

# Balliemeanoch Pumped Storage Hydro

Further Environmental Information

ILI (Borders PSH) Ltd

June 2025

## Quality information

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## Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	23-06-2025	Final	DL		Technical Director

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# 1. Introduction

## 1.1 Overview

This submission of Further Environmental Information (FEI) has been prepared by AECOM on behalf of ILI (Borders PSH) Ltd (hereafter referred to as the '**Applicant**'). This contains additional information in relation to the application made to the Scottish Ministers under Section 36 (s36) of the Electricity Act 1989 for the proposed Balliemanoeh Pumped Storage Hydro Scheme, hereby known as the '**Development**'.

## 1.2 Requirement to Consult and Advertise

During the determination of the s36 application, additional information is being provided due to an update of the Development layout. As this update is considered to be relevant to reaching a reasoned conclusion on the acceptability of the Development, this is considered by the Energy Consents Unit, on behalf of the Scottish Ministers, to constitute additional information (hereafter referred to as '**FEI**') under regulation 19(2) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('**the Regs**').

Regulation 20(1) of the Regs requires a notice to be published in the Edinburgh Gazette and in a publication circulating in the locality of the Development following the provision of FEI to the Scottish Ministers. This notice must also be served directly upon relevant parties, including the planning authority (Argyll and Bute Council in this instance) and any other bodies originally consulted during the s36 application consultation process.

The notice will be published in the following publications:

- Dunoon Observer on Friday 27th June 2025
- Oban Times on Thursday 26th June 2025
- Lochaber Times on Thursday 26th June 2025
- Argyllshire Advertiser on Thursday 26th June 2025
- Campbeltown Courier on Thursday 26th June 2025
- Arran Banner on Thursday 26th June 2025
- Edinburgh Gazette on Friday 27th June 2025.

The notice will also be published on the Applicant's website: <https://www.balliemanoehpsh.co.uk/>

The notice details that the FEI submission will be available for public viewing at the following locations:

- Oban, Lorn and the Isles Argyll & Bute Council Planning Office, Municipal Buildings, Albany Street, Oban PA34 4AW
- Dalmally Community Centre, Dalmally Community Centre, Dalmally, PA33 1AX
- Portsonachan Village Hall, Portsonachan, by Dalmally, Argyll, PA33 1BJ
- West Lochfyneside Parish Church, 3 Main St E, Inveraray PA32 8TP

The FEI will also be available for viewing on the application website at <https://www.balliemanoehpsh.co.uk> and at [www.energyconsents.scot](http://www.energyconsents.scot).

## 1.3 Structure of the Further Environmental Information

The contents of this FEI submission are as follows:

- **Section 2** – Summary of main consultation feedback and design update
- **Section 3** – Design review for the Headpond

- **Section 4** – Update Environmental Impact Assessment

This FEI also contains the following Appendices located at the end of this report:

- **Appendix A** – Revised Layout
- **Appendix B** – Revised oLEMP Figures
- **Appendix C** – Revised Visualisation
- **Appendix D** – Terrestrial Ecology / Geology and Soils
- **Appendix E** – Draft Outline Peat Management Plan
- **Appendix F** – Preliminary Peat Landslide Hazard Risk Assessment
- **Appendix G** – Outline Peatland Restoration Plan
- **Appendix H**– Water Resource and Flood Risk
- **Appendix I** – Framework Construction Traffic Management Plan
- **Appendix J** – Summary EIA Residual Effects with FEI Changes
- **Appendix K** – Updated EIAR Figures

## 2. Consultation and Design Update Summary

### 2.1 Introduction

Further to the submission of the s36 application for the Development there were a number of representations received from stakeholders and consultees. The Applicant has, in turn, revised the proposal by significantly reducing the scale of the Development, particularly the upper reservoir, in order to resolve the issues raised.

The common issue raised in post application consultation with the community around Loch Awe was the Development's impact on water levels on the loch. The Applicant has reviewed the design and taken the necessary steps to reduce the volume of water used, the rate of flow of this water, Development operational duration, and the upper and lower limits of that operation. The Applicant has therefore chosen to reduce the storage volume in the Headpond from 51.60 Mm<sup>3</sup> to 14.68 Mm<sup>3</sup>, which reduces the volume of water and the length of time that the Development can operate. The installed generation capacity remains as described in the s36 application as "up to 1500 MW", but in order to achieve the above the Applicant has had to reduce that output to a fixed capacity of 900 MW, in line with the grid connection agreement. This reduces the rate of flow, and the rate at which Loch levels will be seen to change. The location of the Headpond is unchanged, although it is reduced in size, and Loch Awe remains the Tailpond for the Development. The loch-side infrastructure on Loch Awe itself also remains unchanged. The revised layout of the Development is shown in **Appendix A**. None of the proposed changes to the layout and design have resulted in worse effects than those reported in the EIAR, with these showing no change or and improvement upon the original s36 submission.

### 2.2 Summary of Key Development Changes

- The volume of water used has reduced from approximately 52 million cubic meters to approximately 15 million cubic meters.
- The changes in water level on Loch Awe which can result from the operation of this Development has reduced from 1.2 m to 0.4 m.
- The rate at which the loch water levels can change as a result of the operation of this Development has also been reduced to around 28 mm per hour (a little over 1 inch), with the duration of operation reduced from over 30 hours to 15 hours.
- Embankment 1 reduced in height from 95 m to 63 m (above existing ground level). Embankment 2 has reduced in height from 13 m to 9 m.

- The installed generation capacity has been reduced to accommodate the above operational changes, to 900 MW (from 1500 MW).
- Borrow pit (for dam construction material) reduced from 10,678,050 m<sup>3</sup> to 2,432,660 m<sup>3</sup> with much reduced peat excavation from 642,450 m<sup>3</sup> to 140,560 m<sup>3</sup>.
- The proposed upper limit at which the project can operate has also been brought down by 470 mm, meaning when the loch is naturally very high and rising because of heavy rain, the project will not add further water back into the loch. Instead, any extracted water will remain in the Headpond under those conditions, thereby reducing the maximum level to which the loch will rise.

## 3. Design Review for Headpond

### 3.1 Introduction

The Applicant has received specific comments from a number of consultees regarding water levels and flows within Loch Awe during operation of the Development. This resulted in the design being re-evaluated to manage water levels within a range that is likely to be considered more appropriate.

The following sections set out a description of the design changes, which can be seen in **Appendix A**.

### 3.2 Design Changes Headpond

As noted within **Section 2.2** above, the Headpond and storage capacity for the Development have been re-evaluated, as set out below in **Table 3-1**. The table demonstrates the beneficial results of reducing the size of the Headpond and installed generation capacity.

The re-evaluated Headpond has been considered with the same Top Water Level (420 mAOD) and Bottom Water Level (384 mAOD) as set out in the original s36 application. Note, all changes to the Headpond are within the footprint / envelope of the original design submitted for s36 consent, and the description and location of the Development have not changed. The below shows the original design and the revised design, with further figures within **Appendix A Revised Layout**.



**Table 3-1 Headpond Design Review**

Infrastructure ID	'Original' Design Location (National Grid Reference (NGR))	Re-evaluated Location (NGR)	Details
Embankment 1	NN 04110 16014	NN 04540 16687	Embankment 1 has been relocated and realigned, accounting for the topography of the area. Top water levels within the Headpond have been retained at the levels set out in the s36 application, however, the crest level of the dam has been reduced 2 m, from 425 mAOD to 423 mAOD. Due to the rising topography, the maximum elevation above existing ground reduces the height of the embankment from approximately 95 m to approximately 63 m.
Embankment 2	NN 04929 17519	NN 04939 17478	Embankment 2 has been relocated and realigned to take account of the topography. The crest level of the dam has also been reduced from 425 mAOD to 423 mAOD, in alignment with Embankment 1. Accounting for this new arrangement, the maximum elevation above existing ground level has been reduced from approximately 13 m to approximately 9 m.
Headpond Inlet / Outlet Structure	NN 04099 16477	NN 04429 16877	The Headpond Inlet / Outlet Structure has been relocated to sit within the basin of the re-evaluated Headpond. Due to the topography, an inlet trench is required to house the Headpond Inlet / Outlet Structure. The inlet trench measures approximately 240 m x 60 m and has a maximum cut of

approximately 49 m. The material from the inlet trench is identified for use in the construction of the embankments.

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Borrow Pit (BP) 01	NN 04837 16054	NN 04975 16875	BP01 has been relocated approximately to sit within the basin of the re-evaluated Headpond. Due to a reduced material requirements for the construction of the embankments, BP01 has been resized accordingly. BP01 measures approximately 365 m x 375 m and has a maximum cut of approximately 64 m.
Spillway	NN 03690 16481	NN 04976 16556	The Spillway has been relocated to align with the re-evaluated Headpond. Due to the local topography, the spillway type has been amended from an open channel to an overflow weir, embedded into the outer face of Embankment 1. This will spill into an unnamed tributary of Allt Beochlich should operational conditions necessitate its use.

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## Non-Headpond Above Ground Infrastructure

The location of some of the surface works has been revised to suit the re-evaluated Headpond layout. The overall length of tracks remains broadly in line with the original submission, with some temporary stretches of track now being reclassified as permanent as a result of the repositioning of certain above ground elements. These changes are set out below in **Table 3-2**.

**Table 3-2 Non-Headpond Design Review**

Infrastructure ID	'Original' Design Location (National Grid Reference (NGR))	Re-evaluated Location (NGR)	Details
New Access Tracks (Excavated)	-	-	<p>The original s36 submission utilised existing tracks with some new access track proposed. The total length of new access tracks (excavated) has increased by approximately 2,500 m, to a total length of 6,650 m due to the following:</p> <ul style="list-style-type: none"> <li>Relocation of PC09</li> <li>The re-classification of the proposed access track to the north of the Headpond from temporary to permanent, to provide access to the relocated PC17, PC18 and PC19.</li> </ul> <p>Note, access to PC17 – PC19 was previously proposed across the crest of Embankment 1. Due to topographical constraints in the re-evaluated location, this is no longer feasible, hence the re-classification of the temporary access track to permanent.</p>
New Access Tracks (Floating)	-	-	<p>The total length of floating access tracks has increased by approximately 60m from the original s36 submission, to a total length of 3,867 m (+2 %). This is due to the relocation of PC09.</p>
New Access Tracks (Floating Transition)	-	-	<p>The total length of floating transitions has increased by 25m, to a total length of 535 m (+ 5%). This is due to the relocation of PC09.</p>
Temp. Construction Access	-	-	<p>The total length of temporary construction access tracks has reduced by 2,715m to a total length of 2,683 m (- 50.23%). This is largely due to the re-classification of the proposed access track to the north of the Headpond area from temporary to permanent. Overall the total length of tracks (permanent and temporary) is broadly similar to the previous scheme.</p>
Permanent Compound (PC) 09	NN 03816 15871	NN 04655 16526	PC09 has been relocated to align with the re-evaluated Headpond Embankment 1.
PC17	NN 03809 16644	NN 04198 16956	PC17 has been relocated to align with changes to the below ground infrastructure ( <b>Table 3-3</b> ) following re-evaluation of the Headpond. PC17 is the location of the Gate Shaft, and the finished elevation is consistent with the original s36 application.
PC18	NN 03678 16748	NN 04078 16996	PC18 has been relocated to align with changes to the below ground infrastructure ( <b>Table 3-3</b> ) following re-evaluation of the Headpond. PC17 is the location at which the Surge Shaft will sit at surface level. The finished elevation is consistent with the original s36 application.
PC19	NN 03646 16875	NN 03936 17009	PC19 has been relocated to align with changes to the below ground infrastructure ( <b>Table 3-3</b> ) following re-evaluation of the Headpond. PC19 is the location of the Ventilation Shaft will sit at surface level. The finished elevation is consistent with the original s36 application.

## Below Ground Infrastructure

The location of below ground infrastructure, while not a 'visible' change to the Development, has also been revised in order to optimise the hydraulic system and reduce losses through the system. To reduce losses, the Upper Headrace Tunnel (between the Headpond Inlet / Outlet Structure and the vertical pressure shaft) and the Lower Headrace Tunnel (between the bottom of the vertical pressure shaft and the Power Cavern Complex) has been limited in length. The components along this section of waterways have therefore been realigned as part of the re-evaluated design.

The location of the dry tunnel portals has been retained as per the 'original' s36 submission as well as the Tailpond Inlet / Outlet Structure and the revised arrangements will not alter the proposals on Loch Awe. These changes are set out in **Table 3-3**.

**Table 3-3 Below Ground Infrastructure Design Review**

Infrastructure ID	'Original' s36 submission Location (National Grid Reference (NGR))	Re-evaluated Location (NGR)	Details
Upper Gate Shaft	NN 03809 16644	NN 04198 16956	The Upper Gate Shaft has been relocated, in line with the realigned Headrace Tunnel. The Upper Gate Shaft emerges at surface level at PC17, as set out in <b>Table 3-2</b> .
Upper Surge Shaft	NN 03678 16748	NN 04078 16996	The Upper Surge Shaft has been relocated, in line with the realigned Headrace Tunnel. The Upper Surge Shaft emerges at surface level at PC18, as set out in <b>Table 3-2</b> .
Upper Ventilation Shaft	NN 03646 16875	NN 03936 17009	The Upper Ventilation Shaft has been relocated, in line with the realigned Headrace Tunnel. The Upper Ventilation Shaft emerges at surface level at PC19, as set out in <b>Table 3-2</b> .
Power Cavern Complex	NN 03272 16763	NN 03671 16987	The Power Cavern Complex has been moved to minimise the distance between the re-evaluated location of the Headpond Inlet / Outlet Structure and the cavern.
Lower Surge Tank	NN 03219 16648	NN 03620 16866	The Lower Surge Tank has been moved to minimise the distance to line up with the updated Power Cavern Complex.
Wet Tunnels	-	-	The waterways have been realigned to align with the re-evaluated Headpond design, specifically the location of the Headpond Inlet / Outlet Structure. Largely, the alignment is as per the 'original' s36 submission, however, the Headrace Tunnel has been moved in line with the Power Cavern Complex. The Headrace tunnel has been reduced in length by 96m to 574m (- 14%). Meanwhile, the Tailrace tunnel has been increased by 445m to 2,730m (+ 16%).
Dry Tunnels	-	-	The dry tunnels have been realigned to match up with the realigned Power Cavern Complex. The end location of the dry tunnels is consistent with the 'original' submission, with changes to the lengths as follows: <ul style="list-style-type: none"> <li>• Construction Tunnel: Increase by 460m (+ 17%).</li> <li>• Access Tunnel: Increase by 595m (+ 20%).</li> <li>• Cable Tunnel: Increase by 545m (+ 14%).</li> </ul>

## 4. Environmental Assessment

The above sections set out the engineering optimisation which has been undertaken to demonstrate the result of reducing the size of the Headpond. The reduced Headpond results in reduced flow rates and changes within Loch Awe as set out above in **Sections 2 and 3**, and shown on associated figures within **Appendix A**. This design change has the potential to remove or reduce the impact of previously reported adverse effects as set out below.

### 4.1 Landscape and Visual (re: EIAR Chapter 5)

As set out in the s36 application within the Landscape and Visual chapter (**Chapter 5 Landscape and Visual Assessment**), it is acknowledged that there would be certain significant adverse effects arising from the Development during the construction period on a number of both landscape and visual receptors. This is considered to be typical of large-scale energy infrastructure due to the nature of the large-scale works and the sensitivity of receptors within the wider landscape. Such effects have been reduced where possible through the siting and design of the Development. By year 1 of operation, the anticipated significant adverse effects arising from the Development would reduce to none of the landscape designations, two of the Landscape Character Types (LCTs) which host the Development, and eight of the representative viewpoint locations which are typically in close proximity or with panoramic elevated views of the surrounding landscape. By year 15 of operation once reinstatement planting has established, no significant landscape effects are predicted.

Within the s36 application, one significant visual effect remained from Dalavich Jetty (Viewpoint 4) at operation year 15. However, due to the design changes, specifically the reduction in embankment height and alteration in location of the embankment, it is considered that the effects from this viewpoint would reduce to minor adverse at operation year 1 and 15, resulting in no significant adverse effects on landscape or visual receptors at operation year 15 arising from the Development. This is due to the reduced horizontal extent of Embankment 1 in the background of the view. The Embankment would no longer break the skyline, which would remove any effects on the undulating nature of the skyline and would be less noticeable as it would be set against the higher landform beyond rather than the sky. The revised visualisations for Viewpoint 4 can be found within **Appendix C**.

With regard to landscape and visual matters in general, the main design change of relevance is the reduction in size of the Headpond. Despite the entirety of the Headpond waterbody being reduced, the new Headpond Embankment 1 is approximately the same length as set out within the original s36 application and would be at a similar, albeit reduced, height as the previous alignment. The undulating upland landscape in this locality is generally at a similar level, so it not considered that the change in location would have a material change to the landscape and visual effects arising from the Development. For both Embankment 1 and Embankment 2, the maximum elevation above ground has been reduced from the design set out within the original s36 application, therefore this change is likely to result in no change or reduce the original effects as there is likely to be a similar relationship with surrounding landform.

Lochan Airigh would no longer be flooded out to facilitate the Headpond waterbody and the reduced land take would be positive in terms of previously reported effects on landscape character and visual amenity from elevated viewpoints. The proximity of the Headpond waterbody to Lochan Airigh may accentuate the contrast of the straight lines of the embankment and drawdown of the waterbody. However, this would be in a localised area of landscape character and would remain to highly contrast the perception of wildness within the host LCT (LCT 40 Craggy Upland) and would be incongruent within the landscape, as previously reported at operation year 1. It is considered that by operation year 15, the mitigation planting and habitat restoration would continue to help to assimilate the Development into the local landscape setting. This would generally be apparent in a small part of any elevated views such that the contrast would be less noticeable.

### 4.2 Terrestrial Ecology (re: EIAR Chapter 6)

Only two Significant<sup>1</sup> effects from the Development alone, and before mitigation, were predicted in the EIAR: loss of ancient semi-natural woodland and loss of blanket bog. These are both issues raised by consultees following submission of the s36 application. A discussion of how the revised design of the Development changes the assessment of effects on these features is therefore given below.

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<sup>1</sup> 'Significant' effects in Chapter 6: Terrestrial Ecology were considered to be those effects on ecological features which were expected to be of 'Regional' significance or higher, adopting Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment.

## 4.2.1 Ancient Semi-natural Woodland

**Section 6.7.7 of Chapter 6: Terrestrial Ecology** of the EIAR concluded that construction of the Development could result in the unavoidable loss of a maximum of 0.42 ha of ancient semi-natural woodland, in the area of the proposed Tailpond, adjacent to Loch Awe. All other possible impacts on ancient woodland, including from water level variations in Loch Awe, were assessed as having Negligible effect on this ecological feature. The revised design of the Development will not change the area of ancient woodland that will be lost to construction activities, as this impact will occur at the Tailpond, where there is no change to the design. Given this, and the fact that the original EIAR concluded Negligible effects on ancient woodland from other impact sources, there is no change to the conclusion reached previously, this being that the Development alone will result in Permanent Adverse effect Regional Significance, which is Significant, in the absence of mitigation.

To mitigate for the loss of ancient semi-natural woodland, the Outline Landscape and Ecological Management Plan (oLEMP) submitted with the original s36 application included the following commitments:

- Extensive ecologically-appropriate planting of woodland to expand native woodland beside Loch Awe and nearby, in places also providing visual screening of Tailpond infrastructure;
- Rehabilitation of the caravan zone near the Tailpond by a) removal of caravans, non-native plants, ruderal vegetation and hard-standing; b) planting of appropriate native trees (as standards rather than saplings) to suit and expand the existing thin strip of ancient woodland here; and c) translocation of turves (including deep soil) of ancient woodland ground flora from the Tailpond area to this rehabilitation zone, to replace existing soil/vegetation where currently degraded, under existing trees or planted standards; and
- For retained ancient semi-natural woodland close to works and at possible risk of incursion by works activity, an Ecological Clerk of Works (ECoW) will supervise appropriate demarcation and signposting to exclude plant, vehicles, materials or personnel, and will monitor the exclusion zones to ensure compliance and to take action in the event of non-compliance. This will be additional to standard tree protection measures already included as embedded mitigation.

Following the implementation of mitigation measures summarised above and described in the oLEMP, it was concluded that there would be a residual Permanent Adverse effect of Local Significance, which in the context of the EIAR for the Development was considered to be Not Significant.

An assessment of the cumulative effects of the Development with other developments was carried out and is described in **Section 6.8.1 of Chapter 6: Terrestrial Ecology**. No schemes were identified at the time of conducting the EIA. However, in subsequent consultation, Argyll and Bute Council advised that Creag Dubh to Dalmally 275 kV overhead line project, located in the same Natural Heritage Zone (NHZ) as the Development will result in the loss of ancient semi-natural woodland. The EIA Report for Creag Dubh to Dalmally was therefore reviewed. It estimates that that project will (in the worst-case) result in a loss of approximately 11.65 ha of ancient semi-natural woodland. The cumulative loss of the Development and the Creag Dubh to Dalmally 275 kV project would therefore equate to approximately 12.07 ha (with both projects committed to planting of native woodland). In the context of the area around Loch Awe only, and not in the wider NHZ 14, the cumulative loss of ancient semi-natural woodland would be approximately 1.8%. This figure would be substantially lower for the whole NHZ. The cumulative losses of ancient semi-natural woodland would therefore be significant at a Local level only, and would not be considered Regionally significant.

## 4.2.2 Blanket Bog

**Section 6.7.9 of Chapter 6: Terrestrial Ecology** concluded that the loss of blanket bog (approximately 37 ha of which is considered to be degraded, and 50 ha of which is considered to be intact) would result in a Permanent Adverse effect of Regional Significance, and in the context of the EIAR, this is Significant.

The revised design of the Development means that the permanent loss of blanket bog from direct impacts will be approximately 47.7 ha and the temporary loss of blanket bog from direct impacts will be 10.5 ha. The total area of blanket bog loss predicted in the EIAR, for comparison, was approximately 87 ha. Due to the reduction in size of the Headpond, the area of land available for enhancement of bog/heath under the existing Outline Landscape and Ecological Management Plan (oLEMP) would increase to approximately 538 ha (or approximately 5.3 km<sup>2</sup>). Revised oLEMP figures can be found within **Appendix B** and the Outline Peatland Restoration Plan in **Appendix G**.

Acknowledging NatureScot's comments to ECU, the applicant understands that to compensate for the loss of 58.2 ha of blanket bog, approximately 582 ha will need to be enhanced (to achieve a ratio of 1:10 for loss: enhanced). Further, to then achieve an overall net gain, and comply with NPF4, an additional 5.82 ha of blanket bog enhancement will be required (equating to 10% of the area to be lost). In total therefore, an area of approximately 587.82 ha (5.87 km<sup>2</sup> requires restoration/enhancement). While some of that can be delivered on the Development Site within the oLEMP area, it may be necessary to identify an off-site location or locations to meet the total area required. The applicant is therefore committed to developing, post-submission and as a condition of consent, a detailed Peatland Restoration Plan which achieves a total area of 590 ha of peatland restoration/enhancement. This would follow NatureScot Peatland ACTION guidance and would not rely on cessation of burning (noting the Peatland ACTION guidance and NatureScot comments on the oLEMP). The detailed Peatland Restoration Plan would be submitted to NatureScot for approval prior to commencement of construction activities for the Development.

Section 6.8.1 considered the cumulative effects of blanket bog loss arising from the Development and other large infrastructure schemes in the surrounding area. It was concluded that there would be no significant cumulative effects from the combined impacts of the identified schemes.

## 4.3 Aquatic Ecology (re: EIAR Chapter 7)

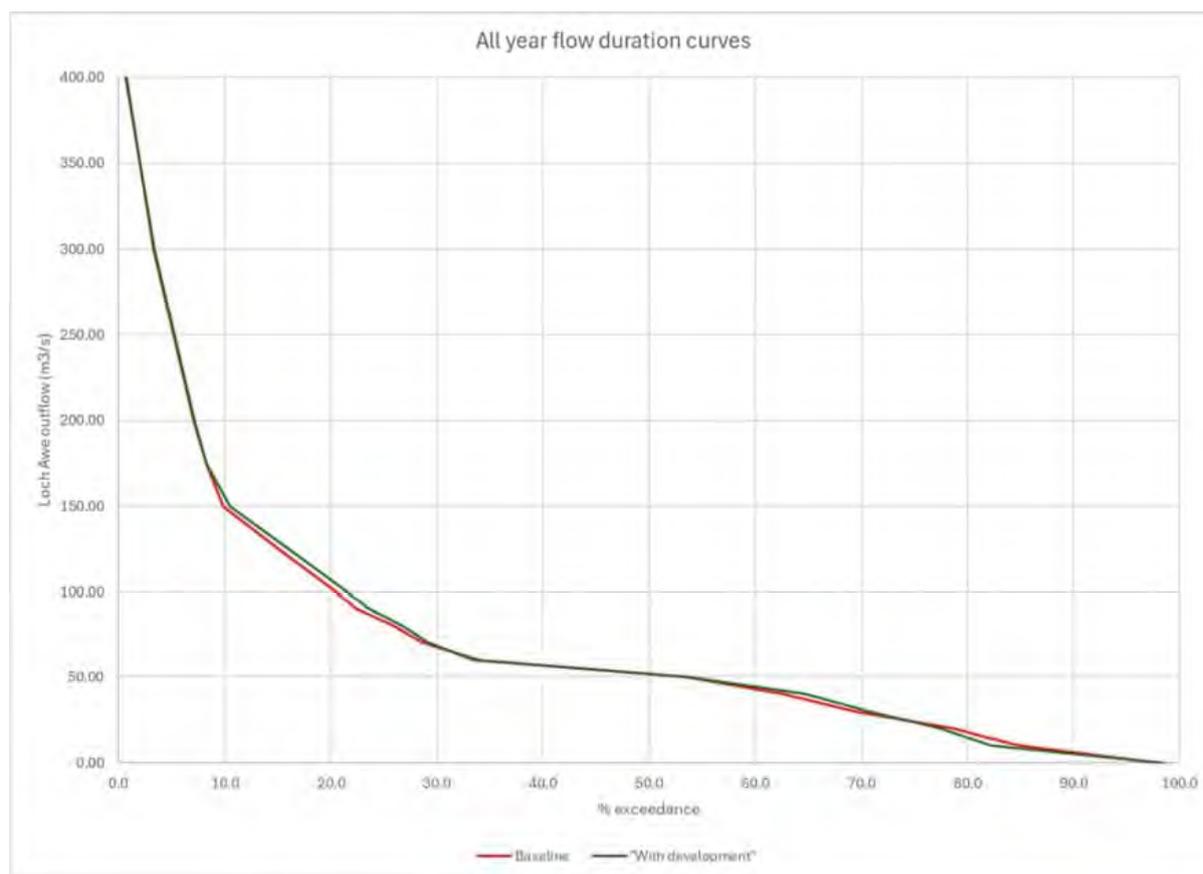
**Section 7.11.2.1 of Chapter 7: Aquatic Ecology** concluded that due to regular generation cycles with water pumped up to the Headpond then returned to the loch, water levels in Loch Awe will fluctuate to a greater extent than in the baseline scenario, and with greater regularity. Due to fluctuating water levels there will be resulting effects on the Loch Awe Barrage, associated fish lift and fish passage. This would result in a moderate effect on migratory fish species in Loch Awe and River Awe, including Atlantic salmon, brown/sea trout, European eel, and lamprey species, and in the context of the EIAR, this is Significant.

The changes in water level that can result from the operation of the Development is being reduced from 1.2 m to 0.4 due to the revised design. Modelling of the outflow at the Awe Barrage with the operation of the revised Development shows that changes in flow will be negligible (<5%) over the course of the year (Figure 4.3.1). The baseline outflow rating at the barrage is estimated based on the change in volume of the loch and the calculated inflow to determine the total outflow from the loch, but it is uncertain what proportion of outflow involves pumping into Cruachan Headpond, abstraction into the Barrage hydro-electric intake, flow through the fish pass or any other compensation flow arrangement. Given the results of the current modelling approach for the revised scheme, the upstream migration of fish from the River Awe into Loch Awe will not be affected.

Given that the magnitude of the changes in water level on Loch Awe are being reduced by two-thirds, and that negligible changes in flows are expected from Loch Awe into the River Awe, the resulting moderate adverse effect on migratory fish species in Loch Awe and River Awe is considered as being mitigated to a minor adverse effect and is Not Significant.

All other residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect such as those described above, the overall conclusions of Chapter 7 in the EIAR still apply.

Figure 4.3.1: Modelled flow duration curve for the River Awe



## 4.4 Marine Ecology (re: EIAR Chapter 8)

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. This is because the lochside features of the Development are unchanged. Although the changes identified may have some beneficial effect elsewhere, the overall conclusions of Chapter 8 in the EIAR still apply.

## 4.5 Ornithology (re: EIAR Chapter 9)

The only residual significant effects on an ornithological feature predicted by the EIAR was the permanent loss of habitat for golden eagle and the potential for displacement of foraging golden eagles during the construction phase of the Development. This conclusion was reached partly on the results of Golden Eagle Topographical (GET) modelling carried out to inform the assessment. This estimated a loss of habitat from territorial birds (as presented in **EIAR Volume 6 Confidential Appendices, Confidential Appendix 9.1: Schedule 1 Birds**).

The revised design of the Development has a smaller Headpond area, and the habitat which could be lost to golden eagle during the construction phase will be reduced. Moreover, in their response to ECU, NatureScot advised that they consider that only one pair of golden eagles hold territory over the Development Site, and not two, as was assumed (on a worst-case basis) in the EIAR. The percentage loss of habitat that will occur is therefore likely to be lower in reality than was predicted in the EIAR. For this reason, the conclusions of the assessment are now as follows:

- A Temporary Adverse effect of Regional Significance is predicted from displacement of foraging golden eagles during the construction phase. This is unchanged from the EIAR and is considered to be very precautionary, based on the fact that the level of displacement during construction is likely to be higher than during operation (and this area of habitat effectively lost will be larger). However, the effect of construction phase disturbance would only last for the duration of the construction period.

- A Permanent Adverse effect of Local Significance would occur from habitat loss. This is Not Significant in the context of the EIA.

There is consequently no conflict with the requirements of National Planning Framework 4 (NPF4) in relation to golden eagles. Policy 4f of NPF4 requires that impacts on protected species should be considered as part of the planning process, and this has been done, as described above and in the original EIAR. Disturbance of breeding golden eagles, which would be an offence under relevant legislation, will be avoided, as described in **Confidential Appendix 9.1: Schedule 1 Birds**. Furthermore, Policy 3b of NPF4 requires that major developments will only be supported where the proposals include for biodiversity enhancement. As described above in relation to ancient semi-natural woodland and blanket bog, a range of habitat enhancement measures described in the oLEMP will be implemented, and these are likely to increase live prey availability for golden eagles in the medium-term. This could lead to an increase in the breeding productivity of golden eagle pair(s) in this area, which is currently low. Should this occur, the significance of effect on golden eagle would be further reduced, and may even become Negligible or positive.

## 4.6 Geology and Soils (re: EIAR Chapter 10)

The re-evaluated design reduces the estimated excavated volume of peat by approximately 63%. Considering the overall reduction in excavation volume, it is no longer proposed that excavated peat will be re-instated in the Headpond Borrow Pit. Rather, peat will be managed and re-instated at surface level in the form of dressing of access track verges, dressing of compound verges, reinstatement of temporary access tracks and potential peatland restoration.

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions of the Chapter 10 in the EIAR still apply. Further details are included in **Appendix D**.

An updated Draft Outline Peat Management Plan (oPMP) has also been produced as a result of the design changes. This can be found within **Appendix E**. This supersedes **Appendix 10.2** within **Volume 5** of the EIAR. The Outline PMP provides details on the anticipated approximate volumes of peat that may be excavated during construction, the characteristics of the peat that would be excavated, and the principles and methods of how and where this excavated peat would be stored, reused and managed. The oPMP will be developed into a final PMP following a detailed ground investigation, including use of peat cores, as well as the detailed design of infrastructure, post-planning consent.

A preliminary Peat Landslide Hazard and Risk Assessment (PLHRA) to confirm the initial infrastructure design phase has been undertaken. This can be found within **Appendix F**. The PLHRA has been undertaken to assess the risk of peat landslides as a result of construction of the Proposed Development. In summary, the majority of the proposed infrastructure is located in areas assessed as having a Hazard Ranking of 'Low', meaning that the project can proceed as long as further investigation to refine the assessment and mitigate the hazard is undertaken. It should be noted that even after this Preliminary PLHRA, the Hazard Ranking is considered to be relatively conservative given the approach undertaken. As such, it is considered that following a quantitative assessment, which incorporates further more detailed ground investigation data and further details on the design and construction, the Hazard Rankings will reduce from that identified within the PLHRA in **Appendix F**.

## 4.7 Water Environment (re: EIAR Chapter 11)

The reduction in the size of the Headpond is a beneficial change with regards to the water environment and will avoid some impacts and reduce others, whilst introducing relatively few new impacts on minor water features only.

The reduced Headpond avoids the need to inundate Loch Airigh, which is retained as a water feature, and a reach of the Allt Beochlich (LA6), which would have severed the upper catchment. Only the channels of three minor first and second order tributaries to the Allt Beochlich (LA6) will be lost to the Development with the revised Headpond layout. PC09 has also been moved away from the Allt Beochlich (LA6) resulting in another minor adverse effect (not significant) no longer applying.

Flows from the tributaries that remain affected can still be passed forward as water in the Headpond is abstracted from Loch Awe and does not rely on catchment inflows, and although any coarse sediment being transported by them will be intercepted by the Headpond, the volumes of material being moved are unlikely to be significant and should not result in any significant reduction in supply to the Allt Beochlich (LA6) downstream. Therefore, the impact

to the flow regime and sediment transport along Allt Beochlich (LA6) is now predicted to be low adverse from medium adverse, reducing to a minor adverse effect (not significant) from moderate adverse (significant).

The revised design will require less earthworks as the Headpond and Main Embankment Dam have been significantly reduced in area and height. This will reduce the pollution risk to nearby water features, although there does remain a risk during temporary works. The changes to predicted effects during construction are set out below:

- As Loch Airigh is now to be retained it becomes a receptor during construction that will need to be buffered and protected as other water features are being. The mitigation set out in the EIA previously is consistent with ensuring this and avoiding any significant adverse effects. A negligible adverse impact is predicted (construction site runoff and spillage risk), which on a low importance water feature results in a negligible effect (not significant).
- As the Headpond and Main Embankment Dam have been moved further away from the Allt Beochlich (LA6) and the main stem channel is no longer being directly impacted, the risk of pollution during construction works is reduced. Temporary works to tributaries of the Allt Beochlich (LA6) remain pathways for pollution to indirectly affect the main channel and propagate downstream. The residual impacts stated previously was low adverse resulting in a minor adverse effect (not significant). The impact may be reduced to negligible resulting in a negligible effect, although the overall outcome remains not significant (for both construction site runoff and spillage risk).
- As a result of the relocation of the Headpond, PC17, PC18 and PC19 have been slightly relocated. However, the new positions are generally further away from surface water features and thus the risk of pollution during construction works is further reduced. There was either no risk of an impact or the effect was previously negligible, and so this remains the same.
- PC9 has also been relocated away from the Allt Beochlich (LA6), although this has resulted in the need for an additional two crossings over minor watercourses. These watercourses are considered to be of low importance and a temporary, short term negligible adverse impact is predicted during construction of the crossings, resulting in a negligible adverse effect (not significant) with the embedded and standard mitigation applied.
- There are no other changes to the sediment runoff and hydromorphological effects predicted in the EIA, which other than Loch Awe were all considered to be negligible (not significant).

During operation, the impact on water quality in Loch Awe from changes in water level of up to 1.2 m was previously predicted to be negligible, resulting in a minor adverse effect (not significant). Due to the reduced storage volume of the Headpond water levels in Loch Awe are now predicted to vary by no more than 0.4 m. This will further reduce the risk of changes occurring in water quality, although as the original impact was negligible there are no changes to the predicted outcome of a minor adverse effect (not significant).

Although a smaller water body that previously proposed, the Headpond is to be constructed with relatively steep slopes and will generally be around 46 m deep when filled to the top water level (i.e. 420 m AOD). Following generation, the water level will be drawn down to a bottom level of 374 m AOD. This will expose much of the bed of the Headpond other than in the inlet/outlet trench. In strong sunlight these surfaces may be heated and this could lead to a transfer of energy to the water after refilling resulting in a slight increase in temperature. However, regular operation is likely to ensure that water temperatures in the Headpond remain similar to those in the surface layers of Loch Awe from where the water is initially abstracted. In addition, when full the Headpond is deep enough that it may also stratify in the summer, although this is unlikely due to the regular operation of the system. Overall, no change to the negligible impact is proposed, and a minor adverse effect (not significant) on Loch Awe is predicted following the changes to the Development as it was originally reported in the EIA.

The location, size and overall form of the Lower Control Works to Loch Awe are not changing and so the predicted physical impacts to this water body remain as set out in the EIA. However, the volume of the Headpond will decrease from 51.6 Mm<sup>3</sup> to just 13.5 Mm<sup>3</sup>, meaning that the volume of water that would be circulated with Loch Awe during a full generation cycle will significantly reduce. This will lower the risk of adverse impacts to water quality and seasonal natural stratification of the water column. A precautionary assessment was presented in the EIA due to a lack of baseline data and the complexity of the processes that control seasonal stratification of the loch, and the implications for water quality and phytoplankton populations (including the occurrence of Harmful Algal Blooms). Although the risk of adverse impacts will be reduced, the assessment remains uncertain. Therefore, the impact magnitude and overall effect on water quality, thermal stratification, and the risk of increasing the frequency of algal blooms remains unchanged, and the mitigation proposed previously will still be required. This

includes baseline monitoring of Loch Awe such as temperature profiling down through the water column, water quality sampling and analysis of chlorophyll-a and algal populations.

Although there are some minor changes to the location of various shafts and the Power Cavern, as well as the route and length of dry and wet tunnels, these are not considered to be material in relation to groundwater receptors and PWS. Therefore, the impacts predicted in the EIAR and proposed mitigation remain unchanged i.e. not significant.

- Finally, there are no changes to the assessment of surface water runoff during the long-term operation of the Development and the effects predicted in the EIAR, which other than Loch Awe were all considered to be negligible (not significant), are unchanged.

## 4.8 Water Resource & Flood Risk (re: EIAR Chapter 12)

The Applicant has significantly reduced the size of the Development, with the installed capacity reduced from 1500 MW to 900 MW, and storage volume reduced from 51.6 Mm<sup>3</sup> to 14.68 Mm<sup>3</sup> - reducing the possible change in loch levels. The operating regime has also been revised with a reduced upper "hands off" threshold of 37.2 mAOD, 470mm lower than originally submitted.

The reduction in the size of the Headpond is a beneficial change with regards to the water resources and will reduce impacts compared to the original scheme. Proposed Development would introduce the ability to transfer large volumes of water between the Headpond and Loch Awe. The Headpond operating volume is 14.68 Mm<sup>3</sup> and the generation and pump flow rates are 301 and 301 m<sup>3</sup>/s respectively.

The impact on Loch Awe levels due to the Development has been assessed based on proposed upper and lower "hands off" thresholds. These thresholds have been set based on the results of modelling a number of variations in threshold levels in order to balance minimising any detrimental impact during flood and drought events with reducing the curtailment of the Development.

The analysis has been conducted using a behaviour analysis model, based on the principle of water balance. The analysis concludes the following:

- The impact of the Development on water levels in the is to slightly reduce the mean or average loch level 36.36 to 36.33 mAOD. Lower loch levels are more affected, with a 150mm reduction in the loch level exceeded 90% of the time from 35.98 to 35.83mAOD.
- The Development does not exacerbate existing flood impacts and may provide a slight flood reduction benefit for some events. This is because during flood events the last operation prior to the flood event will be pumping, which lowers water levels below the baseline and also because the operation of the Development creates different starting water levels before flood events occur. As such the proposals comply with bullet point 2 in Policy 22 of NPF4.
- With the Development in operation, the frequency of barrage operation is essentially unchanged
- The Development does not exacerbate loch levels during drought events and may provide a benefit. This is because the last operation prior to the drought event will be generation, not pumping, which raises water levels above the baseline. The Development therefore provides a benefit in terms of maintaining compensatory and freshet releases during low flow periods.
- The rate of change of loch level during both pumping and generation is 28 mm/hr. This rate of change in loch level lies within the range currently experienced.
- The overall change in level based on a typical daily generation of 10 hours would be 280mm. This is increased to 400mm based on a full generation cycle using the full volume. Such an event would be infrequent and is a significant reduction from the original arrangement where the full range was 1.2m

The construction of the Headpond will result in the impoundment of the tributary of the tributary of Buinne Dhubh. To compensate for the impact of such impoundment on flows in the downstream channel a compensatory flow regime is proposed based on the provision of a seasonally varying flow. The impounded catchment is reduced significantly from the original design resulting in a reduced compensation flow. The principle of the compensation flow requirements however is not changed.

The compensatory flow arrangement would be based on a variable flow and head arrangement to take account of the continuous fluctuation in water levels in the Headpond and the seasonal variation in flows in the watercourse. A submerged discharge valve arrangement would provide the range of flows as calculated in the low flow assessment and for the range of water levels.

The seasonal variation would be based on the average monthly flows for each calendar month. The overall monthly volume of discharge would be maintained at the existing volume. In addition to the compensatory flow occasional higher flow would be released as part of the scour valve operation.

The assessment has been based on calculated flow parameters based on Low Flows, software widely used in the industry and by regulators. In line with good practice, flow monitoring would be undertaken over a number of years to confirm the monthly flow duration curves.

The provision of the proposed compensatory flow regime would mitigate the impact of the proposed development on flows in the downstream watercourse. Whilst current assessment are based on Low Flow numerical analysis a detailed hydrometric survey will be undertaken based on a minimum of 12 months of flow gauging to confirm the baseline flow conditions in the watercourse. The final compensation flow provision will be based on the gauged data in line with the principle established based on the Low Flow analysis.

With 2 impounding structures flood waters could be released in several different directions. In the event of the Main Dam being breached flood water would travel west down the catchment of Allt Beochlich and enter Loch Awe. The area is sparsely populated with a small number of properties and the B840. The saddle dam would result in flood water heading north and down the catchment of Allt na Cuile Riabhaichie and to Loch Awe. Again, this is a sparsely populated area with limited number of receptors.

The likelihood of such an event is extremely remote, significantly beyond those considered under NPF4. This is reduced further based on the Headpond not being full most of the time. Fewer than 100 people would be affected with a very small increase in risk based on the very remote likelihood of such an event occurring. Based on these parameters the scale of the effect on human safety is regarded as being Very Small. The volume of impoundment and therefore breach volume is significantly reduced over the original arrangement. However, based on the very small scale of the risk the magnitude of risk is not changed.

Detailed hydraulic modelling demonstrates that the revised Development would not increase flood risk to properties around Loch Awe, or downstream of Awe Barrage. In fact, during several historical flood events, the Development would provide slight reductions in peak water levels. The modelled results show that the proposed scheme does not have a detrimental impact on flood risk, and in most cases would have resulted in reduced peak flood levels. This is because during flood events the Development would stop generating and so is not actively adding water, and may only extract water, but also because the operation of the Development creates different starting water levels before flood events occur. The Development, therefore, does not exacerbate existing flood impacts, and may provide a slight flood reduction benefit for some events. As such the proposal complies with Policy 22 of NPF4.

Furthermore, with the Development in operation, the frequency of barrage operation is essentially unchanged. The maximum rate of change in loch level was also analysed for the baseline and for the 'With Development' scenarios and found increase slightly from 0.13 m/hr to 0.14 m/hr. This is not considered significant. Peak rises in loch level occur due to severe natural floods in the catchment and the Development has a very small and not significant impact on these rates.

Analysis of the revised Development on two of the most severe historic droughts indicated that the number of days that the loch level is at or below 35.5mAOD during these drought events is reduced in comparison to the baseline. This is because the last operation prior to the drought event will be generation, not pumping, which raises water levels above the baseline. The Development therefore provides a benefit terms of maintaining compensatory and freshet releases.

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions of the chapter in the EIAR still apply. Further details are included in **Appendix H**.

## 4.9 Cultural Heritage (re: EIAR Chapter 13)

The residual effects (pre-construction, construction, and operation) have been reduced as the alterations will result in all previously recorded assets will now be avoided due to the proposed reduction in Headpond size and associated infrastructure changes. As a result, the only Significant residual effect reported within Chapter 13 of the EIAR is now Not Significant.

## 4.10 Access, Traffic and Transport (re: EIAR Chapter 14)

### 4.10.1 Measures to discourage use of B840

A Framework Construction Traffic Management Plan (CTMP) is provided that clearly sets out the B840 will not be used by any Development construction traffic. This applies to car and light goods vehicle traffic, as well as heavy goods vehicle traffic. The Framework CTMP is attached within **Appendix I**. A detailed CTMP is expected to be Conditioned. The road geometry and character of the B840, and especially the settlements of Ford and Cladich, do not support any use by Development construction traffic. No Development site access will be provided or permitted from the B840 so there is no rationale for construction traffic to use the B840. The CTMP will provide comprehensive signage at both the B816 and B819 clearly prohibiting construction traffic from using the B840. CTMP monitoring and enforcement measures will be in place for the Development construction programme. These will ensure all construction traffic follows the approved A819 site access route, and appropriate enforcement measures will ensure the CTMP is adhered to by all construction traffic.

### 4.10.2 Use of B840 during construction of the lower control works on Loch Awe

The B840 will not be used by any Development construction traffic. This applies to construction of the Lower Control Works in the environs of the B840. All Lower Control Works construction traffic will route via the A819 site access, and travel through the site to reach the Lower Control Works. This access regime will also include all construction traffic associated with temporarily diverting the route of the B840 in the environs of Balliemanoch Farm during construction of the Lower Control Works. The settlements of Ford and Cladich on the B840 are not suitable for the routing of any construction traffic and the CTMP will deliver routing, monitoring and enforcement measures to ensure no Balliemanoch construction traffic uses the B840.

### 4.10.3 Funding contributions to road improvements in light of potential 50-60% increase in traffic on A819

EIAR **Volume 2: Main Report Chapter 14: Access, Traffic and Transport** at **Table 14.8** shows the Development construction traffic would temporarily increase A819 traffic by circa 37%-38%. Bearing in mind 2023 traffic surveys showed the A819 is carrying less than 1,800 vehicles per day, there is unlikely to be any requirement or justification for road improvements to the A819 to increase vehicle capacity in order to address capacity issues created by the Development construction traffic. It may be that any Section 96 Agreement required by Argyll and Bute Council relating to the condition of the A819 before, during and at the end of the Development construction would cover road improvements in response to any road damage attributable to the Development construction traffic.

### 4.10.4 Width of A819 to bring AILs from the pier

EIAR **Volume 5: Appendices, Appendix 14.1 Transport Assessment Report** contains construction vehicle swept-path analyses (SPA) for abnormal indivisible loads (AIL) travelling from the temporary pier proposed on Loch Fyne up the A819 to the site access.

SPA are provided for the largest AIL going to site via the A819. These AIL are large transformers which will be moved up the A819 by transport vehicles up to 86.8m in length. The bogies carrying the AIL load on these vehicles have all-wheel steering making them very manoeuvrable despite their length. SPA is undertaken on Ordnance Survey MasterMap base mapping for the A819 corridor. This OS mapping is not as detailed as a bespoke topographic survey of the A819 corridor, but it provides a robust indication of vehicle swept-path overrun (wheels) or oversail (bodywork or loads) along the route.

For the largest AIL the SPA shows that the 86.8m long transport vehicle will be able to keep its wheels on the A819 carriageway with only limited oversail of bodywork or load beyond the edge of the vehicle carriageway. This means no load bearing carriageway widening would be required to the A819 route used by AIL. Axle loads and ground block loading should be limited to circa 16T per axle and 3.5T per square-metre respectively on public road carriageways. As such, carriageway or road structure failures should not be an issue for a road designed to A-road standards.

SPA indicates there is one left-hand bend on the A819 where potential oversail (bodywork and load) may require a very limited improvement to a high verge / embankment on the inside of the bend. An online land registry search indicates this area is either part of the public road corridor or within the ownership of Argyll Estates. Also, at the proposed site access junction where AIL will leave the A819 and access the site, the existing junction will require improvements to accommodate AIL turning left from the A819 into the site access.

Typically, Planning Conditions would require a heavy haulage contractor, once appointed, to undertake a detailed assessment of the A819 corridor to ensure it is suitable for AIL transport.

A change in the location of the National Speed Limit boundary on the A819 north of Inveraray is requested. This request is made in response to concerns raised by the occupiers of Electric Cottage which fronts the A819. The occupiers currently must reverse onto the A819 and are concerned there may be road safety implications for this manoeuvre should A819 traffic temporarily increase during construction of the Development. A temporary relocation of the National Speed Limit 580m of its current position on the A819 is requested.

#### **4.10.5 Movement of materials and potential impacts on traffic volumes**

There will be no public road double-handling of on-site construction materials. No materials will be removed from site by road for temporary storage and subsequent rerun to site by road. Any site-won materials requiring temporary storage will be retained on site and will not be transported on public roads.

Consideration will be given to using local quarries for imported materials. There are nearby quarries on the A83 at Clachan and Furnace (both some 16 miles from the A819 site entrance). There will be no requirement to rely on materials from quarries such as Barachander which is accessed via the narrow B845, or Banavie which is 70 miles distant at Fort William.

The revision to the Development means there may be a reduction in construction traffic volumes routing to the site. The construction traffic forecast has not been changed to reflect revisions to the Development. This means the adopted construction traffic forecast, and associated environmental assessment of traffic and movement, accords strongly with 'Rochdale Envelope' principles. The adopted construction traffic forecast provides a maximum extent for the Development, and the revised scheme now proposed should be the same or lower than the maximum extent. Therefore, the residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions of Chapter 14 in the EIAR still apply.

### **4.11 Noise and Vibration (re: EIAR Chapter 15)**

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions in Chapter 15 of the EIAR still apply.

### **4.12 Socio-economics and Tourism (re: EIAR Chapter 16)**

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions in Chapter 16 of the EIAR still apply.

## 4.13 Climate (re: EIAR Chapter 17)

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions in Chapter 17 the EIAR still apply.

## 4.14 Marine Physical Environment and Coastal Processes (re: EIAR Chapter 18)

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions in Chapter 18 of the EIAR still apply.

## 4.15 Shipping and Navigation (re: EIAR Chapter 19)

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions in Chapter 19 of the EIAR still apply.

## 4.16 Commercial Fisheries (re: EIAR Chapter 20)

The residual effects (pre-construction, construction, and operation) are unaffected by the proposed reduction in Headpond size and associated infrastructure changes. Although the changes identified may have some beneficial effect, the overall conclusions in Chapter 20 of the EIAR still apply.

## 4.17 Summary

Each technical chapter of the EIAR provided summary tables of residual effects as part of the impact assessment. These have been included within **Appendix J**, with any amends to the significance of the effects detailed in column '**FEI Update**' and highlighted in red.

# Appendix A Revised Layout

**LEGEND**

- ORIGINAL SUBMISSION
- RED LINE BOUNDARY
- EXISTING ACCESS TRACK TO BE UPGRADED
- BLARGHOUR WIND FARM ACCESS TRACK
- NEW ACCESS TRACK (EXCAVATED)
- NEW ACCESS TRACK (FLOATING)
- NEW ACCESS TRACK (FLOATING TRANSITION)
- TEMP. CONSTRUCTION ACCESS TRACK
- HEADPOND WATER
- HEADPOND EMBANKMENT
- TEMPORARY (TC) COMPOUND
- PERMANENT (PC) COMPOUND
- SWITCHING STATION
- CULVERT / BRIDGE
- SPILLWAY

- NOTES**
1. DRAWING IS FOR INDICATIVE PURPOSES ONLY
  2. SELECTED PERMANENT BELOW GROUND INFRASTRUCTURE SHOWN FOR REFERENCE
  3. B840 TO BE DIVERTED FOR INLET/OUTLET STRUCTURE CONSTRUCTION.
  4. BLARGHOUR WIND FARM ACCESS TRACK TO BE USED FOR BALLIEMEANOCH ONLY IF BLARGHOUR WIND FARM IS CONSTRUCTED. IF WIND FARM IS NOT CONSTRUCTED, ACCESS WILL ONLY BE TO/FROM THE NORTH.
  5. BORROW PITS TO BE CREATED TO WIN MATERIAL AND FURTHER DETAILED IN EIAR CHAPTERS 02, 03 AND 09.
  6. PERMANENT COMPOUND (PC03) AT INLET/OUTLET STRUCTURE TO HOUSE INLET/OUTLET STRUCTURE GATE HOUSES.
  7. VENTILATION AND SURGE SHAFTS NOT SHOWN AT GROUND LEVEL. PLEASE REFER TO DRAWING S03-Z1-03-DR-CE-313206 FOR DETAILS.

**APPROVED FOR ISSUE**

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I/R	DRAWN BY	CHECKED	APPROVED

**ISSUE/REVISION**

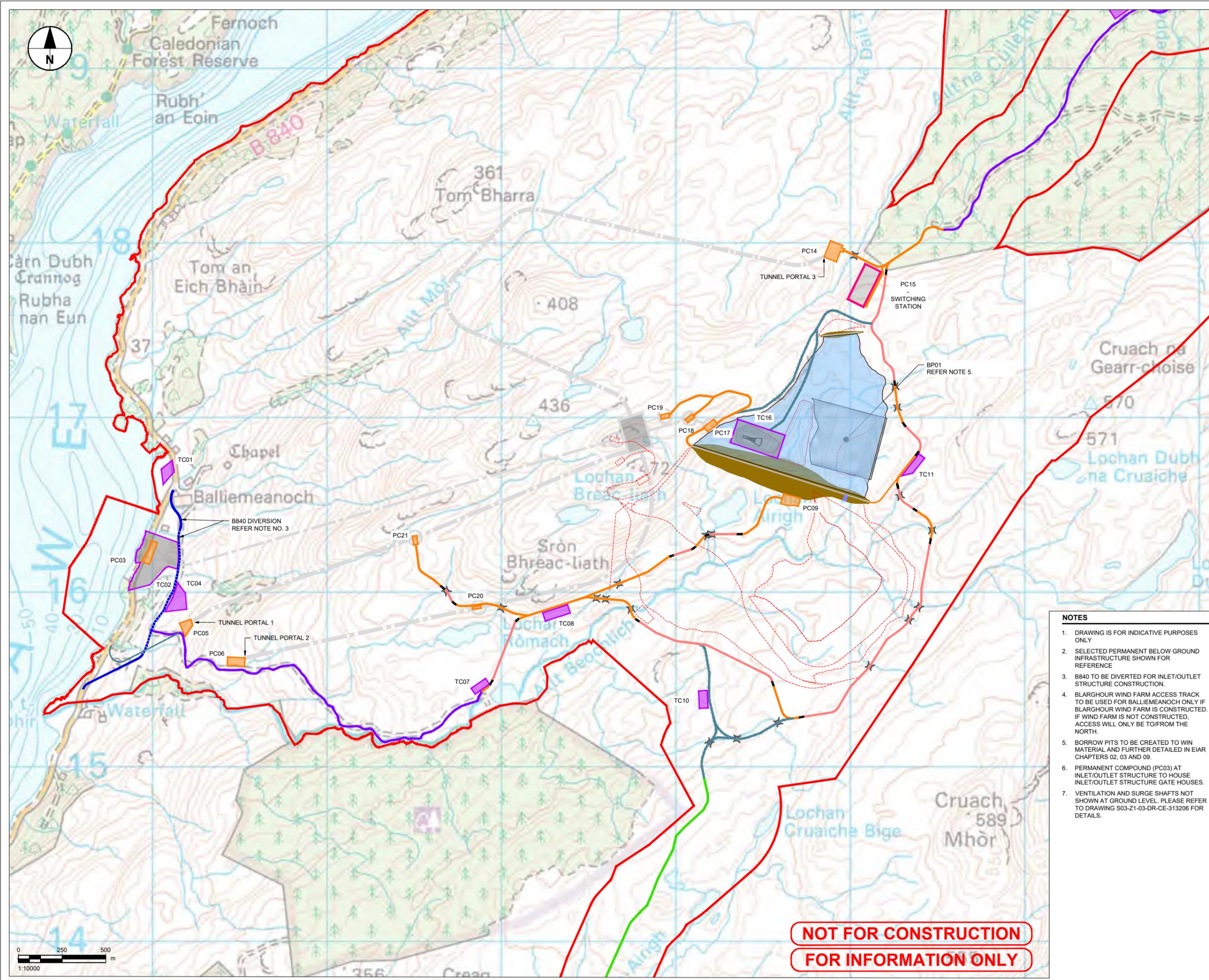
A	10.04.2025	DESIGN REVISION POST SUBMISSION
I/R	DATE	DESCRIPTION

**SHEET TITLE**

BALLIEMEANOCH PSH  
 ZONE 1 REVISED GA  
 2 of 2

**SHEET NUMBER**

S03-Z1-00-DR-CE-310102

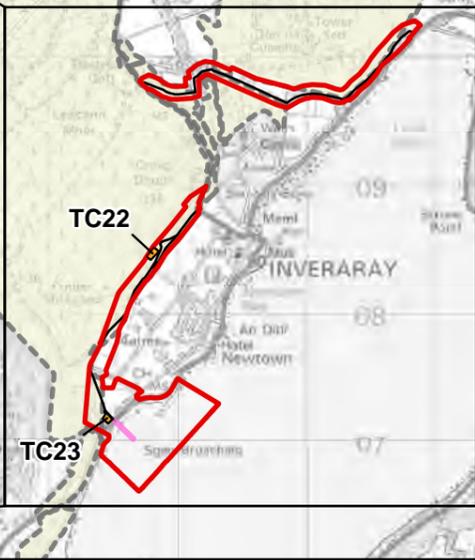
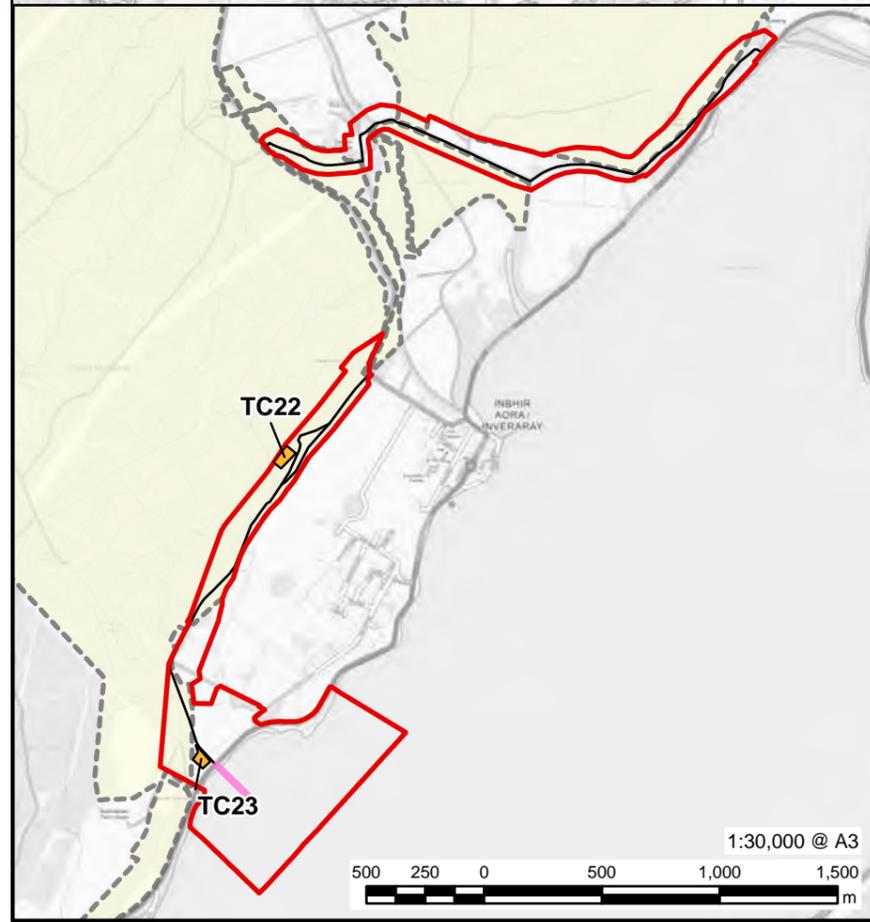
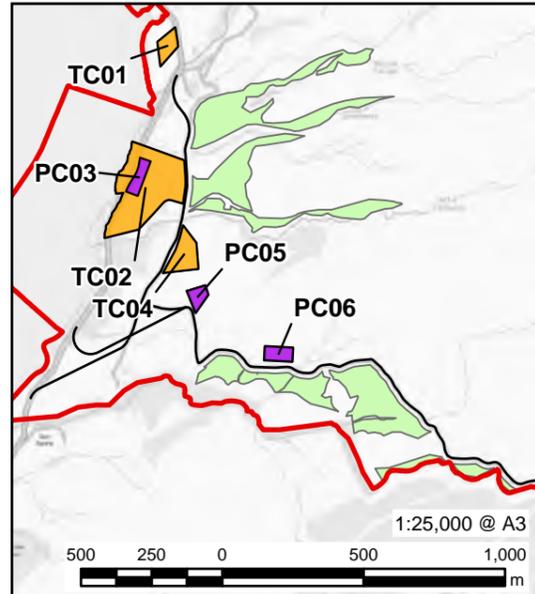
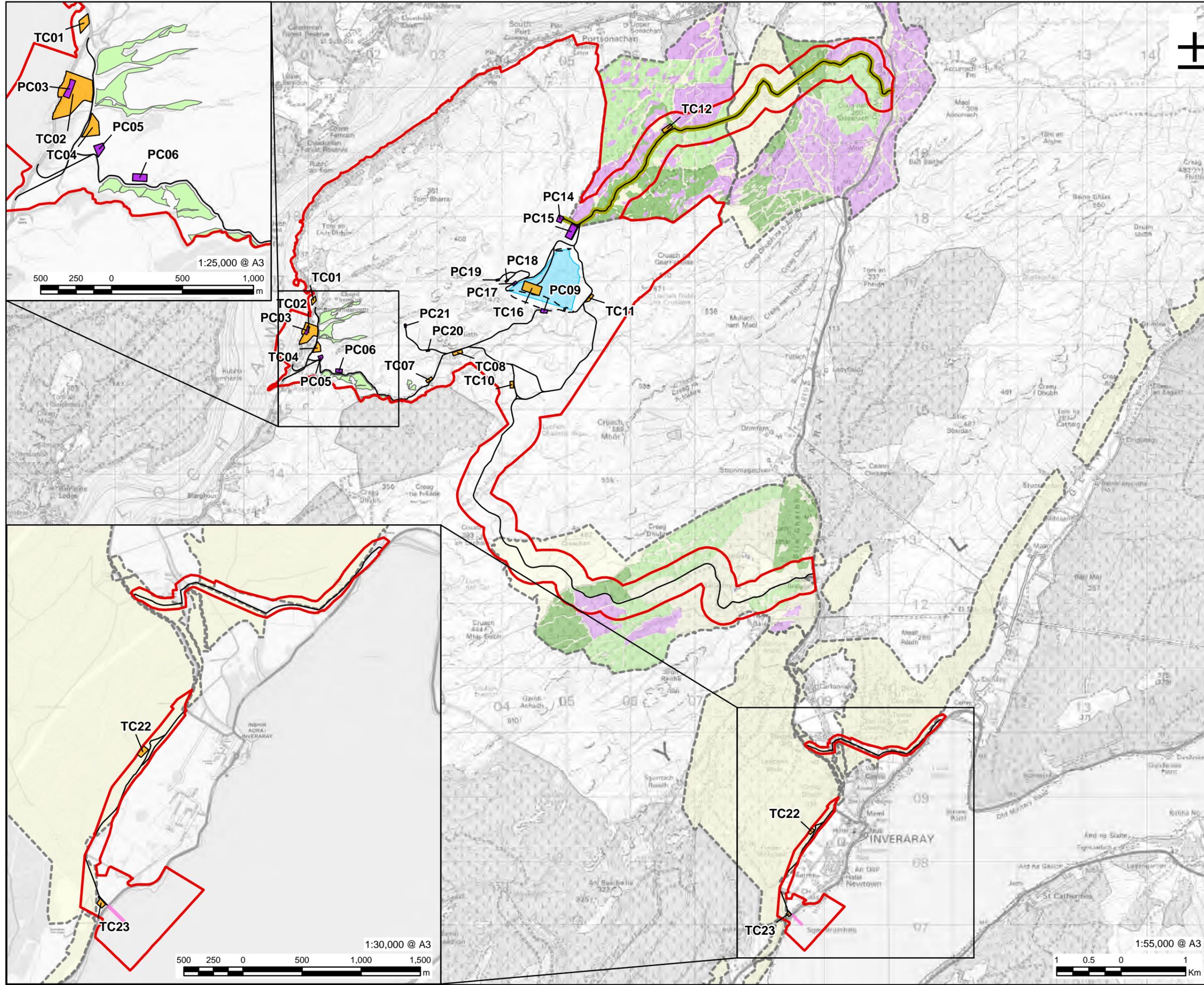


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# Appendix B Revised oLEMP Figures



# AECOM

**PROJECT**  
**BALLIEMEANOCH**  
**PUMPED STORAGE**  
**HYDRO**

**CLIENT**  
 ILI (Borders PSH) Ltd.

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**LEGEND**

- ▬ Development Boundary
- ▬ Headpond Top Water Level
- Headpond Embankment
- Above Ground Infrastructure**
- ▬ Tracks
- Temporary Compound
- Permanent Compound
- Marine Facility
- Intervention**
- Advanced Planting
- Required buffer (5m) from tracks for construction vehicles
- Felling Phases**
- Felled Pre Construction
- Felled Construction Period
- Felled post-construction
- No felling data available
- Felling estate boundary

**NOTES**

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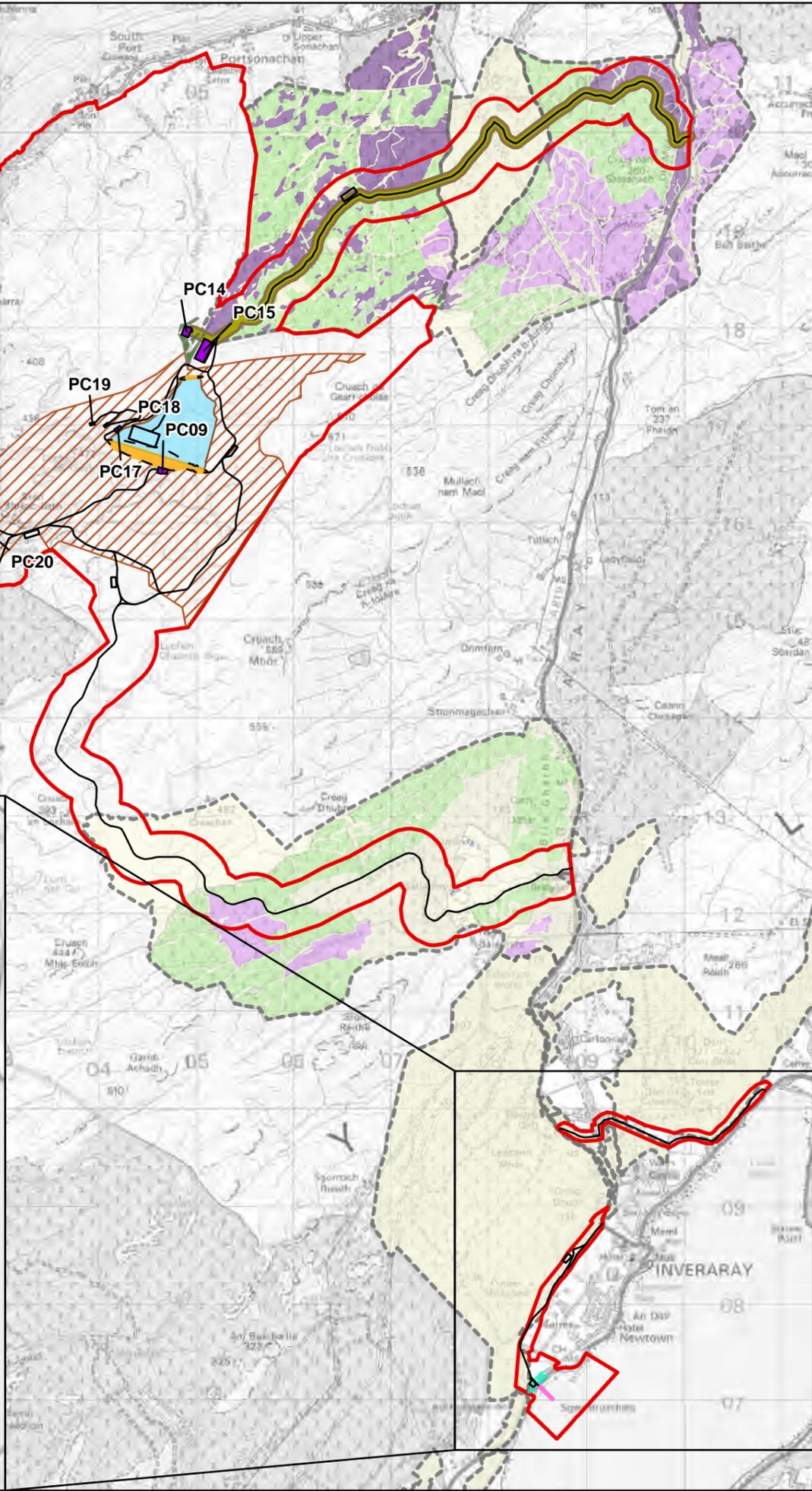
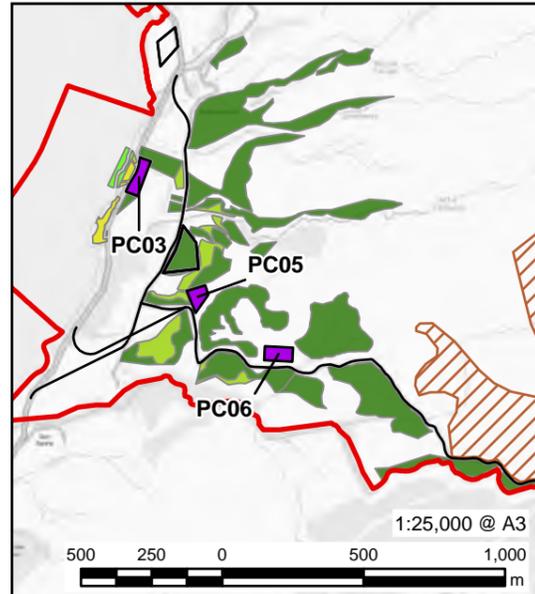
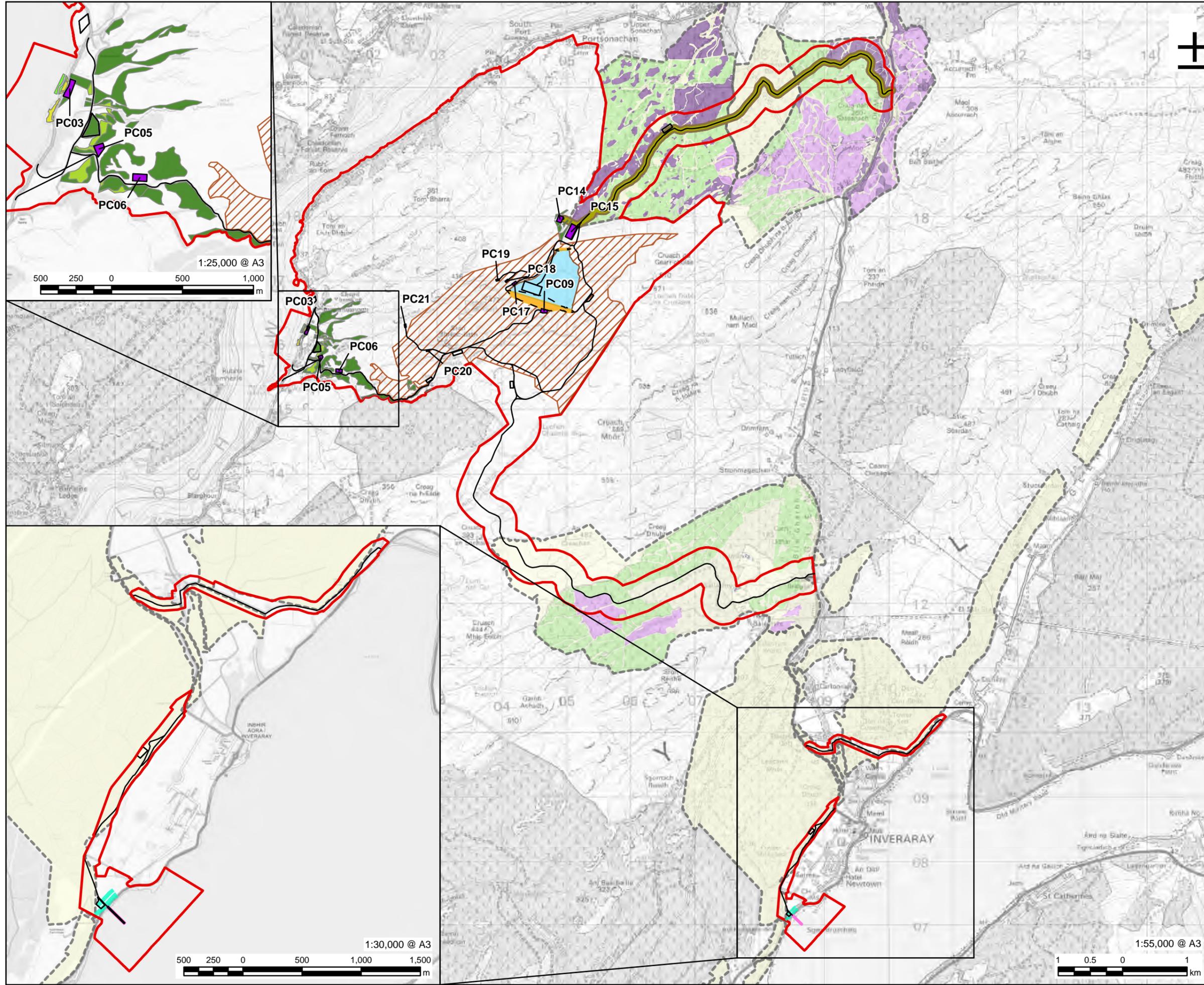
**ISSUE PURPOSE**

**FINAL**  
**PROJECT NUMBER**  
 60570241  
**FIGURE TITLE**  
 Landscape and Habitat Restoration  
 Plan – Construction

**FIGURE NUMBER**

Figure 5.4.1

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**LEGEND**

- Development Boundary
- Headpond Top Water Level
- Headpond Embankments
- Above Ground Infrastructure**
- Tracks
- Permanent Compound
- Temporary Compound
- Reinstatement (see drawing for land use)
- Marine Facility
- Intervention**
- Bog/upland rehabilitation
- Heatherland sowing
- Loch Fyne coastal grassland reinstatement
- Tree planting with ground flora translocation
- Native woodland planting
- Meadow grassland
- Wet woodland planting
- Opportunity for native woodland planting dependent on forestry compensation
- Required buffer (2.5m) from tracks for maintenance vehicles
- Felling Phases**
- Felled before Operational Year 1
- Felled between Operational Year 1 and 15
- Felled from Operational Year 15 onwards
- No felling data available
- Felling estate boundary

**NOTES**  
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**ISSUE PURPOSE**

FINAL

**PROJECT NUMBER**

60570241

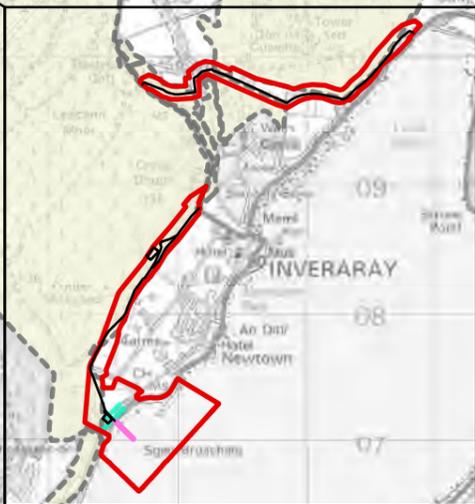
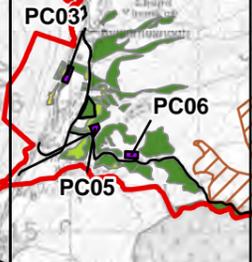
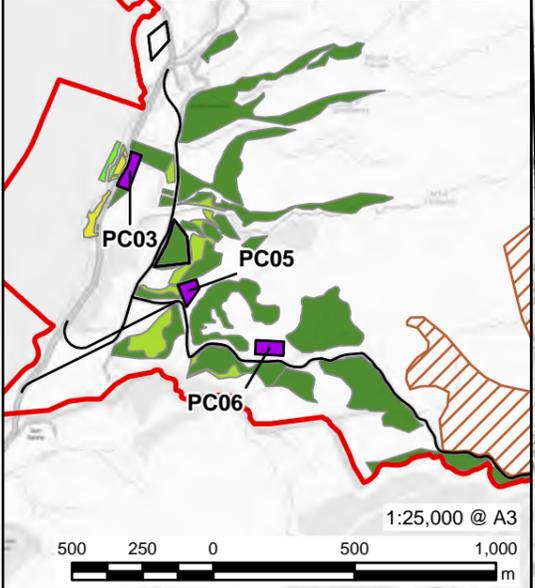
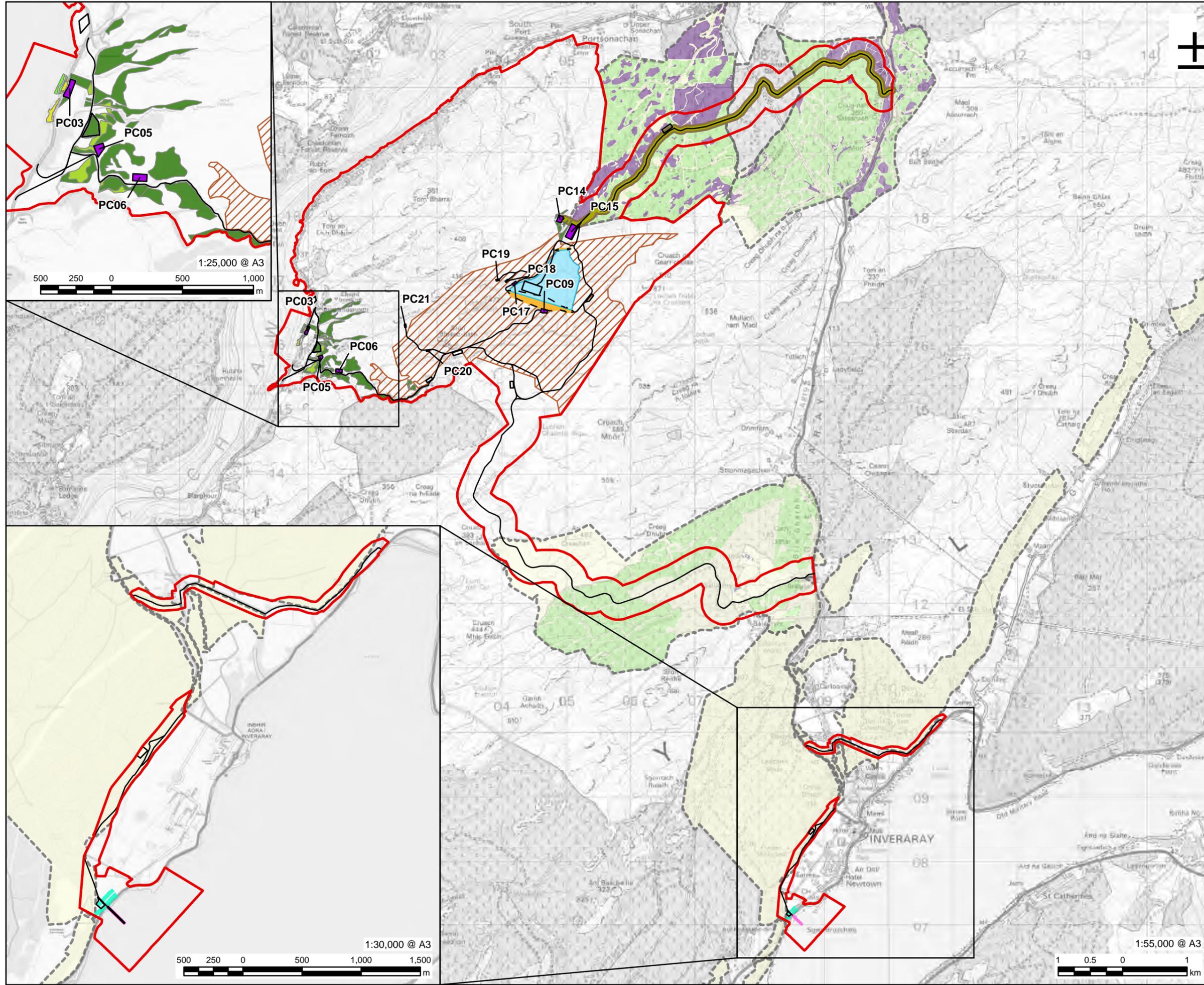
**FIGURE TITLE**

Landscape and Habitat Restoration  
Plan – Operational Year 1

**FIGURE NUMBER**

Figure 5.4.2

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# AECOM

**PROJECT**  
BALLIEMEANOCH  
PUMPED STORAGE  
HYDRO

---

**CLIENT**  
ILI (Borders PSH) Ltd.

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**CONSULTANT**  
AECOM Limited  
177 Bothwell Street  
Glasgow G2 7ER  
www.aecom.com

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**LEGEND**

- Development Boundary
- Headpond Top Water Level
- Headpond Embankments
- Above Ground Infrastructure**
- Tracks
- Permanent Compound
- Temporary Compound
- Reinstatement (see drawing for land use)
- Marine Facility
- Intervention**
- Bog/upland rehabilitation
- Heatherland sowing
- Loch Fyne coastal grassland reinstatement
- Tree planting with ground flora translocation
- Native woodland planting
- Meadow grassland
- Wet woodland planting
- Opportunity for native woodland planting dependent on forestry compensation
- Required buffer (2.5m) from tracks for maintenance vehicles
- Felling Phases**
- Felled before Operational Year 15
- Felled from Operational Year 15 onwards
- No felling data available
- Felling estate boundary

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**ISSUE PURPOSE**  
DRAFT

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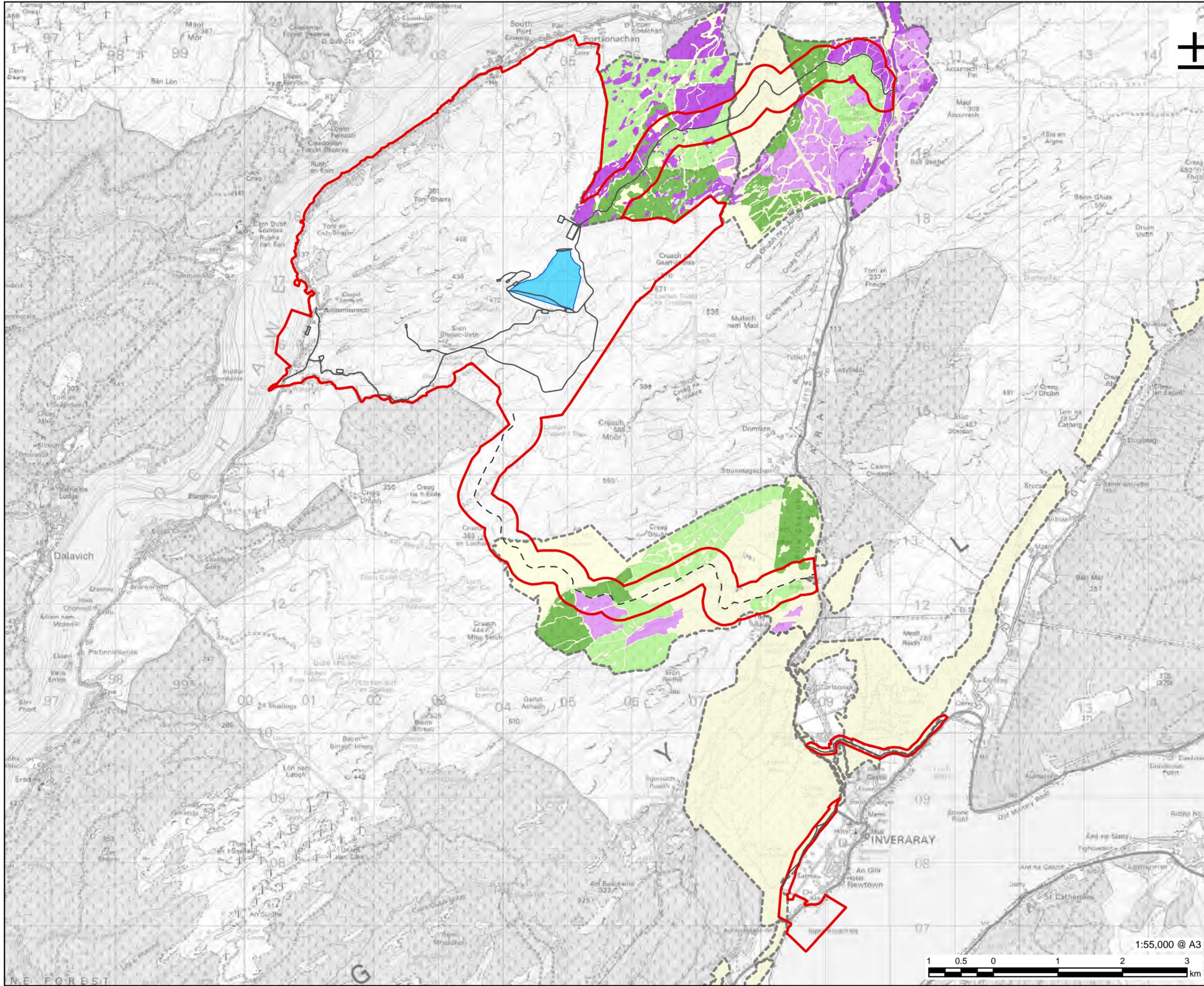
**PROJECT NUMBER**  
60570241

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**FIGURE TITLE**  
Landscape and Habitat Restoration  
Plan – Operational Year 15

---

**FIGURE NUMBER**  
Figure 5.4.3



**PROJECT**  
**BALLIEMEANOCH  
 PUMPED STORAGE  
 HYDRO**

**CLIENT**  
 ILI (Borders PSH) Ltd.

**CONSULTANT**  
 AECOM Limited  
 177 Bothwell Street  
 Glasgow G2 7ER  
 www.aecom.com

- LEGEND**
- Development Boundary
  - Headpond
  - Permanent Infrastructure
  - Proposed Blarghour wind farm access track\*
  - Felling estate boundary
  - Felled pre-construction (Before 2026)
  - Felled during construction period (2026 - 2033)
  - Felled between operational year 1 and 15 (2034 - 2048)
  - Felled from operational year 15 onwards (2049 onwards)
  - No felling data available

**NOTES**

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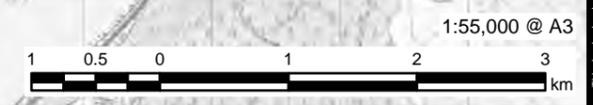
\*Blarghour wind farm access track to be used for Balliemanoch only if Blarghour wind farm is constructed. If wind farm is not constructed access will only be from the north

**ISSUE PURPOSE**  
 FINAL

**PROJECT NUMBER**  
 60570241

**FIGURE TITLE**  
 Felling Plan

**FIGURE NUMBER**  
 Figure 5.4.4



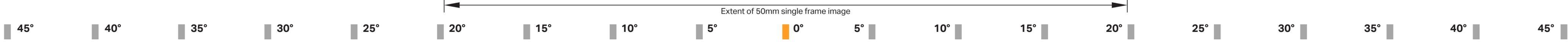
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# Appendix C Revised Visualisation



KEY:  
 Proposed Balliemeanoch Scheme (Headpond embankment)  
 Cumulative Schemes (existing, consented or under construction)

CUMULATIVE SCENARIO 1



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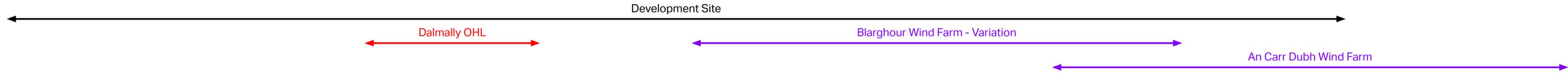
Visualisation Type: 3  
 Projection: Cylindrical  
 Enlargement Factor: 96%  
 Paper Size: 841mm x 297mm  
 Date / Time: 21/04/2022, 17:56

Camera: SONY ILCE-7RM3  
 Lens: DT 50mm F1.2 SAM  
 Horizontal Field of View: 90°  
 Direction of View: North East  
 Location: E197049 N712740

Eye level: 36.6m  
 Height of Camera: 1.6m

**Note:**  
 Images to be viewed at a comfortable arm's length.

Balliemeanoch Pumped Storage Hydro  
**Viewpoint 4: Dalavich Jetty**



**KEY:**

- Proposed Balliemeanoch Scheme (Headpond embankment)
- Cumulative Schemes (existing, consented or under construction)
- Cumulative Schemes (scoping or application)

CUMULATIVE SCENARIO 2



Visualisation Type: 3  
 Projection: Cylindrical  
 Enlargement Factor: 96%  
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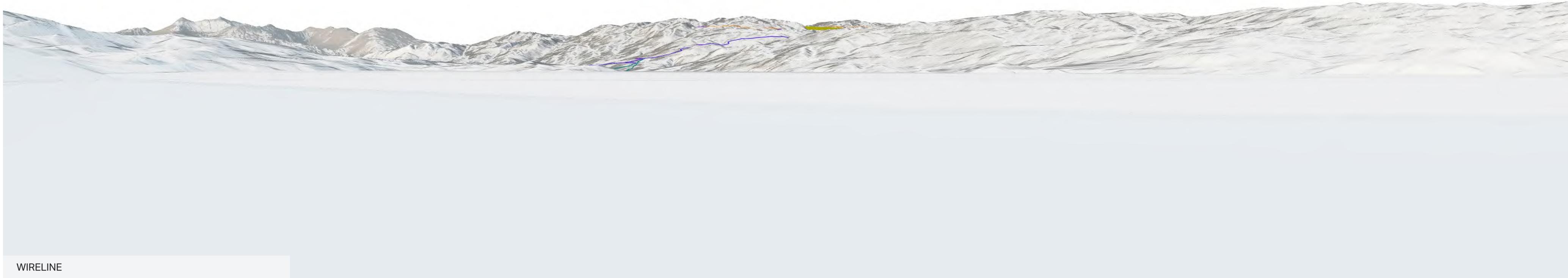
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 Lens: DT 50mm F1.2 SAM  
 Horizontal Field of View: 90°  
 Direction of View: North East  
 Location: E197049 N712740

Eye level: 36.6m  
 Height of Camera: 1.6m

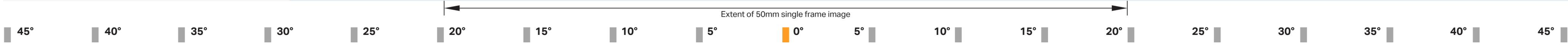
**Note:**  
 Images to be viewed at a comfortable arm's length.

Balliemeanoch Pumped Storage Hydro  
**Viewpoint 4: Dalavich Jetty**

- HEADPOND EMBANKMENT
- NEW ACCESS TRACK
- STRUCTURE AND BUILDING
- EXISTING ACCESS TRACK TO BE UPGRADED
- PERMANENT COMPOUND
- TEMP. CONSTRUCTION ACCESS TRACK



WIRELINE



Visualisation Type: 3  
 Projection: Cylindrical  
 Enlargement Factor: 96%  
 Paper Size: 841mm x 297mm  
 Date / Time: 21/04/2022, 17:56

Camera: SONY ILCE-7RM3  
 Lens: DT 50mm F1.2 SAM  
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 Direction of View: North East  
 Location: E197049 N712740

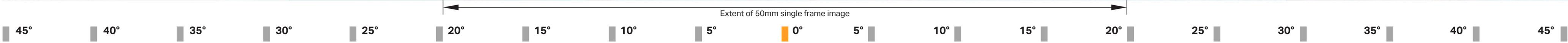
Eye level: 36.6m  
 Height of Camera: 1.6m

**Note:**  
 Images to be viewed at a comfortable arm's length.

Balliemeanoch Pumped Storage Hydro  
**Viewpoint 4: Dalavich Jetty**



PHOTOMONTAGE - YEAR 1



Visualisation Type: 3  
 Projection: Cylindrical  
 Enlargement Factor: 96%  
 Paper Size: 841mm x 297mm  
 Date / Time: 21/04/2022, 17:56

Camera: SONY ILCE-7RM3  
 Lens: DT 50mm F1.2 SAM  
 Horizontal Field of View: 90°  
 Direction of View: North East  
 Location: E197049 N712740

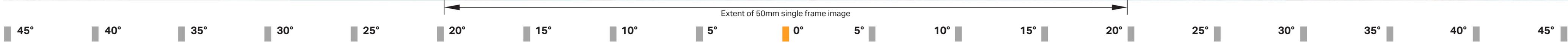
Eye level: 36.6m  
 Height of Camera: 1.6m

**Note:**  
 Images to be viewed at a comfortable arm's length.

Balliemanoch Pumped Storage Hydro  
**Viewpoint 4: Dalavich Jetty**



PHOTOMONTAGE - YEAR 15



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Visualisation Type: 3  
 Projection: Cylindrical  
 Enlargement Factor: 96%  
 Paper Size: 841mm x 297mm  
 Date / Time: 21/04/2022, 17:56

Camera: SONY ILCE-7RM3  
 Lens: DT 50mm F1.2 SAM  
 Horizontal Field of View: 90°  
 Direction of View: North East  
 Location: E197049 N712740

Eye level: 36.6m  
 Height of Camera: 1.6m

**Note:** Images to be viewed at a comfortable arm's length.  
 Growth rates have been estimated using median values for UK forestry general yield class data from the Forestry Commission.  
 The following assumptions have been made:  
 Native woodland: Year 15 heights varying generally between 5-10m with outliers at 3m (holly) and 16.5m (poplar).  
 Wet woodland: Year 15 height of willow at 5.5m with occasional alder at 10m.

Balliemeanoch Pumped Storage Hydro  
**Viewpoint 4: Dalavich Jetty**