Chapter 9: Hydrology and Hydrogeology

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9.1. Executive Summary

9.1.1. For reasons stated within the Applicant's Scoping Report (**Technical Appendix 3.1: Scoping Report),** a Hydrology and Hydrogeology impact assessment has been scoped out of this Environmental Impact Assessment Report (EIAR). This includes scoping out of potential effects on aquifers, surface waters, water supplies and water dependant habitats such as GWDTEs. The purpose of this chapter is to outline the rationale for this exclusion, provide a comparative review of the Consented and the Proposed Varied Development in relation to water environment receptors, confirm mitigation requirements and provide updated figures to illustrate any changes.

9.1.2. The hydrology and hydrogeology baseline environment outlined for the Consented Development remains the same as for the Proposed Varied Development. The design of the Proposed Varied Development has ensured the embedded mitigation included in the design of the Consented Development has been retained, including appropriate buffering of watercourses and no change to impacts on Private Water Supplies (PWS). Standard good construction practice has also been considered as embedded mitigation, including detailed pre-construction surveys, agreement and implementation of a Construction Environmental Management Plan (CEMP) and Water Quality and Fish Monitoring Plan (WQFMP), including PWS monitoring, and appropriate design of watercourse crossings as detailed within the 2021 EIAR.

9.1.3. In line with the Consented Development, the revised turbine positions for the Proposed Varied Development allow for a minimum of a 50m buffer from all watercourses / bodies and all track realignments are a minimum 10m away from any waterbody except at water crossings. While some watercourse crossings have been relocated due to track realignments, and some additional minor culverts may be required, no additional major watercourse crossings are required. An updated Watercourse Crossing Schedule for the Proposed Varied Development is provided.

9.1.4. Plans relating to hydrological receptors were submitted and approved to satisfy the pre-commencement elements of planning Condition 29 for the Consented Development and it is considered that these remain valid for the Proposed Varied Development. These include a Construction Environmental Management Plan, Private Water Supply Risk Assessment and a Water Quality and Fish Monitoring Plan.

9.1.5. The 2021 EIAR concluded that potential effects on hydrological and hydrogeological receptors, were **Negligible** to **Minor Adverse** and not significant. Carrying forward the embedded mitigation and approved monitoring plans, it is concluded that no new or intensified effects would arise

as a result of the new Proposed Varied Development (compared to the Consented Development), and the significance of likely effects remains as assessed in the 2021 EIAR.

9.2. Introduction

9.2.1. A description of the Proposed Varied Development is provided in **Chapter 2: Design Iteration and Proposed Varied Development.** During the design review to determine optimum revised turbine locations for the higher turbines, and resultant alterations to hardstand or track alignments, the effects on hydrological and hydrogeological features of interest were reviewed. **Figures 2.1a-o: Infrastructure Design Review** illustrate how these receptors have been considered during the varied design refinement process at each turbine location.

9.2.2. Due to the relatively minor changes to the infrastructure layout and expected avoidance of water environment using appropriate buffers, the Applicant proposed to scope out potential effects on aquifers, surface waters, water supplies and water dependant habitats such as GWDTEs. This was generally agreed through scoping responses from statutory consultees, however consultation responses also requested confirmation that all previous embedded mitigation for the Consented Development would apply to the Proposed Varied Development and any revised micrositing limits do not encroach into buffers for private water supplies or watercourses.

9.2.3. This chapter provides a comparative review of the Consented and the Proposed Varied Development in relation to potential effects on hydrology and hydrogeology. The following updated figures are provided as part of this chapter to illustrate any changes:

- Figure 9.1: Hydrological Overview- Proposed Varied Development;
- Figure 9.2: Hydrological Constraints & Watercourse Crossings - Consented Vs Varied Development; and
- Figure 9.3: Hydrological Constraints & Watercourse Crossings - Proposed Varied Development.

9.2.4. This chapter also reviews the mitigation proposed for the Consented Development and provides an update on any surveys, and agreed monitoring plans, submitted to satisfy planning conditions 12, 13, and 29 (see below **Table 9.2: Planning conditions for the Consented Development relevant to hydrological receptors)** for the Consented Development, and how these will remain relevant to the Proposed Varied Development. In particular, the chapter references the following documents contained in Technical Appendix 3.6:

- Technical Appendix 3.6e CEMP

- Technical Appendix 3.6f: Private Water Supply Risk Assessment
- Technical Appendix 3.6g: Water Quality and Fish Monitoring Plan

9.3. Consultations

9.3.1. **Table 9.1** below sets out relevant consultee responses with respect to hydrology and hydrogeology following submission of the Scoping Report for the Proposed Varied Development (**Technical Appendix 3.1: Scoping Report**).

Table 9.1 Consultee Responses for the Proposed Varied Development

Consultee	Summary Key Issues	Response to Comments
Environmental Health Office, THC **25th July 2025**	The applicant has previously submitted a PWS risk assessment which demonstrated that there is a low to negligible risk of an adverse impact on these supplies which becomes negligible through the implementation of standard mitigation.	A copy of the Private Water Supply Risk Assessment dated June 2024 is included for reference in **Technical Appendix 3.6f: Private Water Supply Risk Assessment**
Energy Consents Unit (ECU) Scoping Opinion **16th July 2025**	Scottish Ministers request that the company contacts Scottish Water (via EIA@scottishwater.co.uk) and makes further enquires to confirm whether there any Scottish Water assets which may be affected by the development and includes details in the EIA report of any relevant mitigation measures to be provided. It is also requested that the Company investigates the presence of any private water supplies which may be impacted by the development. The EIA report should include details of any supplies identified by this investigation, and if any supplies are identified, the Company should provide an assessment of the potential impacts, risks, and any mitigation which would be provided.	Consultation with Scottish water was undertaken for the Consented Development and is summarised in Section 9.5 of this chapter. No changes are anticipated for the Proposed Varied Development and therefore no further assessment is required as part of this EIAR. A Private Water Supply Risk Assessment Report was submitted to THC in June 2024 and is included with this EIAR in **Technical Appendix 3.6f.** This includes an up-to-date list of all the PWSs within the study area and all remain relevant to the Proposed Varied Development. The location of all Private Water Supplies is also shown on **Figure 9.1: Hydrological Overview.**
Energy Consents Unit	Scottish Ministers request that in addition to identifying the main watercourses and waterbodies within	The River Moriston SAC is the only designated nature conservation water feature within the vicinity of the

(ECU) Scoping Opinion **16th July 2025**	and downstream of the proposed development area, developers should identify and consider, at this early stage, any areas of Special Areas of Conservation (SAC) where fish are a qualifying feature and proposed felling operations particularly in acid sensitive areas.	Site. The 2021 EIAR concluded there would be no significant residual effects on the SAC. (refer to **2021 EIAR, Volume 1, Chapter 9: Hydrology and Hydrogeology).** No variations to infrastructure are proposed within the River Moriston catchment for the Proposed Varied Development (refer to **Figure 9.1: Hydrological Overview**) and therefore the assessment and mitigation measures remain unchanged from those approved for the Consented Development.
Energy Consents Unit (ECU) Scoping Opinion **16th July 2025**	Use of the checklist (MD-SEDD), provided in Annex 1 of the standing advice, should ensure that the EIA report contains the required information; the absence of such information may necessitate requesting additional information which may delay the process. Developers are required to submit the completed checklist in advance of their application submission.	This checklist has been submitted to the ECU.
The Highland Council (THC) **2nd July 2025**	THC states that the EIAR needs to address the nature of the hydrology and hydrogeology of the site, and of the potential impacts on water courses, water supplies including private supplies, water quality, water quantity and on aquatic flora and fauna. Impacts on watercourses, lochs, groundwater, other water features and sensitive receptors, such as water supplies, need to be assessed. Measures to prevent erosion, sedimentation or discolouration will be required, along with monitoring proposals and contingency plans. Assessment will need to recognise periods of high rainfall which will impact on any calculations of run-off, high flow in watercourses and hydrogeological matters.	The **2021 EIA, Volume 1 Chapter 9** and the **2022 AIR, Chapter 9** presented details of the baseline hydrological and hydrogeological conditions at the Site and considered potential effects on the hydrology and hydrogeology in full. No **significant effects were predicted**. A 50m buffer to 'natural watercourses' has been applied for the Proposed Varied Development (refer to **Figures 9.1 to 9.3),** and all embedded mitigation remains the same. Changes to the layout and mitigation requirements are discussed in this chapter.
The Highland Council (THC) **2nd July 2025**	Early consultation with SEPA on Controlled Activities Regulations (CAR) licensing advised	Noted and no change from Consented Development commitments. From the 1 November

		2025, water, waste management and industrial activities will be regulated under the Environmental Authorisations (Scotland) Regulations 2018 (EASR). Prior to commencement of construction, the CEMP will be reviewed to ensure all updated EASR requirements are met.
The Highland Council (THC) **2nd July 2025**	THC states that if culverting should be proposed, either in relation to new or upgraded tracks, then it should be noted that SEPA has a general presumption against modification, diversion or culverting of watercourses. Schemes should be designed to avoid crossing watercourses, and to bridge watercourses where this cannot be avoided. The EIAR will be expected to identify all water crossings and include a systematic table of watercourse crossings or channelising, with detailed justification for any such elements and design to minimise impact. The table should be accompanied by photography of each watercourse affected and include dimensions of the watercourse. It may be useful for the applicant to demonstrate choice of watercourse crossing by means of a decision tree, taking into account factors including catchment size (resultant flows), natural habitat and environmental concerns. Further guidance on the design and implementation of crossings can be found on SEPA's Construction of River Crossings Good Practice Guide.	The 2021 EIAR included a commitment to design all watercourse crossings in line with SEPA guidance and to engineer crossings to convey floodwaters in accordance with a 1 in 200 annual exceedance probability (0.5% AEP) plus an allowance for climate change. This requirement is secured through Planning Condition 14. A watercourse crossing schedule was provided as part of the 2021 EIAR (**Volume 4, Technical Appendix 9.1**), and updated for the 2022 AIR (**Technical Appendix 9.1**) An updated watercourse crossing schedule is provided as part of this EIAR and details all revised crossing locations for the Proposed Varied Development (refer to **Technical Appendix 9.1: Watercourse Crossing Schedule).**
The Highland Council (THC) **2nd July 2025**	The Council's Flood Risk Management Team has reviewed the scoping information and has no comment to make on the proposals at the scoping stage. However, there are a number of watercourses and waterbodies on the site therefore the following applies: • A minimum of a 50m buffer of all watercourses / bodies and	A detailed flood risk assessment was undertaken for the Consented Development (**2021 EIAR, Volume 4, Technical Appendix 9.2: Flood Risk Assessment**). This is referred to in relation to the Proposed Varied Development in Section 9.5 of this chapter.

	turbines/crane hardstandings, which should be shown on a suitably scaled drawing; • All tracks should be kept a minimum 10m away from any waterbody except water crossings; • Access tracks not acting as preferential pathways for runoff and efforts being made to retain existing natural drainage wherever possible; • Natural flood management techniques should be applied to reduce the rate of runoff where possible; use of SuDS to achieve pre-development runoff rates and to minimise erosion on existing watercourses; • Water crossings in the form of culverts or bridges, or upgrades to existing crossings must be designed to accommodate to 1 in 200 year flood event, plus climate change; • Land rising within any floodplain to be avoided; if ultimately required, compensatory storage must be provided; and • The EIAR should be informed by the Council's Flood Risk and Drainage Impact Assessment SG.	As with the Consented Development, a 50m watercourse buffer has been applied for the Proposed Varied Development, as shown on **Figures 9.1 to 9.3**. SuDS are proposed as part of the drainage design of the Consented Development, as outlined in Chapter 9 of the 2021 EIAR, and the same principles will be applied to the Proposed Varied Development. As outlined in the 2021 EIAR proposed watercourse crossings will be designed to pass a 1 in 200 (0.5%) AEP plus an allowance for climate change. No new major watercourse crossings are required as a result of the Proposed Varied Development.
The Highland Council (THC) **2nd July 2025**	The applicant will be required to carry out an investigation to identify any private water supplies, including pipework, which may be adversely affected by the development and to submit details of the measures proposed to prevent contamination or physical disruption. The report should include details of any monitoring prior to, during and following construction. If appropriate, it should also include proposals for contingency measures in the event of an incident. Highland Council has some information on known supplies, but itis not definitive. An on-site survey will be required	A Private Water Supply assessment was completed for the Consented Development (2021 EIAR, Chapter 9). An updated Private Water Supply Risk Assessment Report was submitted to THC in June 2024 and is included with this EIAR in **Technical Appendix 9.2**. A Water Quality and Fish Monitoring Plan submitted to satisfy the requirements of Planning Condition 29 is included as **Technical Appendix 3.6g: Water Quality and Fish Management Plan**. This covers monitoring of PWS as discussed further in Section 9.5 of this chapter.

The Highland Council (THC) **2nd July 2025**	The need for, and information on, abstractions of water supplies for concrete works or other operations should also be identified. The EIAR should identify whether a public or private source is to be utilised. If a private source is to be utilised, full details on the source and details of abstraction need to be provided.	This is addressed in the **2021 EIAR, Chapter 9** and no change is expected for the Proposed Varied Development. SEPA will be consulted to ensure all EASR requirements are met prior to any surface water or groundwater abstraction.
Scottish Water **20th June 2025**	Scottish Water states that it would be useful to know the estimated start date on site. The fact that this area is located within a drinking water catchment should be noted in documentation Written permission must be obtained before any works are started within the area of our apparatus. For reasons of sustainability and to protect our customers from potential future sewer flooding, Scottish Water will not accept any surface water connections into our combined sewer system.	Noted. No significant risks to public or private water supplies were identified for the Consented Development and this remains the same for the Proposed Varied Development. No part of the proposed development drainage system will be designed to discharge into the existing Scottish water combined sewer system. The water main located adjacent to the A887, at the site entrance will be protected. PWS locations are identified on **Figure 9.1: Hydrological Overview.** An updated PWS risk assessment is provided as **Technical Appendix 3.6f: Private Water Supply Risk Assessment.** PWS monitoring requirements are detailed in **Technical Appendix 3.6g: Water Quality and Fish Monitoring Plan.**
SEPA Scoping Response 30th May 2025	SEPA agree with scoping out of potential effects on aquifers, surface waters, water supplies and water dependant habitats such as GWDTEs and states that the Schedule of Mitigation of the EIA Report should include a commitment that any micrositing would not encroach into buffers for private water supplies or	Noted. This chapter provides commitments to mitigation and demonstrates required buffers have been maintained for the Proposed Varied Development. Effects on peat depth are addressed in **Chapter 10: Geology and Soils**.

	watercourses, or result in a greater overall effect on peat than the original location.	
SEPA Scoping Response 30th May 2025	SEPA states that crossings must be designed to accommodate the 0.5% annual exceedance probability flows with an appropriate allowance for climate change, or information provided to justify smaller structures. Our Climate change allowances for flood risk assessment in land use planning guidance sets out required allowances for climate change.	Noted. This is also secured through Planning Condition 14. Refer to **Technical Appendix 9.1: Proposed Varied Development Watercourse Crossing Schedule** for an updated watercourse crossing schedule.
SEPA Scoping Response 30th May 2025	SEPA states that comparison figures should be provided at a sufficient scale to assess how the proposed development differs from the consented layout. These should show Infrastructure locations, Peat depth Habitat condition and include a whole-site overview, detailed sectional maps for smaller areas using larger scales and all figures must clearly illustrate how the revised layout minimizes additional environmental impacts. Infrastructure details to include upgraded, temporary, and permanent elements, such as: tracks, excavations, landraising; buildings, borrow pits, pipelines, cabling; Site compounds, laydown and storage areas; any other construction or built features.	Noted. Refer to **Figures 9.1-9.3** for details relating to hydrology and hydrogeology.

9.3.2. Planning conditions relating to hydrological receptors were imposed on the Consented Development in response to consultation responses from statutory consultees. The Applicant has prepared and submitted plans to satisfy the pre-commencement elements of these planning conditions and, where these plans have been approved by the Highland Council and NatureScot, and where they are relevant to this EIAR, these reports have been included as technical appendices. The planning conditions relevant to this hydrology chapter are summarised in **Table 9.2** along with the corresponding plans. The

mitigation contained in these plans has been considered as part of this comparative assessment.

9.3.3. The planning commitments agreed for the Consented Development will be adhered to for the Proposed Varied Development. The Applicant expects that some conditions will remain partially satisfied. Any additional mitigation identified through this assessment or future pre-commencement surveys will be incorporated into updated plans as required. Refer to **Technical Appendix 3.6: Planning Conditions Summary**.

Table 9.2: Planning conditions for the Consented Development relevant to hydrological receptors

Planning Condition	Reason for the Planning Condition	Supporting Document?
10. Micro-siting	To enable necessary minor adjustments to the position of the wind turbines and other infrastructure to allow for site-specific conditions while maintaining control of environmental impacts and taking account of local ground conditions.	Compliance records will be maintained during construction. This condition will apply to the Proposed Varied Development. Micrositing will ensure the maximum distance between watercourses or wetland habitats is maintained where possible.
12. Ecological Clerk of Works ("ECoW")	To secure effective monitoring of and compliance with the environmental mitigation and management measures associated with the Consented Development during the decommissioning, restoration and aftercare phases.	This condition will apply to the Proposed Varied Development. The ECoW will maintain compliance records as required during construction. This condition was confirmed to be satisfied by THC 2nd February 2023.
13. Construction Environmental Management Plan ("CEMP")	To ensure that all construction operations are carried out in a manner that minimises their impact on road safety, amenity and the environment, and that the mitigation measures contained in the 2021 EIAR which accompanied the application, or as otherwise agreed, are fully implemented.	An outline CEMP was provided as part of the **2021 EIAR, Volume 4, Technical Appendix 2.1**. The CEMP for this condition was confirmed to be satisfied by THC 15th January 2025. The mitigation proposed within the CEMP will remain the same for the Proposed Varied Development should it gain consent (refer to **Technical Appendix 3.6e: CEMP**). Prior to commencement of construction an updated CEMP will be provided, to ensure all regulatory requirements are current and to satisfy the relevant condition.
14. Watercourse Design	In the interests of protecting the water environment.	Watercourse crossing WXC01 was constructed in compliance with Condition 14. This condition will apply to the design of

		remaining watercourses for the Proposed Varied Development.
29. Water Quality and Fish Monitoring Plan	To ensure no deterioration of water quality and to protect fish populations within and downstream of the Site.	A Water Quality and Fish Monitoring Plan was submitted and approved (refer to **Technical Appendix 3.6g: WQFMP**). All mitigation remains valid for the Proposed Varied Development and no update is required for this plan. This condition was confirmed to be satisfied by THC 15th January 2025.

9.4. Assessment Methodology

9.4.1. The review of environmental effects has followed the methodology used for **2021 EIAR, Volume 1, Chapter 9: Hydrology and Hydrogeology.**

9.4.2. For the avoidance of doubt, in this assessment **Major** and **Moderate** effects are considered 'Significant' in EIA terms, while **Minor** and **Negligible** effects are regarded as 'Not Significant'.

9.4.3. The hydrological and hydrogeological study area remains as previously assessed in the 2021 EIAR (refer to **2021 EIAR, Volume 2, Figure 9.1**). The hydrology within the study area relevant to the Proposed Varied Development is shown on **Figure 9.1: Hydrological Overview** of this EIAR. This illustrates the main watercourse catchments, 50m buffers around watercourses (as mapped on 1:50,000 Ordnance Survey plans), private water supplies, water quality monitoring locations and location of Livishie Hydro Scheme infrastructure.

9.4.4. Proximity and potential changes to effects and impacts on water environment receptors has been reviewed for the Proposed Varied Development layout and compared against the layout of the Consented Development. Refer to **Figure 9.2: Hydrological Constraints & Watercourse Crossings - Consented Vs Varied Development**.

9.4.5. The following regulatory changes and updates to policy and guidance documents are noted and have been considered as part of the comparative assessment review:

- Scottish Planning Policy has been superseded by National Policy Framework 4 (NPF4) (Scottish Government, 2023);
- SEPA's guidance on groundwater abstractions (including PWS sources) has also been updated (SEPA, 2024a); and

- SEPA's LUPS 31 guidance regarding GWDTEs has been updated (SEPA, 2024b).
- SEPA's guidance on climate change allowances for flood risk assessment has been updated (SEPA, 2025).
- From the 1 November 2025, water, waste management and industrial activities will be regulated under the Environmental Authorisations (Scotland) Regulations 2018 (EASR).

9.5. Consented Development Vs Proposed Varied Development Baseline

Hydrology

9.5.1. The Site features numerous watercourses and water bodies draining two catchments: Allt Saigh catchment and the Allt Bhlaraidh catchment which connects to the River Moriston catchment. This remains the same for the Proposed Varied Development.

9.5.2. Consented Development infrastructure within the Allt Bhlaraidh / River Moriston catchment includes: the construction compound at the site entrance, which was also utilised during construction of the Operational Development; the temporary construction compound, which was also the site of the former batching plant for the Operational Development; and the access tracks via the existing wind farm tracks. This remains the same for the Proposed Varied Development, although some localised widening of bends and extension of culverts may be required to facilitate delivery of larger turbine components, however, no major works are required and all mitigation remains as for the Consented Development.

9.5.3. All turbines and associated infrastructure are located within the Allt Saigh catchment and this remains unchanged for the Proposed Varied Development. There are only a few areas where turbine relocation and realigned tracks are outwith the consented micrositing tolerance (refer to **Figure 1.4: Proposed Varied Development vs Consented Development Layout**).

9.5.4. The main watercourses within the study area are classed by SEPA as heavily modified water bodies (HMWB), influenced mainly by infrastructure of the Livishie hydro-electric scheme. The overall sensitivity of baseline hydrological resources is considered to be high, reflecting the Good classification of the Allt Saigh, Loch a'Chrathaich and the River Moriston and considering the River Moriston is a SAC. The Allt Bhlaraidh is currently recorded as having a Bad

classification due to water levels and flows. This baseline is unchanged from the Consented Development according to the most recent data (SEPA, 2023[1]).

9.5.5. There is no expected change to the hydrological baseline for the Proposed Varied Development.

Designated Sites

9.5.6. The River Moriston SAC, designated primarily as it supports a functional freshwater pearl mussel (*Margaritifera margaritifera*) population, is located 18m from the site entrance. The A887 lies between the river and the site entrance. Due to this separation and the limited nature of the works required in the vicinity of the SAC (re-use of previous construction compound only), the 2021 EIAR considered that pollution would have a low magnitude and short-term impact and the effect was concluded as not significant. (refer to **2021 EIAR, Volume 1, Chapter 9: Hydrology and Hydrogeology).** No change is expected for the Proposed Varied Development as no changes are proposed to infrastructure within the SAC catchment and all mitigation measures will remain the same as approved for the Consented Development.

Hydrogeology

9.5.7. Other than shallow peat (generally <1m), superficial cover is absent across the majority of the Site, with bedrock at or close to the surface (bedrock outcrops are widespread). This is confirmed by the 1:50,000 BGS Superficial Geology Map, site reconnaissance survey and Stage 1 and Stage 2 peat probing surveys undertaken for the Consented Development application, ground investigations undertaken in 2024, conditions reported during the construction of the Site Enabling Works in 2024, and further peat probing undertaken for the Proposed Varied Development. Peat in 2025 would be expected to have low permeability and inhibit groundwater flow.

9.5.8. The solid geology underlying the Site is all recorded as low productivity aquifer with small amounts of groundwater in near surface weathered zones and

[1] Water Classification Hub (https://informatics.sepa.org.uk/WaterClassificationHub/),.

secondary fractures. Any groundwater within peat or other localised superficial deposits is unlikely to be in hydrological connectivity with deeper groundwater.

9.5.9. The overall sensitivity of groundwater resources at the Site is considered to be low, reflecting the limited superficial cover which is unlikely to be in hydrological continuity with the deeper groundwater and the low productivity

9.5.10. bedrock aquifer. It is noted that this groundwater is within a groundwater drinking water protection zone.

9.5.11. There is no expected change to the hydrogeological baseline for the Proposed Varied Development.

GWDTE

9.5.12. Potential M15 (M15 and M15a, b, c and d) and M25a GWDTE habitats were identified based on NVC and Phase 1 habitat mapping (refer to **2021 EIAR, Volume 1, Chapter 5: Ecology**), and the majority of infrastructure is situated on M15c. For the Consented Development, SEPA agreed that these habitats are unlikely to be groundwater fed and are instead fed by surface water run-off and incident rainfall.

9.5.13. NVC mapping also identified two small areas of M11 (flush) (*Carex demissa-Saxifraga* aizoides mire). These areas were too small to be mapped but are identified in target notes. The location is shown on **Figure 5.3: NVC Communities** of this EIAR and the Target Notes are described in 2021 EIAR, Volume 4, **Technical Appendix 5.1: Methodology and Results for Baseline Data Collection**). While M11 mire is classed as potentially highly groundwater dependent, it was concluded that in this setting the habitat is not groundwater dependent. It is however recognised as an unusual wetland habitat and mitigation was identified.

9.5.14. Of the two M11 areas, the smaller area (refer to Target Note 1, **Figure 5.3.3: NVC Communities**) was previously located beneath an access track and borrow pit search area near Turbine 11. The varied alignment of the access track has moved it downhill to the east and therefore no direct or indirect impacts are possible from track construction. Potential impacts from borrow pit working are still possible, however this will be mitigated through micrositing and avoidance of working in this part of the borrow pit search area. The slightly larger M11 area (Target Notes 2a and 2b) remain located uphill from the nearest infrastructure (an access track), although the revised alignment of the approach access track and T11 auxiliary crane pads could potential encroach on the area identified at Target Note 2b. Mitigation remains the same as for the Consented Development through identification and marking of

M11 pockets ahead of construction and micrositing and therefore direct and indirect impacts are avoidable.

9.5.15. In terms of GWDTE, there is no change to the baseline for the Proposed Varied Development.

Public and Private Water Supplies (PWS)

9.5.16. Seven PWSs were identified (refer to **2021 EIAR, Volume 1, Chapter 9: Hydrology and Hydrogeology (Table 9.6) and Volume 2, Figure 9.7 Private Water Supplies**) within the study area, comprising a mixture of groundwater and surface abstracted water supplies. The overall sensitivity of PWS was considered to be low / negligible and no significant risks were identified. An updated PWS risk assessment (PWSRA) was completed in 2024[2] **(Technical Appendix 3.6f: Private Water Supply Risk Assessment)** which identified two PWSs, Bhlaraidh Wind Farm PWS and Briarbank PWS, that are assigned a Low risk (no measurable impact on receptor is predicted) and protection through the implementation of a programme of water level and quality monitoring, which supplement the embedded mitigation measures set out in the CEMP has been approved and secured through planning Conditions 13 & 29. No changes to this baseline are expected for the Proposed Varied Development.

9.5.17. While the proposal is within a drinking water catchment where a Scottish Water abstraction is located, the abstraction relates to the supply of water from Loch Ness to Invermoriston Water Treatment Works as opposed to a drinking water supply abstraction point. The 2021 EIAR states that the development is sufficiently distanced from the intake that it is likely to be very low risk therefore no action is required.

9.5.18. In their consultation response on the Consented Development, Scottish Water requested further involvement at the more detailed design stages, to determine the most appropriate proposals and mitigation within the catchment to protect water quality and quantity. As part of the detailed design for the Consented Development (post consent), a 110mm HPPE water main was identified within the road verge at the site entrance. With the exception of this

[2] Natural Power (2024) Bhlaraidh Extension Wind Farm: Private Water Supply Risk Assessment

water main at the site entrance, no changes to the baseline in relation to public water supplies are identified for the Proposed Varied Development.

9.5.19. The baseline for the Consented Development, including the addition of the two PWS identified in the updated PWS risk assessment, remains valid for the Proposed Varied Development.

Flooding

9.5.20. The flood risk assessment (refer to **2021 EIAR, Volume 4, Technical Appendix 9.2: Flood Risk Assessment**) considered risks to the River Moriston SAC, local surface water environment (including all watercourses considered to have a high sensitivity), groundwater (with respect to superficial deposits and bedrock geology) and Private Water Supplies (with respect to locations sourced from surface waters). The Site's risk to flooding has been designated to be low to negligible risk and this is not expected to change for the Proposed Varied Development.

Watercourse Crossings

9.5.21. There are six major watercourse crossings (shown on OS 1:50,000 mapping), several additional (minor) crossings originating from minor watercourses (not shown on OS mapping) and discrete watershed pathways which are common in upland areas. The Watercourse Crossing Schedule presented in **2022 AIR Appendix 9.1: Updated Watercourse Crossing Schedule** describes the solution for each crossing included in the Consented Development.

9.5.22. All major crossings remain unchanged for the Proposed Varied Development. The turbine and track realignment proposed for the Proposed Varied Development has necessitated some adjustment to the location of minor watercourse crossings, or in some cases crossings have been removed from the scheme. Only three new 'additional' crossings have been identified for the revised layout. The changes are identified in the updated Watercourse Crossing Schedule presented in **Technical Appendix 9.1: Proposed Varied Development Watercourse Crossing Schedule**, illustrated on **Figure 9.2**, and summarised in **Table 9.3**. The watercourse crossing locations for the Proposed Varied Development are illustrated on **Figure 9.3**.

Table 9.3: Summary of Changes to Watercourse Crossing Schedule

Type of Crossing	Changes required for Proposed Varied Development
Major watercourse crossing	• No change. 6 major crossings were consented and this remains unchanged. Construction of WXC-01, located to the west of T07, was completed as part of the Site Enabling Works. The design of the bridge structure was approved through Planning Condition 6 and 14 prior to commencement of the Site Enabling Works. The bridge design is also suitable for delivery of the turbine components for the Proposed Varied Development.
Additional watercourse crossing	• 3 new (discrete or minor) crossings identified due to increase hard stand at T08 and realigned access track to T11. • 3 crossings to be repositioned due to track realignment. • Removal of 2 minor crossings due to shortening of T05 spur and realignment of T10 spur.
Existing watercourse crossing	• 3 existing (discrete or minor) crossings to be repositioned due to track realignment. • Removal of 6 existing crossings due to shortening of T16 spur.

Baseline Summary

9.5.23. For the Consented Development, potential effects on hydrological and hydrogeological receptors have been assessed as **Negligible** to **Minor Adverse** and not significant. The significance of residual effects on hydrological and hydrogeological receptors is considered to be **Negligible** to **Minor Adverse** and not significant.

9.5.24. The Proposed Varied Development layout does not encroach on mapped (OS 1:50,000 watercourse buffers. Most of the changes to the site layout for the Proposed Varied Development lie within the micrositing tolerance of the Consented Development. Where infrastructure lies outwith the consented micrositing limits, no locations encroach on watercourse buffers.

9.5.25. Changes to watercourse crossings will result in the beneficial removal of a total of eight minor or existing crossings, neutral effects from repositioning of a

total of six minor or existing crossings, and new crossings are only required at three locations to maintain drainage continuity in boggy ground.

9.5.26. Impacts and mitigation specified and approved for the Consented Development for any potential impacts on hydrology, hydrogeology, GWDTE, or flood risk remain unchanged for the Proposed Varied Development.

9.5.27. The private water supply risk assessment was updated to satisfy planning Condition 29 for the Consented Development and two PWSs, Bhlariadh Wind Farm PWS and Briarbank PWS, were identified as at low risk (although no measurable impact on receptors is predicted). This remains unchanged for the Proposed Varied Development.

9.6. Mitigation Measures

9.6.1. All previously applied buffers surrounding watercourses and waterbodies have been applied for the Proposed Varied Development layout. All embedded mitigation, good working practices, controls and monitoring as set out in the **2021 EIAR (Chapter 9: Hydrology and Hydrogeology)** for the Consented Development and presented in documents submitted to satisfy pre-commencement planning conditions, e.g. the CEMP and WQFMP, are considered wholly appropriate for the Proposed Varied Development.

9.6.2. The CEMP and WQFMP have been approved as part of the satisfaction of the pre-commencement elements of planning Conditions 13 and 29 for the Consented Development. These documents will have been reviewed to ensure any changes to guidance, policy or regulation are captured prior to commencement of construction on the Proposed Varied Development. However, the procedures ensuring mitigation and controls will be applied and implemented for the construction, operation and decommissioning of the Consented Development will also apply to the Proposed Varied Development. This includes all measures detailed within the CEMP (**Technical Appendix 3.6e**), the PWS Risk Assessment (**Technical Appendix 3.6f**), and the WQFMP (**Technical Appendix 3.6g)** included for reference in this EIAR.

9.6.3. Prior to commencement of development on the Proposed Varied Development, agreement will be reached with Scottish Water on any required protection measures at the site entrance to ensure no damage to the water main. The section of the Water Main running under the visibility splay at the site entrance has been reinforced to facilitate deliveries of turbine components for the operational wind farm. However, the suitability of the protection measures will be reviewed at detailed design stage to ensure they are also

suitable for delivery of turbine components for the Proposed Varied Development.

9.6.4. In accordance with planning Condition 14, crossings will be designed to accommodate the 0.5% annual exceedance probability flows with an appropriate allowance for climate change.

9.7. Summary and Conclusions

9.7.1. The **2021 EIAR** concluded that the potential effects on hydrological and hydrogeological receptors were assessed as **Negligible** to **Minor Adverse** and not significant. The significance of residual effects on hydrological and hydrogeological receptors was considered to be negligible to **Minor Adverse** and not significant. This was subject to appropriate mitigation measures, to be managed through a CEMP and adherence to regulatory guidance.

9.7.2. The baseline conditions at the site remain the same as for the Consented Development assessment and no new receptors are identified.

9.7.3. Revised infrastructure alignments have been selected to ensure maximum distances from watercourses is maintained. The Proposed Varied Development layout does not encroach on watercourse buffers and the majority of the changes to the site layout lie within the micrositing limits of the Consented Development. Where infrastructure lies outwith the consented micrositing limits, there is no encroach on watercourse buffers.

9.7.4. Changes to watercourse crossings will result in the beneficial removal of a total of eight minor or existing crossings, neutral effects from repositioning of a total of six minor or existing crossings, and new crossings are only required at three locations to maintain drainage continuity in boggy ground.

9.7.5. No changes to hydrology, hydrogeology, GWDTE, or flood risk assessments is required as a result of any of the changes proposed.

9.7.6. Private water supply risk assessment has been updated for two PWSs, Bhlaraidh Wind Farm PWS and Briarbank PWS; these have been assigned Low risk (no measurable impact on receptor is predicted).

9.7.7. All mitigation, controls and monitoring presented within the approved CEMP and WQFMP will be adhered during construction, operation and decommissioning of the Proposed Varied Development.

9.7.8. It is considered that the proposed changes to the layout of the development will not change the Consented Development impact assessment conclusions

and the residual effects on hydrological and hydrogeological receptors as a result of the Proposed varied Development are also considered to be **Negligible** to **Minor Adverse** and therefore not significant in EIA terms.

9.8. References

Natural Power (2024) Bhlaraidh Extension Wind Farm: Private Water Supply Risk Assessment

Scottish Environment Protection Agency (2024a) Guidance on Assessing the Impacts on Groundwater Abstractions.

Scottish Environment Protection Agency (2024a) Guidance on Assessing the Impacts on Groundwater Dependent Terrestrial Ecosystems.

Scottish Government (2023) National Planning Framework 4.

The Highland Council (2025) Highland Council Open Map Data, available online at https://map-highland.opendata.arcgis.com/ [Accessed August 2025].

Scottish Environment Protection Agency (2025) Climate change allowances for flood risk assessment in land use planning, Version 6.

Scottish Environment Protection Agency (2025) Water Classification Hub, available online at: https://informatics.sepa.org.uk/WaterClassificationHub/ [Accessed November 2025].