DAVE ROGERSON: ENGINEERING

PROOF OF EVIDENCE

1 SUMMARY AND CONCLUSION

1.1 My name is Dave Rogerson and I am a Lead Transmission Engineer with National Grid Electricity Transmission Plc, specialising in Over Head Lines and High Voltage Cable Technology. I have nineteen years' experience with thirteen years in my current role with NGET where I am authorised by National Grid's Business Procedure 141 for both OHL and cable design assurance. I have been working on the Project since 2018 as the Lead Cable and OHL design assurance engineer.

1.2 The Project comprises the undergrounding of approximately 7 kilometres of the existing OHL which runs from the west of Winchcombe to the south east of Cheltenham, within the Cotswolds National Landscape.

1.3 The key components of the Project include:

(a) the installation of approximately 7 kilometres of 400kV underground cables comprising 12 power cables in total;

(b) the dismantling and permanent removal of 7 kilometres of existing double circuit OHL including the net removal of 16 towers;

(c) the construction of two new cable sealing end compounds which will each require new terminal towers; and

(d) the expansion of an existing NGET substation in Melksham to accommodate a new shunt reactor for voltage control.

1.4 The cables will comprise 2500mm2 copper conductor, XLPE insulated cable. Two cables per phase are required to provide the necessary power, resulting in 12 power cables in total, plus telecommunication and monitoring fibres.

1.5 The cable installation requires a construction swathe of up to 100 metres wide along the 7 kilometre length of the cable route. This width accommodates:

(a) 4 cable trenches;

(b) Trenchless cable installation methodology where required;

(c) Cable joint bays with working areas;

(d) A temporary construction stone haul road;

(e) Storage areas for topsoil and subsoil; and

(f) Drainage requirements.

1.6 Installation works will begin with demarcation fencing to secure the work area, followed by topsoil stripping and pre-construction drainage installation. The haul road is designed to accommodate Heavy Goods Vehicles transporting cable drums weighing approximately 55 tonnes.

1.7 Cable trenching works excavate to a depth of around 1.4 metres for standard trenches. A sub-base of Cement Bound Sand will be installed followed by HV cable ducts. Utilising ducted installation separates cable installation from civil trenching works, reducing the time trenches are open and improving safety. Trenches are surrounded by compacted CBS to provide thermal stability, with protective tiles and warning tapes laid above before backfilling.

1.8 Horizontal Directional Drilling may be employed to minimise disruption to surface features such as roads and rivers. HDD requires increased cable spacing of around 8 metres with a total width of 96 metres, and drive sites of approximately 30 metres x 20 metres.

1.9 Cable joints are required approximately every 900 – 1000 metres. Joint bay works typically involve an area of approximately 30 metres x 30 metres for each group, including hard standing, equipment for cable offloading, jointing shelters, welfare facilities and power supplies. Following cable installation completion, the ground is returned to its previous use.

1.10 The northern and southern CSECs each measure approximately 80 metres x 40 metres and contain cable terminations, early switches, surge arrestors and associated support structures, enclosed by security fencing. Each has an associated new terminal pylon. During construction, temporary construction compounds of approximately 75 metres x 75 metres adjacent to each CSEC site will provide laydown, storage, parking welfare and security facilities.

1.11 As the southern CSEC location is directly under the existing OHL, a temporary diversion will be required to allow safe construction.

1.12 Once cable installation is completed, cables will be connected to the OHL during system outages. At the north, existing tower ZF308 will be replaced with a new terminal tower. At the south, temporary OHL towers will be installed to allow the CSEC to be built.

1.13 To construct the new terminal towers, foundation excavation of approximately 6 metres x 6 metres per tower leg is required, with piled or pad and chimney foundations installed. Steelwork is erected by crane or derrick, requiring a laydown and assembly area of approximately 50 metres x 50 metres.

1.14 New conductors are hung through stringing, using either non-tension pulling or tension stringing methods. Downleads connecting towers to CSECs are installed via tractor winches.

1.15 Existing towers are dismantled using cranes positioned on crane pads of approximately 20 metres x 10 metres. It takes approximately one day to dismantle a tower. Tower sections are broken up and placed into waste skips for reuse or recycling. Foundations are removed to a minimum depth of 1 metre below ground level and the land is reinstated.

1.16 The Project requires expansion of Melksham Substation to accommodate a new 400kV shunt reactor measuring 13.9 metres x 6.15 metres x 8.3 metres for voltage control.

1.17 Four relevant objections to the Order remain.

1.18 National Gas Transmission raised concerns about their pipeline; the cable route has been designed to avoid their pipeline alignment entirely. A temporary crossing for construction access will be designed in consideration of NGT's specifications. An Asset Protection Agreement has also been agreed between NGET's and NGT's legal representatives and is currently being executed.

1.19 Mr Jonathan Morton Stanley and Corinium Construction Limited suggest the southern CSEC should be located at Option S5 or S6. However, these options presented fundamental engineering challenges. They are located on the River Chelt valley floor, requiring cables to ascend approximately 60-80 metres up the escarpment, presenting significant difficulties and compromising thermal performance. Cable routes would necessitate complex crossings beneath the A40, railway

embankments and River Chelt via HDD. Options S5 and S6 lack sufficient space to set up the CSEC and launch/receive HDD. The valley nature complicates drive angles. The gradient north of the A40 presents challenges with approximately 100 metres level change over 1 kilometre. The confined nature of these sites severely restricts construction access and working space, creating unacceptable health and safety risks. Temporary OHL diversions would impact properties and require crossing the A40 temporarily. Option S2 avoids all these technical constraints, and reduces the engineering risk of the Project very considerably.

1.20 Regarding concerns about land take and the 100 metre construction swathe: the area for permanent acquisition accommodates essential electrical equipment with adequate space for construction and maintenance access. The 100 metre swathe is required based on extensive lessons learned from previous projects. All construction activities will be carried out in accordance with a detailed Construction Environmental Management Plan.

1.21 RH Barnes and Sons suggest relocating the main construction compound to eliminate the haul road. However, the local road network cannot manage the heavy machinery required. They also question the 100 metre swathe when 2015 guidance referenced 65 metres. However, as mentioned, the 100 metre swathe is required based on recent project experience. The 2015 guidance has not been updated and reflects, earlier, less complex projects.

1.22 Mr Ivan Drake and Mrs Ann Drake request technical details requiring construction methodology. In this regard, the key construction stages comprise:

(a) Easement fencing;

(b) Topsoil strip;

(c) Haul road construction;

(d) Trench excavation;

(e) Duct installation;

(f) Backfilling;

(g) Joint bay excavation;

(h) Cable pulling and jointing;

(i) Testing and commissioning;

(j) Haul road removal;

(k) Topsoil reinstatement; and

(l) Easement fencing removal.

The access track will be 5-8 metres wide. Underground cables will be installed at a minimum depth of 900 millimetres to the protective tile.

1.23 The engineering design and methodology have been developed with rigorous technical governance, safety and environmental considerations. The proposed construction swathe, cable routing and infrastructure locations are based on engineering principles and practical considerations. Objections have been addressed with detailed technical responses, demonstrating that the selected approaches are the most feasible and least impactful options available. The Project is deliverable, safe and aligned with NGET's obligations and industry standards.

2 WITNESS DECLARATION

2.1 I confirm that the evidence prepared for this Inquiry and contained within this statement of evidence are my true and professional opinions. I confirm that I have understood and complied with my duty to the Inquiry as an Expert Witness and have provided my evidence impartially and objectively. I confirm that I have no conflicts of interest.

2.2 I confirm that artificial intelligence has not been used to produce this statement of evidence.

DAVE ROGERSON

13th October 2025