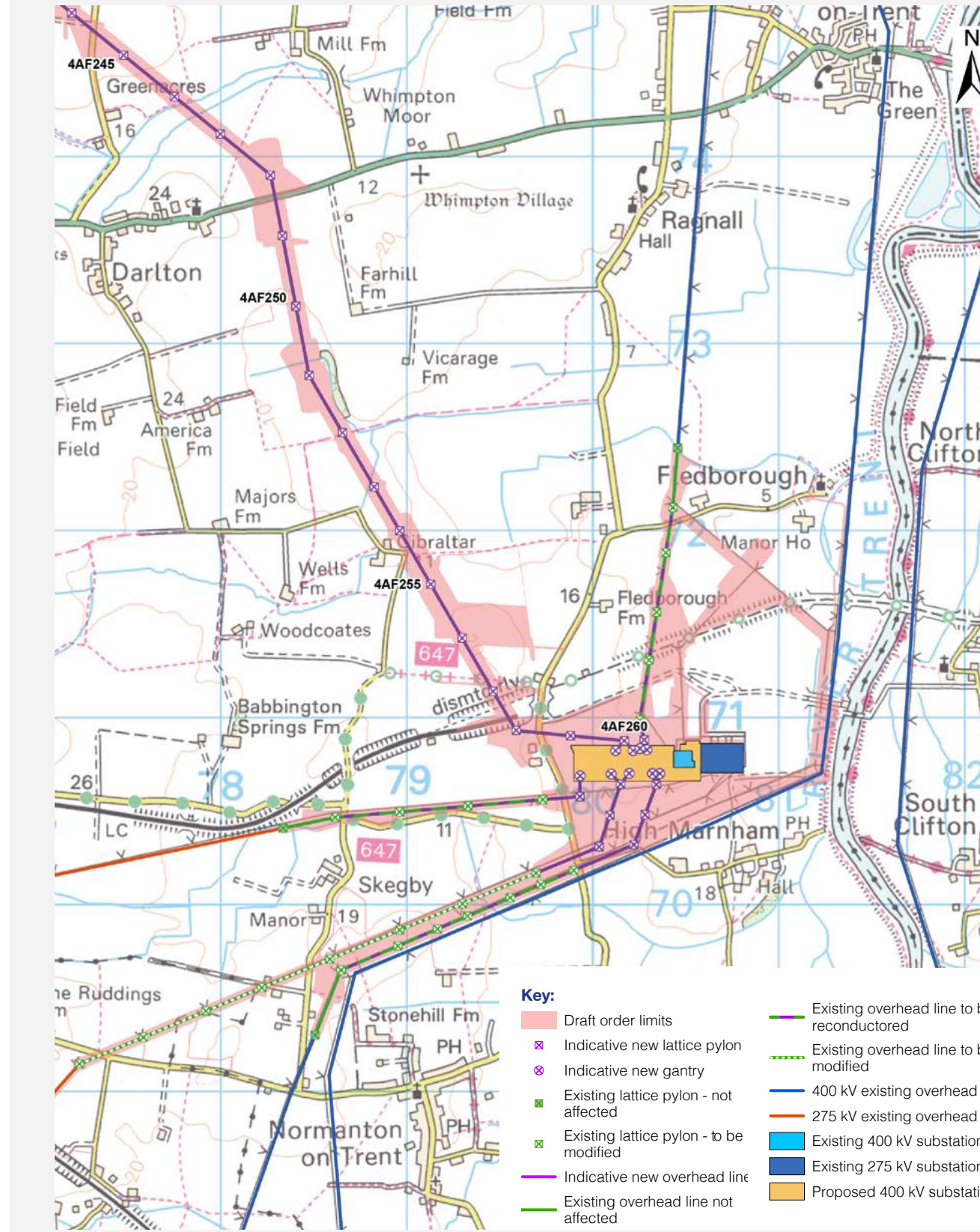
From the A620 Gainsborough Road, the preferred alignment is routed southeast to the east of North and South Wheatley for approx. 2.3 km to proposed pylon 4AF209 north of Sturton le Steeple.



Route section 11 Fledborough – High Marnham

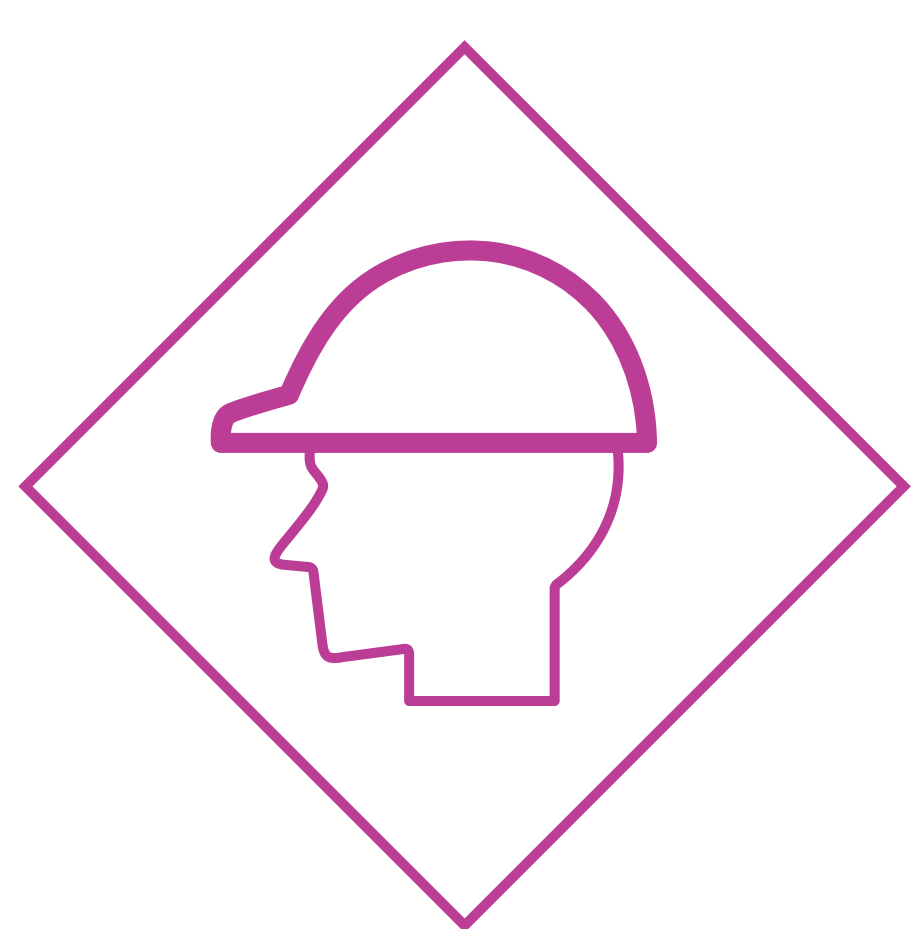
The preferred alignment is routed southeast for approx. 0.5 km, crossing the disused railway to the west of the Marnham Railway Yard Local Wildlife Site towards proposed pylon 4AF258.

From here, the preferred alignment is routed east for approximately 0.5 km to the proposed High Marnham Substation.

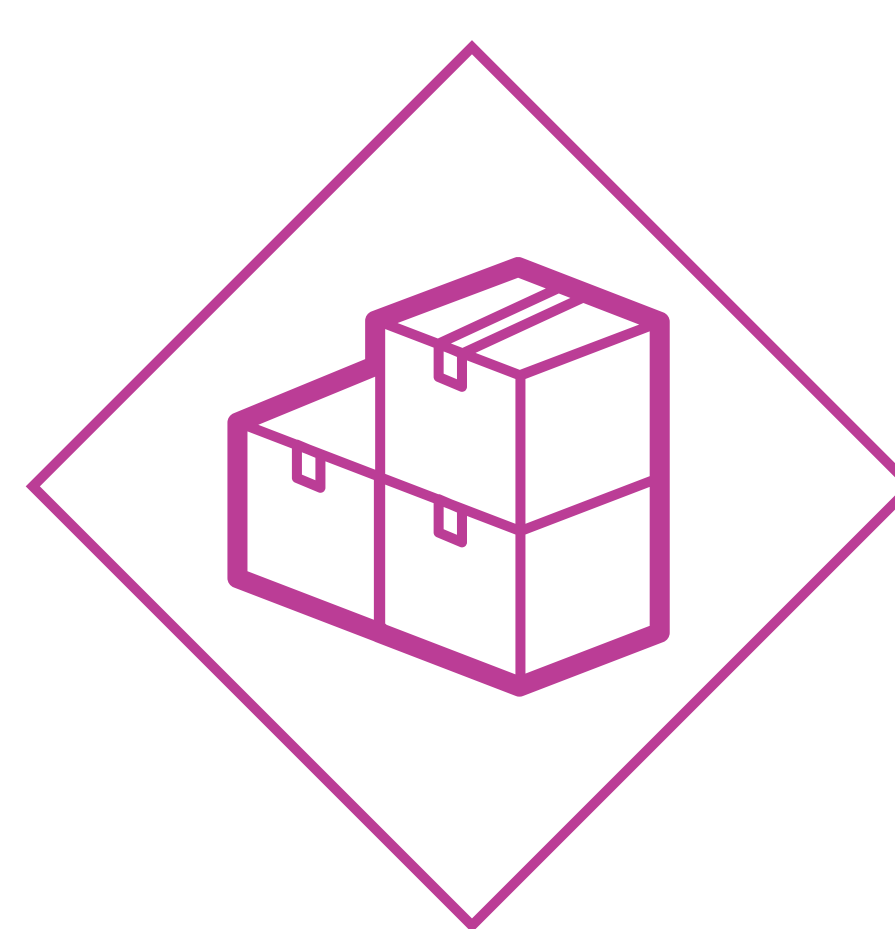


Construction

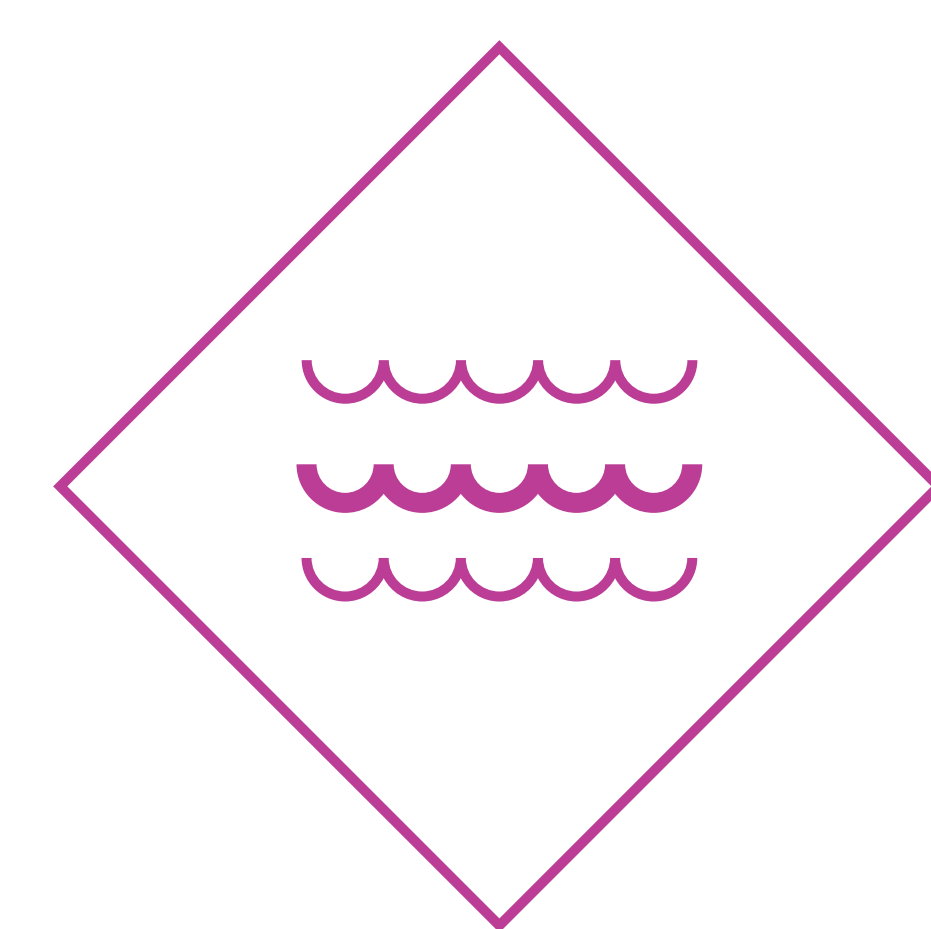
Should consent for North Humber to High Marnham be granted, we would expect construction to start in 2028, with the project becoming fully operational in 2031. The construction phase would involve a range of temporary construction activities, including:



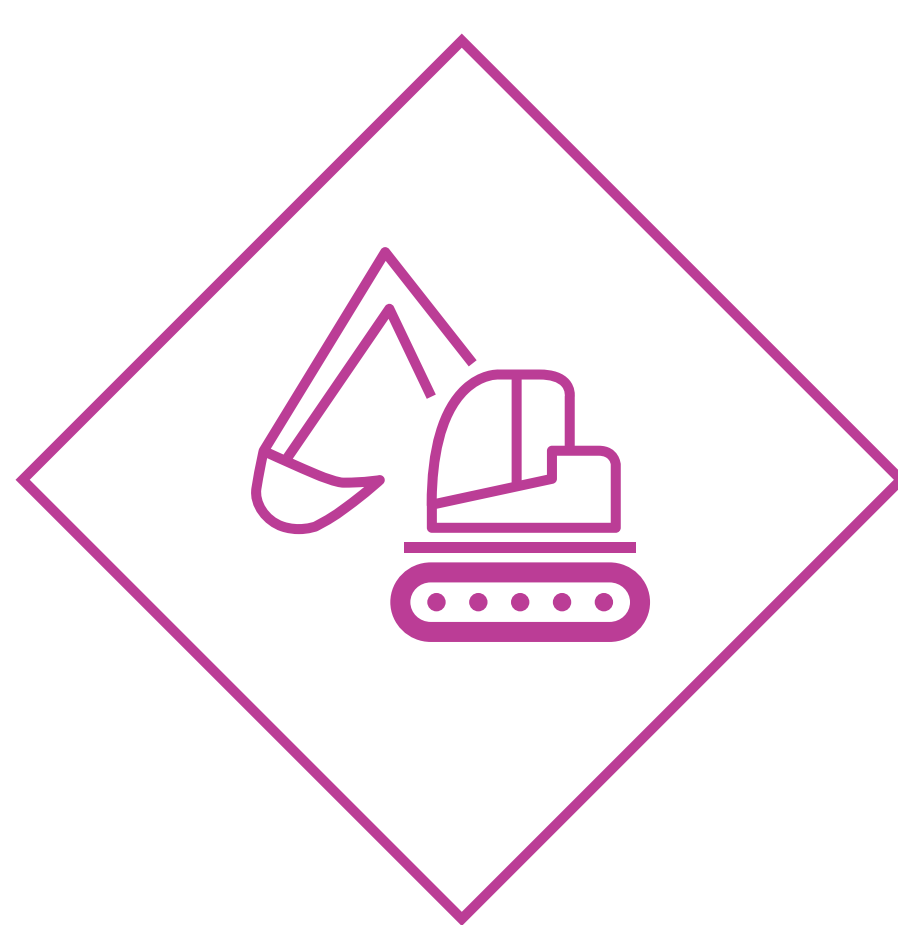
Working areas for construction



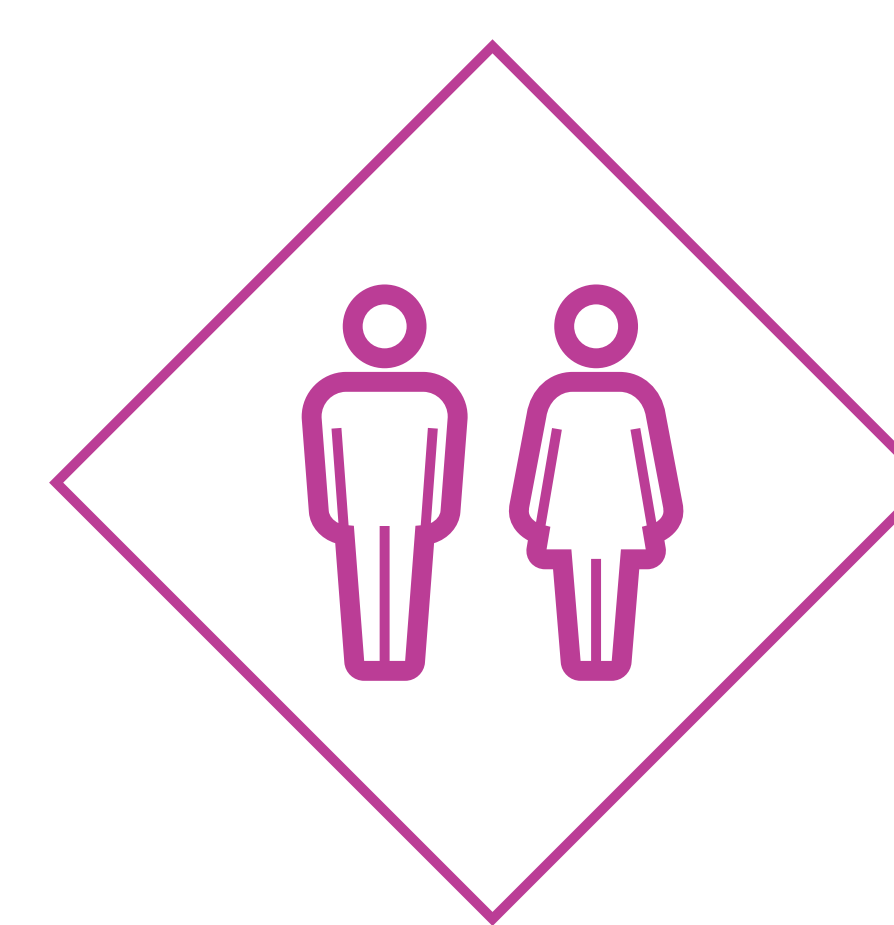
Site offices and storage



Crossing points across watercourses



Construction vehicular accesses and haul roads

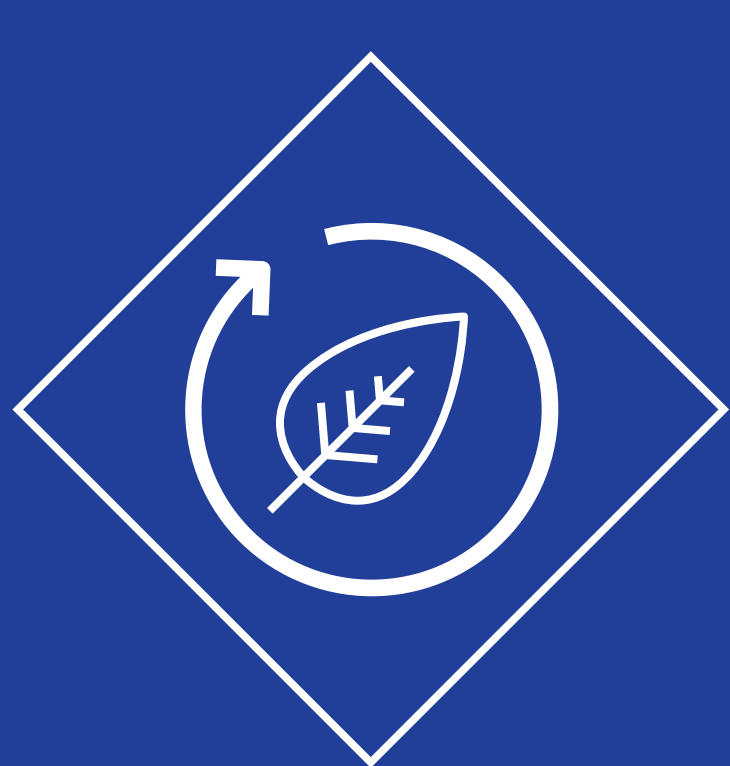


Temporary diversions of public rights of way

Managing and mitigating effects

Feedback from all stages of consultation, along with outputs from our ongoing technical and environmental assessments, will help us further refine our proposals as we prepare our development consent order application.

We use best practice environmental impact assessment techniques to assess the possible effects of our work and identify opportunities for mitigation measures, including the delivery of biodiversity net gain.



Protecting the environment

Our detailed environmental surveys and assessments have helped us to understand potential effects and how they can be avoided, reduced or mitigated during construction and operation.

Where avoidance and mitigation is not possible, we would offset – or compensate for – effects by planting or enhancing the environment near to the area of works.

We are working closely with local authorities and relevant stakeholders to identify what kind of enhancement is most suitable and where to locate it.



Biodiversity net gain

Biodiversity net gain (BNG) is a way to ensure that the environment is left in a better state after construction than it was before the work started.

The decline of biodiversity in the UK is well documented and we are conscious that our activities can impact habitats and therefore species' ability to thrive. We have committed to achieving a minimum of 10% biodiversity net gain for new major projects to ensure we leave the site and local area in a measurably better state than before the development took place. BNG can be achieved through habitat creation and/or enhancement and may be delivered on site or off site.