

PROJECT NEED AND ENGINEERING

**THE NATIONAL GRID ELECTRICITY TRANSMISSION (HARKER ENERGY
ENABLEMENT PROJECT) COMPULSORY PURCHASE ORDER 2023**

STATEMENT OF EVIDENCE

OF

JASON BROWN

1 QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is Jason Brown, and I am the Project Manager (“PM”) at National Grid for the Harker Energy Enablement overhead line project leading on all aspects of delivery including direct management of the nominated contractor engaged to deliver the works. I joined National Grid in 2010 and became a PM in 2014.
- 1.2 I am a member of the association of project managers and lead a multi-disciplined team engaged to deliver the project. I have 10 years’ experience undertaking detailed design and construction supervision for infrastructure projects throughout England and Wales. I have managed and successfully delivered numerous overhead line and substation projects for National Grid.
- 1.3 As PM on the Harker Energy Enablement project in Cumbria, my role is to manage all stakeholders . I am responsible for proactively managing risks and considering the longer-term delivery strategy of the scheme.
- 1.4 I joined National Grid on an engineering trainee programme in 2010 which exposed me to a wide range of experience across the company. On graduating from Aston University, I was placed into the Capital Delivery division of National Grid as a Project Officer which allowed first-hand experience in all aspects of project delivery under the supervision of experienced Project Managers until being promoted to position of Project Manager in 2014. Selected projects that I have successfully delivered are diverse and have given me experience in a wide range of national infrastructure projects including –
- Connah’s Quay New Gas Insulated Substation (GIS). 8 OHL circuits transferred from Deeside air insulated substation (AIS) into Connahs Quay GIS.
 - Penrhos-Wylfa 132kV OHL Full Refurbishment
 - Bicker Fen substation re-build and re-configuration to allow a customer connection of an offshore windfarm including the management of the customer connection contract.
 - Cottam-High Marham OHL tower replacement scheme. In-situ replacement/refurbishment of 27 towers.
 - Portfolio management of the replacement of feeder protection schemes in substations across England and Wales.

2 INTRODUCTION AND SCOPE OF EVIDENCE

- 2.1 My statement of evidence covers matters relating to the need for the Harker Energy Enablement Protect (“the Project”). The evidence covers the engineering aspects of the Project and describes the processes and engineering decisions that have informed the scheme and overhead route development. It explains how the Project will be constructed and operated and the identification of construction sites.
- 2.2 The Project comprises the construction of an offline greenfield rebuild of the Harker 132kV and 400kV substations, and the rationalisation of the 275kV substation for completion in 2026 together with overhead line circuit uprating of Chapel Cross – Harker 132kV circuit and Gretna – Harker – Hawick 132kV circuit via installation of higher rated conductor and installation of a new Gretna – Harker – Hawick 132kV circuit.

- 2.3 In broad terms my statement will explain the reasons why National Grid will need to deliver the Project and the key business decisions that are driving it. It will also explain the compelling case in the public interest for the Project.
- 2.4 In this statement of evidence, I cover:
- (A) Section 3, National Grid: An overview of the roles and duties of National Grid;
 - (B) Section 4, Overview of the Project: An overview description of the various elements of the Project;
 - (C) Section 5, The Project Need: An explanation of the principal drivers and policy support for the Project and the absence of alternative solutions to meet the identified need;
 - (D) Section 6, Land/rights required for the delivery of the Project: Details of the proposed works and the land and interests required to deliver the Project;
 - (E) Section 7, Consideration of objections: A response to the four objections that have been received to the CPO, insofar as they relate to the need for the Project, engineering matters and the requirement to acquire rights over the land owned by the objectors in order to deliver the Project;
 - (F) Section 8, Human Rights: An explanation of the human rights implications of the proposed compulsory acquisition and consideration of equality impacts.
 - (G) Section 9, Compelling Case in the Public Interest: An explanation of the compelling case in the public interest that justifies the exercise of compulsory purchase powers

3 NATIONAL GRID

- 3.1 The electricity market is highly-regulated in the UK, with power “generators”, “system operators”, “transmitters”, “distribution network operators” and “suppliers”. All are typically private enterprises, but the networks are regulated monopolies.
- 3.2 The National Grid family of companies includes legally separate business entities performing:
- (a) the “system operator” role – balancing the need and demand for the UK electricity network on a day to day basis; and
 - (b) the “transmission operator” – in England and Wales owning, operating, building and maintaining the electricity transmission network.
- 3.3 The Order (**CD D01**) has been made by National Grid Electricity Transmission PLC (NGET) as the transmission operator. NGET owns the high voltage electricity transmission network in England and Wales. NGET is also a holder of an electricity transmission licence under the Electricity Act 1989, with a statutory duty under Section 9 of the 1989 Act “to develop and maintain an efficient, co-ordinated and economical system of electricity transmission”.
- 3.4 NGET is obliged by its Transmission Licence (**CD F01**) to maintain the Connection and Use of System Code (CUSC) and to enter into arrangements for connection and use of the network with users pursuant to its terms. These users include generators and distributed network operators (DNOs).
- 3.5 For shorthand in this statement of evidence I refer to “National Grid” to mean NGET, as well as the family of companies more generally.

4 OVERVIEW OF THE PROJECT

- 4.1 The Project is situated in the north of England and comprises the upgrade of the Harker substation and works to three existing overhead lines as detailed below. As such, most of the Order Land (as shown in the Order Maps, **CD D02**) either comprises of, or is immediately adjacent to, land on which existing electricity transmission infrastructure is already situated. As described further below, outside of the existing substation, the Order Land is predominantly agricultural land.
- 4.2 The existing Harker Substation is located approximately 5.5 km north of Carlisle and lies in the administrative area of Carlisle City Council ("the Council"). The settlement of Harker lies to the east of the substation. To the north of the substation, the land is dominated by modified grassland used for grazing livestock, with fields separated by a mix of hedgerows, wet ditches, fences and lines of trees. The area immediately to the east of the substation was recently used as a construction site for the separate Power Flow project and the area to the west of the substation comprises modified grassland fields, bounded by hedgerows and ditches.

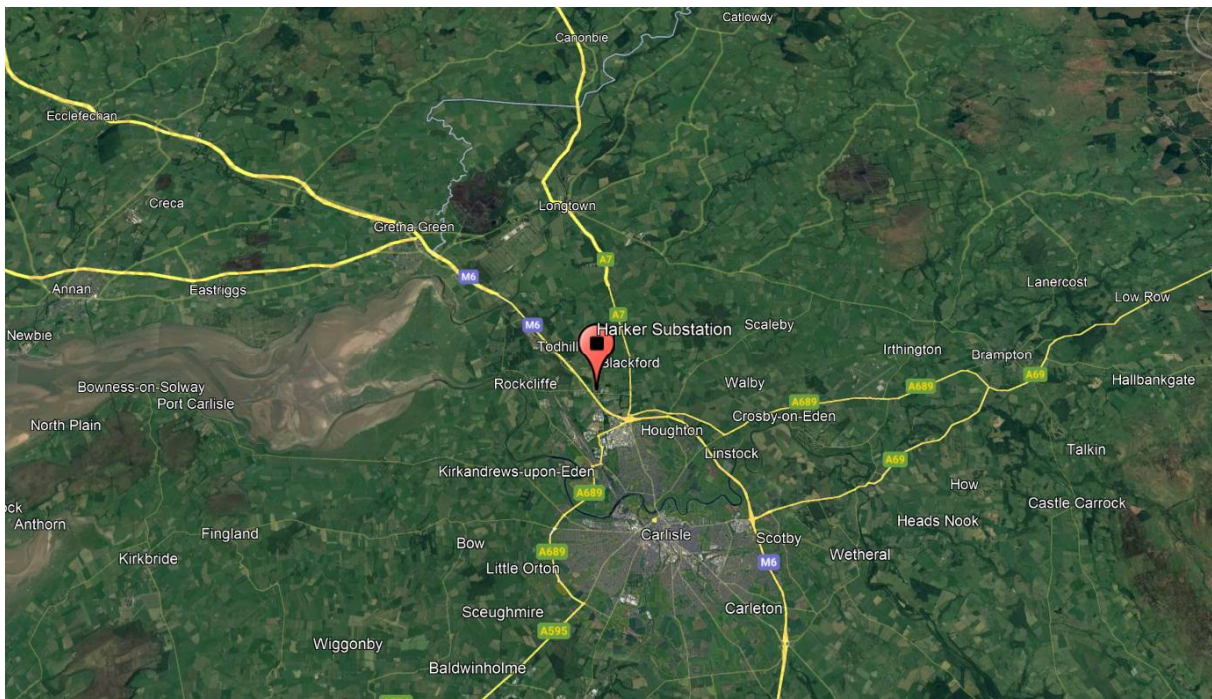


Fig1. Geographical Location of Harker Substation

- 4.3 The existing Harker Substation comprises three main elements:
- 132 kV AIS site built in the 1950s (HARK1);
 - 275 kV AIS site (HARK2) built in the 1950s and 1960s; and
 - 400kV GIS site (HARK 4) built in the 1990s with additions approximately 10 years ago.



Fig2. Harker Substation Layout

4.4 Electricity is transported from the Harker Substation via the following overhead line routes shown below:

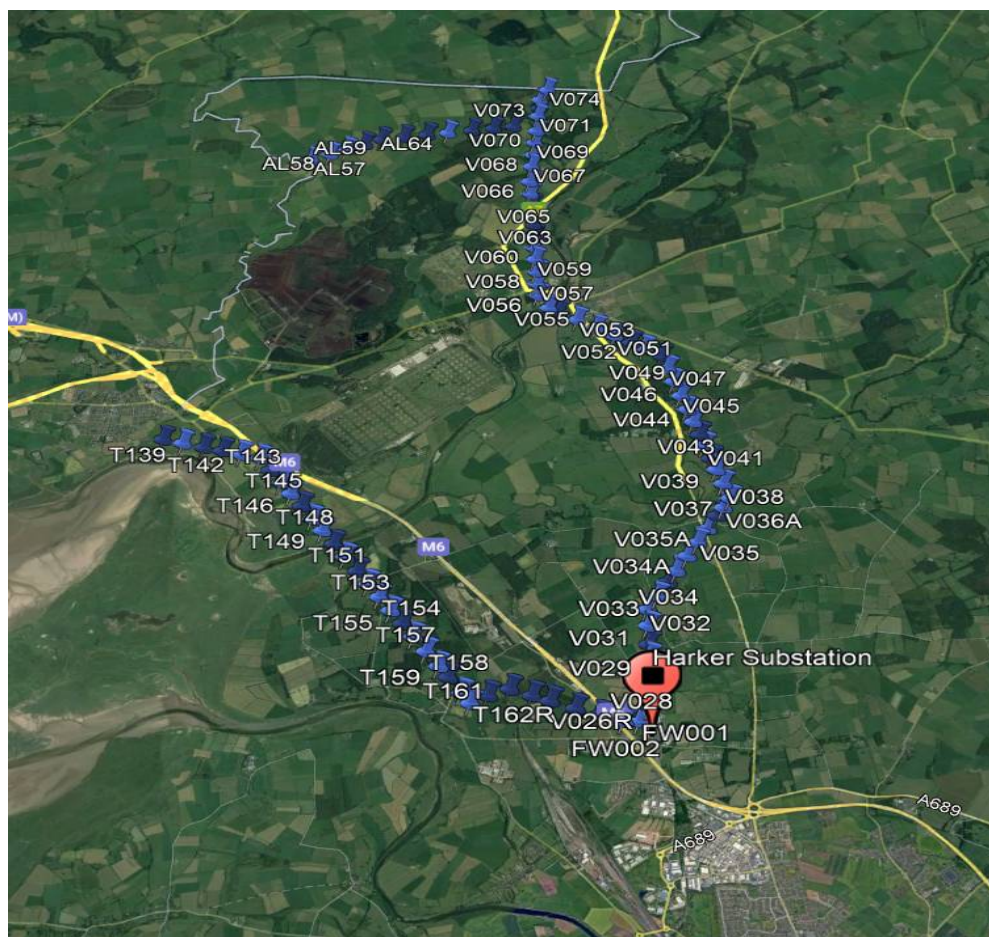


Fig3. T, V and AL OHL Routes

- (a) V Route (denoted by the towers beginning with a 'V' reference in Fig3) runs north from Harker substation for 13km and connects to the AL route to form a 3-ended circuit Gretna-Harker-Hawick. The route crosses predominantly agricultural land, with the exception of Longtown where the route runs along the western edge of the town, close to residential gardens and through a livestock auction mart site. To the north of Longtown, the route passes through areas of woodland before reaching the Scottish Border. This route is currently a single 132kV circuit.
 - (b) AL Route (denoted by the towers beginning with a 'AL' reference in Fig3) consists of two 132kV circuits – Gretna-Hawick and Gretna-Harker-Hawick. The AL Route connects to the V route approximately 1 km south of the Scottish border and runs westwards across agricultural land with some areas of woodland. After 3.5km the AL route meets the Scottish Border at the River Sark (Corries Mill Bridge), towards Gretna. As such the AL Route crosses the Anglo/Scottish border, with its western end lying in Scotland. The Scottish section of the AL is the responsibility of Scottish Power Transmission (SPT).
 - (c) T Route (denoted by the tower beginning with a 'T' reference in Fig3) is a single 6.5km circuit which forms the Harker-Chapel Cross circuit connecting to Chapel Cross substation with its Northern end lying in Scotland. The T route is located across agricultural land, passes through areas of woodland, crosses the River Esk with its associated areas of grazing marshes, before reaching the Scottish Border at the River Sark. The Scottish section of the T-route is the responsibility of SPT and so does not form part of the Project for the purposes of the Order. The southern end of the circuit is located on agricultural land to the East of Rockcliffe, and ties into an OHL route shared with ENWL (FW) at FW8 and runs in an easterly direction to Harker Substation at FW1. There will be a requirement to construct a new cable sealing end platform at FW1 to allow transfer of the circuit, via cable, to the planned new 132kV substation to the north of the existing site.
- 4.5 The Project comprises the replacement of HARK1, the removal of the majority of HARK 2 and part replacement of HARK 4 through an extension to the existing substation (together the Substation Rebuild) as well as overhead line works being the installation of a second 132 kV and uprating of the existing circuit on the V Route, uprating the AL Route through the replacement of existing conductors with additional works to Tower AL068 and the erection of two new towers to form a duck under arrangement to enable the new V Route circuit to feed the AL Route and uprating of the T Route through the replacement of existing conductors (OHL Works).
- 4.6 The new OHL circuit will be installed on the existing V-route as shown in Fig3.
- 4.7 NGET developed a design for the Project for the purposes of seeking planning permission and promoting the Order. This was informed by a wide range of surveys and assessments, including ecological surveys, geophysical surveys, ground investigations (e.g. boreholes), soil surveys, historic environment, flood risk and land drainage assessments. Planning permission was granted for the substation rebuild in March 2023 (**CD C06**). The appointed principal contractor will be responsible for further developing the detailed design.
- 4.8 NGET has had regard to the Construction (Design and Management) Regulations 2015 (CDM) in its design of the Project. CDM ensures health and safety is coordinated and managed throughout all stages of a construction project (including during the development, design, construction and procurement stages) in order to reduce the risk of harm to those who will build,

use and maintain structures. These requirements have influenced the design and the areas required for construction, including but not limited to, compounds and access roads.

4.9 The component parts of the Project are described below.

4.10 Substation Rebuild - The Substation Rebuild is illustrated in the drawing below.

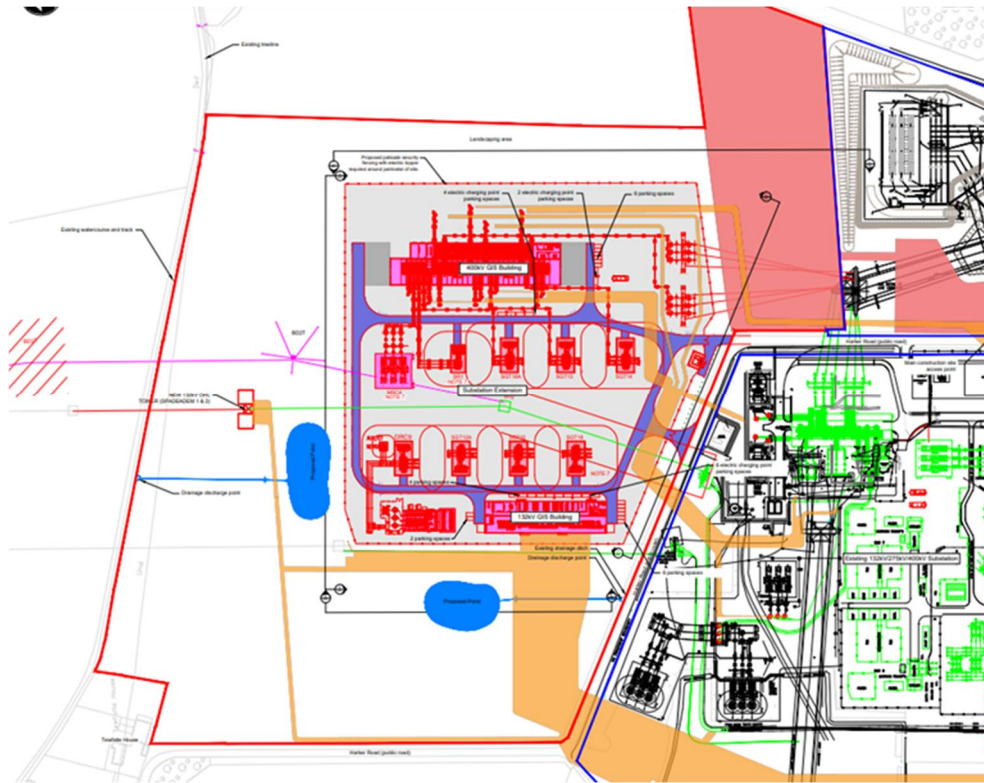


Fig4. Proposed New Harker Substation Layout

The component parts are described in more detail below:

- Outdoor equipment comprising: Six supergrid transformers; Gantries for the transition between the OHL and substation equipment; A short section (approximately 100 m long) of new OHL to connect the existing tower to the new gantries; Busbars and switchgear; A diesel generator for backup power supply.

- Buildings, which will contain the following: A 400 kV Gas Insulated Switchgear (GIS) Substation building; A 132 kV GIS Substation building; Welfare and associated switching rooms are housed inside the 400kV and 132kV switchgear buildings;
- Security perimeter fence. This will include an electric tipper, passive infra-red security lighting erected on columns and CCTV security cameras
- Car Park comprising a hardstanding will be provided for car parking.
- Access Road comprising permanent roads within and outside the substation will facilitate vehicular access.
- Service media comprising new fresh water, sewage, drainage, telecommunications equipment and low voltage power supplies to the site;
- Underground cable connections back to the existing substation.
- Additional works comprising areas of substation outside of access roads to be surfaced with stone chippings, two attenuation ponds, two outfalls (one to the north into Rockcliffe Beck and one into an existing ditch); and landscape and biodiversity planting.

4.11 OHL Works- V Route

The component parts of the V Route works are described in more detail below:

- Upgrading existing circuit by way of replacement of existing conductors and fittings and installation of a second 132 kV circuit on the existing towers (V Route Upgrading Works); and refurbishment of the existing towers including foundations as required based on condition.
- Installation of x2 gantries at V70 (V70A and V70B as shown in the diagram below) to facilitate a duck under arrangement whereby the newly installed second circuit travels underneath the existing AL route and connects to the existing Gretna-Hawick circuit to form a second Gretna-Harker-Hawick circuit. Please note the below diagram shows a lay-down area. This forms part of the work area during construction and will be removed along with all other temporary work areas once works are complete.

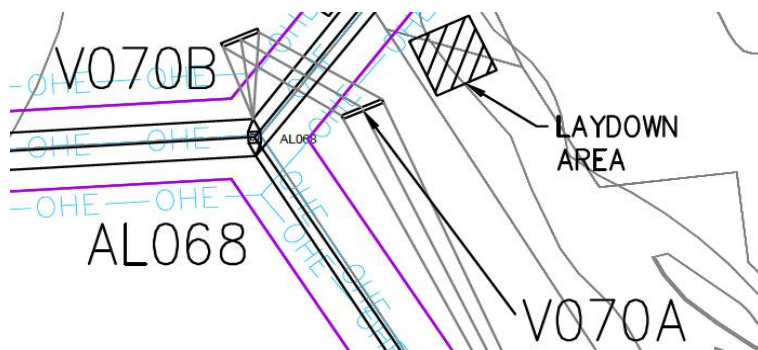


Fig5. New 'Duck-Under' arrangement at AL68 showing connection of new V-route circuit connecting to the existing AL circuit.

- Installation of a new OHL tower, V27 at Harker substation, to replace the existing V27 to allow the existing Gretna-Harker-Hawick and new second Gretna-Harker-Hawick circuit to be transferred from the existing 132kV substation to the new 132kV substation.
- Whilst the new tower at V27R is being constructed, a temporary tower will be installed in order to maintain the existing Gretna-Harker-Hawick line during construction shown in the below aerial shot. The green line is the temporary OHL diversion whilst V27 is being replaced to maintain a connection to the existing substation. This will be removed once the circuit is connected to the new substation from the new V27.

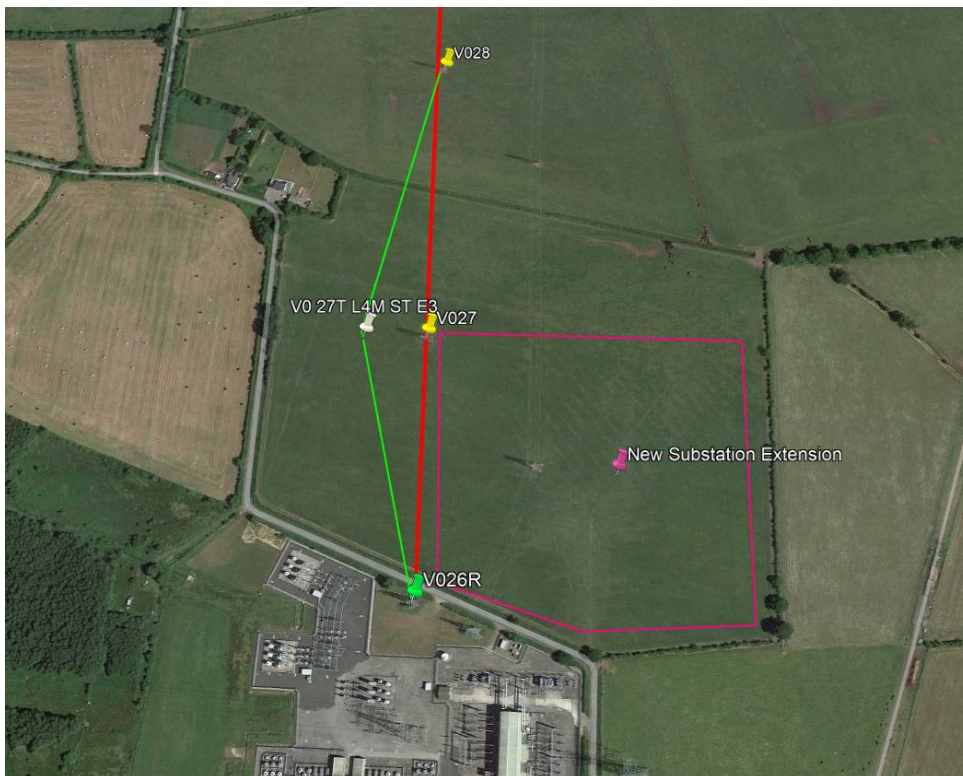


Fig6. Temporary OHL arrangement at Harker substation to allow replacement of V27 and transfer of route into the new substation.

4.12 OHL Works - T Route

There are no new towers, circuits or temporary arrangements on the T-route. The component parts of the T Route works are described in more detail below:

- Upgrading by way of replacement of existing conductors and associated fittings (T Route Upgrading Works); and refurbishment of the existing towers including foundations as required based on condition.
- Installation of a new cable sealing end platform at tower FW1 to facilitate the connection of the T-route circuit to the new substation.
- There will be a requirement to access the adjoining FW route (and specifically tower FW8) for safety earthing purposes.

4.13 OHL Works - AL Route

The component parts of the AL Route works are described in more detail below:

- Upgrading by way of replacement of existing conductors (AL Route Upgrading Works); and refurbishment of the existing towers including foundations as required based on condition.
 - Connection of the new V-route circuit to tower AL68 as shown in Fig5.
 - Construction Compound, Parking Areas and Accesses
- 4.14 Construction compounds, parking areas and accesses to each of the towers along the overhead lines are required to enable the construction, maintenance and decommissioning of the overhead line works as shown by way of example in Fig7. The construction compounds, the parking areas and accesses to each of the towers are shown generally on the Order Maps.

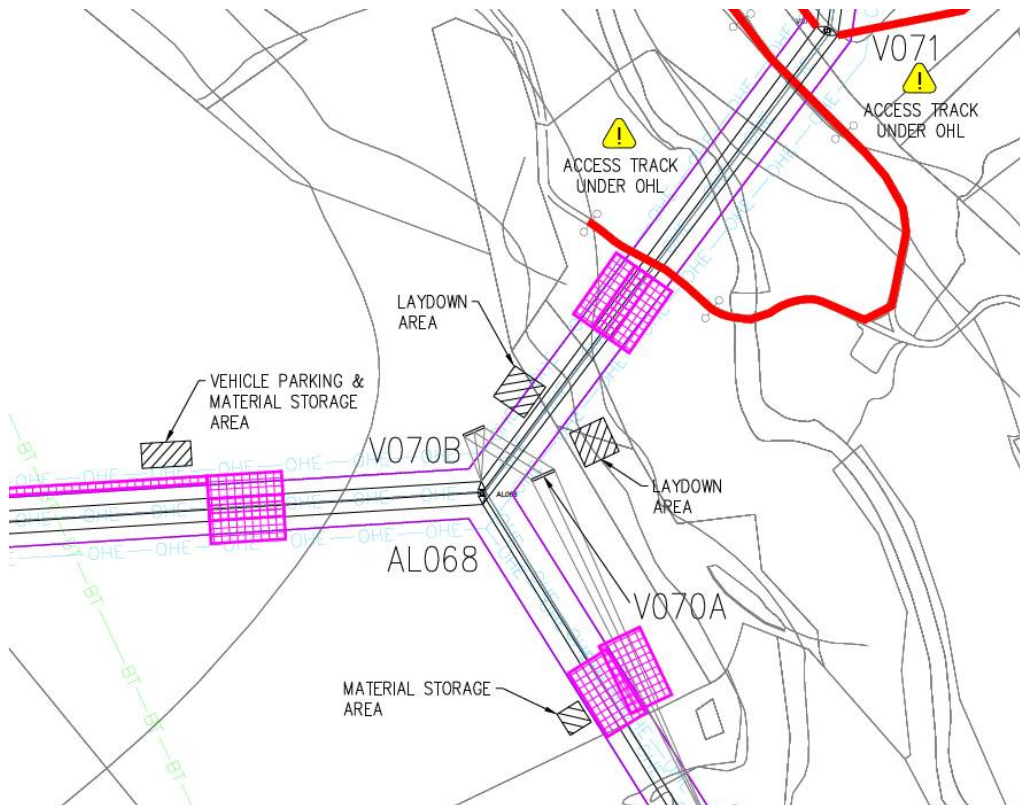


Fig7. Temporary work areas at AL68 to connect the new V-route circuit to the existing AL-Route.

Delivery Programme

- 4.15 NGET has an excellent track record in delivering infrastructure projects, including new substations, overhead lines and associated works. The programme for the Project is set out below.

OHL Works

- 4.16 The procurement process for the OHL Works, which lead to the appointment of the principal contractor, commenced in Q2 of 2022 and the first contracts were awarded in Q4 of 2022.
- 4.17 The pre-enabling ecological works commenced in Q4 of 2022 within the ecological season window.

- 4.18 Post contract award, the principal contractors conducted detailed design work, which will be required before the commencement of construction works, and place orders for the overhead line equipment.
- 4.19 The principal contractor will mobilise onsite and commence construction activities, which are planned for Q1 of 2025.
- 4.20 The construction end date, including commissioning and testing, is planned for Q3 of 2026.

Substation Rebuild

- 4.21 The procurement process for the substation works, which will lead to the appointment of the principal contractor, commenced in Q4 of 2022 and the first contracts being awarded in Q3 2023.
- 4.22 Post contract award, the principal contractor will conduct detailed design work, which will be required before the commencement of construction works, and place orders for the required substation and overhead line equipment.
- 4.23 The principal contractor will mobilise onsite and commence construction activities, which are planned for Q1 of 2024 on land already within NGET's ownership.
- 4.24 The construction end date is planned for Q4 of 2026.

5 THE NEED FOR THE PROJECT

- 5.1 The Project will play a key role in meeting the legally binding UK Government targets for Net Zero greenhouse gas emissions by 2050 and facilitating the increase in both demand and embedded generation levels seen by local Distribution Network Operators. Significant reinforcement of the electricity transmission system around the Anglo Scottish boundary (B6) is required to ensure the network can efficiently transfer electricity to areas of demand. Where electricity produced from generators in Scotland, often from green wind energy, is more than the circuits crossing the B6 boundary can transfer this prevents green energy to be transferred to higher demand areas in England It also creates the need for significant constraints action by the Electricity System Operator which includes payments to generators to decrease generation to match the energy that can be transferred.
- 5.2 The Project is the construction of an offline greenfield rebuild of the Harker 132kV (incl. 132kV overhead lines) and 400kV substations, and the rationalisation of the 275kV substation for completion in 2026. There are compelling load drivers, associated with the amount of energy that can be transferred through the OHL circuits and substation assets, and non-load related drivers, associated with physical asset condition which need to be replaced to ensure safe and efficient operation, for the Project, which include:
- **Boundary Transfer** – B6: Harker is a main bussing point, which is essentially a node in the transmission system which allows transfer and distribution of electricity for West Coast circuits that make up the primary boundary capacity transfer between Scotland and England. Much of the generation capacity in Scotland consists of renewable energy, with future connections forecasts indicating that this capacity will continue to grow for the UK to meet its 2050 Net Zero targets. Ensuring sufficient capacity between the transmission networks in Scotland and England is key to enabling this.
 - **Distributed Network Operator (DNO) and Transmission Operator (TO) capacity requirements:** The move towards electrification, as part of the transition towards Net Zero, will

increase the demand levels seen by local DNOs. Additional capacity at the distribution and transmission levels will be required to meet these increased demand levels. A second element of future DNO capacity needs is the growth of decentralised generation development, for example smaller scale generators (often renewables like solar) connecting to the distribution network rather than the transmission network. Connections between the transmission and distribution networks are required to export power from the distribution network to the transmission network where it can then be transported to other areas of the country, where power is needed most.

- **Customer connections:** There are number of customers looking to connect onto the current 400kV substation site. In the last three decades several extensions have been made to the site, however, any further extensions will not be feasible due to an already constrained site and without driving additional cost to potential customers, projects and consumers. NGET is contracted with the local electricity distribution company, Electricity North West Ltd (ENWL), to provide capacity to connect new distributed embedded generation across Cumbria. The Project is required to fulfil that connection offer.
- **Asset health issues:** The Harker site was constructed nearly 70 years ago and appropriately rated for the period. As demand has increased over time and generation has become less centralised (moved away from fewer large power stations, typically coal and gas powered, to more, smaller local generators widely dispersed, typically wind and solar, these ratings are incompatible with modern power system operation. Over the years, along with the rating changes, asset health issues have also materialised (cracking, corrosion, spalling etc.). These have been extensively repaired and refurbished, however, the issues are still present requiring risk mitigations to be in place. In order to be able to meet the Net Zero targets and accommodate the DNO/TO capacity requirements, the 132kV and 275kV substation sites require upgrading as their current condition is very poor and design rating inadequate.
- **Reducing SF6:** SF6 holding is concentrated at the 400kV substation site however there are also holdings at the gas circuit breakers at the 132kV and 275kV sites. There is a need to minimise SF6 losses, with NGET committed to reducing greenhouse house gas emissions from SF6 by 50% by 2030 and an ambition to achieve Net Zero by 2050 in-line with current UK legislation and Ofgem’s guidance in business planning activities.

5.3 NGET owns and maintains the high voltage electricity network in England and Wales and is required under section 9 of the 1989 Electricity Act to develop and maintain an efficient, co-ordinated and economical system of electricity distribution.

Wider Policy Drivers

5.4 The National Grid Electricity System Operator (NGESO) is the electricity system operator for Great Britain. NGESO annually reviews the network capabilities requirements which includes the following notable activities and publications:

5.5 Future Energy Scenarios (FES)– are developed annually by NGESO with input from industry and other stakeholders. The FES represent a range of different, credible ways in which the energy could evolve taking account of policy and legislation, including net zero targets.

5.6 Electricity Ten Year Statement (ETYS) – using data from the FES, NGESO undertakes and annual assessment to identify points on the transmission system where more network capability is needed to ensure that energy is delivered efficiently and reliably to where it is needed.

- 5.7 Network Options Assessment (NOA) – The NOA sets out NGENSO's recommendation for which reinforcement projects should receive investment during the coming year. These are assessed by NGENSO so that the most economic and efficient solutions are recommended to proceed, and others told to hold or stop. The NOA uses the latest methodology approved by Ofgem, and outputs from the FES and ETYS.
- 5.8 Scotland and the north of England is characteristically an 'exporting' region where installed generation capacity is more than enough to supply the local demand. Larger demand areas lie in central and south of England and so the energy flows across the southern Scottish and northern English boundaries are predominantly north-to-south, which is the main driver for reinforcements. The FES, ETYS and NOA have identified that Scotland has significant quantities of green energy coupled with lower demand and there is a need to increase the cross-border capabilities of the electric transmission network.
- 5.9 NGENSO has also published a suite of documents under the 'Pathway to 2030: A holistic network design to support offshore wind deployment for net zero' (July 2022, **CD F13**) in response to the UK Government's ambitions concerning offshore wind (as to which see below). The Pathway to 2030 Holistic Network Design (HND) Executive Summary recognises that as the scale of offshore wind deployment increases so does the need for additional transmission infrastructure to deliver the electricity generated to customers, going onto state that:
- "A significant step change is required to move from the current capacity of 11.3 GW to 50 GW by 2030, both in the roll out of the additional offshore wind farms themselves and the network required to connect and transport the electricity to where it can be used. Therefore, innovative thinking in network design has never been more important to ensure delivery of affordable, clean and secure power and meet the UK Government's ambitions....
- Publication of the innovative HND is just the start of the delivery of the transmission network required to facilitate 50 GW offshore wind by 2030.... Specifically, the time taken to build onshore transmission network infrastructure will need to be significantly reduced in order to meet the offshore wind ambitions and net zero targets."
- 5.10 The NOA published in July 2022 (July 2022 NOA, **CD F12**) forms part of the Pathway to 2030 suite of documents and recommends the continued development of significant cross-border transmission routes to provide additional corridors to export power south. The July 2022 NOA gave a "proceed" signal to a number of projects in the Central Belt and Anglo-Scottish Border region, including the Project. The July 2022 NOA identifies the Project as a HND essential option, being a reinforcement that is essential to deliver the Pathway to 2030.
- 5.11 Significant planned onshore wind generation in the south-west of Scotland will also feed southwards into Harker substation, along with upgrading of existing overhead lines with SPT. This increased generation creates an additional need to uprate and upgrade existing equipment at the Harker Substation site.
- 5.12 Additionally National Grid has an environmental ambition with particular focus on achieving net-zero carbon targets. Sulphur Hexafluoride (SF6) is an insulating gas used in substations, known to have environmental impacts if it leaks. In line with the UK government's net zero carbon target, National Grid's strategy is to reduce its SF6 emissions year-on-year progressing towards a net zero position by 2050. SF6 reduction has been a key consideration in developing proposals for the redevelopment of Harker Substation and the extension at Harker will contain all SF6 free equipment.

The Initial and Final Needs Cases for the Project

- 5.13 Ofgem issued its decision on the Initial Needs Case (INC) for the Project on 31 October 2022 (**CD F04**), following consultation on its findings in August 2022. This confirmed that Ofgem was satisfied that there is a clear needs case for the Project to “address the interdependent load and non-load drivers on [the] Harker site”. Ofgem also noted that “the deteriorating condition of the assets on the 132kV substation has played a significant role” in its decision and that “the alternative approach of a combination of individual, targeted solutions is unlikely to be in the long-term interest of consumers in this instance”.
- 5.14 The Final Needs Case decision (the FNC) was published by Ofgem on 30 October 2023 (**CD F06**). This confirmed that Ofgem was satisfied that there is sufficient evidence of a clear needs case for the Project and recognised “the need for urgent intervention to ensure safe operation of the site and that reinforcement is required to support forecast load growth”.

Local policy

- 5.15 The Council's adopted local plan is the Carlisle District Local Plan (2015-2030) ("the Local Plan", **CD B12**). This sets out the planning policies for the Council's administrative area.
- 5.16 Policy SP1 of the Local Plan indicates that the Council will take a positive approach to development proposals that reflect the presumption in favour of sustainable development in the NPPF (**CD B11**), whilst Policy SP2 supports strategic growth.
- 5.17 As well as cross-referring to the NPPF, the supporting text to Policy SP1 sets out the following definition of "sustainable development" from the Government's Sustainable Development Strategy 'Securing the Future' (2005): “Development which meets the needs of the present without compromising the ability of future generations to meet their own needs”
- 5.18 Since the Project is about meeting the needs of future generations as much as it is the needs of the present, it more than meets this definition of sustainable development.
- 5.19 Additionally the Horlock Rules (**CD F07**), which provide guidance on the siting of new electrical connections, have been taken into account in the design of the Project. It must be noted the additional circuits being installed (Gretna-Harker-Hawick-2) are utilising already sited towers to achieve the least impact on the surrounding environment.

6 LAND/RIGHTS REQUIRED FOR THE DELIVERY OF THE PROJECT

- 6.1 The Order Land is shown on the Order Maps. It comprises all of the land required for the construction, operation, repair, maintenance and decommissioning of the Project.

Freehold Acquisition

- 6.2 NGET is taking a proportionate approach to acquisition and only seeks to acquire the freehold title to the Order Land for the purposes of the Substation Rebuild. The current use of this land is either land used for the existing substation or agricultural land.
- 6.3 The Order Land that NGET seeks to acquire is shown coloured pink on the Order Maps and comprises a limited number of Plots (specifically Plots 202, 205, 206,207, 208, 209 and 210). NGET already owns the freehold of all the land required for the Substation Rebuild, but it is necessary to include it in the Order because it is subject to other rights/interests (principally in respect to mines and minerals).

6.4 Freehold acquisition is necessary to ensure that NGET have the necessary exclusive possession and control of the land required for the safe construction, operation and maintenance of these installations.

6.5 It must be noted there were no objections to the acquisition of the freehold land included in the Order.

Compulsory acquisition of new rights

6.6 Save in respect of the land identified for freehold acquisition, NGET's approach is to only acquire the interests that it requires over the various plots within the Order. Accordingly, for most of the Project, NGET seeks to create new rights over the relevant land rather than to acquire the freehold.

6.7 The new rights sought by NGET have been separated into 'packages' based on their purpose and applied to specific plots, as necessary. Whilst all of the rights are permanent, some of the rights are only required to be exercised from time to time, such as the creation of construction compounds during the construction, commissioning and decommissioning phases.

6.8 The rights 'packages' have been tailored in this way to ensure that a proportionate approach to compulsory purchase is taken, and that the impact for affected landowners and occupiers is limited so far as reasonably practicable. Accordingly, if a plot is only required to facilitate certain works, the relevant rights package is sought in relation to that land.

6.9 The Order clearly identifies whether it is proposed to acquire land or new rights in respect of the numbered parcels of the Order Land. Where new rights are proposed to be acquired, the description identifies the name of the appropriate rights package.

6.10 The rights packages are defined in full in the Order but may be summarised as follows:

Name of Rights Package	Rights
Overhead Line Rights	All rights necessary at all times for the purposes of or incidental to the construction, retention, use, operation, protection, maintenance, surveying, testing, repair, renewal, replacement, commissioning, removal and decommissioning of the overhead electricity lines and associated infrastructure.
Access Rights	All rights necessary to access the Order Land at all times with or without vehicles, plant, machinery, apparatus, equipment, materials and personnel for the purposes of exercising the Overhead Line Rights, the Cabling Rights the Construction Compound Rights and/or the Earthing Rights.
Construction Compound Rights	All rights necessary for the purposes of or incidental to the establishment, use and removal of works compounds associated with the construction and commissioning of the electricity cables and/or the construction, commissioning and decommissioning of the electric lines.

Cabling Rights	All rights necessary for the purposes of or incidental to the construction, retention, use, operation, protection, maintenance, surveying, testing, repair, renewal, replacement, commissioning and removal and decommissioning of the electric cables and associated infrastructure.
Earthing Rights	All rights necessary to access and remain on the land with or without vehicles, personnel and plant, machinery, apparatus, equipment and materials to carry out earthing works to the electric lines

7 CONSIDERATION OF OBJECTIONS

7.1 A total of four objections (**CD E01-E04**) were made to the Order as follows (adopting the objection numbering from section 18 of the Statement of Case, **CD D06**):

- Objection 1: ARMERIA (UK) LLP in respect of Plot Nos. 264, 265, 267, 282, 289, 293, 303, 304, 306, 307, 308, 310, 323, 324, 326, 327, 328, 329, 330, 334 and 335;
- Objection 2: CASTLETOWN TRST LLP in relation to Plot Nos. Plot Nos. 266, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 286, 287, 290, 291, 295, 297, 298, 299, 301, 302 and 305;
- Objection 3: GILES HERCHARD GUBBINS MOUNSEY-HEYSHAM in respect of Plot Nos. 296, 309, 311, 312, 313, 314, 316, 317, 318, 319, 320, 321, 322, 332 and 333;
- Objection 4: JAMES WESTOLL AND RICHARD FAIRFAX WESTOLL in respect of Plot Nos. 001, 002, 003, 004, 005, 006, 007, 009, 010, 011, 012, 013, 015, 016, 017, 024, 226, 236, 237 and 239

7.2 I consider these objections further below – firstly in terms of each objectors’ land-holding in the context of the Order Land and the rights that NGET are seeking and secondly in terms of certain grounds of objection that have been raised.

Consideration of the objectors’ land-holdings and the Project

Objections 1-3

7.3 I understand that Objections 1-3 are by related land-owners who together own the land that makes up the Castletown Estate, which the existing T Route runs through.

7.4 The drawing below shows the extent of these land-holdings coloured green, light and dark blue with the existing OHL route shown in red with towers labelled by number, T150, T151, etc.

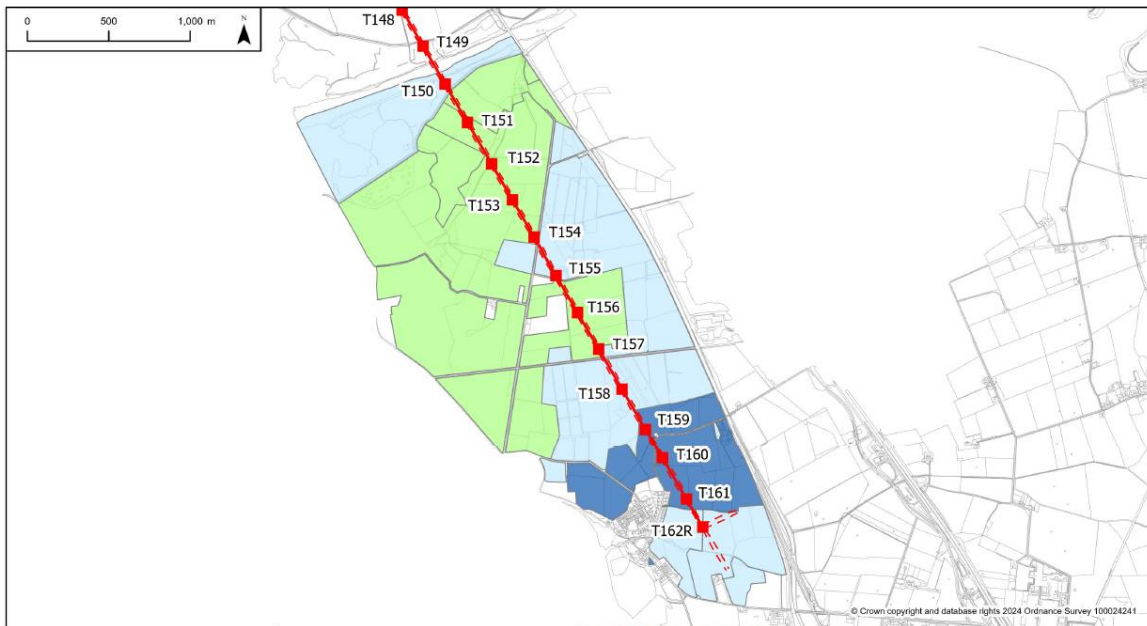


Fig.8 Plots associated with objections 1-3. Armeria (UK)LLP, Castletown Trust LLP and Giles Herchard Gubbins Mounsey-Heysham.

7.5 The Project does not involve any new circuits or towers along the route and no change to conductor arrangement. The extent of the relevant construction works being undertaken between T162-150 is shown below-

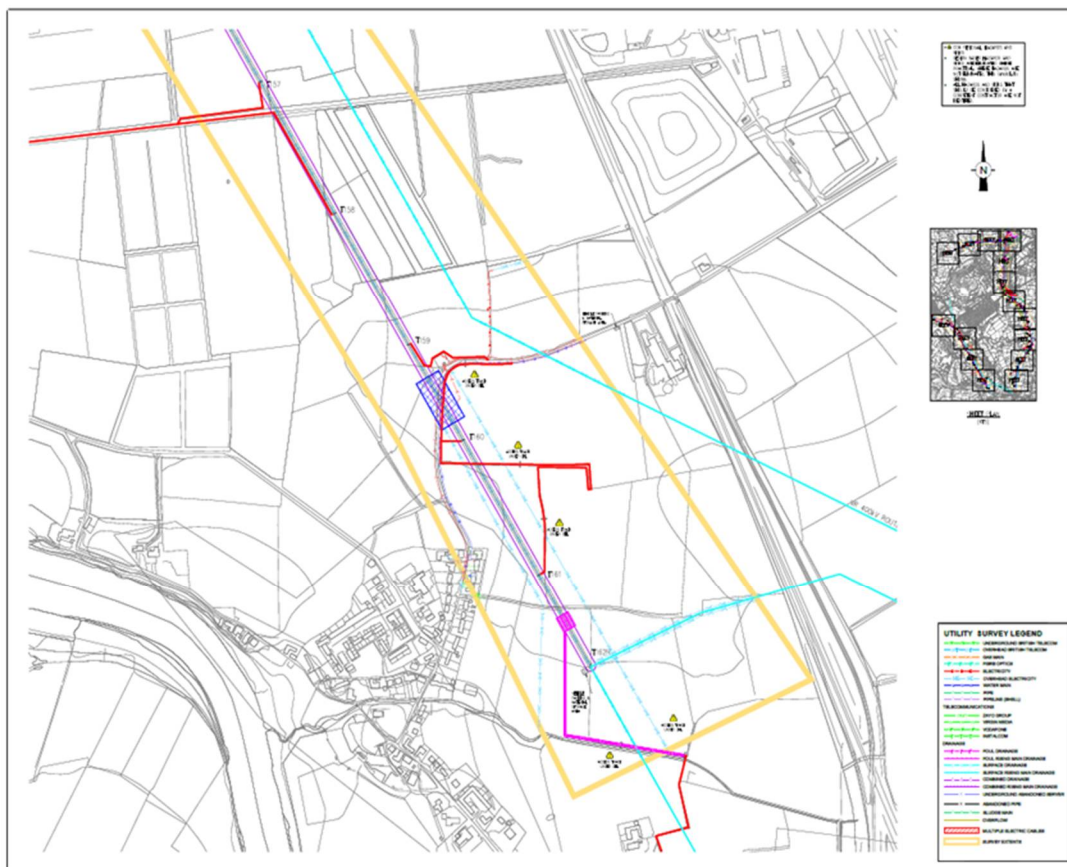


Fig9. Work Area and activities associated with lands covered by objections 1-3.

- 7.6 The drawing above shows the OHL route along with the CDM area to be taken during construction works. This arrangement is applied for major refurbishments or replacement only (replacing the conductor and tower fittings and/or major tower works) which occurs typically every 40+ years depending on asset degradation. Routine inspections and repairs to the route require walking access and/or use of equipment such as all-terrain vehicles and trailers which results in minimal impact on third party land/activities.
- 7.7 Solid Red Lines – Access tracks to the tower locations from the public highway. Works at these locations consist of any vegetation clearance (supported by ecology reports and mitigations) and securing of the track surface where necessary which may include extra stone or temporary matting to ensure the surface can facilitate safe access and egress and/or to protect the existing surface. All of these measures are temporary, and the accesses are returned to their original condition or better supported by before and after photographs and agreed with the landowner.
- 7.8 Blue Hatched Box – This symbolises temporary scaffolding installed to protect the carriageway beneath. Scaffold is erected both sides of the road with a net suspended between the two structures. This is solely for safety purposes and is fully removed once the conductor overhead is replaced. Again, the footprint is returned to its original condition following completion of works.
- 7.9 Purple Hatched Box and Solid Line – This is the working area used for replacing the overhead conductor. This area consists of metal trackway and forms an equipotential zone. This is for safety purposes, ensuring all people and equipment are at the same electrical potential. Again, following conductor replacement, the area is returned to its original condition.
- 7.10 A typical work area showing the equipotential zone detailed in 7.9 (purple hatched box):



Fig10. Typical Work Setup at conductor pulling locations shown in hatched purple in Fig9.

Objection 4

- 7.11 Objection 4 is by the owner of land over which the AL and V Routes currently run. This is shown in Fig11.

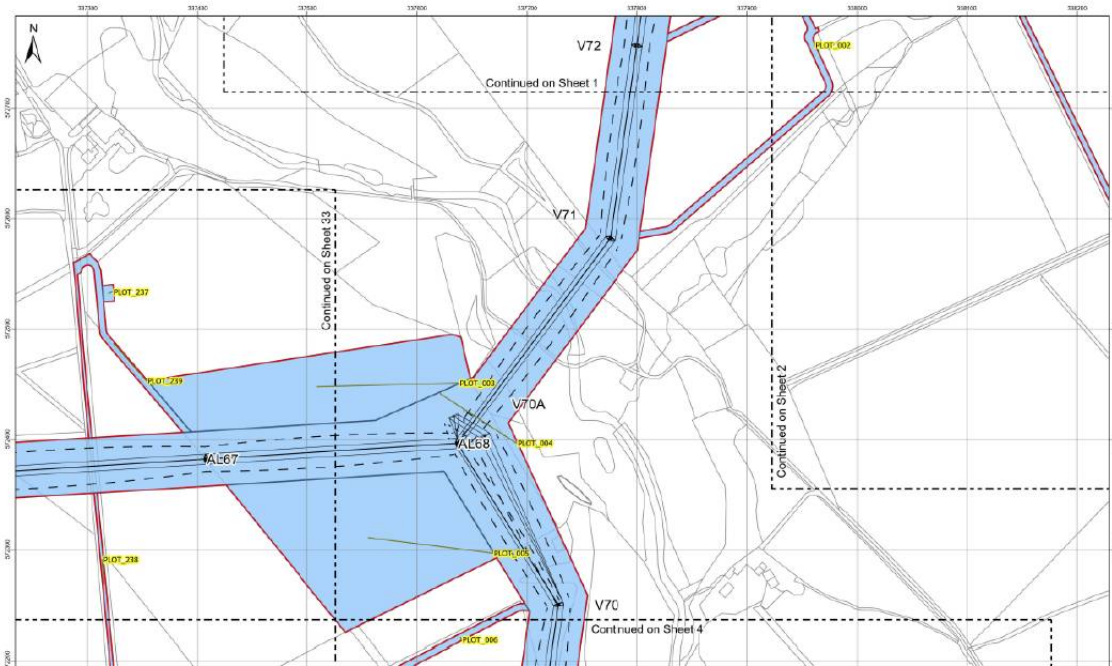


Fig11. Plots associated with Objection 4

7.12 The extent of the work areas the subject of Objection 4 are shown below in Fig12. The narrative to Fig9 above applies to this drawing also.

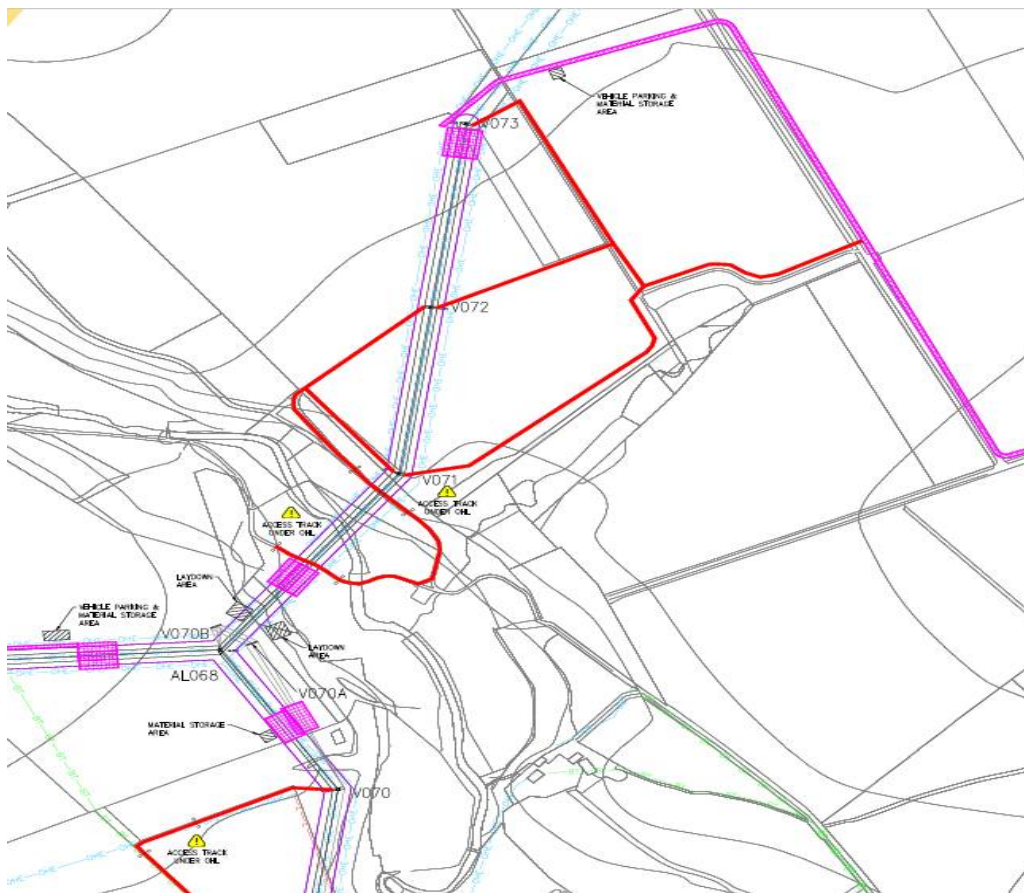


Fig12. Work areas associated with Fig11.

Consideration of grounds of objection

- 7.13 It should be noted that all four objections were submitted by the same landowner representative and essentially make the same points to different degrees, albeit that Objections 1 to 3 relate to Plots on the T Route and Objection 4 to Plots on the AL and V Routes.
- 7.14 NGET has responded to each objector individually in writing (**CD E05-E08**) and remains committed to reaching an agreed position with each of these landowners. The grounds of objection, insofar as they are relevant to my evidence, fall into three categories, namely the suggestion that there is no compelling case in the public interest for the acquisition of the rights; the rights are too widely drawn; and there is no need to acquire the relevant rights in order to deliver the Project. I address each of those matters below.

NO COMPELLING CASE HAS BEEN MADE TO ACQUIRE ALL THE RIGHTS SPECIFIED IN THE PLOTS FROM THE OBJECTOR

- 7.15 Given the need for, and benefits, of the Project, there is a compelling case in the public interest which justifies the exercise of compulsory purchase powers. The need, benefits and policy support for the Project are discussed in section 5 above. The compelling case in the public interest is discussed further in section 9 below.
- ~~7.16~~ It should be noted that, to the extent that the objections raise any substantive points, these appear to be directed at land use/management matters. It may be the case that the specific rights being sought under the Order are not actually incompatible with the objectors' use or management of the relevant plots but, to the extent that they are, NGET will seek, insofar as reasonably practicable, to manage any conflicts appropriately. For example, NGET can provide notice in advance of works to enable co-ordination of access to land and to ensure appropriate safety protocols are in place to ensure health and safety risks are suitably managed. In this regard, NGET has explained in its response letters to the objectors that it is keen to work with them to understand what impact the rights in the Order could have on the land use/management matters raised by the objectors and how this can be mitigated. But this does not change the fact that there is, in any event, a compelling case in the public interest for NGET to acquire all of the rights over the objectors' land specified in the Order as set out above.

THE RIGHTS WITHIN THE ORDER ARE NOT REQUIRED

- 7.17 All four objectors raised this ground.
- 7.18 As set out in section 6 above, NGET is taking a proportionate approach to acquisition and for most of the Project (including the objectors' land that has been included within the Order Land) is only seeking to create new rights over the relevant land rather than to acquire the freehold.
- 7.19 Specifically NGET is not seeking 'blanket' rights across the Order Land; rather the new rights sought by NGET have been separated into 'packages' based on their purpose and applied to specific plots, as appropriate. This is to ensure that a proportionate approach to compulsory purchase is taken, and that the impact for affected landowners and occupiers is limited so far as reasonably practicable. In short it means that, if a plot is only required in order to facilitate limited works, the relevant rights package is sought in relation to that land.
- 7.20 In section 4 above I provided an overview of the Project and in paragraphs 7.3-7.12 considered the objectors' land-holdings in the context of the Project, explaining the specific activities that are to take place within this part of the Order Land. As it can be seen from this, the rights that NGET are seeking over this land are clearly required for the delivery of the Project.

RIGHTS ARE TOO WIDELY DRAWN/LACK PRECISION

- 7.21 This ground is raised in a general sense in Objections 1 and 4, whilst in Objections 2 and 3 it is focussed on construction compound rights in Plot 314.
- 7.22 In response to objections around Plot 314, NGET has agreed with its construction partner that a single work compound situated along the V-route can be used to deliver works on T, V and AL routes. This has resulted in NGET formally requesting that the Secretary of State modifies the Order to exclude Plot 314 (**CD D07**). The requested modification fully resolves the objections concerning Plot 314.
- 7.23 Otherwise, as previously noted, the rights being sought in the Order have been split into the specific packages set out in section 6 above. We have taken this approach specifically to avoid acquiring rights not required. For example, the Access Rights in the Order do not contain any provision for construction activities and are solely to allow access with plant and materials to the Order land.
- 7.24 National Grid engaged the main works contractor delivering the works during development to ensure construction compounds, accesses, etc. were accurately detailed there was no scope for acquiring larger areas or more rights than needed.

8 HUMAN RIGHTS AND INEQUALITIES

- 8.1 Each plot of land described in the Order is required either for the purposes of the Project, or is needed to facilitate, mitigate, or is incidental to the Project.
- 8.2 NGET is taking a proportionate approach to compulsory acquisition and, rather than seeking to acquire the freehold title to all of the Order Land, is seeking to acquire a combination of freehold title (for the Substation Rebuild only) and rights (such as rights to install and maintain the overhead lines).
- 8.3 NGET has sought to acquire the rights and interests in land which are required to deliver the Project through private treaty negotiation.
- 8.4 NGET considers that it has taken a proportionate approach to land assembly, having regard to the impact on affected persons.
- 8.5 Where reasonably practicable, NGET has made changes to the Project in order to minimise the impact on affected persons. In particular, NGET has cut back a section of the Order Land shown on Sheet 14 of the Order Maps ("the Arthuret Cutback") in order to minimise the extent to which it is seeking Overhead Line Rights over a group of residential properties adjacent to the V Route (one of which is owned by a not for profit organisation providing social housing and is understood to be inhabited by vulnerable persons). Along this specific section of the V Route, NGET is only seeking rights to the maximum swing of the overhead line behind the affected residential properties, rather than the wider construction and maintenance corridor being sought across the rest of the Project. This change to the Project (which reduced the size of Plots 055, 071, 072, 073, 074, 075, 076, 078, 080, 081, 084, 085 and 087) removed residential dwellings from the Order Land and reduced the areas of the rear gardens being included within the Order. (It should be noted that the swing line defines the minimum corridor over which Overhead Line Rights are required. Whilst NGET can adapt its working practices and use specialist equipment within the resulting narrowed corridor, this is purely for the purpose of minimising potential impacts on residents at this location and is only possible in this instance because of site specific factors and the wider working corridor along the rest of the line).

- 8.6 Another example of NGET amending the Project to minimise its impacts is where some landowners along the T Route raised concerns about access routes going through the middle of fields used for farming. This led to NGET amending the access route that forms Plot 277 so that it follows the field edge and removing an access route across land to the north of tower T151 from the Order Land entirely. (As a result of this change to the Project, tower T151 will instead, be accessed from the south via Plot 273).
- 8.7 Accordingly, NGET has sought to acquire only such land and/or interests which are necessary for the Project to proceed. Notwithstanding the efforts that have been made to acquire interests in the land by way of voluntary agreement, NGET has been unable to secure all the requisite interests through negotiation. It has therefore been necessary to seek compulsory powers to enable the delivery of the Project.
- 8.8 Negotiations to acquire interests by private treaty will continue in parallel with the CPO process. Where an agreement is reached with the owner of any part of the Order Land, that land, save where expressly stated otherwise, will be retained as part of the Order Land. This will enable NGET (and its successors) to acquire any third-party interests that may subsist in the land which might otherwise delay, impede or prevent the implementation or operation of the Project. This is the approach recommended in the General Overview at page 6 of the CPO Guidance (**CD B09**).

Human rights

- 8.9 With regard to human rights, Section 6 of the Human Rights Act 1998 prohibits public authorities from acting in a way which is incompatible with rights protected by the European Convention on Human Rights (Convention). The position is summarised in paragraph 12 of the General Overview of the CPO Guidance, which states that a compulsory purchase order should only be made where there is "a compelling case in the public interest". This 'compelling case' is fully substantiated within this statement and summed up in section 9 below.

Equality Act

- 8.10 NGET has, as a non-public body exercising public functions, had regard to the public sector equality duty set out in s149(1) of the Equality Act 2010 and has, in promoting the Order, and has undertaken a community consultation and landowner engagement exercise.
- 8.11 NGET has taken account of and considered receptors and effects on those receptors through its environmental assessment processes for the Project. The Arthuret Cutback is an example of this approach, with NGET amending the extent of the Order Land so as to minimise the potential impact of the Project on adjacent residents. NGET does not currently consider that the Project will give rise to any impacts or differential impacts on persons who share a relevant protected characteristic as defined in the Equality Act, or upon persons who do not share such relevant protected characteristic. However, the engagement process is ongoing and NGET's position will be continually monitored and should any persons be identified who may adversely impacted by the Project packages of assistance measures will be put in place as necessary so as to mitigate so far as practicable any identified activity that may have an adverse impact on these individuals.

9 COMPELLING CASE IN THE PUBLIC INTEREST

Project Need

- 9.1 The Project is the construction of an offline greenfield rebuild of the Harker 132kV (incl. 132kV overhead lines) and 400kV substations, and the rationalisation of the 275kV substation for

completion in 2026. There are compelling load drivers, associated with the amount of energy that can be transferred through the OHL circuits and substation assets, and non-load related drivers, associated with physical asset condition which need to be replaced to ensure safe and efficient operation. Further detail is included in section 5 above.

- 9.2 The Project will play a key role in meeting the legally binding UK Government targets for Net Zero greenhouse gas emissions by 2050 and facilitating the increase in both demand and embedded generation levels seen by local Distribution Network Operators. Significant reinforcement of the electricity transmission system around the Anglo Scottish boundary (B6) is required to ensure the network can efficiently transfer electricity to areas of demand. Where electricity produced from generators in Scotland, often from green wind energy, is more than the circuits crossing the B6 boundary can transfer this prevents green energy to be transferred to higher demand areas in England. It also creates the need for significant constraints action by the Electricity System Operator which includes payments to generators to decrease generation to match the energy that can be transferred.
- 9.3 In order to fulfil the Project need we have clearly demonstrated that we need all the rights we have identified in order to deliver the Project and that we have taken a proportionate approach by seeking rights 'packages'.
- 9.4 We have not seen any evidence that the acquisition of the rights will adversely affect any of the objectors but if that were to prove the case, they would be entitled to compensation under the compensation code;
- 9.5 In all the circumstances, the public interest weighs decisively in favour of confirming the CPO.

Alternatives

- 9.6 **Substation:** Given the complexity and number of drivers detailed in section 5 several options were considered –
- Option 1: Replace and upgrade 275kV substation, rebuild 132kV substation and extend the existing 400kV substation.
 - Option 2: In-situ replacement of the whole substation.
 - Option 3: Re-build of the substation on a greenfield site in GIS.
 - Option 4: Re-build the substation on a greenfield site in AIS.
- 9.7 Each option was subject to SWOT (Strength, Weakness, Opportunities and Threat) analysis and CBA (Cost Benefit Analysis) and presented to OFGEM who in turn published consultations and decisions on both initial and final need cases. Option 3 was the approved option.
- 9.8 **OHL:** The upgrading of the 132kV circuits from Harker over the B6 boundary. There are already two 132kV OHL routes in place, Harker-Chapel Cross and Harker-Gretna-Hawick. The preferred option was to replace the conductor and fittings only utilising the routes already in situ.

Funding

- 9.9 As a regulated monopoly, National Grid's revenues are set by the regulatory body Ofgem through a framework known as "price controls". Ofgem is the Office of Gas and Electricity Markets. It is a non-ministerial government department and an independent National Regulatory Authority. Ofgem's principal objective is to protect the interests of existing and future electricity

and gas consumers. Price controls are periods in which network company revenues are agreed with Ofgem based on investment priorities to maintain the network and customers' requirements. National Grid's current price control framework is referred to as RII0-2, in which allowable Revenue = Incentives + Innovation + Outputs. The Project has been regulated under the Large Onshore Transmission Investment ("LOTI") regulatory mechanism. NGET have submitted a business case to Ofgem who have agreed the need and scope of the Project. Ofgem are in the final stages of the assessment to confirm the level of funding to be awarded for the Project.

- 9.10 NGET is responsible for developing, constructing, and financing the Project. It is also responsible for the payment of compensation for the acquisition of land and rights required for the Project whether pursuant to a voluntary agreement or the Compensation Code.
- 9.11 Given NGET's strong credit rating, the requisite funding is available to meet the implementation and land acquisition/compulsory purchase compensation costs associated with the Project as and when required (including any advance payments).

Absence of Impediments

- 9.12 All requisite primary planning consents are in place for the Project.
- 9.13 There are two components of the OHL works that require consent under Section 37 of the Electricity Act 1989 which were submitted to DESNZ on the 8th and 9th February 2024 respectively. These are expected to be granted at the same time that the Order is confirmed and are not therefore considered to be an impediment to the Project.
- 9.14 Further information regarding the planning and consenting position is presented in the statement of evidence provided by Emma Pickard.
- 9.15 There are no physical or legal impediments to the implementation of the Order.

10 SUMMARY AND CONCLUSIONS

- 10.1 As explained, the need for the Project is primarily to enable network capabilities reinforcement, new customer connections and the (already strong) policy support for the Project set out in the Statement of Reasons has been further strengthened by the new Critical National Priority infrastructure policy set out in the new suite of Energy National Policy Statements published on 22 November 2023.
- 10.2 The land which is the subject of the compulsory purchase powers in the Order comprises only the land necessary to deliver the construction, operation, repair, maintenance and decommissioning of the Project. As explained in section 6 of this Statement, NGET's approach is to only acquire the interests that it requires over the Order Land, so that for most of the Project, NGET is only seeking rights over the Order Land, rather than acquiring the freehold. This is the case for the Order Land in which each of the objectors has a land interest and the rights being sought over the objectors' land are only those necessary for the delivery of the relevant elements of the Project described in section 4 of this Statement.
- 10.3 In light of all of the above, there is a compelling case in the public interest for confirmation of the Order.

11 DECLARATION

11.1 I confirm that the opinions expressed in this statement of evidence are my true and professional opinions.

Signed:

A handwritten signature in black ink, consisting of stylized initials and a horizontal line extending to the right.

Dated: 13/02/2024