

Consultation Document – Corridor Selection

**Project: Kintore - Fiddes - Tealing 400kV
Overhead Line Connection**

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TRANSMISSION

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GLOSSARY

Term	Definition
Alignment	A centre line of an overhead line OHL, along with location of key angle structures.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SSEN Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
Ancient Woodland	In Scotland, Ancient Woodland are areas of woodland that have existed since 1750 and are relatively undisturbed by human development. They are considered irreplaceable and have complex biodiversity that have accumulated over hundreds of years.
Ancient Woodland Inventory (AWI)	AWI is a provisional guide to the location of Ancient Woodland. It contains three main categories of woodland, all of which are likely to be of value for their biodiversity and cultural value. These include Ancient Woodland, Long-established woodlands of plantation origin (LEPO), and other woodlands.
Biodiversity Net Gain (BNG)	Biodiversity Net Gain (BNG) is an approach to development that aims to leave the natural environment in a measurably better state than it was pre-development. It focuses on the change in the biodiversity value of a site, comparing the pre and post construction biodiversity values to ensure a positive impact overall
Birds of Conservation Concern (BoCC)	Birds of Conservation Concern (BoCC) provides the status of all regularly occurring birds in the UK, Channel Islands and Isle of Man. The current version is BoCC. Birds of highest conservation concern will appear on the Red List.
Class 1 and Class 2 Peatland	Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value. Class 2 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential.
Conductor	A metallic wire strung from structure to structure, to carry electric current.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Corridor	A linear area which allows a continuous connection between the defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide.
Double circuit	A double circuit transmission line comprises of two independent circuits each made up of three sets of conductors (cables).
Drinking Water Protected Areas	The water in ditches, streams, lochs and possibly groundwater in these areas is protected and likely to be taken to Water Treatment works, where it is treated and provided to the public as drinking water.
Effect	The direct or indirect physical consequence(s) of the proposed corridor option on receptors, under each of the various topic headings.
Electricity System Operator (ESO)	National Grid is the Electricity System Operator (ESO) for Great Britain. The ESO balances electricity supply and demand to ensure the electricity supply.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment. A formal process codified by EU directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The national regulations are set out in The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The EIA process is set out in Regulation 4(1) of the regulations and includes the preparation of an EIA Report by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.

Term	Definition
Gardens and Designed Landscapes (GDLs)	The Inventory of Gardens and Designed Landscapes lists those gardens or designed landscapes which are considered by a panel of experts to be of national importance.
Ground Water Dependent Terrestrial Ecosystem (GWDTE)	Wetlands which critically depend on groundwater flows. They are safeguarded by the Water Framework Directive (WFD) and are sensitive to hydrological and ecological changes.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
Holford Rules	Principles used to inform the routeing of overhead lines and siting of substations. Supplementary Notes for the Siting of Substations capture relevant aspect of the Holford Rules in SSEN's guidance document <i>Substation Site Selection Procedures for Voltages at or above 132V</i> .
Kilovolt (kV)	One thousand volts.
Landscape Character Type (LCT)	A distinct, recognisable and consistent pattern of elements in a landscape that differentiate the area from another.
Long-established woodlands of plantation origin (LEPO)	NatureScot category of the Ancient Woodland Inventory. Many of these plantation sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland
Listed Building	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C(s).
Local Nature Conservation Site (LNCS)	A non-stutory designation given by local authorities to areas of locally important nature and landscapes.
Local Nature Reserve	Areas of natural heritage that are locally important.
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
National Nature Reserve	Areas of natural heritage that are nationally important.
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
Network Options Assessment (NOA)	The National Grid's Network Options Assessment (NOA) provides their recommendation for which network reinforcement projects should receive investment, and when.
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
Plantation Woodland	Woodland of any age that obviously originated from planting.
Properties in Care (PIC)	A collection of monuments, which define significant aspects of Scotland's history, brought into care for their long term preservation and public benefit through the Ancient Monuments and

Term	Definition
	Archaeological Areas Act 1979. They are managed by Historic Environment Scotland on behalf of Scottish Ministers.
RAG Rating	A Red, Amber, Green rating provided to allow for a comparison between different options being appraised.
Ramsar Site	Wetlands of international importance that have been designated for containing representative, rare or unique wetland types or for their importance in conserving biological diversity.
Riparian Woodland	Woodland that grows along the banks of rivers or other watercourses.
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.
Schedule 1 Species	Birds listed on the Schedule 1 of the Wildlife & Countryside Act 1981, of which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition.
Site of Special Scientific Interest (SSSI)	A designated area of national importance for natural heritage. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Span	The section of overhead line between two structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by councils which are considered to be of regional/local importance for their scenic qualities.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive 74/409/EEC) to protect important bird habitats. Implemented under the Wildlife and Countryside Act 1981.
Stakeholders	Organisations and individuals who can affect or are affected by SSEN Transmission works.
Study Area	The area within which the corridor, route and alignment study takes place.
Terminal Structure	A structure (tower or pole) required where the line terminates either at a substation or at the beginning and end of an underground cable section.
The National Grid	The electricity transmission network in the Great Britain.
UK Biodiversity Action Plan (UK BAP)	The UK BAP was published in 1994 after the Convention on Biological Diversity. It summarised the most threatened species and habitats in the UK and gave detailed plans for their recovery.
Unexploded Ordnance (UXO)	Military ammunition or explosive device that has failed to function as intended.
Volts	The international unit of electric potential and electromotive force.

PREFACE

This Consultation Document has been prepared by Land Use Consultants (LUC) on behalf of Scottish and Southern Electricity Networks Transmission (SSEN Transmission) to seek comments from all interested parties on the **Preferred Corridor** identified for a proposed new 400 kV overhead line (OHL) approximately 106 km in length, to connect the existing Kintore Substation to a proposed new 400 kV substation at Fiddes, in Aberdeenshire and to a proposed new 400 kV substation at Tealing, in Angus.

The proposed OHL will enable future connections and export routes to areas of demand. In addition, two of the existing 275kV overhead lines which connect the existing Tealing Substation with Alyth and Westfield (near Glenrothes in Scottish Power Transmission (SPT) Licence Area) substations respectively, require upgrades to enable them to operate at 400kV and to connect to the proposed new Tealing 400kV substation.

These proposals, collectively known as East Coast 400kV Phase 2, have been determined as critical to enable the delivery of the UK and Scottish Government's renewable energy targets.

This Consultation Document is available online at the project website: <https://www.ssen-transmission.co.uk/projects/project-map/kintore-fiddes-tealing-400kv-ohl-connection/>

Over the coming months SSEN Transmission will be actively engaging with Statutory Consultees and stakeholders to further understand constraints and identify potential opportunities. Public consultation events detailing the proposals described in this document will be held at the following times and locations:

2 nd May 2023 (2-7pm) Skene – Milne Hall, Kirkton of Skene	9 th May 2023 (2-7pm) Brechin – Brechin City Hall
3 rd May 2023 (2-7pm) Peterculter – Ardoe House Hotel – Ogston Suite	10 th May 2023 (2-7pm) Kirriemuir – Westmuir Hall, Kirriemuir
4 th May 2023 (2-7pm) Laurencekirk – Dickson Hall, Laurencekirk	11 th May 2023 (2-7pm) Tealing – Tealing Village Hall, Tealing

A virtual event will be held on 17th May (4-6pm) – joining details will be available on the project website here: <https://www.ssen-transmission.co.uk/projects/project-map/kintore-fiddes-tealing-400kv-ohl-connection/>

Comments on this Consultation Document should be sent to:

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All comments are requested by **9th June 2023**.

EXECUTIVE SUMMARY

Scottish and Southern Electricity Networks Transmission (SSEN Transmission) operating under licence held by Scottish Hydro Electric Transmission plc, is proposing to establish a network of 400 kilovolt (kV) electricity transmission infrastructure across the north-east of Scotland. This is needed to provide greater capacity and flexibility for the transmission of electricity generated in the north of Scotland, in particular from the increasing number of offshore wind farms and to help meet the Scottish Government's energy and Net Zero targets.

A key part of the infrastructure upgrade is the construction of a new 400kV overhead transmission line (OHL) between the existing substation at Kintore (north west of Aberdeen) and a proposed new substation to be built near Tealing in Angus, just north of Dundee. The OHL would also connect to a proposed new substation at Fiddes near Stonehaven in Aberdeenshire. The OHL project, known as the Kintore – Fiddes – Tealing 400kV OHL Connection project, would involve construction of approximately 106 kilometres (km) of new overhead line.

This document sets out the key findings of a comparative appraisal of a series of alternative broad corridors within which the new overhead line could be developed. The approach to the identification and appraisal of corridors has followed SSEN Transmission's Guidance 'Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above'¹.

The appraisal process followed two key stages. In the first stage a broad study area was defined as the area between the North Sea coast to the east and more mountainous terrain to the west. A digital tool was used to help identify corridor options in this study area which would enable connectivity between Kintore, Fiddes and Tealing by analysing a series of data sets on physical, technical and environmental constraints. This process identified three broad corridor options (identified in this report as (a), (b) and (c)) across the study area, which were divided into two geographical sections (Section 1 between Tealing and Fiddes and Section 2 between Fiddes and Kintore) to help manage the appraisal and reporting process.

The second stage of the appraisal involved more detailed consideration of the environmental, engineering and cost constraints of developing an OHL within each of these corridor options. A series of criteria were used to structure this process, and the desk-based analysis of constraints was supported by initial site visits to key parts of the study area by relevant project team specialists.

The analysis identified constraints in all of the options assessed, however in summary the principal constraints include:

- In **Section 1** (Tealing to Fiddes) the western option, Corridor 1a, runs through areas of low population density but through more sensitive landscapes and over more challenging upland terrain than the central corridor (1b) or the eastern corridor located closer to the coast (1c). All of the corridors have the potential to provide habitat for protected species and are constrained to some degree by the presence of, or proximity to, important sites for nature conservation. Corridors 1a and 1c have a greater degree of constraint associated with watercourse crossings and areas of flood risk. The topography and presence of denser road networks in Corridors 1b and 1c make them less constrained from a technical perspective.
- In **Section 2** (Fiddes to Kintore) there are some designated areas including those associated with the River Dee, Loch Skene and a number of cultural heritage sites which cannot be avoided by any of the options and represent pinch points for the OHL. Whilst corridor 2a generally avoids areas of denser population which characterise the corridors further east (particularly 2c) it has a greater potential for landscape and visual impacts and crosses more upland and challenging terrain. All of the corridors have the potential to provide habitat for protected species and are constrained to some degree by the presence of, or proximity to, important sites for nature conservation. There are fewer technical constraints in Corridor 2b than the other corridors and it offers the shortest overall route.

The findings of the corridor options appraisal, which are presented in this Consultation Document, were appraised to derive a series of 'Red-Amber-Green' (RAG) scores for each of the criteria considered. Based on the analysis undertaken and the RAG scores, a preferred corridor has been identified for the OHL project. Corridors 1(b) and 2(b) have been

¹ SSEN Transmission (March 2018) Procedures for Routeing Overhead Lines of 132kV and above (updated in September 2020 to include underground cables of 132kV and above). PR-NET-ENV-501.

identified as forming the preferred corridor at this stage. This corridor represents the option with the lowest overall environmental and engineering constraints and is also the lowest cost option.

Following the OHL corridor appraisal process, the next stage in project development involves the identification and appraisal of potential route options for the transmission line (known as 'Routeing'). Due to the accelerated delivery programme required to achieve the UK and Scottish Government 2030 targets, SSEN Transmission has also completed the routing appraisal in order to select a Preferred Route within the Preferred Corridor. A combined Corridor and Route consultation is therefore being undertaken for the Kintore – Fiddes – Tealing 400kV OHL Connection project.

Whilst this Consultation Document has been prepared to seek comments in relation to the Preferred Corridor, the Route Consultation Document can be found here: <https://www.ssen-transmission.co.uk/projects/project-map/kintore-fiddes-tealing-400kv-ohl-connection/>

The findings of the appraisal of corridor options presented in this document will be reviewed taking account of feedback from key stakeholders, and from the public consultation. Following the outcome of the combined consultation, SSEN Transmission will confirm the Proposed Corridor and Proposed Route for the OHL project, along with the Proposed Sites for the two new substations. Potential alignment options will then be explored within the Proposed Route, with further appraisal and consultation to be carried out in the coming months. On identification of a Proposed Alignment an application for consent under Section 37 of the Electricity Act 1989 will be submitted to the Scottish Government's Energy Consents Unit for the proposed OHL infrastructure.

All comments on the proposals are requested by **9th June 2023**. A Report on Consultation (RoC) will be published after the consultation period has ended, which will document the consultation responses received, how these responses have been considered, and the decisions made in light of these responses.

1. INTRODUCTION

1.1 Purpose of Document

This Corridor Selection Consultation Document has been prepared by Land Use Consultants Ltd (LUC) on behalf of Scottish and Southern Electricity Networks Transmission (SSEN Transmission). SSEN Transmission, operating under licence held by Scottish Hydro Electric Transmission plc, owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands.

This Consultation Document invites comments from all interested parties on the Preferred Corridor identified for a proposed new 400kV overhead line (OHL) approximately 106 km in length, to connect the existing Kintore Substation with a proposed new 400 kV substation at Fiddes, in Aberdeenshire and continuing south to connect to a proposed new 400kV substation at Tealing, in Angus. A location plan is shown in Figure 1.1.

This Consultation Document describes the corridor options identified, the options appraisal undertaken, the alternatives considered during the selection of corridor options, and the identification of the Preferred Corridor. Comments are now sought from statutory authorities, key stakeholders, elected representatives and the public on the corridor selection process and the Preferred Corridor identified.

All feedback received in relation to the Preferred Corridor will be reviewed and a Report on Consultation (RoC) will be produced that provides SSEN Transmission's response to the feedback received.

It is important to note that SSEN Transmission is undertaking a combined Corridor and Route Consultation for the Kintore-Fiddes-Tealing 400kV OHL Connection project, due to the accelerated delivery programme that is required to achieve the UK and Scottish Government 2030 targets. The feedback on the preferred corridor consultation exercise will be assessed independently of the fact that we have progressed to the routeing stage. If the corridor is changed as a result of the corridor consultation exercise, the route selection process may have to be revisited.

The Route Consultation Document can be found here: <https://www.ssen-transmission.co.uk/projects/project-map/kintore-fiddes-tealing-400kv-ohl-connection/>

SSEN Transmission is also consulting on the two proposed new 400kV substations at Fiddes and Tealing. Consultation Documents for these projects can be found here:

- New Fiddes 400 kV Substation: <https://www.ssen-transmission.co.uk/projects/project-map/fiddes-400kv-substation/>
- New Tealing 400 kV Substation: <https://www.ssen-transmission.co.uk/projects/project-map/tealing-400kv-substation/>

A public consultation booklet covering all East Coast Phase 2 projects is available here:

[Kintore-Fiddes-Tealing 400kV OHL Connection - SSEN Transmission \(ssen-transmission.co.uk\)](https://www.ssen-transmission.co.uk/projects/project-map/kintore-fiddes-tealing-400kv-ohl-connection/)

1.2 Document Structure

The report is comprised of seven sections as follows:

1. **Introduction** – setting out the purpose of the Consultation Document and document structure.
2. **The Proposals** – describes the need for the proposals, the strategic alternatives considered, the proposed technology solution, a description of the proposals and the typical construction methods.
3. **Corridor Selection Process** – sets out the corridor selection process and methodology that has been applied to date to derive a Preferred Corridor.
4. **Potential Corridors** – summarises the potential corridors which have been identified for analysis.
5. **Comparative Appraisal of Potential Corridors** – summarises the key considerations of each corridor from an environmental, engineering and cost perspective, and provides a comparative appraisal of each corridor option in order to select a Preferred Option.
6. **Preferred Corridor** – summarises the overall Preferred Corridor.

7. **Consultation on the Proposals** – invites comments on the corridor assessment process and identification of the Preferred Corridor.

The main body of this document is supported by a series of figures which are presented at the end of the document.

1.3 Next Steps

- As part of the consultation exercise, comments are sought from members of the public, statutory consultees and other key stakeholders on the Preferred Corridor option proposed in this report.
- In parallel, respondents are also being asked for their feedback on the Preferred Route and the Preferred Substation sites at Fiddes and Tealing. Section 1.1 contains links to the respective project Consultation Documents.
- All comments are requested by **9th June 2023** and thereafter a separate Report on Consultation (RoC) will be produced for the Corridor, Route and Substation sites. Each RoC will document the consultation responses received and the decisions made in light of these responses. Each RoC will also confirm the proposed Corridor, Route and Substation sites.
- Following the completion of this consultation exercise SSEN Transmission will then develop a series of alignment options, identify a preferred alignment (within the Preferred Route) and undertake consultation on the preferred alignment.
- Further detailed public consultation will also be carried out with respect to each substation site.

2. THE PROPOSALS

2.1 The Need for the Project

Scottish and Southern Electricity Networks Transmission (SSEN Transmission) operating under licence held by Scottish Hydro Electric Transmission plc has a statutory duty under Schedule 9 of the Electricity Act to develop and maintain an efficient, co-ordinated and economical electrical transmission system in its licence area. Where there is a requirement to extend, upgrade or reinforce its transmission network, SSEN Transmission's aim is to provide an environmentally aware, technically feasible and economically viable solution which would cause the least disturbance to the environment and to people who use it.

In July 2022, National Grid, the Electricity System Operator (ESO), published the Pathway to 2030 Holistic Network Design (HND)², setting out the blueprint for the onshore and offshore electricity transmission network infrastructure required to enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50GW and 11GW.

For the north of Scotland, this confirms the need for significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to Net Zero, several of which will require accelerated development and delivery to meet 2030 completion dates. The need for these reinforcements has been further underlined within the recent British Energy Security Strategy³. This sets out the UK Government's plans to accelerate homegrown power for greater energy independence.

The extensive studies completed to inform the ESO's Pathway to 2030 HND confirmed the requirement to increase the power transfer capacity of the onshore corridor from Kintore to Tealing. This requires a 400kV connection between these sites to enable the significant power transfer capability needed to take power from onshore and large scale offshore renewable generation connecting on the East Coast of Scotland before then transporting power to areas of demand.

SSEN Transmission is proposing to establish a new 400kV overhead line (OHL) between Kintore, Fiddes and Tealing. This also requires two new 400kV substations to be constructed at Fiddes and Tealing to enable future connections and export routes to areas of demand. In addition, two of the existing 275kV overhead lines connecting the existing Tealing Substation with Alyth and Westfield (Glenrothes) substations respectively, require upgrades to enable operation at 400kV and to allow them to connect to the proposed new Tealing 400kV site. These proposals, collectively known as East Coast 400kV Phase 2, have been determined as critical to enable the delivery of the UK and Scottish Government's renewable energy targets.

2.2 Project Overview

To meet the required reinforcements of SSEN Transmission's onshore infrastructure, the construction of approximately 106km of new 400kV double circuit OHL between Kintore and Tealing is required.

This project is intrinsically linked to the development of the two new 400kV substations proposed at Fiddes and Tealing, which are being progressed concurrently and form part of the OHL corridor selection. The new substations will be built in proximity to the existing substations at Fiddes and Tealing. The substation site selection process for both Fiddes and Tealing is currently underway.

2.3 Alternative Options Considered

In the initial identification of the requirement for this project, many onshore and offshore reinforcement options were assessed by the ESO in the HND study. The HND includes proposals to construct offshore transmission infrastructure and the onshore works essential to facilitate the connection of the initial 10GW of offshore wind generation and consequently the network needed to transport the electricity around the country. The ESO led on the offshore transmission network optioneering and design, exploring both radial and coordinated approaches for the connection of new offshore wind schemes, aiming to balance the needs of consumers, developers, communities and the environment.

² National Grid ESO (July 2022). Pathway to 2030: A holistic network design to support offshore wind deployment for net zero. Available [online]: <https://www.nationalgrideso.com/future-energy/the-pathway-2030-holistic-network-design>.

³ UK Government (April 2022). British Energy Security Strategy. Available [online]: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>.

The East Coast 400kV Phase 2 was deemed to be required in addition to the proposed offshore cables from the Peterhead area to locations on the east coast of England. The HND identified the need to provide additional onshore capacity between Tealing and Kintore. There were limited alternatives identified that provided the required onshore capacity.

Reduced Build Alternative

Alternative SSEN Transmission option(s) considered include an alternative East Coast Onshore Phase 2 Reinforcement (TKU2). This did not include the upgrading of the existing Kintore – Tealing 275kV OHL route to 400kV or the new substation at Fiddes. TKU2 was not progressed as it did not provide the capacity required.

Onshore Underground Cable

Considering the onshore technology options currently available, limited to OHL or underground cable (UGC) and given the high voltage and relatively long distances to be covered by the connection, an OHL was favoured over an UGC solution, with the following key factors contributing to this conclusion:

- **Cost:** The cost of UGCs is approximately 4-6 times more expensive than an OHL option, therefore not representing the best value for the consumer.
- **Community impact (visual and noise):** UGCs are often considered to be favourable from a visual and noise perspective. However, long distance UGC solutions require additional reactive compensation equipment to maintain stability of the network (for high voltage alternating current (HVAC) cable connections) or converter stations to convert power from direct current (DC) to AC (for HVDC cable connections), creating potential additional sources of visual and noise impacts at points along the route.
- **Land Use:** To allow sufficient insulation and cable spacing for a 400 kV UGC double circuit, a land width of approximately 50 m is required. Once reinstated, land-use restrictions may apply to this width to avoid risk of cable damage. In comparison, upon completion of the OHL, land use beneath towers could be returned to low growing vegetation or utilised for agricultural purposes, although an operational corridor is to be kept clear of trees to prevent the likelihood of tree strikes damaging the OHL resulting in a fault. The operational corridor for an OHL depends on the species of trees surrounding the line, but typically a total width of up to 80 m (40 m from centre) would be required.
- **Environment (land take):** For an OHL, the temporary and permanent impacts of the towers themselves are limited in extent due to the minor ground works required at the tower footings, with the maximum tower base being approximately 15 m by 15 m in area. The requirement for additional equipment to support a UGC solution, detailed above, creates additional land requirements in comparison to an OHL. There would also be potential for more significant impacts to geology, soils and sensitive habitats associated with a 50 m construction width for cable installation.
- **Operation and maintenance:** The ease of access to identify and address faults for an OHL is a key benefit in comparison to a UGC option. An OHL also provides improved flexibility and ability to adapt to change if network requirements change in the future (e.g., new conductor technologies provide opportunities to increase capacity on the existing line without creating new routes).

2.4 Proposals Overview

The Proposed Development would comprise steel lattice towers. The typical height for the SSE400 tower suite is approximately 57 m, with a maximum tower height of up to 68 m.

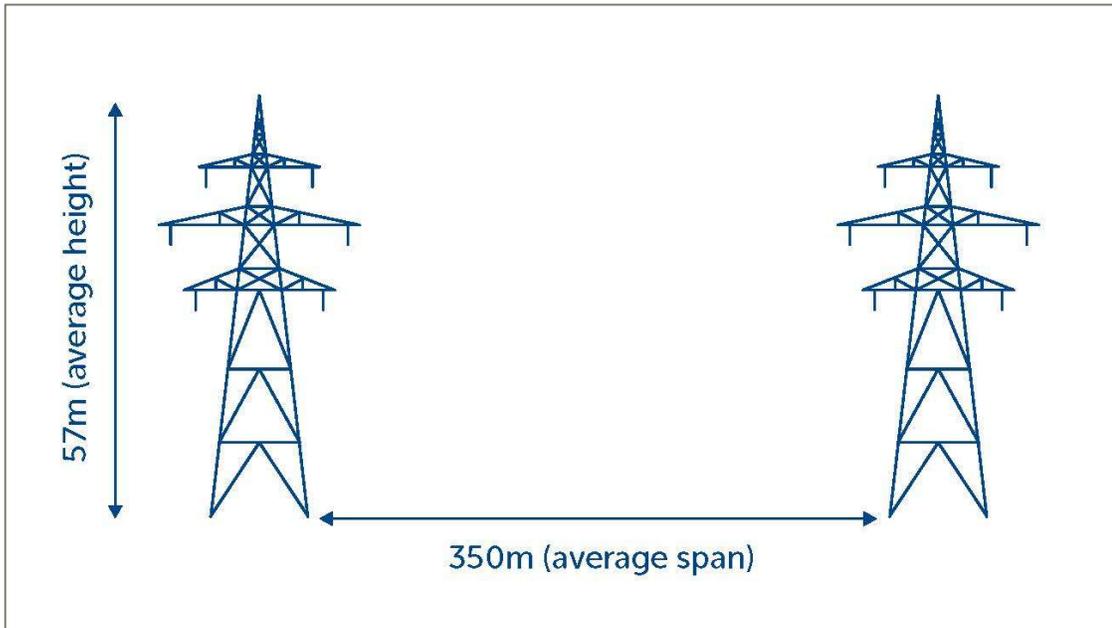
The size of towers and span lengths is generally dependent on three main factors: altitude; weather; and the topography of the route. Towers are typically closer together at high altitudes to withstand the effects of greater exposure to high winds, ice and other weather events. Higher towers may be required in certain locations to maintain the required ground clearance heights, such as at road, river and rail crossings.

The proposed steel lattice towers would support six conductor bundles (2 or 3 wires per bundle) on six cross-arms (three on each side) and an earth wire between the peaks. Typical tower designs can be seen in Plate 2.1 and 2.2.

Plate 2.1 – Typical SSE400 steel lattice tower design



Plate 2.2 – Typical SSE400 steel lattice tower design (Schematic)



2.5 Construction Activities

The proposed Kintore – Fiddes - Tealing 400kV OHL Connection project will comprise the construction of approximately 106km of new 400kV double circuit OHL between the existing Kintore 400kV substation, the proposed new 400kV substation at Fiddes and the proposed new substation at Tealing.

To connect the proposed New Kintore – Fiddes - Tealing 400kV OHL with the substations at Kintore, Fiddes and Tealing, some of the existing OHLs around the substations may need to be diverted or undergrounded to enable the new 400kV OHL connections.

The main activities for the construction of the OHL are anticipated to include:

- Enabling works (e.g. forestry clearance, establishment of temporary construction compound(s), laydown areas, pulling positions, and any temporary / permanent access tracks);
- delivery of components and materials to site;
- creation of tower working areas and excavation and construction of tower foundations;
- erection of towers;
- approximately 106 km of 400 kV double circuit conductor stringing (including construction of temporary scaffolding);
- undergrounding of distribution overhead lines that cross or are in close proximity to the route;
- inspections and OHL commissioning; and
- removal of temporary works and site reinstatement.

All construction activities will be undertaken in accordance with a Construction Environmental Management Plan (CEMP) which will define specific methods for environmental survey, monitoring and management throughout construction. A CEMP will be produced by the Principal Contractor and agreed with statutory stakeholders prior to the commencement of construction.

2.6 Access

The routes over which construction access would be taken are still to be determined but will be taken from existing roads wherever possible to minimise the need to create new accesses. There may be a requirement for public road improvements such as road widening, bridge reinforcements or installations of new junctions (bellmouths) for construction traffic and compounds.

2.7 Programme

Subject to gaining the necessary consents, it is anticipated that construction of the proposed Kintore – Fiddes – Tealing OHL Connection project would commence in 2026.

The project has a proposed energisation date of October 2030.

3. CORRIDOR SELECTION PROCESS

3.1 Introduction

The approach to corridor selection was informed by SSEN Transmission's Guidance 'Procedures for Routeing Overhead Lines and Underground Cables of 132kV and above'⁴ (hereafter referred to as SSEN Transmission's Routeing Guidance). This Guidance broadens the basis for routeing decisions to reflect contemporary practice, and ensures environmental, technical and economic considerations are identified and appraised at each stage of the routeing process.

SSEN Transmission's Routeing Guidance sets out their approach to selecting a corridor, route or alignment for an OHL. It helps SSEN Transmission to meet its obligations under Schedule 9 of the Electricity Act 1989, which requires transmission licence holders:

- to have a regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interests; and
- to do what they reasonably can to mitigate any effect that the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

The guidance sets out a process which aims to balance these environmental considerations with technical and economic considerations throughout the route options process.

The guidance provides a number of stages for overhead line routeing as follows:

- Stage 0: Routeing strategy development;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection;
- Stage 3: Alignment Selection; and
- Stage 4: Environmental Impact Assessment (EIA) and consenting.

The stages that are carried out can vary depending on the type, nature and size of a project and consultation can be carried out at each Stage of the process.

This document provides the details of SSEN Transmission's analysis of corridor options to inform consultation responses for Stage 1 Corridor Selection.

3.2 Methodology

3.2.1 Area of Search

The extent of the area of search for corridor options, ("the Study Area"), has primarily been defined as the area between the North Sea coast to the east and hilly/mountainous terrain to the west. In the east, the Study Area is constrained by a number of other key considerations which include settlements, airport restricted zones, Montrose Basin (internationally designated site) and the A90 and A92 dual carriageways.

3.2.2 Baseline Conditions

A series of desk-based studies have been undertaken to identify a broad range of potential constraints and opportunities within the Study Area, to inform corridor selection and appraisal. This has involved the following activities:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available including those via NatureScot Site Link⁵;

⁴ SSEN Transmission (March 2018) Procedures for Routeing Overhead Lines of 132kV and above (updated in September 2020 to include underground cables of 132kV and above). PR-NET-ENV-501.

⁵ <https://sitelink.nature.scot/home>

- Identification of archaeological and cultural heritage statutory designations, available via Historic Environment Scotland (HES) Digital Download, and heritage assets recorded as of 'Regional Significance' and Non-Inventory Designed Landscapes (NIDLs) within Angus and Aberdeenshire Councils' online Historic Environment Records (HER);
- Review of online SEPA interactive Flood Risk Mapping⁶;
- Review of online NatureScot (2016) Carbon and Peatland Mapping⁷;
- Review of relevant Local Development Plans (LDPs) in each Council area crossed by the corridors to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public⁸;
- Review of landscape character assessments of relevance to the Study Area⁹;
- Review of landscape designations of relevance to the Study Area (using local authority reporting);
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 and online GIS data sources from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes etc.;
- Extrapolation of OS Vectormap GIS data to identify further environmental constraint including locations of watercourses and waterbodies, roads classifications and degree of slope;
- Review of other local information through online and published media such as those including information on tourism sites and walking routes;
- Identification of existing OHL transmission infrastructure, roads, gas pipelines and railway lines within the Study Area;
- Identification of existing and proposed wind farm developments and other third-party infrastructure within the Study Area; and
- Review of existing terrain, soil and ground conditions.

3.3 Corridor Options Identification and Selection Methods

3.3.1 Corridor Identification

A digital routing and alignment toolkit was used to help identify corridor options to connect the proposed new Kintore – Fiddes - Tealing 400kV OHL to the proposed new 400 kV Fiddes and Tealing substations. The steps to the digital approach were as follows:

- Confirm Study Area – as defined in Section 3.2.1.
- Initial Data Gathering – constraints data sets were gathered, reviewed, and assessed, and initial sensitivity weightings were applied to each data set by the specialists in the different disciplines. The sensitivity weightings reflected how each constraint affects the project specifically.
- Development of a Heat map – the constraints were layered onto a map so they could be viewed as a composite 'heat map' and weightings and buffers applied depending on the sensitivity of the constraint, or opportunity.
- Potential Corridor Development - A 'Least Constraint Path' analysis was run to determine potential corridors across the study area, identifying ways to route the OHL to have the least interaction with environmental constraints. This information was provided to the topic environment leads and professional judgement was applied in developing preliminary corridors.
- The output is a number of corridor options to be taken forward to the appraisal stage.

⁶ <https://map.sepa.org.uk/floodmaps>

⁷ <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map>

⁸ Aberdeenshire Council

<https://storymaps.arcgis.com/stories/27f01f5e60544ece88580ca32dc4beb5> Angus Council

https://www.angus.gov.uk/directories/document_category/development_plan

⁹ NatureScot's 2019 national landscape character assessment of Scotland <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>

3.3.2 Appraisal Method

Environmental Criteria

A series of high-level site appraisals (comprising desk-based review) were carried out by experienced professionally qualified individuals in the various specialist fields, to enable an informed combined opinion on the potential environmental effects of the corridor options drawing on key baseline constraints studies and survey information.

Appraisal of corridor options has involved systematic consideration against the following environmental topic areas:

- Natural Heritage – designations, protected species, habitats, ornithology, hydrology, geology and hydrogeology and Biodiversity Net Gain (BNG).
- Cultural Heritage – designations and cultural heritage assets.
- Proximity to dwellings – residential properties and other sensitive receptors.
- Landscape and visual – designations, landscape character and visual amenity.
- Land Use – agriculture, forestry and recreation.
- Planning – policy and proposals.

In assessing the Natural Heritage of each corridor, consideration has been given to the ecological designations present and the implication for the assessment of BNG. The relative number, density and proportion of habitats considered irreplaceable in BNG terms – such as internationally and nationally designated sites, and Ancient Woodland – has been considered when assigning the Natural Heritage appraisal ratings to each corridor.

Engineering Criteria

Appraisal of corridor options has involved systematic consideration against the following engineering topic areas:

- Infrastructure crossings – major OHL crossings, road crossings.
- Environmental Design – elevation, atmospheric pollution, contaminated land and flooding.
- Ground Conditions – terrain and peatland.
- Construction / Maintenance – access, angle towers.
- Proximity – windfarms, communication masts, urban environments and metallic pipelines.

Economic Criteria

Appraisal of corridor options has involved systematic consideration against the following topic areas:

- Capital – construction costs.
- Operational – inspections and maintenance costs.

3.3.3 Comparative Appraisal

A Red-Amber-Green (RAG) rating has been applied to each topic area within each corridor section, indicating potential constraints. This rating is based on a three point scale as follows:

Performance	Comparative Appraisal
Most preferred	Low potential for the development to be constrained
	Intermediate potential for the development to be constrained
Least preferred	High potential for the development to be constrained

The RAG rating applied to each topic takes account of opportunities and standard working practices that, if implemented, could overcome the identified constraint. This will ensure the most likely outcome is identified as opposed to the ‘worst case’. The table above defines the high level convention for assigning RAG ratings across the environmental, technical and cost disciplines, allowing comparison across a broad range of unrelated parameters.

3.3.4 **Identification of a Preferred Corridor**

A comparative appraisal is carried out of the corridor options to arrive at a Preferred Corridor. The overall objective throughout the appraisal of options is to take full consideration of all environmental factors to minimise any potential adverse effects on the environment whilst taking into account technical and cost considerations.

4. POTENTIAL CORRIDORS

4.1 Identification of Corridor Options

In line with the methodology presented in Section 3.2, GIS tools were used to identify corridor options as illustrated on Figure 4.1 and Figure 4.2. Many designations/sensitive receptors have been treated as exclusion areas and therefore, although located within the identified corridor options, the OHL alignment would need to avoid these areas wherever possible at later stages of the design development process. There are some exceptions to this for linear features, such as rivers designated as Special Areas of Conservation (SACs) for example, where it would be possible to span them without any towers being located within the designated site.

To ease description and comparison of the different corridor options, the Study Area has been subdivided into two sections, Section 1 and Section 2.

4.1.1 Study Area Section 1

Section 1 covers the southern part of the Study Area between Tealing and Fiddes. Three corridor options have been identified which are generally orientated in a south west to north east direction. These are corridor options 1a; 1b; and 1c (see Figure 4.1). The section passes through predominantly agricultural land and the A90 dual carriageway runs through a large portion of the corridor. The western boundary of this section is formed by the rising topography towards the Cairngorms National Park and the eastern boundary broadly by the line of the A92 road.

Corridor 1a – This westerly option is narrower in comparison to options 1b and 1c as it is delimited by the topography of hilly/mountainous land to the west and existing transmission infrastructure to the east¹⁰. The corridor avoids the settlement of Kirriemuir and incorporates predominantly agricultural land with some villages, small settlements and scattered properties.

Corridor 1b – This central option is defined to the east and west by existing overhead line transmission infrastructure¹¹. The corridor avoids the settlements of Kirriemuir to the west and Brechin and Forfar to the east. The corridor includes parts of the main A90 dual carriageway and comprises predominantly agricultural land with numerous villages, small settlements and scattered properties.

Corridor 1c - This eastern corridor is constrained to the west by existing overhead line transmission infrastructure¹². The corridor avoids the coastal villages of Gourdon, Johnshaven and St. Cyrus and larger settlements of Montrose, Arbroath, Carnoustie to the east and the City of Dundee to the south. The corridor also avoids the settlements of Brechin and Forfar to the west and an area around Kinnaird Castle. The corridor comprises large areas of agricultural land with numerous villages, small settlements, and scattered properties.

4.1.2 Study Area Section 2

Section 2 covers the northern part of the Study Area between Fiddes and Kintore. Three corridor options have been identified which broadly follow a north south orientation. These are, from west to east, corridor options 2a; 2b; and 2c (see Figure 4.2). This section of the Study Area passes through predominantly agricultural land, with some areas of commercial forestry particularly to the west. It is bound to the east by the A90 dual carriageway, avoiding the large settlements of Aberdeen and Stonehaven (to its east) and excludes the settlement of Banchory and elevated ground of the Hill of Fare to the west. Section 2 is generally constrained to the west by the rising ground topography towards the Cairngorms National Park.

Corridor 2a – This option excludes the settlement of Banchory and the Hill of Fare due to its elevation. The corridor is constrained to the west by the rising topography and the east by existing overhead line transmission infrastructure¹³. Land use within this corridor comprises large areas of agricultural land with numerous villages, small settlements, and scattered properties. Option 2a is wider in comparison to options 2b and 2c.

¹⁰ The Kintore – Fetteresso – Alyth OHL currently operating at 275kV (and being upgraded to 400kV).

¹¹ The Kintore – Fetteresso – Alyth OHL currently operating at 275kV (and being upgraded to 400kV) forming the west boundary and the Kintore – Tealing 275kV OHL forming the east boundary.

¹² The Kintore – Tealing OHL currently operating at 275kV.

¹³ The Kintore – Fetteresso – Alyth OHL currently operating at 275kV (and being upgraded to 400kV)

Corridor 2b – This option is defined to the east and west by existing overhead line transmission infrastructure¹⁴. The corridor comprises large areas of agricultural land with numerous villages, small settlements, and scattered properties.

Corridor 2c – This option avoids the city of Aberdeen and the settlement of Stonehaven to the east. The option is defined to the west by existing overhead line transmission infrastructure¹⁵. The northern part of the corridor is largely built up with numerous villages, small settlements, and scattered properties. The southern part of the corridor comprises more rural agricultural land and part of the A90 dual carriageway.

¹⁴ The Kintore – Fetteresso – Alyth OHL currently operating at 275kV (and being upgraded to 400kV) forming the west boundary and the Kintore – Tealing 275kV OHL forming the east boundary

¹⁵ The Kintore – Tealing 275kV OHL

5. COMPARATIVE APPRAISAL OF POTENTIAL CORRIDORS

5.1 Introduction

This chapter provides a summary of the key considerations of each corridor option in Sections 1 and 2 from an environmental, engineering and cost perspective, and provides a summary of the findings of the comparative appraisal of each corridor section. This will then inform selection of an overall Preferred Corridor.

The following figures accompany the text in this section and illustrate potential environmental baseline constraints identified under each key topic considered.

- Figure 5.1: Landscape and visual constraints for Study Area Section 1
- Figure 5.2: Ecological constraints for Study Area Section 1
- Figure 5.3: Cultural heritage constraints for Study Area Section 1
- Figure 5.4: Hydrology constraints for Study Area Section 1
- Figure 5.5: Land use constraints for Study Area Section 1
- Figure 5.6: Landscape and visual constraints for Study Area Section 2
- Figure 5.7: Ecological constraints for Study Area Section 2
- Figure 5.8: Cultural heritage constraints for Study Area Section 2
- Figure 5.9: Hydrology constraints for Study Area Section 2
- Figure 5.10: Land use constraints for Study Area Section 2
- Figure 5.11: Land Capability for Agriculture for Study Area Section 1
- Figure 5.12: Land Capability for Agriculture for Study Area Section 2

5.2 Section 1

Table 5.1 below presents a summary of the main considerations and findings of the comparative appraisal of Corridor 1a, 1b and 1c in Section 1. The table identifies the topics in SSEN Transmission's Routeing Guidance.

Table 5.1 – Summary of Comparative Appraisal for Section 1

Topic	Corridor 1a	Corridor 1b	Corridor 1c
Natural Heritage	<p>Within the corridor, there is one SPA/Ramsar, two SACs, four SSSIs and one LNCS; these are designated sites of natural heritage importance.</p> <p>The presence of bats, pine marten, badger, otter, water vole, beaver and red squirrel is likely within this corridor. In addition, the Angus Glens Wildcat Priority Area (WPA) overlaps with the corridor around Cortachy. Reptiles, amphibians, and aquatic species will be present. There may also be sea lamprey, river lamprey, brook lamprey and freshwater pearl mussels within the Tay and South Esk SAC, and salmonids are designated features of some sites.</p> <p>Woodland listed on the Ancient Woodland Inventory (AWI) is present throughout the corridor, the majority of which is Long-Established of plantation origin (LEPO). Notable areas of Ancient Woodland are located in the areas around Kirriemuir and north of Laurencekirk.</p> <p>This corridor contains habitats that have the potential to support populations of Schedule 1 birds and Birds of Conservation Concern (BoCC). It includes Loch of Kinnordy SPA designated for a range of wintering waterfowl. The corridor is also within the core foraging areas of Montrose Basin SPA, Loch of Lintrathen SPA and the Firth of Eden and Tay SPA.</p> <p>Numerous watercourses are crossed, the largest of which are the Dean Water, River South Esk, West Water, River North Esk and Bervie Water. There are wide areas of fluvial flooding along the route of the Dean Water and the River South Esk.</p>	<p>Within the corridor, there are two SACs, four SSSIs and three LNCS; these are designated sites of natural heritage importance.</p> <p>The presence of bats, pine marten, badger, otter, water vole, beaver and red squirrels is likely within this corridor. Reptiles, amphibians, and aquatic species will be present. There may also be sea lamprey, river lamprey, brook lamprey and freshwater pearl mussels within the Tay and South Esk SAC, and Salmonids form part of the designated features of some sites.</p> <p>Woodland listed on the AWI is present throughout the corridor, the majority is LEPO, with scattered extents of Ancient Woodland.</p> <p>This corridor contains habitats that have the potential to support populations of Schedule 1 birds and BoCC. There are no SPAs within the corridor but it does lie within the core foraging areas of SPA qualifying species for Montrose Basin SPA, Firth of Tay and Eden SPA, Loch of Kinnordy SPA and the Loch of Lintrathen SPA.</p> <p>The corridor crosses numerous large watercourses including the Dean Water, River South Esk, West Water, River North Esk, Luther Water, Dowrie Burn, Black Burn and Bervie Water. There are wide areas of flooding along the routes of the Dean Water, River South Esk, West Water, River North Esk and along smaller sections of the Luther Water, Dowrie Burn, Black Burn and Bervie Water.</p> <p>The corridor supports a variety of designated sites, although only two of these are internationally designated; both of these are riverine SACs. In addition, it contains only limited scattered areas of Ancient Woodland. While these features are</p>	<p>Within the corridor, there is one SPA/Ramsar, two SACs, 12 SSSIs, one LNR and six LNCS; these are designated sites of natural heritage importance.</p> <p>The presence of bats, pine marten, badger, otter, water vole and red squirrels is likely within this corridor. Reptiles, amphibians, and aquatic species will also be present. There may also be sea lamprey, river lamprey, brook lamprey and freshwater pearl mussels within the Tay and South Esk SAC, and Salmonids form part of the designated features of some sites.</p> <p>Woodland listed on the AWI is scattered within the corridor; the majority is LEPO, with more limited extents of Ancient Woodland.</p> <p>This corridor contains habitats that have the potential to support populations of Schedule 1 birds and BoCC. It includes part of the Montrose Basin SPA (Dun's Dish SSSI) and lies within the core foraging areas of SPA qualifying species for Montrose Basin SPA, Firth of Tay and Eden SPA and Loch of Kinnordy SPA.</p> <p>This corridor also contains part of a large water related SSSI and SPA (the Montrose Basin), with most of the designated site just east of the corridor (downstream). The Rescobie and Balgavies Lochs SSSI is also within the corridor.</p> <p>The corridor crosses numerous large watercourses including the Lunan Water, River South Esk, the Pow Burn, River North Esk and the Bervie Water. There is a very wide floodplain along the River South Esk east of Brechin, particularly at its tributary with the Pow Burn by the Montrose Basin. There are also wide</p>

Topic	Corridor 1a	Corridor 1b	Corridor 1c
	<p>The corridor supports a variety of designated sites, including three that are internationally designated. In addition, it contains notable areas of Ancient Woodland. These features are considered to be irreplaceable habitats in BNG terms. Due to the relatively narrow width of the corridor, some of these habitats would be difficult to avoid and this would impact upon the BNG assessment and potential to deliver BNG on site.</p>	<p>considered to be irreplaceable habitats in BNG terms, the width of the corridor is such that these features can be crossed or avoided to satisfy the requirements of a BNG assessment.</p>	<p>floodplains indicated along sections of the Lunan Water and River North Esk.</p> <p>The corridor supports the largest number of designated sites; two of these are internationally designated, comprising a riverine SAC and small extents of a larger SPA. In addition, it contains some scattered areas of Ancient Woodland. While these features are considered to be irreplaceable habitats in BNG, the width of the corridor is such that these features can be crossed or avoided to satisfy the requirements of a BNG assessment.</p>
Cultural Heritage	<p>There are a number of designated sites in the corridor, including:</p> <ul style="list-style-type: none"> • 72 Scheduled Monuments • 3 Properties in Care (PIC) • 13 Category A Listed Buildings • 3 Garden and Designed Landscapes (GDL) • 2 Conservation Areas <p>The proposals have the potential to affect the settings of some of these sites.</p>	<p>There are a number of designations identified within the corridor, including:</p> <ul style="list-style-type: none"> • 109 Scheduled monuments • 6 PIC • 26 Category A Listed Buildings • 6 GDL • 5 Conservation Areas <p>The proposals have the potential to affect the settings of some of these sites.</p>	<p>There are a number of designations identified within the corridor, including:</p> <ul style="list-style-type: none"> • 94 Scheduled Monuments • 4 PIC • 38 Category A Listed Buildings • 8 GDL • 4 Conservation Areas <p>The proposals have the potential to affect the settings of some of these sites.</p>
Landscape and Visual	<p>Corridor 1a is the longest of the three options, and crosses the higher, steeper part of the Sidlaw Hills, including Balkello Hill and Ark Hill.</p> <p>North of Kirriemuir it runs largely on the foothills of the Angus glens, cutting across the lower end of each glen at the edge of Strathmore. There are several GDLs along these slopes. North of Edzell Corridor 1a is entirely within the Braes of the Mearns SLA (and passes through the core of the SLA) and is close to the Cairn o' Mount viewpoint.</p> <p>The corridor generally cuts across the grain of the landscape whereas the other corridors in</p>	<p>Corridor 1b crosses the higher, steeper part of the Sidlaw Hills, including Gallow Hill, immediately north of Tealing. Glamis Castle GDL lies in the southern part of the corridor. The corridor thereafter runs through Strathmore and the Howe of the Mearns. It follows the grain of the landscape, running along a well-established communication corridor to the west of the A90 trunk road. The landscape is settled but of relatively large scale. The Braes of the Mearns SLA is within the northern edge of the corridor, as well as two further GDLs. Key viewpoints include Brown Caterthun and White Caterthun hill forts north west of Brechin.</p>	<p>Corridor 1c avoids the higher, steeper part of the Sidlaw Hills, but includes the viewpoint of Carrot Hill and the country parks at Monikie and Crombie. It crosses undulating farmland and elevated plateau forest at Montreathmont Moor. The broad corridor allows some flexibility, though it narrows significantly between Brechin and Montrose and near Kinnaird Castle.</p> <p>House of Dun GDL would further constrain the corridor in this area.</p> <p>North of Montrose, the corridor crosses more elevated ground close to the coast, rising above the</p>

Topic	Corridor 1a	Corridor 1b	Corridor 1c
	<p>comparison, generally follow the grain of the landscape.</p> <p>The corridor is generally remote from larger settlements, with Kirriemuir the only notable community towards the south of the option, although it is noted that the corridor excludes Kirriemuir.</p>	<p>The corridor includes more settlements than 1a and runs between the towns of Kirriemuir and Forfar at its southern end.</p>	<p>Howe of the Mearns to the north-west. The coastal edge is designated as an SLA.</p> <p>Key settlements include Brechin on the west edge of the corridor and the coastal town of Montrose to the east.</p>
Land Use and Planning	<p>Approximately <5% of the land area of this section is Prime agricultural land. As elevations rise, generally land reduces in quality.</p> <p>Corridor 1a is host to areas of coniferous forestry in the north, particularly at Drumtochty Forest.</p> <p>National Grid gas pipelines are concentrated in the northern end around Mains of Devaraird. Further gas pipelines are located within the corridor from Kirriemuir southwards. These connect to the gas pressurisation station east of Kirriemuir.</p> <p>There are a few small settlements within the corridor such as Northmuir and Bridgend.</p> <p>Core path networks are located throughout the corridor.</p> <p>Four small scale wind farms have been consented within this corridor. There are a number of operational wind farms recorded, none of which appears so extensive as to occupy a substantial width of the corridor in this section.</p> <p>No large scale development proposals have been identified within this corridor.</p>	<p>Approximately 85% of the land area of this section is Prime agricultural land.</p> <p>There are areas of coniferous commercial forestry to the north of the corridor.</p> <p>Several National Grid gas pipelines run through the corridor which connect to the gas pressurisation station east of Kirriemuir.</p> <p>The corridor includes the settlement of Laurencekirk as well as numerous small settlements such as Edzell, Westmuir and Glamis.</p> <p>Core path networks are located throughout the corridor.</p> <p>Part of the main A90 dual carriageway is also located in the corridor.</p> <p>Four small scale wind farms have been consented or are operational within this corridor. However, none of these occupies a substantial width of the corridor.</p> <p>There is a planning application for a 10 dwelling residential development at Garvocklea Gardens Laurencekirk, although this does not occupy a substantial width of the corridor.</p> <p>There is an allocation and planning application for a development at the former Edzell Airbase including Newesk Sustainable Village Development and a Business Base.</p>	<p>Approximately 85% of the land area of this section is Prime agricultural land.</p> <p>There are areas of coniferous forestry within the corridor.</p> <p>There are two National Grid gas pipelines in this section.</p> <p>There are numerous small settlements such as Letham, Leysmill and Marykirk.</p> <p>Core path networks are located throughout the corridor. The National Cycle Network (NCN) Route 1 passes north-south through part of the corridor around Johnshaven.</p> <p>There are a number of small scale and single turbine wind farms operational, consented or in design/scoping stage within this corridor. There is also a larger wind farm (Tullo Wind Farm) near Scotstoun. However, none of these wind farms occupy a substantial proportion of the corridor in this section.</p> <p>Within the corridor there have been a number of planning applications for solar farms of up to 100 MW installed capacity at locations around Kellas, Wellbank, Kinnell, Hillend of Lownie, and Arrat. The largest of these may occupy an extensive area of the corridor.</p>

Topic	Corridor 1a	Corridor 1b	Corridor 1c
Engineering	<p>The corridor is bounded to the east by the existing Alyth to Fetteresso OHL (SY1/SY2 – currently being upgraded to 400kV operation) and by the foothills of the Cairngorm Plateau on the western boundary.</p> <p>The corridor is relatively devoid of significant settlements and has an established road and access network dominated by minor roads.</p>	<p>The corridor is bounded by the existing Alyth to Fetteresso OHL (SY1/SY2) on the western boundary and the existing Kintore – Tealing 275kV OHL (XT1/XT2) on the eastern boundary.</p> <p>The corridor avoids the towns of Kirriemuir and Forfar and includes the large settlements of Edzell, Fettercairn, Auchenblae and Laurencekirk. The A90 dual carriageway is present throughout the corridor.</p>	<p>The corridor is bounded by the existing 275kV Kintore – Tealing OHL (XT1/XT2) on the western boundary and the A92 road on the eastern boundary. The corridor avoids the towns of Forfar, Brechin, and Arbuthnott.</p> <p>The corridor has a number of existing OHLs present within it: the double circuit 132 kV Tealing – Lunanhead OHL (TLW – TLE) and 132kV Tealing – Arbroath OHL (TAS – TAN), the single circuit 132 kV Tealing – Brechin OHL (TBN), 132kV Bridge of Dunn – Brechin Switching Station (BBN-BBS), and the single circuit 132kV Fiddes to Brechin (FB).</p>
Economic	<p>The total length of the corridor option has been estimated based on a high level approximate centre line.</p> <p>Corridor 1a is the longest length in Section 1 at approximately 77km.</p>	<p>The total length of the corridor option has been estimated based on a high level approximate centre line.</p> <p>Corridor 1b length is approximately 64km.</p>	<p>The total length of the corridor option has been estimated based on a high level approximate centre line.</p> <p>Corridor 1c length is the shortest at approximately 63km.</p>

Drawing on the key findings of the corridor appraisal presented above, Table 5.2 sets out the topics assessed and the corresponding RAG rating considered in the corridor appraisal for Section 1 of the Study Area.

Table 5.2 – Section 1 RAG Ratings

Discipline	Sub-discipline	Section 1		
		Corridor 1a	Corridor 1b	Corridor 1c
Environmental Appraisal				
Natural Heritage	Designations	M	M	L
	Protected Species	M	M	L
	Habitats	M	M	L
	Ornithology	H	M	H
	Hydrology, Geology and Hydrogeology	M	M	H
Cultural Heritage	Designations	M	M	M
	Cultural Heritage Assets	M	M	M
People	Proximity to Dwellings	M	H	H
Landscape and Visual	Designations	H	M	M
	Landscape Character	H	M	M
	Visual	H	M	M
Land Use	Agriculture	M	M	M
	Forestry/Woodland	L	M	L
	Recreation	L	L	L
Planning	Proposals	L	L	M
Engineering Appraisal				
Infrastructure Crossing	Major crossings	H	H	H
	Road crossing	L	H	H
Topography	Elevation	H	L	L
	Atmospheric pollution	L	M	H
	Contaminated land	L	M	M
	Flooding	M	M	H
Ground conditions	Terrain	H	M	M
Construction / Maintenance	Access	H	L	M
Proximity	Windfarms	H	H	H
	Communication masts	L	H	H
	Urban environments	L	H	H
	Metallic pipelines	L	H	H
	Route length	H	M	L
Economic Appraisal				
Cost	Capital (Construction)	H	L	L

Discipline	Sub-discipline	Section 1		
		Corridor 1a	Corridor 1b	Corridor 1c
	Operational (Maintenance)	H	L	M

5.3 Section 1 Summary

Based on the appraisal undertaken the **Preferred Corridor for Section 1 is Corridor 1b**. This corridor option was identified as the preferred option for each of the environmental, technical and cost appraisals.

Environmental

Corridor 1b is the preferred corridor within Section 1 from an environmental perspective. It presents a favourable alternative in landscape and visual and hydrology sub-disciplines, and high level evaluation of the constraints present within the corridors indicates that, although constraints are present within Corridor 1b, these can be avoided or the potential for impact minimised at more detailed stages of the project.

In a comparative consideration of how each corridor performs with respect to landscape and visual considerations, Corridor 1a performs least well, being highly constrained. The existing proliferation of infrastructure within Corridor 1b indicates it may be marginally less sensitive to the introduction of further OHL infrastructure when compared to Corridor 1c.

Geology, hydrology and hydrogeology constraints are present within all corridors, with flexibility to avoid impacts in Corridor 1c being particularly limited given the extensive areas of flood plain which any infrastructure developed would have to cross. For Corridor 1b, there are localities within the corridor where floodplains are narrower and may be spanned.

Corridor 1b contains the lowest proportion of Ancient Woodland.

Each of the corridors contains habitats that have the potential to support populations of Schedule 1 birds, which receive special protection under the Wildlife & Countryside Act 1981, and bird species that are red-listed in Birds of Conservation Concern (BoCC). Corridor 1b does not coincide directly with any SPA, however, it does overlap with the core foraging ranges of qualifying features for four SPAs. Corridor 1c overlaps with the qualifying features of three SPAs that have designation for their migratory/over-wintering populations of pink-footed and/or greylag geese.

Engineering

Corridor 1b is the preferred corridor from a technical perspective because the corridor largely avoids more densely populated areas, providing more flexibility for routeing. There will likely be fewer technical challenges for construction due to the existing road and access network, meaning less new access infrastructure would be required. The terrain is relatively flat and at lower elevations than in Corridor 1a and further from the coast than Corridor 1c meaning the OHL would require less maintenance. There would be no crossings of high voltage OHLs other than at the existing Kintore and Tealing substations, which would substantially reduce the technical requirements of the project.

Cost

Corridor 1b is the preferred corridor from a cost perspective because it represents the lowest cost option from both a capital and operational perspective. It avoids crossing additional existing high voltage OHLs which has a high capital cost and ongoing maintenance requirements. The existing 275kV OHL in Corridor 1a, between Fetteresso and Alyth, currently requires inspection by helicopter which represents a higher maintenance cost. Due to the coastal proximity of Corridor 1c, it is anticipated that it may require additional maintenance to prevent corrosion. Also, due to the existing public road network it is likely the new access track construction would be minimal.

5.4 Section 2

Table 5.3 below shows a comparative appraisal of Corridor 2a, 2b and 2c in Section 2. The table splits the findings of the appraisal into the topics discussed in SSEN Transmission's Routeing Guidance.

Table 5.3 – Summary of Comparative Appraisal for Section 2

Topic	Corridor 2a	Corridor 2b	Corridor 2c
<p>Natural Heritage</p>	<p>Within the corridor, there is one SAC and 10 LNCS; these are designated sites for natural heritage importance.</p> <p>The presence of bats, pine marten, badger, otter, water vole and red squirrel is likely within this corridor. Reptiles, amphibians, and aquatic species will also be present. There may also be freshwater pearl mussels within the River Dee SAC, and salmonids form part of the designated features of some sites.</p> <p>Woodland listed on the AWI is present throughout the corridor, the majority of which is LEPO. However, notable extents of Ancient Woodland are present near Banchory.</p> <p>Class 1 and Class 2 peatland is present in small quantities across the corridor.</p> <p>The corridor contains habitats that have the potential to support populations of Schedule 1 birds and red list bird species in BoCC. It lies approximately 5 km from the Loch of Skene SPA (and Ramsar site) and is within the core foraging range of greylag goose (the main qualifying interest of the SPA).</p> <p>Numerous watercourses are crossed, the largest of which are the Cowie Water, Water of Feugh, River Dee, Burn of Canny, Kinnernie Burn and the Ton Burn which have wide areas of fluvial flooding associated with them.</p> <p>The corridor supports a variety of designated sites; although only one of these is internationally designated, it is a riverine SAC that has several tributaries within the corridor. In addition, it contains notable areas of Ancient Woodland. These features are considered to be irreplaceable habitats in BNG terms. Although the riverine SAC can be easily crossed to satisfy the requirements of a</p>	<p>Within the corridor, there is one SPA/Ramsar, one SAC, three SSSIs and 14 LNCS; these are designated sites for natural heritage importance.</p> <p>The presence of bats, pine marten, badger, otter, water vole and red squirrel is likely within this corridor. Reptiles, amphibians, and aquatic species will also be present. There may also be freshwater pearl mussels within the River Dee SAC, and salmonids form part of the designated features of some sites.</p> <p>Woodland listed on the AWI is present throughout the corridor, the majority of which is LEPO. Extents of Ancient Woodland are scattered, with a notable area west of Peterculter.</p> <p>Class 1 and Class 2 peatland is present in small quantities across the corridor.</p> <p>The corridor contains habitats that have the potential to support populations of Schedule 1 birds and red list bird species in BoCC. Corridor 2b includes the Loch of Skene SPA (and Ramsar site) and the full width of the Corridor is within the core foraging range of greylag goose (the main qualifying interest of the SPA).</p> <p>The Loch of Skene is a water related SSSI and SPA.</p> <p>Numerous watercourses are crossed including the Cowie Water, River Dee, Gormack Burn, Leuchar Burn and the Kinnernie Burn by the Loch of Skene which have wide areas of fluvial flooding.</p> <p>The corridor supports a variety of designated sites, including one riverine SAC and an SPA. In addition, it contains scattered areas of Ancient Woodland. While these features are considered to be irreplaceable habitats in BNG terms, the width of the corridor is such that these features</p>	<p>Within the corridor, there are two SACs, one SSSI, one LNR and 19 LNCS; these are designated sites for natural heritage importance.</p> <p>The presence of bats, pine marten, badger, otter, water vole and red squirrel is likely within this corridor. Reptiles, amphibians, and aquatic species will also be present. There may also be freshwater pearl mussels within the River Dee SAC, and salmonids form part of the designated features of some sites.</p> <p>Woodland listed on the AWI is present throughout the corridor, the majority is LEPO, with scattered extents of Ancient Woodland.</p> <p>Class 1 and Class 2 peatland is present in the west of the corridor.</p> <p>The corridor contains habitats that have the potential to support populations of Schedule 1 birds and red list bird species in BoCC. Corridor 2c includes a substantial area that is part of the connectivity area for the Loch of Skene SPA (and Ramsar site), designated for a range of wintering waterfowl.</p> <p>Numerous watercourses are crossed including the Cowie Water, Crynoch Burn, River Dee, Gormack/Culter Burn and the River Don which have wide areas of fluvial flooding.</p> <p>The corridor supports a variety of designated sites; only two of these are internationally designated, including a riverine SAC and an area of raised bog. In addition, it contains only limited scattered areas of Ancient Woodland. While these features are considered to be irreplaceable habitats in BNG, the width of the corridor is such that these features can be crossed or avoided to satisfy the requirements of a BNG assessment.</p>

Topic	Corridor 2a	Corridor 2b	Corridor 2c
	BNG assessment, it would be more difficult to avoid all areas of Ancient Woodland.	can be crossed or avoided to satisfy the requirements of a BNG assessment.	
Cultural Heritage	<p>There are a number of designated sites in the corridor including:</p> <ul style="list-style-type: none"> • 61 Scheduled Monuments • 21 Category A Listed Buildings • 6 Garden and Designed Landscape (GDL) <p>The proposals have the potential to affect the settings of some of these sites.</p>	<p>There are a number of designated sites in the corridor including:</p> <ul style="list-style-type: none"> • 46 Scheduled Monuments • 1 PiC • 13 Category A Listed Buildings • 5 GDL • 1 Conservation Area <p>The proposals have the potential to affect the settings of some of these sites.</p>	<p>There are a number of designated sites in the corridor including:</p> <ul style="list-style-type: none"> • 64 Scheduled Monuments • 10 Category A Listed Buildings • 3 GDL • 1 Conservation Area <p>The proposals have the potential to affect the settings of some of these sites.</p>
Landscape and Visual	<p>Corridor 2a passes over the highest part of the Mounth¹⁶, including steep hills and the extensive Fetteresso Forest. It crosses the Dee Valley, including the Dee Valley Special Landscape Area (SLA), either side of Banchory. To the east the Crathes Castle GDL occupies most of the corridor. To the west, the SLA is at its widest, taking in steeply sloping and densely wooded landscapes.</p> <p>North of Banchory the corridor passes either side of Hill of Fare, a landmark hill in the landscape. To the east the corridor would be on high ground where it would be widely visible. To the west is a complex wooded landscape of rolling farmland. The northern section takes in part of Bennachie SLA, and includes the GDLs of Monymusk, Cluny Castle and Castle Fraser. The OHL is considered likely to be visible from Bennachie summit, a key viewpoint within the SLA.</p> <p>The corridor is generally remote from large settlements as it avoids Banchory in the centre of the corridor.</p>	<p>Corridor 2b passes over the high, steep ridges of the Mounth, cutting across the grain of the landscape. It passes through extensive woodlands south of the River Dee.</p> <p>The corridor crosses the Dee Valley SLA at a narrow point, and there are GDLs and settlements located close to the river making this location a particular constraint in terms of landscape sensitivity.</p> <p>Between the Dee Valley and Kintore to the north, the corridor passes through rolling wooded farmland. The extensive GDL of Dunecht House forms the main constraint in this area.</p> <p>The corridor is generally remote from large settlements.</p>	<p>Corridor 2c includes higher hills within the Mounth, but also includes lower ground to the east where the OHL could avoid the ridges and better follow the grain of the landscape.</p> <p>Generally the landscape in Corridor 2c is more settled than the other options and in its northern part is characterised by settlements and sub-urban development associated with the western fringes of Aberdeen. In particular, the crossing of the River Dee is constrained by the larger settlement of Peterculter, as well as the east end of the Dee Valley SLA.</p> <p>To the north the settlement of Westhill is also within Corridor 2c, though the rolling farmland of the rest of the corridor offers fewer landscape and visual constraints.</p> <p>The northern section of the corridor includes the main settlements of Peterculter, Westhill and Blackburn.</p>

¹⁶ The Mounth is the broad upland in northeast Scotland between the Highland Boundary and the River Dee, at the eastern end of the Grampians.

Topic	Corridor 2a	Corridor 2b	Corridor 2c
Land Use and Planning	<p>Approximately less than 5% of the land area of this section is Prime agricultural land. As elevations rise, generally land reduces in quality.</p> <p>Corridor 2a is host to areas of coniferous forestry.</p> <p>A National Grid gas pipeline crosses the northernmost of this section, with two further National Grid gas pipelines crossing the full width of the corridor south east of Banchory.</p> <p>National Cycle Network (NCN) Route 195 passes east – west through the corridor at Banchory. There are no core paths within the corridor.</p> <p>There are numerous small settlements such as Torphins.</p> <p>There is a wind farm at Design/Scoping stage located at Hill of Fare (two proposed turbines are in the corridor).</p> <p>There is a planning application for a 14 dwelling housing development near Banchory, and planning applications for two telecommunication masts, one near Banchory and the other at Fetteresso Forest. These are not likely to constrain the corridor significantly.</p>	<p>Approximately less than 5% of the land area of this section is Prime agricultural land. As elevations rise, generally land reduces in quality.</p> <p>Corridor 2b is host to areas of coniferous forestry.</p> <p>Several National Grid gas pipelines run through the corridor, in a general north to south orientation. A concentration of these pipes is present west of Garlogie, where there is a gas pressurisation station.</p> <p>NCN Route 195 passes east – west through the corridor. There are no core paths within the corridor.</p> <p>There are numerous small settlements such as Rickarton, Schoolhill and Redhill.</p> <p>There are two large planning applications that could limit the capacity of this corridor to accommodate an alignment. Craigneil Wind Farm just north of Rickarton, and a 25 dwelling residential development at Echt have been consented.</p>	<p>Approximately less than 5% of the land area of this section is Prime agricultural land. As elevations rise, generally land reduces in quality.</p> <p>Corridor 2c is host to areas of coniferous forestry.</p> <p>Several National Grid gas pipelines run through the corridor (around Kirkton of Skene, northeast of Kintore and running south from Peterculter).</p> <p>NCN Route 195 passes east – west through the corridor and part of NCN Route 1 crosses into the corridor around Cookney in a north-south orientation. Core path networks are located throughout the corridor.</p> <p>The corridor includes the settlement of Westhill and Peterculter as well as numerous small settlements such as Elrick and Kirkton of Maryculter.</p> <p>Meikle Carewe wind farm is an operational 12 turbine wind farm located within the corridor near Blackburn.</p> <p>There is a planning application for an extension to a cemetery at Maryculter, however this is unlikely to constrain the corridor significantly.</p>
Engineering	<p>The corridor is bounded by the Kintore to Fetteresso OHL (XS1/XS2 – currently being upgraded to 400kV operation) on the eastern boundary and the foothills of the Cairngorm Plateau along the western boundary. The corridor avoids the major settlement of Banchory but includes other large villages including Crathes and Torphins.</p> <p>This corridor has relatively few established roads and the access network is sparse and dominated by minor roads. The corridor is bisected by the 132 kV Craigiebuckler – Tarland OHL (CLS – CLN) and spans will need to be undergrounded or oversailed to facilitate a route for the new Kintore – Fiddes – Tealing 400 kV OHL Connection project.</p>	<p>The corridor is bounded by the Kintore to Fetteresso OHL (XS1/XS2) on the western boundary and the Kintore to Tealing OHL on the eastern boundary. The corridor includes the settlement of Drumoak and Loch of Skene.</p> <p>The corridor is bisected by the 132 kV Craigiebuckler – Tarland OHL (CLS – CLN) and spans will need to be undergrounded or oversailed to facilitate a route for the new Kintore – Fiddes – Tealing 400 kV OHL Connection project.</p>	<p>The corridor is bounded by the existing Kintore to Tealing OHL on the western boundary and the A90 on the eastern boundary. The corridor avoids the town of Stonehaven and passes through Peterculter and Westhill. The corridor has existing OHLs present within it: the double circuit 132 kV CLN – CLS OHL , 132 kV Kintore – Craigiebuckler OHL (XCN – XCS), 275 kV Persley Kintore OHL (VX2 – PX); and the single circuits 132 kV Craigiebuckler – Fiddes OHL (CF), 132 kV Kintore – Craigiebuckler OHL (XCW) and 132 kV Kintore – Dyce (XPS/XPN). It is likely spans would need to be undergrounded or oversailed to facilitate a route for the Kintore – Tealing 400kV OHL.</p>

Topic	Corridor 2a	Corridor 2b	Corridor 2c
Economic	<p>The total length of the corridor option has been estimated based on a high level approximate centre line.</p> <p>Corridor 2a is the longest length in Section 2 at approximately 53km.</p>	<p>The total length of the corridor option has been estimated based on a high level approximate centre line.</p> <p>Corridor 2b is the shortest length in Section 2 at approximately 37km.</p>	<p>The total length of the corridor option has been estimated based on a high level approximate centre line.</p> <p>Corridor 2c length is approximately 40km.</p>

Drawing on the key findings of the corridor appraisal presented above, Table 5.4 sets out the topics assessed and the corresponding RAG rating considered in the corridor appraisal for Section 2 of the Study Area.

Table 5.4 – Section 2 RAG Ratings

Discipline	Sub-discipline	Section 2		
		Corridor 2a	Corridor 2b	Corridor 2c
Environmental Appraisal				
Natural Heritage	Designations	L	M	M
	Protected Species	L	M	M
	Habitats	L	M	M
	Ornithology	H	H	H
	Hydrology, Geology and Hydrogeology	M	M	M
Cultural Heritage	Designations	M	M	M
	Cultural Heritage Assets	M	M	M
People	Proximity to Dwellings	M	H	H
Landscape and Visual	Designations	H	M	M
	Landscape Character	H	M	M
	Visual	H	M	M
Land Use	Agriculture	L	L	L
	Forestry/Woodland	M	L	L
	Recreation	L	L	L
Planning	Proposals	L	M	L
Engineering Appraisal				
Infrastructure Crossing	Major crossings	H	H	H
	Road crossing	L	H	H
Topography	Elevation	H	M	L
	Atmospheric pollution	L	M	H
	Contaminated land	L	L	L
	Flooding	M	M	M
Ground conditions	Terrain	H	M	M
Construction / Maintenance	Access	H	L	M
Proximity	Windfarms	H	H	H
	Communication masts	L	H	H
	Urban environments	L	H	H
	Metallic pipelines	L	H	H
	Route length	H	L	M
Economic Appraisal				
Cost	Capital (Construction)	H	L	M

Discipline	Sub-discipline	Section 2		
		Corridor 2a	Corridor 2b	Corridor 2c
	Operational (Maintenance)	H	L	H

5.5 Section 2 Summary

Based on the appraisal undertaken the **Preferred Corridor for Section 2 is Corridor 2b**. This corridor option was identified as the preferred option for each of the environmental, technical and cost appraisals.

Environmental

Corridor 2b is the preferred corridor within Section 2 from an environmental perspective, however, there is little to distinguish between options 2b and 2c and they are relatively evenly matched in terms of level of constraint. Corridor 2b presents a favourable alternative in landscape and visual sub-disciplines and proximity to dwellings. Corridor 2b generally avoids major constraints, but does run through potentially sensitive landscapes that are densely settled in places. The crossing of the River Dee in option 2c is constrained by the larger settlement of Peterculter, as well as the east end of the Dee Valley SLA. The settlement of Westhill is also located within Corridor 2c.

Corridor 2b is coincident with the Loch of Skene SPA, the full extent of which lies within the corridor. This has associated challenges in terms of ensuring an appropriate response to the constraint posed by the use of the corridor by the qualifying interest species. However, Loch of Skene SPA is a constraint to all corridors in this section.

In terms of cultural heritage there is little to distinguish between the three corridors, all of which are considered to be moderately constrained. Each corridor option has areas where designated sites may represent pinch points. For Corridor 2b, pinch points are associated with Dunecht House GDL and Barmekin Hill Fort and Drum Castle and Park House GDLs. Pinch points in the other corridors are associated with clusters of Scheduled Monuments and GDLs.

Corridor 2b is likely to provide the shortest route and with respect to wind farm infrastructure, there is a pinch point created by the consented but not yet built Craigneil Wind Farm whereas there is a pinch point created by the existing Meikle Carewe wind farm in Corridor 2c.

Engineering

Corridor 2b is the preferred corridor from an engineering perspective because there will likely be fewer technical challenges due to the flatter terrain and the existing road and access network. It is likely that less new access infrastructure would be required in Corridor 2b compared to the other corridors. Corridor 2b has flatter terrain at a low altitude whereas Corridor 2a has extensive mountainous and challenging terrain. Due to the coastal proximity of Corridor 2c, it is anticipated that it may require additional maintenance to prevent corrosion. There are fewer crossings of high voltage OHLs required in option 2b compared to Corridors 2a and 2c, which substantially reduces the technical complexity of the project.

Cost

Corridor 2b is the preferred corridor from a cost perspective because it represents the lowest cost option for both a capital and operational aspects. It avoids crossing additional existing high voltage OHLs which has a high capital cost and ongoing maintenance requirements. The existing 275kV OHL in Corridor 2a, between Fetteresso and Kintore, currently requires inspection by helicopter which represents a higher maintenance cost. Due to the coastal proximity of Corridor 2c, it is anticipated that it may require additional maintenance to prevent corrosion. Also, due to the existing public road network in Corridor 2b, it is likely the new access track construction will be minimal.

6. PREFERRED CORRIDOR

Following on from the comparative appraisal carried out in Section 5, **the Preferred Corridor can be seen on Figure 6.1 and comprises Corridor 1b and Corridor 2b**. The RAG Ratings for each of the Preferred Corridor sections are shown in Table 6.1.

It is important to note that the Preferred Corridor has been identified based on the outcome of the environmental, engineering and cost analysis at this stage. Once the Consultation events have been held and consultation responses received, these consultee comments will be considered, which may suggest an alteration to all or part of a Preferred Corridor.

If there were any alterations to the Preferred Corridor following consideration of consultation feedback, this would subsequently affect the route options, which are also the subject of consultation.

Table 6.1 - Preferred Corridor RAG Ratings

	Parameter	Sub-Parameter	Corridor 1b	Corridor 2b
Environment	Natural Heritage	Designations	M	M
		Protected Species	M	M
		Habitats	M	M
		Ornithology	M	H
		Geology, Hydrology, Hydrogeology	M	M
	Cultural Heritage	Designations	M	M
		Cultural Heritage Assets	M	M
	People	Proximity to Dwellings	H	H
	Landscape and Visual	Designations	M	M
		Landscape Character	M	M
		Visual	M	M
	Land Use	Agriculture	M	L
		Forestry	M	L
		Recreation	L	L
	Planning	Proposals	L	M
	Engineering	Infrastructure	Major Crossing	H
Road Crossing			H	H
Topography		Elevation	L	M
		Atmospheric pollution	M	M
		Contaminated land	M	L
		Flooding	M	M
Terrain		Terrain	M	M
Construction / Maintenance		Access	L	L
Proximity		Windfarms	H	H
		Communication masts	H	H
	Urban environments	H	H	
	Metallic pipelines	H	H	
	Route Length	M	L	
Cost	Capital	Construction	L	L
	Operational	Inspections	L	L
		Maintenance	L	L

7. CONSULTATION ON THE PROPOSALS

SSEN Transmission places great importance on, and is committed to, consultation and engagement with all parties, or stakeholders, likely to have an interest in proposals for new projects such as this. Stakeholder consultation and engagement is an essential part of an effective development process.

7.1 Questions for Consideration by Consultees

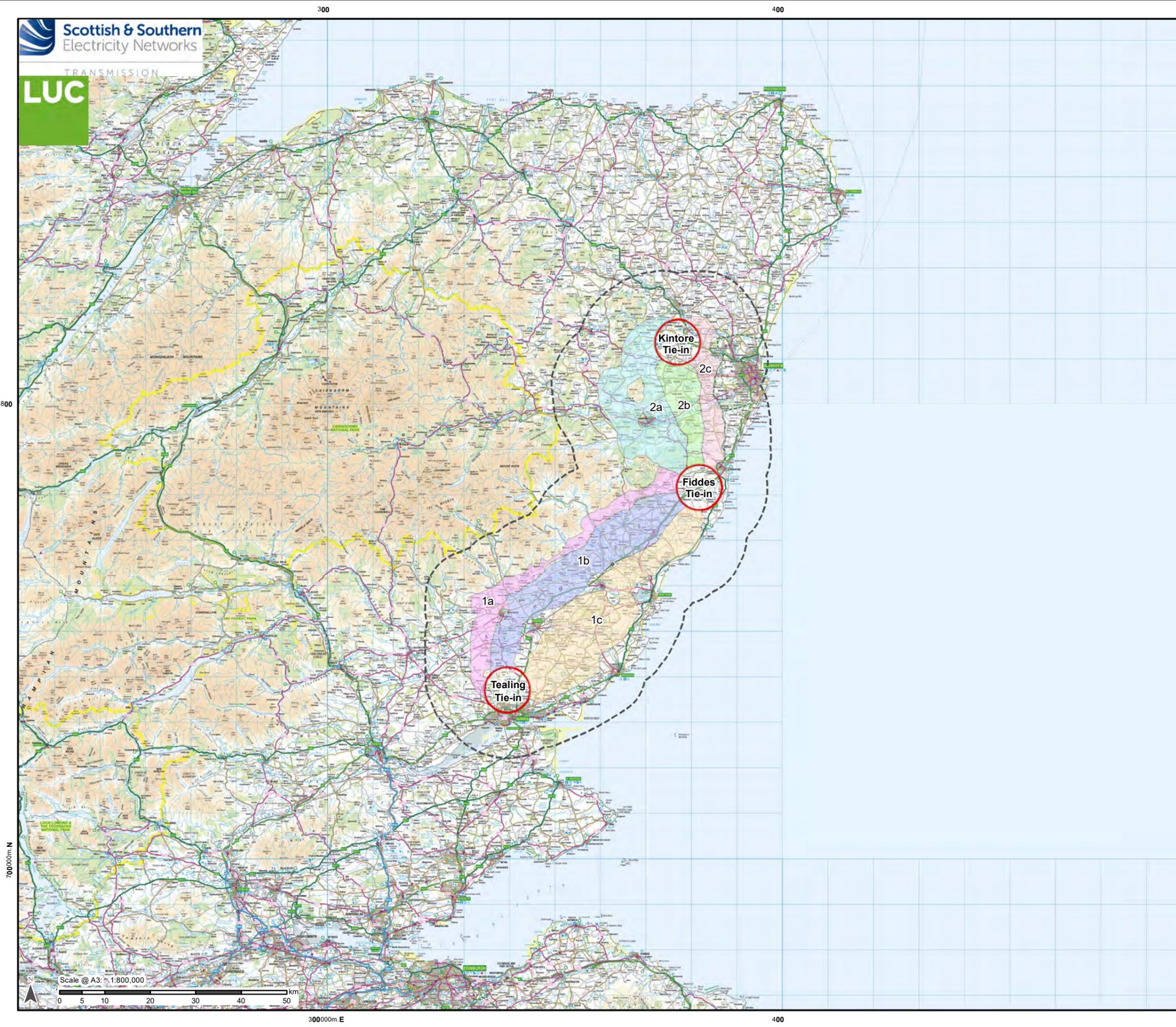
When providing your comments and feedback, SSEN Transmission would be grateful for your consideration of the questions below:

- Have we adequately explained the need for the project?
- Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?
- Are you satisfied that our approach taken to select our preferred overhead line corridor locations has been adequately explained?
- Do you agree with our preferred overhead line corridor, if not, why?
- Are there any factors, or environmental features, that you think require further consideration during the preferred corridor selection process?
- Do you have any other comments or concerns in relation to the transmission infrastructure requirements or about the preferred corridor selection?

7.2 Next Steps

Consultation events will be held as detailed in the preface of this document. The responses received from these consultation events, and those sought from statutory consultees and other key stakeholders, will be considered before the Proposed Corridor is confirmed. All feedback received concerning the Preferred Corridor will be reviewed following the same method should the Corridor Consultation have been consulted on separately to the Route Consultation.

All comments are requested by **9th June 2023**. A Report on Consultation (RoC) will be published after the consultation period has ended, which will document the consultation responses received, and the decisions made in light of these responses.



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor Options**
- 1a
- 1b
- 1c
- 2a
- 2b
- 2c



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Project No: LT455
Project: Kintore - Tealing - Fiddes 400kV Overhead Line Connection

Title:
Site Location

Drawn by: HW Date: 18/04/2023

Figure: 1.1



Scale @ A3: 1:800,000

700000m N

800

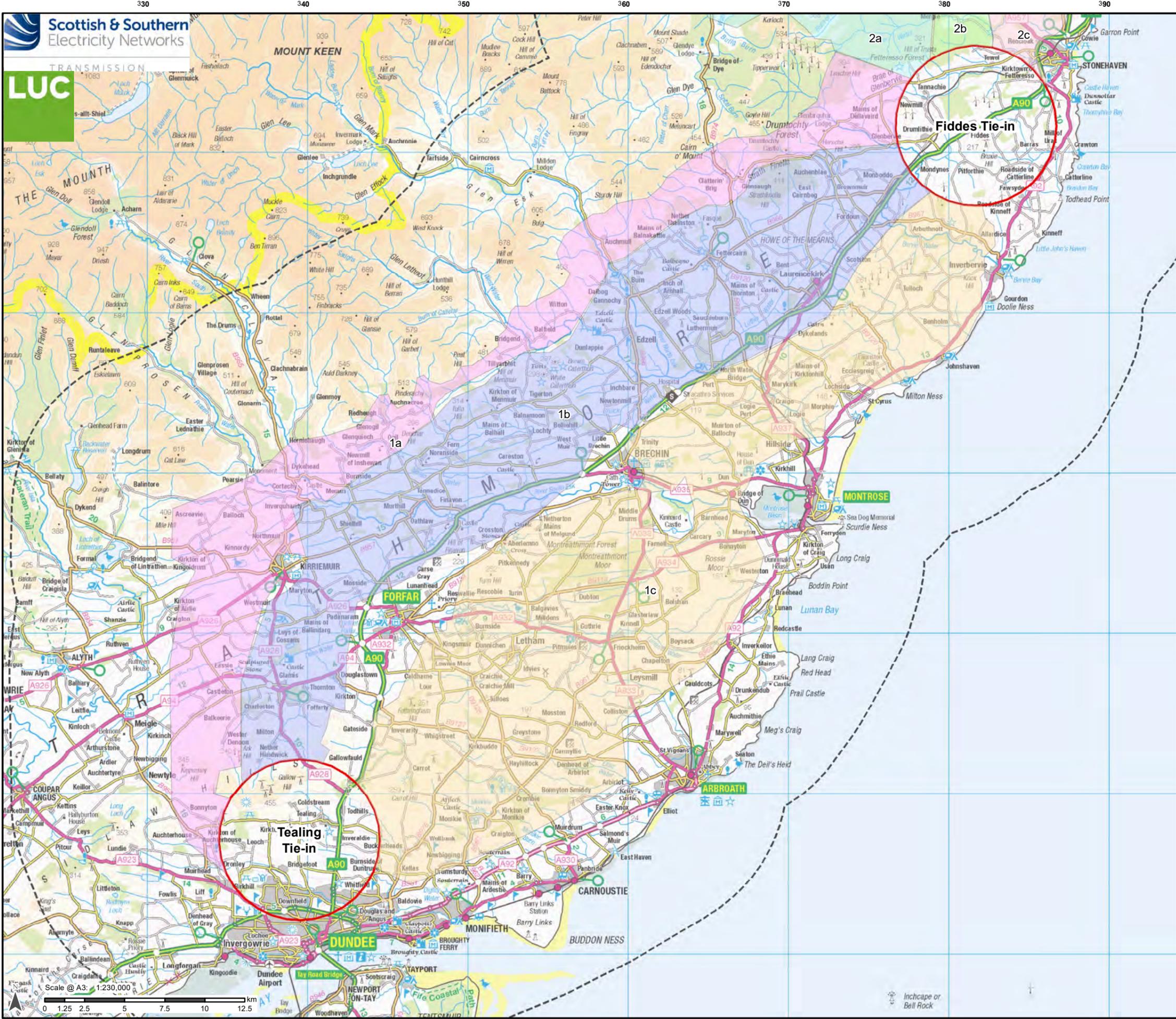
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300

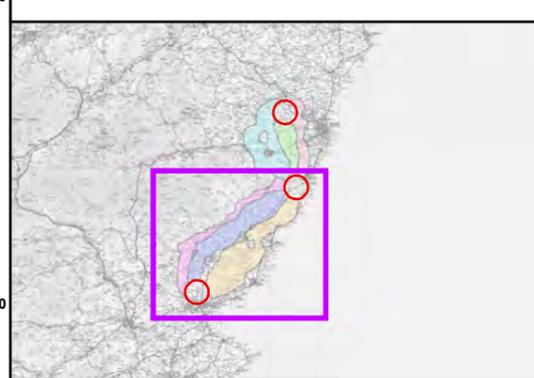
400

300000m E

400



Substation search area (5km radius from existing substation)
 Study area 10km buffer
Corridor Options
 1a
 1b
 1c
 2a
 2b
 2c



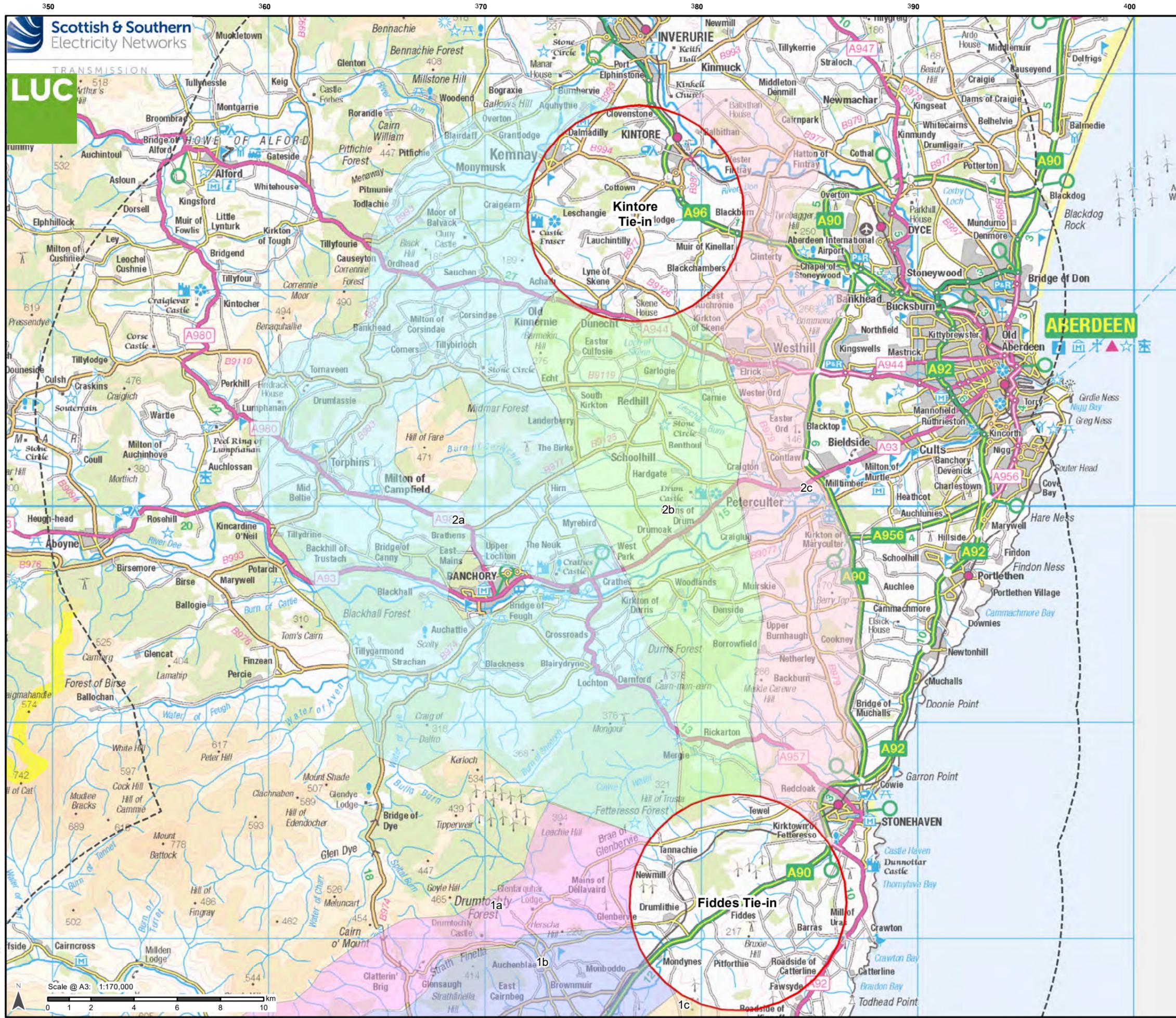
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Project No: LT455
 Project: Kintore - Tealing - Fiddes 400kV Overhead Line Connection

Title:
 Study Area Section 1

Drawn by: HW Date: 18/04/2023

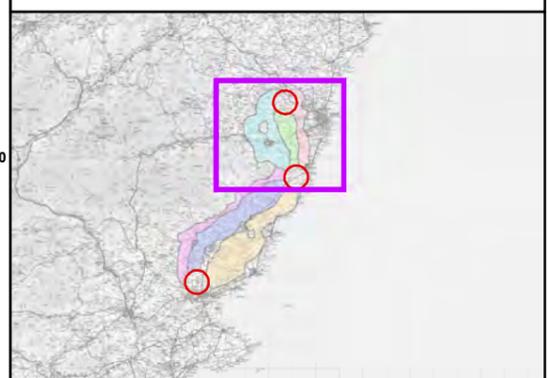
Figure: 4.1



Substation search area (5km radius from existing substation)
 Study area 10km buffer

Corridor Options

- 1a
- 1b
- 1c
- 2a
- 2b
- 2c



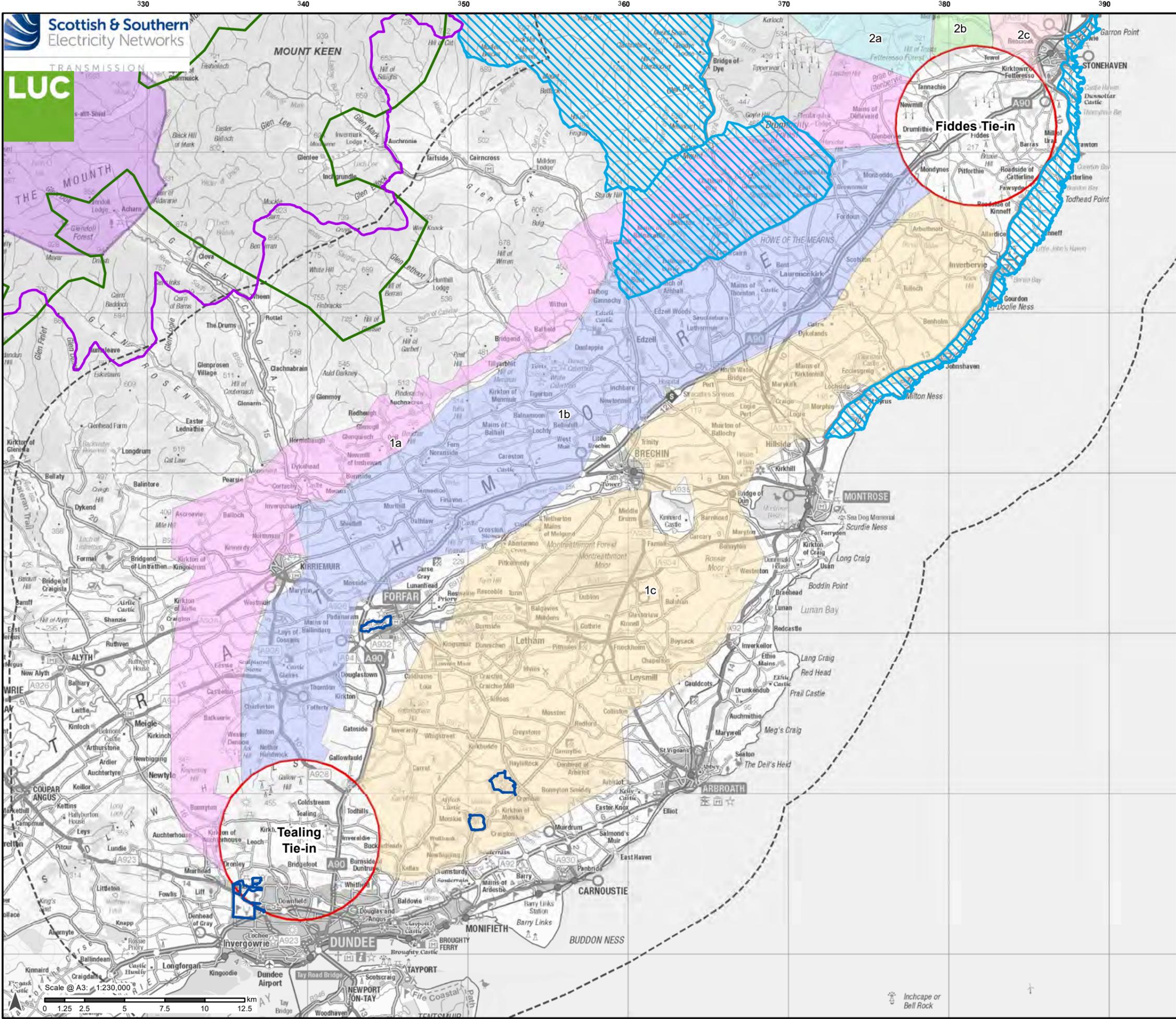
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Title:
 Study Area Section 2

Drawn by: HW
 Date: 18/04/2023

Figure: 4.2



Substation search area (5km radius from existing substation)
 Red circle

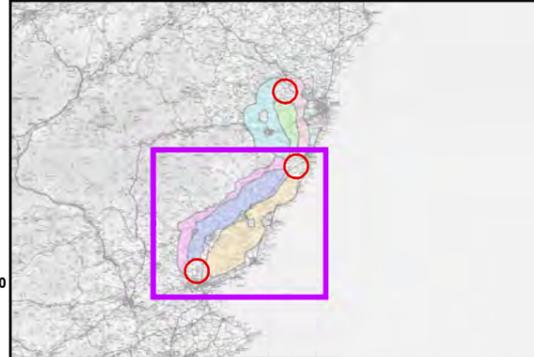
Study area 10km buffer
 Dashed line

Corridor options

- 1a
- 1b
- 1c
- 2a
- 2b
- 2c

Landscape and Visual Constraints

- Cairngorms National Park boundary
- National Scenic Area
- Special Landscape Area
- Country Park
- Area of Wild Land



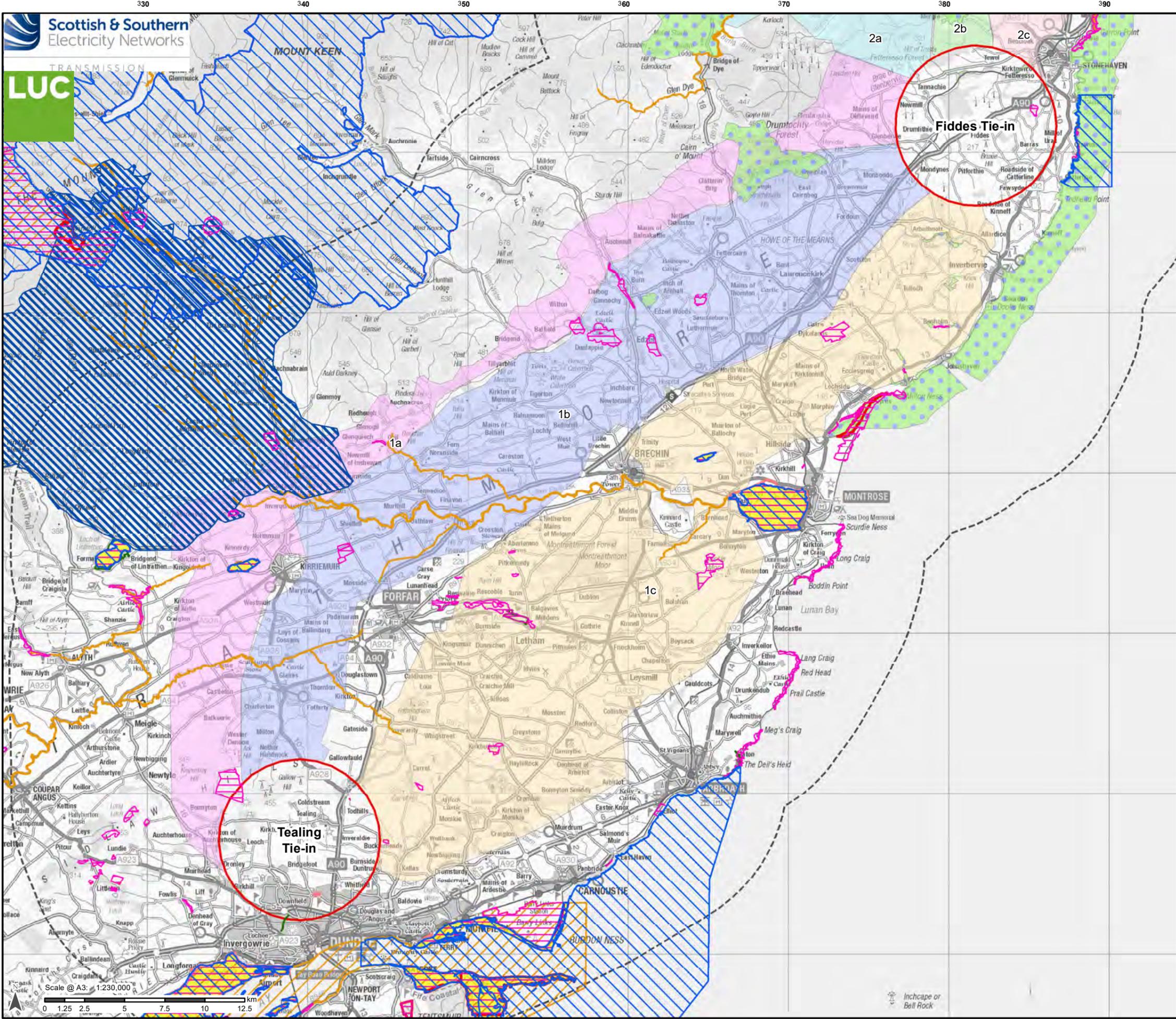
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Project No: LT455
 Project: Kintore - Tealing - Fiddes 400kV Overhead Line Connection

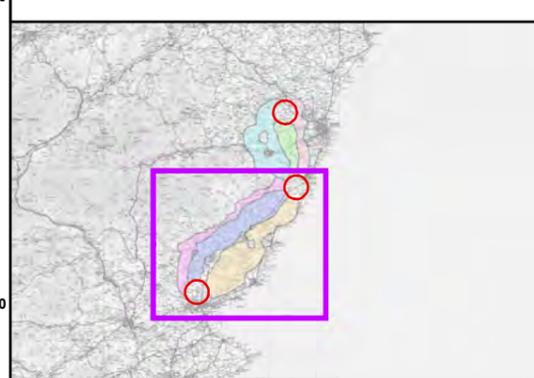
Title:
 Landscape and Visual Constraints for
 Study Area Section 1

Drawn by: HW
 Date: 24/04/2023

Figure: 5.1



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor options**
- 1a
- 1b
- 1c
- 2a
- 2b
- 2c
- Ecology Constraints**
- Ramsar site
- Special Area of Conservation
- Special Protection Area
- Site of Special Scientific Interest
- National Nature Reserve
- Local Nature Reserve
- Wildcat Priority Area
- Local Nature Conservation Site
- RSPB Reserve
- RSPB Important Bird Area
- Scottish Wildlife Trust reserve



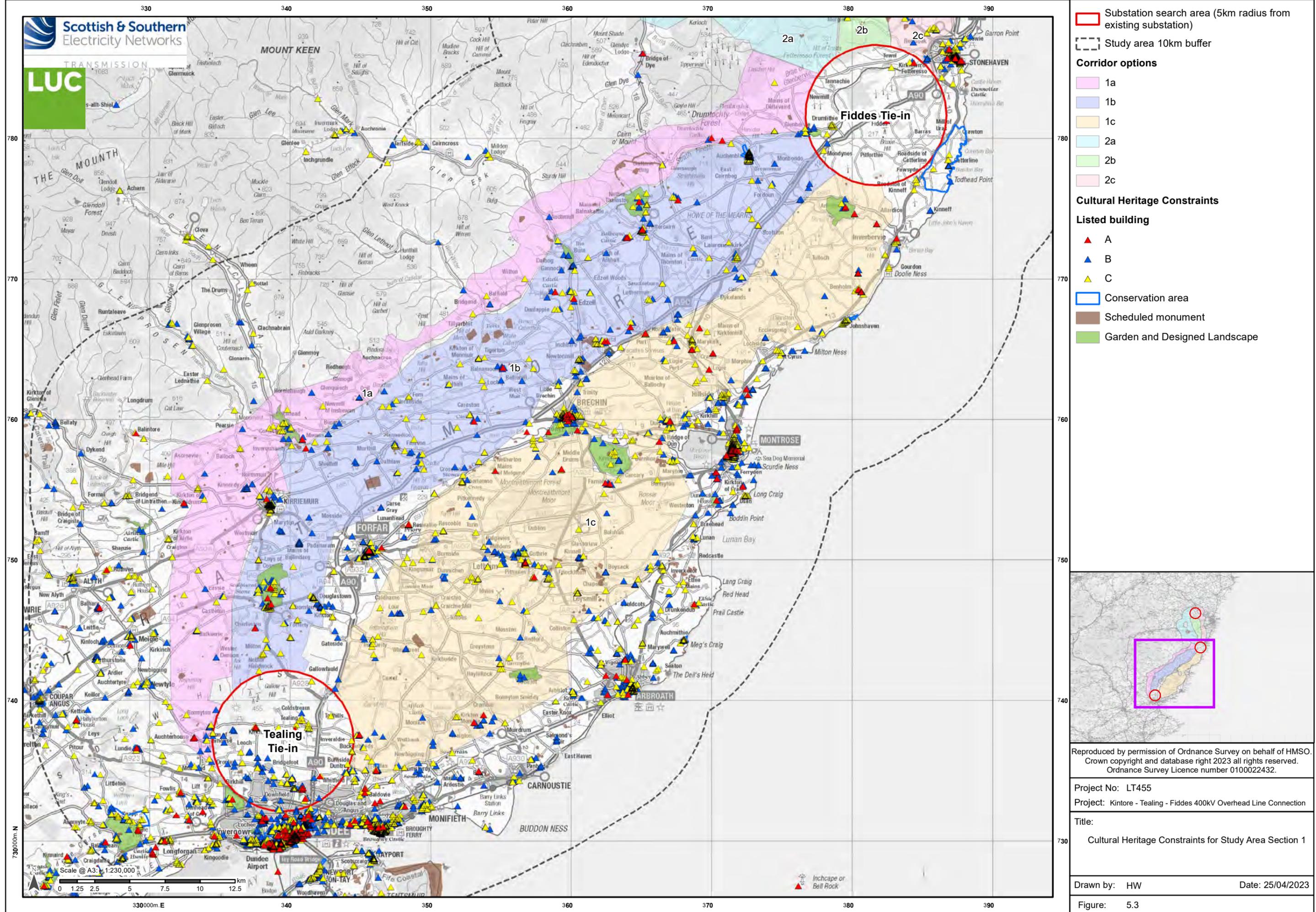
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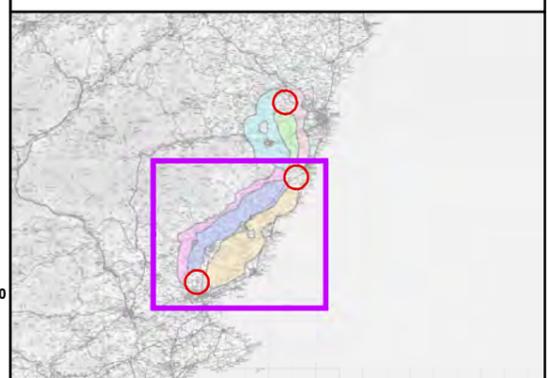
Title:
Ecological Constraints for Study Area Section 1

Drawn by: HW
Date: 24/04/2023

Figure: 5.2



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor options**
- 1a
- 1b
- 1c
- 2a
- 2b
- 2c
- Cultural Heritage Constraints**
- Listed building**
- ▲ A
- ▲ B
- ▲ C
- Conservation area
- Scheduled monument
- Garden and Designed Landscape



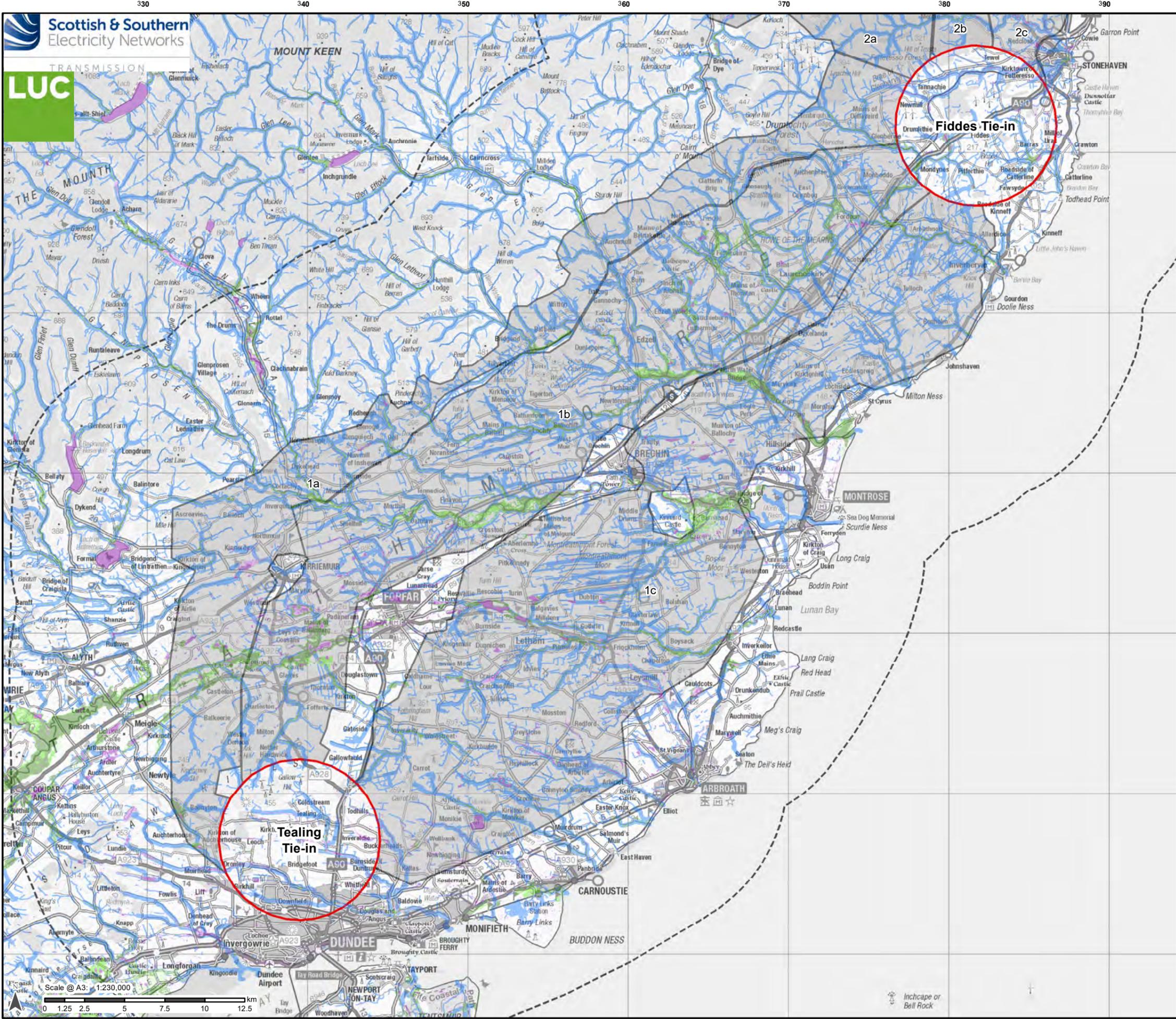
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Title:
Cultural Heritage Constraints for Study Area Section 1

Drawn by: HW
Date: 25/04/2023

Figure: 5.3



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor options

- Hydrology Constraints**
- Flood Risk Management - Surface High (10 year)
 - Flood Risk Management - Surface Medium (200 year)
 - Flood Risk Management - Surface Low (1000 year)
 - Flood Risk Management - Rivers High (10 year)
 - Flood Risk Management - Rivers Medium (200 year)
 - Flood Risk Management - Rivers Low (1000 year)
 - Surface Water Line
 - Surface Water Area
 - Main watercourses (Open Rivers)



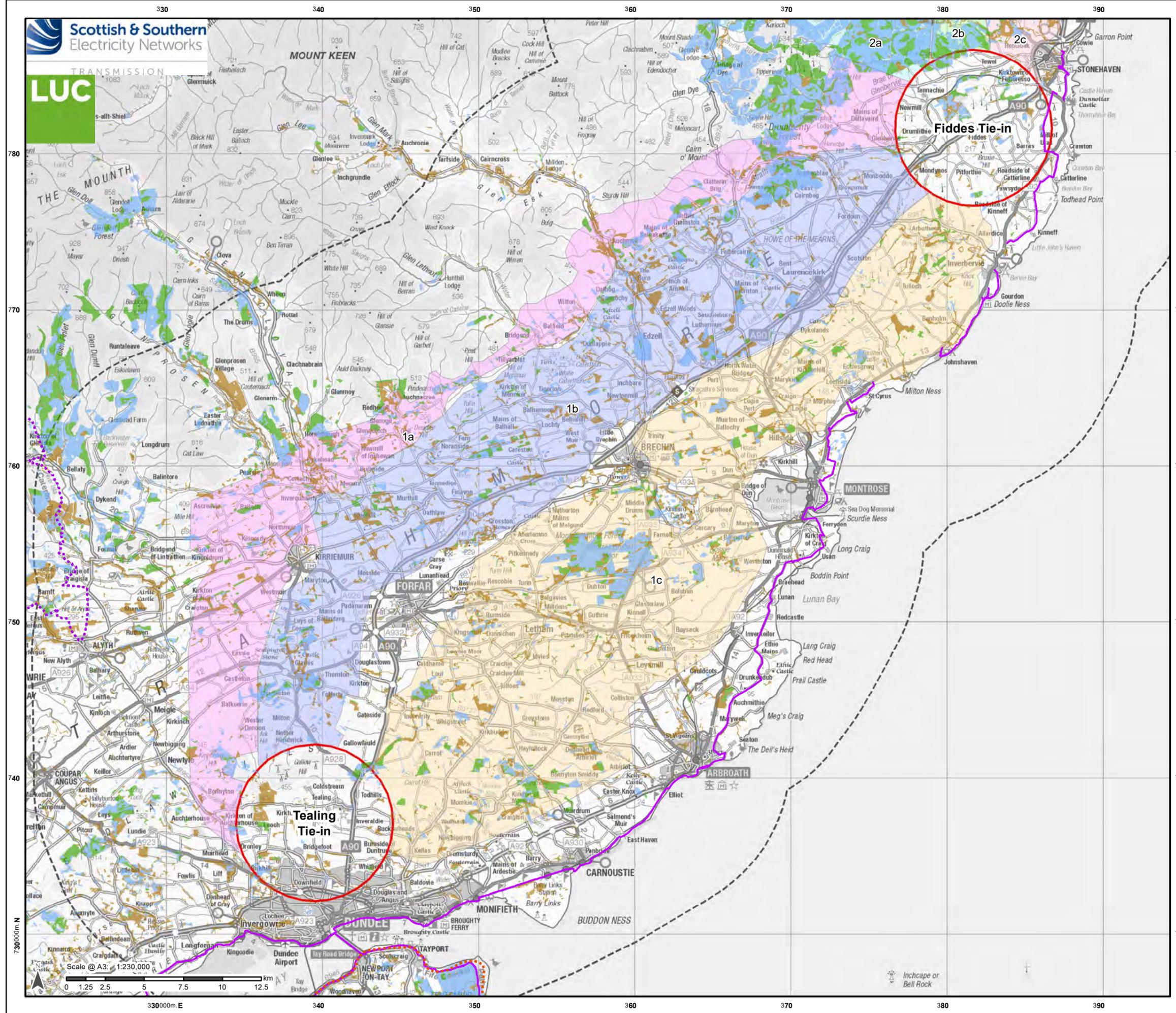
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Title:
Hydrology Constraints for Study Area Section 1

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Date: 24/04/2023

Figure: 5.4



Substation search area (5km radius from existing substation)

Study area 10km buffer

Corridor options

- 1a
- 1b
- 1c
- 2a
- 2b
- 2c

Land Use Constraints

RouteType

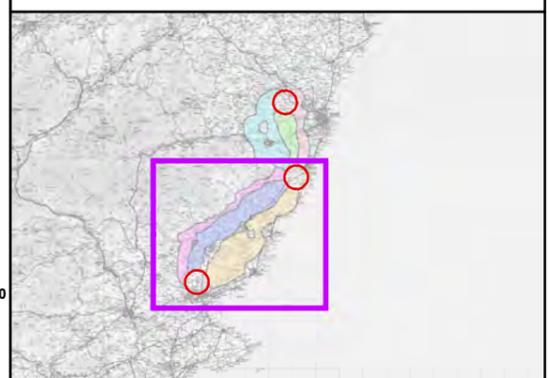
- National Cycle Network (NCN)
- NCN Link

Scottish Great Trails

- Cateran Trail
- Fife Coastal Path

National Forest Inventory

- Broadleaved; Mixed mainly broadleaved; Coppice; Coppice with standards; Young trees; Assumed woodland
- Conifer; Mixed mainly conifer
- Other

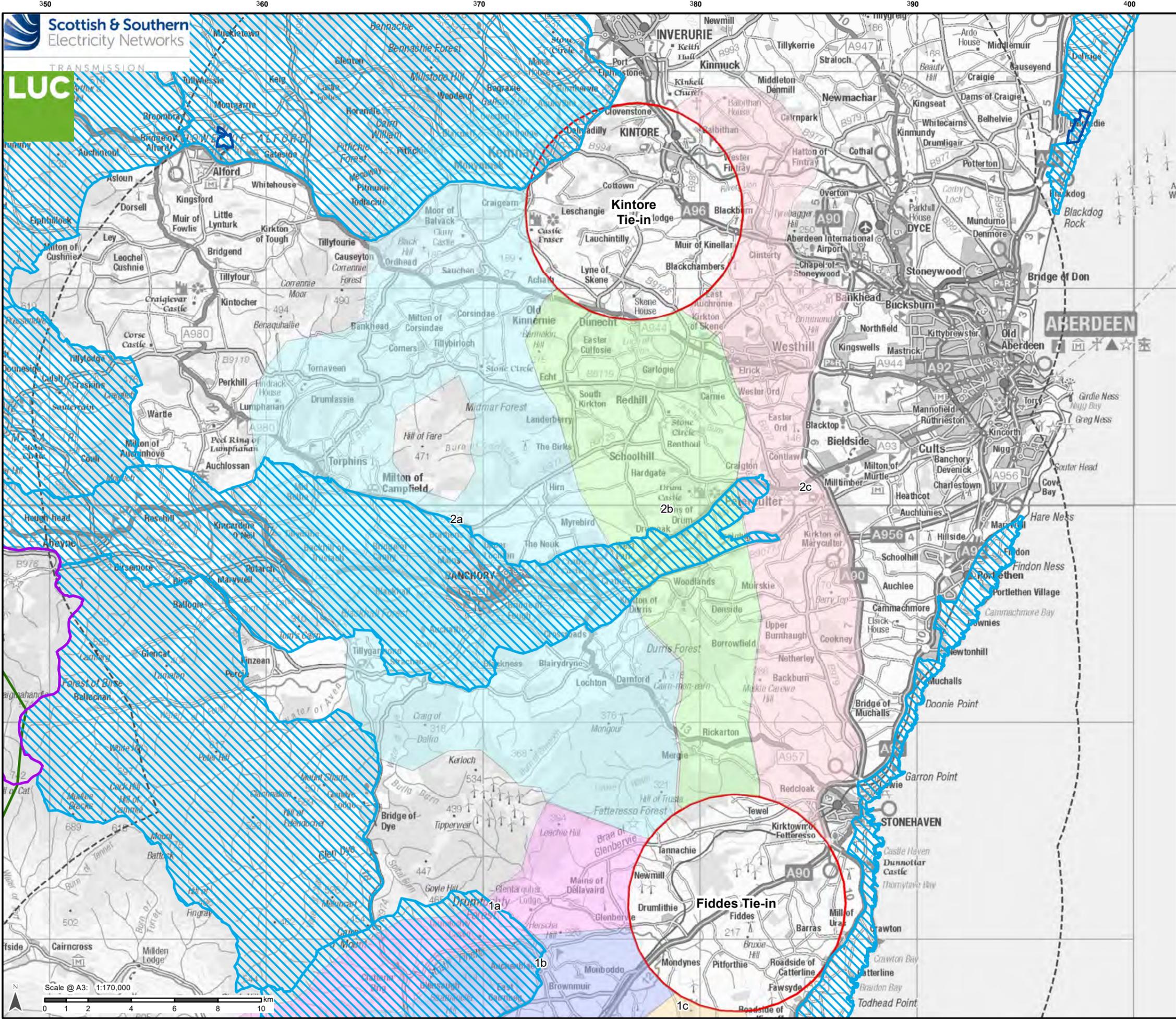


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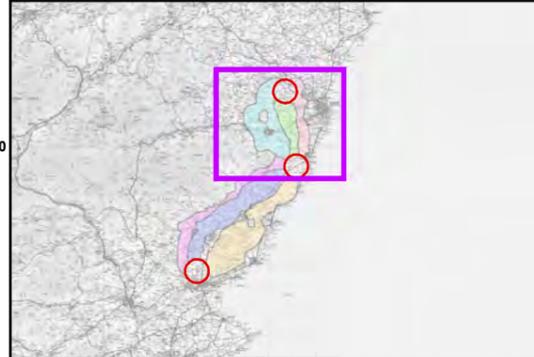
Project No: LT455
 Project: Kintore - Tealing - Fiddes 400kV Overhead Line Connection

Title:
 Land Use Constraints for Study Area Section 1

Drawn by: HW
 Date: 24/04/2023
 Figure: 5.5



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor options**
- 1a
- 1b
- 1c
- 2a
- 2b
- 2c
- Landscape and Visual Constraints**
- Cairngorms National Park boundary
- Special Landscape Area
- Country Park
- Area of Wild Land



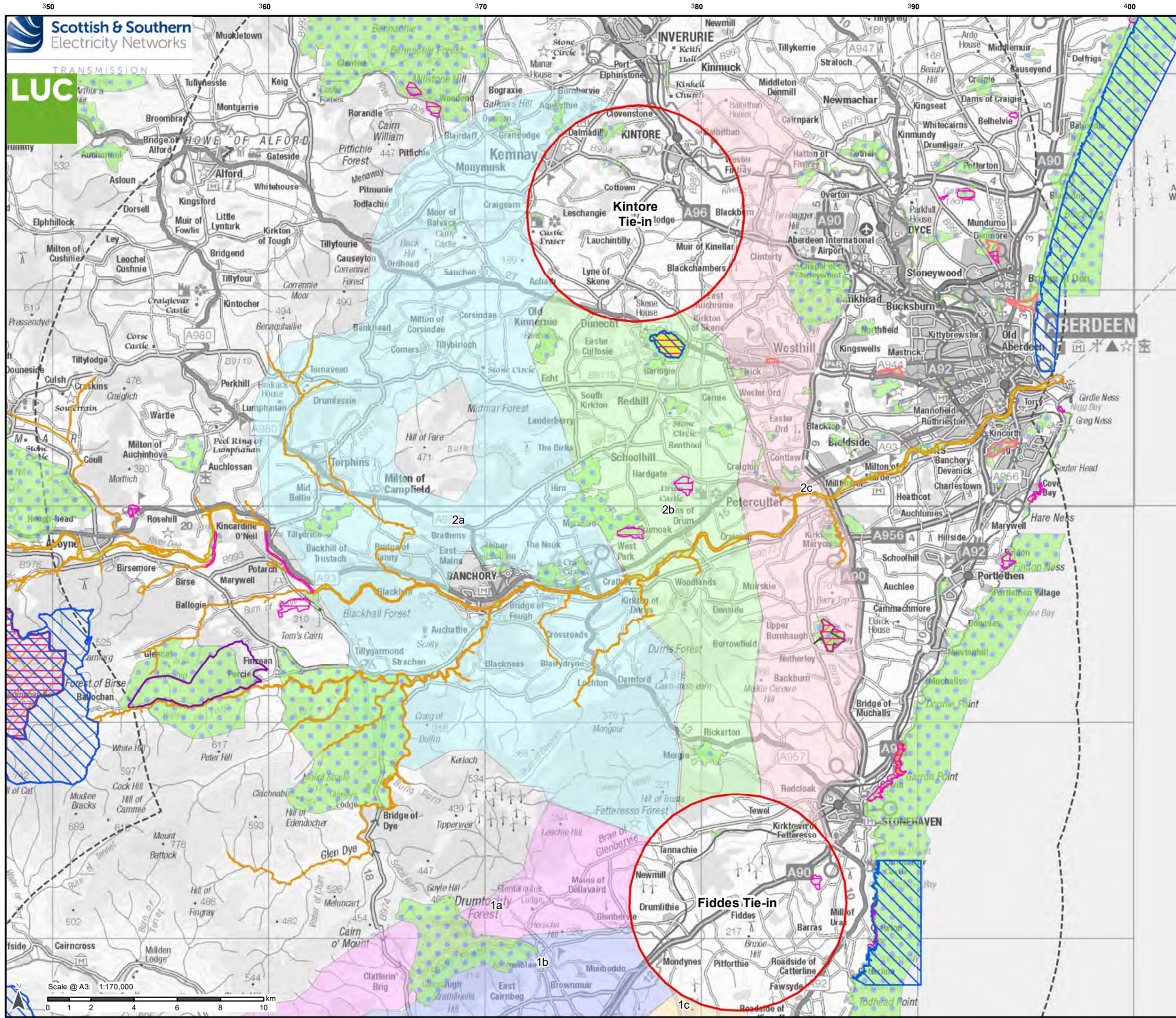
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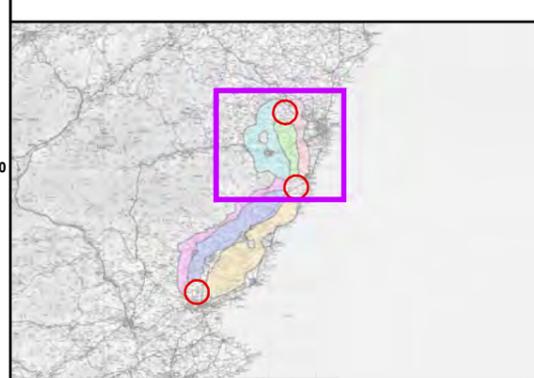
Title:
Landscape and Visual Constraints for Study Area Section 2

Drawn by: HW Date: 24/04/2023

Figure: 5.6



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor options**
- 1a
- 1b
- 1c
- 2a
- 2b
- 2c
- Ecology Constraints**
- Ramsar site
- Special Area of Conservation
- Special Protection Area
- Site of Special Scientific Interest
- National Nature Reserve
- Local Nature Reserve
- Local Nature Conservation Site
- RSPB Reserve
- RSPB Important Bird Area
- Scottish Wildlife Trust reserve



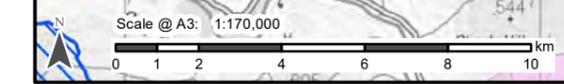
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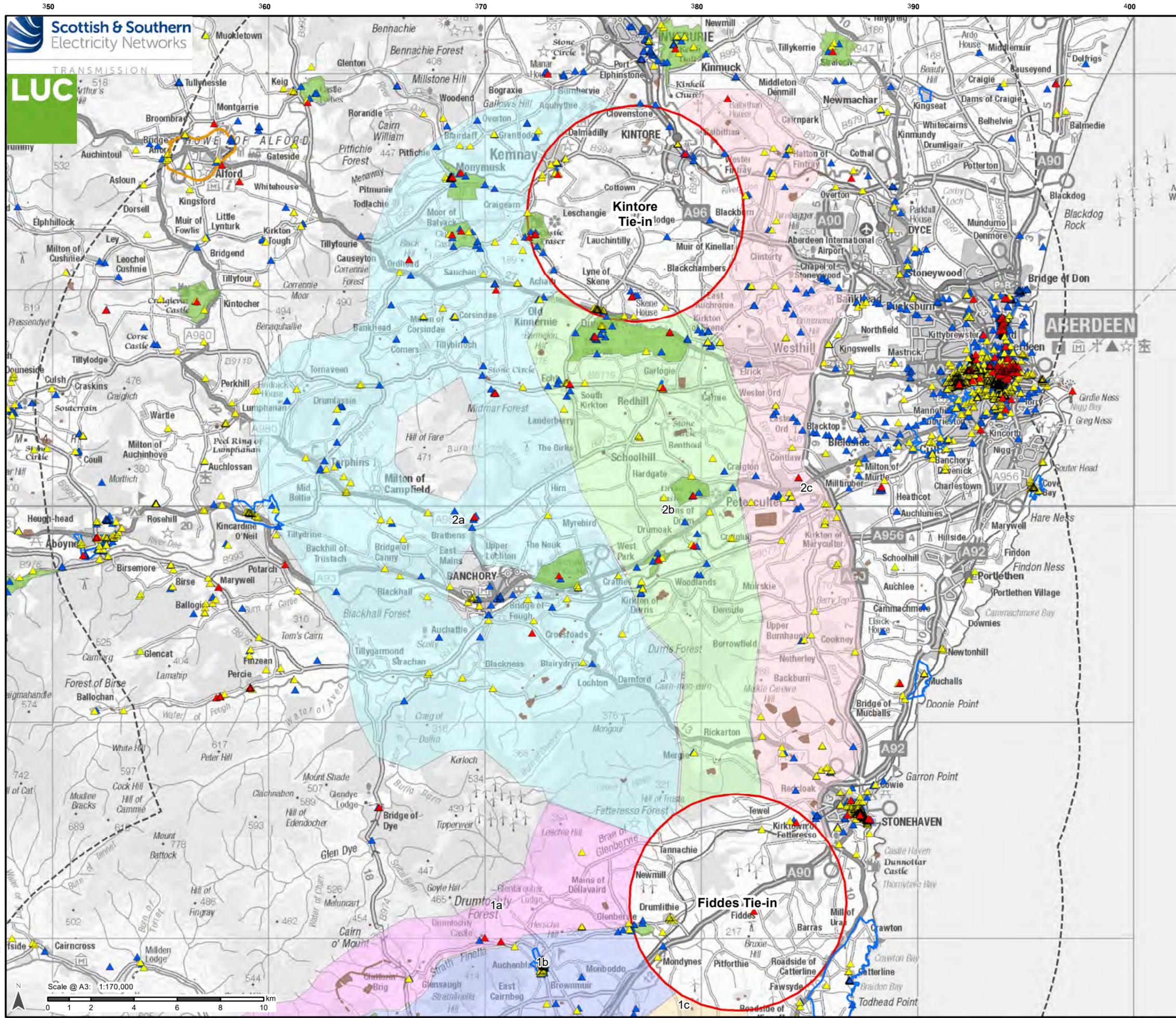
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Title:
Ecological Constraints for Study Area Section 2

Drawn by: HW Date: 24/04/2023

Figure: 5.7





Substation search area (5km radius from existing substation)

Study area 10km buffer

Corridor options

- 1a
- 1b
- 1c
- 2a
- 2b
- 2c

Cultural Heritage Constraints

Listed building

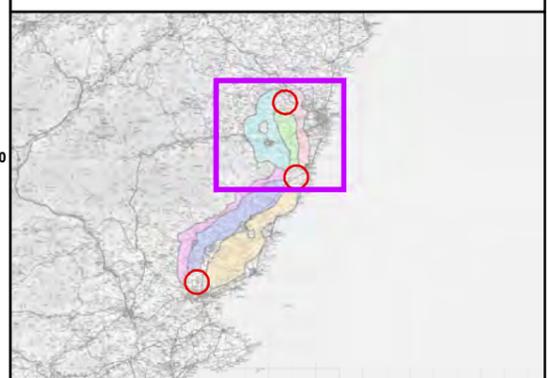
- A
- B
- C

Conservation area

Scheduled monument

Historic Battlefield

Garden and Designed Landscape



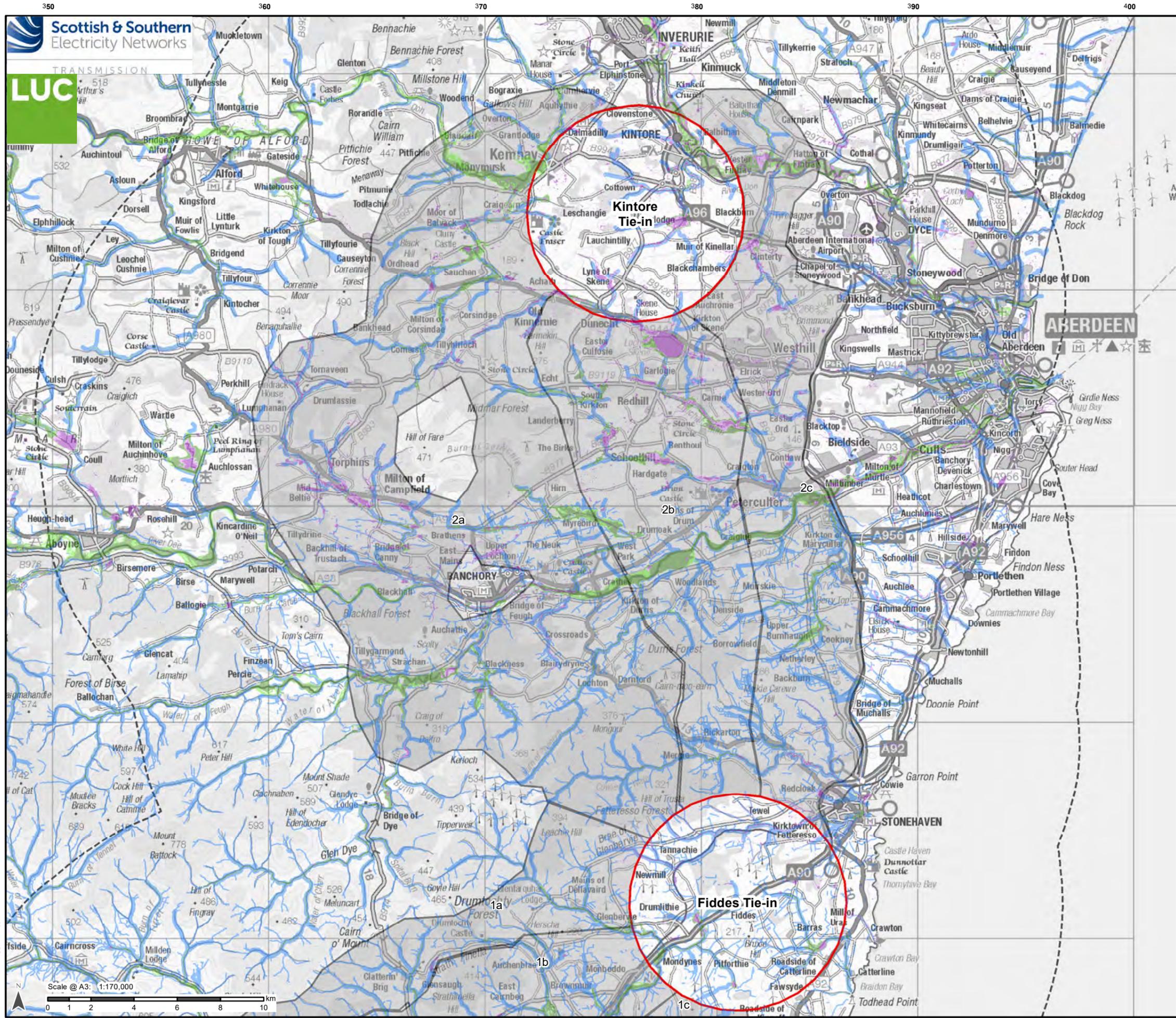
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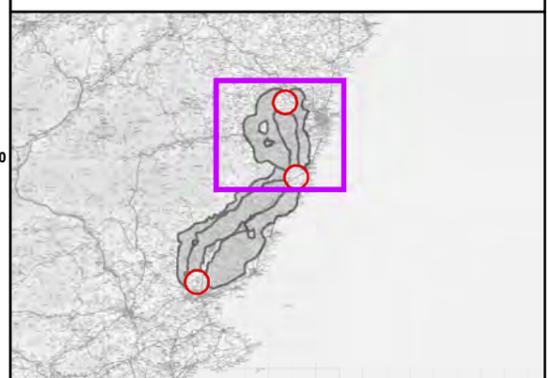
Title:
Cultural Heritage Constraints for Study Area Section 2

Drawn by: HW Date: 25/04/2023

Figure: 5.8



- Substation search area (5km radius from existing substation)
 - Study area 10km buffer
 - Corridor options
- Hydrology Constraints**
- Flood Risk Management - Surface High (10 year)
 - Flood Risk Management - Surface Medium (200 year)
 - Flood Risk Management - Surface Low (1000 year)
 - Flood Risk Management - Rivers High (10 year)
 - Flood Risk Management - Rivers Medium (200 year)
 - Flood Risk Management - Rivers Low (1000 year)
 - Surface Water Line
 - Surface Water Area
 - Main watercourses (Open Rivers)



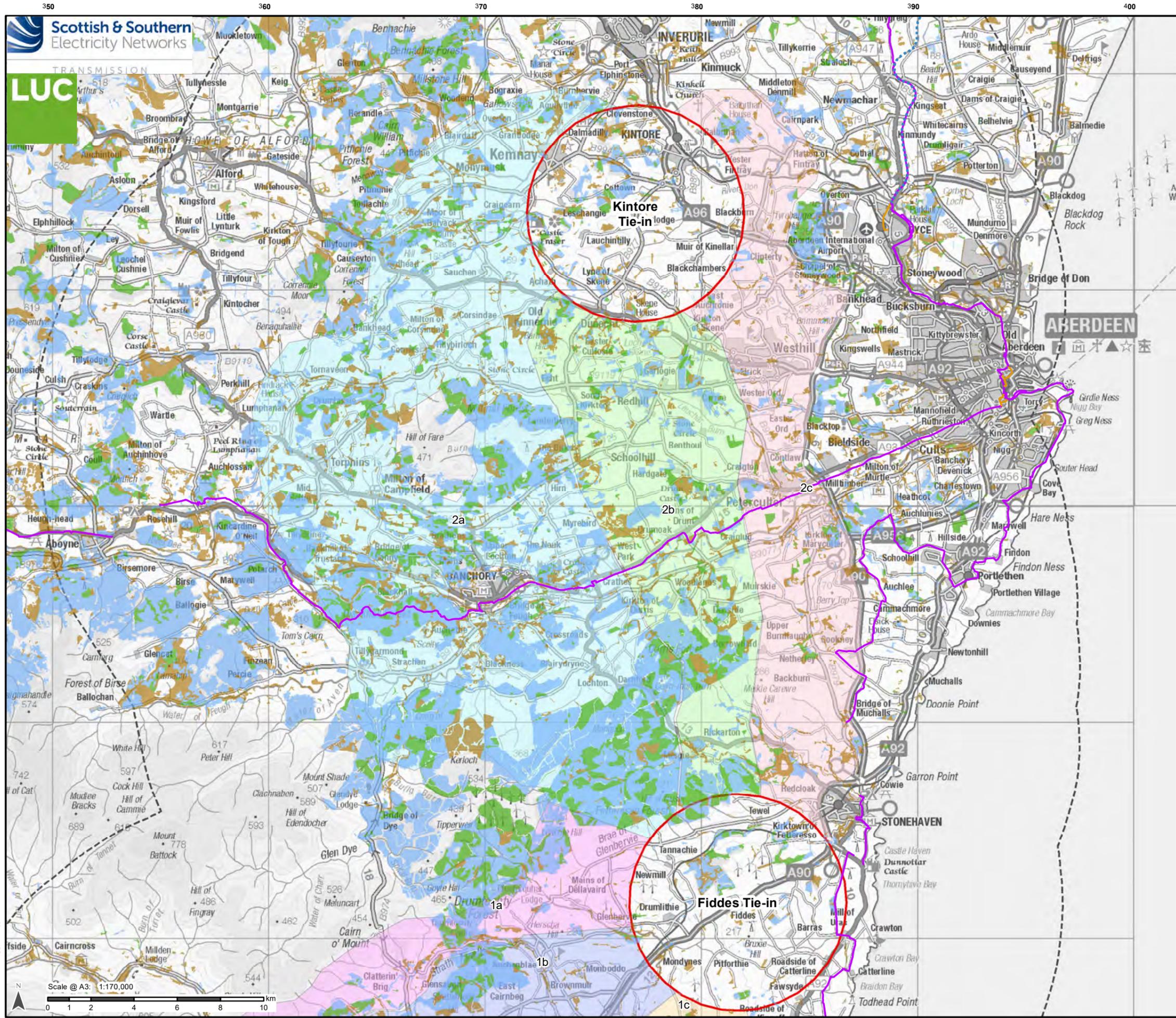
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Title:
Hydrology Constraints for Study Area Section 2

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Figure: 5.9



Substation search area (5km radius from existing substation)

Study area 10km buffer

Corridor options

- 1a
- 1b
- 1c
- 2a
- 2b
- 2c

Land Use Constraints

RouteType

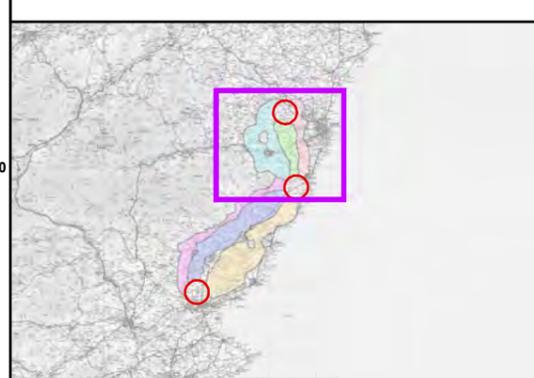
- National Cycle Network (NCN)
- NCN Link

Scottish Great Trails

- Formartine & Buchan Way

National Forest Inventory

- Broadleaved; Mixed mainly broadleaved; Coppice; Coppice with standards; Young trees; Assumed woodland
- Conifer; Mixed mainly conifer
- Other

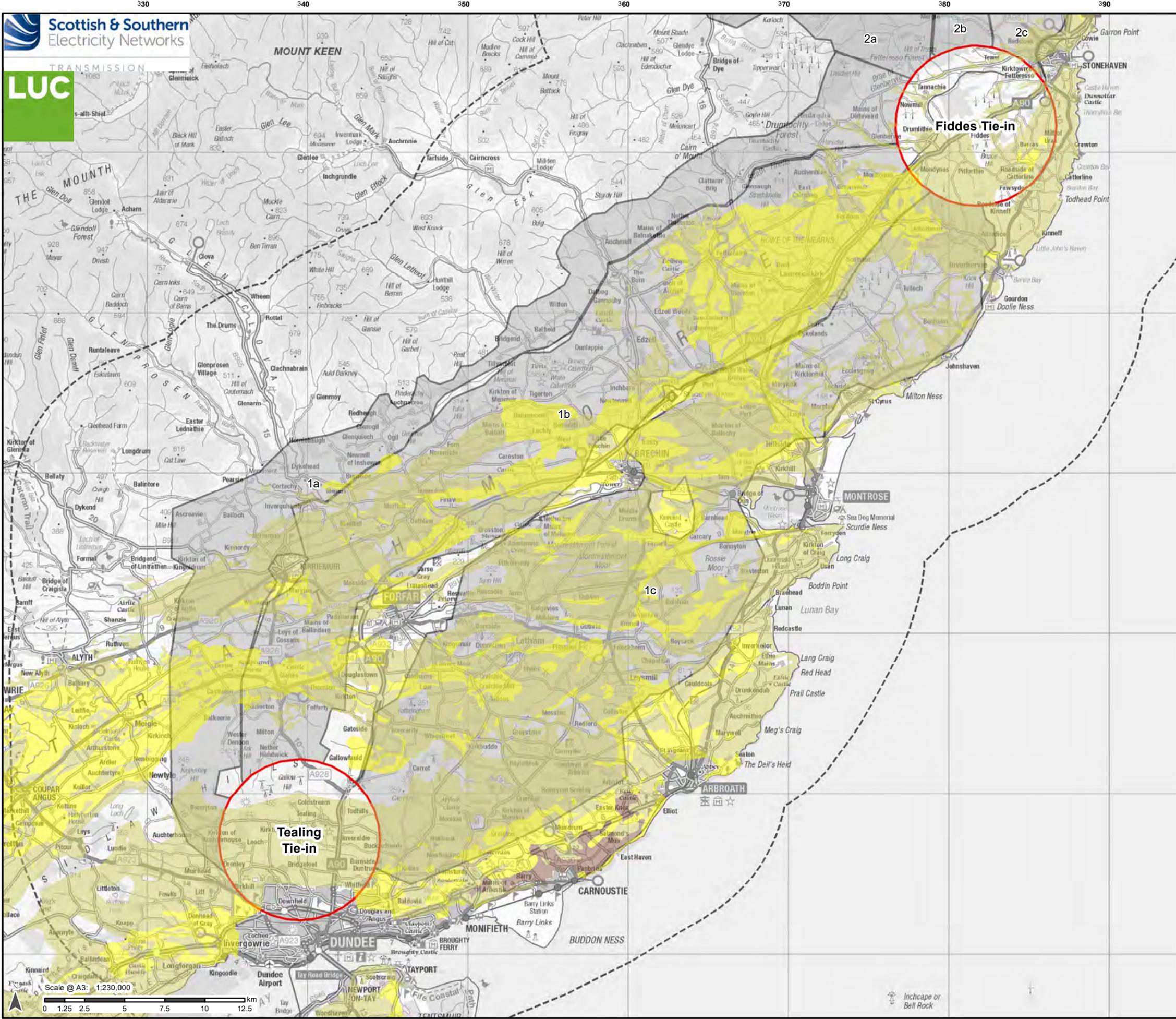


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Title:
Land Use Constraints for Study Area Section 2

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Figure: 5.10



- Substation search area (5km radius from existing substation)
- Study area 10km buffer
- Corridor options

Land Capability for Agriculture

- 1 - Land capable of producing a very wide range of crops.
- Class 2 - Land capable of producing a wide range of crops.
- Class 3.1 - Land capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range. Short grass leys are common.



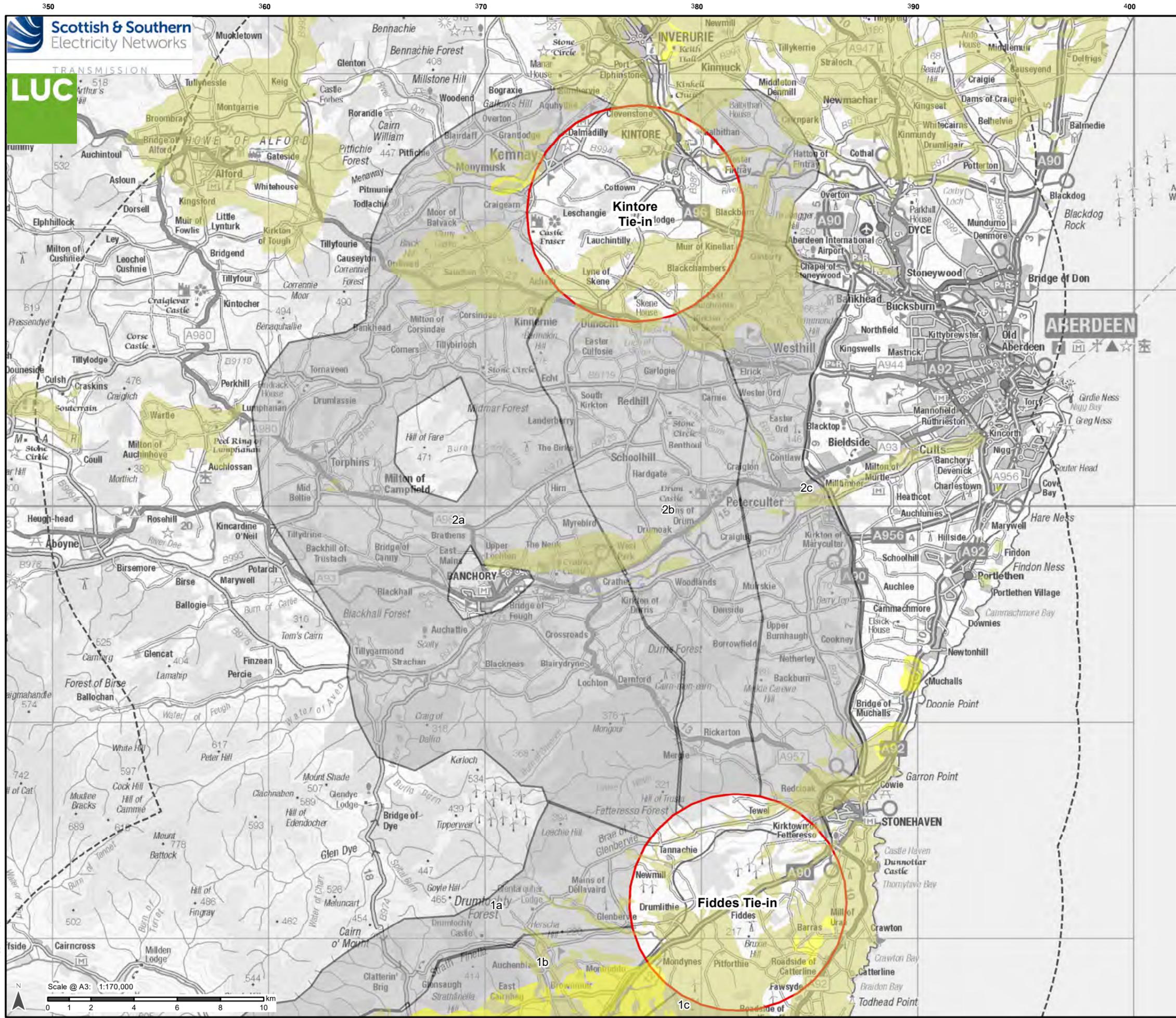
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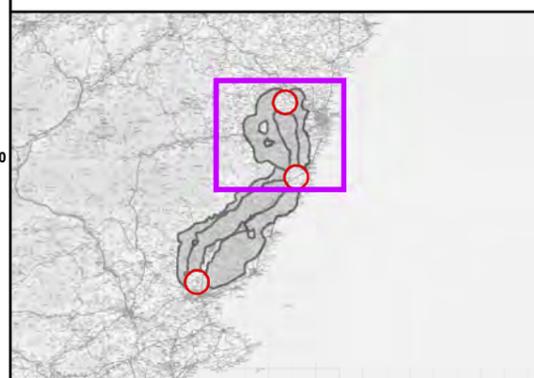
Title:
 Land Capability for Agriculture for Study Area Section 1

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 Date: 24/04/2023

Figure: 5.11



- Substation search area (5km radius from existing substation)
 - Study area 10km buffer
 - Corridor options
- Land Capability for Agriculture**
- Class 2 - Land capable of producing a wide range of crops.
 - Class 3.1 - Land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range. Short grass leys are common.



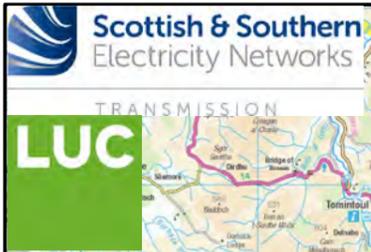
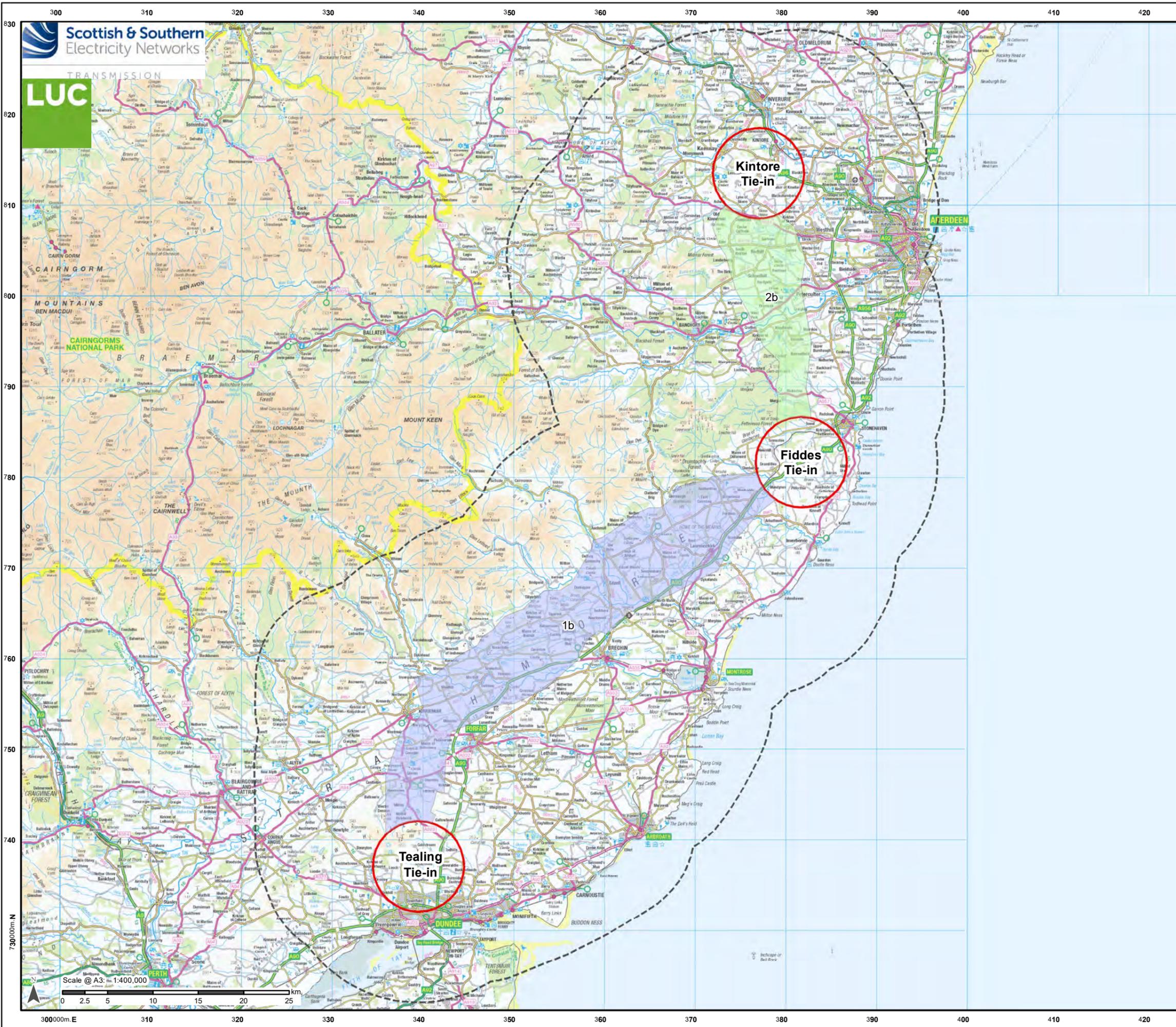
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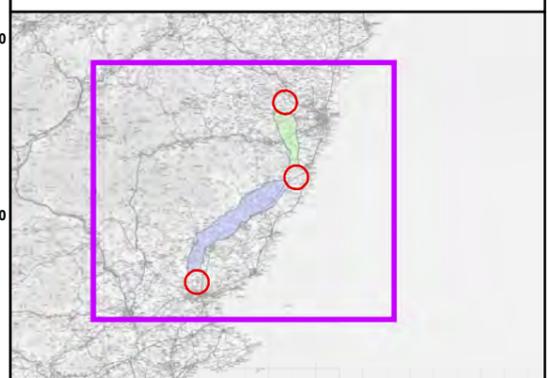
Title:
Land Capability for Agriculture for Study Area Section 2

Drawn by: HW
Date: 24/04/2023

Figure: 5.12



- Area of search (5km radius from existing substation)
- Study area 10km buffer
- Preferred Corridor**
- 1b
- 2b



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Project No: LT455
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Title:
Preferred Corridor

Drawn by: HW Date: 24/04/2023

Figure: 6.1

