

Appendix 10.1

Watercourse Crossing Assessment

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List of Abbreviations

Abbreviation	Description
CAR	Controlled Activities Regulations
EASR	Environmental Authorisation (Scotland) Regulations 2018
EIA	Environmental Impact Assessment
ER	Environment Regulations
EU	European Union
GBR	General Binding Rules
IN	Incursion
OS	Ordnance Survey
SEPA	Scottish Environment Protection Agency
WFD	Water Framework Directive
WEWS	Water Environment and Water Services
WX	Water Crossing

A10.1. Watercourse Crossing Assessment

Introduction

- A10.1.1. This technical appendix (**Appendix 10.1**) presents the Watercourse Crossing Assessment in support of **Volume 1, Chapter 10: Hydrology, Geology, Hydrogeology and Peat** of the Environmental Impact Assessment (EIA) Report for Deucheran Hill 2 Wind Farm (the Proposed Development).
- A10.1.2. The purpose of this report is to provide relevant information associated with watercourse crossings and watercourse incursions required as part of the Proposed Development and to assist in the contractors detailed design of the crossings prior to construction. It is noted that this assessment is limited to the Proposed Wind Farm Development Area, as presented on **Volume 2a, Figure 10.1: Hydrological Overview**.
- A10.1.3. It is proposed that all the watercourse crossings are designed to maintain existing hydrological characteristics of the watercourse as well as allowing the free passage of mammals and aquatic species. Consideration should also be given to the upgrading of existing watercourse crossings for environmental betterment. The final design of each crossing solution should be agreed with Scottish Environment Protection Agency (SEPA) prior to construction as appropriate and would be determined as part of the detailed Site design.

Legislation

- A10.1.4. The assessment will consider the requirements of the Water Framework Directive (2000/60/EC)¹ (WFD). The requirements of various EU Directives such as the WFD (2000/60/EC), the European Liability Directive (2004/35/EEC)² and the Groundwater Daughter Directive (2006/118/EEC)³ have been transposed into domestic legislation following the United Kingdom leaving the EU by the Environment (EU Exit) (Scotland) (Amendment etc.) Regulations 2019, the Environment Regulations 2019⁴ (ER). The WFD, as retained in domestic legislation by the ER, and supporting domestic legislation, establish a legal framework for the protection, improvement and sustainable use of surface waters, transitional waters, coastal waters and groundwater resources. In effect the key objectives of the WFD relevant to this assessment are:
- to prevent deterioration and enhance aquatic ecosystems; and
 - to establish a framework for the protection of surface freshwater and groundwater.
- A10.1.5. The WFD resulted in The Water Environment and Water Services (Scotland) Act 2003 (WEWS), which gave Scottish Ministers powers to introduce regulatory controls (Section 20 of WEWS) over water activities in order to protect, improve and promote sustainable use of Scotland's water environment. These regulatory controls, previously in the form of The Water Environment (Scotland) Controlled Activities Regulations 2011 (as

¹ European Parliament and Council (2000). Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (Water Framework Directive). Official Journal of the European Communities, L327/1, 22 December 2000.

² European Parliament and Council (2004). Directive 2004/35/EC of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage (Environmental Liability Directive). Official Journal of the European Union, L143, pp. 56–75, 30 April 2004.

³ European Parliament and Council (2006). Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration (Groundwater Daughter Directive). Official Journal of the European Union, L372, pp. 19–31, 27 December 2006.

⁴ UK Government (2019). The Environment (EU Exit) (Scotland) (Amendment etc.) Regulations 2019. UK Statutory Instruments 2019 No. 458 (S. 30). London: The Stationery Office.

amended) (CAR) have made it an offence to undertake certain activities (as listed in Schedule 2) without a CAR authorisation.

- A10.1.6. Water, waste management, and industrial activities are now regulated under the Environmental Authorisation (Scotland) Regulations 2018 (EASR)⁵. The Environmental Authorisations (Scotland) Amendment Regulations (SSI 2025/165) extend the scope of the EASR (SI 2018/219), creating an integrated authorisation regime in which SEPA now handle many water-environment activities (along with waste, industrial emissions, etc.) under the regulation amendments. EASR (amended) replaces the Water Environment CAR (SSI 2011/209) Schedules 1 to 4 of the contain broad regulatory provisions regarding permit conditions and registers and Schedule 9 focuses particularly on general binding rules. Under CAR, water-use licences were site- and operator-specific and applied to activities including major abstractions, large dams or wastewater treatment works. Now under EASR, these licences are replaced by permits, which may contain a combination of specific conditions, standard conditions and off-site conditions.
- A10.1.7. Since April 2006, the majority of watercourse crossing proposals pertaining to wind farm developments in Scotland have required to be submitted to SEPA for appraisal. With respect to watercourse crossings required for the Proposed Development, the EASR provide a proportionate, risk-based regulatory framework for engineering works in inland waters and wetlands, which are subject to environmental authorisation by SEPA. The authorisation process operates at three levels, reflecting the potential risk to the water environment:
- EASR General Binding Rules (GBR);
 - EASR Registration (previously CAR Registration); and
 - EASR Permit (previously CAR Licence).
- A10.1.8. Advice and best practice guidance of relevance is available within the engineering section of water activities on SEPA's website⁶.
- A10.1.9. Where appropriate, the likely authorisation level required for the surveyed crossings is described within this report.

Disclaimer

- A10.1.10. This report should be considered a live document and, as such, updates should be made should new relevant information become available. Although Natural Power has endeavoured to identify the watercourse crossings required as part of the construction associated with the Proposed Development, should the construction process identify additional crossings, then these should be surveyed immediately, and due consideration should be given to the legislation above to ensure compliance.
- A10.1.11. The information presented in this document is only intended to act as a guide. The actual design, construction and/or improvements to the crossings during construction will be the responsibility of the appointed Principal Contractor.
- A10.1.12. This assessment is based on the current legal framework as of February 2026, including retained EU law under the EASR (EU Exit) (Amendment etc.) Regulations 2019 and the most recent EASR (SSI 2025/165). However, legislation continues to evolve, therefore all legal references should be verified against the latest consolidated statutes.

⁵ SEPA (2025) *Moving to the new Regulations*. Available at: <https://beta.sepa.scot/regulation/authorisations-and-compliance/easr-authorisations/moving-to-the-new-regulations/> [Accessed 21 January 2026].

⁶ SEPA (2025), Engineering guidance. Available at: <https://beta.sepa.scot/regulation/authorisations-and-compliance/easr-authorisations/water-activities/engineering/> [Accessed 22 January 2026].

Methodology

A10.1.13. This section describes the methodology undertaken to carry out the watercourse crossing survey.

Desk Study

A10.1.14. The desk study consisted of an examination of the infrastructure layout and the identification of watercourses which will require crossings within the Proposed Wind Farm Development Area, including those marked on the 1:25,000 and 1:50,000 scale OS maps (refer to **Volume 2a, Figure 10.1**).

A10.1.15. A 50 m buffer was applied to watercourses and waterbodies shown on a 1:25,000 scale OS map to identify incursions into the defined buffers. Incursions are where infrastructure or associated earthworks associated with the Proposed Development (within the Proposed Wind Farm Development Area) overlaps the 50 m buffer of the watercourses/waterbodies. This provides an indication of watercourse and wetland areas that may be impacted by the Proposed Development in order to assess any potential risk and ensure compliance.

Site Visit

A10.1.16. Following the desk study, a field survey of the crossings and incursions identified was undertaken to obtain information specific to each watercourse crossing and incursion (as provided in **Annex A**). Photographs and field notes were taken, reporting the dimensions of the watercourse channel and flood channel (where apparent), the type of substrate and the existing crossing type, if applicable.

A10.1.17. With respect to survey details provided in **Annex A**, bankfull dimensions refer to the expected flow that just fills the channel before spilling outwards into the surrounding area. These are identified using geomorphological indicators including features such as a break in channel slope, a small bank along the channel edge as well as changes in vegetation or evidence of erosion. Flooded bankfull dimensions relate to flows that extend beyond the main channel. These are measured in a similar way to bankfull recordings, including evidence such as silt deposits along floodplain surfaces, trash lines, or flattened vegetation. It is important to note that these measurements are given as an approximate as they are dependent on field observations at the time of survey, supported by the surveyor's professional judgement and may be confirmed and refined as part of the detailed design stage. Such measurements are also subject to natural variability within the channel and individual surveyor interpretation.

A10.1.18. **Figure A10.1.1** below provides a cross-section of a channel for representation, as taken from Environment Agency field survey guidance⁷, with the original version of this document produced in partnership with SEPA, the Environment and Heritage Service and the Environment Agency in Wales (now part of Natural Resources Wales).

Source: Environment Agency, River Habitat Survey in Britain and Ireland – Field Survey Guidance Manual: 2022 Reprint

⁷ Environment Agency (2022) *River Habitat Survey in Britain and Ireland: Field Survey Guidance Manual (2003 version – 2022 reprint)*. Bristol: Environment Agency. Available at: https://assets.publishing.service.gov.uk/media/62dff4138fa8f564a21dcd5e/RHS-manual-2003_2022-reprint-LIT-1758.pdf [Accessed 10 April 2026].

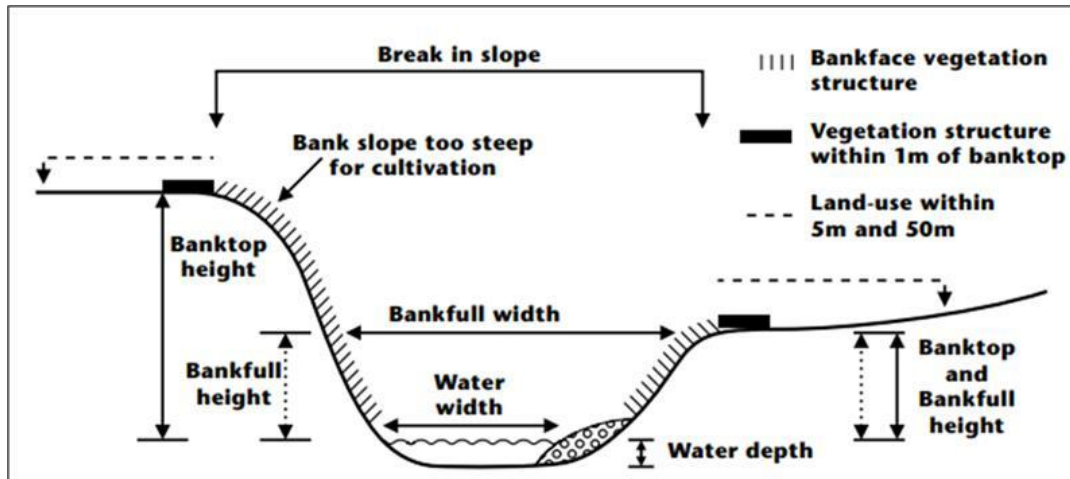


Figure A10.1.1: Cross-section of watercourse channel showing select definitions

- A10.1.19. Consideration has also been made to the key parts and terms of a watercourse described in applicable SEPA EASR guidance, including WAT-G-022⁸, WAT-G-023⁹, WAT-G-024¹⁰, and WAT-G-027¹¹.
- A10.1.20. The watercourse survey was undertaken on the 11 and 12 November 2025. During the survey, the weather conditions were reported as heavy rain on the 11 November and dry conditions on the 12 November.

Watercourse Crossing Selection Criteria

- A10.1.21. Information gathered during the site visit has further informed the selection of appropriate crossing types. The Proposed Development involves the installation of new access tracks and the widening of existing tracks. Further details are available within **Volume 1, Chapter 4: Project Description**.
- A10.1.22. Historically, the typical approach to cross minor watercourses within forested areas was to place one or more circular culverts in the stream bed and build the track on an embankment above the culvert. However, although this approach has been employed for many years and wind farm developments are often located in similar terrain to forestry, the acceptable design for watercourse crossings has changed. Equal importance is now given to ecological status rather than purely river volume and the conveyance of flows when choosing and designing watercourse crossings. The design process for each watercourse crossing is iterative, such that the final design meets the fundamental design standard, which is that the Proposed Development remains free from flooding during the design flood event whilst maintaining adequate freeboard (typically 600 mm) and ensuring flood risk is not compromised elsewhere.
- A10.1.23. For engineering and design considerations, SEPA EASR guidance documents WAT-G-022⁸, WAT-G-023⁹, WAT-G-024¹⁰, and WAT-G-027¹¹ are of particular reference. Guidance on the design of water crossings can also be found in the Construction of River Crossings Good Practice Guide¹². In addition, reference should still

⁸ SEPA (2025) WAT-G-022, *EASR Guidance: Engineering: Activity Guide: Bank Works, Version 1.0*.

⁹ SEPA (2025) WAT-G-023, *EASR Guidance: Engineering: Activity Guide: Channel Modification, Version 1.0*.

¹⁰ SEPA (2025) WAT-G-024, *EASR Guidance: Engineering: Activity Guide: Crossings, Version 1.0*.

¹¹ SEPA (2025) WAT-G-027, *EASR Guidance: Maintenance, replacement and removal of existing engineered structures, Version 1.0*.

¹² SEPA and Scottish Government (2025), *EASR Guidance: Engineering: Meeting Good Practice*. Available at: [wat-g-030_engineering_meeting_good_practice.docx](#) [Accessed 22 January 2026].

also be made to the UK Forestry Standard Guidelines¹³, the CIRIA Culvert, Screen and Outfall manual (C786)¹⁴, which focuses mainly on engineering features, the SEPA 2010 guidance document on the construction of watercourse crossings, and NatureScot's guidance on good practice during wind farm construction¹⁵.

A10.1.24. Improvements to existing watercourse crossings/culverts should be made when replacement or significant maintenance works are proposed. It is considered appropriate that existing watercourse crossings/culverts remain in-situ where they are deemed structurally suitable to support access track development and widening and where they do not represent a significant ecological barrier. Upgrading culverts or watercourse crossings at locations that already meet relevant requirements is considered unnecessary, considering both the existing condition of the watercourses and the potential pollution and sedimentation risks associated with significant construction works.

A10.1.25. Reference should also be made to SEPA's Standing Advice on Flood Risk¹⁶ which recommends that watercourse crossings should be designed to accommodate the 0.5% Annual Exceedance Probability (AEP) flows, or information provided to justify smaller structures.

Watercourse Crossing and Incursion Assessment Results

A10.1.26. Eighteen potential watercourse crossings (referred to as WX1-18 in **Table A10.1.1**) and eleven potential watercourse buffer incursions (referred to as IN1-11 in **Table A.10.1.2**) were identified during the desk study focusing on the Proposed Wind Farm Development Area. During the field survey carried out on the 11 November one further potential watercourse crossing was identified (referred to as WX19 in **Table A10.1.1**).

A10.1.27. Field notes and details relating to individual watercourse crossing and incursion locations (including individual location plans) can be found in **Annex A** of this document. Watercourse crossings presented in this technical appendix are also plotted on **Volume 2a, Figure 10.1**.

A10.1.28. **Table A10.1.1** and **Table A.10.1.2** provide a summary of the watercourse crossings and incursions, respectively, that were assessed during the field survey. Recommendations for each watercourse crossing are also provided, supported by the findings presented in **Annex A** and with consideration of the relevant guidance.

A10.1.29. Crossing types and EASR authorisation levels presented in **Table A10.1.1** are indicative and subject to confirmation at detailed design. Furthermore, should detailed design identify the need for additional works such as significant channel or bank reprofiling, realignment, or other significant geomorphological modification, the required level of authorisation under EASR will be confirmed and applied for at the appropriate stage.

¹³ Forestry Commission (2023), *The UK Forestry Standard. The governments' approach to sustainable forest management* (Fifth edition). Available at:

https://assets.publishing.service.gov.uk/media/651670336a423b0014f4c5c0/Revised_UK_Forestry_Standard_-_effective_October_2024.pdf [Accessed 20/06/2026]

¹⁴ CIRIA (2019) *Culvert, Screen and Outfall Manual* (C786)

¹⁵ NatureScot (2024). *Good practice during wind farm construction* [Online]. Available at:

<https://www.nature.scot/doc/good-practice-during-wind-farm-construction> [Accessed 19/02/2026].

¹⁶ SEPA (2024), Flood Risk Standing Advice for Planning Authorities. Available at:

<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.sepa.org.uk%2Fmedia%2Fncnhyrcrj%2Fflood-risk-standing-advice.docx&wdOrigin=BROWSELINK> [Accessed 22 January 2026].

Table A10.1.1: Summary of Watercourse Crossings

ID	Easting	Northing	Existing Crossing?	Potential Crossing Type and Considerations	Potential EASR Authorisation Level
WX1	174798	643616	Yes; existing circular culvert	Maintain if possible. If track/embankment require significant works, consider replacement with an oversized embedded culvert or bottomless arch culvert.	Registration
WX2	174823	643378	Yes; existing circular culvert	Culvert in poor condition. If track/embankment require significant works, consider replacement with an oversized embedded culvert or bottomless arch culvert.	Registration
WX3	174975	644372	Yes; existing circular culvert	Maintain if possible. If track/embankment require significant works, consider replacement with an oversized embedded culvert or bottomless arch culvert.	Registration
WX4	175321	644641	No	An engineered crossing could not be located; track has potentially directly crossed the mapped watercourse. Consider shallow drainage / small relief culvert if required (subject to detailed design).	GBR / Registration
WX5	175498	643679	No	An oversized embedded culvert or bottomless arch culvert.	Registration
WX6	175580	644851	Yes; existing circular culvert	Maintain if possible. If track/embankment require significant works, consider replacement with an oversized embedded culvert or bottomless arch culvert.	Registration
WX7	175813	643903	No	Crossing solution to be confirmed at detailed design, with measures to maintain diffuse conveyance where present.	GBR / Registration
WX8	176048	645197	Unable to access WXing location*.	Potential options include a clear-span bridge, bottomless arch culvert, or other appropriate engineered crossing solution, to be confirmed at detailed design following further site investigation. If reprofiling of the channel/gorge is more than a registration level activity, works may constitute a permit authorisation.	Registration
WX9	176255	645375	No	Potential options include a clear-span bridge, bottomless arch culvert, or other appropriate engineered crossing solution, to be confirmed at detailed design following further site investigation.	Registration

ID	Easting	Northing	Existing Crossing?	Potential Crossing Type and Considerations	Potential EASR Authorisation Level
WX10	176259	643629	Yes; existing circular culvert	Maintain if possible. If track/embankment require significant works, consider replacement with an oversized embedded culvert or bottomless arch culvert.	Registration
WX11	176260	645278	No	Potential options include bottomless arch culvert or clear-span bridge.	Registration
WX12	176309	643372	Yes; existing circular culvert	If track/embankment require significant works, consider replacement with an oversized embedded culvert, a bottomless arch culvert or a clear-span bridge.	Registration
WX13	176318	645304	No	Potential options include a clear-span bridge, bottomless arch culvert, or other appropriate engineered crossing solution, to be confirmed at detailed design following further site investigation.	Registration
WX14	176430	645566	No	An oversized embedded culvert or bottomless arch culvert.	Registration
WX15	176481	645377	No	An oversized embedded culvert or bottomless arch culvert.	Registration
WX16	176956	644612	No	An oversized embedded culvert or bottomless arch culvert.	Registration
WX17	177004	643755	No	An oversized embedded culvert or bottomless arch culvert.	Registration
WX18	177053	645435	No	An oversized embedded culvert or bottomless arch culvert.	Registration
WX19	175247	644591	Yes; existing circular culvert	Maintain if possible. If track/embankment require significant works, consider replacement with an oversized embedded culvert or bottomless arch culvert.	Registration

Source: Natural Power

*It is noted that during the site visit the watercourse corresponding to WX8 was not accessed due to safety concerns relating to a steep gorge.

Table A.10.1.2: Summary of Watercourse Incursions

ID	Easting	Northing	Incursion Location and Distance* to Proposed Infrastructure	Incursion Location and Distance* to Proposed Earthworks	Summarised Notes
IN1^	174812	643136	60 m west of proposed new track.	45 m west of proposed earthworks.	Very marshy/boggy area with substantial surface run-off from the loch upstream filtering diffusely into the channel.

ID	Easting	Northing	Incursion Location and Distance* to Proposed Infrastructure	Incursion Location and Distance* to Proposed Earthworks	Summarised Notes
IN2	174853	643461	20 m east of proposed HGV track upgrades.	5 m east of proposed earthworks.	Fast flowing incised channel within U-shaped valley between commercial forestry.
IN3^	174895	643528	65 m east of proposed HGV track upgrades, and 70 west of proposed HGV track upgrades.	50 m east of proposed earthworks and 35 m west of proposed earthworks.	Watercourse has no firm definition; water is flowing out onto valley floor and wetland area.
IN4	175038	644415	40 m south-south-east of proposed upgraded track.	30 m south-south-east of proposed earthworks.	Very fast flowing and incised channel(s). Plunge pool from water hydraulic drop upstream.
IN5^	175256	644735	60 m east of proposed new track	50 m east of proposed track earthworks.	Moderately fast flowing artificial drainage channel within forest plantation.
IN6	176232	645219	30 m southeast of proposed new track at/near the junction.	20 m southeast of proposed earthworks.	Incised stream within a gorge with multiple smaller watercourses flowing into it and unstable banks.
IN7	176335	643330	5 m west of proposed HGV track upgrades.	3 m west of proposed earthworks.	Fast flowing incised channel within open valley area.
IN8^	176360	645435	55 m south-east of proposed new track.	45 m east of proposed earthworks.	Very slow flowing and marshy/waterlogged area within forestry plantation.
IN9	176371	643222	10 m west of proposed new track.	Proposed earthworks adjacent to watercourse.	Incised channel and fast flowing as the channel meanders into a bend.
IN10	176431	645522	35 m south-west of proposed new track and 40 m west of proposed track upgrades.	35 m south-west of proposed earthworks.	Fast flowing and meandering channel with no obvious valley sides.
IN11^	177099	644368	55 m east of proposed turbine hardstanding.	45 m southeast of proposed earthworks.	Moderately fast flowing artificial drainage channel within forest plantation.

Source: Natural Power. 2026

* Measurements given as an approximate

^ Proposed infrastructure lies outwith the 50 m watercourse buffer, but potential earthworks are within the 50 m buffer.

Discussion

A10.1.30. Key points from the survey include:

- Seven crossings identified during the desk study have existing circular culverts in place (WX1, WX2, WX3, WX6, WX10, WX12, and WX19), which may require upgrades as the condition or capacity may be inadequate for the Proposed Development or could be considered for replacement during upgrade works. Should redevelopment of access track/embankments necessitate culvert replacement, any upgrade will be undertaken in line with current best practice guidance.
- Oversized embedded culverts are considered as an option for multiple crossing locations, subject to detailed design and relevant authorisations, due to their ability to accommodate the size of the channel and the flows observed by the surveyor. When appropriately designed, these structures can retain existing substrate, vegetation, and aquatic habitats. Bottomless arch culverts or clean-span bridges may also be considered where site-specific constraints or environmental considerations require full preservation of the natural channel bed.
- One additional potential watercourse crossing not identified during the desk study was evident during the site survey (and given the ID WX19).
- The surveyor was unable to gain access to WX8 due to safety concerns but potential options include a clear-span bridge, bottomless arch culvert, or other appropriate engineered crossing solution, to be confirmed at detailed design following further site investigation.
- The existing crossing labelled as WX4 could not be identified by the surveyor, and it appears that the existing track has traversed the OS mapped watercourse. Shallow drainage / small relief culvert during any upgrade works could be considered here if required (subject to detailed design).
- The predominant EASR Authorisation Level for watercourse crossings within the Proposed Wind Farm Development Area is likely to be of Registration status. Due to the small size of the majority of watercourses identified and their confined channel forms, it is likely that crossings can be constructed without altering bed levels or bank profiles. With a registration designation, the potential for environmental impact when constructing crossings can be effectively managed through standard conditions.
- Surveys of the eleven watercourse incursions established water features including fast flowing and incised channels, wetland areas, meandering channels and artificial drainage channels. It is recommended that buffer distances are maintained, appropriate layouts are used, and suitable drainage or crossing solutions are incorporated in the Proposed Development to ensure that the natural flow paths of watercourses are retained.

A10.1.31. It is noted that flow conditions observed during the site visit were noted to be typically high, reflecting the wet weather and heavy rainfall noted by surveyors. As such, the information collected represents higher-intensity flow conditions.

Rationale and Design

A10.1.32. The design of the Proposed Development has been optimised as far as is practicable to reduce the total area of land-take and minimise the number of watercourse crossings whilst accommodating other environmental or engineering related constraints.

A10.1.33. At each of the existing watercourse crossing locations, consideration has been given to the nature and size of the crossing, fluvial scour and environmental requirements. In designing the watercourse crossings,

industry good practice will be applied, ensuring that various environmental conditions will be considered during the works, and which are summarised below:

- All watercourses, over which the access tracks cross, will be routed through culverts or under bridges appropriately sized and designed not to impede the flow of water. Watercourse crossings will be designed to convey a minimum of 1 in 200 year plus climate change return period flood events, and individually sized and designed to suit the specific requirements and constraints of its location;
- Safe passage for fish/wildlife will be considered in the design through increased capacity and appropriate installation of the crossing, or provision of a separate mammal crossing;
- Culvert design will be engineered to ensure where possible that the invert can be sunk into the bed of the watercourse allowing riverine substrate to stabilise on the floor of the culvert;
- Design features such as splash boards and run-off diversion measures to prevent any direct siltation of watercourses will be considered as part of the design process;
- If track widening results in the requirement to upgrade/replace certain existing watercourse crossings, which are often existing circular culverts, preference in the design process will be given to embedded and oversized culverts that are appropriately sized and designed not to impede the flow of water unless detailed design indicates other approaches are more appropriate.
- It is also recommended that existing culverts be subject to maintenance works to reduce overgrowth and/or potential sources of blockage which could potentially restrict flow through them in the future.

A10.1.34. The potential crossing types and associated EASR authorisation levels presented are indicative and based on walkover survey and desk-based assessment. It is recognised that engineering/technical constraints identified during the detailed design phase may result in the requirement to install other types of watercourse crossings (including closed culverts). Final crossing design and the required level of authorisation will be confirmed at detailed design stage.

A10.1.35. Erosion protection will be implemented at the outfall of all culvert watercourse crossings that require redevelopment/upgrading. Where required, the type of erosion protection would depend on a number of factors including:

- Flow;
- Velocity;
- Channel bed material;
- Vegetation;
- The effects/consequences of erosion; and
- Types of erosion protection including:
 - Geotextile bank reinforcement;
 - Vegetation solution;
 - Dumped stone;
 - Laid stone (Rip-rap or equivalent); and
 - Concrete block systems.

A10.1.36. The appointed construction contractor will adhere to the following principles for culvert design and construction, where appropriate:

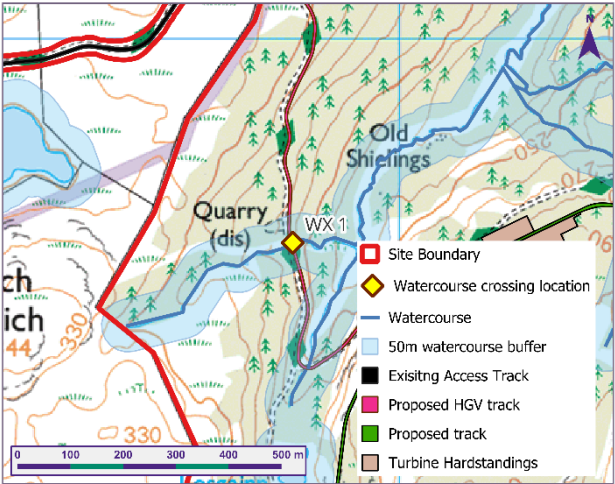
- Natural low flow depths maintained at the culvert base;

- The culvert base should be buried below the natural bed level to allow for a naturalised culvert bed to be maintained during scour associated with high flow events;
- The culvert should be at least the same width as the natural active channel width, with consideration to low flows and channel migration;
- Culvert alignment should match alignment of the watercourse i.e. in a parallel direction to flow;
- The slope of the culvert base should be similar to that of the bed of the watercourse;
- The culvert should not present a barrier by creating a step or hydraulic drop at the culvert inlet or outlet;
- The culvert must be designed not to exacerbate or create flooding;
- A natural stone headwall should be provided upstream and downstream to protect the road embankment, where necessary;
- Culverts should not be constructed under high flow conditions; and
- If crossings are posing a barrier to fish or mammal passage, then consideration should be made to replace the crossing with a structure that allows passage, or modifying the crossing to allow passage, with oversight from a suitably qualified ecologist.

Annex A: Summary of Watercourse Crossing and Incursion Details

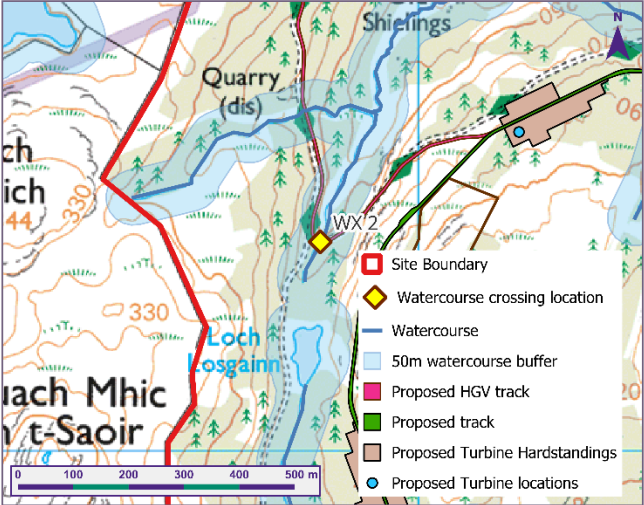
The tables below provide a summary of the surveys carried out on each watercourse crossing or incursion during the site visits on the 11 and 12 of November 2025, as well as photographs and hydro-morphological information associated with each crossing or incursion.

Watercourse Crossings

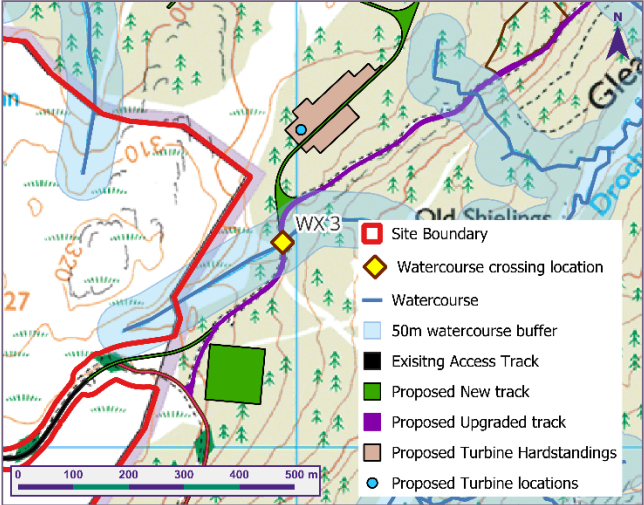
WX1 (174798, 643616)		
Crossing Location	Crossing Description	
	Existing Crossing: Yes Crossing Type (existing): Circular Culvert Crossing Material (existing): Plastic Crossing Condition (existing): Good Channel Type: Incised Gradient: Steep Valley form: Deep Vee Bank condition: Undercut (no evidence of recent collapse) Bed material: Boulders, Coarse gravel, Vegetation, Rounded pebbles Riparian corridor: Commercial forestry Flow condition: Fast Culvert Dimensions (m): - Height (m): 0.70 - Outside Width (m): 0.70 Water width (m): 0.57 Water depth (m): 0.28 Bankfull width (m): 0.57 Bankfull height (m): 0.28 Banktop height (m): 0.75 Flooded Bankfull width (m): 0.85 Flooded Bankfull height: 0.35 Note: The existing crossing is in good condition. Measurement of the culvert dimensions was constrained by dense vegetation and high flow velocity at the time of survey.	

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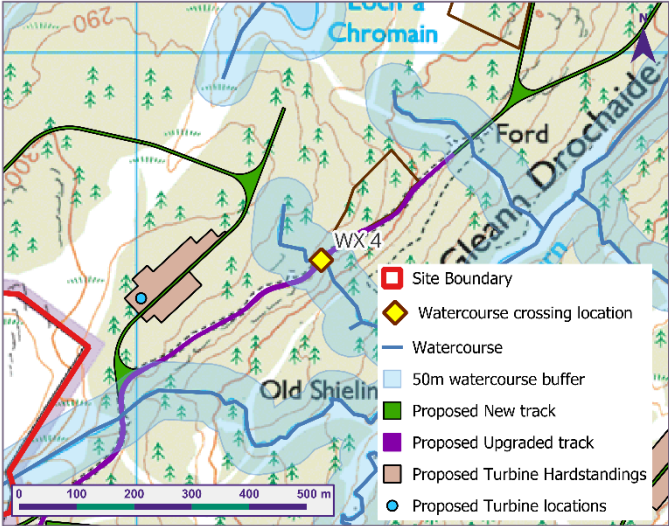
Crossing Photographs			
Upstream	Across	Downstream	Existing Culvert
			

WX2 (174823, 643378)		
Crossing Location	Crossing Description	
	Existing Crossing: Yes Crossing Type (existing): Circular Culvert Crossing Material (existing): Corrugated sheet metal Crossing Condition (existing): Poor Channel Type: Incised Gradient: Moderate Valley form: U-shaped valley Bank condition: Undercut (no evidence of recent collapse) Bed material: Rounded pebbles, Fine sand/silt, Vegetation Riparian corridor: Commercial forestry Flow condition: Moderate Culvert Dimensions (m): - Height (m): 0.60 - Outside Width (m): 0.60 Water width (m): 0.60 Water depth (m): 0.10 Bankfull width (m): 0.60 Bankfull height (m): 0.10 Banktop height (m): 0.25 Flooded Bankfull width (m): 0.80 Flooded Bankfull height: 0.25 Note: None	

Crossing Photographs			
Upstream	Across	Downstream	Existing Culvert
			

WX3 (174975, 644372)		
Crossing Location	Crossing Description	
	Existing Crossing: Yes Crossing Type (existing): Circular Culvert Crossing Material (existing): Corrugated sheet metal Crossing Condition (existing): Good Channel Type: Incised Gradient: Steep Valley form: Deep Vee Bank condition: Stable Bed material: Coarse gravel, Boulders, Rounded pebbles Riparian corridor: Commercial forestry Flow condition: Very Fast Culvert Dimensions (m): - Height (m): 1.30 - Outside Width (m): 1.30 Water width (m): 0.50 Water depth (m): 0.40 Bankfull width (m): 0.50 Bankfull height (m): 0.45 Banktop height (m): 0.60 Flooded Bankfull width (m): 1.20 Flooded Bankfull height: 0.60 Note: None	

Crossing Photographs		
Upstream	Across	Downstream
		

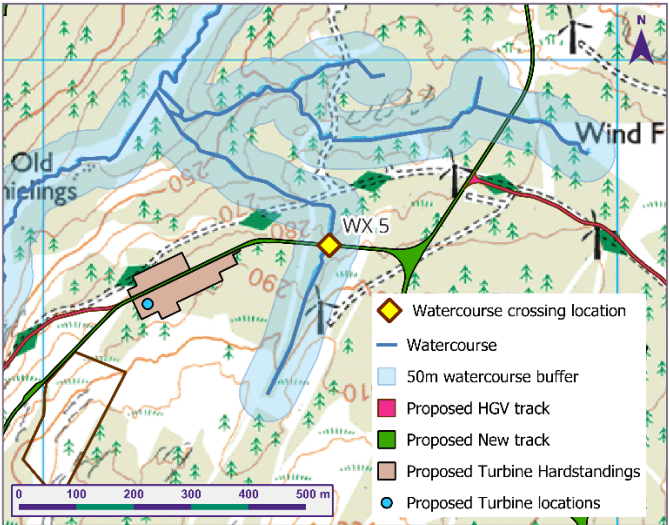
WX4 (175321, 644641)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Existing Crossing: No	
	Channel Type: Surface run-off/wetlands only	Water width (m): 0.25
	Gradient: Steep	Water depth (m): 0.10
	Valley form: No obvious valley sides	Bankfull width (m): 0.40
	Bank condition: Stable	Bankfull height (m): 0.10
	Bed material: Vegetation, Soil, Peat	Banktop height (m): 0.30
	Riparian corridor: Commercial forestry	Flooded Bankfull width (m): 1.00
	Flow condition: Moderate	Flooded Bankfull height: 0.20
	Note: No engineered crossing located at the location where track crosses mapped watercourse	

Crossing Photographs		
Upstream	Across	Downstream
		

Crossing Location

WX5 (175498, 643679)

Crossing Description



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Existing Crossing: No

Channel Type: Artificially modified watercourse

Gradient: Moderate

Valley form: Shallow vee

Bank condition: Undercut (no evidence of recent collapse)

Bed material: Rounded pebbles, Coarse gravel, Vegetation, Soil, Peat

Riparian corridor: Commercial forestry

Flow condition: Fast

Water width (m): 0.43

Water depth (m): 0.30

Bankfull width (m): 0.43

Bankfull height (m): 0.30

Banktop height (m): 0.75

Flooded Bankfull width (m): 0.60

Flooded Bankfull height: 0.40

Note: A small waterfall is located immediately upstream of the crossing point.

Crossing Photographs

Upstream

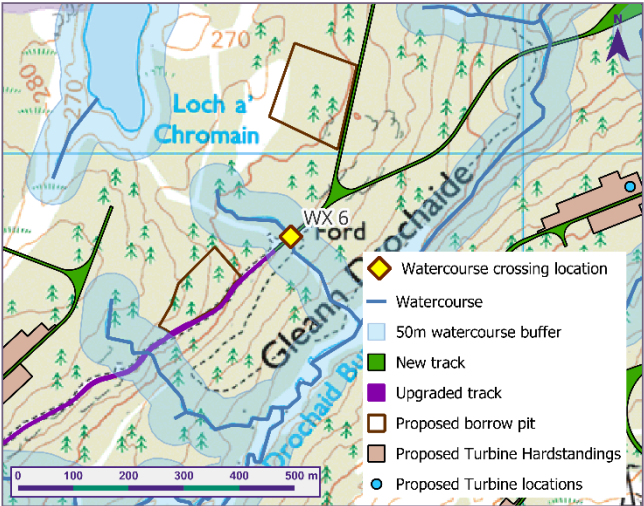


Across

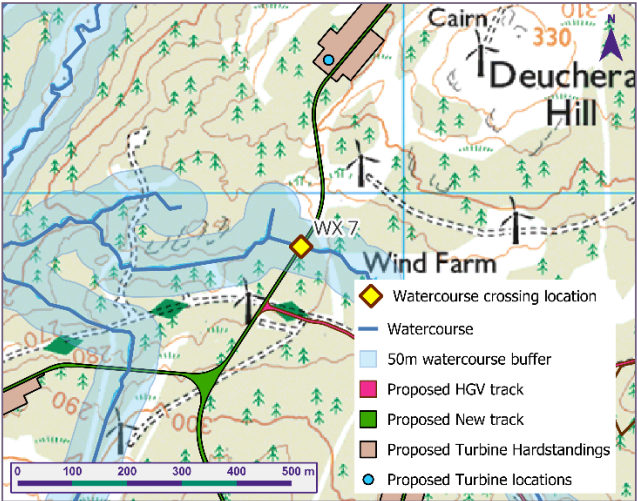


Downstream



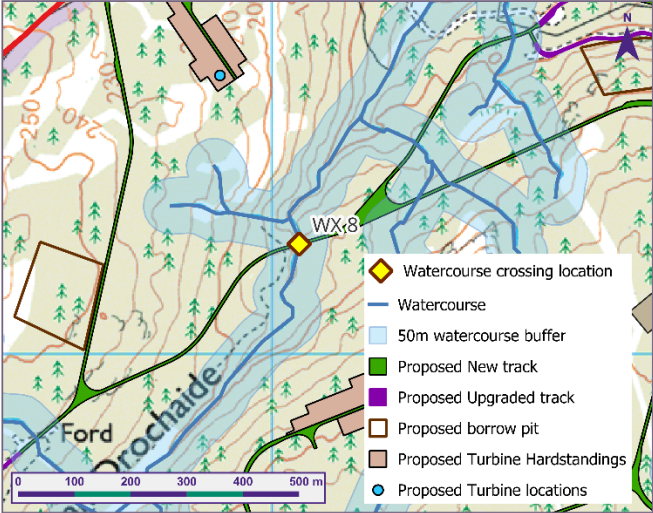
WX6 (175580, 644851)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Existing Crossing: Yes Crossing Type (existing): Circular Culvert Crossing Material (existing): Plastic Crossing Condition (existing): Good Channel Type: Incised Gradient: Steep Valley form: Shallow vee Bank condition: Stable Bed material: Boulders, Coarse gravel, Vegetation, Soil Riparian corridor: Commercial forestry Flow condition: Fast Culvert Dimensions (m): - Height (m): 0.50 - Outside Width (m): 0.50 Water width (m): 0.40 Water depth (m): 0.50 Bankfull width (m): 0.40 Bankfull height (m): 0.50 Banktop height (m): 0.50 Flooded Bankfull width (m): 1.00 Flooded Bankfull height: 0.50 Note: During the survey, the river was in full spate following recent heavy rainfall. Water emerging from the culvert dispersed laterally across the land; however, further downslope the flow converged and re-formed into a more defined channel.	

Crossing Photographs			
Upstream	Across	Downstream	Existing Culvert
			

WX7 (175813, 643903)		
Crossing Location	Crossing Description	
	Existing Crossing: No Channel Type: Poorly Defined Gradient: Moderate Valley form: No obvious valley sides Bank condition: Undercut (no evidence of recent collapse) Bed material: Bedrock, Peat, Rounded pebbles Riparian corridor: Commercial forestry Flow condition: Moderate Water width (m): 0.50 Water depth (m): 0.40 Bankfull width (m): 0.50 Bankfull height (m): 0.50 Banktop height (m): 0.50 Flooded Bankfull width (m): 1.55 Flooded Bankfull height: 0.55 Note: Water flow is not fully contained within a channel. Water direction and flow direction clearer/more defined upstream and downstream of sample point.	

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Crossing Photographs		
Upstream	Across	Downstream
		

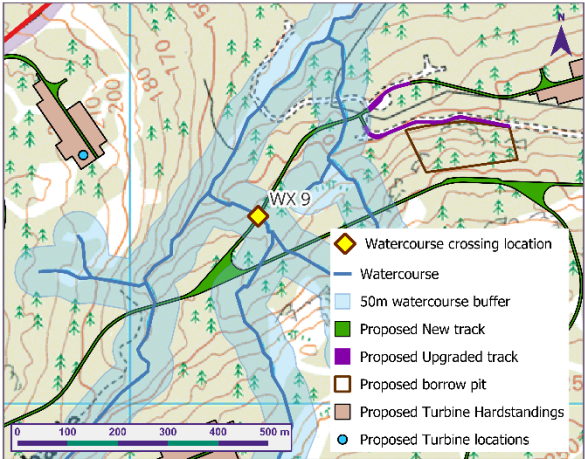
WX8 (176048, 645197)		
Crossing Location	Crossing Description	
	Existing Crossing: No Channel Type: Incised Gradient: Steep Valley form: Gorge Bank condition: Undercut (no evidence of recent collapse) Bed material: Boulders, Coarse gravel, Rounded pebbles, Bedrock Riparian corridor: Commercial forestry Flow condition: Very Fast Water width (m): Unable to obtain measurement Water depth (m): Unable to obtain measurement Bankfull width (m): Unable to obtain measurement Bankfull height (m): Unable to obtain measurement Banktop height (m): Unable to obtain measurement Flooded Bankfull width (m): Unable to obtain measurement Flooded Bankfull height: Unable to obtain measurement Note: The watercourse could not be accessed due to steep banks and associated safety concerns.	

Crossing Photographs		
Upstream	Across	Downstream
		

WX9 (176255, 645375)

Crossing Location

Crossing Description



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Existing Crossing: No	Water width (m): 1.15
Channel Type: Incised	Water depth (m): 0.25
Gradient: Steep	Bankfull width (m): 1.15
Valley form: Gorge	Bankfull height (m): 0.25
Bank condition: Stable	Banktop height (m): 0.10
Bed material: Boulders, Rounded pebbles, Coarse gravel	Flooded Bankfull width (m): 1.25
Riparian corridor: Commercial forestry	Flooded Bankfull height: 0.80
Flow condition: Fast	Note: A very tall bank is present at this location, with pools forming at the base as a result of the upstream waterfall.

Crossing Photographs

Upstream



Across

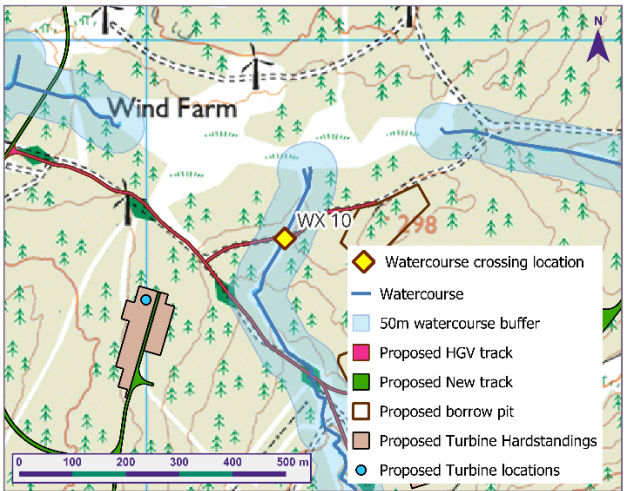


Downstream



WX10 (176259, 643629)

Crossing Location



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Crossing Description

- Existing Crossing:** Yes
- Crossing Type (existing):** Circular Culvert
- Crossing Material (existing):** Corrugated sheet metal
- Crossing Condition (existing):** Average
- Channel Type:** Incised
- Gradient:** Moderate
- Valley form:** Shallow Vee
- Bank condition:** Undercut (no evidence of recent collapse)
- Bed material:** Fine sand/silt, Rounded pebbles, Coarse gravel, Boulders
- Riparian corridor:** Commercial forestry
- Flow condition:** Fast
- Culvert Dimensions (m):**
- Height (m): 0.80
 - Outside Width (m): 0.80
- Water width (m):** 0.70
- Water depth (m):** 0.20
- Bankfull width (m):** 0.70
- Bankfull height (m):** 0.30
- Banktop height (m):** 0.60
- Flooded Bankfull width (m):** 1.00
- Flooded Bankfull height:** 0.55
- Note:** None

Crossing Photographs

Upstream



Across

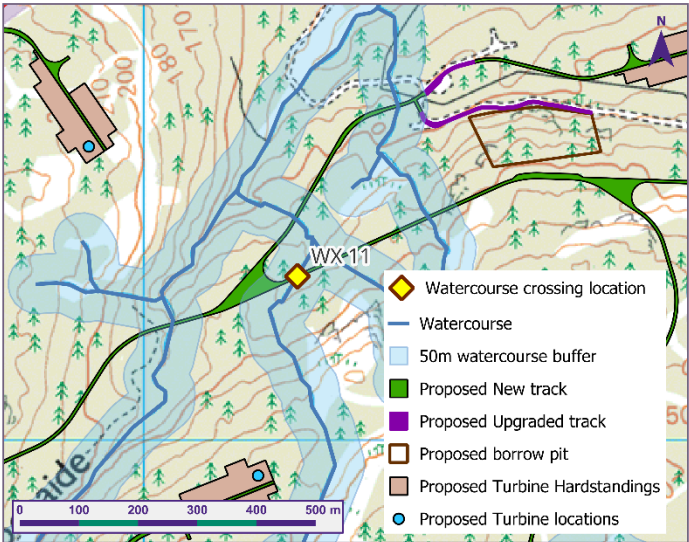


Downstream



Crossing Location

Crossing Description



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Existing Crossing: No

Channel Type: Incised

Gradient: Steep

Valley form: Asymmetrical

Bank condition: Undercut (no evidence of recent collapse)

Bed material: Rounded pebbles, Coarse gravel, Boulders, Fine sand/silt

Riparian corridor: Commercial forestry

Flow condition: Fast

Water width (m): 0.90

Water depth (m): 0.80

Bankfull width (m): 0.85

Bankfull height (m): 0.30

Banktop height (m): 0.50

Flooded Bankfull width (m): 1.10

Flooded Bankfull height: 0.65

Note: Multiple surface runoff channels were observed entering the stream.

Crossing Photographs

Upstream

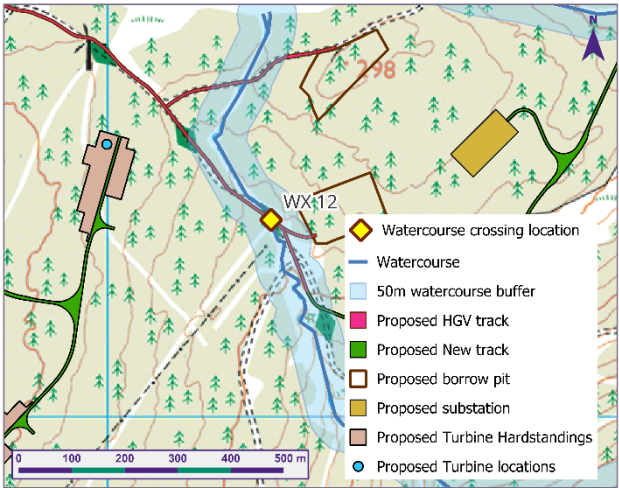


Across



Downstream



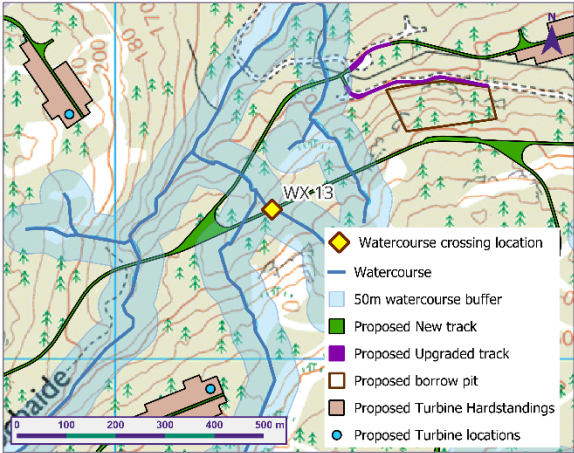
WX12 (176309, 643372)		
Crossing Location	Crossing Description	
 Legend: - Watercourse crossing location - Watercourse 50m watercourse buffer - Proposed HGV track - Proposed New track - Proposed borrow pit - Proposed substation - Proposed Turbine Hardstandings - Proposed Turbine locations © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Existing Crossing: Yes Crossing Type (existing): Circular Culvert Crossing Material (existing): Corrugated sheet metal Crossing Condition (existing): Poor Channel Type: Incised Gradient: Gentle Valley form: No obvious valley sides Bank condition: Undercut (no evidence of recent collapse) Bed material: Fine sand/silt, Rounded pebbles, Coarse gravel, Boulders Riparian corridor: Commercial forestry Flow condition: Moderate Culvert Dimensions (m): - Height (m): 1.10 - Outside Width (m): 1.10 Water width (m): 1.30 Water depth (m): 0.45 Bankfull width (m): 1.30 Bankfull height (m): 0.45 Banktop height (m): 0.55 Flooded Bankfull width (m): 1.80 Flooded Bankfull height: 0.55 Note: None	

Crossing Photographs		
Upstream	Across	Downstream
		

WX13 (176318, 645304)

Crossing Location

Crossing Description



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Existing Crossing: No
Channel Type: Incised
Gradient: Steep
Valley form: Gorge
Bank condition: Undercut (no evidence of recent collapse)
Bed material: Bedrock, Coarse gravel, Rounded pebbles, Boulders
Riparian corridor: Commercial forestry
Flow condition: Fast

Water width (m): 0.60
Water depth (m): 0.20
Bankfull width (m): 0.65
Bankfull height (m): 0.30
Banktop height (m): 0.45
Flooded Bankfull width (m): 1.00
Flooded Bankfull height: 0.50
Note: None

Crossing Photographs

Upstream



Across



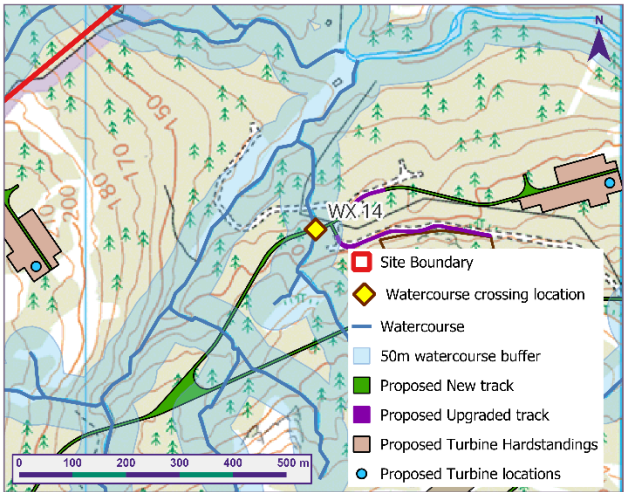
Downstream



WX14 (176430, 645566)

Crossing Location

Crossing Description



Existing Crossing: No
Channel Type: Incised
Gradient: Steep
Valley form: No obvious valley sides
Bank condition: Stable
Bed material: Boulders, Vegetation, Rounded pebbles, Soil
Riparian corridor: Commercial forestry
Flow condition: Moderate

Water width (m): 0.28
Water depth (m): 0.22
Bankfull width (m): 0.32
Bankfull height (m): 0.22
Banktop height (m): 0.28
Flooded Bankfull width (m): 0.38
Flooded Bankfull height: 0.28
Note: The channel is largely obscured by dense fern cover. A steep waterfall is located upstream of the water-crossing point, creating a small pool at its base.

Crossing Photographs

Upstream



Across



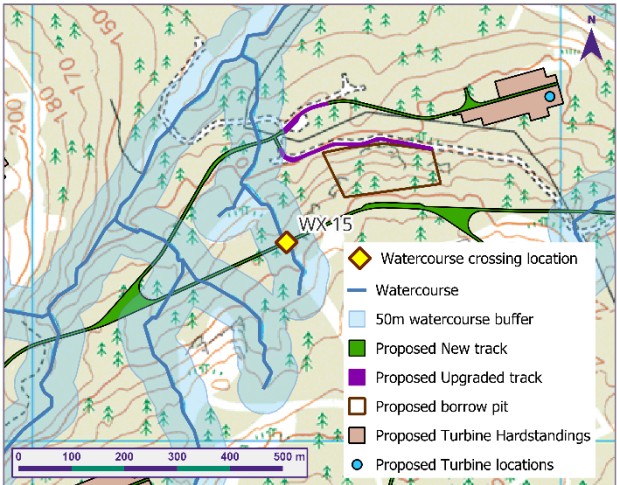
Downstream



WX15 (176481, 645377)

Crossing Location

Crossing Description



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Existing Crossing: No
Channel Type: Incised
Gradient: Steep
Valley form: Deep Vee
Bank condition: Stable
Bed material: Soil, Vegetation, Peat, Rounded pebbles
Riparian corridor: Commercial forestry
Flow condition: Fast

Water width (m): 0.20
Water depth (m): 0.25
Bankfull width (m): 0.30
Bankfull height (m): 0.20
Banktop height (m): 0.25
Flooded Bankfull width (m): 0.40
Flooded Bankfull height: 0.25
Note: None

Crossing Photographs

Upstream

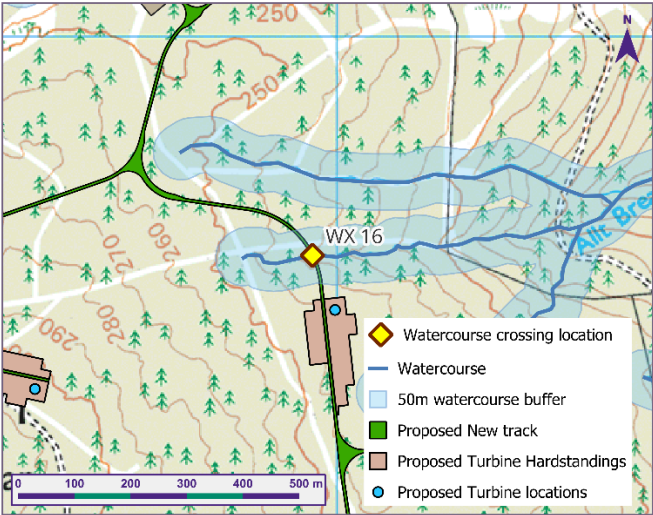


Across

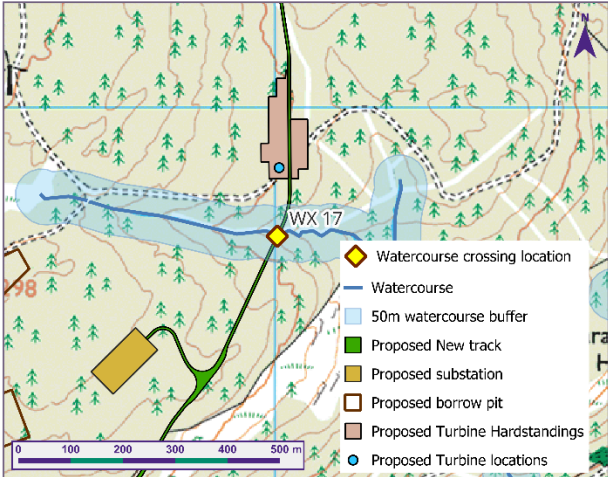


Downstream



WX16 (176956, 644612)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Existing Crossing: No	Water width (m): 0.87
	Channel Type: Incised	Water depth (m): 0.09
	Gradient: Moderate	Bankfull width (m): 0.87
	Valley form: No obvious valley sides	Bankfull height (m): 0.09
	Bank condition: Stable	Banktop height (m): 0.54
	Bed material: Rounded pebbles, Coarse gravel, Boulders, Vegetation	Flooded Bankfull width (m): 1.40
	Riparian corridor: Commercial forestry	Flooded Bankfull height: 0.15
	Flow condition: Fast	Note: A waterfall is located upstream of the crossing point.

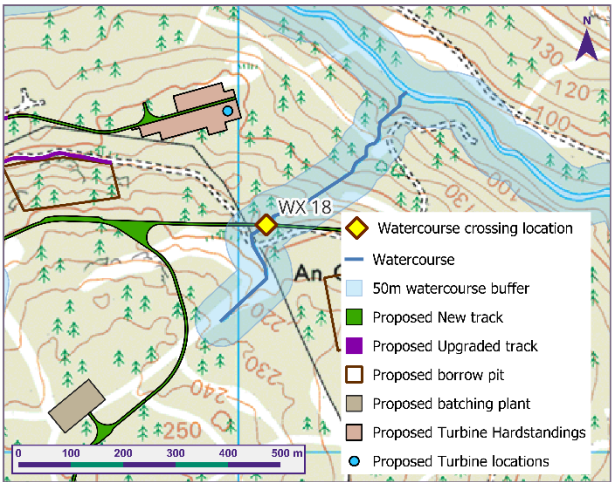
Crossing Photographs		
Upstream	Across	Downstream
		

WX17 (177004, 643755)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Existing Crossing: No Channel Type: Incised Gradient: Steep Valley form: Deep Vee Bank condition: Undercut (no evidence of recent collapse) Bed material: Boulders, Rounded pebbles, Coarse gravel Riparian corridor: Commercial forestry Flow condition: Moderate	Water width (m): 0.75 Water depth (m): 0.20 Bankfull width (m): 0.75 Bankfull height (m): 0.20 Banktop height (m): 0.75 Flooded Bankfull width (m): 1.25 Flooded Bankfull height: 0.75 Note: None

Crossing Photographs		
Upstream	Across	Downstream
		

WX18 (177053, 645435)

Crossing Location



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Crossing Description

Existing Crossing: No
Channel Type: Incised
Gradient: Moderate
Valley form: Gorge
Bank condition: Stable
Bed material: Boulders, Rounded pebbles, Coarse gravel
Riparian corridor: Commercial forestry
Flow condition: Moderate

Water width (m): 0.65
Water depth (m): 0.25
Bankfull width (m): 0.70
Bankfull height (m): 0.25
Banktop height (m): 0.77
Flooded Bankfull width (m): 1.15
Flooded Bankfull height: 0.30

Note: There is an existing track and crossing upstream of this location point

Crossing Photographs

Upstream

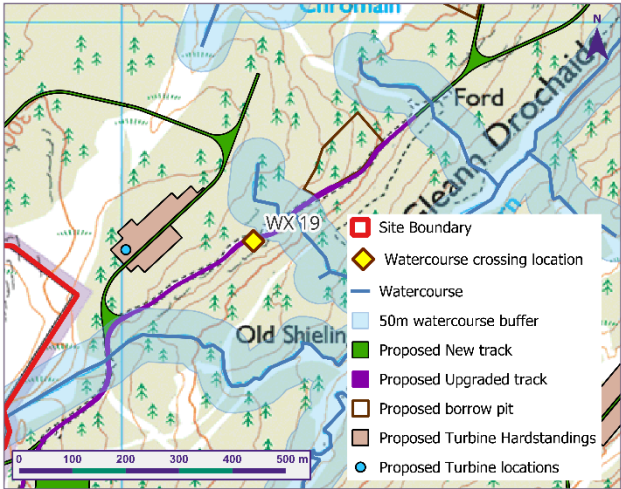


Across



Downstream

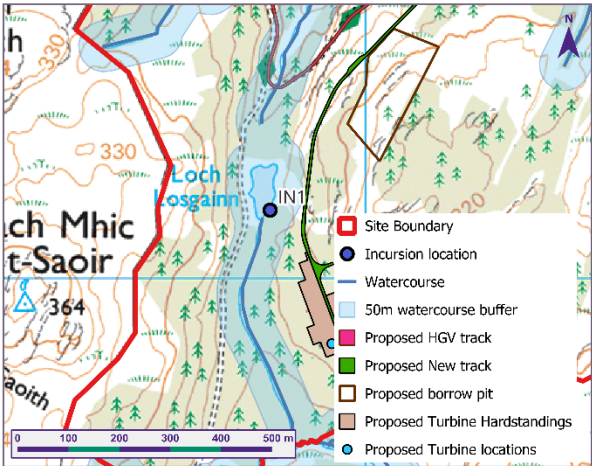


WX19 (175247, 644591)		
Crossing Location	Crossing Description	
	Existing Crossing: Yes Crossing Type (existing): Circular Culvert Crossing Material (existing): Plastic Crossing Condition (existing): Average Channel Type: Incised Gradient: Steep Valley form: Deep Vee Bank condition: Stable Bed material: Rounded pebbles, Boulders, Vegetation, Soil Riparian corridor: Commercial forestry Flow condition: Moderate Culvert Dimensions (m): - Height (m): 0.65 - Outside Width (m): 0.65 Water width (m): 0.27 Water depth (m): 0.20 Bankfull width (m): 0.27 Bankfull height (m): 0.20 Banktop height (m): 0.27 Flooded Bankfull width (m): 0.55 Flooded Bankfull height: 0.28 Note: Additional crossing observed during survey.	

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Crossing Photographs		
Upstream	Across	Downstream
		

Incursions

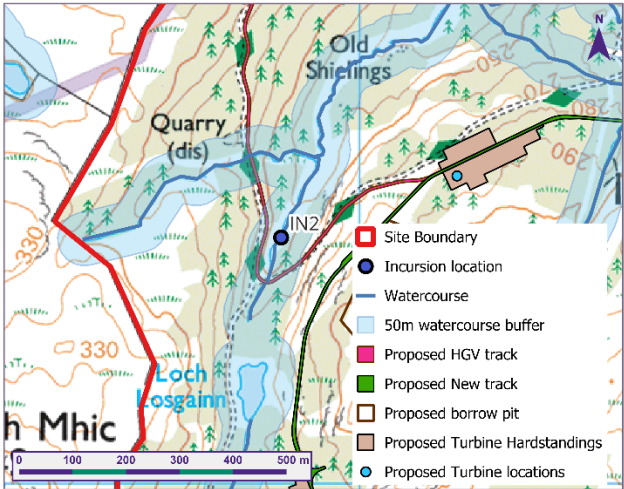
IN1 (174812, 643136)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Channel Type: Surface run-off/wetlands only	
	Gradient: Gentle	
	Valley form: Concave bowl	
	Bank condition: Stable	
	Bed material: Soil, Peat, Vegetation	
Riparian corridor: Commercial forestry		Water width (m): 0.36
Flow condition: Moderate		Water depth (m): 0.53
		Bankfull width (m): 0.42
		Bankfull height (m): 0.53
		Banktop height (m): 0.55
		Flooded Bankfull width (m): 1.00
		Flooded Bankfull height (m): 0.60
Note: The area is very marshy and boggy, with significant surface runoff originating from the upstream loch. This runoff filters into and contributes to the flow within the channel.		

Crossing Photographs		
Upstream	Across	Downstream
		

IN2 (174853, 643461)

Crossing Location

Crossing Description



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Channel Type: Incised
Gradient: Moderate
Valley form: U-shaped valley
Bank condition: Undercut (no evidence of recent collapse)
Bed material: Peat, Soil, Vegetation, Fine sand/silt
Riparian corridor: Commercial forestry
Flow condition: Fast

Water width (m): 0.50
Water depth (m): 0.20
Bankfull width (m): 0.60
Bankfull height (m): 0.45
Banktop height (m): 0.80
Flooded Bankfull width (m): 0.40
Flooded Bankfull height: 0.80
Note: None

Crossing Photographs

Upstream

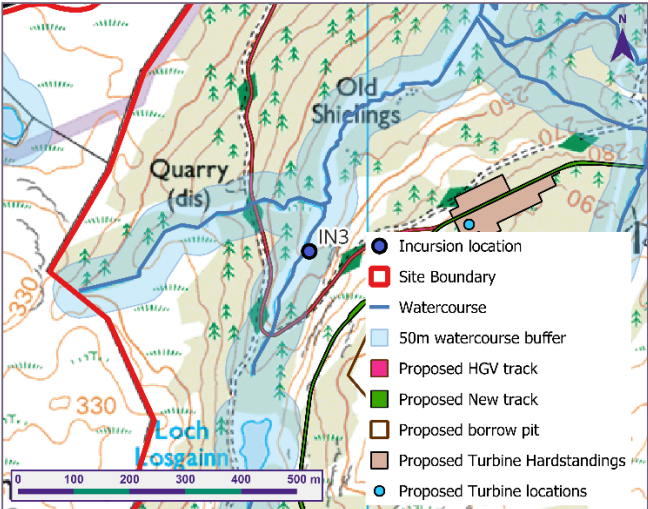


Across



Downstream



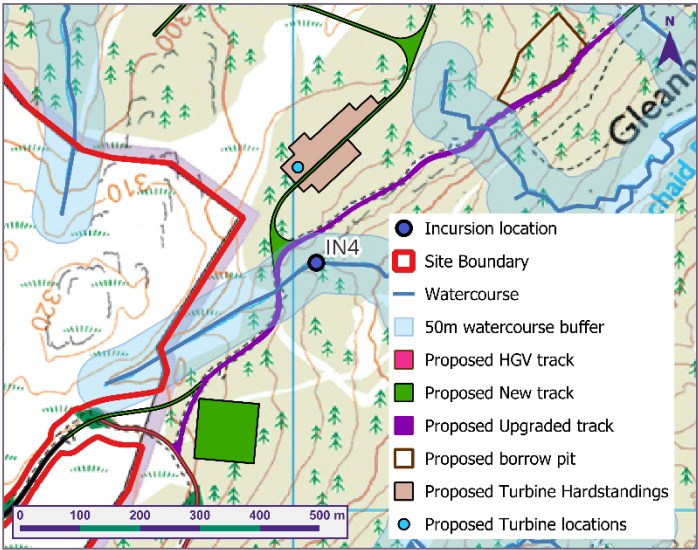
IN3 (174895, 643528)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Channel Type: Surface run-off/wetlands only Gradient: Gentle Valley form: U-shaped valley Bank condition: Stable Bed material: Vegetation Riparian corridor: Commercial forestry Flow condition: Very Slow Water width (m): N/a Water depth (m): N/a Bankfull width (m): N/a Bankfull height (m): N/a Banktop height (m): N/a Flooded Bankfull width (m): N/a Flooded Bankfull height: N/a Note: The channel lacks clear definition, with water dispersing across the valley floor. The incursion area is predominantly a rush-dominated wetland habitat.	

Crossing Photographs		
Upstream	Across	Downstream
	No image available	

IN4 (175038, 644415)

Crossing Location

Crossing Description



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Channel Type: Incised
Gradient: Steep
Valley form: Deep Vee
Bank condition: Stable
Bed material: Rounded pebbles, Boulders, Coarse gravel, Vegetation
Riparian corridor: Commercial forestry
Flow condition: Very Fast

Water width (m): 1.00
Water depth (m): 0.20
Bankfull width (m): 1.10
Bankfull height (m): 0.20
Banktop height (m): 0.30
Flooded Bankfull width (m): 1.25
Flooded Bankfull height: 0.30
Note: The channel exhibited very fast flow, with multiple contributing watercourses entering the main channel. A plunge pool has formed upstream as a result of a hydraulic drop.

Crossing Photographs

Upstream

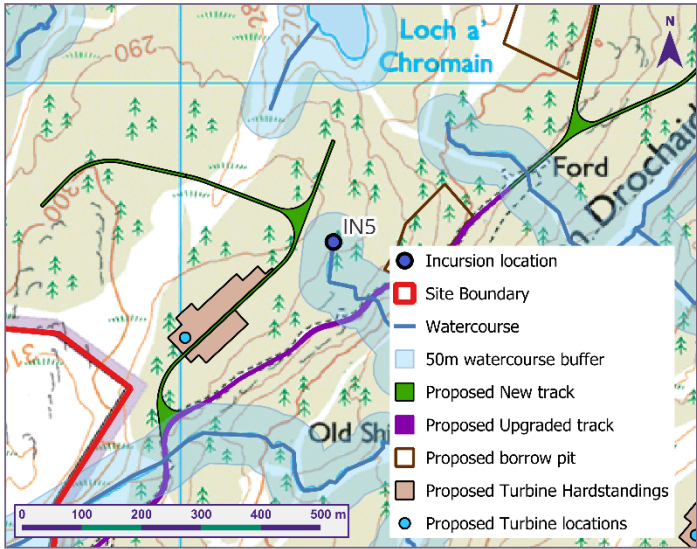


Across



Downstream



IN5 (175256, 644735)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Channel Type: Artificial drainage channel	Water width (m): 0.65
	Gradient: Moderate	Water depth (m): 0.25
	Valley form: No obvious valley sides	Bankfull width (m): 0.65
	Bank condition: Stable	Bankfull height (m): 0.25
	Bed material: Soil, Vegetation, Peat	Banktop height (m): 0.55
	Riparian corridor: Commercial forestry	Flooded Bankfull width (m): 0.80
	Flow condition: Moderate	Flooded Bankfull height: 0.35
		Note: Measurements taken from riverbed
	Crossing Photographs	

Upstream



Across



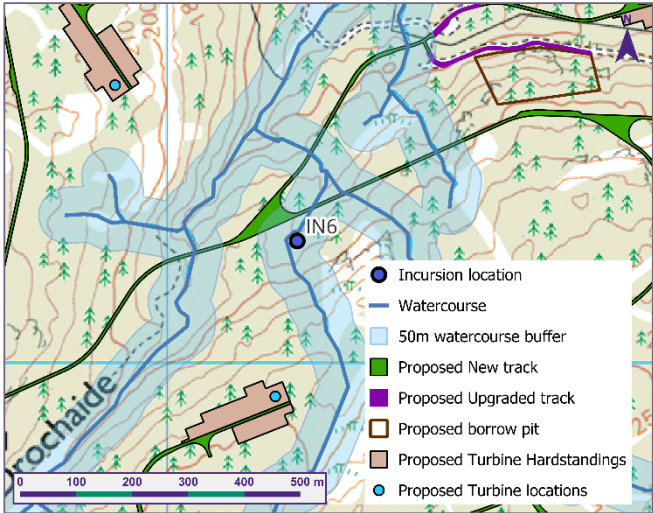
Downstream



IN6 (176232, 645219)

Crossing Location

Crossing Description



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Channel Type: Incised
Gradient: Steep
Valley form: Gorge
Bank condition: Unstable (potential recent collapse)
Bed material: Coarse gravel, Rounded pebbles, Fine sand/silt, Peat
Riparian corridor: Commercial forestry
Flow condition: Fast

Water width (m): 0.40
Water depth (m): 0.20
Bankfull width (m): 0.50
Bankfull height (m): 0.30
Banktop height (m): 0.60
Flooded Bankfull width (m): 2.30
Flooded Bankfull height (m): 0.70
Note: Several small streams were observed entering the main mapped watercourse. Upstream, a small waterfall and a series of pooling steps are present.

Crossing Photographs

Upstream



Across

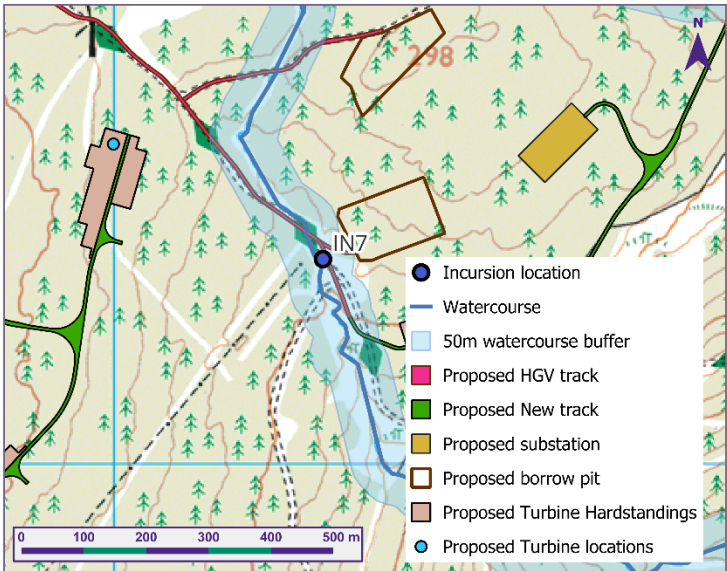


Downstream



IN7 (176335, 643330)

Crossing Location



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Crossing Description

- | | |
|---|---|
| Channel Type: Incised | Track width (m): 5.40 |
| Gradient: Gentle | Water width (m): 1.25 |
| Valley form: No obvious valley sides | Water depth (m): 0.30 |
| Bank condition: Undercut (no evidence of recent collapse) | Bankfull width (m): 1.30 |
| Bed material: Fine sand/silt, Rounded pebbles, Coarse gravel, Boulders | Bankfull height (m): 0.35 |
| Riparian corridor: Commercial forestry | Banktop height (m): 0.65 |
| Flow condition: Fast | Flooded Bankfull width (m): 1.30 |
| | Flooded Bankfull height: 0.65 |
| | Note: None |

Crossing Photographs

Upstream

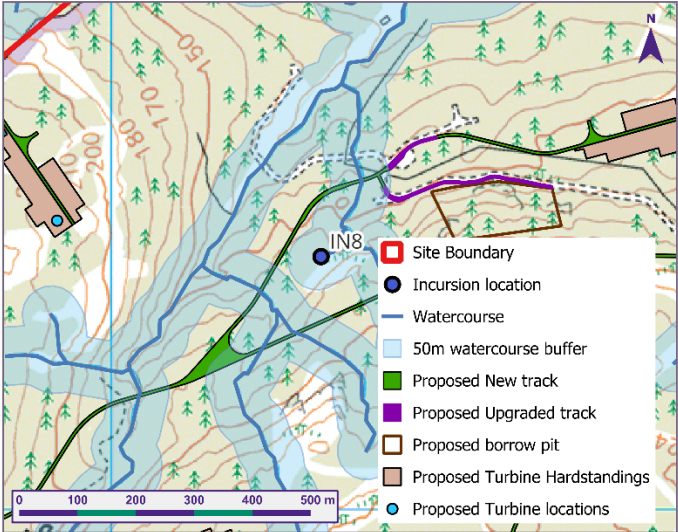


Across

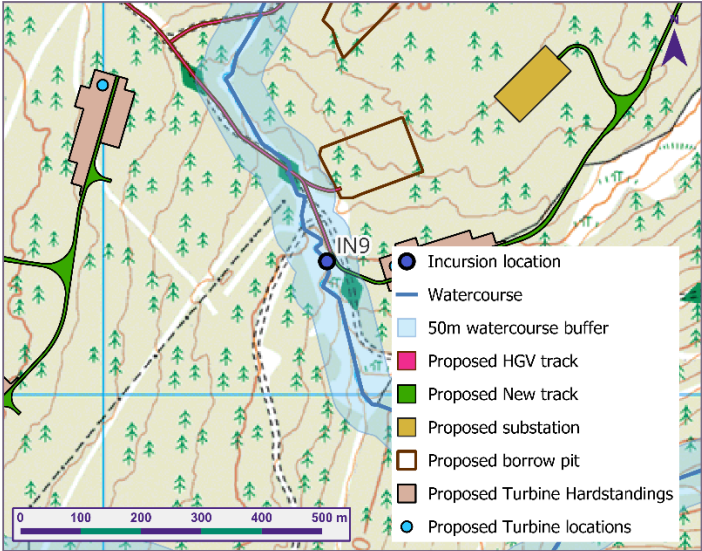


Downstream

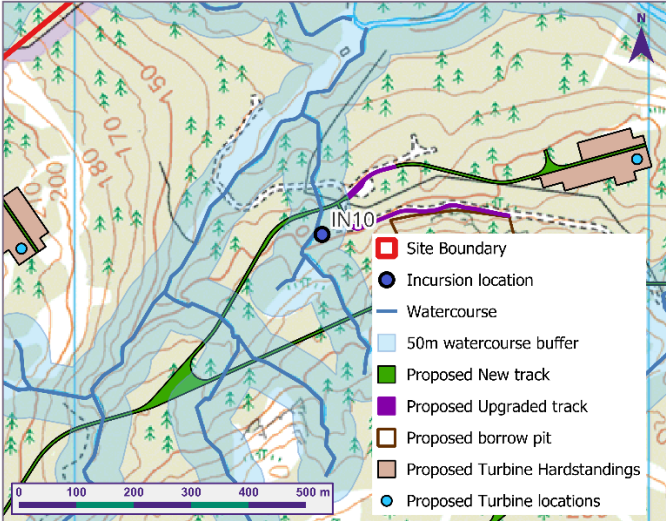


IN8 (176360, 645435)		
Crossing Location	Crossing Description	
	Channel Type: Surface run-off/wetlands only	
	Gradient: Steep	Water width (m): 0.14
	Valley form: No obvious valley sides	Water depth (m): 0.07
	Bank condition: Stable	Bankfull width (m): 0.35
	Bed material: Vegetation, Soil, Peat	Bankfull height (m): 0.14
	Riparian corridor: Commercial forestry	Banktop height (m): 0.14
	Flow condition: Very Slow	Flooded Bankfull width (m): 0.55
		Flooded Bankfull height: 0.14
		Note: The upstream channel flows along an uprooted tree

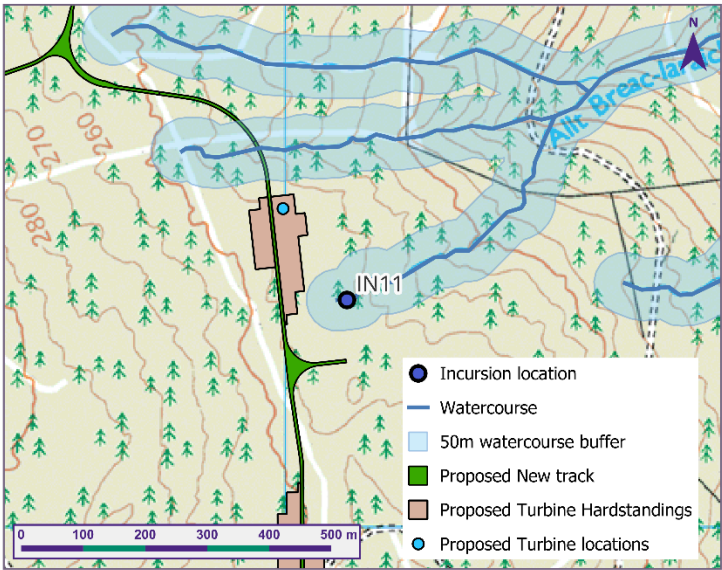
Crossing Photographs		
Upstream	Across	Downstream
		

IN9 (176371, 643222)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Channel Type: Incised	
	Gradient: Steep	
	Valley form: Deep Vee	
	Bank condition: Undercut (no evidence of recent collapse)	
	Bed material: Rounded pebbles, Boulders, Vegetation, Soil	
	Riparian corridor: Commercial forestry	Water width (m): 1.05
	Flow condition: Fast	Water depth (m): 0.20
		Bankfull width (m): 1.05
		Bankfull height (m): 0.20
		Banktop height (m): 0.37
		Flooded Bankfull width (m): 1.15
		Flooded Bankfull height (m): 0.30
		Note: Very fast flow as the channel meanders into a bend

Crossing Photographs		
Upstream	Across	Downstream
		

IN10 (176431, 645522)		
Crossing Location	Crossing Description	
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Channel Type: Meandering	Water width (m): 0.40
	Gradient: Moderate	Water depth (m): 0.10
	Valley form: No obvious valley sides	Bankfull width (m): 0.40
	Bank condition: Stable	Bankfull height (m): 0.10
	Bed material: Boulders, Soil, Vegetation, Rounded pebbles	Banktop height (m): 0.20
	Riparian corridor: Commercial forestry	Flooded Bankfull width (m): 0.55
	Flow condition: Fast.	Flooded Bankfull height: 0.25
	Note: Waterfall and pooling step system upstream.	

Crossing Photographs		
Upstream	Across	Downstream
		

IN11 (177099, 644368)	
Crossing Location	Crossing Description
 © Crown Copyright 2025. All rights reserved. Ordnance Survey Licence 0100031673.	Channel Type: Artificially modified watercourse Gradient: Moderate Valley form: No obvious valley sides Bank condition: Undercut (no evidence of recent collapse) Bed material: Peat, Rounded pebbles, Coarse gravel Riparian corridor: Commercial forestry Flow condition: Fast
	Water width (m): 0.60 Water depth (m): 0.45 Bankfull width (m): 0.60 Bankfull height (m): 0.45 Banktop height (m): 0.60 Flooded Bankfull width (m): 1.10 Flooded Bankfull height: 0.70 Note: None
Crossing Photographs	

Upstream



Across



Downstream





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