Scottish & Southern Electricity Networks

TRANSMISSION

Scottish Hydro Electric Transmission plc

Beauly-Denny Overhead Line Diversion

Environmental Appraisal

Technical Appendices

Appendix A – General Environmental Management Plan (GEMP) - Watercourse Crossings

July 2025

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1 Introduction

1.1 The installation of structures for the purpose of crossing watercourses presents potential risks to the environment. These include:

- Obstruction to fish migration and spawning;
- Obstruction to mammal access;
- Impacts on aquatic flora and fauna;
- Loss or degrading of aquatic and riparian habitats;
- Alteration of the hydrological regime with associated impacts on habitats;
- Releases of substances to the water environment during construction and operation e.g. suspended solids, oils etc; and
- Impacts altering the natural geomorphological balance of the watercourse, leading to erosion and bank stability issues.

2 Legislation

2.1 All watercourse crossings will require some level of authorisation under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR). Levels of authorisation include General Binding Rules (GBR), Registrations and Licences.

2.2 It is essential that these legislative requirements are considered in the early stages of the planning and design process of a project.

3 General Compliance Requirements

3.1 General

3.1.1 Seek to avoid watercourse engineering works wherever possible.

3.1.2 Where this is not possible, seek to use existing crossings, upgrading as required (e.g. installation of a bridge at a fording point). Note that replacement of watercourse crossings (bridges & culverts) are subject to CAR and may require CAR Registration/ Licence to undertake.

3.1.3 Plan all works in accordance with best practice, referring to SEPA guidance document 'WAT-SG-25 Engineering in the water environment: Good Practice Guide, River crossings'.

3.1.4 Design crossing to account for maximum flow conditions, in line with SEPA best practice and guidance documents.

3.1.5 Culverts should be dug into bed of watercourse, allowing for natural strata in the watercourse to form the new bed of the culverted watercourse (Note: This may reduce the hydraulic capacity of the culvert and should be allowed for when specifying diameter of culvert).

3.1.6 Ensure crossing or associated works do not impede fish passage through the system.

3.1.7 Do not use multi-piped culverts.

3.1.8 If the watercourse is wider than 1.5 m (measured top of bank to top of bank) use a clear span bridge as opposed to a culvert.

3.1.9 Ensure all necessary authorisations under the Controlled Activities Regulations (CAR) are in place and conditions (including GBR) are adhered to.

3.1.10 Ensure all required pre-construction protected species surveys have been completed before starting works (these will include, where appropriate, fresh water pearl mussel (FWPM), otter, water vole and beaver).

3.1.11 Do not undertake works during fish are likely to be spawning nor in the period between spawning and the subsequent emergence of juvenile fish.

3.1.12 Consult with local Fishery Board/ Fishery Trust and NatureScot for advice on the presence of fish in the catchment. However, such advice does not override conditions of CAR. Any works within a watercourse during fish spawning season (or period between spawning and the subsequent emergence of juvenile fish) should be agreed in writing with SEPA (with SSEN Environmental Representative copied into correspondence). Consider upper reaches of watercourse, potential habitats down stream of crossing as well as immediate habitats impacted.

3.1.13 Pump intakes must be fitted with screens to prevent fish mortalities and ingress of debris.

3.1.14 Where possible, flume pipes should be used for temporary works in areas where migratory fish are present, as an alternative to pumps.

3.2 Construction

3.2.1 Where possible, works should be undertaken during drier periods (subject to other ecological timing conditions and constraints) and avoid periods of high rainfall. The weather forecast should be consulted 3 days in advance of works commencing the water crossing.

3.2.2 Vehicles should not work within the water unless no other reasonable options exist. If working within the watercourse, then plant must be thoroughly cleaned prior to use and vegetable based hydraulic oils specified in the plant.

3.2.3 During construction and use of the crossing, measures must be taken to prevent the transport of sediments or other materials into the watercourse, for example using correctly installed silt fencing.

3.2.4 Access across the watercourse crossing should be constructed of suitable material and in a manner that will not give rise to rutting, ponding or silt run-off (use of silt fencing along edges may be appropriate).

3.2.5 Vegetation removal should be minimised wherever possible. Any vegetation removed shall not be disposed of into any inland surface water.

3.2.6 Any length of bank with bare earth shall be re-established with an appropriate and agreed mix of riparian vegetation or with a fully biodegradable geotextile.

3.2.7 Where the channel, bed or banks immediately adjacent to the engineering works have been adversely impacted by the works, they must be restored to at least their previous condition as soon as reasonably practicable.

3.2.8 Any storage of material should be far enough away from the watercourse so as to prevent wash off entering the watercourse.

3.2.9 Any temporary dams used should be designed to accommodate periods of high flows.

3.2.10 Where pumps are used, back-up pumps should be available.

3.2.11 Any engine used to drive a pump must be located as far away from a watercourse as possible, in a location not susceptible to water inundation and placed on a plant nappy.

3.2.12 Any stranded fish or other wildlife should be immediately removed from de-watered sections of bed and translocated to suitable habitat.

3.2.13 All temporary crossings must be reinstated to a condition that existed prior to the works as soon as possible.

3.3 Fording of Watercourses

3.3.1 Fording of watercourses is generally not acceptable and should be avoided if possible. However, depending on the activity it may be appropriate for limited access.

3.3.2 If fording is required, access should be restricted to one crossing point, using an existing / previous crossing point if available.

3.3.3 Scottish Environment Protection Agency (SEPA) must be consulted in order to obtain the relevant agreement or authorisations (as required).

3.3.4 A method statement for the use of the ford should be agreed ahead of works, identifying the crossing point, surveys undertaken ahead of crossing, frequency of use, and any required mitigation measures (e.g. wheel washing prior to entry into the watercourse).

3.3.5 If the crossing point is not an established ford, measures to protect the bed and bank should be implemented as appropriate.

3.3.6 After use, the watercourse must be reinstated to a condition that existed prior to the works as soon as possible.

4 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New Document Created	N/A	1.00	Richard Baldwin
02	Document Reviewed and Updated	TG-NET-ENV-515 General Environmental Management Plan (GEMP) – Watercourse Crossings Rev 1.00	1.01	Richard Baldwin
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