

ENGINEERING

**THE NATIONAL GRID GAS PLC (WESTERN GAS NETWORK PROJECT)
COMPULSORY PURCHASE ORDER 2022**

STATEMENT OF EVIDENCE

**JORDAN WRIGHT
LEAD PROJECT MANAGER
NATIONAL GRID GAS PLC**

1. **QUALIFICATIONS AND EXPERIENCE**

- 1.1 I am Jordan Wright, Lead Project Manager of the Western Gas Network ("WGN") project ("the Project") at National Gas Transmission Plc¹ ("National Gas"). National Gas own and operate the Gas National Transmission System ("NTS") in the UK. I have a Masters in Civil Engineering and I am a Graduate Member of the Institute of Civil Engineers.
- 1.2 I have worked in the gas industry since 2014 when I graduated university and started working for Rhead Group. While employed by Rhead Group I worked as a consultant to National Grid Gas Asset Health in 2014 and Northern Gas Networks ("NGN") Major Projects in 2015 and 2016. I project supervised two major Above Ground Installations ("AGIs") at NGN. In 2017, I joined National Gas (then National Grid Gas Plc) as a Project Engineer where I project managed Cathodic Protection projects and a new BioMethane connection to the NTS before joining the WGN Project team in 2019.
- 1.3 WGN is National Gas's response to South Hook Gas Company Limited's ("SHGCL"), Planning and Advanced Reservation of Capacity Agreement ("PARCA") application to National Gas, to reserve capacity to flow approximately 15 million cubic metres of gas per day on to the NTS from Milford Haven Aggregated System Entry Point (i.e. the Project)- see section 3 below.
- 1.4 As Lead Project Manager for WGN I have been responsible for the selection of a preferred strategic option to meet SHGCL's PARCA request; pipeline routeing (involving the preparation of pipeline route corridor studies); and Front End Engineering Design of the Project. I was responsible for preparing conceptual designs for the pipelines and connections. For uprating, I have led the uprating viability studies and uprating assessments, seeking to demonstrate that existing plant and equipment is safe, suitable, and sufficient to operate at uprated (higher) pressure. Where uprating assessments were unsuccessful, I have scoped the modifications necessary and managed the conceptual designs.

2. **INTRODUCTION AND SCOPE OF EVIDENCE**

- 2.1 My proof of evidence is set out as follows:-
- 2.1.1 Overview of the Project
- 2.1.2 Physical components and works required to construct the Project
- 2.1.3 Response to objections to the compulsory purchase order

¹ On 31 January 2023 a sale of shares in National Grid Gas Plc was completed. Given that the transaction was a share sale the legal entity comprising National Grid Gas plc remains the entity that carries on gas transmission and there was no change to the company number. The company was however renamed "National Gas Transmission Plc", effective as of 6 February 2023 .

- 2.1.4 Removal of land at Cilfrew
- 2.1.5 Summary and conclusions
- 2.1.6 Declaration

3. **OVERVIEW OF THE PROJECT**

- 3.1 South Hook LNG (“SHLNG”) own and operate the South Hook Terminal at Milford Haven. SHLNG intends to install an additional Submerged Combustion Vaporiser and High Pressure Send Out Pump within the South Hook Terminal which will increase the amount of gas that can be consistently flowed taking account of reliability, availability and maintenance schedules of key equipment.
- 3.2 SHGCL, the gas shipper, submitted a PARCA application to National Gas on 24 April 2018, to reserve capacity to flow approximately 15 million additional cubic metres of gas per day on to the NTS from South Hook Terminal.
- 3.3 National Gas’s duties under the Gas Act 1986 (**CD A4**) require it to develop and maintain an efficient and economical pipeline system for the conveyance of gas, and to comply, so far as it is economical to do so, with any reasonable request by gas shippers to connect and convey gas to that system (i.e. PARCA requests). Further detail on National Gas’ statutory duties are set out at Section 3.9 onwards of the Statement of Case (**CD C4**).
- 3.4 Following a detailed strategic options assessment², the Project was identified as the most economic and efficient solution to meeting SHGCL’s PARCA request. Section 5 of James Tomison’s Statement of Evidence explains the process of developing the project and considering alternatives. As described in his Section 5.12, this process considered technical, capital cost and programme considerations, all of which I was responsible for.
- 3.5 The technical considerations forming part of the detailed strategic options assessment included:
 - 3.5.1 Technical complexity, including operational flexibility (the ability of National Gas as gas system operator, to re-configure³ the network to accommodate supply/demand changes) and resilience (the ability of the network to accommodate equipment unreliability, unavailability and maintenance schedules);
 - 3.5.2 Delivery & construction issues including resource use, waste, and construction duration;
 - 3.5.3 Technology issues (innovation required to deliver, operational and maintenance risks, and safety issues);
 - 3.5.4 Capacity issues (system capability achieved and system flexibility benefits);

² Explained in detail in section 4 of NGT’s Statement of Case (**CD C4**).

³ Re-configuration means to remotely alter the direction, pressure and flow rate of gas through the network.

- 3.5.5 Network efficiency / benefits (including energy efficiency)
- 3.6 The technical considerations were wholly consistent with the over-arching Guiding Principles (“GP”) of this work below. These considerations have effectively minimised the extent of the land required for the scheme. Further details on the GP’s can be found in the Strategic Options Report **(CD E11)**.
- 3.6.1 GP2 Options using, extending or adapting existing infrastructure, or which can be implemented using existing rights held by National Gas, are generally preferable to creating new infrastructure or establishing new sites or new routes.
- 3.6.2 GP3 Shorter routes for new pipelines are generally preferable to longer routes
- 3.7 Capital cost was estimated based on unit costs for the ‘components’ of each option. Examples of unit costs include 1km of new pipeline, or 1 new 15MW compressor unit. Lower cost, and hence smaller scale, options were preferable.
- 3.8 Programme considerations focused on the ability of a given option to meet National Gas’ PARCA contractual obligations. Whilst technically delivering the scheme was a large influence on this, programme considerations were also largely influenced by consenting requirements.
- 3.9 My technical, capital cost and programme considerations were balanced against environmental and socio-economic considerations as explained in James Tomison’s statement.
- 3.10 The National Grid Gas Plc (Western Gas Network Project) Compulsory Purchase Order 2022 (“the Order”) **(CD C1)** is required to facilitate delivery of the Project.
- 3.11 The Order **(CD C1)** has been made to enable National Gas to acquire the land and rights needed for the construction, operation, maintenance and protection of the Project, the key components of which comprise:
- 3.11.1 two new sections of pipeline- one 9km long between Wormington (Gloucestershire) and Honeybourne (Worcestershire) - and one 2km long in Churchover (Warwickshire);
- 3.11.2 pressure uprating of an existing pipeline between Felindre (Swansea) and Three Cocks (Powys); and associated works to existing Above Ground Installations (AGIs).
- 3.12 All the modifications are designed to achieve greater physical capability of the NTS to move gas away from Milford Haven Aggregated System Entry Point.

4. **PHYSICAL COMPONENTS AND WORKS REQUIRED TO CONSTRUCT THE PROJECT**

4.1 As explained in the Introduction to my statement, I was responsible for preparing a design for the Project for the purposes of seeking planning permission and promoting the Order. This was informed by a wide range of desktop information and non-intrusive surveys.

4.1 As explained in James Tomisons Statement, Section 9, it is intended that the majority of the works comprising the Project will be carried out as permitted development under the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) **(CD A12)** and the Town and Country Planning (General Permitted Development) Order 1995 (as amended) **(CD A6)**.

4.2 Full planning permission (Reference R22/0130) under the Town and Country Planning Act 1990 **(CD A5)** was granted (subject to conditions) on 8th August 2022 by Rugby Borough Council for the permanent extension of Churchover Tee **(CD B5)**.

4.3 This section of my statement of evidence provides further detail on the key components, including:

4.3.1 The infrastructure that will be constructed/installed;

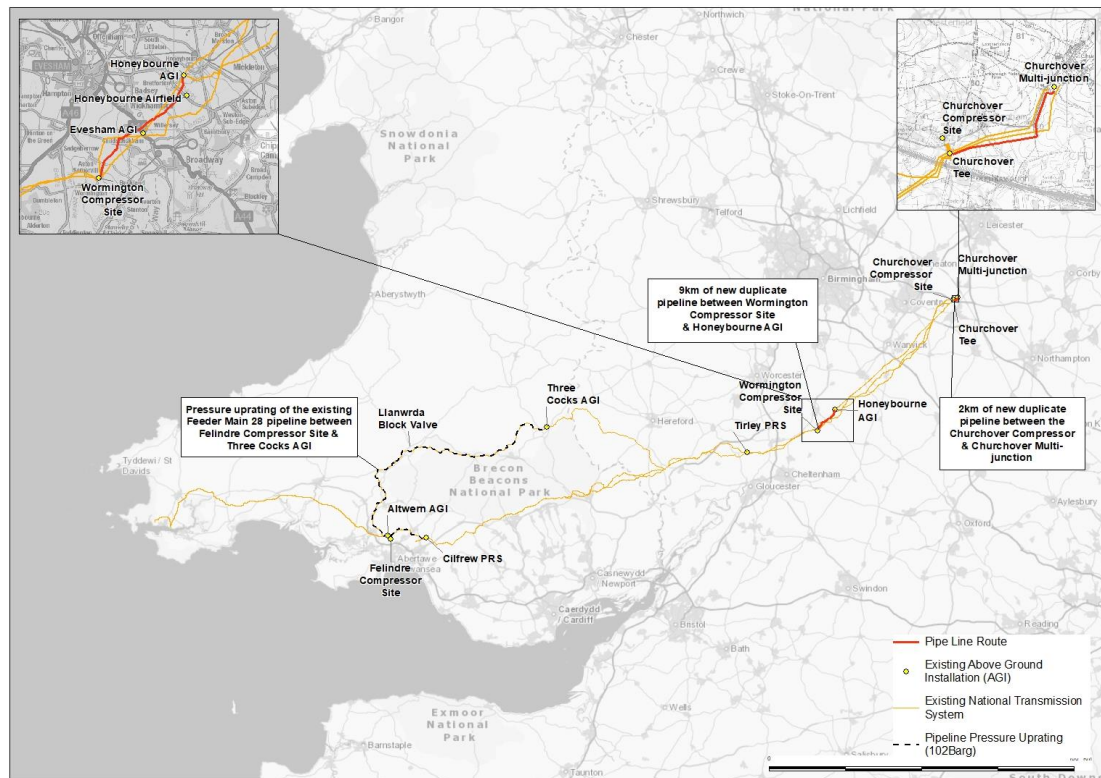
4.3.2 The construction works that are required, noting that the appointed contractor will be responsible for developing the detailed design including, for example, detailed engineering designs of trenchless crossings; and

4.3.3 The spatial extent of the land and new rights that are needed to facilitate the construction, operation and maintenance of the infrastructure comprised in the Project by reference to the Order Maps **(CD C2)**.

The infrastructure that will be constructed/installed

4.4 As per section 3.5, the key infrastructure that will be constructed/installed consists of two new pipelines and pressure uprating of an existing pipeline and above ground installations to increase the pressure at which gas can be flowed through them.

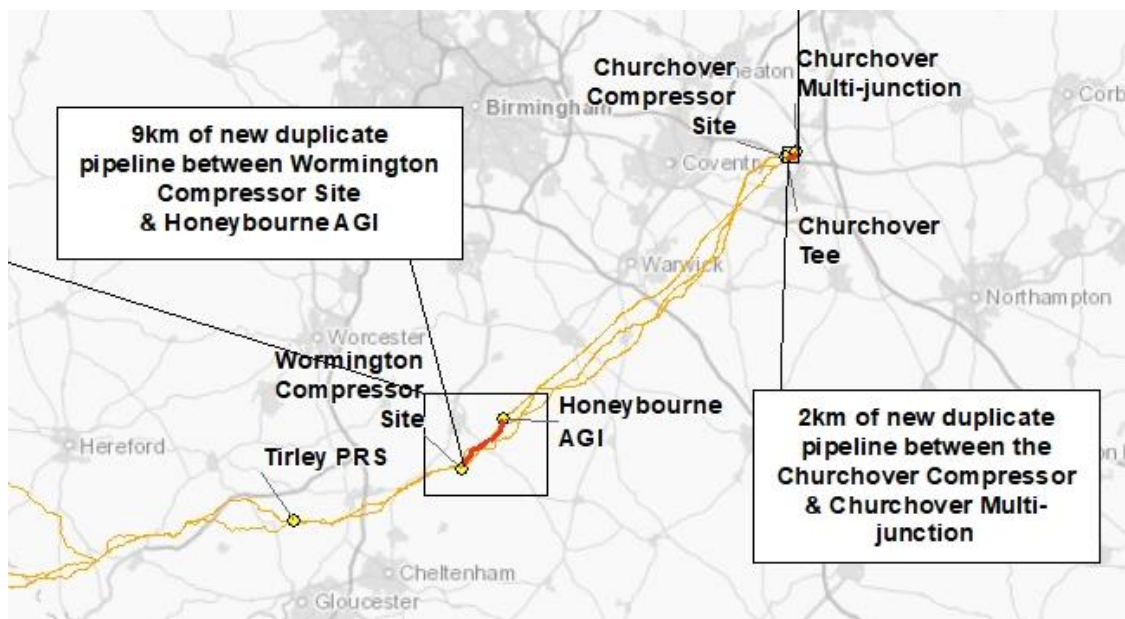
- 4.5 The scope of work is neatly summarised in the below schematic map:



New pipelines

- 4.6 One of the new pipelines is approximately 9km long and runs from Wormington Multi-junction ("MJ") to Honeybourne MJ. The pipeline will be 914mm in diameter and constructed of mild steel. It will transport compressed gas from Wormington Compressor Station ("CS"), via the MJ, towards the East.
- 4.7 Six drawings are included at Appendix 5, which show the Wormington to Honeybourne pipeline route and associated working areas in detail.
- 4.8 The other new pipeline is approximately 2km long and runs from Churchover Compressor Tee to Churchover MJ. The pipeline will also be 914mm in diameter and constructed of mild steel. It will transport compressed gas from Churchover CS, via the Compressor Tee, to the MJ.
- 4.9 A further drawing is included at Appendix 2, which shows the Churchover pipeline route and associated working areas.
- 4.10 Once the new pipelines have been installed, there will be two (existing) 600mm pipelines and one (part new, part existing) 914mm pipeline between Wormington and Churchover Multijunction (approximately 71km). Approximately 60km of the 914mm pipeline is existing between Honeybourne and Churchover Tee and WGN

will complete the other remaining 11km. A close-up of the previous image illustrates this:



- 4.11 In this way, we are removing short sections of the network that currently have less pipeline volume than the surrounding network and overcoming the capability restriction this causes. Because these sections are immediately downstream of existing compressor stations, they realise significant capability (i.e. the physical capability of the network (the NTS) to move gas) improvements for relatively little additional infrastructure.

Pressure uprating

- 4.12 Pressure uprating achieves additional system capability (i.e. the physical capability of the network (the NTS) to move gas), by increasing the pressure at which gas can be discharged from compressor stations. This facilitates higher flow rates. Pressure uprating involves systematic checks of pipelines, installations and plant which could be exposed to the higher pressures, to determine if the entire system would be safe, suitable, and sufficient at the uprated pressure. Where problems are identified, components are modified or replaced as necessary before the pressure is physically raised.
- 4.13 The project will uprate the existing National Gas pipeline between Felindre (Swansea) and Three Cocks (Powys); and associated works to existing Above Ground Installations (AGIs) and Compressor Stations including Felindre Compressor Station, Felindre Multijunction, Alltwn recycle facility, Llanwrda Block Valve and Three Cocks. Only the Three Cocks modifications have land requirements in the Order.

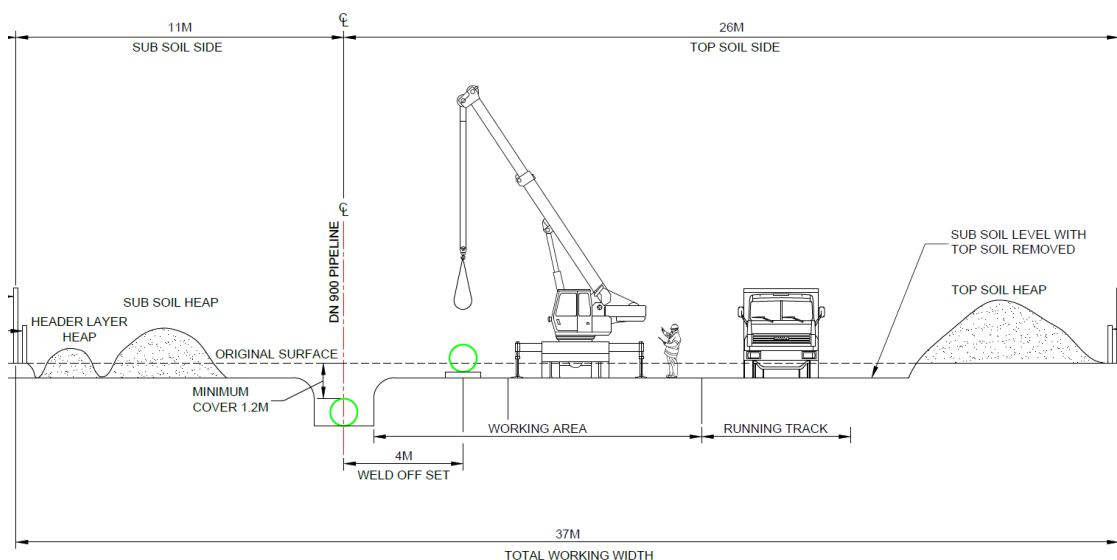
The project also includes small modifications to the existing Tirley Pressure Reduction Station. There is no land in the Order for these works.

Construction works and spatial extent of the land required

- 4.14 There is one instance in which land needs to be acquired for the Project - to facilitate the connection of the new Churchover pipeline into the existing infrastructure at Churchover Tee (see section 4.23 below). In all other cases tailored 'packages' of rights are being sought to facilitate the construction and operation of the Project.
- 4.15 I have described below the construction works that need to be carried out, and the spatial extent of the land over which new rights need to be acquired for that purpose, 'package' by 'package'.

Pipeline Construction Rights (required over the land shown coloured light blue on the Order Maps (CD C2))

- 4.16 Pipeline Construction Rights are sought to facilitate construction of the 9km Wormington to Honeybourne and 2km Churchover pipelines. The 'corridor' of land over which these rights are required is typically 37m wide, but a width of 52m will be needed where obstacles such as roads, buried utilities and watercourses, need to be crossed.
- 4.17 Construction of the pipeline will be undertaken using a combination of trenched installation techniques across open land, and trenchless methods, such as Auger Boring, to cross obstacles where appropriate.
- 4.18 The diagram below is a cross-sectional representation of the typical working corridor for trenched installation:



- 4.19 The working corridor (as shown in the above diagram) is made up of the following component parts:
 - 4.19.1 Pipe trench: this is the excavation within which the 914mm pipe will be installed.

- 4.19.2 Working areas: these are areas on either side of the pipe trench which are needed to allow the safe and efficient movement of personnel, plant and machinery used to perform the construction activities required. The working area is approximately 10m wide, predominantly driven by the space required to manoeuvre 'side boom' cranes that will lower and lay the pipeline into the trench, once it has been welded together. These areas will also include space to weld, inspect and coat the pipeline before it is lowered into the trench. The exact size of the working area will be defined by the temporary works designs of the pipe trench, as sloping (battered) sides will impinge on this area. Experience and precedent demonstrate that this is the minimum land required to be sure of constructability.
- 4.19.3 Topsoil Heap: these areas will be used for the storage of the topsoil. The size of the heap has been determined from the quantity of topsoil that will need to be stripped from the working area in order to preserve its agricultural productivity after the works. Topsoil heaps are kept under 3m high to maintain aerobic conditions within the soil heap, preserving its agricultural productivity when re-spread.
- 4.19.4 Subsoil Heap: These areas will be used to store the soil that has been excavated to create the trench. The subsoil removed from the trench will be stockpiled adjacent to the area where it was removed from to ensure the soil is returned to the same areas during reinstatement. The subsoil will be stored as far as practicable away from the topsoil to prevent mixing of soil types. The size of the heap has been determined from the quantity of subsoil that will need to be excavated to allow the burial of the 914mm pipeline at 1.2m nominal depth of cover.
- 4.19.5 Running Track: the working corridor will include a running track for construction traffic along the pipeline route. The running track will be typically approximately 4m wide, to accommodate Heavy Goods Vehicles that will deliver the pipes to the working areas.
- 4.19.6 Fence: to ensure compliance with the CDM regulations the working area will be fenced off to define the area in which the construction activities will be undertaken. Fencing types will be selected based on the purpose required (eg. To exclude stock, to exclude horses, to demarcate vehicle and pedestrian/working areas where required, to provide security in high risk areas).

- 4.20 This picture from a previous project shows the working width, topsoil stripped, with the pipe strung out ready to be welded together. In this case the topsoil heap is on the right hand side, the same as represented in my cross section diagram.



- 4.21 This picture from a previous project shows the same, with welding rigs and side boom cranes in position.



- 4.22 This picture from a previous project shows a welded pipe string being laid into the trench using several side boom cranes. The subsoil heap is also visible now that the pipeline trench has been excavated. This time the topsoil heap is on the left and the subsoil on the right.



- 4.23 There are a number of points along the pipeline where the pipe needs to 'cross' (i.e. be installed beneath) obstacles such as minor roads, utilities and watercourses. The working 'corridor'/area needs to be wider at these points to allow space for the specialist installation equipment to be set up and used. I have sought to identify so far as practicable the obstacles along the pipeline which will need to be 'crossed'. However, the need for further trenchless installations may be identified during construction. 15m additional width has been allowed from each edge of the crossing (a total of 30m). This is consistent with previous tri-partite agreements between National Grid Gas, the National Farmers Union and Country Landowners Association. Experience demonstrates that it is an appropriate amount to accommodate the additional excavations, spoil, drilling apparatus, craneage, car parking, worker accommodation and fencing that is required for obstacle crossings. The tri-partite agreement demonstrates that the amount of land is not excessive or overly generous.

- 4.24 This picture shows a pipeline spread with obstacle crossing. The additional land here has been consumed predominantly by excavations and soil.



- 4.25 The following picture is of auger bore equipment and the associated excavation. Here, additional space has been used for the excavation, crane, spoil and auger bore equipment.



- 4.26 The diagram below is a cross-sectional representation of the A44 crossing from the Conceptual Design Study. Due to the crossing length and ground conditions, it has been designed as a microtunnel, where the pipe will be installed in a small diameter tunnel between launch and reception pits.



- 4.27 I have included a layout drawing at Appendix 1 which shows the land required for this special road crossing.

Pipeline Rights (required over part of the land shown single hatched red on the Order Maps (CD C2))

- 4.28 Following completion of construction, a package of "Pipeline Rights" will need to be acquired over a narrower 24.4m corridor of land in which the pipeline will be

located to enable it to be operated, repaired, maintained, and protected from interference. This 24.4m corridor will be 12.2m either side of the centreline of the pipeline. The area of land required for the installed pipeline during its operation and maintenance phase will be narrower than the corridor of land over which rights are required for construction because it is never anticipated that the pipeline will be re-laid in its' entirety. Therefore, the reduction in width of the rights will be compensated for by use of land further up or down the Pipeline Rights area for the storage of excavated soil and equipment should a section of pipeline need to be replaced.

Lagoon Rights (required over the land shown coloured purple on the Order Maps (CD C2))

- 4.29 Water will be needed to pressure test the pipelines as part of the commissioning process. To ensure that there will be sufficient water available for that purpose at the right time of year (late summer 2024), NGG will create two temporary lagoons which will enable it to extract water from the River Swift and Badsey Brook during periods of higher flow (more likely in winter and spring) and store it until it is required.
- 4.30 The lagoons are sized based on the volume of water required to fill the new pipelines in two sections each. The same water will be used for the testing of both sections of each pipeline. Topsoil will be stripped from the land before soil bunds are created. If the soil bunds are permeable, a liner will be laid to retain water, and water will be pumped into the lagoons from the River Swift and Badsey Brook. Once the lagoons have been emptied following hydrotesting, the liner, if used, will be removed and the ground fully reinstated.
- 4.31 I have included layout drawings for the lagoons at Appendix 3.
- 4.32 A package of "Lagoon Rights" will need to be acquired over the areas of land required to create lagoons (shown coloured purple on the Order Maps).

Construction Compound Rights (required over the land shown coloured green on the Order Maps (CD C2))

- 4.16 Construction Compounds are needed to facilitate the overall mobilisation of Main Works Contractors. The compounds will include office facilities, car parking, meeting rooms, material storage and lay-down areas, areas to pre-fabricate pipework components, areas to assemble plant and equipment, and areas to store topsoil stripped from the compound.
- 4.17 In total there are 7 construction compounds:
- One at both ends of the two new sections of pipeline = 4. Layout drawings for these are included at Appendix 4, which explain exactly how the land will be used to facilitate construction.

- One both sides of the new A44 crossing, where front end engineering design work has identified a requirement for a microtunnel trenchless crossing = 2. Layout drawings for this are included at Appendix 1 which explain exactly how the land will be used to facilitate construction.
- One at Three Cocks Pig Trap Facility which will facilitate modifications to Three Cocks PIG Trap facility. This site is used to launch and receive Pipeline Internal Gauge (PIG) tools which inspect the condition of the pipelines comprising the NTS. It is on a section of pipe that will be pressure uprated. Any equipment not suitable and safe to operate at the uprated pressure will be modified or replaced and some additional equipment will be installed to manage the pressure boundary introduced. Along with the generic requirements at Section 4.16, this compound has been sized and shaped to accommodate temporary works to dismantle the security fence to facilitate the works.

Access Rights (required over the land shown coloured yellow and orange on the Order Maps for construction and operation and maintenance respectively (CD C2))

- 4.18 Access routes will be needed from the nearest public highway to enable (i) construction, and (ii) operation and maintenance of the pipeline.
- 4.19 Works may be required to facilitate access, such as [the clearing of vegetation, the laying down of temporary bridging, modifications to road verges and junctions].
- 4.20 Packages of 'Construction Access Rights' and 'Access Rights' will need to be acquired over the land coloured yellow and orange on the Order Maps respectively, for those purposes.

Drainage Rights (required over the land shown coloured dark blue on the Order Maps (CD C2))

- 4.21 Pre-construction drainage is required to ensure that water draining from adjacent land is carried away from the construction working areas. This drainage system will remain after construction, alongside post-construction drainage systems designed to ensure that the land drains freely and can continue to be used as productive agricultural land. Front- end engineering design work has identified small sections of land where these drainage systems cannot be wholly accommodated within the Pipeline Construction Rights area due to local topology and availability of discharge outfalls for the drained water. "Drainage Rights" are therefore sought over the land shown coloured brown on the Order Maps to facilitate pre- and post-construction drainage system installation and maintenance.

Multiple Packages

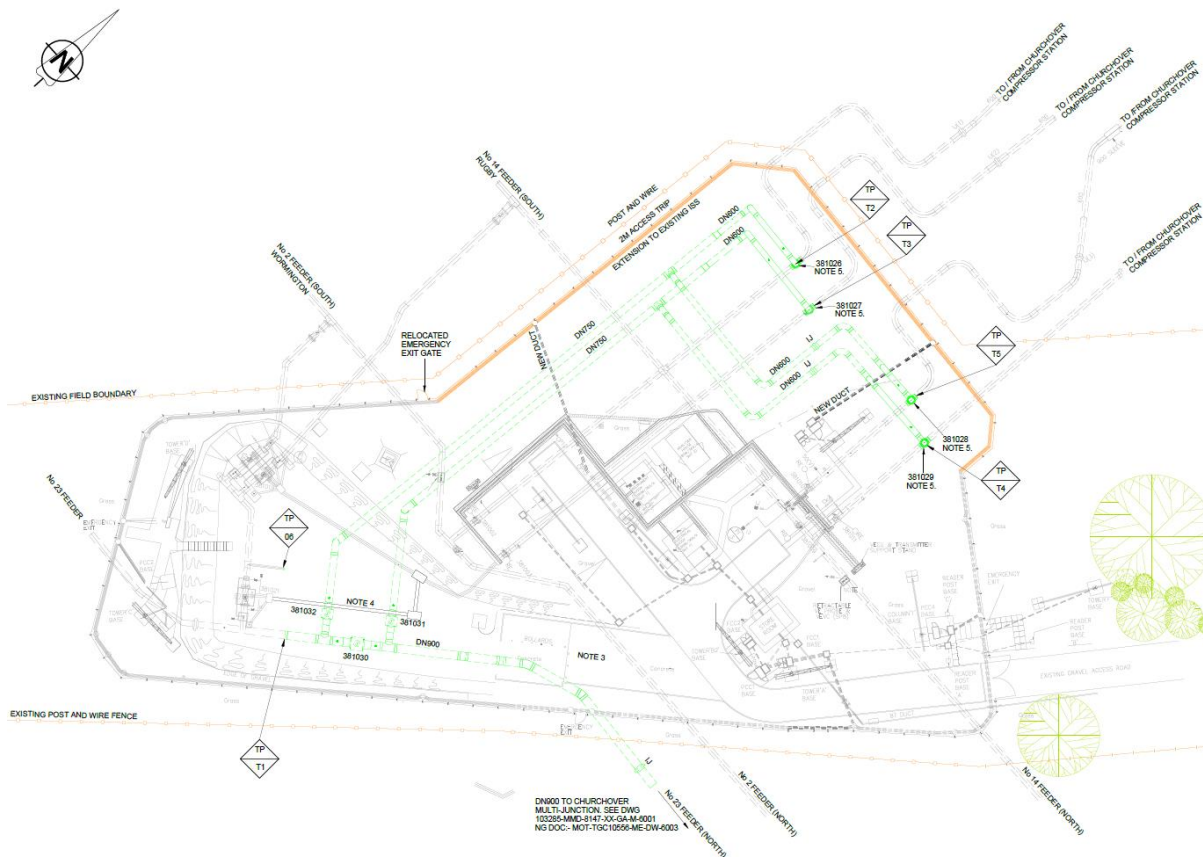
- 4.22 In some places two different packages of land rights are proposed to be acquired over the same land. This is shown on the Order Maps **(CD C2)** by single-hatching one colour over another shaded colour. For example, 'Lagoon Rights' will need to be acquired over plots 122 and 129, together with other plots, to enable a lagoon to be created and used during construction of the pipeline. Following completion of construction the lagoon will be removed and Access Rights will need to be acquired over plots 122 and 129 to enable access to be

taken subsequently. To illustrate this, I have extracted the relevant part of the Order Maps key/legend to show the various combination of rights required:



Freehold Land at Churchover Compressor Tee (shown coloured pink on the Order Maps) and associated Security Rights (required over the land shown coloured brown on the Order Maps (CD C2))

- 4.23 Acquisition of land is required at Churchover Tee to facilitate the connection of new below-ground infrastructure (new 2km pipeline) into the existing infrastructure. The conceptual design for this is shown below, with the extension to the existing security fence-line shown in orange. The 'post-and-wire' fence represents the extent of the land coloured pink on the Order Maps **(CD C2)**. An existing Pipeline Inspection Gauge trap will be removed to connect the new pipeline and the Pipeline Inspection Gauge retrieval facility will be moved to Churchover Multi Junction as part of the connection works there. Other pipework will be installed to connect the new pipeline into the suction and discharge pipelines that run between Churchover Compressor Tee and Churchover Compressor Station, so that gas in the new pipeline can be compressed to higher pressures and pushed towards Peterborough. Due to constraints identified during extensive site investigation in 2022, there are no suitable tie-in points wholly within the existing site footprint so it will be necessary to extend the existing security fence line to include more land for the new infrastructure. Some of the new pipework will have to be located above ground, so it will be necessary to protect it from interference for safety and security reasons and it will not therefore be possible for the land to be used for any concurrent purpose. While additional land is needed for the extension it has been designed to be as small as possible, whilst complying with National Gas and external specifications for the layout of above ground infrastructure.



Security Rights (shown shaded brown on the Order Maps (CD C2))

4.24 A package of “Security Rights” is also required over a 5m security ‘buffer’ outside of the perimeter fence of the Churchover Tee facility. This is to prevent the erection of any buildings or structures, the placing or storage of any equipment or materials, the parking of any vehicles, the planting or growing of any trees, shrubs or other vegetation on, or the increase in the ground level of, the land, which would reasonably foreseeably enable the security fences around the permanent infrastructure to be scaled/breached. The site is Critical National Infrastructure⁴ (as defined by the National Cyber Security Center Government Department), protected by an Integrated Security Solutions fence, so such a breach in security could have serious health and safety implications for the trespasser and/or serious security of supply implications if a deliberate malicious attack. This 5m security ‘buffer’ is shown shaded brown on the Order Maps (CD C2).

5. RESPONSE TO OBJECTIONS

5.1 CRT - The works approval process set out in the Master Agreement between National Gas and CRT cannot be continued with until the detailed design process for the Project has been completed. The detailed design will be undertaken by National Gas’s contractors who are due to be appointed in September 2023. The

⁴ The UK’s Critical Infrastructure is defined by the UK government as: “Those critical elements of Infrastructure (facilities, systems, sites, property, information, people, networks and processes), the loss or compromise of which would result in major detrimental impact on the availability, delivery or integrity of essential services, leading to severe economic or social consequences or to loss of life.” There are 13 CNI sectors, of which Energy is one.

detailed design and build contractual strategy chosen is considered fundamental to enabling efficient construction of the Project. Proceeding to detailed design of the crossing now or beforehand could result in re-work where the design is incompatible with the final contractors equipment, competencies and resources and their management of the associated ground and groundwater risks at the crossing. CRT and I are aligned that there is enough time to progress this matter post-September 2023 and I am committed to providing the necessary technical information in a timely way, via the Master Agreement.

- 5.2 NGED entities – Recent technical engagement with NGED confirms that our project will not adversely impact NGED assets and that Asset Protection Agreements are not required. I am assured that NGED will instruct their legal representation appropriately to withdraw their holding objection
- 5.3 Mr Miles - The Statement of Reasons (**CD C3**) which accompanies the Order explains why the Project is needed and section 4 sets out in detail the alternatives to the Project, and alternative pipeline routes, that were considered by National Gas. I am confident that a robust assessment process was undertaken which confirmed that the Project for which the Order is being promoted is the most appropriate means of meeting the identified need.

6. **REMOVAL OF LAND AT CILFREW**

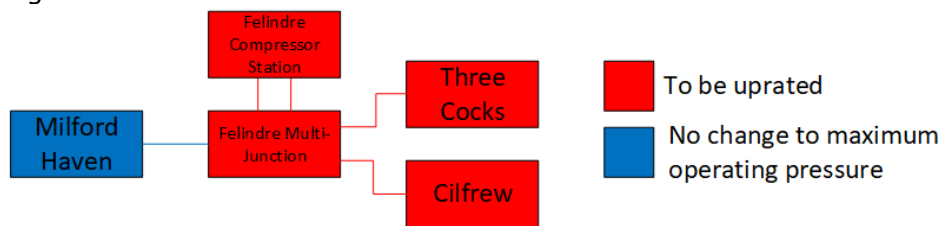
- 6.1 In configuring the Project, my original intention, and National Gas' preference, was to retain current levels of flexibility (i.e. the ability of National Gas as gas system operator, to re-configure⁵ the network to accommodate supply/demand changes) within the network whilst increasing the physical capability⁶ to release the commercial 'capacity' requested by SHGCL. That was to be achieved by building two new sections of pipeline, which would provide two thirds of the physical capability to flow more gas from Milford Haven, and pressure uprating, which would provide the rest.
- 6.2 The key benefit of pressure uprating is that it increases network capability (i.e. the physical capability of the network to flow gas) without the need to build additional assets. In some cases existing assets will be capable of receiving gas at an increased pressure without the need for modifications, whereas in other cases, such as the Project, some modification works are needed. Further detail on this is provided in the Strategic Options Report (**CD E11**) and Alternatives section of the Statement of Case (**CD C4**).
- 6.3 On the 15th of February 2021, the extent of the existing network to be subject to uprating was established following initial engineering assessments. Figure 1 below shows the existing above ground installations and pipelines to be subject

⁵ Re-configuration' means to remotely alter the direction, pressure and flow rate of gas through the network.

⁶ Capability refers to the physical capability of the network to move gas.

to pressure uprating in red. Uprating at these locations would retain current system flexibility.

Figure 1:

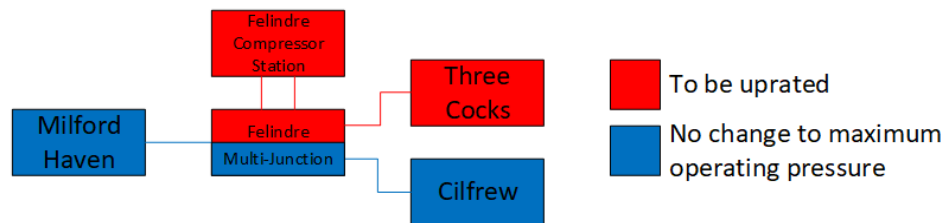


- 6.4 I identified modification works as being necessary at all these red installations, including Cilfrew Pressure Reduction Station, to retain existing flexibility while implementing the Project.
- 6.5 Order Plots 177, 178 and 179 were included in the Order **(CD C1)** to enable National Gas to create, use and remove a temporary compound and access to facilitate modification works to Cilfrew Pressure Reduction Station.
- 6.6 The design work which identified the need to carry out modification works at Cilfrew (and the associated capital cost), and informed the land requirements at Cilfrew (i.e. the need for Plots 177, 178 and 179) was based on certain assumptions about the ability of existing pipework and equipment to safely flow gas at an uprated (increased) pressure. This is because essential data about the ability of the existing pipework and equipment to safely flow gas at an uprated pressure were required from the Original Equipment Manufacturers ("OEM"). National Gas relies on the OEM for confirmation that the assets are suitable and sufficient to operate at the uprated pressure because National Gas engineers are not qualified nor capable of doing so. Obtaining this data from the OEM took longer than expected.
- 6.7 As at October 2022 (when the Order was 'made'), the necessary information was still outstanding and I did not have certainty as to when it would be provided. The making of the Order could not be delayed beyond October 2022 because of the potential impact on the Project programme, and in particular, the need to access the land required for new pipelines and commence construction.
- 6.8 Given that the two new sections of pipeline will provide two thirds of the physical capability to flow more gas from Milford Haven (uprating will provide the rest), which is the overall purpose for which the Project and the Order **(CD C1)** are needed, the pipelines had to take precedence over the uprating.
- 6.9 The data required from the OEMs was received in December 2022 and reviewed by myself and other colleagues on the Project team. The data confirmed that significant modifications would be required at Cilfrew Pressure Reduction Station to enable the pressure at which gas is flowed to be increased. The scale of the modification works confirmed as being necessary, would require the temporary

closure of the Pressure Reduction Station for approximately 2 months and, in combination with other essential maintenance works across the local network, would unacceptably impact on the ability to transmit gas at sufficient pressure. The capital cost of carrying out those works would also be much more significant than originally anticipated.

- 6.10 Given that the modification works at Cilfrew are not required to enable more gas to be transmitted from Milford Haven (only to retain current system flexibility), I decided that the Cilfrew uprating modifications should be removed from the Project. Therefore, land at Cilfrew included in the Order **(CD C1)** for the creation and use of a temporary works compound and access thereto (the Plots) is no longer needed. The new extent of the uprating can be represented as follows:

- 6.11 Figure 2:



- 6.12 In light of the above, National Gas has requested that Plots 177, 178 and 179 be removed from the Order **(CD C1)**. This change will be in the best interests of the affected landowners, the PARCA customer SHGCL, and gas end-consumers.

7. SUMMARY AND CONCLUSIONS

- 7.1 In my statement of evidence I have described the physical components of the Project and the works that are required to construct/install those physical components, with reference to the illustrative drawings and photographs embedded within/appended to it. I have also described the land and rights that are needed to enable those works to be undertaken safely.
- 7.2 No more land than is necessary for the purposes of the safe construction, operation and maintenance of the Project has been included in the Order **(CD C1)**.

8. **DECLARATION**

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

A handwritten signature in black ink, appearing to be 'Jordan Wright', written in a cursive style.

Jordan Wright

18 April 2023