

Development considerations

Environmental considerations

Forestry

Areas of commercial forestry and ancient woodland are present within the wider area of the proposed cable route and associated access tracks. Careful routing of the proposed development has aimed to minimise the impact to forestry as much as possible. Any felling undertaken will be compensated by additional planting within the vicinity of the project.

Birds

There is the potential for disturbance to bird species during the construction period, particularly moorland and woodland species. Schedule 1 species including hen harrier, osprey and merlin have been recorded within the wider area, outwith the proposed development. Bird surveys have been undertaken to inform the environmental assessment.

Habitats

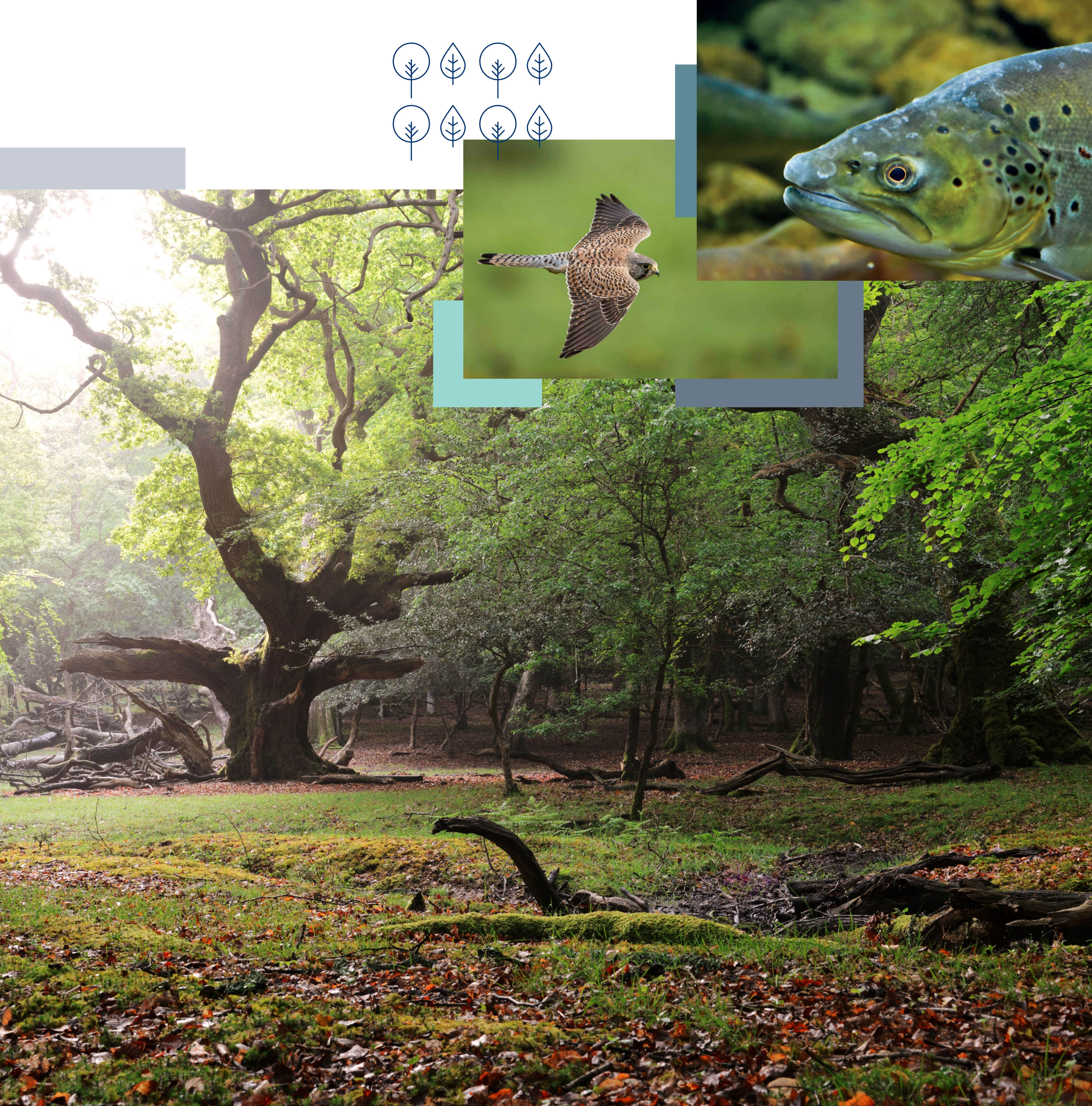
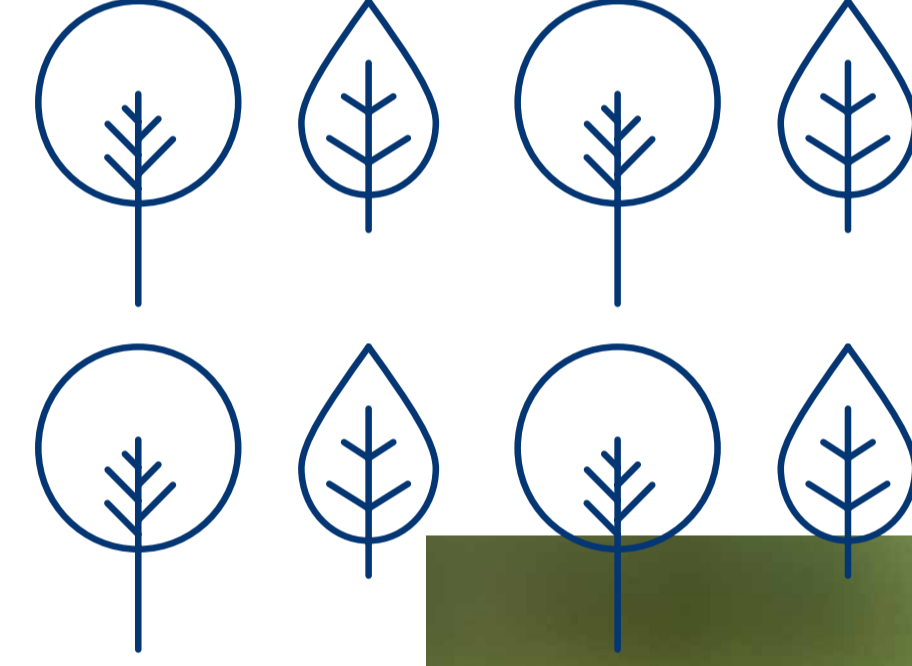
Woodland and freshwater habitats within the proposed development have the potential to support protected mammal species. The River Tay Special Area of Conservation (SAC) is designated for supporting otter and protected fish species including Atlantic salmon. Protected species surveys have been undertaken to inform the environmental assessment.

Cultural heritage

Multiple cultural heritage assets have been identified within proximity of the proposed development. Careful routing of the proposed cable route and associated access tracks has aimed to avoid impact to these cultural heritage assets where possible.

Watercourses

The proposed development crosses multiple watercourses and is in proximity to the River Tay. The proposed development is located within a drinking water protected area.



Engineering Considerations

Cable bending radii

The cables have limited bending ability so sharp angles either on the horizontal or vertical axis can cause problems when installing and if the design parameters are exceeded, which is a risk to the integrity of the cable.

Thermal properties of soils

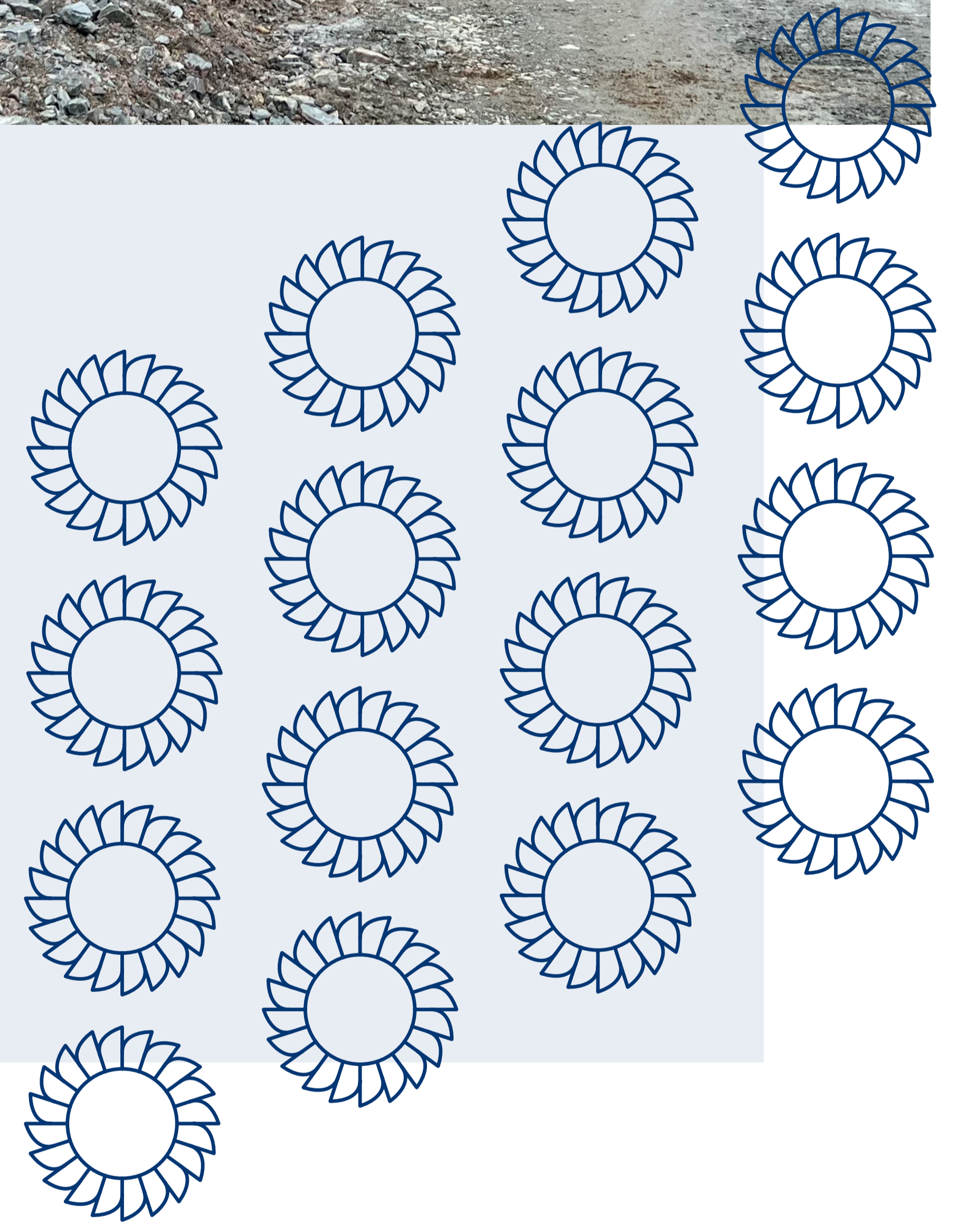
All electricity cables generate heat to some extent. If the soils around the cable do not allow the heat to dissipate then this can impact on the ability to run the cable at its intended capacity.

Ground conditions/terrain

It is typically favoured to put a cable through unmade ground as this is usually the best soil conditions with enough soil to bury in. If we encounter shallow rock for example, this requires further work to get the ducts and cables in the ground. Additionally underground cables should avoid gradients where possible due to the physical weight of the cable laid upon a gradient can put undue stress on the joints. Where steep gradients cannot be avoided, routing is then influenced by assessing alternatives, considering mitigation measures and then progressing with the most viable route/solution.

Drilling

We require Horizontal Directional Drilling (HDD) at the Allt Kynachan watercourse along the cable route, which includes a land requirement for associated drilling platforms. The ground conditions at these locations require consideration for the angle of the drill to cross the watercourse.



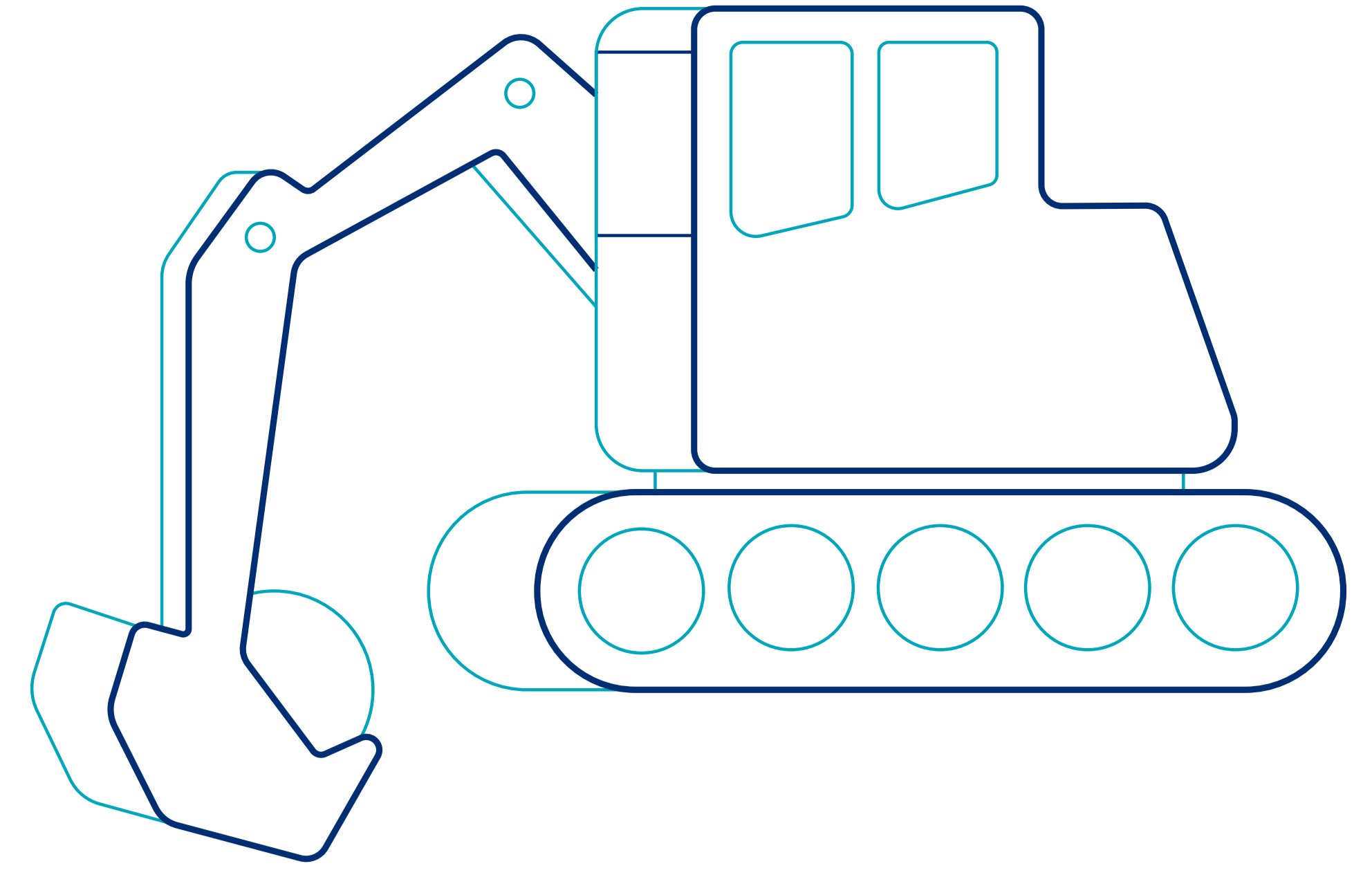
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Construction of the underground cable

The installation of the cables will employ open-cut trenching techniques within an approximately 48-metre wide corridor, with the trenches being 5 to 6 metres wide, contingent on depth and ground conditions. A delineated boundary fence will be established along the entire route to separate construction activities from livestock.

The underground cable route will encompass two circuits, each comprising two 3 x single-core 132kV XLPE cables housed in PVC ducts, installed at a depth of approximately 1200mm below ground level in a trefoil formation. The trenches will be backfilled with thermally stabilised material to enhance heat dissipation during cable operation under load. The total length of each route is approximately 4.4km, necessitating joint bays to be strategically located at regular intervals. Each joint bay will have installed an above-ground earth link pillar. If feasible and with landowner consent, protective barriers may be installed around the link pillar to prevent damage.

Fibre chambers will also be installed at intervals of every 450 to 500 meters along the route. HDD techniques will be utilised to install the cables beneath the deep ravine at the Allt Kynachan watercourse. A hard standing HDD launch and receive compound will be constructed either side of the drill location to house drilling plant and equipment.

Access

The project will require large vehicles to carry plant and the cable drums. Access into the cable working area may be restricted in places, so where possible we will utilise existing access tracks in the area, along with temporary access tracks long the cable route.

Permanent and temporary access tracks, approximately 6 metres wide, will be constructed adjacent to the cable trench where feasible, facilitating access along the route while minimising land disturbance and reducing traffic on public roadways. Topsoil and subsoils will be temporarily set aside for later reinstatement.

To ensure ongoing operation and maintenance access to each joint bay throughout the life cycle of the circuit, existing and new permanent access tracks will be utilised for maintenance purposes.

Construction compounds

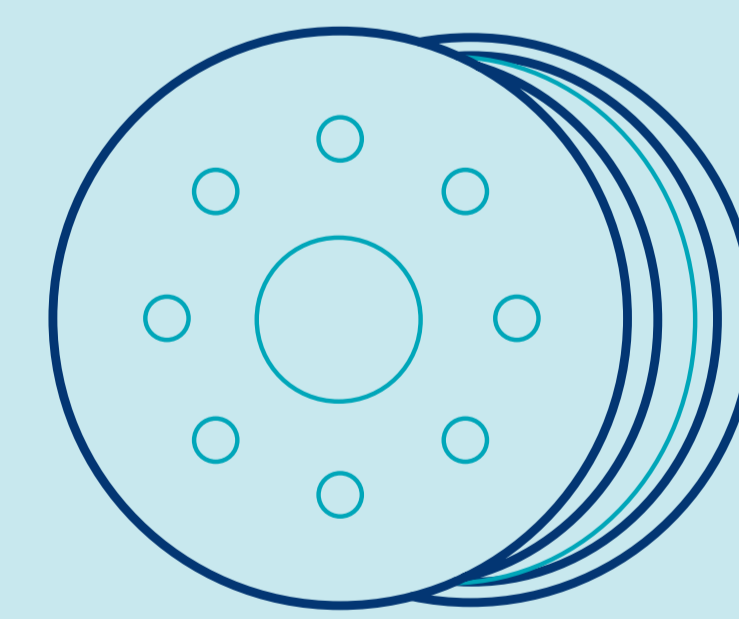
Our contractor has identified two potential construction compound locations: one utilising the existing Kinardochoy overhead line compound at Tombreck Estate and another site at Kynachan Estate.

Traffic management

The project traffic management plan is to be developed for the delivery of plant and materials to the site. Currently, it is anticipated that approximately 72 cable drum deliveries to Errochty substation will utilise the same route as the transformer delivery to Kinardochoy substation, specifically using the Strathtay Road between Strathtay and Weem junctions to circumvent Wades Bridge in Aberfeldy.

Input gathered from a recent local community meeting for another Transmission project suggested the use of Queens View Road for all construction deliveries to minimise construction traffic through Aberfeldy. At this stage, our contract partner has yet to assess and develop the transportation plan for the project for the specific routes to be used; however, a preliminary estimate indicates approximately 19,000 vehicle movements will occur throughout the project duration.

The project has committed to prohibiting the use of Foss Road for all construction-related traffic during the execution of the works.



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Images

Cross sectional view of proposed cable

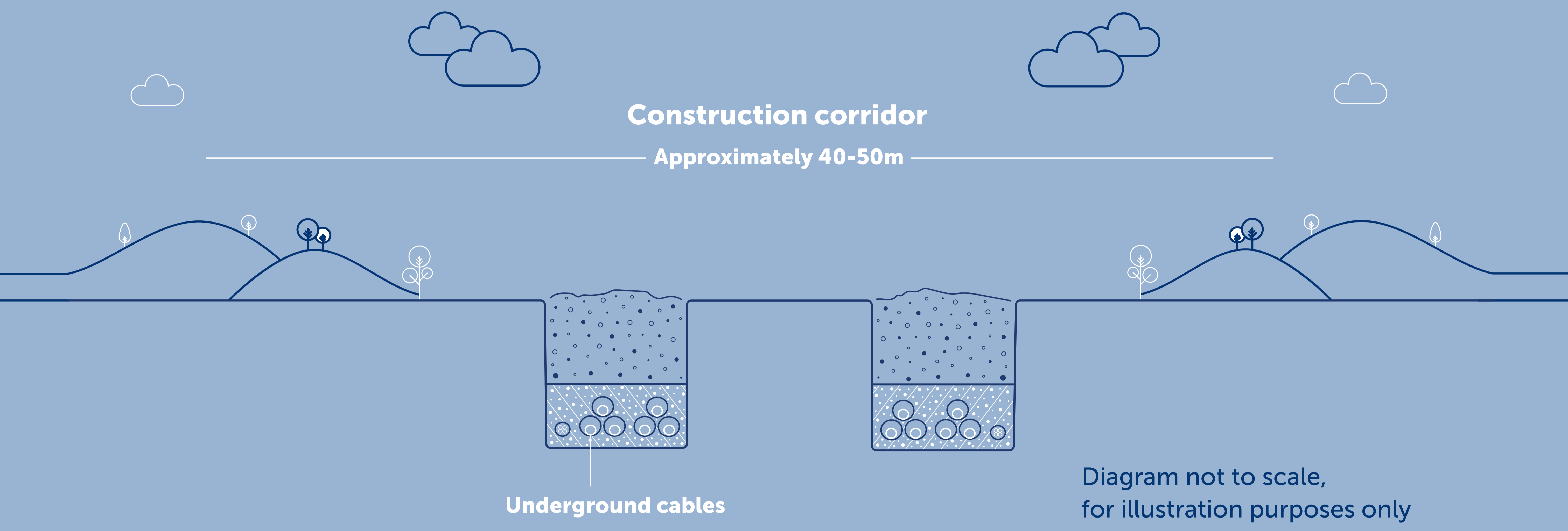


Illustration of typical 132kV 2000mm² cable

