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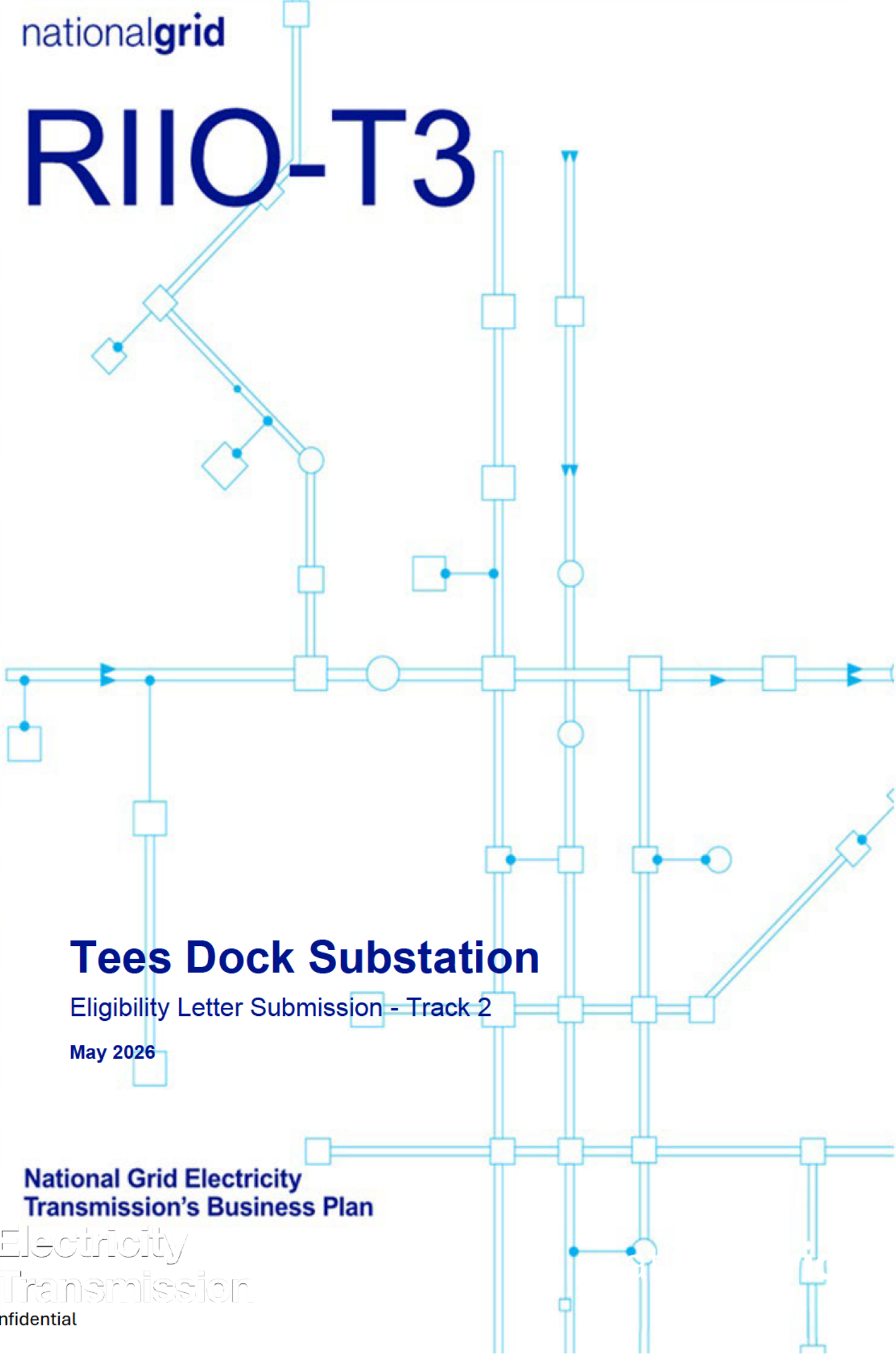


Tees Dock Substation

Eligibility Letter Submission - Track 2

May 2026

National Grid Electricity Transmission's Business Plan

Electricity Transmission

Table of Contents

Reference and summary table

LR Eligibility Criteria	Project applicability
Project name	Tees Dock Substation
TO's preferred re-opener track	Track 2 Eligibility Letter (EL)
RRP References	NGT500427
BPDT / Project Reference Number	NGT500427
Load Board Reference	NGT500427
Investment driver(s)	Demand connections. The primary connecting customer is [redacted]
Project outputs	[redacted]
Short list of strategic options considered	• **Option E-1:** New indoor AIS substation on [redacted] estate (2 possible sites) • **Option E-2:** New indoor GIS substation on [redacted] estate (2 possible sites)
Preferred solution and explanatory narrative on the rationale	**The preferred solution is a new 400 kV double busbar GIS substation on the [redacted] Dorman Point site (Option E-2).** This solution can be delivered without requiring CPO or DCO, which ensures that we can deliver the timely connection of a customer [redacted] To date, the landowner has only agreed on selling land consistent with a GIS footprint. This means alternative AIS options carry a CPO risk, requiring an estimated 12-24 months, which would not be consistent with delivering connections on time. The Dorman Point location is near existing OHL corridors and the customer's demand centre, which avoids DCO, facilitates simpler 400 kV OHL modifications & line entries and reduces 132 kV cable connections to the customer's private network. GIS is also preferred due to asset longevity policy considerations relating to the proximity (<2km) to the tidal saline Tees estuary, pollution class iv. Further, this location and technology choice allows for a more compact initial design that in turn supports greater future expansion potential, covering foreseeable needs for [redacted] expansion [redacted]

PASE Compliance	Within the PASE framework, the preferred option is a variant option. It is an indoor double bus GIS substation at 400 kV that is in proximity (<2km) to the coast (in this case a saline estuary).
Cost (23/24 prices)	Total cost of the project is currently estimated to be [redacted] (2023/24 prices, including [redacted] contingency).
Delivery year	The investment has multiple stages: • First site access for construction is scheduled for early **2027**. • Initial energisation is **2029** (demand ACL), with further stages in **2030** (demand ACL), **2033** (creation of new Lackenby-Tees Dock 400 kV circuit and re-configuration of Greystones-Tod Point 275 kV circuit), and **2035** (BESS ACL)
Delivery risks	• **Land acquisition:** Having to resort to CPO, leading to longer project programme, would not be possible within the current programme and would result in delays to the connections. This means we are dependent on voluntary land purchase. This risk has been mitigated in part through advanced discussions and HoTs with [redacted] • **Land quality:** Brownfield remediation impacts. Mitigated in part through landowner pre-sale remedial activities. • **Risk of delays to connect strategic demand:** Any delays to the programme may cause the perception that NGET and other industry parties are not supporting fast [redacted] Mitigated through all measures to expedite the project programme. • **Equipment long lead-times:** Long lead-times for some items may delay the project programme. Mitigated through the bulk purchasing programme for ordering SGTs and through using the APM. • **Resource availability:** Low staffing levels, constraints for specialist resources, and restrictions on network outage availability. Mitigated through early commitment and appropriate prioritisation of the project.
Interactive projects	No directly interactive projects, though there are other projects that need to be completed before the connections triggering this investment can be entered into service, including the Eastern Green Link 1 (EGL1) project.
Historical funding interaction	No historical funding relating to these customer drivers. Early asset write-offs (EAWOs) to be confirmed but are expected to be minimal due to the investment proposal being predominantly new additions to the existing network.
Details of proposed working arrangements between TO's (or DNOs) if the project is to be undertaken jointly between more than one TO	Not applicable.

Any other analysis or information that the TO considers to be relevant to the Authority's determination of its request	[redacted]		
Applicable Reporting Tables	BPDT 10.5 ET Pipeline log and 2024-25 RRP E1.11_ET Pipeline Log.		
Spend Apportionment	**T2 (FY 2022-26):** [redacted]	**T3 (FY 2027-31):** [redacted]	**T4+ (FY 2032-37+):** [redacted]

1. Executive summary

1.1 Project Summary

The project will create a new 400kV node at Teeside Docks. The project is designed to significantly enhance demand capacity in the Teesside region, [redacted] It is expected to have a significant socio-economic impact, contributing to the physical regeneration and economic revitalisation of the South Tees area at a regional level.

In addition, the creation of a new 400kV node will allow [redacted]

1.2 Submission purpose

This Eligibility Letter and associated CBA are being submitted as part of the RIIO-ET3 Load Reopener (LR) mechanism under Special Condition 3.18 (Load Re-opener and Price Control Deliverable) of the Electricity Transmission Licence Conditions.

This submission is requesting Ofgem's approval of project eligibility against the Load Reopener criteria and seeks approval of the project's needs case and preferred solution for Tees Dock Substation. This submission further requests Ofgem's determination on the appropriate track for the project and seeks Pre-Construction Funding (PCF) under Special Condition 3.15 (Pre-Construction Funding Re-opener, Price Control Deliverable).

The project is being submitted through the Track 2 EL pathway. The track proposal has been discussed with Ofgem.

1.3 Need

The investment is required to meet the needs of [redacted] connection applications:

[redacted]

Other connection agreements were indicatively showing the same connection site, but these are considered as deferred following notification by NESO [redacted] under Connections Reform.

[redacted] For this reason, the timely delivery of this connection has been considered essential in our optioneering.

1.4 Optioneering to date

We undertook a structured, multi-factor optioneering process to identify a proportionate and deliverable solution in the interests of consumers. To ensure the timely delivery of [redacted], we considered it essential in our optioneering to avoid CPO and DCO.

We first considered **five strategic option categories**, including do-minimum, market-based, whole-system, reuse or extension of existing assets, and new-build. From these, we built a longlist of nine options, from which we shortlisted two for further analysis (see summary in Table 1). These shortlisted options focussed on building new indoor substations and varied based on the switchgear technology. Indoor options are preferred due to the site's proximity to a saline estuary, which results in a pollution class IV environment and increases the risk of accelerated degradation for outdoor equipment, leading to higher lifetime intervention and replacement costs.

Table 1: Summary of optioneering longlist

Option	Details	Drivers met?	New site?	AIS/ GIS?	Short List?	Pref. Option
A	Do nothing counterfactual option	No	No	NA	X	X
B	Market-based solution	No	No	NA	X	X
C	Non-transmission, whole systems solutions (DNO)	No	No	NA	X	X
D-1	Extension or rebuild of Lackenby substation	No	No	GIS	X	X
D-2	Extension or rebuild of Greystones substation	No	No	GIS	X	X
E-1	New indoor AIS substation built on [redacted] estate land	Yes	Yes	AIS	✓	X
E-2	New indoor GIS substation built on [redacted] estate land	Yes	Yes	GIS	✓	✓
E-3	New outdoor AIS substation built on other grantors' land	Yes	Yes	AIS	X	X
E-4	New outdoor AIS substation built on [redacted] estate land	Yes	Yes	AIS	X	X

The two shortlisted options, E-1 and E-2, are variant options in the PASE framework for non-linear builds, given that they are indoor 400kV double busbar AIS and GIS substations, respectively, in proximity (<2km) to the tidal saline Tees estuary.

Based on a qualitative assessment against the balanced scorecard criteria, **Option E-2 is the preferred option** because:

- **Voluntary land purchase enables timely delivery of connections:**
  - GIS option E-2 is located on land for which we have a willing seller.
  - AIS option E-1 is located on land for which we have a willing seller, but to date the landowner has only agreed on selling land consistent with a GIS footprint. While we have engaged with the landowner about selling land to accommodate an AIS footprint, the increase in the ask increases the CPO risk (requiring an estimated 12-24 months), which would not be consistent with delivering connections on time, including for a customer [redacted].
- **Futureproofing:** The preferred GIS option has space for future expansion. Given the limits on what can be obtained through voluntary purchase for an AIS footprint, and given that CPO typically only covers immediate needs, there would be challenges for the future expansion of any AIS site.

1.5 Cost estimates

To assess the shortlisted options, cost estimates have been created for quantitative economic comparison (see Table 2). All capex costs are derived from NGET's latest Cost Book (23/24 prices). We have applied a 13.8% contingency, based on historical project analysis, to account for unforeseen circumstances and mitigate risks during implementation.

Table 2: Total costs including 13.8% contingency (2023/24 prices)

Option	Total Costs (£m)
E-1: New indoor AIS substation built on [redacted] estate land	[redacted]
E-2: New GIS substation built on [redacted] estate land	[redacted]

1.6 Indicative delivery programme

The current delivery programme is being developed to meet TOCA Appendix J commitments as closely as possible. It is being delivered as a two-staged commitment:

- **Stage 1 energisation (non-firm substation):** Target date of October 2029. Network connection of new substation via turn in of Lackenby-Norton circuit.
- **Stage 2 (SQSS compliant substation):** Target date of October 2033. Further network connections to substation via network reinforcement to create Lackenby-Tees Dock-Greystones circuit and Tees Dock-Tod Point circuit

2. Introduction

2.1 Tees Dock Substation

This paper presents our Eligibility Letter under the Load Re-opener and Price Control Deliverable under Special Condition 3.18 for Tees Dock Substation. Through this submission, we are seeking:

- approval of the investment need and our preferred option;
- confirmation of the proposed Track 2 EL; and
- Pre-Construction Funding (PCF) under Special Condition 3.15 (Pre-Construction Funding Re-opener, Price Control Deliverable).

The investment is load-driven, with customer details explained in Section 3.

Subject to Ofgem confirming eligibility, needs case and PCF applicability, we will continue development and intend to submit a Project Assessment in line with the re-opener process.

2.1.1 Eligibility, Track and PASE

The Tees Dock New Substation should progress through the Load Re-Opener because the investment is required to facilitate a large new contracted demand connection and the requirement did not form part of the baseline portfolio for RIIO-T3 Final Determination.

The project is being submitted through the Track 2 EL pathway. Within the PASE framework, the preferred option is a variant option. It is an indoor double bus GIS substation at 400 kV that is in proximity (<2km) to the coast (in this case a saline estuary). The track proposal has been discussed with Ofgem.

2.1.2 Pre-construction Funding Request

Under Special Condition 3.15 of the Electricity Transmission licence, this investment qualifies for allowances equal to 8.2% of its total forecasted cost [redacted] at the time of this Load Re-opener Eligibility Letter submission).

Based on our current forecast we have provided below breakdown of costs amounting [redacted] as part of this submission. This equates to [redacted] of the latest total forecast project costs.

Table 3 below summarises the activities covered by the application of these PCF allowances based on our current progress of PCF and EEW spend. This position will be updated as we continue to mature this investment and ultimately reconciled at Project Assessment stage of the re-opener.

We confirm that no PCF activity included in this submission has been funded through baseline allowances, other re openers, or alternative licence mechanisms.

Table 3: Estimated costs for pre-construction activities (23/24 prices)

No	Description	Total Forecast Costs (£m)
1	Surveys	[redacted]
2	Planning Consent approvals	[redacted]
3	Optioneering, Feed development and Project Design activities	[redacted]
Total		[redacted]

2.2 Background

2.2.1 Chronology

Customers have applied for connection in the Teesside area, covering generation, storage and demand applications. The need for the investment is primarily driven by the [redacted] application for [redacted]

Following initial connection requests in [redacted] we undertook an initial assessment that showed that a new substation would be required. This is because there was insufficient capacity in the existing infrastructure and the system would overload. There were also considerable DNO interactions to accommodate. Further, there were construction logistical considerations to take into account (e.g. SGT long lead times and existing wider reinforcement schedules).

In [redacted], we signed connection agreements with [redacted]

[redacted]

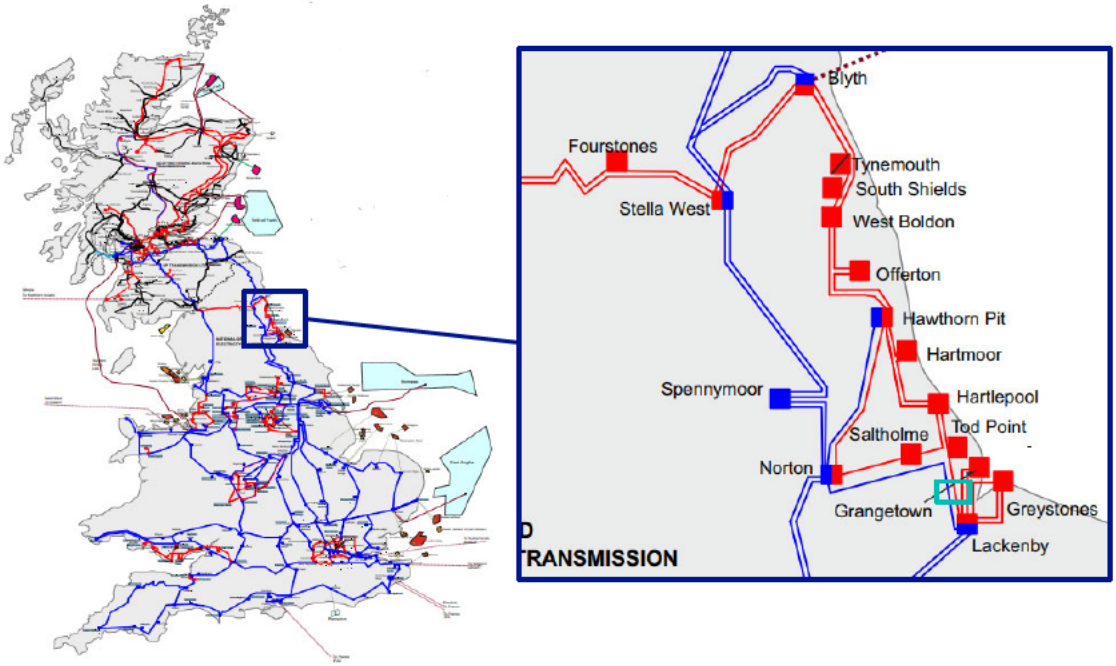
We summarise the above chronology to these connection requests and the development of the project in Figure 1, below.

[redacted]

2.2.2 Regional and network context

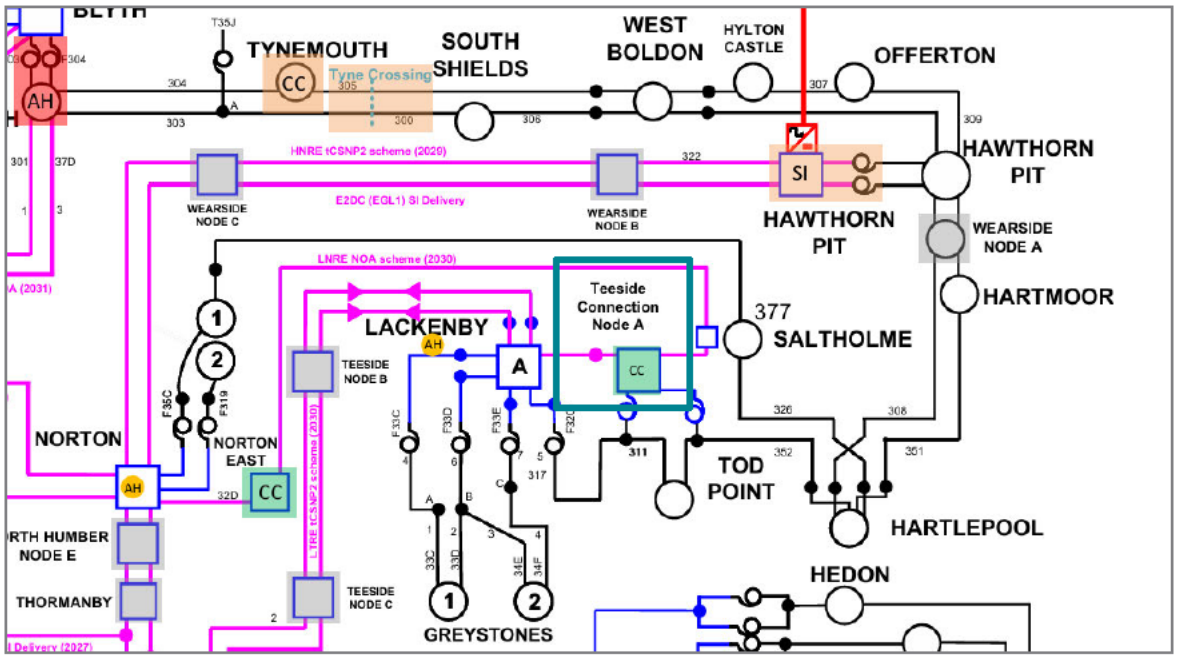
The proposed **investment site sits in Teesside within the North East region of the network** (see Figure 2 and Figure 3). The North East 400 kV and 275 kV transmission network is principally designed for transfer of North-to-South power flows. At present, the network supports the transfer of renewable energy from Scotland while integrating the historically high levels of fossil-fuel-based generation from power stations such as Teesside, Drax and Ferrybridge as it channels electricity south.

Figure 2: NGET network map highlighting the location of the investment in the North East region



*Key: **Red** = 275 kV assets, **Blue** = 400 kV assets. Investment location shown in **green** box.*

Figure 3: Future Network Picasso diagram highlighting the location of the investment in the North East region



*Key: **Blue** = Existing 400 kV Transmission Infrastructure; **Black** = Existing 275 kV Transmission Infrastructure; **Red** = Proposed HVDC Connection; **Pink** = NOA, TCSNP and HND Reinforcements. **Green squares** = T3 Proposed New Sites. Investment location shown in **green box**.*

Electricity **demand is expected to grow** over the next 20 years as the North East continues its decarbonisation journey. To meet these growing needs, investment in substations and network reinforcement will be required. Some examples of these investments are set out in the next subsection. Balancing demand growth with increasing embedded generation from solar and wind power will be a key focus for both the transmission and distribution networks. Based on insights we have collected from customers, users, DESNZ, the Ofl and the local mayor, we anticipate demand increasing by [redacted]

This part of the network now has **significant wind generation connected**, and during periods of high wind, excess power naturally flows through the Midlands and towards the South East, potentially exporting via the sub-sea interconnectors. There is **one existing interconnector** in the region from Blyth substation to kvilldal, Norway, known as the North Sea Link. The increasing volume of intermittent generation and additional interconnectors in the region will create dynamic network challenges

Major **cities in this region are significant population and economic centres**, driving substantial electricity demand. Urban growth and modernisation efforts, such as the development of smart cities, further impact the electricity distribution and transmission network. Working alongside the electricity distribution networks, we understand that there is increasing electrification in transport networks in these urban areas and greater use of electric vehicles (EVs), necessitating additional infrastructure to support EV charging.

[redacted]

2.2.3 Interactive projects

There are no known directly interactive projects. [redacted]

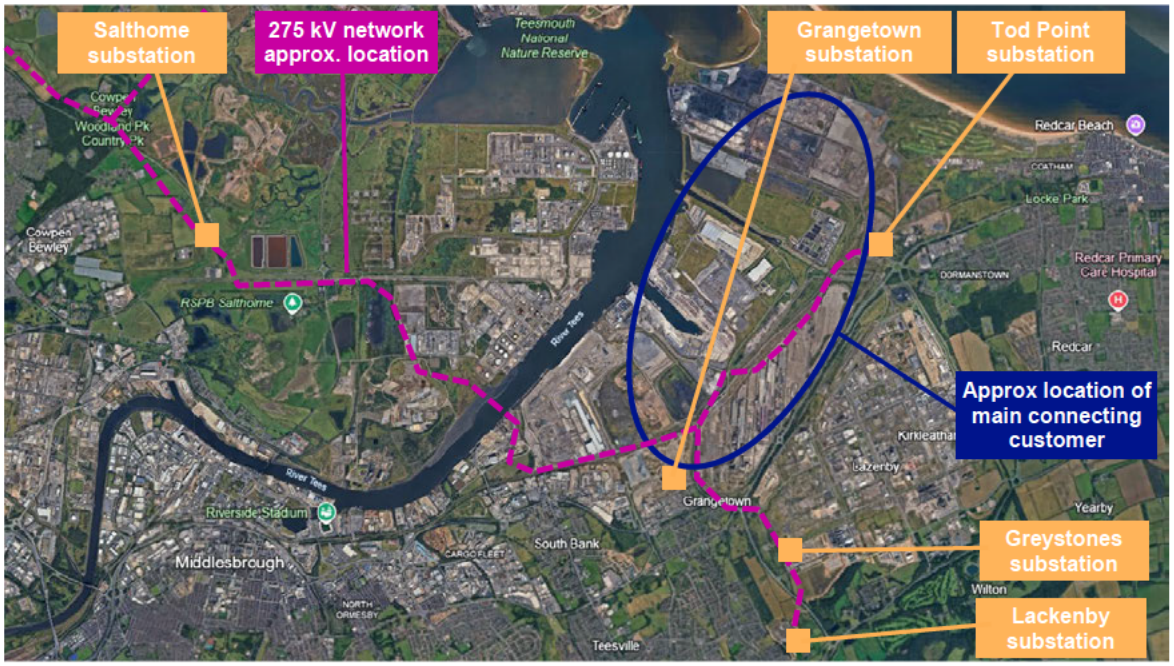
These have clear CP2030 drivers, and delivery is being managed independently to maintain focus on CP2030 outcomes. The works are captured as enabling works for the purposes of this investment, and energisation will be scheduled accordingly.

Connections Reform final outcomes may in due course change the extent of enabling and wider works required to enable connections at Tees Dock new substation.

2.2.4 Site background

The proposed site of the investment is in Teesside, which is an urban area around the River Tees in North East England (see map in Figure 4, below). The primary connecting customer site is within a dense industrial park that sits to the south of the River Tees in an existing industrial park, which is part of the Tees Valley industrial cluster (see map of key industries in Figure 5, below). A map of the land ownership for the proposed investment sites (discussed in Section 4.2) is provided in Appendix 4.

Figure 4: Site location



[2] Home - Eastern Green Link 1

2.2.5 Historical funding

There is no historical funding relating to these customer drivers.

2.2.6 EAWO

Early asset write-offs (EAWOs) are expected to be minimal due to the investment proposal being predominantly new additions to the existing network. The ZZA OHL that will be turned in as part of this investment was re-conductored in 2012, meaning this may necessitate some EAWO.

3. Drivers & Needs Case

The project will deliver demand and generation connections that have requested to connect in the vicinity of Teesside Connection Node A. An overview of the investment drivers is set out below in Table 4, with further information on each driver set out in the below subsections.

The customer ACL dates presented in this submission reflect the existing contract position. The testing and setting of ACL dates for customer contracts within scope of connections reform is ongoing throughout 2026. Confirmation of agreed ACL dates will therefore be presented in the next stage of submission Project Assessment.

Table 4: Overview of investment drivers

[redacted]

3.1 Customer

The investment is required to meet the needs of [redacted] connection applications (see Table 5, below).

[redacted]

Table 5: Customer overview

Customer	Project name	Tech type	MW	Voltage	Original ACL	Revised ACL	Gate 1 / Gate 2
[redacted]							

[redacted]

Whilst **other connection agreements** were indicatively showing the same connection site at Teesside Connection Node A, these are now generally been considered as deferred following notification by NESO [redacted] under Connections Reform, [redacted] Our best insight on other contracted connections is that there may be rationalisation through final CR outcomes.

There were previously **embedded projects** that were looking to connect to the substation, [redacted] at this time, there is no driver for us to consider this substation as a means of connecting embedded generation. [redacted]

3.2 Asset health

[redacted]

[redacted]

[3] UK Government, 2025. AI Opportunities Action Plan; UK Government, 2025. Industrial Strategy Policy Paper.

4. Optioneering

4.1 Strategic option categories

We follow a structured, multi-factor optioneering process to select the most economic and efficient solution, in the interest of consumers. In line with the Electricity Transmission Design Principles, our optioneering process considers engineering, environmental, deliverability, economic and stakeholder factors. We started by assessing the most suitable strategic options (see Table 6). At an early stage, we assessed that a new substation may be required to deliver a compliant customer connection, so siting was undertaken.

Table 6: Overview of strategic options

Category	Description	Assessment
A: Do minimum	Maintaining the network its current state and not facilitating the new connections.	Compliant customer connection not delivered.
B: Market-based solution	Accommodating customer demand through the procurement and use of ancillary services only.	Compliant customer connection cannot be delivered.
C: Non-transmission, whole systems solution	The required customer connection is accommodated by a DNO instead of NGET.	Compliant customer connection cannot be delivered.
D: Making use of existing substations	Extensions or rebuilds of the substations at Lackenby and Greystones to facilitate the new connections.	At each of these substations, there is insufficient space, the construction programming is unlikely to be quick enough, and there would be complex additional connection circuits to User's network.
E: Building new substations	Options for building new substations in the shortlisted sites that differed according to the site of the substation, the switchgear technology (AIS or GIS), and whether the solution would be placed indoors or outdoors.	Offers a possible route for connecting delivering a compliant customer connection.

4.2 Siting

4.2.1 Overview of approach

The site (and in turn the technology type) has been chosen in a way that balances the challenge of delivering swiftly against the considerable external pressure to achieve an earliest energisation [redacted] the available space for land acquisition, asset management challenges of a saline estuary location, commercial considerations, and the future potential for the investment at the site.

Initially, the estate landowner associated with the main demand customer made a possible location available to us (subject to commercial negotiation). This was favourably positioned from an engineering perspective, so early-stage layout design concentrated on this location.

To ensure we were taking the full range of siting options into account, we also undertook a high-level siting appraisal to identify potential AIS sites. We commissioned [redacted] to review initial requirements and to identify long list and support the selection of a shortlist.

4.2.2 Study area and longlist site options

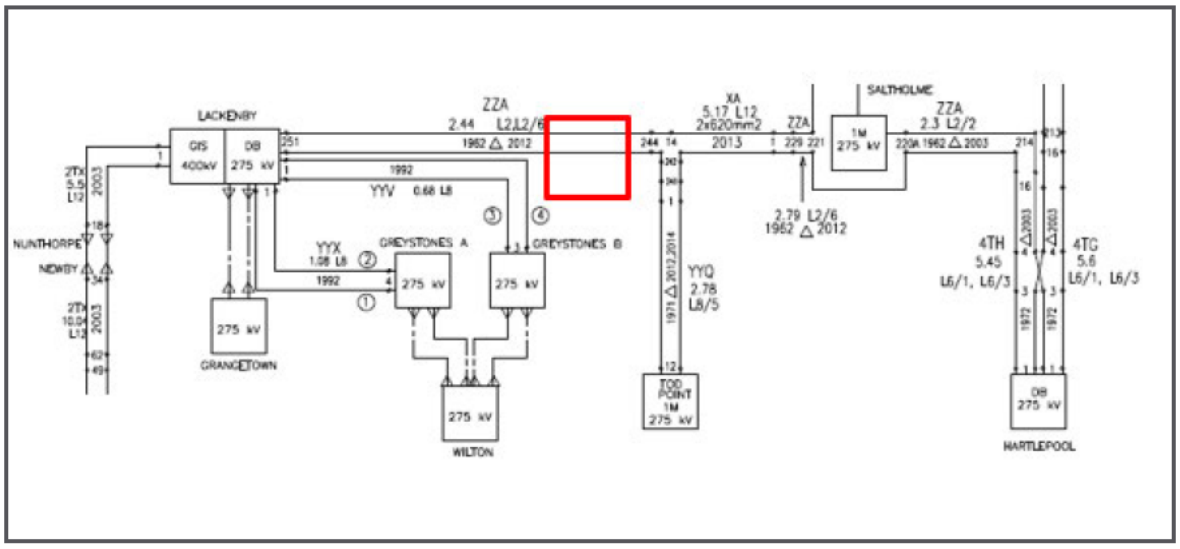
The AIS siting study focussed on overhead lines (ZZA and XA) within proximity to Lackenby Substation, which is the nearest substation to the customer connection locations (see map in Figure 6 and location of the study area on the network in in Figure 7). The study area was bounded

in the north by the River Tees, given that any river crossing would be considered time and cost-prohibitive, and in the south by areas with sensitive ecological and landscape designations.

The study area was also limited to less than 2km from the existing OHL to avoid triggering a Development Consent Order (DCO), which has a statutory timescale of 16-18 months for decision-making, excluding pre-application. This would be prohibitive to hitting target gates for the project, [redacted]

Figure 6: Study area

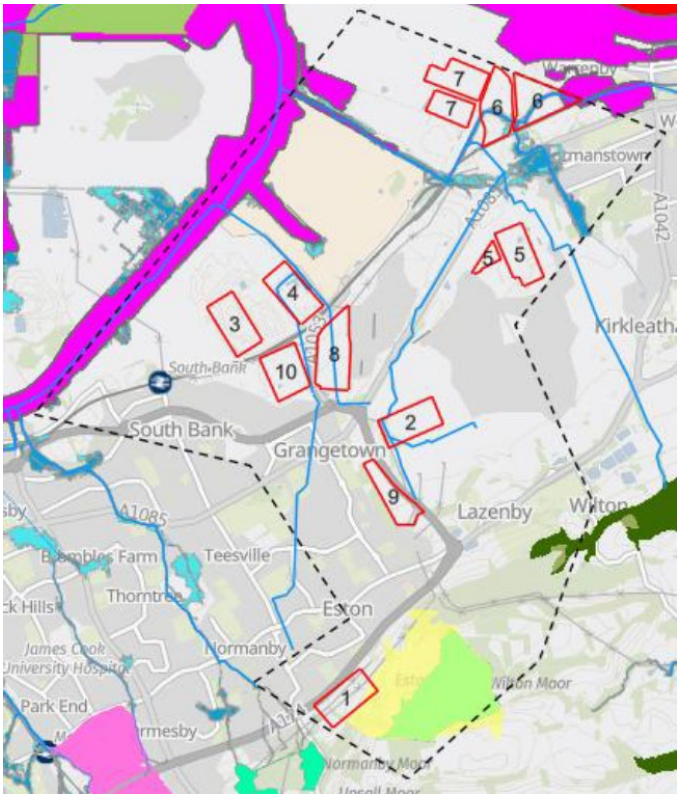
Figure 7: Location of study area on the NGET network



Within this study area, **we identified a longlist of 10 possible site locations** for the investment (see Figure 8). Initial criteria for identifying longlist options included:

- **Ability to accommodate AIS:** Each plot had to be able to accommodate an AIS substation (c.750x300m).
- **Standoff from residential properties** and community facilities (no defined set distance because each site option will be assessed on its own merits and on the basis of what is required).
- **Within proximity to the local road network** to avoid the need to construct new long access roads.
- **Avoidance of key environmental and socio-economic constraints**, including: Sites of Special Scientific Interest (SSSI); Special Protection Areas (SPA); Special Areas of Conservation (SAC); Ancient Woodland; World Heritage Sites; Scheduled Monuments; planning applications including DCOs; Flood Zones 2 and 3; Main Rivers; strategic land allocated in planning documents such as green belt; and commons and recreational areas, National Trust land, and CRoW land.

Figure 8: Longlist site options



4.2.3 Shortlisting of site options

Within the longlist, three sites (TD01, TD06 and TD07) were quickly ruled out due to technical and consenting challenges.[4] The remaining seven sites were then appraised based on eight considerations (see table below, with further details provided in Appendix 2). Based on that appraisal, three **proposed sites (TD02, TD08 and TD10) were taken forward to the siting short list**.

Key insights from the appraisal include:

- **TD02 (Estate):** There is a greater CPO risk than with the Estate, given that discussions with the Estate are at an earlier stage and here is also no prior knowledge about this site, which creates the risk of cost increase.
- **TD03 - TD04:** Ruled out on technical grounds because the OHL would cross a railway. Also ruled out due to the presence of a historical landfill in proximity that is still in use.
- **TD05:** Ruled out on technical grounds due to the technical solution requiring an OHL exceeding 2.5km and in turn requiring DCO, which is not compatible with delivering timely connections.
- **TD08 (Lackenby, Estate):** There is a lot of information already known about the site, which allows for greater cost certainty. Discussions with the Estate have been ongoing, reducing the CPO risk. However, the option presents more difficulties for the electrical design due to the existing structures on site. Dependent on intersecting planning applications – noted to be available for development through National Grid discussions with the landowner.
- **TD09:** Ruled out on socio-economic and planning grounds and technical grounds. On the former, the northern section of site is on a "green wedge", creating a barrier to development.[5] On the latter, it is intersected by the 400 kV route ZZA and 275 kV route YYV, and the site does not fit the substation spatial requirements in practice.
- **TD10 (Dorman Point, Estate):** Preferrable from a layout perspective. Discussions with the Estate have been ongoing, reducing the CPO risk.

Table 7: Assessment of shortlisted site options

Site option	TD02	TD03	TD04	TD05	TD08	TD09	TD10
Access							
Ecology							
Water							
Landscape and ground conditions							
Heritage							
Socio-economic and planning							
Technical							
Other							

[4] TD01 has an environmental designation. TD06 & TD07 would likely require Section 37 for OHL extensions and are also in the area TD06 & TD07 are also split sites, which would introduce technical design constraints.

[5] "Green wedge" is a local plan designation applied to open land around and/or between settlements to maintain separation and prevent coalescence, helping retain the open/undeveloped character and links between urban areas and surrounding countryside. Green wedges are generally a local designation (not specifically defined in national planning policy) and therefore typically carry less policy weight than nationally designated constraints, whilst still being a material consideration in planning.

*Key: **Green** = limited challenges; **Amber** = intermediate challenges; **Red** = insurmountable challenges*

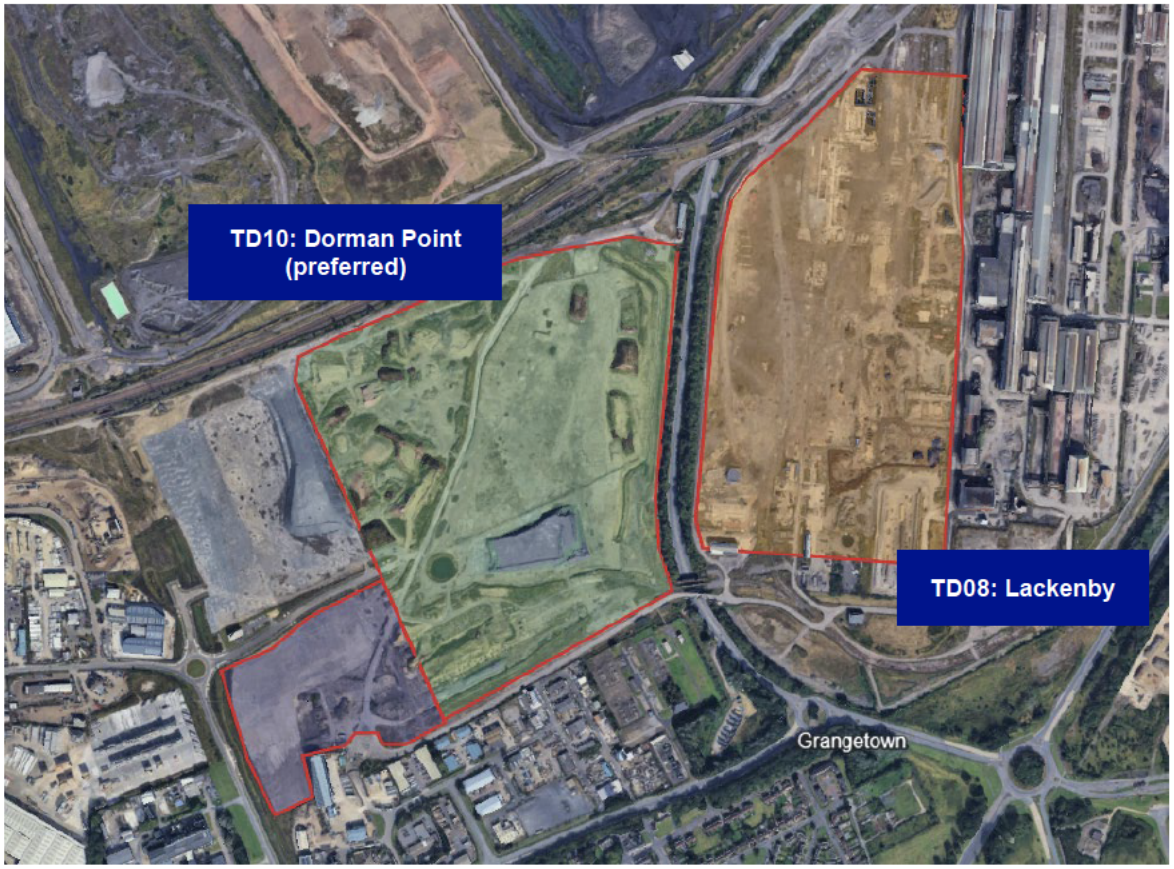
4.2.4 Preferred sites

Of the three highest scoring sites, **TD08 and TD10 are preferable** because they have a lower risk of CPO. They have the same acquisition terms, given they are both the same landowner and have common landowner/customer interaction. The project programme does not have sufficient time to accommodate CPO, which would be estimated to require 12 months, meaning we are relying on voluntary negotiations to secure our land rights. The landowner of **site TD02** has expressed that they do not desire to sell the site, this creates challenges for that option.

Between these choices the **Dorman Point site TD10 would be the preferred site**, given that it is on the correct side[6] of the existing OHL and line entries, and it satisfies the customer 132 kV siting expectations. The landowner's masterplan has been adapted in line with most of our preferences; therefore, aligning with the landowner's masterplan is preferred to avoid risk of delays and other relationship complications.

The Dorman Point site benefits from partial remediation that could potentially improve the overarching programme, subject to agreeable concurrent remediation and construction activities. However, in terms of remediation effort, Dorman Point is broadly equivalent in area to the second [redacted] site at Lackenby (TD08) and as such, remediation is not an appropriate differentiator.

Figure 9: Preferred sites on [redacted] Estate



Note: It should not be inferred that the plots presented above are confirmed as wholly available. What the landowner will agree to lease remains uncertain, subject to negotiation

[6] The ZZA OHL has 400 kV on one side and 275 kV the other, and we need to turn-in the 400 kV circuit. Having the sub on the 400 kV side of the OHL makes the line entries simpler to arrange (i.e., without crossings).

4.3 Longlist of options considered

Within each of the five option categories, set out in Section 4.1, we **designed nine options and assessed them based on the balanced scorecard categories**.

Given that [redacted] the timely delivery of this connection has been considered essential in our optioneering. A key determining factor when shortlisting our options was therefore whether the option would avoid CPO (estimated to add 12-24 months to project timelines). As discussed in the siting, we also only selected sites that avoid DCO (which has a statutory timescale of 16-18 months for decision-making, excluding pre-application).

An overview of the assessment of our longlist options is provided in the table below. Layout drawings are provided in Appendix 3 to this document. Appendix 3.2 of this document contains a single line diagram (SLD) for our preferred option, which is broadly the same for all viable options, although this is still subject to confirmation once the CR outcomes are clearer.

Table 8: Summary of all identified (Long List) options at Eligibility Assessment (Assessment of High-Level Options)

Option	Technical Description	Relevant Diagrams or Layout References	Consenting & Land Risks & Environmental Constraints	Rationale for rejecting or taking forward the option
Option A: Do minimum[7] **Not progressed**	The network is kept in its current state, and no new connections are facilitated.	N/A	N/A	**Engineering:** Compliant customer connection not delivered.
Option B: Market-based solution **Not progressed**	Increased customer demand is accommodated through the procurement and use of ancillary services only.	N/A	N/A	**Engineering:** Compliant customer connection not delivered.
Option C: Non-transmission, whole systems solution **Not progressed**	The required customer connection is accommodated by a DNO instead of NGET.	N/A	N/A	**Engineering:** Compliant customer connection not delivered. Whole system solutions depend on a DNO's ability to accommodate further physical customer connections on their infrastructure. NGET discounted this option early in the optioneering process as our insight from Connections Reform with respect to existing DNO embedded connections established that it is not viable to accommodate any further physical connections on its network in its current state.
Option D-1: Extension or rebuild of Lackenby substation **Not progressed**	Extension or rebuild of the existing Lackenby substation.	N/A	**Land:** Insufficient space. Site TD09 considered land immediately adjacent to Lackenby substation, which was not carried forward to the siting shortlist due to consenting and environmental constraints (the northern section of site is on a "green wedge", creating a barrier to development).[8]	**Engineering:** Following initial connection requests in late 2023, we undertook an initial assessment that showed that a new substation would be required: • There is **insufficient capacity** in the existing infrastructure and the system would overload. • The **complexity** of transferring all existing circuits and connections (existing DNO, multiple offshore

[7] In line with the Re-opener Guidance and Application Requirements Document, our do minimum option acts as "as a counterfactual to demonstrate the financial impact of no additional investment or programme expenditure taking place". The minimum intervention to remain compliant with applicable laws and regulations would be represented in practice by our viable infrastructure options in category E.

[8] "Green wedge" is a local plan designation applied to open land around and/or between settlements to maintain separation and prevent coalescence, helping retain the open/undeveloped character and links between urban areas and surrounding countryside. Green wedges are generally a local designation (not specifically defined in national planning policy) and therefore typically carry less policy weight than nationally designated constraints, whilst still being a material consideration in planning.

Option	Technical Description	Relevant Diagrams or Layout References	Consenting & Land Risks & Environmental Constraints	Rationale for rejecting or taking forward the option
				windfarms and proposed new connections) would be practically and commercially complex and would require a delivery programme that could not satisfy connection timely connections. Several OHL and cable line entries would need to be relocated/diverted to support the re-wiring, all while keeping existing network and connections energised in compliance with SQSS. **Land:** Available land is considered unlikely to be sufficient to provide for the additional new connection requirements and new connection requirements if it were all to be delivered in AIS. **Deliverability:** The construction programming is unlikely to be quick enough due to the above factors.
Option D-2: Extension or rebuild of Greystones substation **Not progressed**	Extension or rebuild of the existing Greystones substation.	N/A	**Land:** Insufficient space.	**Engineering:** Following initial connection requests in late 2023, we undertook an initial assessment that showed that a new substation would be required. There is insufficient capacity in the existing infrastructure and the system would overload. There would also be complex additional connection circuits to the User's network and to the transmission network (275 kV to 400 kV uprating would probably be required to service the demand level requested). **Land:** There is insufficient space. **Deliverability:** The construction programming is unlikely to be quick enough.
Option E-1: New indoor AIS substation built on [redacted] estate land **Progressed to shortlist**	Construct a new 400 kV indoor AIS substation on [redacted] estate, broadly comprising: [redacted]	**Site location:** Lackenby or Dorman Point site from siting study (TD08 or TD10 from the siting study). **Layout and SLD:** Appendix 3.1.	**Environment:** All sites are within proximity to designated ecology sites (including Teesmouth SPA). **Consent:** Town and Country Planning Act (TCPA) planning application would be needed for a new substation. Development Consent Order (DCO) not needed for OHL, given that we are within a 2km envelope of the existing OHL.	**Engineering:** Site is located <2km from a tidal saline estuary, meaning it is pollution class iv. The indoor design overcomes challenges with being close to a saline estuary (outdoor AIS has a risk of accelerated asset deterioration and operational problems due to more aggressive atmospheric conditions). **Land acquisition and deliverability:** However, AIS option may face challenges due to the size of the footprint and its associated limited future expansion

Option	Technical Description	Relevant Diagrams or Layout References	Consenting & Land Risks & Environmental Constraints	Rationale for rejecting or taking forward the option
	[redacted]		**Land:** Discussions with [redacted] estate landowner [redacted] are more advanced than with landowners in other options [redacted]. However, those early discussions were based on a GIS footprint (making it a subset of site TD08 / TD10), which is smaller than what would be needed for AIS.	potential. The risk of CPO on timelines also requires further analysis (estimated to add 12-24 months to project timelines). **Consumer value / economic performance:** AIS technology typically also has lower upfront capital costs and a lower carbon-equivalent impact than its GIS counterpart.
Option E-2: New indoor GIS substation built on [redacted] estate land **Progressed to shortlist**	Construct a new indoor 400 kV SF_6-free GIS substation adjacent to Tees Dock Road, broadly comprising: [redacted]	**Site location:** Lackenby or Dorman Point site (TD08 or TD10 from the siting study). **Layout and SLD:** Appendix 3.2.	**Environment:** All sites are within proximity to designated ecology sites (including Teesmouth SPA). **Consent:** TCPA planning application would be needed for a new substation. DCO not needed for OHL, given that we are within a 2km envelope of the existing OHL. **Land:** Discussions with [redacted] estate landowner are more advanced than with landowners in other options [redacted]. However, those early discussions were based on a GIS footprint (making it a subset of site TD08 / TD10), which is smaller than what would be needed for AIS.	**Engineering:** GIS overcomes challenges with being close to (<2km) a saline estuary and within pollution class iv (which adds risk of accelerated asset deterioration and operational problems due to more aggressive atmospheric conditions). **Land acquisition and deliverability:** Its compact design facilitates land acquisition and reduces the risk of needing a CPO, with positive ongoing discussions with the [redacted] estate. **Consumer value / economic performance:** GIS technology is typically associated with higher upfront capital costs than AIS although typically have lower land acquisition costs due to smaller footprint.
Option E-3: New outdoor AIS substation built on third party land. **Not progressed**	Construct a new outdoor AIS substation on other grantors' land, broadly comprising: [redacted]	**Site location:** One [redacted] estate site (TD02 from the siting study).	**Environment:** All sites are within proximity to designated ecology sites (including Teesmouth SPA). **Consent:** TCPA planning application would be needed for a new substation.	**Land acquisition and deliverability:** AIS may face challenges due to the substantial risk of entailing a CPO, and the implications of CPO for the land

Option	Technical Description	Relevant Diagrams or Layout References	Consenting & Land Risks & Environmental Constraints	Rationale for rejecting or taking forward the option
	[redacted]	**Layout and SLD:** None provided.[9]	DCO not needed for OHL, given that we are within a 2km envelope of the existing OHL. **Land:** Talks with landowner less advanced than with [redacted] estate and are based on a smaller GIS footprint, increasing the CPO risk. [redacted] Land obtained through CPO would likely only be able to cover immediate needs, creating future-proofing challenges.	available for a future-proofed AIS solution footprint and its associated risk of entailing a CPO.[10] **Engineering and consumer value / economic performance:** The proximity of the saline estuary (<2km), placing the site in pollution class iv, may reduce the asset life of an outdoor AIS substation at a cost to the consumer.
Option E-4: New outdoor AIS substation built on [redacted] estate land **Not progressed**	Construct a new 400 kV outdoor AIS substation on [redacted] estate, broadly comprising: [redacted]	**Site location:** Lackenby or Dorman Point site from siting study (TD08 or TD10 from the siting study). **Layout and SLD:** Section 4.4.	**Environment:** All sites are within proximity to designated ecology sites (including Teesmouth SPA). **Consent:** TCPA planning application would be needed for a new substation. DCO not needed for OHL, given that we are within a 2km envelope of the existing OHL. **Land:** Discussions with [redacted] estate landowner are more advanced than with landowners in other options. However, those early discussions are based on a GIS footprint (making it a subset of site TD08 / TD10), which is	**Engineering and consumer value / economic performance:** The proximity of the saline estuary (<2km), placing the site in pollution class iv, would reduce the asset life of an outdoor AIS substation at a cost to the consumer. **Engineering, land acquisition and deliverability:** Positive ongoing discussions with [redacted] estate owner, albeit based on a smaller GIS footprint. However, AIS option may face challenges due to the size of the footprint and its associated limited future expansion potential.

[9] Following the shortlisting of this option, after establishing that the landowner of the site was unwilling to agree to a voluntary sale/lease, we did not undertake the engineering activity of producing layout drawings.

[10] Our siting study has explored plots that could accommodate an AIS solution. However, a CPO would likely only grant sufficient space for an AIS solution for current needs rather than accounting for future requirements. This presents a risk of the solution becoming physically constrained by other developments in the estate, restricting future-proofing potential.

Option	Technical Description	Relevant Diagrams or Layout References	Consenting & Land Risks & Environmental Constraints	Rationale for rejecting or taking forward the option
	[redacted]		smaller than what would be needed for AIS.	

The **rationale for our identified shortlist includes**:

- **The do-minimum option and the market-based and non-transmission options (options categories A, B and C) were ruled out on engineering grounds** because they would not be able to deliver a compliant customer connection.
- **The two substation extension options (options D-1 and D-2) were ruled out on engineering and deliverability grounds.** There is insufficient space, the construction programming is unlikely to be quick enough, and complex additional connection circuits may be needed.
- **One new-build option (E-3) was ruled out** because the landowner was unwilling to sell, and CPO is inconsistent with timely delivery.
- **The remaining option (E-4) was ruled out** because of the proximity to a saline estuary (<2km), placing the site in pollution class iv, which would reduce the asset life of the substation at a cost to the consumer.
- We **shortlisted two indoor new-build options (options E-1 and E-2)** that differ based on technology type.

4.3.1 Influence of stakeholders on shortlisting

We have shortlisted two options (E-1 and E-2) that can be built on [redacted] estate land. This is because the landowner is supportive of the project and can be considered to have a lower CPO risk than using other grantors' land.

Given that CPO is estimated to add 12-24 months to the project programme, our programme for delivering strategic demand in a timely manner cannot accommodate this. As set in the project chronology in Section 2.2.1, we have faced pressure to connect [redacted] as early as possible, including changing the contract to accommodate an earlier non-firm energisation date. This has influenced our shortlisting of options on [redacted] estate land.

4.4 Shortlisted options

We have shortlisted two options, which are each described in the subsections that follow:

- **E-1:** New indoor AIS substation built on [redacted] estate land
- **E-2:** New indoor GIS substation built on [redacted] estate land

Please refer to the system design table in Appendix 1, which is the same for all shortlisted options.

4.4.1 Option E-1: New indoor AIS substation built on [redacted] estate land

[redacted]

Figure 10: Possible layout drawing for Option E-1 (Dorman Point, site TD10)

Figure 11: Possible layout drawing for Option E-1 (Lackenby, site TD08)

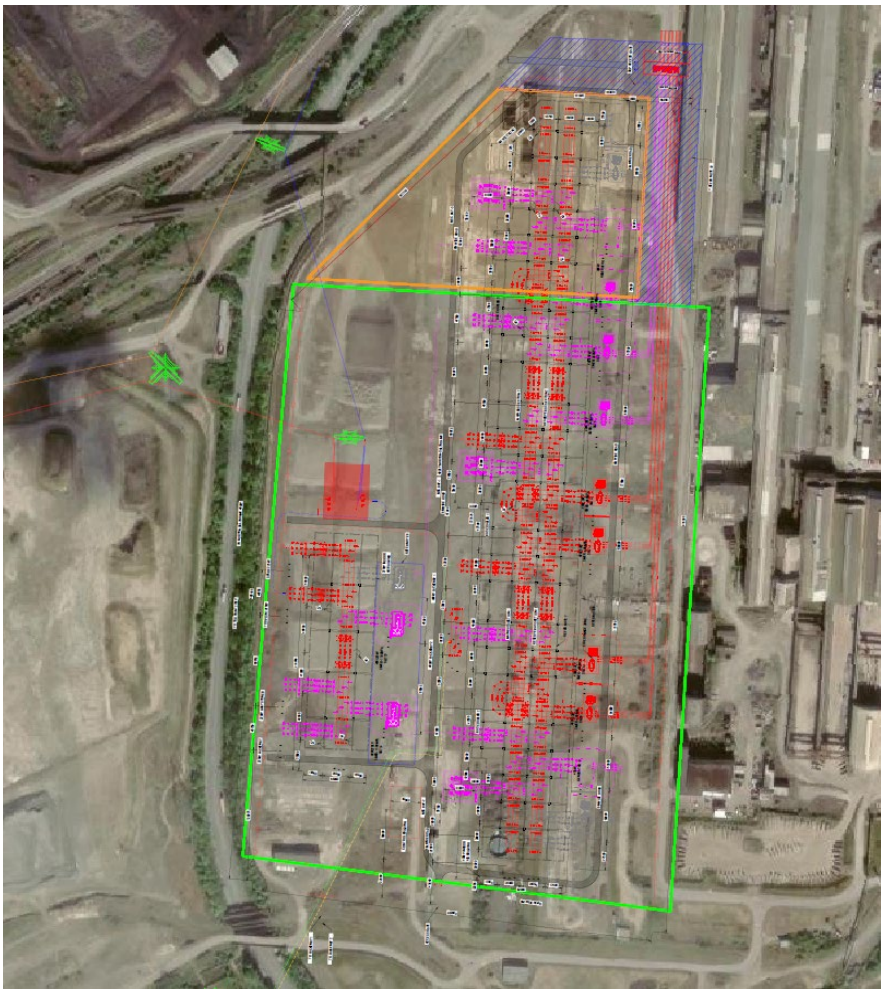
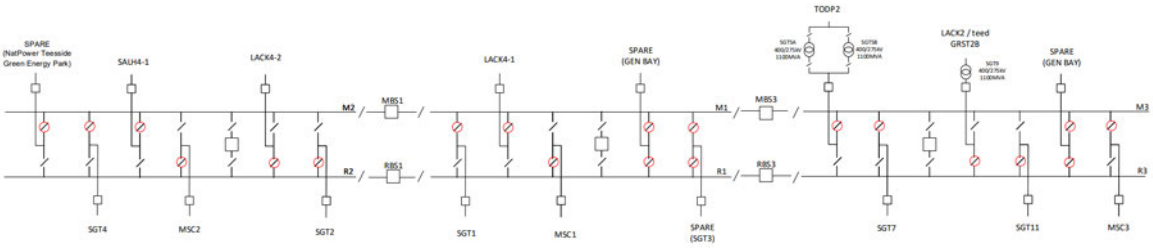


Figure 12: SLD for Option E-1



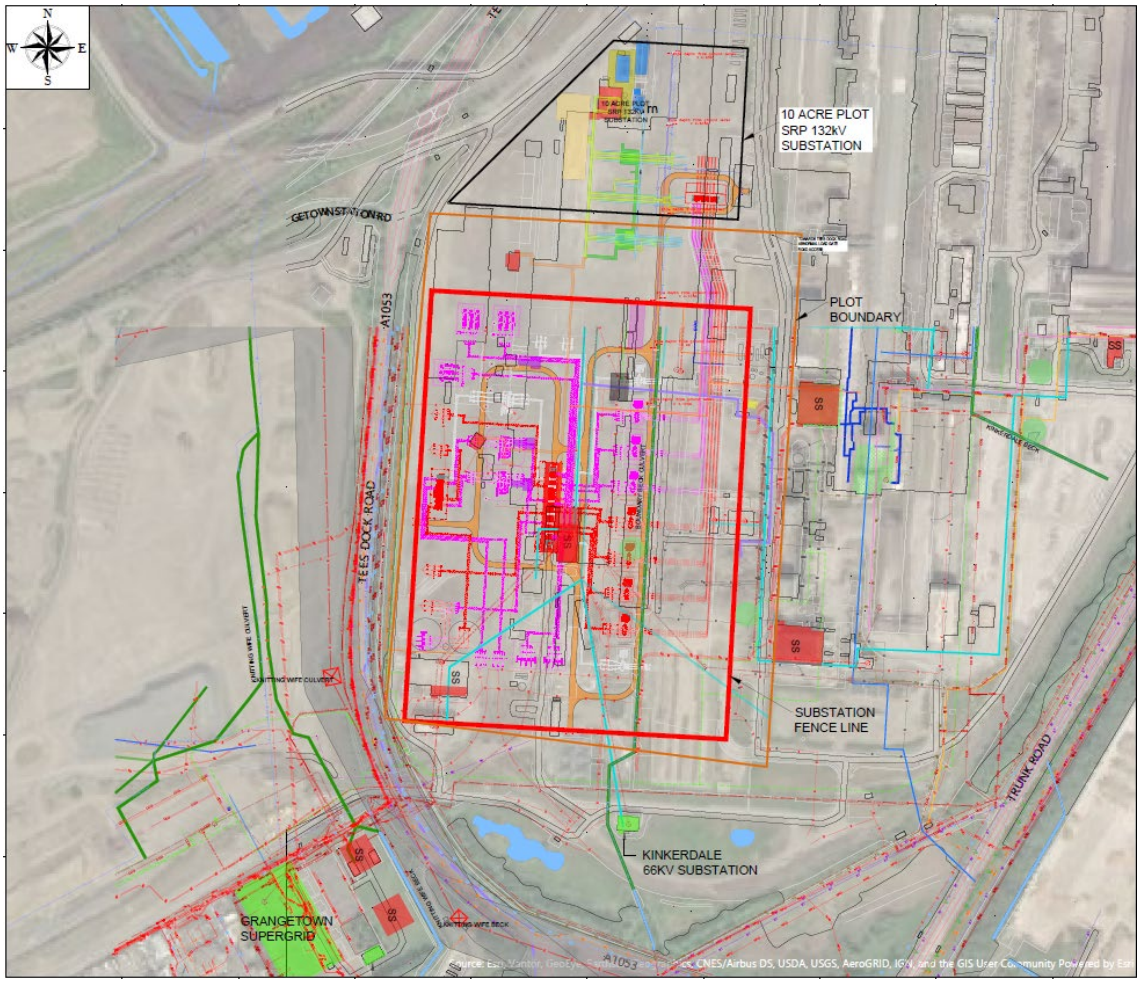
4.4.2 Option E-2: New indoor GIS substation built on [redacted] estate land

[redacted]

[redacted]

Figure 13: Possible layout drawing for Option E-2 (Dorman Point, site TD10)

Figure 14: Possible layout drawing for Option E-2 (Lackenby, site TD08)



4.5 Qualitative assessment of shortlisted options

	Optioneering Categories				
Option	**Engineering**	**Environmental**	**Deliverability**	**Economic/Consumer Value**	**Consenting /Stakeholder**
All shortlisted options	• Asset life risk due to proximity to a saline estuary is mitigated through indoor design.	• Construction will take place on brownfield land, which has lower ecological value than greenfield. • Carbon costs of construction are broadly equivalent across options (see quantitative analysis in Section 4.6).		• Given the brownfield nature of the site, environmental and possible geotechnical improvement works are required with associated cost. • Indoor design overcomes challenges of being close to a saline estuary, preventing unfavourable lifetime asset lifecycle risk and additional cost risks of outdoor options.	• The construction of a new substation will require a Town & Country Planning Act (TCPA) consent application.[11]
Option E-1 New indoor AIS substation built on [redacted] estate land	• While there are examples of indoor AIS already in operation (e.g. at Aberthaw), indoor AIS is used less frequently than outdoor AIS. Asset Operations' technical operational concerns will therefore need to be appropriately considered (especially if wrap-around busbar designs and through-wall bushing equipment is required). • Requires fewer long duration system accesses.	• Limited carbon-equivalent impact of AIS.	• If more land is required than the customer has made available, CPO may be needed (requiring ~12-24 months). This would not be compatible with contracted dates [redacted] • The construction of a climate-conditioned building for indoor AIS would create further pressure on the project programme that places contracted dates at risk.	• AIS typically has lower capital costs than GIS, which is reflected in the quantitative analysis in the next section. • The construction of a climate-conditioned building large enough to accommodate AIS creates additional capital costs relative to the outdoor AIS alternative.	• Early conversations with the [redacted] estate about land were for a GIS solution, which has a smaller footprint. While we have engaged with the landowner about land to accommodate an AIS footprint, the increase in our ask would increase the risk of CPO. Given the limits on what can be obtained through voluntary purchase, and given that CPO typically only covers immediate needs, this could create challenges for the future expansion of any AIS site.
	Supporting Evidence: SWOT analysis, supplier communications.	**Supporting Evidence:** CBA.	**Supporting Evidence:** CPO estimates based on previous NGET projects and align with estimates in previous regulatory submissions.	**Supporting Evidence:** Cost estimates for the building reflected in the CBA.	**Supporting Evidence:** Record of stakeholder engagement.
	Detractor	Benefit	Detractor	Neutral	Detractor

[redacted]

	Optioneering Categories				
Option	**Engineering**	**Environmental**	**Deliverability**	**Economic/Consumer Value**	**Consenting /Stakeholder**
Option E-2 New indoor GIS substation built on [redacted] estate land	• Requires fewer long duration system accesses. • Plenty of space for large construction compound adjacent to build site.	• Use of SF_6-free GIS technology significantly reduces the environmental impact relative to traditional GIS technology.	• Fits into the space offered by the customer, meaning land can be acquired voluntarily. This is consistent with delivering connections in line with contracted dates.	• GIS typically has greater upfront capital costs than its AIS counterpart, which is reflected in the quantitative analysis in the next section.	• Early conversations with the [redacted] estate about land acquisition were for a GIS solution, including space for future expansion.
	Supporting Evidence: SWOT analysis, supplier communications.	**Supporting Evidence:** CBA.	**Supporting Evidence:** CPO risk informed by stakeholder engagement record.		**Supporting Evidence:** Record of stakeholder engagement.
	Benefit	Neutral	Strong Benefit	Benefit	Strong Benefit

4.5.1 Conclusion from qualitative assessment

Based on the qualitative assessment, **Option E-2 is the preferred option** because:

- **Voluntary land purchase enables timely delivery of connections:**
  - GIS option E-2 is located on land for which we have a willing seller.
  - AIS option E-1 is located on land for which we have a willing seller, but to date the landowner has only agreed on selling land consistent with a GIS footprint. While we have engaged with the landowner about selling land to accommodate an AIS footprint, the increase in the ask increases the CPO risk (requiring an estimated 12-24 months), which would not be consistent with delivering connections on time, including for a customer [redacted]
- **Futureproofing:** The preferred GIS option has space for future expansion. Given the limits on what can be obtained through voluntary purchase for an AIS footprint, and given that CPO typically only covers immediate needs, there would be challenges for the future expansion of any AIS site.

4.5.2 PASE compliance

Within the PASE framework, the preferred option is a variant option. It is an indoor double bus GIS substation at 400 kV that is in proximity to the coast (in this case a saline estuary).

4.6 Quantitative assessment of shortlisted options

4.6.1 Cost estimates of shortlisted options

To assess the shortlisted options, cost estimates have been created for quantitative economic comparison. All capex is derived from NGET's latest Cost Book (23/24 prices). Estimating Units Lines (EULs) have been used to generate cost estimates based on the scope of work and the new assets to be acquired for each option. For each EUL, we have applied a [redacted] contingency, based on historical project analysis, to account for unforeseen circumstances and mitigate risks during implementation.

Table 9: Cost estimate of works (£m, 23/24 prices)

Option	OHL	Cables	Substation	Total (exc. contingency)	Biodiversity [redacted]	Total (inc. contingency)
E-1: New indoor AIS substation built on [redacted] estate land	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
E-2: New indoor GIS substation built on [redacted] estate land	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

4.6.2 Cost drivers

The project's cost estimates are based on current market conditions, with ongoing work to refine requirements. The baseline funding request is supported by high-cost confidence and robust EUL (Estimating Units Lines) assessments.

Using the cost book, the main factors driving the costs for the shortlisted options are:

- The upfront capital costs for AIS technology are typically lower than for GIS, which is reflected in our cost estimates.
- The costing for indoor AIS option E-1 includes a 600 x 200m building.

4.6.3 Cost-benefit analysis

Our Cost Benefit Analysis (CBA) evaluates the economic efficiency and consumer value of the proposed transmission investments. This analysis aligns with Ofgem's Load Re-opener Guidance and Submission Requirements.

The CBA process integrates monetised benefits such as constraint cost savings, system efficiency improvements, and consumer bill impacts, alongside a comprehensive Whole-Life Cost Analysis (WLCA) that captures capital expenditure, operational and maintenance costs, replacement cycles, carbon impacts, and future extendibility. This dual approach ensures a balanced assessment of both short-term economic benefits and long-term cost efficiency, avoiding the risk of asset stranding or future inefficiencies.

Our CBA considers:

- **Robust optioneering and sensitivity testing:** We have evaluated credible alternatives, including 'do nothing' and 'do minimum' scenarios, to confirm that the preferred solution delivers the optimal balance of technical performance, environmental impact, and economic benefit.
- **Quantification of constraint cost reductions:** Using system operator modelling outputs and historical data, we quantify expected savings from reduced system constraints, which translate into direct consumer bill benefits.
- **Assessment of delay impacts:** The financial consequences of potential project delays on constraint costs and consumer bills are modelled through risk-adjusted scenarios, providing a clear understanding of the value of timely delivery.
- **Inclusion of socio-economic benefits:** Where quantification is challenging, qualitative evidence supported by stakeholder engagement and regional development plans highlights the wider economic benefits, including job creation and inward investment.
- **Consideration of non-monetised benefits:** We explicitly identify benefits that are qualitative or not readily monetisable, such as enhanced system operability, resilience, and environmental improvements, ensuring full transparency of the value proposition.
- **Alignment with policy and government targets including Net Zero** [redacted] The CBA reflects the influence of national and local policies, including Clean Power 2030, net zero commitments, and economic growth plans demonstrating how the investment supports the broader energy transition.

We have assessed consumer value by comparing the whole-life costs and benefits of five shortlisted connection and substation delivery options using Ofgem's RIIO-ET3 CBA template. The assessment is completed relative to a counterfactual and on a discounted basis over a 50-year appraisal period (2027–2076), consistent with the CBA methodology.

For each option considered, we have quantified:

(i) Initial CAPEX investment required

(ii) Future end of life replacement costs

The supporting CBA model quantifies the costs and benefits for this project. Using the Ofgem RIIO-ET3 CBA template spreadsheet, the CBA compares the discounted cost and benefits for consumers for the following two shortlisted options.

- E-1: New indoor AIS substation built on [redacted] estate land
- E-2: New indoor GIS substation built on [redacted] estate land

4.6.3.1 CBA outcome

Lifetime Cost-Benefit Analysis: The lifetime costs and benefits refer to a 50-year period starting from 2027 until 2076.

Table 10: Lifetime Cost-Benefit Analysis (2023/2024 base prices, central carbon pricing, discounted values)

Option	Initial Investment (£m)	PV of Lifetime Costs (£m)	PV of Monetised Benefits (£m)	NPV (£m)
Option E-1	[redacted]	[redacted]	[redacted]	[redacted]
Option E-2	[redacted]	[redacted]	[redacted]	[redacted]

On the basis of the discounted lifetime CBA results (see Table 10), Option E-1 has the highest NPV ([redacted]) making it the most cost-effective option. This analysis is subject to confirmation through deliverability, consents/land, outage and risk considerations, and any CBA sensitivities set out in the assumptions below.

4.6.3.2 Assumptions of the CBA analysis

Core assumptions and sensitivities. The CBA results are based on the following high-level assumptions (with sensitivities used to test robustness where appropriate):

- Appraisal period of 50 years (2027–2076), with costs and benefits discounted and presented relative to the counterfactual.
- Cost base: 2023/2024 prices, aligned to the Ofgem RIIO-ET3 CBA template inputs (including treatment of replacement CAPEX and maintenance).
- Carbon: central base case carbon price applied for monetising construction carbon, SF_6/alternative gas leakage and losses, with scenario testing for alternative carbon price trajectories.
- Benefits scope applied consistently across options; where option-specific benefits exist (e.g. constraints), the basis and evidence are documented and applied consistently.
- Key sensitivities considered (as applicable): timing/phasing, CAPEX uncertainty ranges, delivery/outage risk, and benefit parameter uncertainty (including losses and leakage assumptions).

4.6.3.3 Costs

Table 11: Summary of all additional Capex costs (2023/2024 base prices)

	Capex		
	Initial works (£m)	Future replacement (40yr) (£m)	Total costs (£m)
Option E-1	[redacted]	[redacted]	[redacted]
Option E-2	[redacted]	[redacted]	[redacted]

4.6.3.4 Benefits

The following benefits have been included within the CBA:

- SF_6 / Alternative gas leakage reduction
- Carbon cost of construction reduction
- Transmission loss reduction
- Summary of all Benefits

Table 12 presents the summary of all (undiscounted) benefits, including environmental and non-environmental benefits, considering the central base case carbon price.

Table 12: Summary of all benefits

Option	Environmental Benefits		Non-Environmental Benefits	Total Benefits (£m)
	Carbon costs of construction (£m)	Gas leakage (£m)	Transmission loss (£m)	
Option E-1	[redacted]	[redacted]	[redacted]	[redacted]
Option E-2	[redacted]	[redacted]	[redacted]	[redacted]

4.7 Preferred solution

The **preferred option is a 400 kV indoor GIS substation located on [redacted] Estate (Option E-2)**, which has various benefits:

- **Voluntary land purchase enables timely delivery of connections:** The [redacted] estate landowner is amenable to land being taken by NGET for this purpose (subject to commercial agreement to be appropriately negotiated).[12] This ensures the timely connection of the customers, including a customer [redacted]
- **Avoiding DCO enable timely delivery of connections:** This is close to both the end user location and to the existing NGET existing circuit infrastructure, reducing the scale of intervention required and the cost to consumers. Importantly, the option avoids DCO, which would not be compatible with the timely connection of customers.
- **Indoor option in the vicinity of a saline estuary:** We only shortlisted indoor options due to asset longevity policy considerations relating to the proximity (<2km) to saline estuary, pollution class iv.
- [redacted] **Futureproofing:** The location and technology choice allows for a more compact initial design that in turn supports greater future expansion potential. This covers foreseeable needs for [redacted] expansion [redacted]

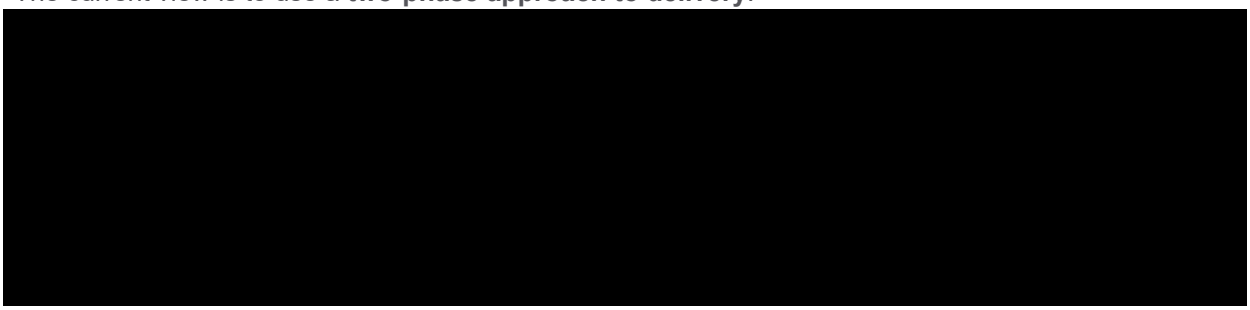
The scope of work for the preferred solution includes the creation of a complete new 400 kV substation, broadly comprising:

[redacted]

[12] Negotiations are underway, and a figure per m² has been agreed along with the remediation works that the landowner is to carry out.

The connection is to be engineered to comply with all relevant engineering standards as applicable. It is also intended to design the substation to have extension potential at each end of the main switchgear board.

The current view is to use a **two-phase approach to delivery**:



4.7.1 Project benefits and outputs

The investment at Teesside will deliver key outputs for consumers and the wider network, summarised in Table 13.

Table 13: Investment outputs and how we deliver against Ofgem's consumer outcomes

Output & Proposed PCD	Deliver multiple new connections at the new 400 kV substation, [redacted]
	[redacted] **Generation capacity:** The new node will enable connection [redacted] • **Demand capacity:** This investment will principally provide enhancement of demand capability [redacted] in the Teesside area [redacted] • **Boundary capability:** Improvements to boundary capability remain subject to Connections Reform system studies following final outcomes. • **Socio-economic benefits:** The investment will support the long-awaited physical and economic regeneration of the South Tees area, which is expected to bring significant socio-economic benefits at a regional level.

4.7.2 Futureproofing

The following futureproofing considerations have been made when designing and selecting the preferred option:

- **Provision for future substation expansion: The GIS substation we initially construct will allow for the addition of one further SGT**. There will be the possibility to extend the GIS and add other civil/electrical infrastructure, [redacted]

- **Maintaining relationships with landowners:** Our siting study review and other discussions with landowners in the area have highlighted that suitable land for infrastructure is scarce. In addition to the programme challenges of using CPO within this project, CPO may also have long-term, strategic implications. Acquisition by CPO does not significantly increase the space available and may, where voluntary land offers have been made in favourable locations, provoke landowner challenge in the longer term. Our approach of pursuing voluntary agreement therefore reflects long-term strategic thinking.

5. Delivery

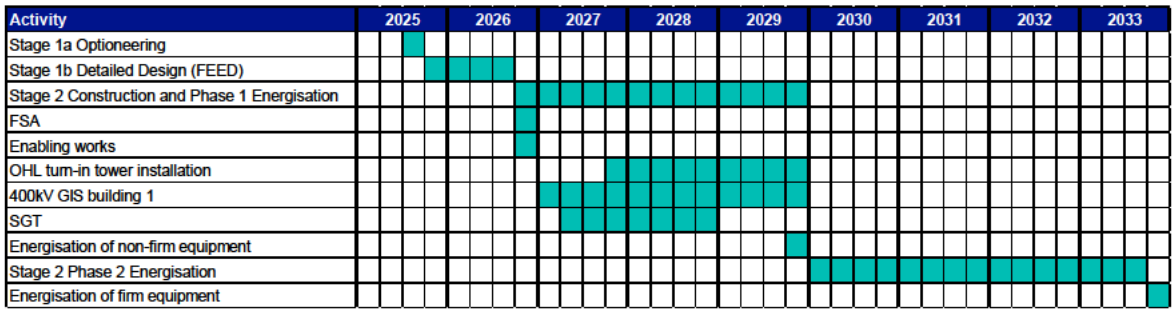
The current delivery programme is being developed to meet TOCA Appendix J commitments as closely as possible (see Figure 15). It is being delivered as a two-staged commitment:

[redacted]

The original programme offer was accelerated at customer request. There have been further enquiries about other potential acceleration opportunities, which we have not been able to satisfy. The delivery programme is being actively reviewed as part of development phase activity.

Our internal planning tools indicate that longer timelines may be required. [redacted] For this reason, we are focussing on developing bespoke programmes with early engaged delivery contractors to mitigate the risk of delay. [redacted]

Figure 15: Project programme



5.1 Procurement and contracting strategies

[redacted]

[redacted]

5.2 Delivery risks

We have identified a range of risks to the delivery of our project (see Table 14, below). For each of these risks, we have put in place mitigations. The impact of these risks manifesting as real issues could range from adjustment to delivery schedules (covering both minor changes not affecting connection energisation or major impacts resulting in connection date delays) up to a change of preferred option.

Table 14: Delivery risks and mitigations

Risk	Mitigation
Funding uncertainty: Failure to obtain funding means we would be unable to deliver the investment drivers.	This submission through the Load Re-opener seeks to mitigate this risk.
Land acquisition: Failure to obtain the land required for the project to go ahead. A further risk is the need to use CPO, which would place the project programme at significant risk.	Mitigated in part with advanced discussions [redacted]
Land quality: Brownfield remediation impacts.	Mitigated in part through landowner pre-sale activities to deal with environmental remediation requirements.
[redacted]	[redacted]
Equipment long lead-times: Equipment procurement long lead times could delay the project programme.	Mitigated in part through bulk purchasing programme for ordering of SGTs, but switchgear commitments also need to be made very soon. We also plan to use the Advanced Procurement Mechanism (APM) and have requested allowances for bespoke procurement as part of the APM Re-opener window in April 2026, which is subject to Ofgem pre-approval.
Resource availability: There are notable concerns about construction industry staffing levels, limitations in commissioning specialist resources and restrictions on network outage availability.	This can be mitigated through early commitment and appropriate prioritisation of this project.

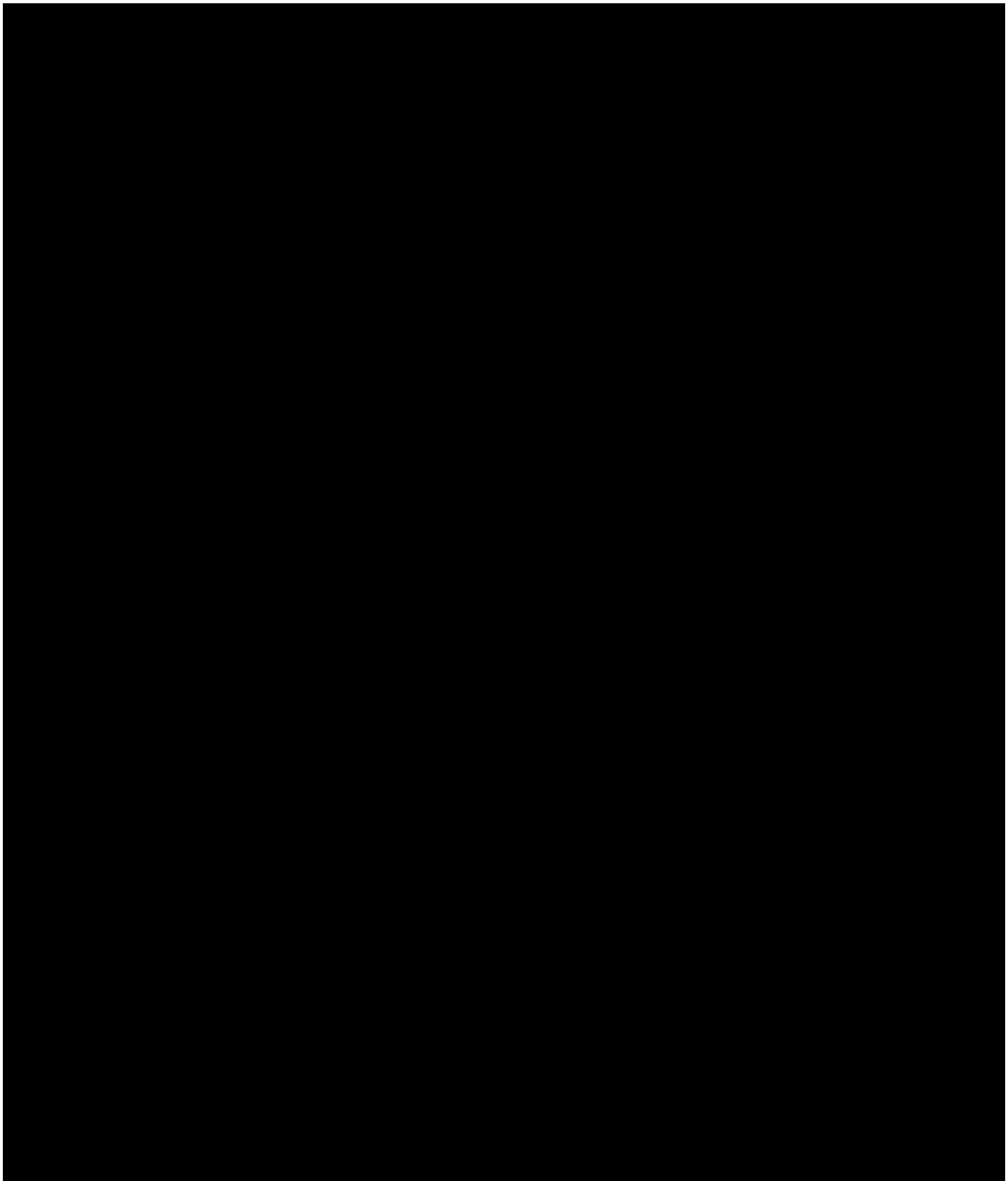
6. Conclusion

This paper presents our Eligibility Letter for Tees Dock substation and outlines a preferred solution for Tees Dock Substation. It seeks confirmation of eligibility under Special Condition 3.18, confirmation of eligibility for PCF under Special Condition 3.15, confirmation of re-opener Track 2 EL and formal approval of the preferred option. We will continue development and intend to submit a Project Assessment in line with the re-opener process.

Appendix

A1. System design table

The system design table, which is **equivalent across all shortlisted options**, is provided below.



A2. Site optioneering longlist appraisal

Table 16: Longlist appraisal for site optioneering

Site Option	Access	Ecology	Water	Landscape and Ground Conditions	Heritage	Socio-Economic and Planning	Technical	Other
TD01	Not carried forward into long list appraisal due to more extensive OHL/cable circuit and HV/LV connections.							
TD02	• Access to A1053 and A66 via existing Wilton International entrance	• Wilton Wood Ancient Woodland 1.79km south • Several trees onsite • Notable tree 310m south, 700m west & 1.95km south (cluster including Ancient & Veteran trees)	• Castle Gill and Kettle Beck on site. These are classed as rivers but from aerial view they appear to be similar to drainage ditches	• Remediation potentially ongoing on site • CRoW land 1.94km south • Nearest residential property 460m west in Grangetown • Unknown brownfield conditions • Historic maps show above ground tanks on site and areas with concrete	• Closest Listed Building (Grade II) 1.11km south • Wilton Conservation Area 1.32km south	• Not constrained • Within Wilton International Industrial Park. Acquired by [redacted] Utilities in 2003. • Non-agricultural (urban) grade land • Site planning history includes Hygreen Hydrogen Project (R/2023/0179/SCP – no application submitted yet), Alterations to Tees Dock roundabout for access to Lackenby development (R/2023/0799/FFM – approved) and H2 Teeside – carbon capture facility (submitted to the Secretary of State) • NG have engaged with [redacted] which have indicated the small parcel to the south west for the siting of the substation in order not to impact the development potential of the rest of the site. • High risk of CPO required for this site until landowner discussions progress	• Intersected by 400 kV route ZZA • 24.5ha site area • Allows for standard primary layout design • Good proximity to existing OHL • Less preferable site orientation • Close to anticipated reinforcement connections	• Foundations / structures remain on site • Roads on site • Historic landfills directly 270m & 380m west
TD03	• Access to A66 via Dockside Road west or Saint Rose Way and Tees Dock Road east	• Teesmouth and Cleveland Coast SSSI/SPA 590m north • Teesmouth and Cleveland Coast Ramsar 900m north-west • Notable tree 1.60km & 1.94km south	• Artificial pond on site • Flood Zones 2 & 3 750m north-west	• Remediation ongoing on site • Nearest residential property 855m south-west in South Bank • Unknown brownfield conditions	• Closest Listed Building (Grade II*) 1.07km south-west	• Designated as a future phase by approved application (R/2020/0357) for the development of Tees Dock South Bank • Within Tees Dock South Bank Industrial Park • Non-agricultural (urban) grade land	• 400 kV route ZZA 115m south • OHL connections would cross railway. Technical assurance required so as not to disturb the operational railway • Ongoing asset management with NR required – additional stakeholder management • 24.5ha site area • Allows for standard primary layout design • Good proximity to existing OHL • Less preferable site orientation • More remote from anticipated reinforcement connections	• Above ground infrastructure in the north-west corner of the Site • Historic landfill directly east and still in use

Site Option	Access	Ecology	Water	Landscape and Ground Conditions	Heritage	Socio-Economic and Planning	Technical	Other
TD04	• Access to A66 via Saint Rose Way and Tees Dock Road	• Teesmouth and Cleveland Coast SSSI/SPA 320m north • Teesmouth and Cleveland Coast Ramsar 1.53km north-west • Notable tree 1.61km & 1.85km south	• Knitting Wife Beck river on Site • Flood Zones 2 & 3 on site	• Remediation ongoing on site • Nearest residential property 1.1km south in Grangetown • Unknown brownfield conditions	• Closest Listed Building (Grade II*) 1.88km south-west	• Designated as four blocks of general industry by approved application (R/2020/0357) for the development of Tees Dock South Bank • Within Tees Dock South Bank Industrial Park • Non-agricultural (urban) grade land	• 400 kV route ZZA & 275 kV YYQ route 30m east • OHL connections would cross railway. Technical assurance required so as not to disturb the operational railway • Ongoing asset management with NR required – additional stakeholder management • 24.5ha site area • Allows for standard primary layout design • Good proximity to existing OHL • Less preferable site orientation • More remote from anticipated reinforcement connections	• Historic landfill 175m west
TD05	• Access to A1085 via existing Wilton International entrance	• Teesmouth and Cleveland Coast SSSI/SPA 1.48km north • Teesmouth and Cleveland Coast Ramsar 1.74km north-west	• Artificial pond on site • Flood Zone 2 240m north • Flood Zone 3 575m east	• Remediation potentially ongoing on site • Nearest residential property 385m north-east in Dormanstown • Unknown brownfield conditions	• Closest Listed Building (Grade II) 870m east • Kirkleatham Conservation Area 1.36km south-east	• Located within Wilton International Industrial Park • Intersected by approved data centre application (R/2023/0404) and H2Teeside NSIP laydown area • Non-agricultural (urban) grade land	• 275 kV YYQ route 740m north-west • 23.6ha & 5.3ha site areas • Potentially complex primary layout design. • Poor proximity to existing infrastructure will require significantly more OHL/cable design & construction scope & mean longer programme. • Technical solution would require OHL and the existing 400 kV line is 2.5km away.	• Foundations / structures remain on site • Roads on site • Pipes on site would complicate design due to standoff distance required • Historic landfill 390m north-west
TD06	Not carried forward into long list appraisal due to more extensive OHL/cable circuit and HV/LV connections as well as layout constraints of a non-contiguous site.							
TD07	Not carried forward into long list appraisal due to more extensive OHL/cable circuit and HV/LV connections as well as layout constraints of a non-contiguous site.							
TD08	• Access to A66 via bridges over Tees Dock Road (one of which is height limited) to the west or via British Steel to the east	• Teesmouth and Cleveland Coast SSSI/SPA 850m north • Notable tree 800m & 910m south	• Unnamed stream on site • Flood Zones 2 & 3 440m north	• Remediation ongoing on site • Nearest residential property 260m south in Grangetown • Known brownfield	• Closest Listed Building (Grade II) 1.7km west	• Located in Lackenby Industrial Park • Intersected by [redacted] supergrid transformer application (R/2025/0221/FFM). Following NG feedback this application was intended to safeguard a potential location for the Tees Dock substation • Non-agricultural (urban) grade land	• Site doesn't fit the 700mx350m new substation spatial requirement. Micrositing may be required. • Intersected by 275 kV	• Foundations / structures remain on site which may complicate electrical design • Roads on site

Site Option	Access	Ecology	Water	Landscape and Ground Conditions	Heritage	Socio-Economic and Planning	Technical	Other
	• New access road planned from the roundabout directly to the south (A66/Tees Dock Road intersection) directly into the site			conditions could present construction challenges (particularly in the north)			route YYQ • 400 kV route ZZA 65m west • 32.6ha site area • Well known standard preliminary layout design • Close to existing OHLs and anticipated reinforcement connections	• Historic landfills 160m, 230m, 240m & 400m south
TD09	• Access to A174 via Lackenby Lane and B1380 (adjacent to existing substation) • Existing access roads have 60mph speed limit and access road to the Site would require adjustment to the speed limit and potential road reconfiguration resulting in a long consultation process with local planning and highways authorities	• Wilton Wood Ancient Woodland 1.34km south-east • Eston Moor Local Nature Reserve 1.32km south • Several trees & hedgerows on site • Greenfield site • Notable tree onsite, 400m north-west & 1.75km south-east (cluster including Ancient & Veteran trees)	• Two unnamed drains on site	• CRoW land 1km south • Nearest residential property 145m west in Whale Hill • Sensitive receptors including primary school & community centre within 500m - may trigger additional noise mitigation scope for SGTs. • Greenfield site – ground conditions favourable	• Closest Listed Building (Grade II) 230m south • Marton medieval villages • Nab hill fort, palisaded settlement and beacon Scheduled Monument 1.30km south • Wilton Conservation Area 700m south-east	• Northern section of site is within a "green wedge" as per local plan (this holds less weight than a national designation but remains a barrier to development) • Building adjacent and within green wedge presents challenges as it would be against planning preference and licence obligations. This would also present challenges relating to environmental surveys, protection of trees and their Root Protection Areas which may impact programme. • A bridleway runs along the western and northern boundaries of the Site • Non-agricultural (urban) grade land	• Intersected by 400 kV route ZZA and 275 kV route YYV • Site doesn't fit the 700mx350m new substation spatial requirement. Micrositing may be required. • 19.6ha site area • Complex preliminary layout design due to narrow site • Close to anticipated reinforcement connections • Good proximity to existing OHL	• Historic landfills 65m east & 360m north
TD10	• Access to A66 via Dorman Point Way and Eston Road	• Teesmouth and Cleveland Coast SSSI/SPA 1.20km north • Notable tree 870m & 1.17km south	• Artificial pond on site • Flood Zones 2 & 3 600m north	• Remediated site could offer programme advantage. Standard remediation specification undertaken by Balfour Beatty. • Low risk of unknown ground condition due to previous land use. This will enable earlier site access which offers a benefit from programme perspective. • Nearest residential property 350m south in Grangetown	• Closest Listed Building (Grade II) 1.20km west	• Located in Dorman Point Industrial Park • Intersected by approved SAF facility application (R/2023/0646/ESM) and approved renewable gas facility application (R/2023/0080) • Intersected by planned roads (see R/2019/0767/OOM) • Noted through National Grid discussion with the landowner as available for development • Non-agricultural (urban) grade land	• Site doesn't fit the 700mx350m new substation spatial requirement. Micrositing may be required. • 400 kV route ZZA directly east • 25.1ha site area • Partly known standard preliminary layout design • Good proximity to existing OHL and anticipated reinforcement connections • Future expansion potential if adjacent currently undeveloped spaces can be acquired.	• Historic landfills 230m, 455m & 470m south-east

A3. Images of longlist options

A3.1 Option E-1: New indoor AIS substation on [redacted] land

Please see option E-4, below, for possible layout.

A3.2 Option E-2: New indoor GIS substation on [redacted] estate land

Possible layouts for Option E-2 are presented below in Figure 16 to Figure 18. The single line diagram (SLD) for this option, which is the SLD that represents all four shortlisted options, is presented in Figure 19.

Figure 16: Layout drawing 1 for Option E-2

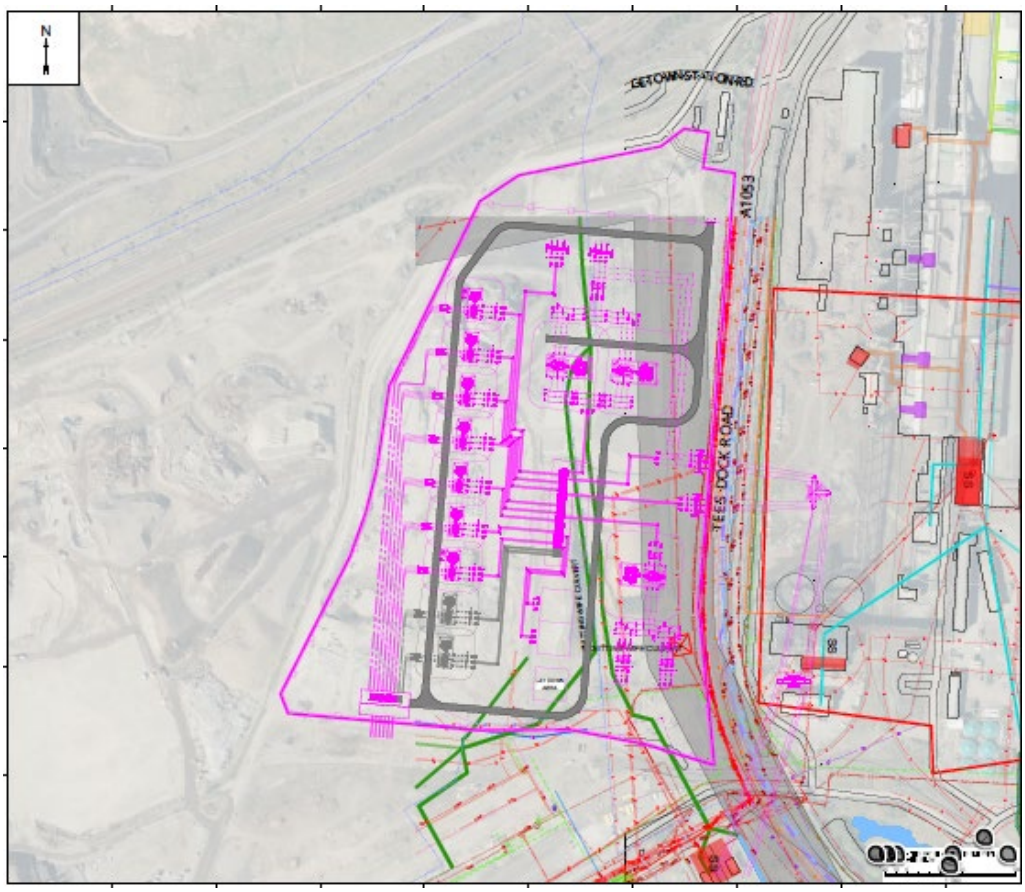


Figure 17: Layout drawing 2 for Option E-2

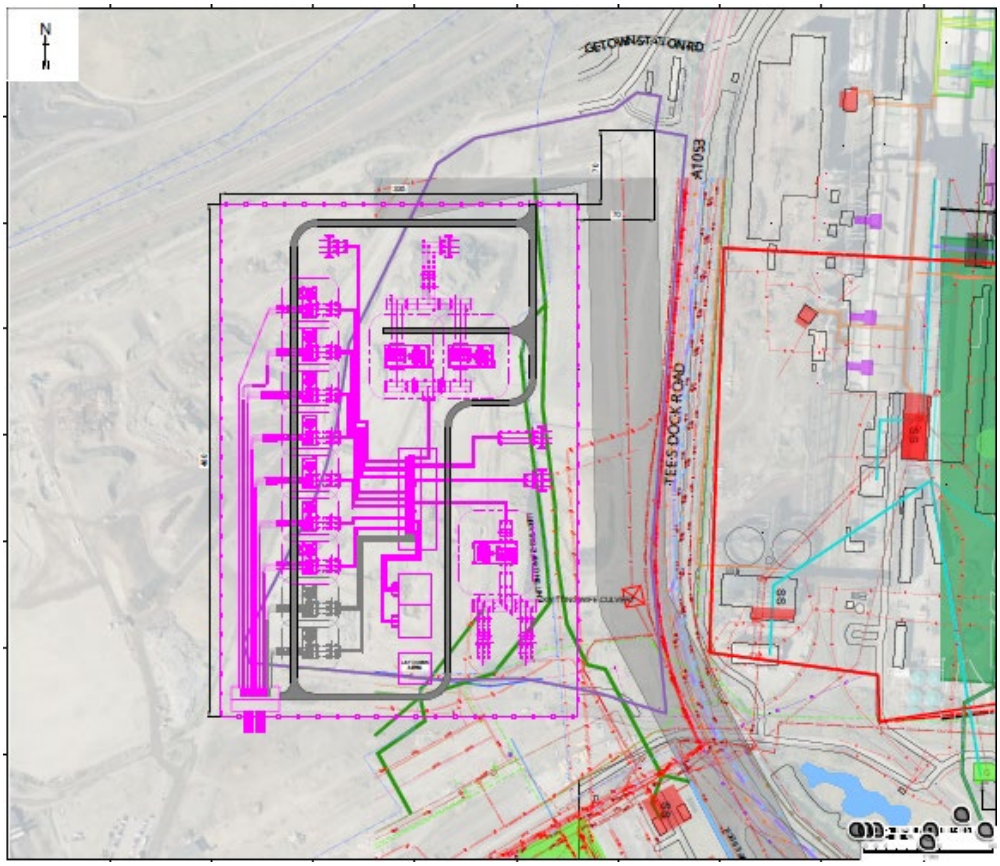


Figure 18: Layout drawing 3 for Option E-2

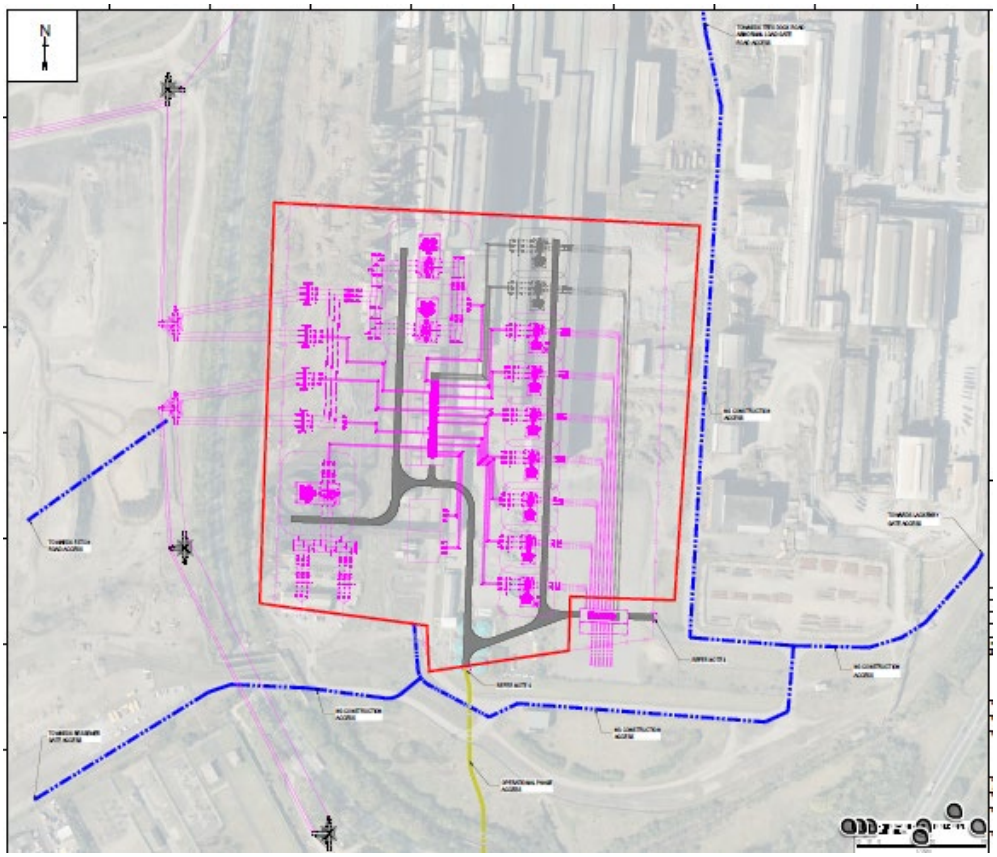
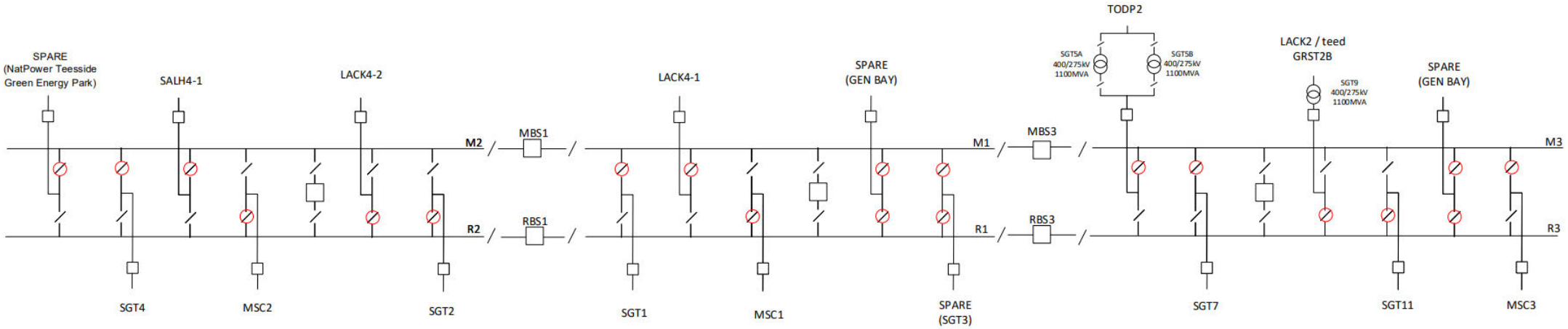


Figure 19: Single line diagram for all shortlisted options



A3.3 Option E-3: New outdoor AIS substation on other grantors' land

After establishing that the landowner of the site was unwilling to agree to a voluntary sale/lease, we did not undertake the engineering activity of producing layout drawings.

A3.4 Option E-4: New outdoor AIS substation on [redacted] land

Possible layouts for Option E-4 are presented below. An insight from this exercise is that the solution will not fit in the space available. The SLD is shown above in Appendix 3.2.

Figure 20: Layout drawing 1 for Option E-4

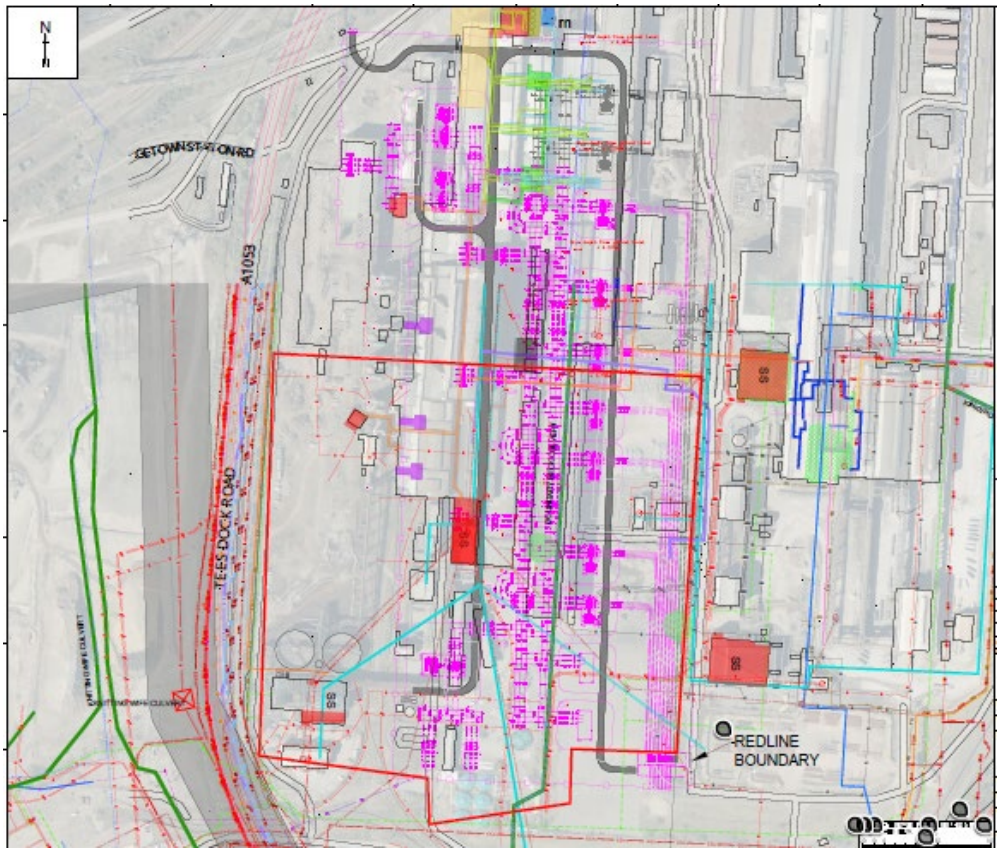


Figure 21: Layout drawing 2 for Option E-4

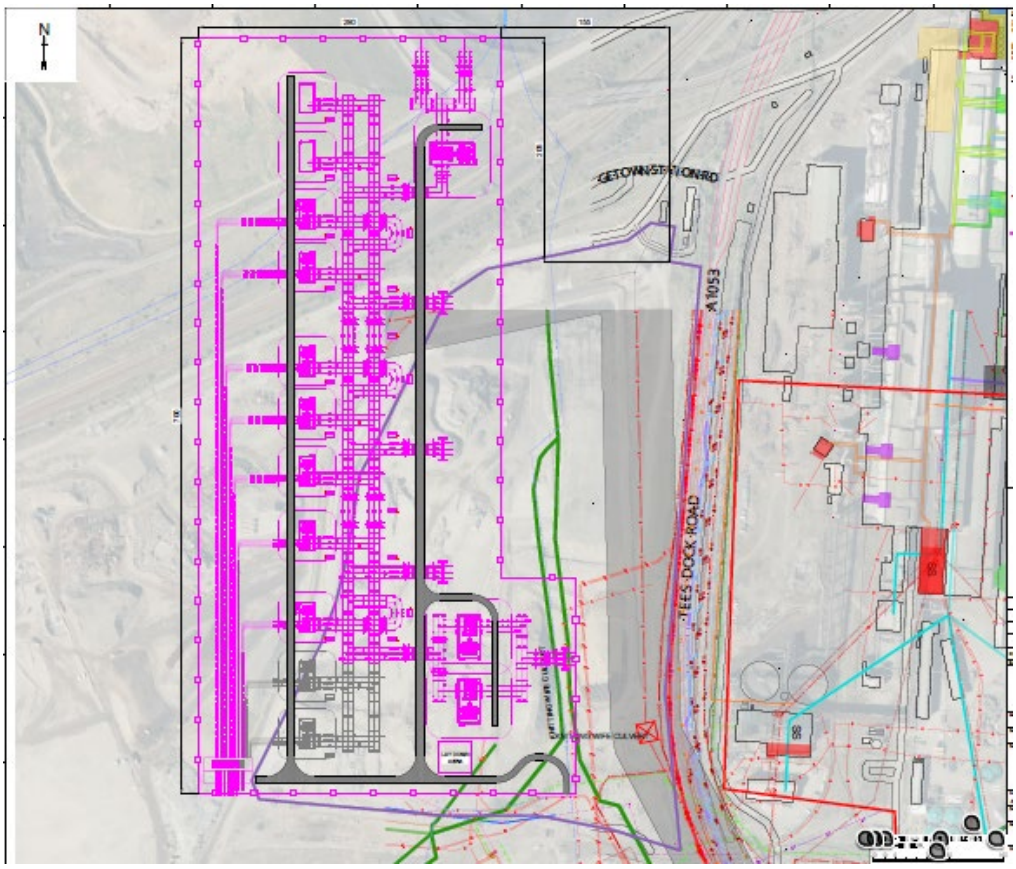
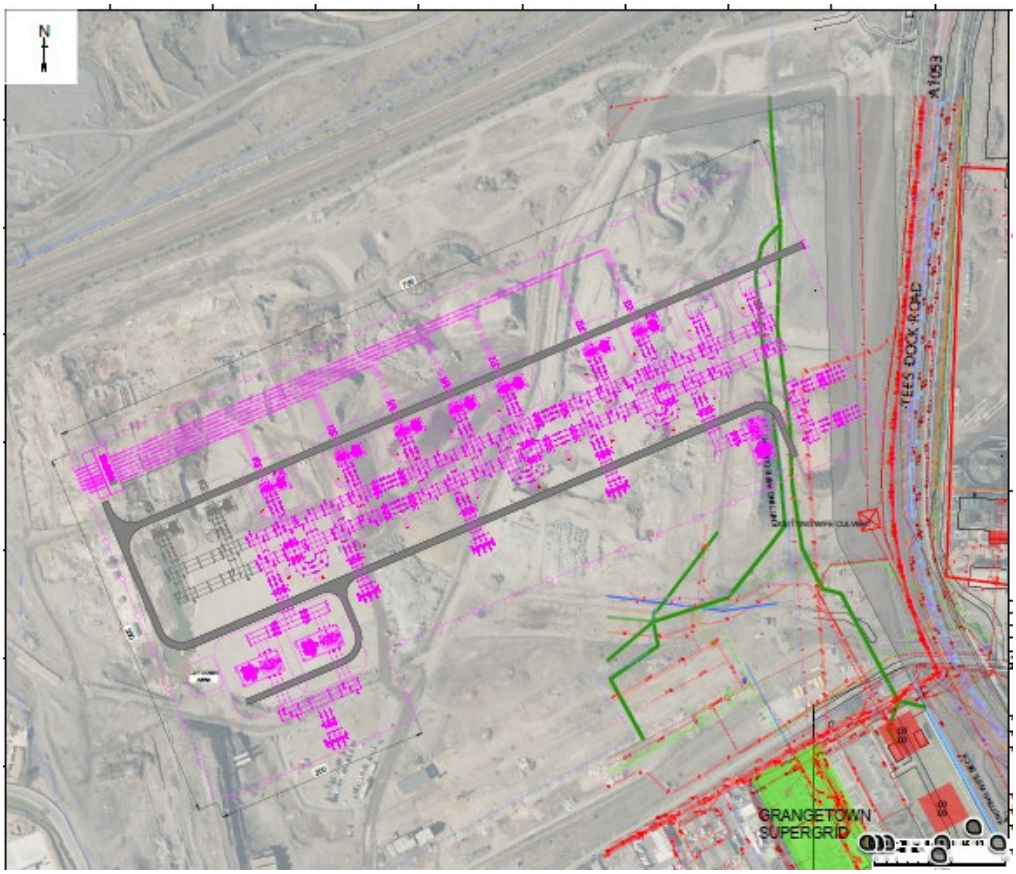


Figure 22: Layout drawing 3 for Option E-4



A4. Land ownership maps

Land ownership maps for the shortlisted sites are shown in the figures below. Sites TD08 (Dorman Point) and TD10 (Lackenby), each within the [redacted] Estate, are shown in Figure 23. An equivalent map is provided for site TD02 ([redacted] Estate) in Figure 24. Please refer to the site optioneering in Section 4.2 for further information.

Figure 23: Land ownership map for Dorman Point and Lackenby sites

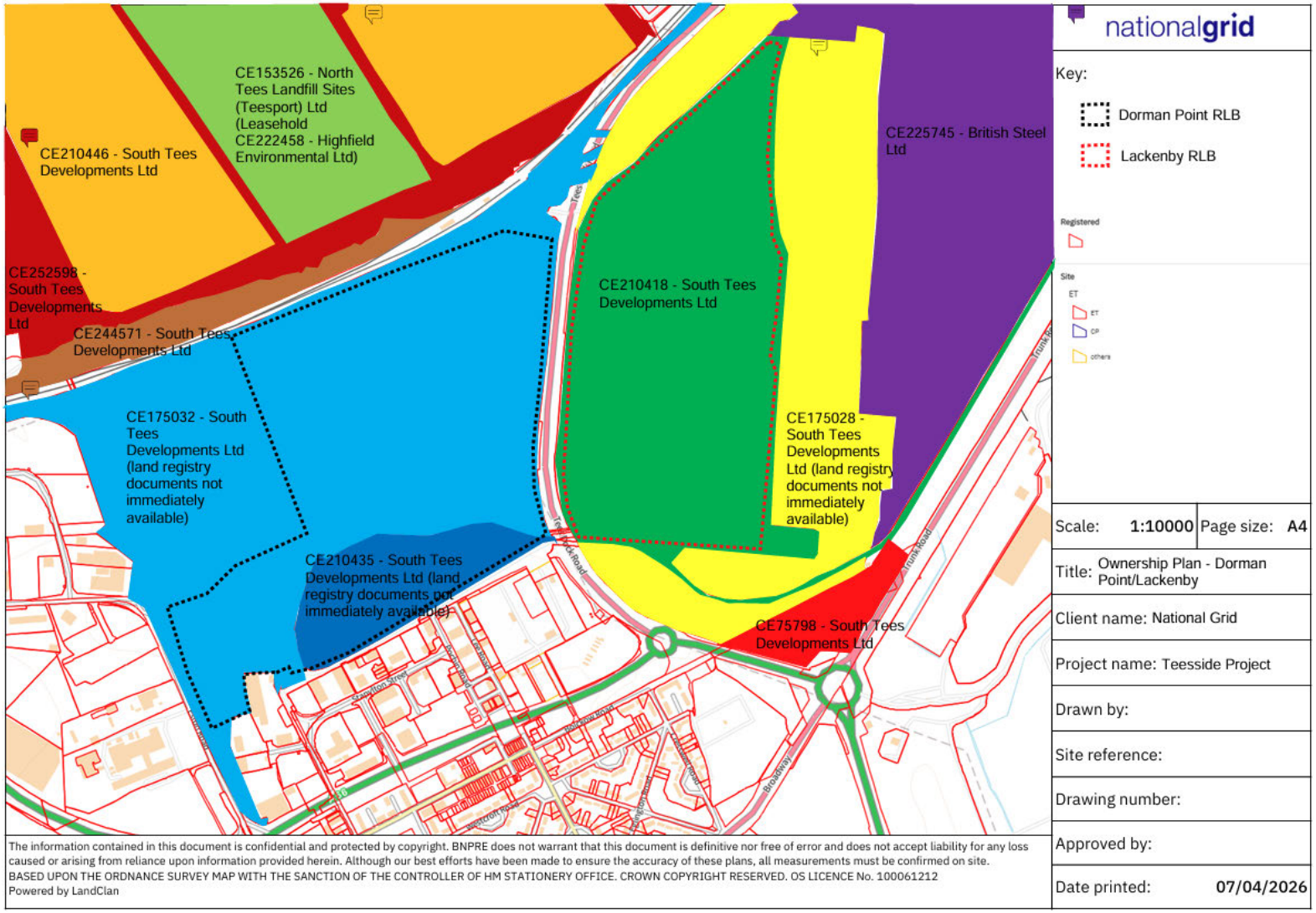
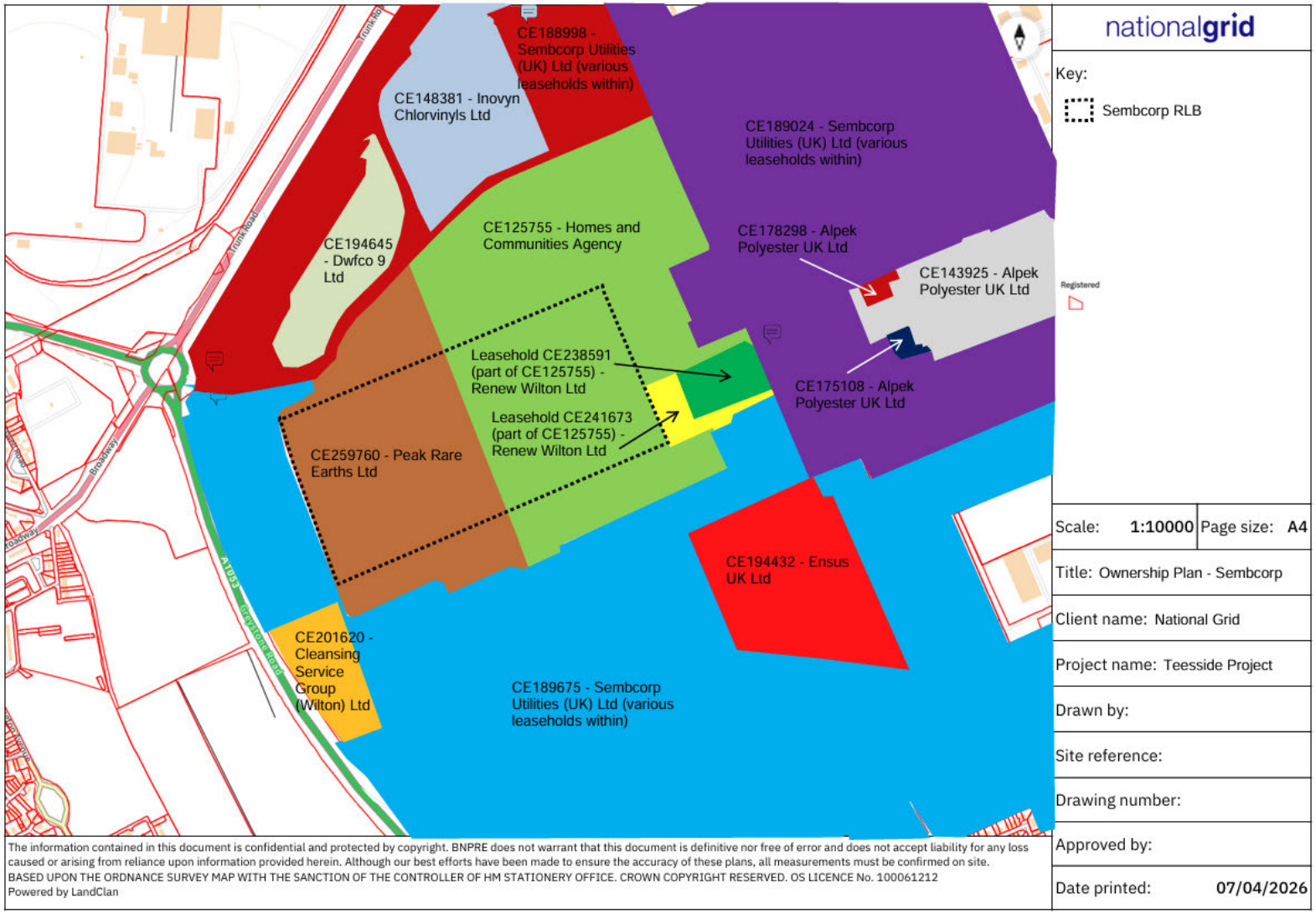


Figure 24: Land ownership map for [redacted] site



A5. Glossary

Abbreviation	Description
CRoW	Countryside and Rights of Way
HV	High voltage
LV	Low voltage
NSIP	Nationally Significant Infrastructure Project
OHL	Overhead line
SAF	Sustainable Aviation Fuel
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

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