Tealing to Kincardine Upgrade Project

Statement of Need and Site Selection for:

Conland Substation

as part of the Tealing to Kincardine Upgrade Project

April 2025

Accompanying Figures and Appendices

Figure 1: Tealing to Kincardine Upgrade Project – Conland Substation

(edp8143_d036b 18 March 2025 CMy/GYo)

Figure 2: Tealing to Kincardine Upgrade Project – Conland Substation

(edp8143_d032h 18 March 2025 DJo/LMa)

Appendix 1: SP Transmission Ltd Schedule 9 Statement

Document Control

	Report Ref: edp8755_r001			
	Author	**Formatted**	**Peer Review**	**Proofed by/Date**
001_DRAFT	LMa	GLe	CMy	-
001a	LMa	GLe	CMy	CRo 080425

1. Introduction

1.1.1 This statement provides information on the need for the proposed Conland Substation (the Proposed Development), as part of the Tealing to Kincardine Upgrade Project (TKUP) (shown on **Figure 1**), and the site selection process undertaken to inform the identified location of the proposed substation north of Glenrothes (shown on **Figure 2**).

2. Need

2.1.1 Much of the electricity transmission network in Scotland is between 50 and 100 years old. It has grown and evolved to meet industrial needs and serve the expanding population, but the network in central Scotland will soon be at full capacity – unable to accommodate all the renewable energy we will all need in future.

2.1.2 The British Energy Security Strategy set out the UK Government's ambition for the UK transmission network to enable the connection of 50GW of offshore wind generated around Great Britain by 2030. The Pathway to 2030 Holistic Network Design (HND) (NGESO, 2022), Network Options Assessment (NOA) and Refresh (NGESO, 2022) recommend the optimal onshore transmission network required to connect offshore wind farms to shore as well as transporting the power to where it will be used. This strategy is supported by the Accelerated Strategic Transmission Investment (ASTI) framework, which provides a new regulatory framework to fund the large strategic onshore transmission projects required to deliver the 2030 ambitions.

2.1.3 Across the Central Belt of Scotland and across the Anglo-Scottish Border, high power flows from north to south are required, as a result of high volumes of wind generation in Scotland coupled with lower demand. Expected increases in onshore and offshore wind generation confirm the need to deliver significant additional transmission capacity through central and southern Scotland in the period to the end of the current decade and beyond. This leads to an overall north-south power flow through the region. Therefore, growing north to south power transfer requirement across each of the Scottish Power Transmission (SPT) network boundaries is required, driving the need for significant transmission reinforcement.

2.1.4 HND essential reinforcements in this area include the uprating to 400 kilovolts (kV) of onshore overhead line circuits from Kintore to Tealing on the east coast, identified as the 'East Coast Onshore 400kV Phase 2 Reinforcement' (Reference NOA7, Code TKUP), known as the Tealing to Kincardine Upgrade Project (TKUP). It includes upgrading to 400kV the Alyth to Longannet 275kV route, which passes through Glenrothes, Westfield and Mossmorran. As a result, new 400/132kV transformers will be required at existing substations as well as the creation of a new substation north-west of Glenrothes (known as the Conland Substation).

2.1.5 Following the upgrading to 400kV of the circuits that currently feed Westfield, Mossmorran and Glenrothes it is necessary to replace the existing 275kV connections with 400kV connections to continue to connect the overhead lines into these substations. At both Westfield and Mossmorran it is possible to replace the existing 275kV equipment with 400kV equipment because these sites are stepping down initially to 132kV, and 400kV/132kV transformers are standard equipment.

2.1.6 At Glenrothes, the existing voltages are 275kV to 33kV. It is not technically possible to transform directly from 400kV to 33kV. Therefore, regardless of location, a 275kV/400kV substation to maintain the existing connection into Glenrothes, is required at a point on the existing YT route. The existing Glenrothes substation is space constrained and therefore an alternative location is required for a new substation. The new Conland substation will have a key role in enabling Scotland and the UK to meet Net Zero emissions targets while ensuring that power flows efficiently through the system in central Scotland.

2.1.7 Scottish Power Energy Networks (SPEN), alongside National Energy System Operator (NESO) and Ofgem, have undertaken work to assess the strategic electricity transmission infrastructure requirements to identify the most appropriate, viable and long term, technical design solution to deliver the appropriate technical solution required to support the upgrades to the transmission network.

3. Site Selection Process

3.1.1 A site selection process has been undertaken to identify the most appropriate location for the Conland substation, taking into account known environmental considerations and technical considerations, alongside considerations of economic viability and deliverability.

3.1.2 The site selection process considers:

- Schedule 9 of the Electricity Act 1989;
- The Horlock Rules; and
- Approach to Routeing and Environmental Impact Assessment (SPEN, 2020).

3.2 Electricity Act 1989 Schedule

3.2.1 SPEN are the Transmission Licence holder for the south of Scotland and are required under the Electricity Act 1989 (The Act) *"to develop and maintain an efficient, co-ordinated and economical system of electricity transmission"*. SPEN is contractually obliged to manage the electricity distribution network and provide electrical connections from energy sources, and where necessary, to upgrade connections.

3.2.2 In addition to its obligation to provide electrical connections, SPEN is required under Schedule 9 of the Act to both preserve the environment and to provide mitigation for potential effects on the environment. A copy of the SP Transmission Ltd Schedule 9 Statement is provided in **Appendix 1**.

3.3 The Horlock Rules

3.3.1 The site selection process considered the requirements of the 'Horlock Rules', devised in 2003 and updated in 2006 by National Grid Company plc. They provide guidelines for the siting and design of new substations, to avoid or reduce the environmental effects of such developments. The Horlock Rules require the consideration of:

1. **Overall System Options and Site Selection**: In the development of system options including new (or replacement) substations, consideration must be given to environmental issues from the earliest stage to balance the technical benefits and capital cost requirements for new developments against the consequential environmental effects, in order to keep adverse effects to a reasonably practicable minimum;

2. **Amenity, Cultural or Scientific Value of Sites**: The siting of new (or replacement) Substations and extensions, should as far as reasonably practicable seek to avoid altogether internationally and nationally designated areas of the highest amenity, cultural or scientific value by the overall planning of the system connections. Areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas should be protected as far as reasonably practicable;

3. **Local Context, Land Use and Site Planning**: The siting of substations, extensions and associated proposals should take advantage of the screening provided by landform and existing features and the potential use of site layout and levels to keep intrusion into surrounding areas to a reasonably practicable minimum. The proposals should keep the visual, noise and other environmental effects to a reasonably practicable minimum. The land use effects of the proposal should be considered when planning the siting of substations or extensions; and

4. **Design**: In the design of new substations or line entries, early consideration should be given to the options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum. Space should be used effectively to limit the area required for development consistent with appropriate mitigation measures and to minimise the adverse effects on existing land use and rights of way, whilst also having regard to future extension of the substation. The design of access roads, perimeter fencing, earth shaping, planting and ancillary development should form an integral part of the site layout and design to fit in with the surroundings.

3.4 Approach to Routeing and Environmental Impact Assessment

3.4.1 The site selection process has been undertaken and informs the consideration of alternatives required in accordance with Regulation 5(2)(d) and Schedule 4, paragraph 2 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations), where Schedule 4, paragraph 2 states that:

"*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*"

4. Substation Location and Options

4.1.1 The new Conland substation needs to sit along the YT route between the existing Glenrothes substation and the point where two existing high-voltage overhead lines meet (the YS and YT routes). The YT route from Tower YT01 to the junction with the YS route is approximately 2km in length. Four possible options along this length were considered. These are labelled A-D and illustrated on **Image 4.1**.

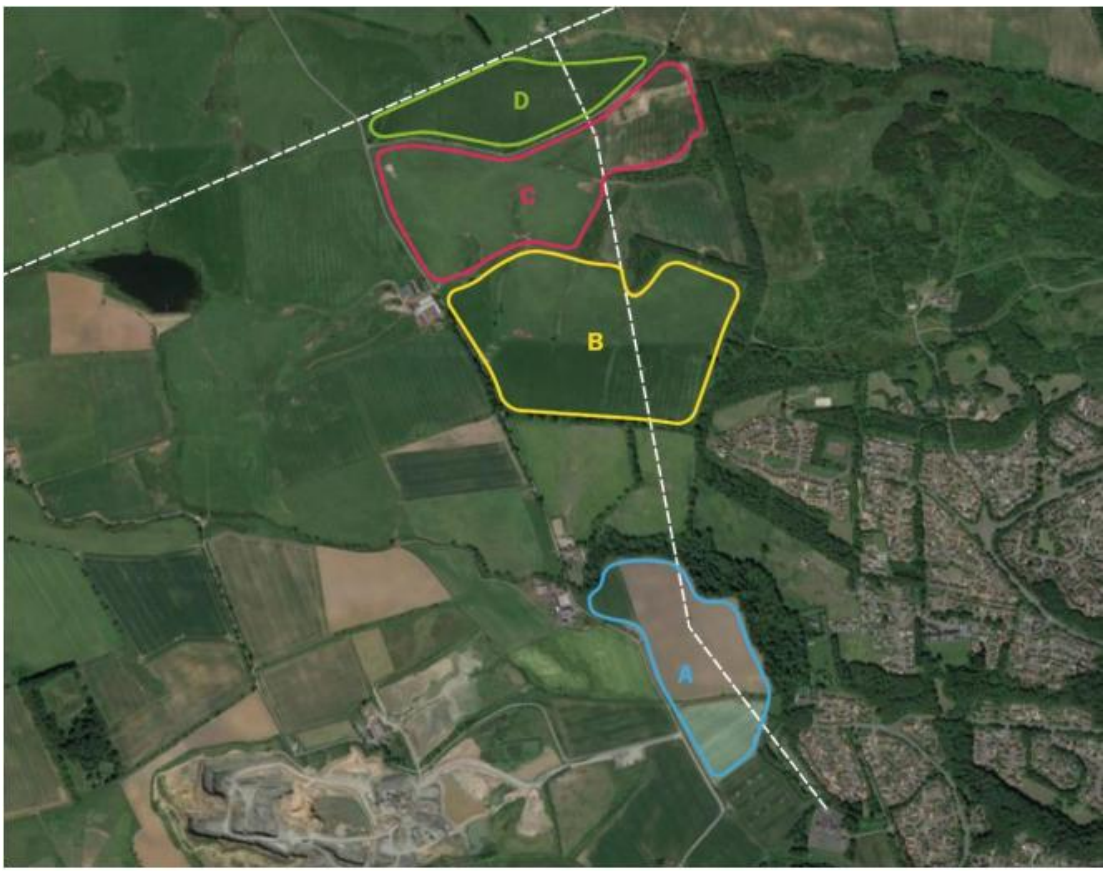


Image 4.1: High Level Siting Options. The YT route is shown as a white dashed line running south to north to meet the YS line.

4.1.2 Options for the location of a substation were appraised based on criteria including:

1. Landscape and visual amenity;
2. Ecology and habitats;
3. Ornithology;
4. Cultural heritage;
5. Forestry; and,
6. Other technical disciplines such as Transport, Access, Noise, Hydrology and Hydrogeology and Land Use.

4.1.3 The environmental constraints for each option are summarised in **Table 4.1** and the appraisal summarised in **Table 4.2**.

Table 4.1: Conland Substation High Level Options

Option	Location	High Level Constraints
Option A	North-west of the existing substation, near to The Limekilns minor road.	• Proximity to settlement, but outside the settlement boundary of Glenrothes; • Watercourse proximity; • Road proximity; • Ancient Woodland proximity with potential to support a wide range of protected species; • Lomond Hills Regional Park (Natural Heritage Site); • Local Landscape Area (FIFEplan, 2017); • Area of Search for surface coal, sand and gravel (FIFEplan, 2017) and superficial glaciofluvial mineral deposits; • Core Path R336 'The Limekilns, Glenrothes to Leslie'; • Archaeological Area of Regional Importance (Lomond Hills) (FIFE Plan, 2017); and • Long length of new Overhead Line (OHL) required.
Option B	Sloping ground east of Pitkevy.	• Outside the settlement boundary of Glenrothes; • Access distance/availability; • Topography - Sloping ground and wider visibility; • Ancient Woodland proximity with potential to support a wide range of protected species; • Lomond Hills Regional Park (Natural Heritage Site); • Local Landscape Area (FIFEplan, 2017); • Green Network Policy Area (Northern Glenrothes Web) (FIFEplan, 2017); • Area of Search for surface coal, sand and gravel (FIFEplan, 2017) and superficial glaciofluvial mineral deposits; • Moderate length of new OHL required; and • Presence of underground high pressure gas main and hazard pipe consultation zone (Scotland Gas Network Ltd).
Option C	Plateau	• Outside the settlement boundary of

Option	Location	High Level Constraints
	immediately north of Option B.	Glenrothes; • Access distance; • Woodland proximity with potential to support a wide range of protected species; • Wider visibility from north and south including intervisibility with East Lomond Hill Schedule Ancient Monument (SAM) and viewpoint; • Landscape character/lack of settlement; • Lomond Hills Regional Park (Natural Heritage Site); • Local Landscape Area (FIFEplan, 2017); • Green Network Policy Area (Northern Glenrothes Web) (FIFEplan, 2017); • Area of Search for surface coal, sand and gravel (FIFEplan, 2017); • Short length of new OHL required; and • Presence of underground high pressure gas main and hazard pipe consultation zone (Scotland Gas Network Ltd).
Option D	Between farm access track and YS route, at the northern end of the YT route.	• Outside the settlement boundary of Glenrothes; • Access distance; • Woodland proximity with potential to support a wide range of protected species; • Wider visibility from north and south including intervisibility with East Lomond Hill SAM and viewpoint; • Lomond Hills Regional Park (Natural Heritage Site); • Local Landscape Area (FIFEplan, 2017); • Area of Search for surface coal, sand and gravel (FIFEplan, 2017); and glaciofluvial mineral deposits north of Conland Burn; • Proximity of Conland Burn watercourse with known ecological constraints and the presence of protected species; • Landscape character/lack of settlement; and • Consultation zone for the underground high pressure gas main (Scotland Gas Network Ltd).

Table 4.2: Conland Substation Siting Appraisal

Topic	Sub-Topic	Option A	Option B	Option C	Option D
Landscape and Visual	**Landscape**	Option A lies to the north of the existing substation, in an area of arable agricultural land typical of the lower lying landscape to the north and west of the settlement. It is undulating, but with areas of flatter land north and south. A recent battery storage development has changed the context slightly and brought energy infrastructure into the more open landscape compared to the existing substation. This changed context reduces the susceptibility to further development of this type. The Option is within LCT 184 – Foothills – Fife, and adjacent to the Urban Landscape Character Type (LCT). The Option is within the Lomond Hills Local Landscape Area.	Option B lies on the steep topographical area between Options A and C and comprises areas of grassland and arable land. It contains a woodland strip to the east and borders the minor road. A defunct hedgerow/mature tree line runs along the southern boundary. Being a steep south-facing slope, the area is visible from areas to the west, including Leslie. The Option sits across LCT 182 Upland Hills and LCT 184 – Foothills – Fife, and is therefore a transitional area, which is borne out by the prevailing topography and land use. Development here would likely require significant topographical changes to facilitate a flat platform. The Option is within the Lomond Hills Local Landscape Area.	Option C lies on the elevated ground immediately north of Option B. It comprises areas of grassland/ grazing, bordered to the east by woodland strips. Once on the elevated ground in this area, the high hills of East and West Lomond are visible and prominent features. The perception is different to Options A and B, with a more exposed and open feel, which is not characterised by the edge of settlement character, which is evident further south. The large OHLs are a visual and prominent feature of the landscape. The Option is within LCT 182 – Upland Hills, and is typical of this LCT, being more exposed and upland in character. The Option is within the Lomond Hills Local Landscape Area.	Option D lies further into the elevated ground immediately north of Option B. It comprises areas of grassland/grazing, and small areas of woodland associated with access tracks to private residences and mature tree lines. As for Option C, once on the elevated ground north of the settlement, the high hills of East and West Lomond are visible and more prominent features. The perception remains of a different character to Options A and B, with a more exposed and open feel, which is not characterised by the edge of settlement character, which is evident further south. The large OHLs are a visual and prominent feature of the landscape. The Option is within LCT 182 – Upland Hills, and is typical

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		The Option would require an extended length of new OHL.	The Option would require an extended length of new OHL.	The Option would require a short length of new OHL.	of this LCT, being more exposed and upland in character. The Option is within the Lomond Hills Local Landscape Area. The Option would require no new OHL.
	Visual (inc. residential)	Although in close proximity to the settlement edge, a vegetated edge to the settlement in this area would restrict most views. More open views are available from the rear of houses to the west, although undulating topography and other vegetation limit views. Views would be available from some local roads and residences, with some at close range, particularly the northern parts of Option A. The Option is dissected by Core Path (the Limekilns), which would be impacted. The Option is removed from the more elevated northern areas of the Study Area, and	Being a slope, the area is relatively widely visible, although is visually screened from the north by the top of the slope. Views from Leslie and the edge of the settlement of Glenrothes are available. There are a small number of isolated farmsteads/houses with views across this area, and it will be visible from the minor road. Views from the Core Path network to the west would be available. The Option would require an extended length of new OHL.	Option C is sparsely populated, with few, if any residences experiencing views across it. The exception would be localised farmsteads, and those wider afield with an elevated outlook. Views from local roads would be available, and the minor road adjacent to the west, although small in scale, appears relatively well used. Views would be available from the viewpoint/car park on East Lomond Hill, and also from the summit, where there is also a nominated viewpoint. Views from other elevated areas in the Lomond Hills would also be likely, although the existing line of	Option D is sparsely populated and views will generally be limited to local residents and users of the minor road, with views also available from the high hills to the north and the Core Path network to the north-west and north. Views would be available from the viewpoint/car park on East Lomond Hill, and also from the summit, where there is also a nominated viewpoint. Views from other elevated areas in the Lomond Hills would also be likely, although the existing line of OHLs is already a feature of the local landscape. The option would require a

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		outside the visual zone when viewing from high points to the north (e.g. East Lomond). The Option would require an extended length of new OHL.		OHLs is already a feature of the local landscape. Views from the Core Path network to the north and north-west would be available. The option would require a short length of new OHL.	very limited length of new OHL, which would be shorter than the other options.
Ecology and Ornithology	**International Designated Sites**	Loch Leven SPA/Ramsar, Outer Firth of Forth and St Andrews Bay Complex SPA/Ramsar and Firth of Tay and Eden Estuary SPA/SAC/Ramsar are designated for aquatic or coastal features that support important wintering bird populations, for which the habitats within the study area are considered unlikely to support. Turfundie Wood SAC is primarily selected for the presence of great crested newt. However, as this site is over 10km from the study area, there is a negligible risk that the habitats will be functionally linked. Pitkeathy Mires SAC is selected for botanical features associated with flushes and spring habitats. Therefore, all options are considered unlikely to have an impact on the designated site, based on the distance from site and lack of hydrological connectivity. There is therefore no preference for any of the options in relation to international designated sites.			
	National Designated Sites	Option A lies within 15m of Lothrie Burn, which is hydrologically linked to Holl Meadows SSSI and Ballo and Harperlease Reservoirs SSSI. There is therefore the potential for the nationally designated site to be impacted by the construction of a proposed new substation within this	Option B would be the preferred location based on national designated sites as it is the furthest from both watercourses that are hydrologically linked to nationally designated sites.	Coul Den Local Nature Reserve (LNR) LNR is a reservoir that is hydrologically connected to Conland Burn, which is immediately adjacent to Option C.	Coul Den LNR is a reservoir that is hydrologically connected to Conland Burn, which is immediately adjacent to Option D.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		option.			
	Habitats	The habitats present within Option A are likely to be of low intrinsic ecological value. Therefore, Option A would be the preferred option when considering the habitats present.	Option B predominantly comprises grazing pasture with a small area of grassland identified by HabMoS[1] as acid grassland along the north-west boundary.	The HabMoS indicates that Option C comprises acid grassland identified in the Central Scotland Green Network (CSGN) Habitat Networks and Opportunity Areas.	The HabMoS indicates that the Option D comprises acid grassland identified in the Central Scotland Green Network (CSGN) Habitat Networks and Opportunity Areas.
	Protected Species	The bordering Ancient Semi-natural Woodland adjacent to Option A has the potential to support a wide range of species that could be impacted by the construction of the substation.	The conifer plantation woodland present adjacent to Option B has the potential to support a wide range of species that could be impacted by the construction of the substation.	The conifer plantation woodland present adjacent to Option C has the potential to support a wide range of species that could be impacted by the construction of the substation.	The Conland Burn has potential to support protected species. The habitats within and surrounding Option D offer fewer opportunities to support protected species and would therefore be the preferred option.
Archaeology and Cultural Heritage	**Archaeology**	No non-designated assets are recorded by the Historic Environment Record (HER) within Option A. An initial review of desk-based evidence indicates the presence of a Lime Kiln at its eastern edge on the 1st edition 1856 Ordnance	No non-designated assets are recorded by the HER within Option B. An initial review of desk-based evidence does not indicate any potential features of archaeological interest. Instead, the area appears to have comprised agricultural	A single non-designated asset is recorded by the HER within Option C; this relates to the remains of a limestone quarry. The HER does not provide a date; however, the quarry is illustrated on the 1856 OS map. An initial review of desk-	No non-designated assets are recorded by the HER within Option D. An initial review of desk-based evidence does not indicate any potential features of archaeological interest. Instead, the area appears to have comprised agricultural

[1] Habitat Map of Scotland

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		Survey (OS) Map, related to the Rothes Limeworks further to the east. Direct impacts upon potential remains related to these works could be avoided through sensitive micro-siting.	fields and moorland since the mid-19th century. Any features identified during subsequent detailed study could be avoided through sensitive micro-siting.	based evidence does not indicate any additional potential features of archaeological interest. Direct impacts upon potential remains related to these works could be avoided through sensitive micro-siting.	fields and moorland since the mid-19th century. Any features identified during subsequent detailed study could be avoided through sensitive micro-siting.
	Heritage	No designated heritage assets are located within Option A. A number of assets are recorded within the study area. An initial review of desk-based evidence indicates that there is potential for effects upon the Leslie Conservation Area, located to the south, and the Grade B and C listed buildings within it as a result of changes to their setting following the proposed development. This is due to their proximity to Option A, and the potential for a visual relationship with the proposed development. Any views are likely filtered by intervening built form and	No designated heritage assets are located within Option B. A number of assets are recorded within the study area. An initial review of desk-based evidence indicates that there is potential for effects upon the Grade C listed building Ballingall Farmhouse to the south-west as a result of changes to its setting following the proposed development. This is due to its proximity to Option B, and the potential for a visual relationship with the proposed development, especially given that additional OHL would be	No designated heritage assets are located within Option C. A number of assets are recorded within the study area. An initial review of desk-based evidence indicates that there is potential for effects upon the one scheduled monument: East Lomond Hill (fort and cairn) and the listed Ballingall Farmhouse a result of changes to their setting following the proposed development. This is due to the potential for a visual relationship with the proposed development, especially given that additional OHL would be	No designated heritage assets are located within Option D. A number of assets are recorded within the study area. An initial review of desk-based evidence indicates that there is potential for effects upon the one scheduled monument East Lomond Hill (fort and cairn), as a result of changes to its setting following the proposed development. This is due to the potential for a visual relationship with the proposed development, given their nature as a monument with wide ranging views. However, this Option would

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		vegetation and so limited to the eastern end of the conservation area. However, it is noted that additional OHL would be required in this location, which would result in greater potential for views and would limit options for mitigation.	required in this location, and potential historic connection as agricultural land formerly associated with the farmhouse.	required in this location.	not require additional OHL and so would provide greater opportunity for mitigation via micro siting or landscape planting.
Planning	**Site Allocation - Allocations/ Designations on the FIFEplan Interactive Map (2017)**	All Sites: • Outwith Settlement Boundary of Glenrothes; • Local Landscape Area – Lomond Hills; • Natural Heritage Site - Lomond Hills Regional Park; and • Area of search for surface coal, sand and gravel (settlement envelope graded high level of protection).			
		Core Path (the Limekilns) runs through the southern third and western edge of the Option area. Southern and northern Option areas - superficial sand and gravel (minerals).	South-eastern Option edge – Green Network Policy Area: Northern Glenrothes web. Small section on eastern Option edge – superficial sand and gravel (minerals). Hazard pipe consultation zone running through Option (Scotland Gas Network Ltd).	Eastern quarter of Option - Green Network Policy Area: Northern Glenrothes web. Hazard pipe consultation zone running through Option (Scotland Gas Network Ltd).	Small slither of northern Option boundary – superficial sand and gravel (minerals). Eastern Option edge - Hazard pipe consultation zone (Scotland Gas Network Ltd).

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		Options A, B, C and D Options A, B, C and D are outside the settlement boundary, and are therefore classed as 'Countryside'. FIFEplan Policy 7 (Development in the Countryside) outlines limited circumstances where development in such a location is acceptable, including "*other development which demonstrates a proven need for a countryside location*". Given that the proposed development can only be sited where a practical and viable connection to the national electricity grid is possible, there are therefore strict locational requirements which can be demonstrated in order to comply with this policy. Furthermore, the principle of the proposed development is supported within NPF4, given that Policy 11 (energy) states that development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. This includes enabling works, such as grid transmission and distribution infrastructure. NPF4 Policy 11, however, states that development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits. Policy 11 also requires proposals to demonstrate how any impacts are addressed through project design and mitigation measures. Furthermore, NPF4 Policy 29 (Rural Development) states that proposals that contribute to the viability, sustainability and diversity of rural communities and local rural economy will be supported, including essential infrastructure. The glossary of NPF4 defines 'essential infrastructure' as including all forms of renewable, low-carbon and zero emission technologies for electricity generation and distribution and transmission, electricity grid networks and primary substations. Policy 29 further advises that proposals in rural areas should be suitably scaled, sited and designed to be in keeping with the character of the area, whilst they should also consider how the development will contribute towards local living and take into account the transport needs of the development as appropriate for the rural location. Options A, B, C and D are designated within a 'Local Landscape Area'. NPF4 Policy 4 (Natural Places) states that development proposals that affect such a designation will only be supported where development will not have significant adverse effects on the integrity of the area or the qualities for which it has been identified; or any significant adverse effects on the integrity of the area are clearly outweighed by social, environmental or economic benefits of at least local importance. Furthermore, all sites are also subject to a 'Natural Heritage Site' (Lomond Hills Regional Park) designation. FIFEplan Policy 13 (Natural Environment and Access), states that development proposals will only be supported where they protect or enhance such assets. Where adverse impacts on existing assets are unavoidable, the Council will only support proposals where these impacts will be satisfactorily mitigated. All sites are also designated as area of search for surface coal, sand and gravel (settlement envelope graded high level of protection). NPF4 Policy 33 (Minerals) states that development proposals that would sterilise mineral deposits of economic			

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		value will only be supported where there is an overriding need for the development and prior extraction of the mineral cannot reasonably be undertaken; or extraction of the mineral is impracticable or unlikely to be environmentally acceptable. **Core Paths – Option A only** A Core Path (the Limekilns) runs through the southern approximate third and along the western edge of the Option area. FIFEplan Policy 13 (Natural Environment and Access) states that development proposals will only be supported where they protect or enhance core paths. As such, the core path should be avoided. If it is to be subject to development, it will likely need to be diverted such that access is maintained. **Superficial Sand and Gravel – Options A, B and D** Sections of Options A, B and D are subject to this designation. The advice outlined above in relation to the surface coal, sand and gravel (settlement envelope graded high level of protection) designation also applies to this designation. **Green Network Policy Area (Northern Glenrothes web) - Options B and C only** FIFEplan Policy 13 (Natural Environment and Access), states that development proposals will only be supported where they protect or enhance natural heritage and access assets including green networks. According to the 'Green Networks in Fife' FIFEplan Background Paper (January 2013), the 'Northern Glenrothes web' consists primarily of housing set in an extensive woodland setting, providing a good carbon sink, but with some woodland management issues. **Hazard Pipe Consultation Zone (Scotland Gas Network Ltd) - Options B, C and D** Options B, C and D include areas which are Hazard Pipe Consultation Zones (Scotland Gas Network Ltd). Within these zones, development proposals are required to demonstrate that they do not individually or cumulatively result in an increase in risk to the safety and health of the public and the environment. The FIFEplan also states that proposals within the Health and Safety Executive (HSE) Pipeline Consultation Zone must take account of the HSE Planning Advice for Development near Hazardous Installations (PADHI) guidance, and that the scale and type of development within these zones will be restricted.			
Geoenvironmental	**Geology[2] – Superficial and Bedrock**	The shallow soils within the southern section of the option area are indicated to comprise Artificial Worked Ground underlain by	Mostly underlain by Till, generally comprising a heterogenous mixture of clay, sand, gravel, and	The northern, central and eastern areas are indicated to be underlain by Till, generally comprising a heterogenous mixture of clay, sand, gravel,	The option is indicated to be underlain by Till, generally comprising a heterogenous mixture of clay, sand, gravel,

[2] British Geological Survey, GeoIndex Onshore, available at: https://mapapps2.bgs.ac.uk/geoindex/home.html, accessed 03 October 2023.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		Glaciofluvial deposits generally comprising deposits of gravel, sand and silt. The northern tip is indicated to be underlain by Till, generally comprising a heterogenous mixture of clay, sand, gravel, and boulders. Underlying bedrock across the majority of the option area is indicated to be sedimentary comprising the Lower Limestone Formation. The western edge of the option area is indicated to be underlain by the Midland Valley Sill-Complex – quartz microgabbro. Blackhall Limestone is also indicated.	boulders. A small pocket of Glaciofluvial deposits are indicated within the eastern part of the option; generally comprising gravel, sand and silt. Underlying bedrock is indicated to be sedimentary comprising the Lower Limestone Formation. In the western section, Dinantian to Westphalian Sills of Lothians and Fife – Analcime-Gabbro are indicated and Blackhall Limestone.	and boulders. No record exists for the remainder of the option area. Underlying bedrock is indicated to be sedimentary comprising the Lower Limestone Formation and Blackhall Limestone in the western section.	and boulders. The Conland Burn flowing along part of the northern option area boundary is indicated to be underlain Alluvium, generally comprising clay, silt, sand and gravel. Underlying bedrock is indicated to be sedimentary comprising the Lower Limestone Formation and Blackhall Limestone in the western section.
	Land Use[3]	Historical mapping dated 1840s – 1880s shows one square shaped building on-site, the remainder as fields. Limekilns bound the option to the east shown until	Historical mapping dated 1840s – 1880s shows the option as a field with two wells in the north-western corner. A limestone quarry and kilns	Historical mapping dated 1840s – 1880s shows the option to be two fields. On-site surface workings of a Limestone Quarry with Limekilns (covering approximately 6,600m^2) are	Historical mapping dated 1840s – 1880s shows the option as two fields. The eastern field is shown as rough grazing and a 'Pit' is marked along the northern boundary with the Conland

[3] National Library of Scotland, Maps home, Ordnance Survey, available at: https://maps.nls.uk/geo/explore/#zoom=16.0&lat=56.21081&lon=-3.20610&layers=257&b=1&marker=56.20964,-3.20665, access 03 October 2023.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		1945. No significant changes were indicated/observed through until present day. According to satellite imagery from 2007 to present, the option is shown as farmland – arable fields. Overhead power lines supported by pylons run across the option.	are shown immediately off-site to the north, shown as disused c.1949 – 1972. Satellite imagery dated from 2007 shows the land use as a mix of arable and rough grazing. Overhead power lines are shown to cross the option.	shown near to the southern boundary of the site, close to the off-site farmstead labelled 'Pitkevy' to the east. The eastern section of the option area is shown as rough grassing. Mapping dated 1888 – 1913 shows the quarry as disused, labelled as 'Old Quarry'. According to satellite imagery from 2007 to present, no significant changes were observed. Overhead power lines supported by a large pylon run across the eastern section of the option.	Burn. The 'Pit' is no longer shown on mapping dated 1888 – 1913. According to satellite imagery from 2007 to present, no significant changes were observed. Overhead power lines run across the eastern section of the option.
	Possible Contamination	Possibly associated with the underlying Artificial Worked Ground of unknown origin, depth, composition.	Significant contamination is not anticipated.	Possibly associated with potentially infilled parts of the old quarry and the former Limekilns. Made Ground and/or potentially wastes of unknown origin(s), depth, and composition(s) maybe present. Significant contamination is not anticipated across the remainder of the study area.	The status of the former 'Pit' on historical mapping is unknown. Localised contamination may be associated with potentially infilled soils. Significant contamination is not anticipated across the remainder of the study area.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
	Ground Stability	The area of Artificial Worked Ground of unknown origin, depth and composition has the potential to be compressible in nature. There is estimated to be a low potential for running sands associated with Glaciofluvial deposits. There is a potential collapsible ground stability risk associated with the possible underground shallow mining, see below for some further high-level detail on mining.	The status of the historical 'Wells' is unknown; therefore, the potential exists for localised collapsible ground. There is estimated to be a low potential for running sands associated within the localised pocket of Glaciofluvial deposits. The whole option is indicated to be steep slope, especially towards the northern boundary. However, given the indicated underlying Till deposits, landslip and/or slope stability risk is estimated to be low. Localised potential slope stability and possible landslips hazards may be present within the steep sided gully either side of the western drainage ditch.	The former limestone quarry area may have been backfilled with materials of unknown origin, depth and composition that may be compressible in nature. Localised potential slope stability and possible landslips hazards may be present within the former quarry.	The status of the historical on-site 'Pit' is unknown; therefore, the potential exists for localised collapsible ground. The localised on-site alluvial soils may be compressible in nature as may any potentially Made Ground soils associated with the former 'Pit' area. Should the alluvial soils contain a high clay content, then they may be suspectable to shrinking or swelling.
	Mining[4]	Indicated to be within a Coal Mining Reporting Area. However, no known recorded mine entries, past	Indicated to be within a Coal Mining Reporting Area. However, no known recorded mine entries, past	Indicated to be within a Coal Mining Reporting Area. However, no known recorded mine entries, past shallow	Indicated to be within a Coal Mining Reporting Area. However, no known recorded mine entries, past

[4] Coal Mining Interactive Map, available at: https://mapapps2.bgs.ac.uk/coalauthority/home.html, accessed 04 October 2023

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		shallow coal mining works nor coal outcrops are indicated to underly the option. Moreover, the option and immediate surroundings area not within a Development High Risk Area. Nonetheless, two borehole records on-site indicate possible shallow workings underlying the site. British Geological Society (BGS) borehole NO20SE314/1 and 2 records 'cavities' at approximately 16 mbgl indicating potential shallow mining hazard(s) underlying the study area. BGS record of NO20SE314/3 records 'Waste, probably' at a similar depth and NO20SE/315 records 'Fill' at ground surface approximately 0.5 m thick with no further description.	shallow coal mining works nor coal outcrops are indicated to underly the option. Moreover, the option and immediate surroundings are not within a Development High Risk Area.	coal mining works nor coal outcrops are indicated to underly the option. Moreover, the option and immediate surroundings are not within a Development High Risk Area.	shallow coal mining works nor coal outcrops are indicated to underly the option. Moreover, the option and immediate surroundings are not within a Development High Risk Area.
	Hydrology and Hydrogeology[5]	No water features are indicated on-site. The Lothrie Burn neighbours the	There are unnamed and unclassified drainage ditches running along the eastern	A drain is shown on the southern boundary, possibly linking into the off-site	The Conland Burn flows west to east along the eastern part of the northern option

[5] Scottish Environment Protection Agency (SEPA) Water Classification Hub, available at: https://www.sepa.org.uk/data-visualisation/water-classification-hub/, accessed 05 October 2023.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		northern and eastern boundaries of the site flowing through Den Plantation. SEPA classify this burn as having Poor overall ecological status in 2020. Nonetheless, it is at a lower ground-level compared to the option and therefore considered a potential nearby off-site receptor. Parts of the option are underlain by the Leven Valley and South Fife Coastal superficial aquifer. This has been classified by SEPA in 2020 as having an overall status of Poor. The Glenrothes bedrock aquifer was classified by SEPA in 2020 as having an overall status of Poor.	and western areas of the option, flowing southwards into the Lothrie Burn. There are some localised drainage channels on the northern boundary of the option. No superficial aquifer is shown. The underlying Glenrothes bedrock aquifer was classified by SEPA in 2020 as having an overall status of Poor.	Conland Burn to the north. No superficial aquifer is shown. The underlying Glenrothes bedrock aquifer was classified by SEPA in 2020 as having an overall status of Poor.	boundary. This burn is identified by SEPA as the Kennoway Burn/Back Burn and is classified by them in 2020 as having Poor Overall Ecological status. Nonetheless, it is at a lower ground-level compared to the option and therefore considered a potential nearby off-site receptor. No superficial aquifer is shown. The underlying Glenrothes bedrock aquifer was classified by SEPA in 2020 as having an overall status of Poor.
Potentially Significant Constraints Associated with Ground Conditions	**Summary**	Artificial/worked ground in the southern section of the option carries potential contamination and ground stability risks. Historical BGS site records indicate possible shallow mining/cavities underlying the option, creating a	Ground stability risks associated with historical wells in a localised part of the option as their status is unknown. Further assessment would be required if development was proposed in this area. Localised potential slope	The old quarry and former Limekilns area will require further assessment and may contain Made Ground and/or potentially wastes of unknown origin. Furthermore, these areas carry potential ground stability risks and localised	The status of the historical 'Pit' area is unknown. Localised contamination may be associated with potentially infilled soils, and this localised area also carries a potential ground stability risk.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		possible ground stability hazard.	stability and possible landslips hazards may be present within the steep sided gully either side of the western drainage ditch.	slope stability and landslips hazards.	Anticipated Indicated Alluvial soils underlying the Conland Burn.
Noise	**Operational Noise**	The option is noted to be in proximity to the following receptors: • Pitkevy Farm, approximately 65m to the north-west; • Ballinghall Mill approximately 30m to the west; • Dwellings approximately 200m to the south; and • Dwellings approximately 60m to the east. The option and surrounding receptors do not appear to be located close to major sources of noise and therefore background sound levels are anticipated to be relatively low. Scotland's road noise maps	The option is noted to be in proximity to the following receptors: • A dwelling approximately 30m to the west; • A dwelling within the western site boundary; • Dwellings approximately 75m to the south-west; and • Dwellings approximately 300m to the south. The option and surrounding receptors do not appear to be located close to major sources of noise and therefore background sound levels are anticipated to be relatively low. Scotland's road noise maps indicate that ambient sound	The option is noted to be in proximity to the following receptors: • A dwelling approximately 75m to the south-west; • A dwelling approximately 170m to the south; and • Dwellings approximately 300m to the south. The option and surrounding receptors do not appear to be located close to major sources of noise and therefore background sound levels are anticipated to be relatively low. Scotland's road noise maps indicate that ambient sound levels due to noise from major roads is expected to be	The option is noted to be in proximity to the following receptors: • A dwelling approximately 400m to the south; and • Dwellings approximately 400m to the east. The option and surrounding receptors do not appear to be located close to major sources of noise and therefore background sound levels are anticipated to be relatively low. Scotland's road noise maps indicate that ambient sound levels due to noise from major roads is expected to be below 55dB Lden.

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		indicate that ambient sound levels due to noise from major roads is expected to be below 55dB Lden. In relation to operational noise, Option A is the least preferred option due to relatively low distances separating the option and noise sensitive receptors.	levels due to noise from major roads is expected to be below 55dB Lden.	below 55dB Lden.	
	Construction Noise	Noise and vibration impacts during construction are likely to be caused by construction activities taking place on-site, and vehicle movements providing materials, workers and plant to site. Option A is likely to result in greater noise impact as a result of construction activity due to the relatively short distances separating the option and noise sensitive receptors. However, Option A is also likely to result in less noise impact as a result of construction traffic noise, as vehicles (assumed to originate from the A911) would pass fewer noise sensitive properties along the access road. Option D is likely to result lower noise impact as a result of construction activity due to the relatively large distances separating the option and noise receptors. However, Option D is likely to result in more noise impact as a result of construction traffic noise, as vehicles (assumed to originate from the A911) would pass a greater number of noise sensitive properties along the access road. There is unlikely to be a significant difference in noise impact due to either construction activity or construction traffic noise for Options B and C.			
Transport and Highways	**Access**	There is an existing access into Option A. Based on an initial desktop study, it is understood that this is an existing agricultural access. In addition, The Limekilns	There are no existing vehicle access points directly into the option from the unnamed access road for Option B. A new vehicular access	There is an existing vehicular access point into the option in the south-west corner. In addition, there is an unnamed access road that runs adjacent to the northern boundary that could also	Option D also benefits from an existing agricultural access in the south-west corner. As with Option C, there is an existing unnamed access

Topic	Sub-Topic	Option A	Option B	Option C	Option D
		intersects the option near the southern boundary, which also offers an alternative means of access into the option. Passing points could be required at points along the unnamed access road, given the nature of the vehicles that are likely to be accessing the option as well as the nearby quarry site and farms which will generate vehicle trips.	would need to be created for both construction and operational traffic. Passing points are likely to be required at points along the unnamed access road, given the nature of the vehicles that are likely to be accessing the option as well as the nearby quarry site and farms which will generate vehicle trips.	provide an alternative means of access, if required. Passing points are likely to be required at points along the unnamed access road, given the nature of the vehicles that are likely to be accessing the option as well as the nearby quarry site and farms which will generate vehicle trips.	road that runs adjacent to the southern boundary of the option where an access could be provided if required. Passing points along the access road are likely to be required given the nature of the vehicles accessing the option and also the nearby quarry site and farm sites.
	Operational Traffic	It is understood that once operational, all options would generate very few daily vehicle trips and instead would just require access for maintenance vehicles at different times during the year.			
	Construction Traffic	Construction traffic would route to all of the options via the A911 (High Street) approximately 700m to the south of Option A using the unnamed access road. A key consideration would be how the construction vehicles would route to and from the options. It is noted that there is an existing quarry site (Skene Quarries) to the west of Option A, which suggests that HGVs can currently access the unnamed access road from the A911.			

4.1.4 As a result of a detailed appraisal **Table 4.3** provides a summary of the option preferences.

Table 4.3: Summary of Route Appraisal

Topic Area	Preference
Planning and Consenting	Option D
Hydrology and Flood Risk	Option A
Ground Conditions	Option D
Transport	Option A
Noise	Option D
Landscape and Visual	Option D
Ecology and Ornithology	Option D
Heritage and Archaeology	Option D

Preferred Location

4.1.5 The preferred location for the proposed Conland substation is Option D on land north of Pitkevy Farm, near Glenrothes. Following further technical considerations, the preferred location has been identified towards the centre of Option D, close to the junction between the YT and the YS routes. This location is further away from homes and next to the existing overhead lines, removing the need to build new overhead lines to connect it to the network. It allows electricity supplies to the Glenrothes 275kv/33kV Grid Supply Point (GSP) to be maintained without additional diversions during the construction of the substation.

5. References

National Grid ESO Pathway to 2030 Holistic Network Design, July 2022, available online at https://www.neso.energy/document/262681/download

NESO Network Options Assessment (NSO) available online at https://www.neso.energy/publications/network-options-assessment-noa

National Grid ESO Network Options Assessment 2021/2022 Refresh Available online https://www.neso.energy/document/262981/download

SP Energy Networks 2020. Approach to Routeing and Environmental Impact Assessment.

FIFEplan Local Development Plan (Adopted) September 2017

Figures and Appendices

6. Accompanying Figures and Appendices

Figure 1: Tealing to Kincardine Upgrade Project – Conland Substation (edp8143_d036b 18 March 2025 CMy/GYo)

Figure 2: Tealing to Kincardine Upgrade Project – Conland Substation (edp8143_d032h 18 March 2025 DJo/LMa)

Appendix 1: SP Transmission Ltd Schedule 9 Statement

TKUP Overhead Lines

- YJ001 to YJ084 (Longannet to Westfield)
- Mid Span YS065 to YS001 (SHET/SPT Border to Westfield)
- YT001 to YT007 (Tealing/Westfeld tee to Glenrothes)
- YV001 to YV015 (Longannet/Westfield tee to Mossmorran)
- ZC(N)001to ZC(N)018 (Proposed Kincardine North to Langannet) (Consented)
- ZC(S)001to ZC(S)018 (Proposed Kincardine North to Langannet) (Consented)
- Substation
- Tower Location

YS065
Conland Substation
YT001
YT007
YS001
YJ084
Westfield Substation
YV001
YV015
Mossmorran Substation
Devonside Substation
Kincardine North Substation
ZC(N)018
ZC(S)018
ZC(S)001
ZC(N)001
YJ001

N

0 1 2 3 4 5 km

SP Energy Networks | edp | Stantec

purpose of issue **PLANNING**

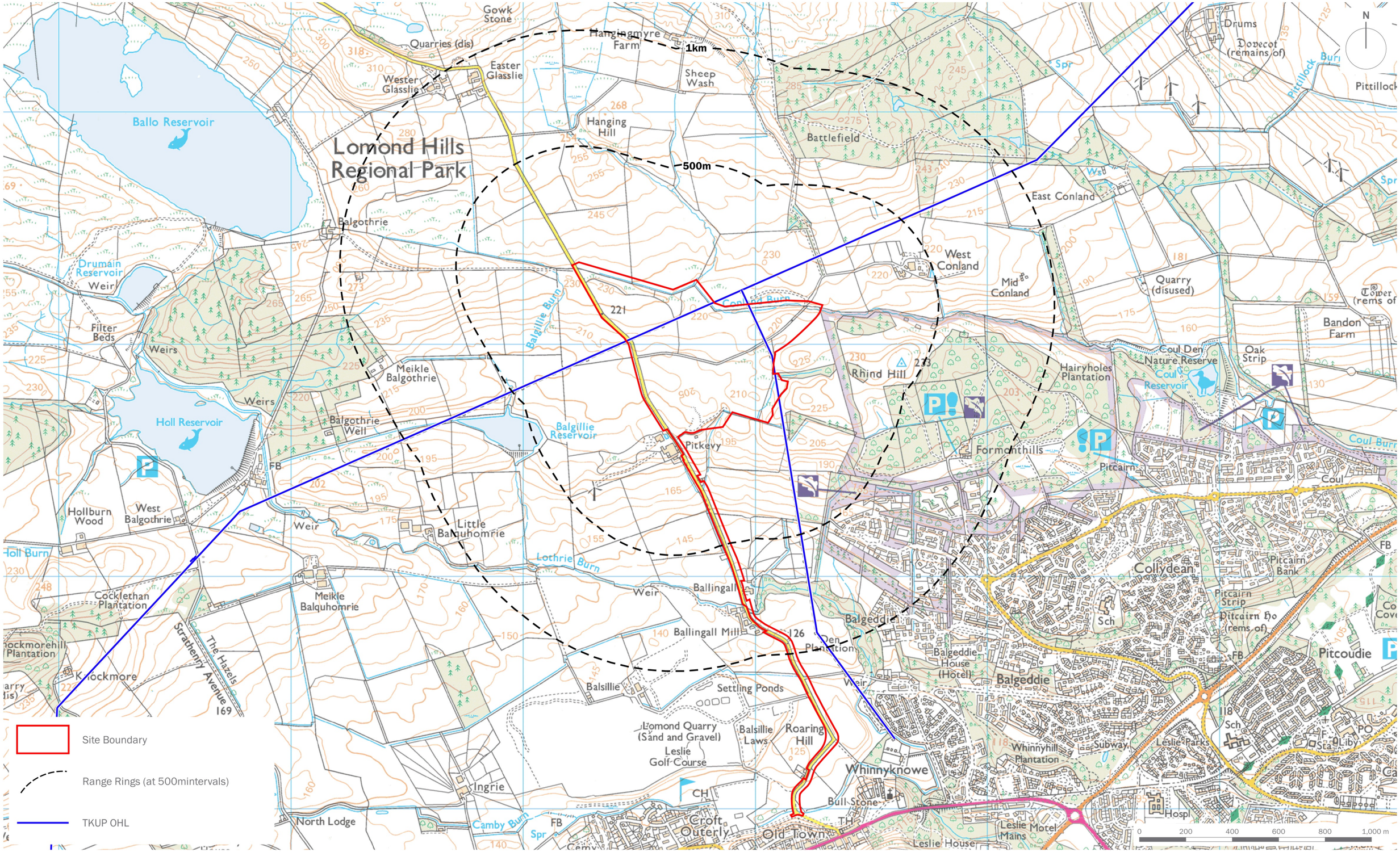
rev	description	date	by
b	Removal of SBT boundary and amend YS OHL to YS065 mid-span	14/11/2024	DJo
a	Addition of existing tower ZCN017 and SPT boundary	12/07/2024	VMS
-	Original	28/06/2024	PDr

date	**18 MARCH 2025**
drawing number	**edp8143_d036b**
scale	**1:125,000 @ A3**
drawn by	**PDr**
checked	**CMy**
QA	**GYo**

client
SP Energy Networks

project title
Tealing to Kincardine Upgrade Project - Conland Substation

drawing title
TKUP Overhead Line Network



SP Energy Networks

edp

Stantec

purpose of issue	PLANNING		
h	Updated Site Boundary	18/03/2025	DJo
g	Updated Site Boundary	11/02/2025	DJo
-	Original	08/05/2024	DJo
rev	description	date	by

date	18 MARCH 2025
drawing number	edp8143_d032h
scale	1:15,000 @ A3
drawn by	DJo
checked	LMa
QA	JFr

client
SP Energy Networks

project title
Tealing to Kincardine Upgrade Project - Conland Substation

drawing title
Conland Substation Location

Schedule 9 Statement

SP TRANSMISSION LIMITED

Statement on Preservation of Amenity in accordance with Schedule 9 of the Electricity Act 1989

Statement on Preservation of Amenity & Fisheries in Scotland in Accordance with Schedule 9 of the Electricity Act 1989

1 Introduction

SP Transmission Limited ("SP Transmission") has a duty under Schedule 9 of the Electricity Act 1989 ("the Act") to have regard to the preservation of amenity.

This requires the relevant licence holder, when formulating proposals relating to the construction or extension of electric lines or the carrying out of other works in connection with the transmission or supply of electricity, to take account of the effects the proposals would have on the natural beauty of the countryside, on any flora, fauna, buildings or objects of historical interest and sites and structures of archaeological interest. It is also required to take reasonable actions to mitigate the effects of its proposals on amenity.

This Statement sets out how SP Transmission will carry out these duties in developing and maintaining its network.

2 Background

SP Transmission Limited is a wholly owned subsidiary of Scottish Power UK plc and holds an electricity transmission licence for Central and Southern Scotland. Its transmission network includes around 4000 circuit kilometres, both overhead and underground, and is operated at voltages of 132 kV and above.

Its authorised area include sites of national and international nature conservation, and many protected historic and archaeological sites and buildings, as well as dense housing and some heavily industrialised areas, particularly bordering on the Firth of Forth and the River Clyde.

SP Transmission has a statutory duty to develop and maintain an efficient, co-ordinated and economical system of electricity transmission. It needs to take this and other statutory duties into account, including those relating to preservation of amenity, when developing and carrying out investment projects.

This statement deals only with those environmental obligations falling under Schedule 9 of the Act. SP Transmission has a number of other environmental requirements and has a range of policies and procedures to meet these that are not covered here. Additional information on the environmental performance of the businesses in the ScottishPower group is reported annually within its corporate environmental report.

3 Statutory Requirements

The Act says that a licence holder, when formulating 'relevant proposals':

> "(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geographical or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and
>
> (b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects." (Schedule 9, 1(1))

'Relevant proposals' mean any proposals:

> "... (b) for the installation (whether above or below ground) of an electric line; or
>
> (c) for the execution of any other works for or in connection with the transmission or supply of electricity." (Schedule 9, 1(3))

In addition, in respect of Scotland, the Act prescribes that:

> "... A licence holder... shall avoid, so far as is possible, causing injury to fisheries or to the stock of fish in any waters." (Schedule 9, 3(3))

SP Transmission's guidelines for meeting its Schedule 9 obligations are set out overleaf.

SP TRANSMISSION'S SCHEDULE 9 GUIDELINES

Where any of our operations or any proposed developments or projects comprise a "relevant proposal" we will observe the following guidelines:

1. Established Need

We will seek to construct new lines or substations only where the existing infrastructure cannot be upgraded to meet security of supply requirements, or where an increase in demand for electricity transportation capacity is foreseen which cannot be satisfied by other means or where new connections to customers are required.

2. Designated Areas for Amenity

We will pay due regard to the need to preserve and maintain amenity, particularly within the areas of the greatest landscape, wildlife or cultural amenity, such as National Parks, National Scenic Areas, Sites of Special Scientific Interest, Scheduled Ancient Monuments and other national or international designated areas.

For new transmission infrastructure we will investigate the possibility of alternative routes or sites outwith the designated area. For existing networks and where there is a requirement for infrastructure inside the designated area we will seek to minimise the impact of its presence through the sensitive routing and siting of structures. In such cases we will consult with those groups most likely to be affected at an early stage.

3. Seek to Minimise the Impact of New Infrastructure

We will seek to minimise the effects of new transmission infrastructure at or near both designated sites and also other sites valued for their general amenity, such as areas of archaeological interest, battlefields, local nature reserves, playing fields and water bodies. We will take into account the significance of sites valued for their amenity through consultation with statutory bodies and local authorities.

4. Mitigate the Adverse Effects of Works

Where works are likely to have an adverse effect on amenity, we will carry out our activities in such a way as to reduce the impact of these activities to the practicable minimum.

Where planned works would have a high impact on amenity, we will consult with statutory bodies, local authorities and relevant landowners to help us identify,assess and carry out measures to mitigate the impact so far as is reasonably practicable.

5. Environmental Assessments

We will carry out environmental assessments in accordance with relevant legislation prior to developing proposals for new lines or plant.

6. Protection of Fisheries

In the preparation of plans and programmes we will seek to avoid, so far as is possible, causing injury to fisheries or to the stock of fish in any waters within our licensed area.

7. Training and Awareness

We will promote environmental awareness amongst staff through appropriate training and dissemination of information. We will also make contractors aware of the relevant parts of this statement, and take steps to audit their compliance with it

8. Review of the Schedule 9 statement

We intend to review our Schedule 9 statement at least every 5 years.