

# Lochay 132/11kV Transformer Replacement

May 2019

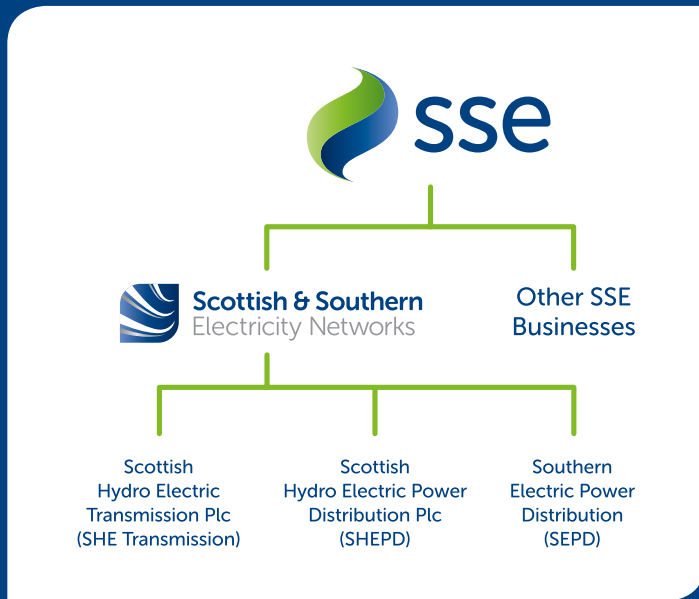


**Scottish & Southern**  
Electricity Networks



# Who we are

We are Scottish and Southern Electricity Networks, operating under licence as Scottish Hydro Electric Transmission Plc (SHE Transmission) for the transmission of electricity in the north of Scotland.



## What is the difference between transmission and distribution?

Electricity Transmission is the transportation of electricity from generating plants to where it is required at centres of demand. The Electricity Transmission network, or grid, transports electricity at very high voltages through overhead lines, underground cables and subsea cables. Our transmission network connects large scale generation, primarily renewables, to central and southern Scotland and the rest of Great Britain. It also helps secure supply by providing reliable connection to the wider network of generation plans.

The Electricity Distribution network is connected into the Transmission network but the voltage is lowered by transformers at electricity substations, and the power is then distributed to homes and businesses through overhead lines or underground cables.

## Overview of transmission projects

In total we maintain about 5,000km of overhead lines and underground cables – easily enough to stretch across the Atlantic from John O’Groats all the way to Boston in the USA.

Our network crosses some of the UK’s most challenging terrain – including circuits that are buried under the seabed, are located over 750m above sea level and up to 250km long.

The landscape and environment that contribute to the challenges we face also give the area a rich resource for renewable energy generation. There is a high demand to connect from new wind, hydro and marine generators which rely on Scottish and Southern Electricity Networks to provide a physical link between the new sources of power and electricity users. Scottish and Southern Electricity Networks is delivering a major programme of investment to ensure that the network is ready to meet the needs of our customers in the future.

## Our responsibilities

We have a licence for the transmission of electricity in the north of Scotland and we are closely regulated by the energy regulator Ofgem.

Our licence stipulates that we must develop and maintain an efficient, co-ordinated and economical system of electricity transmission.



# Project overview

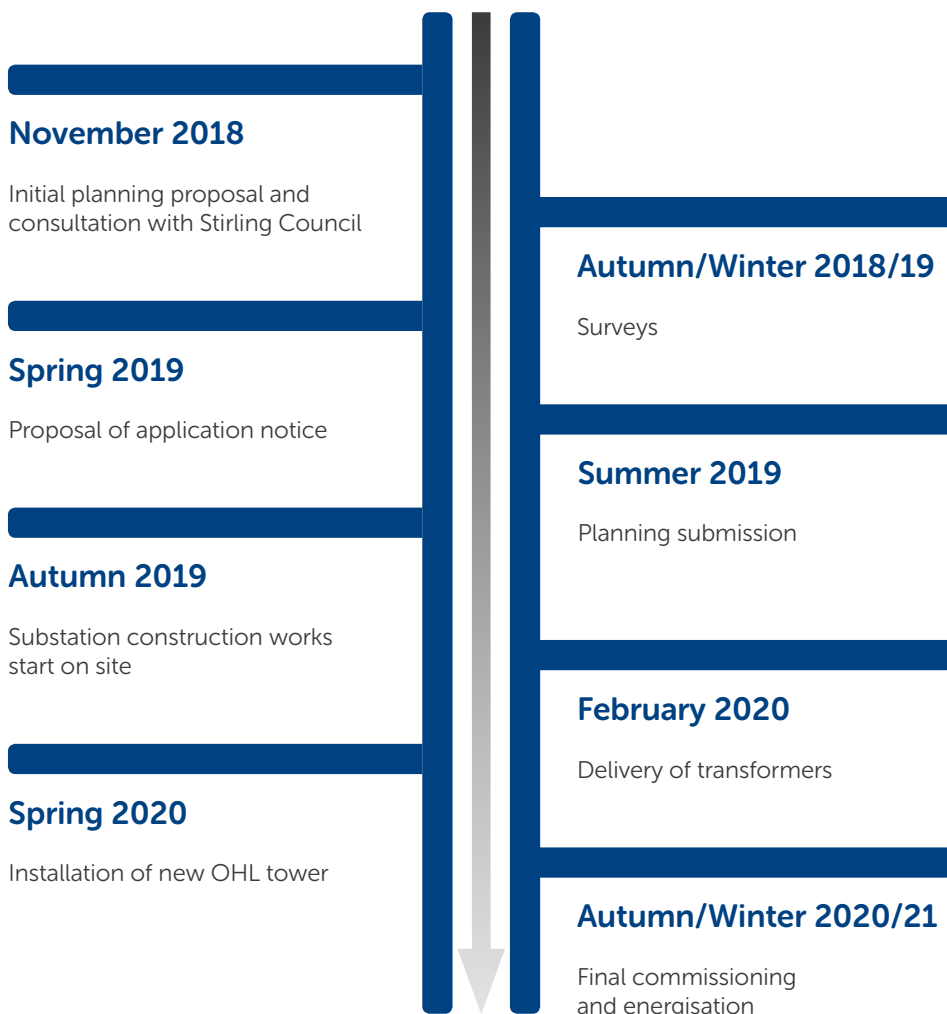
**SHE Transmission is proposing to replace and relocate the two 25MVA 132/11kV grid transformers at Lochay power station. These transformers have reached their intended operational capabilities, and recent condition assessments also indicate that there is a need to replace both transformer units.**

Work will also be carried out on the configuration of the existing substation as the current layout arrangement pose operational challenges. Amending the layout also gives us an opportunity to further improve safety standards at the site.

The current substation facilitates grid access for SSE Generation’s hydro power station production into the wider grid, SSE Generation are the sole user of this facility. It also connects the power station to the Killin 132/33kV grid substation through the overhead line (OHL) circuit.

This project forms part of the non-load related like for like asset refurbishment and there is no intention to extend the network or increase the power production due to these works.

## Project timeline



### Planning application

SHET have submitted a proposal of application notice under the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 to Stirling Council.

Following the proposal of application notice we intend to submit an application for consent under the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 to Stirling Council in Summer of 2019.

We will also submit an application for consent from the Scottish Government’s Energy Consents Unit through Section 37 of the Electricity Act 1989. This will cover all aspects related to the OHL works. These works will comprise of replacement and relocation of one new terminal tower and tie ins to the electricity substation.

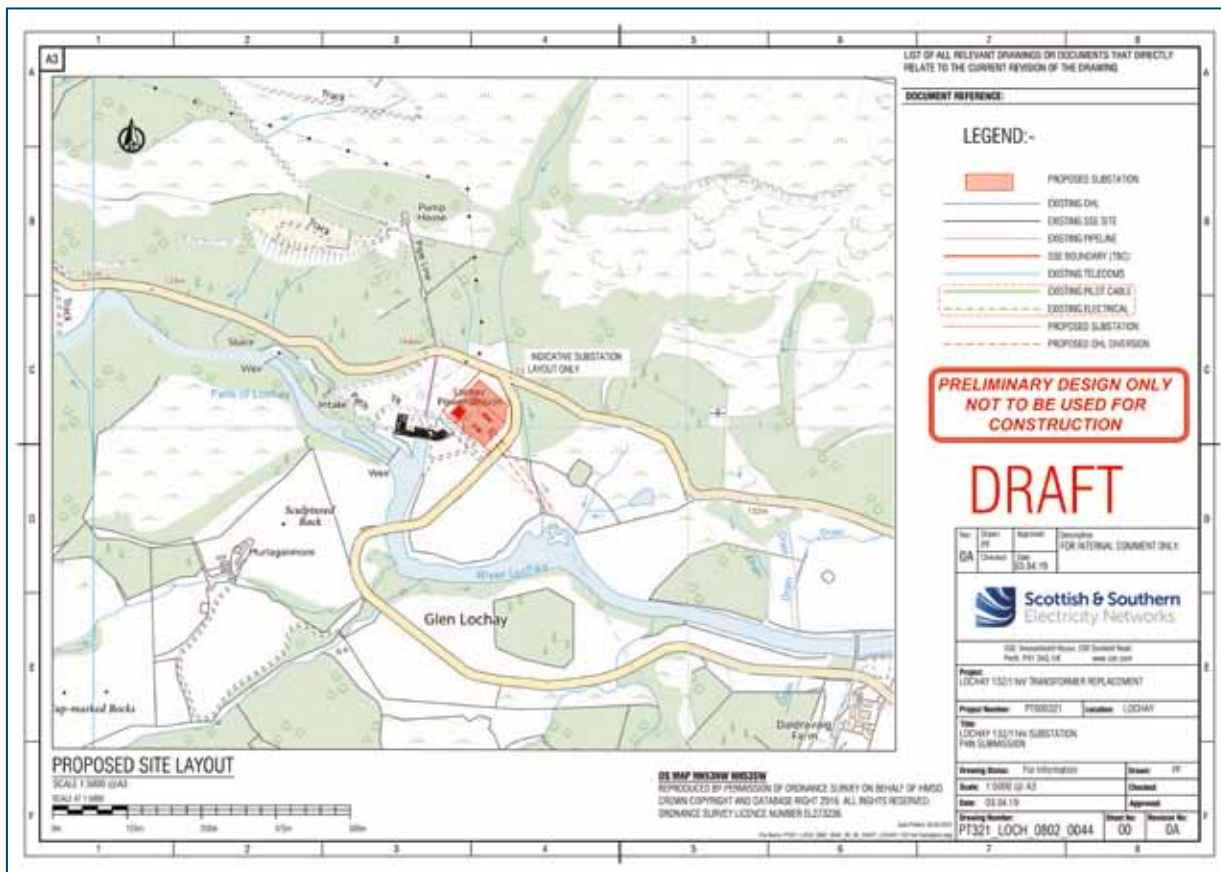
# Our proposed solution

**Our chosen site for the replacement and relocation of the two transformers and terminal tower is adjacent to the existing Lochay power station.**

The site was chosen at Lochay power station and not Killin substation as the new transformers are required to serve the existing power station and therefore if these were relocated to Killin all the services for the power station would have to be relocated to Killin, which is technically not feasible.

The following additional factors were considered during the site selection appraisal, ecology, drainage, topography, flood risk, ground conditions, access constraints and proximity to the existing transmission network.

Construction of the substation will require plant and machinery, along with vehicles to transport materials and workers to site. The largest plant items for the substation will be the installation of the two grid transformers.



## Temporary construction compound

Temporary offices, welfare and storage facilities will be established during the planned construction period. These will be located in close proximity to the existing Lochay power station.

# Project details

To enable the reinforcement proposals at Lochay there is a requirement to undertake development, including public road improvements for transportation of transformers, formation and construction of an electricity substation and associated overhead line works.

## Screening

Appropriate screening and bunding for this site to lessen the visual impact of our proposal will be agreed with Stirling Council, at this early stage of the process we do not have detailed designs of screening measures, however, these would most likely involve planting a variety of trees around designated areas of the footprint of the site.

## Substation

The substation reinforcement works would involve:

- Construction and installation of a substation platform
- Installation of two 132/11kV, 36MVA grid transformers
- Installation of 132kV outdoor air insulated switchgear to facilitate the connection from the overhead line (OHL) and a substation control building
- Associated civil engineering works and electrical infrastructure; and associated 132kV air insulated switchgear.



## Overhead line

The overhead line reinforcement works will comprise:

- Erection of one new steel lattice terminal tower at the new substation location
- Diversion of the 132kV overhead line (OHL) from the existing tower at Lochay power station to the new terminal tower
- Diversion of the 33kV overhead line (OHL) from the existing tower line to the existing substation; and
- Removal of the existing steel lattice terminal tower at Lochay power station.



## Public road improvement works

- Abnormal load deliveries for two grid transformers will be required
- No significant road improvements identified
- The abnormal load deliveries of the two grid transformers will be escorted through Killin village, this may be carried out by Police Scotland. Temporary restrictions to local parking will be required within the village of Killin along Main Street to allow the transformers through the village and to be delivered at Lochay power station; and
- Formation of a site entrance off the existing access track to Lochay power station.



# Consideration of environmental effects

**A number of environmental studies and surveys have been carried out by professionally qualified specialists to inform the project. The topics considered will include: visual effects in areas of new infrastructure; terrestrial ecology (habitats and protected species); ornithology (protected birds); water environment and soils; cultural heritage; traffic and transport and noise. The approach to assessment and some of the current findings are outlined below.**

## Visual effects

A total of four potential sites were identified based on a requirement to position the transformers near the existing hydro station generators. The option selected as the preferred site was the furthest from the river Lochay special area of conservation (SAC) and is on land owned by SSE Generation.

The preferred site is separated from the tailrace and clean water supply borehole recently installed by SSE Generation. The site proposed for the substation will be cut into the slope with a retaining wall to the north and earthworks to the south.

## Terrestrial ecology (habitats and species)

The habitats on the project site are predominantly improved, poor semi-improved and amenity grassland of low ecological value and scattered deciduous trees and the works will not result in the loss of any notable habitats.

No signs of protected species were originally recorded within the project site boundary and no effects are predicted because of the proposed works. Some trees will be removed on the substation site in accordance with British Standard 5837: 2012. Trees in relation to design, demolition and construction. New planting will also be undertaken to enhance the habitats on and around the new project site and to facilitate connectivity with the habitats of greater nature conservation importance in the surrounding area.

## Ornithology

The site is not adjacent to any sites designated for ornithological interests. A ground level assessment of the scattered broadleaved trees likely to be lost during construction found no obvious bird nests. Biological data records provided by The Wildlife Information Centre (TWIC) identified 25 bird species recorded around the existing Lochay hydro power station site, with none of the recorded species being Schedule 1 listed. Birds recorded were largely common and widespread species, such as buzzard, oystercatcher, cuckoo, tawny owl, swift, great spotted woodpecker, swallow, wren, robin, redstart, willow warbler, goldcrest, blue, great and coal tits, nuthatch and siskin. Several other species were associated with the river Lochay including mallard, goosander and common sandpiper.

## Water environment and soils

The site lies within the Tay local flood management plan catchment area. The management plan does not identify the project site as being within a 'potentially vulnerable area' for flooding.

The Scottish Environment Protection Agency (SEPA) national flood risk assessment flood map, does not identify the project site as being within an area likely to experience river or surface water flooding. Private water supplies (PWS) will be identified, and an assessment undertaken to determine potential risk to any supplies. Where required, measures will be identified and put in place to ensure that the quality and quantity of water from these supplies would not be adversely affected. Following consultation

with Scottish National Heritage (SNH) in October 2018, SNH requested that there should be some consideration of the River Tay special area of conservation (SAC) which lies approximately 150m from the main construction site and 20m, at its closest point to the temporary laydown area of the project. SNH have concluded that the construction of the substation is unlikely to have a significant effect of the SAC if standard pollution prevention measures are adhered to. A construction environmental management plan (CEMP) will be developed and implemented, based on the requirements of the SHET general environmental management plan (GEMP). This will be kept on site and available if requested. Relevant sections of the GEMP will be built in to a CEMP including a surface water management plan.

## Cultural heritage

There are no designated heritage assets on the site, although Lochay hydro power station is recorded on the national record of the historic environment (NRHE) and is considered to be a non-designated heritage asset.

Minor effects on landscape and visual receptors are identified during construction and operation. An archaeological watching brief will be maintained on all ground breaking works. The purpose of the watching brief would be to identify any archaeological remains that would be affected by the project, to assess their significance and to mitigate any effect upon them either through avoidance or, if preservation in situ is not warranted, through preservation by record.

## Traffic and transport

The construction works will require plant and machinery, along with vehicles to transport materials and workers to the site. Generally access to the substation will make best use of existing access routes. No improvements will be required to the local road network for general construction traffic. A new access track will be required which will branch off the existing access track to the hydro station.

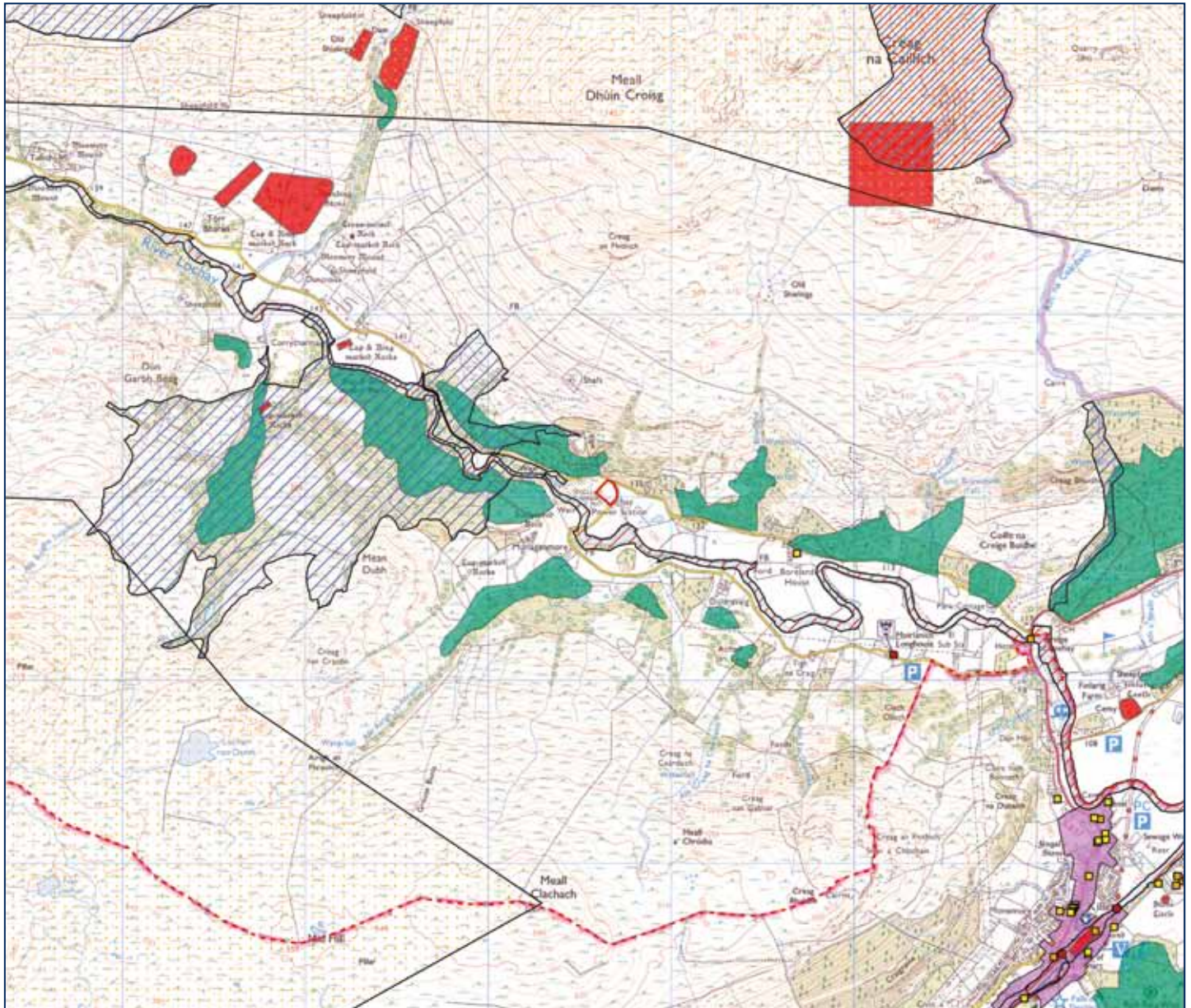
## Noise

The nearest noise sensitive receptors are Murlaganmore steading and a farm steading on the south banks of the river Lochay, approximately 350m southwest and 850m southeast of the hydro station respectively. Given the distance between the project and nearest noise sensitive receptors, the nature of the construction works and operational characteristics and the presence of the existing hydro station and substation, any change in noise level is considered likely to be negligible.

## Electromagnetic fields

Electromagnetic Fields (EMF) arise from electric charges and current flow. Exposure guidelines have been developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) to ensure protection of human health in different situations, occupational exposure and public exposure. These guidelines are adopted in the UK. Significant effects from EMF are not anticipated.

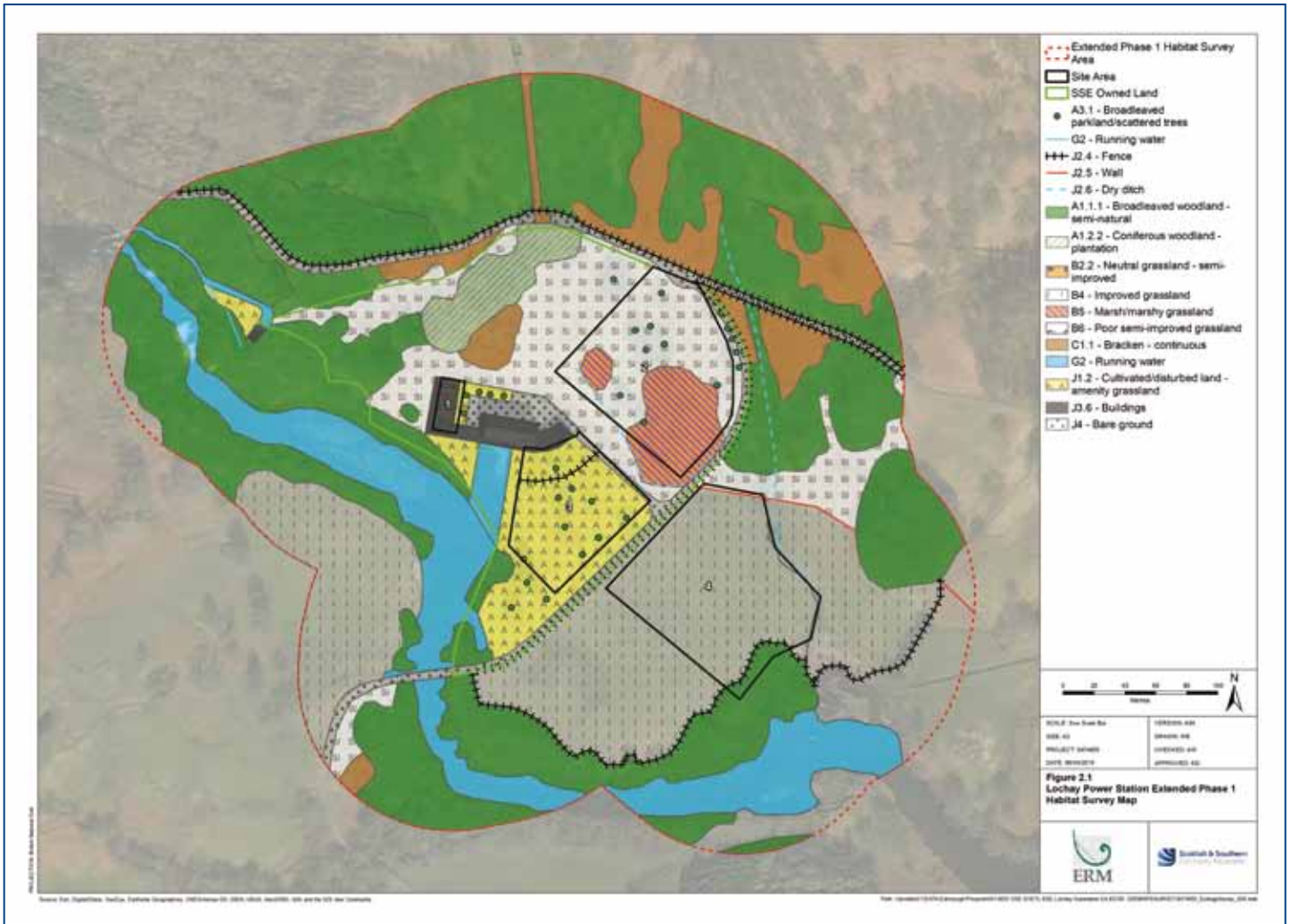
# SSEN Lochay Substation environmental and heritage constraints map



- |  |  |
|--|--|
|  Site Area                          |  Site of Special Scientific Interest (SSSI) |
|  Listed Building Category A         |  Widland Area                               |
|  Listed Building Category B         |  Scheduled Monument Area                    |
|  Listed Building Category C         |  Ancient Woodland Initiative                |
|  National Park Boundary             |  Conservation Area                          |
|  Special Area of Conservation (SAC) |  |



# Lochay Power Station extended phase 1 habitat survey map



Two crack features with bat roost potential on trunk of an *Acer platanoides* (Norway maple) within Site 3.



Area of marshy grassland within Site 2, characterised by *Juncus effusus* (soft rush) and *Juncus acutiflorus* (sharpflowered rush).

# What happens now and how do I have my say?

We understand and recognise the value of the feedback provided by members of the public during all engagements and consultations. Without this valuable feedback, the project development team would be unable to progress projects and reach a balanced proposal.

We are keen to receive your views and comments in regards to the following questions:

- Has the project information provided explained the need for the transformer replacement?
- Do you agree with the location for the new grid transformers?
- Do you have any comments on our chosen location for the new grid transformers?
- Do you feel SSEN have given enough consideration to potential impacts on the environment that this project may have?
- Are there any additional factors, issues or concerns which you wish to bring to the attention of the project team regarding our proposal?
- Following your review of the information displayed today, how would you rate your knowledge of the Lochay 132/11kV transformer replacement?
  - Very well informed
  - Know a lot
  - Know a little
  - Know very little
  - Know nothing at all.

## Comments

Your views and comments can be provided to the project team by completing a feedback form or by writing to Louise Anderson, Community Liaison Manager. We will be seeking feedback from the members of the public and Statutory Bodies until the 24th of May 2019.

All received feedback will be assessed and the proposed options adapted where necessary.

## Community Liaison Manager Louise Anderson



[louise.anderson@sse.com](mailto:louise.anderson@sse.com)



07384 454233



Louise Anderson  
Scottish and Southern  
Electricity Networks,  
200 Dunkeld Road,  
Perth, PH1 3AQ



## Additional information

Information will also be made available via the project webpage and social media channels:

### Project website:

[www.ssen-transmission.co.uk/projects/lochay-13211kv-transformer-replacement](http://www.ssen-transmission.co.uk/projects/lochay-13211kv-transformer-replacement)

### Follow us on Twitter:

@ssencommunity

### Follow us on Facebook:

@ssencommunity



## Your feedback

Thank you for taking the time to attend this consultation event. In order to record your views and improve the effectiveness of our consultation, please complete this short feedback form.

Please complete in **BLOCK CAPITALS**. (Please tick one box per question only)

**Q1 Has the project information provided explained the need for the transformer replacement?**

Yes  No  Unsure

**Q2 Do you agree with the location for the new grid transformers?**

Yes  No  Unsure

**Q3 Do you have any comments on our chosen location for the new grid transformers?**

**Q4 Do you feel SSEN have given enough consideration to potential impacts on the environment that this project may have?**

Yes  No  Unsure

**Q5 Are there any additional factors, issues or concerns which you wish to bring to the attention of the project team regarding our proposal?**

**Q6 Following your review of the information displayed today, how would you rate your knowledge of the Lochay 132/11kV transformer replacement?**

Very well informed  Know a lot  Know a little  
 Know very little  Know nothing at all



Please use space below to provide further comments:

Full name

Address

Postcode

Telephone

Email

If you would like to be kept informed of progress on the project please tick this box.

If you would like your comments to remain anonymous please tick this box.

Thank you for taking the time to complete this feedback form.

Please hand your completed form in at the event or alternatively by one of the methods below:

Post: Louise Anderson, Scottish and Southern Electricity Networks, 200 Dunkeld Road, Perth, PH1 3AQ Email: [louise.anderson@sse.com](mailto:louise.anderson@sse.com)

**Closing date for feedback is 24th May 2019**

The feedback form and all information provided at the event can also be downloaded from the dedicated website:

[www.ssen-transmission.co.uk/projects/lochay-13211kv-transformer-replacement](http://www.ssen-transmission.co.uk/projects/lochay-13211kv-transformer-replacement)

Any information given on the feedback form can be used and published anonymously as part of Scottish and Southern Electricity Networks consultation report. By completing this feedback form you consent to Scottish and Southern Electricity Networks using feedback for this purpose.

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