Balnakailly Rainforest - Habitat Survey

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Contents

1. Acronyms and Abbreviations

The following list defines the technical acronyms, abbreviations, and organisational shorthand used throughout the body text and appendices of this report.

ASNW – Ancient Semi-Natural Woodland

BCLC - Bute Community Land Company: Bute Forest

BR - Balnakailly Rainforest

CAR – Controlled Activities Regulations

CIEMM - Chartered Institute of Ecology and Environmental Management

DBH – Diameter at Breast Height

GWDTE - Groundwater Dependent Terrestrial Ecosystem

HIA – Herbivore Impact Assessment

HMSO – Her Majesty's Stationery Office

INNS - Invasive Non-Native Species

JNCC - Joint Nature Conservation Committee

NWSS - 2014 Native Woodland Survey of Scotland

ORC – Operation Requiring Consent

PDA – Professional Development Award

PEA - Preliminary Ecological Appraisal

SBL – Scottish Biodiversity List

SEPA - Scottish Environment Protection Agency

SSSI – Site of Special Scientific Interest

TN/TNs – Target Note / Target Notes

WWII – World War II

2. Introduction

2.1 Commission and Survey Objectives

This Phase 1 Habitat Survey was commissioned by Bute Community Land Company: Bute Forest (BCLC) in order to provide a baseline assessment of the site, at Balnakailly, Isle of Bute. Fieldwork and reporting were conducted by Melissa Peakman, who holds a PDA (Professional Development Award) in Ecological Surveying.

2.2 Project Objectives and Framework

The primary objective of this survey is to establish a permanent ecological baseline for the restoration of the 78.1 hectare area of land including and surrounding Balnakailly Wood. For the purposes of the survey and related reports, this area is referred to as Balnakailly Rainforest (BR). The baseline data will be used to track long-term forest regeneration. To achieve this, the project is structured into a one-off baseline survey alongside annually repeatable monitoring.

The mapping provides a Phase 1 Habitat and Compartment Map classifying the ecosystem within each of five defined zones, and logging ecological, historic, and anthropogenic target notes across the forest according to standard habitat classification parameters (Joint Nature Conservation Committee [JNCC], 2010). To enable long-term monitoring, this document also sets out a repeatable volunteer monitoring format. A sampling location map is included at Appendix D, in order that future volunteers have the fixed points needed for annual surveying.

While this report sets out the mapping and future monitoring format, the quadrat datasets and vegetation community classifications are excluded. These baseline datasets will be presented within a separate draft Preliminary Ecological Appraisal (PEA) Report.

2.3 Site Location and Background Context

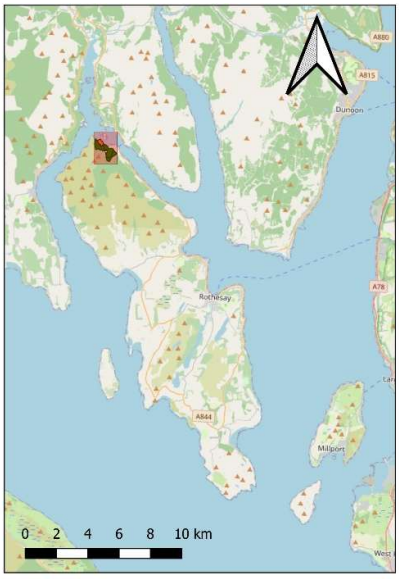


Fig 1: Map showing Balnakailly Rainforest Location on Isle of Bute

The assessment covers a 78.1 hectare footprint known as Balnakailly Rainforest (Grid Reference NS 02235 74203), a landscape designation that includes Balnakailly Wood and sits primarily within the North End of Bute Site of Special Scientific Interest (SSSI)

The majority of the site is within this statutory protected area. The SSSI was officially designated on 19 December 1986 (Site Code 1231) and is notified for Upland Oak Woodland, Breeding Bird Assemblage and Upland Assemblage (NatureScot, 1986). Balnakailly Wood is noted as representing an example of native, western Upland Oak Woodland (NatureScot, 1986).

The three main compartments of the woodland canopy are dominated by sessile oak (*Quercus petraea*) and downy birch (*Betula pubescens*). One area, outwith the SSSI, is made up entirely of a coniferous plantation of Sitka spruce (*Picea sitchensis*). The shoreline compartment is dominated by bracken (*Pteridium aquilinum*). Balnakailly Burn flows through the site, providing a riparian corridor.

Balnakailly Wood supports a high diversity of oceanic bryophytes, lichens, ferns, and fungi. It also supports colonies of Scottish wood ant (*Formica aquilonia*).

The site has historic significance, being part of the fifteenth-century Royal Forest of Bute. The landscape retains various archaeological features, historic boundary dykes, a deserted settlement and a bunker from World War II ‘Operation Starfish’, as documented within national historic asset registries (Pastmap.org.uk, n.d.).

These elements directly interact with the surrounding woodland flora and are recorded as anthropogenic and historic target notes within this baseline assessment.

3. Methodology and Survey Limitations

3.1 Phase 1 Habitat Survey Methodology

A Phase 1 Habitat Survey was conducted over a three-day period in late June 2026 utilising JNCC (2010) standards to map vegetation, record dominant species and log features of interest across the 78.1 hectare area. Pre-existing habitat boundaries and dominant species maps compiled by Samuel Lindsay (former Ranger and Ecologist, Bute Community Forest) were used to inform the field assessment, with his plotted compartment boundaries adopted within the report's maps. The methodology involved a non-destructive walkover assessment of the broadleaved semi-natural woodland, the commercial coniferous block, the bracken margin and the riparian corridor. For reporting purposes, and to correlate with the BCLC's own referencing system, the site was evaluated across three distinct spatial and native broadleaved canopy compartments along with two additional zones, consisting of:

A1.1.1 [Compartment A] : Broadleaved semi-natural woodland (Entrance; sessile oak dominated)

A1.1.1 [Compartment B] : Broadleaved semi-natural woodland (East; downy birch dominated)

A1.1.1 [Compartment C] : Broadleaved semi-natural woodland (North-west; mixed oak-birch)

C1.1 [Compartment D] : Continuous bracken (Northern shoreline)

A1.2.2 [Compartment E] Coniferous plantation (Commercial block, *Sitka spruce*)

In addition to these land compartments, Balnakailly Burn was evaluated under the G2 (Running Water) habitat classification.

To preserve map legibility, features and ecological assets were recorded within the dominant woodland polygon and pinpointed using Target Notes (TN1 – TN37).

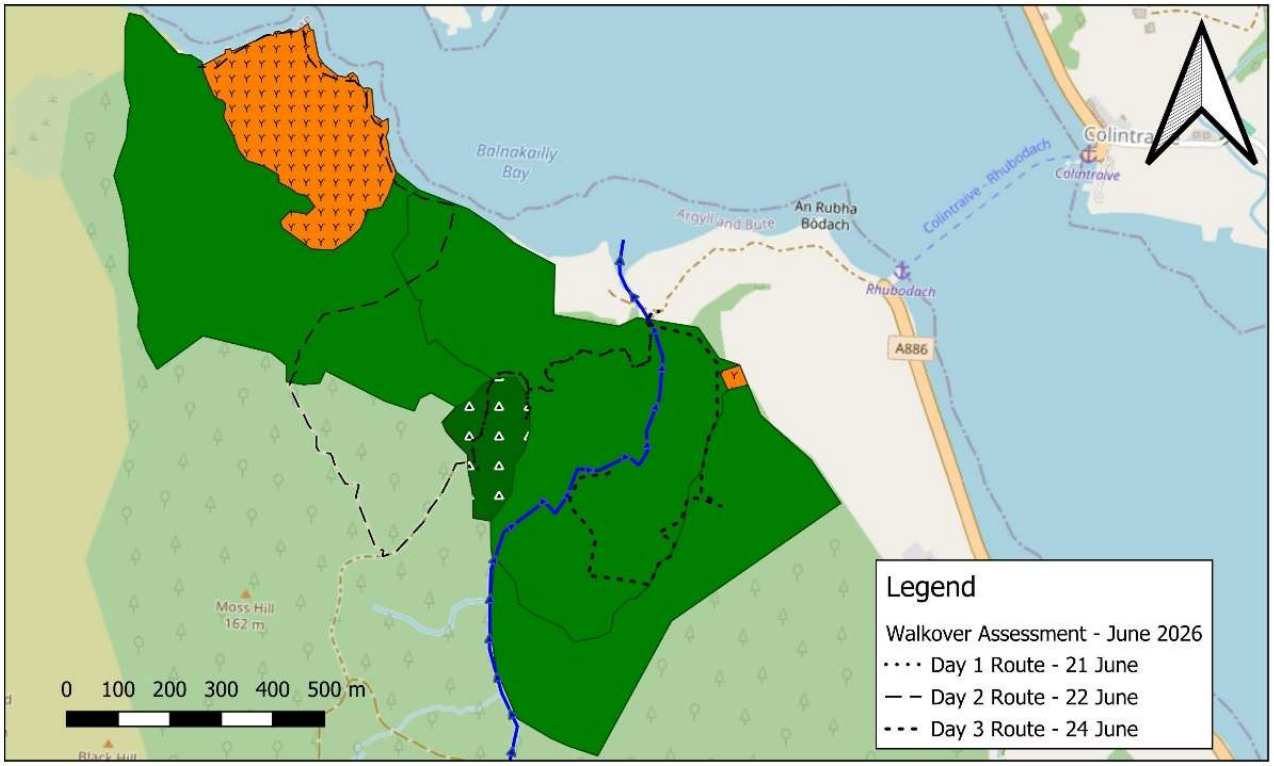
To support the focus on long-term forest regeneration, the standard botanical walkover was adjusted with the following specific inclusions and exclusions:

Herbivore Signs (Included): Active field signs of deer, including trails and trampling, were observed from the survey route and recorded as Target Notes. These entries provide baseline context to be read in conjunction with the separate Herbivore Impact Assessment (HIA) conducted in April 2026.

Protected Fauna (Excluded): No targeted fauna surveys, inspections, or wildlife suitability assessments were conducted. Dedicated searches or structural assessments for protected species including bats, Eurasian otter (*Lutra lutra*), or water vole (*Arvicola amphibius*) were outside the scope of this baseline.

Invasive Non-Native Species (INNS) Constraint: While some INNS, such as *Rhododendron ponticum* were noted during the walkover, a systematic mapping of invasive species was not undertaken. Due to the 78.1 hectare size, dense understorey, and difficult topography of the site, absolute mapping of all invasive stems was not feasible.

Phase 1 Habitat - Walkover Assessment Route
Balnakailly Rainforest



Map Data from OpenStreetMap | Boundary Data: Samuel Lindsay, Bute Community Forest (n.d.) | Map Surveyor: Melissa Peakman | Map Date: June 2026

Fig 2: Three-Day Walkover Assessment Route

3.2 Flora Survey Methodology

3.2.1 Survey Context and Design

A ground cover and canopy survey was carried out in late April 2026 to establish a baseline for the BR restoration project. This sampling methodology can be repeated annually to track long-term forest regeneration. Surveying was conducted across the five distinct compartments (Compartments A-E). To capture the varying habitat structure, two representative quadrats were selected in each of the higher-variability A1.1.1 compartments (Compartments A, B and C), while one representative quadrat was established in each of Compartment D (C1.1) and Compartment E (A1.2.2).

3.2.2 Plot Dimensions

The ground flora layer was evaluated using 4m x 4m quadrats to record vascular plants, bryophytes, and indicators of natural regeneration in line with standard survey practices. (JNCC, 2010). To assess canopy layer and tree species composition, a larger 25m radius circular plot was established, centred on each ground flora quadrat.

3.2.3 Vegetation Cover Assessment

Field data collection was carried out by volunteers during the last week of April to align with early-season indicator detectability. This timing ensures maximum visibility of early-season ground flora species, to enable long-term tracking of forest regeneration. Field surveys were supported by Jenny Fincher, who assisted with ground flora identification and by Ben Mitchell who provided specialist bryophyte and lichen identification.

3.2.4 Reporting Framework and Exclusions

The datasets generated by this method serve the wider project, though the full raw botanical datasets are excluded from this report and are contained within the Appendix of the separate draft PEA Report. While that document follows standard industry formats for ease of reading (Chartered Institute of Ecology and Environmental Management [CIEMM], 2017) it has been written under the following conditions:

- **Internal Project Framework:** The report is primarily an internal management tool and baseline tracking framework. It provides a repeatable volunteer monitoring format to guide the long-term restoration of BR.
- **Draft Assessment Status:** The document is a Draft/Informal Preliminary Ecological Appraisal. The author holds a Professional Development Award (PDA) in Ecological Surveying but is not a chartered ecologist or member of a statutory professional body (such as CIEEM).
- **Management Limitation:** The document provides a thorough baseline of habitat conditions, botanical indices, and wildlife suitability to inform BCLC management. It is designed to support community-led forest regeneration. Should the document be used in the future to support statutory forestry grant applications or formal regulatory reviews, it should be presented as an informal draft baseline tool.

The findings of this survey directly inform the habitat boundaries and baseline conditions shown in the Phase 1 Habitat and Compartment Map. To support future volunteer monitoring, a sampling location map is included in Appendix D.

3.3 Phase 1 Habitat Survey Limitations and Data Validity

The walkover was carried out in late June, when summer canopies and ground flora are fully developed. This timing ensured high visibility for prominent understorey indicators such as bracken and mature *R. ponticum*. The baseline dataset also incorporates the quadrat floristic data recorded earlier, in late April 2026.

Physical constraints encountered during the fieldwork required specific adaptations:

Site Scale and Physical Inaccessibility: The 78.1 hectare area size, dense understorey and difficult terrain limited access. Specifically, the commercial coniferous plantation, Compartment E (A1.2.2) was impassable due to extensive fallen timber.

Obscured Path Networks: Footpaths across the forest are not formally established or maintained. Trails consist of unmapped, localised tracks created by walkers. Because of the high number of deer on site, these tracks regularly converge with or mirror active wildlife trails. On Day 2, while navigating the route from the bunker (TN14) towards the continuous bracken in Compartment D (C1.1), the track became entirely indistinguishable within the dense understorey. This forced a temporary halt to the survey while the surveyor navigated to an alternative safe route.

Understorey Obstruction: Extensive summer growth of continuous bracken across the northern shoreline (C1.1, Compartment D) and within the broadleaved woodland compartments (A1.1.1, Compartments A, B and C) severely restricted visibility and movement.

Survey Adaptation: To manage these issues, the June walkover followed accessible paths where available. Ecological assessments, habitat boundary verifications, and target note descriptions were supplemented using visual observations and binoculars directed into the less accessible areas.

Historic Fire Impact: Historic wild fires have affected a portion of the site within Compartment C. This impact was confirmed during the April flora survey, where slow regeneration and altered ground flora were recorded. Because the exact footprint of the affected area was not tracked in the June walkover, it has not been mapped as a standalone feature or target note.

The survey limitations and physical constraints are not considered to have compromised the nature of the final baseline habitat maps. The data presented reflects a true and accurate ecological baseline of the site.

4. Results

4.1 Ecological Baseline Summary

4.1.1 Habitat Classification Overview

JNCC Code	Habitat Description	Status within Site
A1.1.1	Broadleaved semi-natural woodland	Dominant (Compartments A, B and C)
C1.1	Continuous bracken	Subdominant (Compartment D)
A1.2.2	Coniferous plantation	Localised block (Compartment E)
G2	Running water	Linear features (Riparian corridors)

4.1.2 Broadleaved Semi-Natural Woodland (A1.1.1)

The site is predominantly mapped as broadleaved semi-natural woodland (A1.1.1) in accordance with JNCC (2010) guidelines. To maintain consistency with BCLC frameworks, this habitat is recorded across three spatial management sub-compartments:

- **A1.1.1 [Compartment A]**: Extending from the main woodland entrance; heavily dominated by sessile oak.
- **A1.1.1 [Compartment B]**: Covers the eastern sector; heavily dominated by downy birch.
- **A1.1.1 [Compartment C]**: Covers the north-western sector; characterised by a mixed canopy of sessile oak and downy birch.

4.1.3 Ground Flora and Canopy Structure

Data from the April 2026 quadrat surveys shows that the ground layer across these three broadleaved compartments comprises red fescue (*Festuca rubra*), purple moor-grass (*Molinia caerulea*), cock's-foot (*Dactylis glomerata*), common honeysuckle (*Lonicera periclymenum*), and sweet vernal-grass (*Anthoxanthum odoratum*). Sparser components include wood-sorrel (*Oxalis acetosella*), tormentil (*Potentilla erecta*), soft rush (*Juncus effusus*), bluebell (*Hyacinthoides non-scripta*), and yellow pimpernel (*Lysimachia nemorum*).

The understorey layer is severely restricted across all three broadleaved compartments. Heavy browsing by wild deer has arrested native tree regeneration. While new sessile oak seedlings were emerging across the broadleaved semi-natural woodland (A1.1.1) compartments during the June walkover, no young oak from previous years were recorded in either the April quadrats or the June survey. The emerging seedlings did not yet show browsing damage; however, there is a total absence of intermediate age or size classes between these first-year seedlings and the mature canopy trees. This distinct structural gap indicates that while seasonal germination occurs, ongoing deer browsing pressure prevents any seedling development beyond the first growing season.

Wych elm (*Ulmus glabra*) is noted within the draft management plan (BCLC, 2026) but remained unverified during this walkover survey. Healthy veteran trees and extensive deadwood are present throughout the woodland, supporting diverse ecological communities.

4.1.4 Bryophyte and Lichen Assemblages

The high humidity supports a rich lower-plant carpet across the forest floor, earth banks, and exposed rock faces. Ground bryophytes include common tamarisk-moss (*Thuidium tamariscinum*), bank haircap (*Polytrichum formosum*), greater fork-moss (*Dicranum majus*), and red-stemmed feather-moss (*Pleurozium schreberi*). Five-ranked bog-moss (*Sphagnum quinquefarium*) forms dense carpets in wetter pockets. Tree trunks host epiphytic dilated scalewort (*Frullania dilatata*) alongside specialised rainforest lichens, including loop lichen (*Hypotrachynia* spp.) and beard lichen (*Usnea* spp.). These lower-plant communities are key indicators of western upland oak woodland (NatureScot, 1986).

4.1.5 Coniferous Plantation (A1.2.2 : Compartment E)

One area to the west of the site lies outwith the SSSI boundary and contains a commercial plantation block of Sitka spruce. This block was originally planted for timber production but was never harvested. Having far exceeded its economic rotation age, the stand has become structurally unstable, resulting in many fallen and damaged trees, moving this area away from standard commercial targets (Forestry Commission, 2017). Compartment E adjoins Compartment A to the east and Compartment C to the north-west. The southern and south-western margins form the survey perimeter, bordering onto adjacent, non-community land.

The dense spruce canopy heavily suppresses the understorey. Sparser ground flora includes scattered bilberry (*Vaccinium myrtillus*), cock's foot, common honeysuckle, red fescue, sweet vernal-grass, purple moor-grass, and wood-sorrel. Natural broadleaved regeneration is extremely low, limited to a single downy birch sapling during the April 2026 quadrat survey. The lower-plant tier is limited to shade-tolerant species including common feather-moss (*Kindbergia praelonga*), glittering wood-moss (*Hylocomium splendens*), lanky moss (*Rhytidiadelphus loreus*), red-stemmed feather-moss, silk feather-moss (*Camptothecium sericeum*), and five-ranked bog-moss.

4.1.6 Continuous Bracken Margin (C1.1 : Compartment D)

The northern boundary abuts the Kyles of Bute. The open shoreline is dominated by an extensive belt of continuous bracken (C1.1). This dense bracken growth covered 80% of the sample quadrat area surveyed in April 2026 and proved physically inaccessible during the June walkover. The bracken is effectively smothering the underlying flora along the shoreline, with only tormentil visible through the dense fronds during the June walkover.

Vascular diversity is heavily suppressed. In April the canopy cover on a 25m radius from the sample quadrat was limited to a single, small rowan (*Sorbus aucuparia*). Ground cover was dominated by 80% bracken litter and fronds, interspersed with scattered patches of common honeysuckle, bluebell, birds-foot trefoil (*Lotus corniculatus*), soft rush, wood-sorrel, common sorrel (*Rumex acetosa*), and greater stitchwort (*Stellaria holostea*). Dense leaf and frond litter accumulation in April restricted the visible bryophyte layer to small quantities of common feather-moss.

4.1.7 Hydrology and Riparian Corridor (G2)

The site is predominantly damp, characterised by localised waterlogged soils, Groundwater Dependent Terrestrial Ecosystem (GWDTE) flush zones, and a minor tributary network. Balnakailly Burn (G2) flows directly though Compartment A (A1.1.1).

The steep, humid riparian margins support a mixed native fringe of rowan, hazel (*Corylus avellana*), and self-seeded sycamore (*Acer pseudoplatanus*). The ground layer is dense and dominated by a high cover of greater wood-rush (*Luzula sylvatica*), bramble (*Rubus fruticosus* aggr.), purple moor-grass, and mature stands of lady-fern (*Athyrium filix-femina*) and deer-fern (*Struthiopteris spicant*). The burn provides optimal physical and concealment features for Eurasian otter.

4.1.8 Protected Fauna

While dedicated, species-specific faunal surveys were outside the scope of this assessment (as detailed in Section 3.1), the following casual observations of protected or ecologically significant fauna were recorded during the walkover:

Keystone Wildlife Features: **Scottish Wood Ants:** High-density breeding networks of active Scottish wood ant mounds are established in the northern areas of the coniferous plantation (A1.2.2 [Compartment E]. Nests span varying structural life stages, ranging from small, pioneering mounds (40cm × 15cm) up to large, multi-generational structures measuring 2.0m in diameter and 1.2m in height (TN11, TN12). A high number of smaller mounds are also located within the sessile oak woodland area A1.1.1 [Compartment A]. This species holds priority status within regional conservation frameworks (Scottish Government, 2020), introducing strict community land biodiversity management duties (Nature Conservation (Scotland) Act 2004).

Ornithology: The mature canopy trees provide high nesting value across the site. Active drilling and visual confirmation verified great spotted woodpecker (*Dendrocopos major*) breeding sites (TN27), with an individual heard calling nearby during the survey. Open coastal margins support ground-nesting birds. Introduced INNS Canada geese (*Branta canadensis*) were observed with goslings using the shoreline for foraging and brood-rearing (TN17). Native eider ducks (*Somateria mollissima*) were not physically encountered during the walkover, however the surveyor has recorded them previously and they are known to utilise the shore and the adjacent Burnt Islands. All active wild bird nests and their eggs receive comprehensive statutory protection against intentional or reckless damage during the nesting season (Wildlife and Countryside Act 1981)

Mammals: The riparian banks along the Balnakailly Burn corridor exhibit high foraging, commuting, and concealment suitability for Eurasian otter alongside suitable localised foraging habitat for water vole. Both species are subject to wildlife protection legislation in Scotland, with the otter classified as a European Protected Species requiring strict habitat safeguard measures (Wildlife and Countryside Act 1981; Wildlife and Natural Environment (Scotland) Act 2011)

4.2 Modified, Invasive, and Anthropogenic Baseline Summary

4.2.1 Wild Deer Herbivore Impacts

The site faces unsustainable grazing, browsing, and trampling pressure by wild roe deer (*Capreolus capreolus*) and red deer (*Cervus elaphus*). Field observations, including a 1.5m wide poached riparian trail crossing a burn tributary (TN31) and a denuded 4.0m × 3.0m clearing where the *Sphagnum* blanket is stripped to bare peat (TN37), validate the high browsing impacts flagged in the April 2026 HIA and the high impact classification previously recorded in the 2014 Native Woodland Survey of Scotland (NWSS) (Forestry Commission Scotland, 2014). This long-term pressure has resulted in a damaged, denuded understorey threatening the woodland's future resilience. This long-standing imbalance highlights the need for coordinated management to meet regional welfare standards (NatureScot, 2023).

While high herbivore impacts are evident site-wide, the long-term threat to canopy replacement is most evident within the three semi-natural broadleaved woodland (A1.1.1) compartments. Within these areas, new sessile oak seedlings germinate successfully by mid-summer. However, the lack of intermediate growth stages confirms that intense browsing pressure prevents these seedlings from surviving past their first growing season. This leaves a critical gap between seedlings and mature trees, limiting the long-term sustainability of the canopy.

4.2.2 Invasive Non-Native Species (INNS)

R. ponticum represents an immediate threat to the understorey. It occurs as a mature individual on a steep riparian drop (TN34), as scattered pioneering individuals under the sessile oak and downy birch canopy, along the shore (TN15) and as a single 30cm seedling within the deer-denuded peat scrape (TN37).

Exposed peat from concentrated deer activity acts as an open seedbed for waterborne and animal-mediated seed transfer. Because *R. ponticum* foliage is highly unpalatable, it faces no browsing pressure while native competitors are heavily suppressed. Left unmanaged, these isolated plants are likely to spread across the understorey, conflicting with INNS control objectives (Wildlife and Natural Environment (Scotland) Act 2011).

4.2.3 Bracken Encroachment

Dense bracken stands are steadily expanding across the site, compounding the damage already caused by overgrazing. While it limits ground flora diversity across the main broadleaved woodland compartments, it represents the primary ecological threat within Compartment D. In this coastal area, where there is no regenerative broadleaved tree canopy, the dense bracken canopy completely outcompetes and suppresses the growth of native ground plants, necessitating long-term control measures to restore the understorey (NatureScot 2024).

4.2.4 Public Access and Infrastructure

The site is used for recreation under the Land Reform (Scotland) Act 2003. Public infrastructure includes a timber footbridge (TN4), a multi-section boardwalk spanning wet tributaries (TN6), a kayak shelter (TN19) and a composting toilet facility (TN18).

A heavy concentration of fallen timber within the commercial conifer plantation (Compartment E) blocks public access, making the track impassable and forcing walkers to retrace their steps. Additionally, dense bracken and thick understorey across the site create a humid microclimate that supports high densities of sheep ticks (*Ixodes ricinus*) hosted by deer, presenting a localised public health hazard (Lyme disease risk) to trail users.

4.3 Historic and Heritage Baseline Summary

The site contains several features of significant cultural and historical interest, spanning centuries. These features are located within the surrounding woodland and flora and include:

Boundary Dykes and Charcoal Burning Platforms: Mounded banks and platforms scattered throughout the broadleaved woodland compartments, reflecting historic land-use boundaries and traditional woodland industries (Pastmap.org.uk, n.d.).

Late Eighteenth-Century Farm Steading (TN13): An abandoned structural complex located within the forest interior.

World War II Decoy Control Bunker (TN14): A surface-level concrete control structure associated with the wartime "Operation Starfish" decoy layout. The bunker currently functions as a heritage attraction and mural venue.

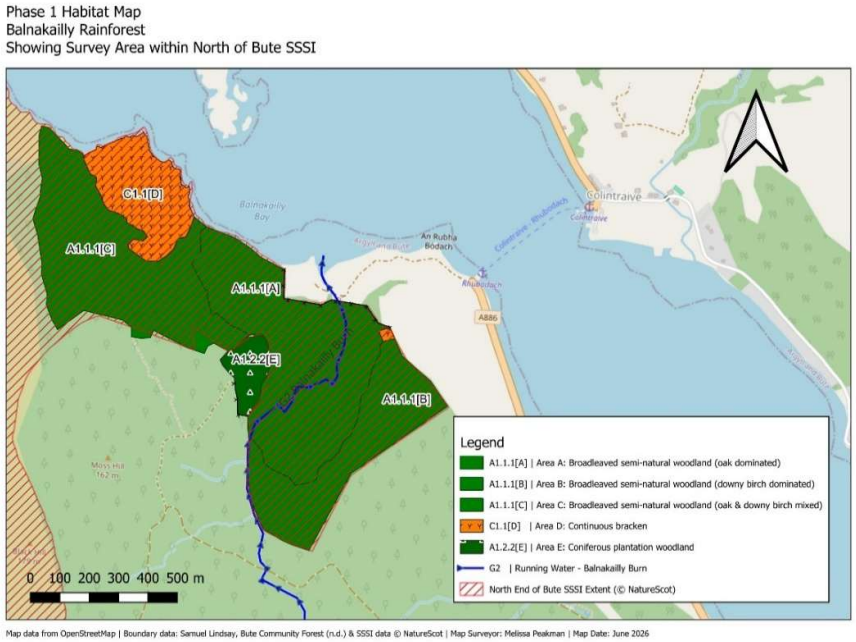
4.4 Phase 1 Habitat and Compartment Map

The spatial distribution, boundaries, and alphanumeric classifications of the habitats recorded across the 78.1-hectare footprint are illustrated on the Phase 1 Habitat Map (provided as a full-scale drawing sheet in Appendix A).

To ensure maximum map legibility within dense polygon boundaries, the drawing utilises a compressed labelling format that nests the client's compartment letters directly inside square brackets alongside the standard Joint Nature Conservation Committee (JNCC) codes:

- **A1.1.1[A]**: Broadleaved semi-natural woodland compartment (Oak dominated).
- **A1.1.1[B]**: Broadleaved semi-natural woodland compartment (Downy birch dominated).
- **A1.1.1[C]**: Broadleaved semi-natural woodland compartment (Mixed oak/birch).
- **C1.1[D]**: Continuous bracken shoreline zone.
- **A1.2.2[E]**: Coniferous plantation timber block (*Sitka spruce*).

Linear aquatic features, including the Balnakailly Burn corridor, are mapped explicitly as running water (G2). Statutory boundaries showing the North End of Bute SSSI extent are overlaid across the compartments to illustrate areas of overlapping regulatory protection.



4.5 Overview of Categorised Target Note Register

A total of 37 Target Notes (TNs) were recorded across the survey area to document features of specific ecological, anthropogenic, or historical interest. The full descriptive text, localised ecological context, and management recommendations for each feature are detailed within Appendix B: Full Target Note Register, with all corresponding visual documentation compiled separately within Appendix C: Target Note Photographic Plates.

Baseline Category	Target Note References	Key Cumulative Findings & Site-Wide Pressures	Primary Action Required
Ecological Assets	TN3, TN5, TN11, TN12, TN16, TN21, TN26, TN27, TN28, TN30, TN32, TN33, TN35, TN36	High density of active Scottish wood ant mounds of varying sizes. Exceptional veteran sessile oak deadwood and deep branch cracks providing excellent potential nesting and roosting features for bats, woodland birds, and woodpeckers.	Enforce 5m operational exclusion buffers around active ant mounds during felling. Prioritise standing and fallen deadwood retention to preserve temperate rainforest bryophyte and lichen communities.
Invasive & Ecological Pressures	TN15, TN17, TN20, TN22, TN31, TN34, TN37	Heavy grazing, trampling, and tracking pressure across the site by red and roe deer, matching the April 2026 HIA. Exposed peat and trampled riverbanks act as open ground allowing *R. ponticum* seedlings to establish. Active breeding of invasive Canada geese along the coast.	Integrate localised trampling and bare ground data into wider woodland deer management planning. Execute immediate hand-pulling or stem-injection of pioneering *R. ponticum* stems to protect the understorey.
Anthropogenic Infrastructure	TN1, TN2, TN4, TN6, TN7, TN8, TN14, TN18, TN19	Core walking trail access and infrastructure supported under the Land Reform (Scotland) Act 2003. Visitor foot traffic around assets and the restored WWII bunker makes interior spaces unsuitable for sensitive wildlife. Path degradation into deep mud has forced a detour through a potential GWDTE flush zone.	Monitor the broken stream gate to prevent channel erosion. Manage the waterlogged trail footprint at TN8 using low-impact methods to protect the flush zone. Cut back bracken at TN19 to uncover the hidden lower safety panel on the existing trail map sign.
Historical & Cultural	TN9, TN13, TN23, TN24, TN25, TN29	Historic linear earthen boundary dykes mapping distinct changes in the woodland canopy. Stable, dry-stone farm steading ruins providing sheltered, damp crevices that support specialised oceanic mosses, reptiles, and amphibians.	Retain all structural boundary banks and ruins *in situ* to safeguard the site's historical integrity and bryophyte habitats. Clip and remove loose sections of old fencing wire along the banks.

5. Conclusion and Management Discussion

5.1 Ecological Condition and Current Trajectory

Balnakailly Wood retains exceptional baseline conservation value as an Ancient Semi-Natural Woodland (ASNW) hosting indicators of Atlantic temperate rainforest. The high density of active Scottish wood ant colonies, presence of veteran sessile oaks, and localised rainforest micro-habitats indicate long-term environmental continuity.

However, the site is currently on a degenerative ecological trajectory due to three intersecting, high-intensity pressures: severe wild deer impacts, the spread of INNS, and widespread bracken encroachment. Recent fieldwork confirms the high browsing levels previously flagged in the 2014 NWSS. This sustained, unmanaged pressure has resulted in a damaged, denuded understorey and a breakdown in natural woodland regeneration.

The unsustainable heavy browsing pressure represents the most serious threat to the woodland's long term survival, having completely halted native broadleaved canopy regeneration across the three semi-natural woodland compartments (Compartments A, B and C). While a new growth of sessile oak and downy birch seedlings germinates successfully by mid-summer, the severe deer pressure ensures that no young trees survive past their first growing season.

Consequently, as mature oaks and birches in these upper compartments reach the end of their life cycle, there is no younger tree tier developing to replace them. This creates a severe gap that limits the long-term sustainability of the canopy. Meanwhile, in Compartment D, where there is no regenerative broadleaved canopy, the dense bracken stands are primarily responsible for suppressing the growth of native ground plants.

5.2 Deer and the Spread of *Rhododendron ponticum*

While *R. ponticum* remains limited to isolated individuals across the site (such as the specimens verified at TN15 and TN34) it presents a significant long-term threat. A large, mature infestation with complete canopy dominance occupies the coastal strip further west on the Isle of Bute, stretching from Pulling Burn to Buttock Point, approximately 500m from the site boundary. The primary risk is that intense wild deer activity creates conditions that facilitate colonisation by seeds, ultimately contributing to future habitat decline. Localised trampling, rutting scrapes, and the creation of bedding areas strip away sensitive bryophyte blankets, creating heavily denuded patches of exposed peat (as recorded at TN37).

Should wind-borne seeds arrive, heavy selective grazing will create a compounded ecological issue. Because *R. ponticum* foliage is highly unpalatable to both red and roe deer, establishing seedlings face no browsing pressure. Concurrently, the surrounding native ground flora, such as bilberry and the vulnerable native tree seedlings, are heavily suppressed by selective browsing.

5.3 Commercial Conifer Block (Compartment E) and Forest Restoration

The unharvested coniferous plantation block at Compartment E has passed its commercial rotation age, creating a structurally unstable canopy prone to windthrow. The dense Sitka spruce canopy actively suppresses ground flora and prevents young broadleaved plants from establishing. Removing this block through scheduled clear-felling is a necessary step to facilitate native broadleaved regeneration and restore the native woodland.

5.3.1 Wood Ant Protection (TN11 & TN12)

Ecological Reasoning & Legislative Context

The Scottish wood ant acts as a critical keystone species within the Atlantic temperate rainforest ecosystem, driving local nutrient cycling and supporting rare woodland invertebrate communities. While the conifer plantation block (Compartment E) sits outwith the statutory North End of Bute SSSI boundary, the Scottish wood ant is formally recognised as a priority species on the Scottish Biodiversity List (SBL) (Scottish Government, 2020).

Under Section 1 of the Nature Conservation (Scotland) Act 2004, all community land organisations hold a statutory biodiversity duty to protect, manage, and further the conservation of SBL priority species during physical land works. Avoiding reckless or deliberate damage to these active nests is a strict legal and operational requirement.

On the map, these active breeding networks appear within the felling boundary of Compartment E on the plan, but on the ground, they sit at the immediate periphery. Because clear-felling is scheduled for the current 2026 season, the following pre-commencement rules are required to satisfy the project's biodiversity duty:

- Immediate Ground Marking: Before any harvesting machinery, chainsaws, timber clearance teams, or heavy vehicles enter Compartment E in 2026, an ecologist or trained volunteer must locate TN11 and TN12 on the ground.
- Physical Exclusion Zones: A strict 5-meter radius operational exclusion zone must be measured from the outer margins of each mound and physically marked out using high-visibility tape.
- Machinery and Stacking Restrictions: No tree felling, heavy vehicle tracking, timber stacking, or brash piling is permitted within these 5m zones under any circumstances. Harvesting contractors must be formally briefed on these boundaries and the underlying legal protections during their mandatory pre-start site inductions

5.4 Operational and Accessibility Constraints

The execution of habitat management and invasive eradication programmes is restricted by the site's challenging terrain, the lack of vehicular access, and protective statutory designations. All management work must rely entirely on pedestrian logistics, which severely limits the transport of heavy equipment and cleared material. However, it is understood that temporary vehicular access across adjoining land has been indicated for 2026 to facilitate the clear-felling of the coniferous plantation at Compartment E.

Within the path network, a large amount of fallen timber inside the coniferous plantation at Compartment E presents an immediate physical barrier, making the Balnakailly track entirely impassable at that point. Due to the dense fallen trees, no alternative diversion is available, forcing walkers to turn back. This dead-end bottleneck disrupts public access rights and directs recreational foot traffic back onto earlier sections of the track.

Separately, in Compartment A, the original trail has degraded into deep mud, forcing walkers to create a detour along the edge of a potential GWDTE flush zone at TN8. This alternative route channels foot traffic directly through the sensitive soft rush and bracken margin, trampling vegetation and accelerating soil compaction across this wetland habitat.

While statutory protections apply across the entire site, operations within the designated SSSI boundary carry distinct legal restrictions. Under the Nature Conservation (Scotland) Act 2004, BCLC must secure formal statutory Operations Requiring Consent (ORC) from NatureScot prior to carrying out any manual shoreline bracken cutting (TN20), herbicide application near the burn (TN34), or marking trail routes with ribbon tapes on branches. However, clearing the fallen trees on the track within the conifer compartment sites outside the SSSI boundary and may proceed immediately, provided it complies with standard red squirrel protection protocols (Wildlife and Countryside Act 1981) and respects the 5m exclusion zones established for the Scottish wood ant colonies.

6. Recommendations

To safeguard the baseline ecological features of Balnakailly Rainforest, the following six priority management actions should be integrated into operational schedules:

6.1 Deer Management & Canopy Recovery - Compartments A, B & C

As the site continues to face unsustainably high deer pressure, an active deer management strategy is essential to prevent long-term degradation of the woodland structure (NatureScot, 2020). Because all three semi-natural broadleaved woodland (A1.1.1) compartments are situated within the SSSI boundary, large-scale permanent deer fencing is restricted. Woodland recovery must instead rely on achieving sustainable deer densities to allow natural regeneration without fencing.

- **Landscape-Scale Deer Management:** Active deer control by qualified personnel should be increased within the compartments flanking the watercourse to reverse the ongoing decline of the understorey. To overcome local land-boundary constraints, BCLC should participate in cooperative deer management initiatives alongside neighbouring landowners and statutory bodies (NatureScot, 2023).
- **Impact-Driven Management Objectives:** Management targets within the A1.1.1 compartments should be adjusted based on vegetation response using standard Woodland HIA methods. The core objective is to lower browsing pressure to a level that allows the new summer growth of sessile oak seedlings to survive past their first year and develop naturally.
- **Statutory SSSI Consent (ORC):** Before initiating enhanced deer management activities, deer extraction paths, or installing temporary seedling protection on-site, BCLC must secure formal ORC from NatureScot, to satisfy statutory protected site obligations (Nature Conservation (Scotland) Act 2004).
- **Localised, Non-Permanent Individual Guards:** Where specific high-value flushes of sessile oak seedlings emerge in late spring within Compartment A, the use of biodegradable, non-permanent tree shelters or light spiral guards should be reviewed with NatureScot. These must have a minimal footprint, be temporary, and be strictly maintained to prevent littering within the SSSI.
- **Operational Logistics and Visitor Safety:** Due to the lack of vehicular access and the sensitive SSSI designations, all deer management and monitoring must be carried out on foot by qualified professionals. All activities must be planned and executed discreetly during low-visitation periods to ensure absolute public safety and minimise impact on recreational visitors (Land Reform (Scotland) Act 2003).
- **Data Integration:** Ongoing tracking data from HIAs, focusing on active hotspots like the poached river crossing at TN31 and the bare peat scrape at TN37, must be continually integrated into deer management planning. This will help map changing deer movements and demonstrate compliance with SSSI conservation objectives.

6.2 Immediate INNS Eradication

- **Seedling Uprooting**: *R. ponticum* seedlings (such as TN37) must be hand-pulled early to remove them before their root systems mature.
- **Herbicide Treatment**: For mature or established plants, including those found on the riparian edges at TN34 and within the woodland at TN22, operators should use stem injection or cut-and-stump treatments with an approved systemic herbicide.
- **Watercourse Protection**: All chemical applications within riparian zones must use specialised aquatic-approved formulations and adhere to Scottish Environment Protection Agency (SEPA) regulatory guidelines to safeguard the Balnakailly Burn watercourse while preventing damage to the wider site flora.

6.3 Bracken Control – Compartment D

Active bracken control must be prioritised within the shoreline compartment to prevent the monoculture from outcompeting sensitive ground flora and halting native tree regeneration.

- **Non-Chemical Management:** Because this compartment is on the edge of a sensitive coastal area, all management must rely on non-chemical, manual methods. This removes risk of herbicide runoff and ensures compliance with water protection regulations.
- **Statutory SSSI Consent:** Formal ORC must be obtained from NatureScot prior to any commencing work within this zone.
- **Containment Buffers:** A 5-meter manual clearance zone must be established around the community structures at TN18 and TN19, as well as along the footpath network.
- **Manual Cutting and Raking:** A multi-year program of manual cutting or strimming should be carried out twice per season (typically early and late summer) to gradually weaken underground rhizomes. Cut material must be hand-raked away to expose the underlying soil and encourage the native seed bank to regenerate.
- **Seasonal Wildlife Restrictions:** To protect breeding wildlife, all cutting and clearance works must take place outside the main bird breeding season (March to August inclusive) unless a pre-works check by an ecologist confirms no active ground nests are present.

6.4 Public Access and Trail Management

6.4.1 Path Alignment and Wetland Protection (TN8)

To prevent walkers from widening the mud zone and damaging the sensitive, potential GWDTE flush zone at TN8, the waterlogged section of the pathway must be managed using low-impact methods. The original path has degraded into deep mud, forcing walkers onto a trampled detour along the edge of the soft rush and continuous bracken boundary.

- **Permanent Route Alignment:** Formalise the current detour as the permanent route. Lay locally sourced brash or natural stepping stones along this footprint to stabilise the footing. This consolidates the walking surface, prevents walkers from pushing wider into the sensitive rush beds, and uses the natural bracken boundary to confine foot traffic (Land Reform (Scotland) Act 2003).
- **Alternative Option:** If this route fails to stabilise the ground long-term, the alternative is to repair the original historic alignment using manual stone-packing and block the bypass with natural brash barriers.

6.4.2 Shoreline Wildfire Mitigation – Compartment D

Due to the high accumulation of dry bracken thatch and the open nature of the shoreline compartment, seasonal wildfire risks are elevated around visitor features. (NatureScot, 2024).

- **Signage Maintenance:** To reduce fire risks near dry thatch, the encroaching bracken at the open timber kayak shelter (TN19) must be manually cleared to fully uncover the lower safety panel on the existing trail map sign. This ensures that responsible campfire advice remains visible to visitors.

6.5 Immediate 2026 Forestry Exclusion Zones - Compartment E

Before starting the scheduled 2026 harvesting operations within Compartment E, which sits outwith the SSSI, strict protection zones must be enforced on-site to satisfy BCLC's statutory biodiversity duty under the Nature Conservation (Scotland) Act 2004. These boundaries are legally required to shield the active breeding networks of Scottish wood ants which hold priority on the SBL (Scottish Government, 2020), as well as on-site cultural heritage features.

6.5.1 Ecological Protection Zones (TN11 & TN12)

- **Physical Ground Marking:** Physically marked 5-meter radius exclusion zones must be established around the identified active Scottish wood ant mounds and complexes (TN11 and TN12).
- **Operational Restrictions:** Heavy machinery tracking, tree felling, and timber extraction are strictly prohibited within these 5m zones to eliminate direct crushing hazards and prevent structural damage to the nests.

6.5.2 Archaeological Preservation Zone (TN13)

- **Site Context:** Due to map scale limits, the late eighteenth-century farm steading ruins (TN13) appear inside the proposed clear-felling polygon in Compartment E. The walkover confirms that the structure sits within a localised clearing at the edge of the plantation with no standing conifers within the interior walls, though mature conifers remain standing to the sides.
- **Physical Protection Buffer:** To safeguard these structures, a strict 10-meter mechanical exclusion zone must be measured from the outermost stone walls and physically marked out using high-visibility tape before any work begins (Historic Environment Scotland, 2019).
- **Operational Restrictions:**
    - **Directional Felling:** All standing conifers along the edge of the clearing must be directional-felled away from the ruins to prevent falling timber from hitting or damaging the structures.
    - **Extraction Restrictions:** No heavy vehicle tracking, timber dragging, or log stacking is permitted within the 10m buffer zone or inside the clearing. The open ground within the clearing must be left entirely undisturbed to protect archaeological remains and specialised bryophyte growth.

6.6 Infrastructure Monitoring and Watercourse Protection (TN1)

As the damaged timber burn gate spans Balnakailly Burn, routine monitoring is needed to prevent downstream or riparian impacts. As boundary structures often involve shared liabilities, asset ownership must be confirmed before any physical intervention.

- **Routine monitoring**: BCLC must incorporate the timber burn gate (TN1) into regular inspection schedules to check for signs of structural collapse.
- **Ownership verification**: BCLC should consult adjacent landowners to confirm ownership and establish liability before making alterations, dismantling or repairs.
- **Risk mitigation**: BCLC must focus on preventing the broken gate or associated structure from falling into the burn, where it could cause local bank erosion.
- **Regulatory compliance**: If removal or clearing is necessary, all active works must comply with SEPA's Water Environment (Controlled Activities) (Scotland) Regulations (CAR) regulations.

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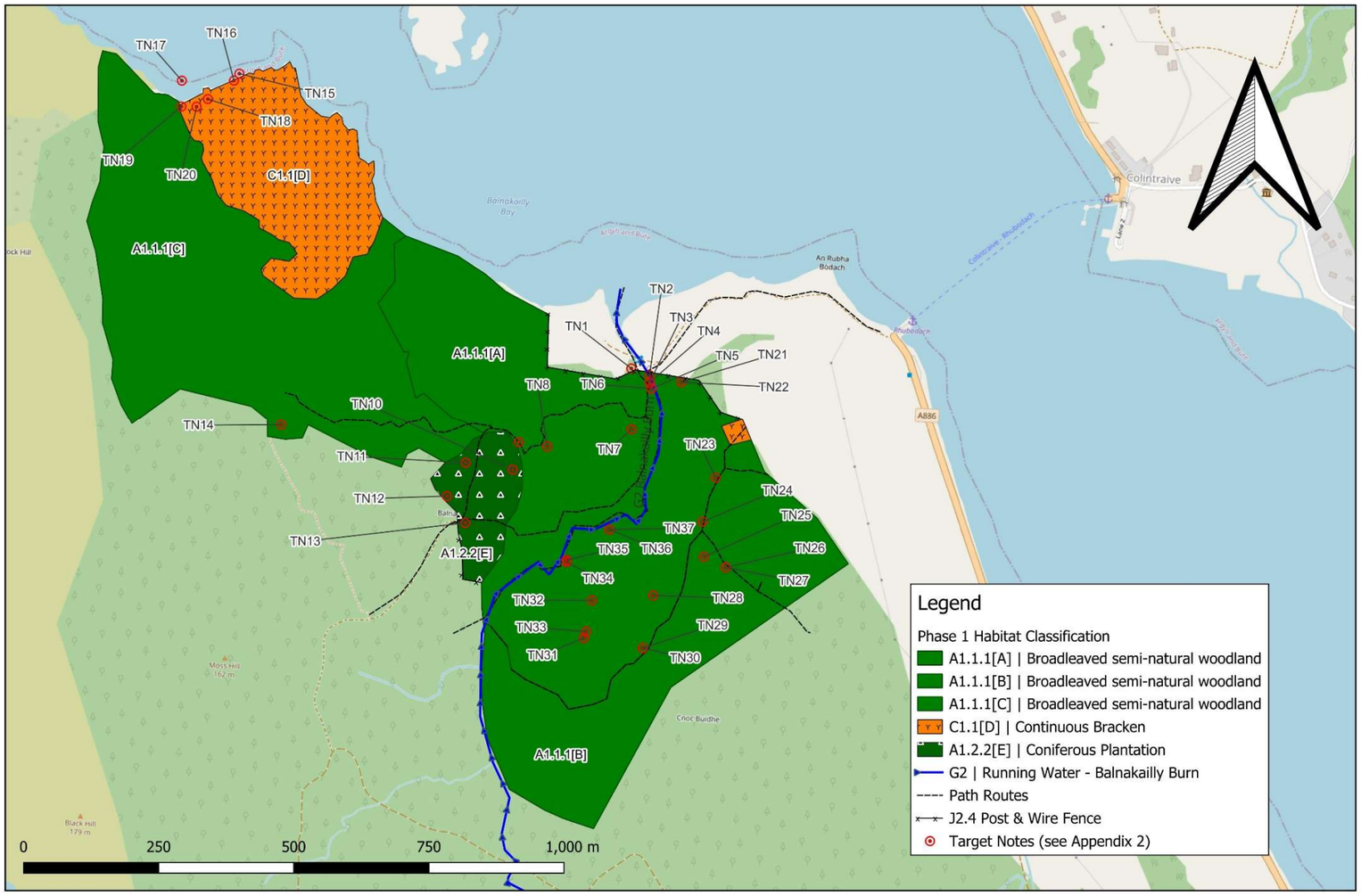
APPENDICES

Appendix A - Phase 1 Habitat Map and Target Notes

Phase 1 Habitat and Target Note Map
Balnakailly Rainforest



Map data from OpenStreetMap | Boundary data: Samuel Lindsay, Bute Community Forest (n.d.) | Map Surveyor: Melissa Peakman | Map Date: June 2026

Appendix B - Full Target Note Register

Target Note 1 – Damaged Hanging Burn Gate (Grid Ref: NS 02209 74209)
Broken timber burn gate suspended across the watercourse.
Context: Structure is broken and mostly redundant. It no longer stops woody debris or prevents livestock from entering the forest. There is a risk that the remaining timber could collapse into the channel, potentially blocking water flow or causing bank erosion.
Recommendation: Monitor for structural failure. If it needs to be removed or cleared, ensure works comply with SEPA's CAR Regulations to prevent instream siltation or channel damage.

Target Note 2 – Timber Kissing Gate (Grid Ref: NS 02242 74197)
Functional timber kissing gate at the woodland boundary, providing pedestrian access into the forest.
Context: Formal entry point supporting public access rights under the Land Reform (Scotland) Act 2003. Some anthropogenic disturbance is anticipated along the immediate path network. The timber structure itself offers limited ecological value.
Recommendation: Retain *in situ*. No management intervention or ecological mitigation required under baseline conditions.

Target Note 3 – Mature Oak Tree with Rope Swing (Grid Ref: NS 02243 74183)
Mature sessile oak with Diameter at Breast Height (DBH) 75cm located just inside the woodland entrance, featuring an attached rope swing.
Context: Tree holds high ecological value, offering potential features for nesting birds and roosting bats, such as split bark, rot holes and deadwood. Subject to low-to-moderate localised anthropogenic disturbance (soil compaction around root zone, minor branch damage) from regular recreational use under the Land Reform (Scotland) Act 2003.
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions. Prior to any future structural management or safety pruning, conduct formal checks for nesting birds and roosting bats.

Target Note 4 – Footbridge over Balnakailly Burn (Grid Ref: NS 02246 74172)
A 13.25m long timber plank footbridge spanning the Balnakailly Burn. Measures 97cm walking width (120cm total width), featuring timber post-and-rail side railings with a minor rope section, and non-slip chicken wire fixed across deck planks.
Context: Key infrastructural asset supporting public access across the watercourse under the Land Reform (Scotland) Act 2003. While the timber structure itself offers limited ecological value, the immediate riparian margins support a native, mixed-canopy fringe providing nesting bird foraging opportunities. The watercourse presents suitability as a commuting corridor for otter and provides suitable foraging habitat for water vole.
Recommendation: Retain *in situ*. No management intervention or ecological mitigation required under baseline conditions.

Target Note 5 – Balnakailly Burn Riparian Corridor (Grid Ref: NS 02246 74172)
High-quality aquatic and riparian habitat corridor with strong connectivity to the wider landscape. .
Context: The watercourse exhibits high suitability for Eurasian otter, offering foraging, commuting, and potential holt or resting site opportunities with extensive bankside cover. This is a baseline assessment with no development works planned therefore standalone protected species surveys or macroinvertebrate kick testing are not currently required. Anthropogenic disturbance is low, restricted to trail users on nearby path.
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions. If land management practices change, or if riparian engineering, bank reinforcement, or structural changes to stream infrastructure (e.g., TN1 or TN4) are proposed, a formal otter walkover survey must be conducted up to 200m upstream and downstream of the working footprint to comply with NatureScot advice.

Target Note 6 – Boardwalk Sections over Burn Tributary (Grid Ref: NS 02246 74172)
Footpath infrastructure spanning a minor tributary of the Balnakailly Burn. The infrastructure consists of a main timber plank boardwalk section with three integrated steps, supplemented by two separate nearby wooden boardwalk sections. All walkways measure 97cm in width and are partially surfaced with non-slip chicken wire.
Context: Pedestrian assets maintaining continuous access over waterlogged ground under the Land Reform (Scotland) Act 2003. While the timbers offer limited ecological value, the low-lying void space beneath planks offers potential temporary sheltering or foraging niches for small mammals and amphibians.
Recommendation: Retain *in situ*. No management intervention or ecological mitigation required under baseline conditions.

Target Note 7 – Timber Storage Hut (Grid Ref: NS 02209 74096)
Modern, locked timber storage hut.
Context: Active, modern anthropogenic feature. Structure contains no items of value and holds no inherent ecological value or wildlife potential.
Recommendation: No management intervention or ecological mitigation required under baseline conditions.

Target Note 8 – Groundwater Flush Zone and Path Diversion (Grid Ref: NS 02053 74064)
A localised, permanently waterlogged groundwater flush zone situated on a flat section of the woodland floor within the broadleaved semi-natural woodland. The level terrain causes lateral water pooling, creating year-round saturated conditions that support a dense community of soft rush alongside carpets of bryophytes and bog mosses (*Sphagnum* spp.). The flush zone is bordered by dense stands of continuous bracken.
Context: Sensitive microhabitat identified as a potential GWDTE under SEPA regulatory guidelines. The development of deep mud along the original path has forced a pedestrian diversion through the wetland margin. This ongoing anthropogenic disturbance is actively degrading the habitat through trampling, flattened vegetation, localised mud expansion, and soil compaction.
Recommendations: Implement low-impact path alignment or detour stabilisation repairs to protect flush zone from ongoing trampling.

Target Note 9 – Historic Boundary Dyke (Grid Ref: NS 02000 74072)
Historic linear boundary dyke running through woodland. Structure is completely covered by a mature mat of bryophytes with no visible stone elements, bare ground, or tree root penetration. Occasional redundant metal posts from pre-existing fencing remain embedded along the feature.
Context: Important linear feature providing stable, undisturbed substrate for lower plants and microclimates for macroinvertebrates. Complete bryophyte cover stabilises the bank, indicating long-term environmental continuity. Dense moss layer and underlying matrix offer sheltering and foraging niches for small mammals, amphibians, and invertebrates. Old metal posts carry no ecological value.
Recommendation: Retain *in situ* as an ecological feature with no management intervention or mitigation required under baseline conditions. The structure must be left entirely undisturbed to preserve established bryophyte communities and maintain its historical integrity.

Target Note 10 – Fallen Sitka Spruce / Scheduled Felling Area (Grid Ref: NS 01989 74021)
Fallen mature Sitka spruce trees within a commercial plantation compartment scheduled for clear-felling later this year. The windblown canopy has directly collapsed across the local track network, creating a physical obstruction that renders the track entirely impassable at this point.
Context: The fallen timber creates localised deadwood habitat, providing colonisation substrates for bryophytes and temporary foraging and sheltering opportunities for common wood-boring invertebrates and small mammals. Current track blockage limits public access, forcing walkers to retrace their steps. Felling operations are scheduled outside the bird breeding season, completely mitigating risks to nesting wild birds and standard operational provisions are established to safeguard the local red squirrel (*Sciurus vulgaris*) population.
Recommendation: Ensure all timber extraction adheres strictly to red squirrel protection guidelines. Prior to clear-felling, execute immediate windblow clearance along the track alignment to safely restore public access rights across this non-SSSI compartment. No further ecological survey work, statutory NatureScot consent, or seasonal constraints are required under baseline conditions.

Target Note 11 – Active Wood Ant Mound (Grid Ref: NS 01902 74034)
Mature, active Scottish wood ant (*Formica aquilonia*) mound situated within the woodland understorey, measuring approximately 2.0m in diameter and 1.2m in height at the apex. The structure is located adjacent to the Sitka Spruce compartment scheduled for clear-felling.

Context: Keystone forest structure of high localised ecological value. The upcoming felling operations introduce direct risks of mechanical damage from heavy machinery, as well as microclimate shock from sudden exposure to full sunlight and the loss of surrounding woodland canopy.
Recommendation: Retain *in situ*. Prior to harvesting operations, enclose the mound within a clearly marked 5-metre heavy machinery exclusion buffer zone. Provide all forestry operatives with a site induction briefing regarding the feature's location. Harvesting techniques must comply with standard Forestry and Land Scotland biodiversity protection protocols.

Target Note 12 – Wood Ant Nest Complex (Grid Ref: NS 01867 73972)
Localised complex comprising four separate, active Scottish wood ant (*Formica aquilonia*) mounds situated adjacent to the scheduled felling area. Individual nest dimensions (diameter × height) measure: Nest A (50cm × 20cm), Nest B (2.0m × 80cm), Nest C (1.5m × 80cm), and Nest D (1.0m × 60cm).
Context: Interconnected breeding colony network representing a major colony cluster. Heavy forestry vehicles and timber extraction operations present a direct physical hazard to the nests.
Recommendation: Retain *in situ*. Prior to harvesting operations, enclose the entire four-mound complex within a clearly marked 5-metre heavy machinery exclusion buffer zone. Provide all forestry operatives with a site induction briefing regarding the feature locations. Harvesting techniques must comply with standard Forestry and Land Scotland biodiversity protection protocols.

Target Note 13 – Historic Farm Steading Ruins and Clearing (Grid Ref: NS 01901 73923)
Structural dry-stone ruins of the historic Balnakailly farm steading complex located within a woodland clearing, retaining pockets of original internal structural clay mortar. Feature includes an adjacent accumulation of fallen sycamore deadwood and a single historic knocking stone.
Context: High-value microhabitat location where un-mortared stone, exposed clay, and decaying timber support rich lower-plant communities, including rare oceanic bryophytes. Shaded, damp microclimates (especially north-facing walls and fallen trees) allow slow-growing bryophytes to thrive free from ground flora competition. Deep crevices and structural voids offer optimal sheltering and foraging opportunities for reptiles, amphibians, and small mammals. The old masonry represents a static, historical feature.
Recommendation: Retain the entire clearing footprint *in situ*, including all fallen timber and the historic knocking stone, to preserve both cultural heritage and ecological function. Prior to harvesting operations in the adjacent Sitka spruce compartment (A1.2.2[E]), establish a clearly marked 10 metre heavy machinery exclusion zone around the clearing perimeter to safeguard the established lower-plant microcommunities.

Target Note 14 – World War II Decoy Control Bunker (Grid Ref: NS 01560 74104)
Historic World War II surface-level concrete control bunker associated with the "Operation Starfish" civil bombing decoy network. The structure features external dimensions of approximately 11.0m × 4.1m, with seven concrete steps leading to three internal rooms (2.1m ceiling height). Restored via community funding, the structure functions as an active tourist attraction and community asset, complete with interpretive signage and ongoing interior mural painting by local artist Stephen Doak.
Context: Sustained recreational foot traffic, community restoration, and ongoing painting works introduce high levels of anthropogenic disturbance, rendering the internal rooms unsuitable for sensitive wildlife. A baseline visual inspection confirmed no visible bats or historical evidence of roosting bat potential. The concrete external steps provide minor invertebrate microhabitats. Specialist ecological clearance surveys are understood to have been completed prior to the commencement of community works. The structure itself carries no ecological value.
Recommendation: Retain *in situ*. No management intervention or ecological mitigation required under baseline conditions.

Target Note 15 – Invasive Non-Native Species: *R. ponticum* (Grid Ref: NS 01524 74753)
Single, isolated specimen of the INNS *R. ponticum* verified during the walkover. Balnakailly Rainforest records indicate additional isolated individuals are scattered across multiple woodland compartments. A separate, extensive infestation with complete canopy dominance occurs outwith the survey area further west on the Isle of Bute along the coast from Pulling Burn to Buttock Point (approximately 500m west of the site).
Context: Invasive shrub carries negative ecological value as it poses a threat to temperate rainforest biodiversity through shading and outcompeting native flora. Unmanaged local stands act as a continuous seed reservoir. Under the Wildlife and Countryside Act 1981 (as amended by the Wildlife and Natural Environment (Scotland) Act 2011), it is a statutory offence to plant or otherwise cause this species to grow in the wild.
Recommendation:
Eradication Action: Implement a coordinated eradication program following NatureScot biosecurity guidelines. Stem-inject or cut and stump-treat all isolated individuals using an approved systemic herbicide.
Felling Biosecurity (Compartment A1.2.2[E]): Timber harvesters and forwarders must strictly avoid tracking through known *R. ponticum* zones. All machinery must be thoroughly cleaned down before arriving at and leaving the site to prevent the transmission of wood fragments, seeds, or *Phytophthora ramorum* pathogens.

Target Note 16 – Isolated Gorse Shrub (Grid Ref: NS 01473 74742)
A single, isolated common gorse (*Ulex europaeus*) specimen distributed along the shoreline margin, representing one of several scattered individuals along this coastal fringe.
Context: Holds positive localised ecological value within the coastal ecotone. Dense, thorny, evergreen structures provides structural shelter, invertebrate microhabitats, and high-protection foraging or nesting sites for common coastal and woodland birds, such as Stonechat (*Saxicola rubicola*), Whinchat (*Saxicola rubetra*), or Linnet (*Linaria cannabina*).
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions to maintain coastal diversity and habitat connectivity.

Target Note 17 – Breeding Canada Geese Group (Grid Ref: NS 01377 74741)
A discrete breeding group of Canada geese (*Branta canadensis*) established along the shoreline margin of the woodland, with mobile goslings present. The birds appear habituated to low-intensity baseline anthropogenic disturbance from the adjacent loop path and coastal water sports.
Context: Localised seasonal breeding feature of an introduced INNS. While classified as an introduced species in Scotland, its presence carries a complex baseline ecological value. Active nests, eggs, and dependent young receive statutory protection under the Wildlife and Countryside Act 1981 (as amended in Scotland). It is a legal offence to intentionally or recklessly take, damage, or destroy an active nest structure.
Recommendation: Retain *in situ* with no management intervention or ecological mitigation required under baseline conditions. If any shoreline maintenance, vegetation clearance, or events are proposed within this immediate zone during future breeding seasons (March to August inclusive), works must be postponed until an ecologist verifies that all young have fledged and the nesting site is entirely inactive.

Target Note 18 – Composting Toilet Facility (Grid Ref: NS 01406 74492)
Timber-frame composting toilet facility on the shoreline loop path network, serving recreational trail users and sea-kayers. The structure exhibits roof weathering and damage; and dense encroaching bracken is currently preventing the door from closing. A historic wasp nest (~15cm radius) in the internal roof space is dead and inactive.
Context: An established anthropogenic asset supporting outdoor recreation under the Land Reform (Scotland) Act 2003. While the timber building itself holds limited ecological value, the dead wasp nest carries no ecological or health and safety constraints.
Recommendation: Retain *in situ*. No statutory ecological mitigation or further survey work is required under baseline conditions. Repair the damaged roof timbers and cut back the encroaching doorway bracken strictly outside the bird nesting season (March to August inclusive). Integrate all local bracken clearance into the manual control and buffer zone strategy detailed under TN20.

Target Note 19 – Open Timber Kayak Hut and External Fire Pit (Grid Ref: NS 01376 74694)
Open-fronted timber hut on the shoreline with roof weathering and damage, situated ~100m from TN18. Includes an external, informal brick fire pit positioned away from the surrounding woodland canopy and a permanent, Argyll Sea Kayak Trail route map panel fixed to the external wall. No signs of nesting birds or active wildlife use recorded.
Context: A key recreational anthropogenic feature along the coastal edge, acting as a formal stopping point for kayak trail users. Timber structure holds limited baseline ecological value, but the regional route map enhances its utility for coastal recreation and tourism. Summer growth of bracken has obscured the lower safety information portion of the panel, introducing a campfire hazard and seasonal wildfire risk to adjacent ground flora and dry bracken thatch.
Recommendation: Retain *in situ*. No statutory ecological mitigation or further survey work is required under baseline conditions. To restore public safety functions, cut back encroaching bracken to clear the lower safety panel, ensuring the text remains fully visible to visitors. Manage the surrounding vegetation encroachment in accordance with the manual containment outlined under TN20.

Target Note 20 – Continuous Bracken Monoculture (Grid Ref: NS 01404 74693)
Extensive area of continuous bracken along the shoreline, bounding and encroaching upon community buildings at TN18 and TN19. The habitat features a dominant, mature summer canopy underlaid by a deep winter frond thatch. Heavy shading and a dense litter layer actively suffocate native woodland-edge and shoreline understorey flora
Context: The monoculture carries a complex ecological value because its dense canopy and thick thatch create a humid microclimate that supports high densities of sheep ticks (*Ixodes ricinus*), hosted by the wild deer population. Its immediate proximity to the trail network and visitor assets presents a localised public health hazard (Lyme disease risk) alongside ongoing native flora suppression and the obstruction of safety signage at TN19.
Recommendation: Obtain formal SSSI Consent from NatureScot before starting any active work. Establish a 5-metre manual management containment buffer zone around the composting toilet (TN18), kayak hut (TN19), and the immediate public footpath network. Execute a multi-year program of manual cutting or strimming twice per season (typically early and late summer) to gradually exhaust underground rhizome reserves, and hand-rake the cut

frond thatch away from the managed zones to expose the underlying soil and encourage the native seed bank to regenerate. All cutting and clearance works must be undertaken outside the main bird nesting season (March to August inclusive) unless a pre-works check by an ecologist confirms no active ground nests are present.

Target Note 21 – Schist Rock Outcrop (Grid Ref: NS 02301 74184)
Small, natural schist rock exposure entirely within the broadleaved woodland canopy. The outcrop is sheltered beneath sessile oak and downy birch, positioned above a sloped woodland floor dominated by greater wood-rush (*Luzula sylvatica*), purple moor-grass, and bracken. The sheltered, humid microclimate features localised ledges supporting bryophyte communities typical of temperate rainforest. Invasive *R. ponticum* is established nearby (see TN22).
Context: Localised feature of high ecological value. Stable rock substrates provide long-term anchor points for slow-growing lower plants unable to compete with vigorous ground flora on the forest floor. Local *R. ponticum* introduces a high risk of encroachment and destructive shading.
Recommendation: Maintain the existing native canopy cover to preserve the localised humid microclimate. No direct geological or structural intervention is required under baseline conditions; however, eradication of the adjacent *R. ponticum* seed source (TN22) must be prioritised to protect the rock face from overgrowth, and the ledges should be monitored during subsequent inspections for pioneering invasive seedlings.

Target Note 22 – Invasive Non-Native Species Recruitment (Grid Ref: NS 02301 74184)
A single *R. ponticum* individual established on the sloped woodland floor immediately to the right of the schist rock outcrop (TN21). The specimen is situated under a sessile oak and downy birch canopy within a ground layer of bracken, greater wood-rush (*Luzula sylvatica*), and purple moor-grass. The plant faces minimal natural competition or grazing pressure.
Context: This invasive plant carries negative ecological value as it serves as a starting point for non-native plant. Active vector for INNS expansion within an ecologically sensitive understorey.
Recommendation: Execute targeted manual clearance or handheld stem injection, depending on exact stem diameter, to eliminate this pioneering seed source before further expansion occurs. All cleared material must be removed from the peat surface to prevent vegetative re-rooting. The immediate vicinity should be monitored during subsequent inspections to detect and pull secondary seedling recruitment, with all control works integrated into the master immediate INNS eradication strategy.

Target Note 23 – Historic Boundary Dyke with Mature Oaks (Grid Ref: NS 02365 74006)
Historic linear earthen boundary dyke supporting a line of mature sessile oak trees. The earthen mound surface is directly colonised by dense bracken and purple moor-grass. The trunks and branches support an established community of epiphytic bryophytes. No stone elements are visible within the structure.
Context: A historic boundary structure providing a raised substrate above low-lying understorey. The bank and bark provide localised niches for lower plants typical of the regional temperate rainforest habitat.
Recommendation: Retain *in situ* as an ecological feature with no management intervention or mitigation required under baseline conditions. The feature should be monitored during routine inspections to ensure it remains clear of INNS.

Target Note 24 – Historic Boundary Dyke (Grid Ref: NS 02340 73925)
Historic linear boundary dyke dividing the predominantly sessile oak woodland compartment (A1.1.1[A]) from the predominantly downy birch woodland compartment (A1.1.1[B]). The feature is entirely covered by vegetation along its length, supporting shifting plant communities including bracken, purple moor-grass, wood-sorrel, and various bryophytes. Redundant metal posts from pre-existing boundary fencing remain embedded along the structure.
Context: Distinct historic feature separating two woodland compartments. Dense vegetative cover stabilises the bank, offering localised habitat diversity and microclimates for native ground flora and lower plants. The old metal fencing posts carry no inherent ecological value.
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions.

Target Note 25 – Line of Oaks on Earthen Bank (Grid Ref: NS 02343 73860)
Presumed historic linear earthen bank running at 90 degrees to the original boundary dyke, supporting a line of mature sessile oak trees. The bank surface between the trees is dominated by dense bracken and purple moor-grass. Tree trunks and branches support established epiphytic bryophyte and lichen communities typical of the regional temperate rainforest.
Context: Important bank providing linear habitat connectivity. The bank and mature bark provide localised niches of high ecological value for lower plants, keeping them raised above ground-layer vegetation.
Recommendation: Retain *in situ* as an ecological feature with no management intervention or mitigation under baseline conditions.

Target Note 26 – Standing Large Dead Sessile Oak (Grid Ref: NS 02383 73840)
Large, upright dead sessile oak tree featuring a DBH of 125cm located within a small clearing near TN27. The deadwood structure supports established epiphytic lichen communities, and a small, self-seeded downy birch is growing directly from one of the main branches. Visible splits and deep fissures are present across several branches.
Context: High-value standing deadwood resource providing critical structural complexity. The fissured branches and split bark create high-potential micro-habitats and roosting niches for bats and nesting birds, while the stable wood surface supports specialised wood-decay lichens.
Recommendation: Retain *in situ* as a high value ecological asset with no management intervention or mitigation under baseline conditions, preserving the structure as a high-value standing habitat asset.

Target Note 27 – Damaged Large Sessile Oak (Grid Ref: NS 02383 73840)
Large, living but structurally damaged sessile oak tree with a DBH of 115cm located on the edge of woodland near TN26. The canopy features prominent splits and deep fissures within the branches. Visible drilling and excavation marks confirm historical or active use by great spotted woodpecker (*Dendrocopos major*), with an individual heard calling nearby during the survey.
Context: Veteran tree specimen of high baseline ecological value. The deep branch splits provide optimal roosting niches and high potential for bats, while the woodpecker cavities create specialised nesting features for birds and secondary cavity-nesters.

Recommendation: Retain *in situ* as a high-value standing habitat asset with no management intervention or mitigation under baseline conditions, preserving the structure as a high-value standing habitat asset.

Target Note 28 – Schist Rock Outcrop (Grid Ref: NS 02249 73789)
Small, natural schist rock exposure situated entirely within the broadleaved woodland canopy. The rock surfaces and crevices support an established community of polypody (*Polypodium* spp.) ferns, saxicolous lichens, and bryophytes typical of the regional temperate rainforest habitat. A single fallen, dead downy birch tree rests across the top of the physically stable structure.
Context: Important micro-habitat feature adding structural and deadwood complexity to the woodland floor. The stable schist substrate and resting deadwood provide long-term, localised niches for specialised lower plants, fungi, and ferns.
Recommendation: No management intervention or mitigation is required under baseline conditions, preserving the structure as a stable and undisturbed habitat asset.

Target Note 29 – Historic Boundary Dyke with Fencing Wire (Grid Ref: NS 02230 73691)
Section of the historic linear boundary dyke. Redundant metal posts and loose sections of fencing wire remain embedded along the feature, creating a localised trip hazard on the woodland floor. Vegetation cover along this section of the earthen bank is heavily dominated by dense bracken.
Context: Linear boundary feature providing micro-habitat structure. Heavy dominance of bracken suppresses typical native ground flora and lower plants along the bank. The loose, redundant wire presents a minor physical hazard but holds no ecological value.
Recommendation: Retain *in situ* as an ecological feature with no management intervention or mitigation required under baseline conditions. However, as a safety measure for visitor access and site tracking, loose sections of the redundant fencing wire should be carefully cut and removed, ensuring the historic earthen bank remains completely undisturbed.

Target Note 30 – Veteran Sessile Oak (Grid Ref: NS 02230 73691)
Large, living veteran sessile oak tree featuring a DBH of 140cm. The trunk, bark fissures, and lower branch forks support a highly diverse epiphytic community including common polypody (*Polypodium vulgare*), wood-sorrel, wavy hair-grass (*Avenella flexuosa*), and prominent bryophyte mats dominated by swan's-neck thyme-moss (*Mnium hornum*) and pincushion mosses (*Dicranum* spp.).
Context: High-value veteran tree structure providing exceptional microhabitat diversity. The extensive DBH and aged bark textures offer highly suitable long-term colonisation surfaces for specialised rainforest bryophytes and flora, while providing high potential nesting and roosting niches for woodland birds and bats.
Recommendation: Retain *in situ* as an ecological feature with no management intervention or mitigation required under baseline conditions, preserving the structure as a high-value standing habitat asset.

Target Note 31 – Deer Crossing and Bank Poaching (Grid Ref: NS 02121 73710)
Active wild deer crossing point spanning a minor tributary of the Balnakailly Burn. An established tracking route intersects the watercourse, resulting in heavy poaching, trampling, and exposed soil measuring approximately 1.5m wide along the western bank margin. Both red deer and roe deer are active within the wider woodland compartment.
Context: Localised structural pressure on the riparian corridor. Intense animal traffic has denuded the bankside ground flora, creating an open mud corridor that increases the risk of localised bank erosion and instream siltation within the tributary. The exposed, permanently damp soil creates a highly receptive seedbed for INNS, posing a severe risk for the waterborne down-river transmission and animal-mediated transfer of *R. ponticum* seeds from adjacent compartments.
Recommendation: No direct structural intervention is required under baseline conditions. This feature should be integrated into wider, woodland-wide deer management and population monitoring strategies to reduce tracking and browsing pressure on sensitive riparian margins. Additionally, the trampled bank margins must be prioritised for targeted INNS monitoring during subsequent inspections to intercept and pull any pioneering *R. ponticum* seedlings before they establish.

Target Note 32 – Active Wood Ant Mound (Grid Ref: NS 02136 73779)
A small, active Scottish wood ant (*Formica aquilonia*) mound situated immediately adjacent to a mature sessile oak. The mound structure measures approximately 50cm in width and 40cm in height, with its surface directly colonised by encroaching bilberry, bracken, and purple moor-grass.
Context: Feature of localised ecological value as a developing forest structure. The adjacent sessile oak provides an essential foraging canopy for the colony. The surrounding plant growth indicates a stable mound surface but introduces long-term risks of competitive shading over the nest core.
Recommendation: Retain *in situ* as a baseline ecological feature with no management intervention required under baseline conditions. Ensure the immediate area is protected from any future trail creation to prevent physical compaction and colony disturbance.

Target Note 33 – Active Wood Ant Mound (Grid Ref: NS 02125 73722)
An active Scottish wood ant (*Formica aquilonia*) mound situated on the perimeter of a dense bracken patch. The mound structure measures approximately 1.0m in radius and 60cm in height, with its surface directly colonised by encroaching bracken, honeysuckle (*Lonicera periclymenum*), and bryophytes.
Context: Stable forest structure of localised ecological value. The surrounding vegetation provides structural support, but ongoing overgrowth presents long-term risks of shading out the nest core and reducing solar exposure required by the colony. Physical disturbance risks are negligible due to the surrounding dense bracken.
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions. The immediate area must be protected from any future trail creation to prevent physical compaction and colony disturbance.

Target Note 34 – *R. ponticum* on Riparian Margin (Grid Ref: NS 02089 73850)
A mature but moderately sized individual of the *R. ponticum* is established on the edge of a distinct drop down to the burn, positioned immediately adjacent to the steep bank crest.
Context: Significant threat to sensitive riparian corridor. Its position at the top of a steep slope introduces a high risk of INNS seeds washing downstream, facilitating rapid colonisation along lower riparian reaches.
Recommendation: Execute targeted chemical control via handheld stem injection or a localised cut-and-stump treatment with an approved systemic herbicide to remove the seed source. Integrating this work into master INNS strategy. All chemical applications within this riparian zone must use specialised aquatic-approved herbicide formulations and strictly adhere to SEPA regulatory guidelines. The steep banks downstream must be prioritised for targeted monitoring during future inspections to detect and pull any new seedlings.

Target Note 35 – Active Wood Ant Mound (Grid Ref: NS 02088 73854)
A small, active Scottish wood ant (*Formica aquilonia*) mound situated within the woodland floor understorey. The mound structure measures approximately 40cm in width and 15cm in height, surrounded by a dense ground layer of purple moor-grass and bilberry.
Context: Feature of localised ecological value representing a developing, pioneering colony. Due to its restricted physical volume and low-lying profile, this early-stage nest lacks the thermal mass of a mature mound and is highly vulnerable to being completely choked or shaded out by the surrounding ground flora.
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions. Ensure the immediate area is protected from any future trail creation to prevent physical compaction and colony disturbance.

Target Note 36 – Active Wood Ant Mound (Grid Ref: NS 02168 73910)
An active Scottish wood ant (*Formica aquilonia*) mound situated within the woodland understorey. The visible core measures approximately 80cm in width and 60cm in height at the apex. The structure is heavily colonised and obscured by dense bilberry and lanky moss, making the exact physical boundaries of the underlying nest difficult to distinguish.
Context: Stable forest structure of localised ecological value. The extensive bryophyte and dwarf-shrub overgrowth indicates long-term stability. Unlike smaller pioneering nests, this mature mound is large enough to handle heavy canopy shade, and the colony remains fully active.
Recommendation: Retain *in situ* as an ecological feature with no management intervention required under baseline conditions. Ensure the immediate area is protected from any future trail creation to prevent physical compaction and colony disturbance.

Target Note 37 – Deer Damaged Clearing and INNS (Grid Ref: NS 02168 73910)
A localised, heavily denuded clearing measuring approximately 4.0m × 3.0m is situated on a sloped section of the woodland floor. The mature bog moss blanket has been entirely stripped away down to the underlying peat.
Context: Abundant cloven hoof prints confirm intense traffic by wild deer. While the relatively small size of the tracks suggests roe deer, red deer are also active in the wider area. This heavy animal usage is supported by a damaged, unpalatable Sitka spruce sapling adjacent to the clearing. There is no evidence of human disturbance so the damage is attributed to concentrated deer activity. The exposed peat has allowed an INNS to take root, with a single small *R. ponticum* plant (around 30cm high) established in the centre of the scrape. Sparse native flora, notably bilberry, is also emerging. Because *R. ponticum* is highly unpalatable to deer, it remains unbrowsed and will mature into a local seed source if left unmanaged.
Recommendation: Hand-pull the single *R. ponticum* plant immediately before its root system matures further, integrating this work into the master INNS eradication strategy. All pulled material must be removed from the peat surface to prevent it from re-rooting. The cleared scrape must be monitored during future inspections to track native plant recovery and catch any new invasive seedlings. Data from this specific scrape should be incorporated into the wider deer management and population monitoring strategies.

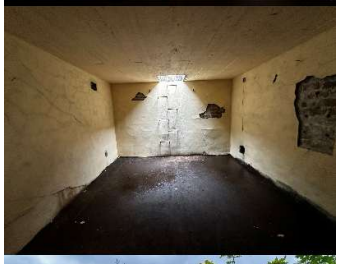
Appendix C - Target Note Photographic Plates

TN1	Damaged hanging burn gate over Balnakailly Burn *Image shows the burn gate hanging into the burn, potentially allowing access to livestock grazing in the field outwith the forest*	
TN2	Timber kissing gate *Entrance gate to the woodland approached from Rhubodach*	
TN3	Mature oak tree with rope swing *Mature oak with rope, used for recreation by visitors to the forest*	
TN4	Footbridge over Balnakailly Burn *Wooden footbridge for pedestrian access over the Balnakailly Burn*	

TN5	Balnakailly Burn riparian corridor *Riparian corridor seen from the bridge over the Burn*.	
TN6	Boardwalk sections over burn tributary *Boardwalk sections crossing tributary of Balnakailly Burn at the beginning of the loop walk*	   
TN7	Timber storage hut *Small hut within A1.1.1[A]*	

TN8	Ground water flush zone and path diversion *Path diversion showing flattened juncus effusus alongside bracken area*	
TN9	Historic boundary dyke *Images show historic boundary dyke, beside current walking track*	
TN10	Fallen sitka spruce / scheduled felling area *One of many windfall conifers within the plantation*	
TN11	Active wood ant mound *Large wood ant mound within the Sitka spruce of A1.2.2[E]*	

TN12	Wood ant nest complex *Large ant nest complex (4 mounds) at edge of A1.2.2[E] showing extent of the complex and proximity to clear-felling area*	
TN13	Historic farm steading ruins and clearing *Images of farm ruins and fallen deadwood with flora*	

TN14	World War II Decoy control bunker *Exterior and interior images of the WWII decoy control bunker, showing graffiti damage and current restoration /mural project*	        
TN15	INNS *Rhodedendron ponticum* *Large example of R.Ponticum by path near shoreline of Balnakailly Bay*	

TN16	Isolated gorse shrub *Image shows one of several gorse shrubs on this stretch of shoreline. Gorse can also be seen in foreground of photograph at TN20*	
TN17	Breeding Canada geese group *Image shows mobile Canada geese with goslings*	
TN18	Composting toilet facility *Image shows outside and interior of composting toilet and small dead wasp nest. Bracken can be seen encroaching on the facility*	  
TN19	Open Timber Kayak Hut and External Fire Pit *Image shows brick fire pit in front of wooden hut and signage to side.*	 

TN20	Continuous bracken monoculture *Images shows the shore with Kayak Hut (TN18) and Composting toilet (TN19)in compartment C1.1[D]*	
TN21	Schist Rock Outcrop *Image shows rock outcrop in understorey*	
TN22	Invasive Non-Native Species *Image shows R.ponticum adjacent to rock outcrop*	
TN23	Historic boundary dyke with mature oaks *Images show mature oaks on historic boundary dyke*	
TN24	Historic Boundary Dyke *Images show historic boundary dyke separating compartments A1.1.1[A] and A1.1.1[B]*	

TN25	Line of oaks on earthen bank *Images show line of oaks on earthen bank at 90˚ to the boundary dyke*	
TN26	Standing large dead sessile oak *Images show dead sessile oak with established micro community*	 
TN27	Damaged large sessile oak *Images show extent of damage to standing oak*	 

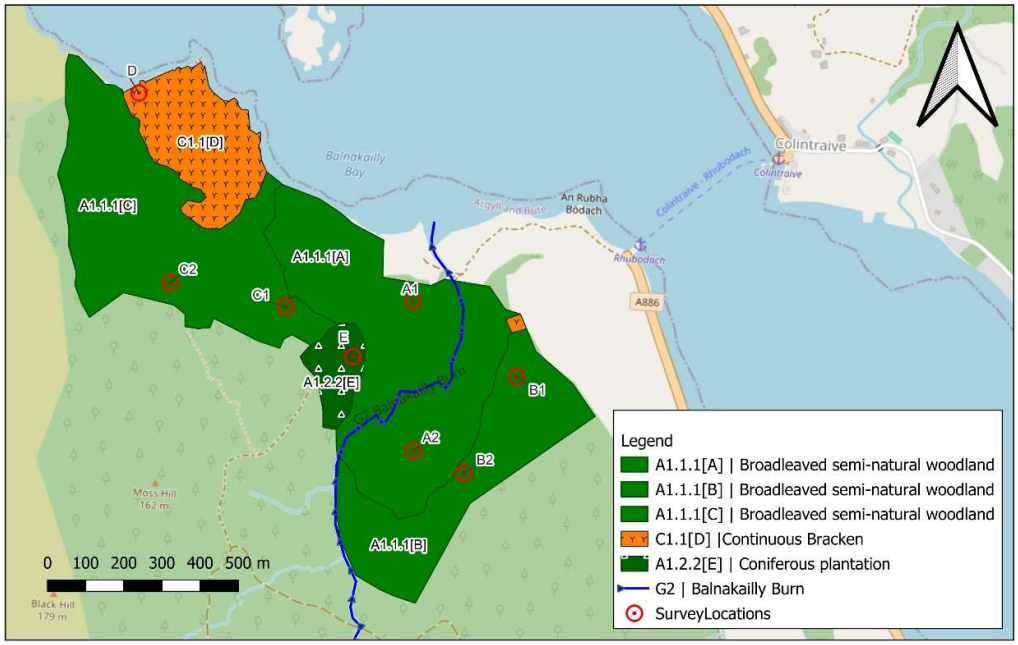
TN28	Historic Boundary Dyke with Fencing Wire *Images show boundary fence with metal posts amidst bracken, on top of historic boundary dyke*	   
TN29	Schist rock outcrop *Image shows rock outcrop with dead birch and microhabitat*	
TN30	Veteran Sessile Oak *Image shows large oak with microhabitat diversity*	
TN31	Deer crossing and bank poaching *Images show trampling and poaching by side of burn tributary*	 

TN32	Active wood ant mound *Image shows mound at base of sessile oak, covered in ground flora*	
TN33	Active wood ant mound *Image shows mound with heavy growth of bracken*	
TN34	*R. ponticum* on Riparian Margin *Images show the R.ponticum on the side of the steep riparian margin*	
TN35	Active wood ant mound *Images show small mound surrounded by ground flora*	
TN36	Active wood ant mound *Images show wide view of foliage covered mound*	

TN37	Deer damaged clearing and INNS *Images show extent of deer poaching, hoof marks, INNS R.ponticum and damaged Sitka spruce sapling*	

Appendix D – Survey Locations – April 2026 Quadrat Survey

Phase 1 Habitat & Survey Point Map
Balnakailly Rainforest Project



Map Data from OpenStreetMap | Boundary Data: Samuel Lindsay, Bute Community Forest (n.d.) | Map Surveyor: Melissa Peakman | Map Date: June 2026

Appendix E - Statutory Legislation & Nature Conservation Policy

This appendix outlines the legal frameworks and statutory protections governing the habitats, flora, fauna, and environmental pressures identified across the survey site. Compliance with these legislative acts is required for all proposed management, maintenance, or upcoming felling operations.

National Designated Sites: Sites of Special Scientific Interest

Sites of Special Scientific Interest are nationally important areas protected under Section 3 of the Nature Conservation (Scotland) Act 2004 (as amended). Under Section 16 of the Act, owners, occupiers, or land managers are prohibited from carrying out, or permitting to be carried out, any Operation Requiring Consent specified within the site's formal SSSI notification without prior written authorisation from NatureScot. This statutory restriction means that any active habitat management, vegetation cutting, or disturbance within the SSSI boundary requires the formal submission of a management plan and explicit statutory consent. Carrying out unconsented operations that damage the notified features of an SSSI constitutes a criminal offence.

European Protected Species: Bats and Eurasian Otter

Sessile oak veteran trees and the riparian corridor support features that trigger strict European Protected Species protections under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland). Under this legislation, all bat species and the Eurasian otter are granted absolute protection. It is a strict criminal offence to deliberately or recklessly kill, injure, capture, or disturb a European Protected Species, or to damage, destroy, or obstruct access to their breeding sites or resting places, such as bat roost cavities or otter holts and couches. This legal framework applies regardless of whether the animals are currently present, meaning that veteran tree features displaying roost potential and the riparian zones displaying concealment potential must remain entirely undisturbed unless specialised, species-specific surveys are completed and formal NatureScot derogation licences are obtained.

Protected National Fauna: Water Vole and Herpetofauna

The riparian margins and complex dry-stone structures trigger protections under Section 9 and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended in Scotland). This statute affords full protection to the Water Vole in Scotland, making it an offence to intentionally or recklessly damage, destroy, or obstruct access to any structure or place used for shelter or protection, or to disturb the animals while occupying such a structure. Furthermore, common native reptiles and amphibians receive partial protection under the same schedule, making it a criminal offence to intentionally or recklessly kill or injure these species. These statutory protections mean that natural and artificial matrices, including dry-stone walls, clay mortar cavities, and decaying timber log piles, function as high-value sheltering habitats and overwintering hibernacula that cannot be physically dismantled or disturbed without precautionary working measures.

Wild Birds and Nesting Protections

All species of wild birds, their eggs, and active nests receive absolute statutory protection during the breeding season under Part 1 of the Wildlife and Countryside Act 1981 (as amended in Scotland). Under Section 1 of the Act, it is a criminal offence to intentionally or recklessly kill, injure, or take any wild bird, or to take, damage, destroy, or otherwise interfere with the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy a wild bird egg. This legislation creates a strict seasonal timing constraint across the full survey area. Dense vegetation, including mature bracken canopies, woodland understories, and ground thatch, provides prime nesting opportunities for woodland-edge passerines and ground-nesting wildfowl. Any manual or physical clearing of vegetation must be executed entirely outside the core bird breeding season, which runs from March to August inclusive, unless a pre-works nesting survey by a qualified ecologist proves active nests are absent.

Wild Flora and Lower Plants

All wild plants in Scotland are afforded basic legal protection, with heightened statutory safeguards given to rare species under Section 13 of the Wildlife and Countryside Act 1981 (as amended in Scotland). Under Section 13(1)(b), it is an offence for any unauthorised person to intentionally or recklessly uproot any wild plant without the explicit permission of the landowner or occupier. Under Section 13(1)(a), it is a strict offence to intentionally or recklessly pick, collect, cut, uproot, or destroy any specially protected plant or fungi species listed under Schedule 8 of the Act. This legislation underpins the non-intervention strategy required for specialised lower-plant microcommunities, such as rare oceanic bryophytes and specialised mosses growing on stone and timber, meaning that active clearing or physical management resulting in the accidental or deliberate destruction of protected flora is strictly prohibited.

Priority Invertebrate Conservation and the Biodiversity Duty

While the Scottish wood ant does not possess a dedicated European Protected Species licensing framework, it is afforded protection under broader public biodiversity mandates. Section 1 of the Nature Conservation (Scotland) Act 2004 places a statutory biodiversity duty on all public bodies and land managers in Scotland to further the conservation of biodiversity. Because *Formica aquilonia* is formally recognised as a priority species on the Scottish Biodiversity List, this legal duty requires forestry operations and community forest managers to proactively avoid the deliberate destruction or damage of wood ant mound nests. Failing to implement reasonable heavy machinery exclusion zones or operational mitigation measures during adjacent crop felling operations constitutes a failure to comply with national biodiversity policy guidelines.

Invasive Non-Native Species

The release and spread of non-native species are strictly regulated in Scotland under Section 14 of the Wildlife and Countryside Act 1981, as amended by the Wildlife and Natural Environment (Scotland) Act 2011. Under Section 14AA, it is a criminal offence for any person to intentionally or recklessly plant, or otherwise cause to grow, any non-native plant species in the wild. This statutory restriction applies directly to the management of *R. ponticum*, meaning that any moving of contaminated soil or accidental spreading of seeds and vegetative fragments during

clearing operations constitutes an offence. This mandate underpins the requirement for rigorous biosecurity cleaning protocols for felling machinery and requires all extracted invasive plant material to be kept clear of the peat surface to prevent vegetative re-rooting.

Sustainable Deer Management and Habitat Impacts

Wild deer populations and their subsequent impacts on native ecosystems are regulated under the Deer (Scotland) Act 1996 (as amended). NatureScot holds statutory powers under Section 10 and Section 11 of the Act to intervene and implement mandatory control schemes if high densities of wild deer are causing severe environmental damage to the natural heritage, specifically on protected sites such as SSSI. The accompanying Code of Practice for Deer Management obligates land managers to monitor herd numbers and actively control impacts to protect notified features. The high level of browsing recorded in the site's HIA indicates that deer numbers are exceeding ecologically acceptable thresholds, leading to severe understorey suppression. Because the designated SSSI status restricts the installation of permanent deer exclusion fencing due to landscape and public access protections, population management is the primary legally compliant route available. Any long-term habitat management or post-felling plans must legally rely on targeted population reductions via authorised culling programs coordinated in line with NatureScot's best practice frameworks.

Forestry Operations and Environmental Protection

The felling of conifer crops remains governed by statutory forestry environmental assessments and the UK Forestry Standard under the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017. The regulations dictate that any large-scale felling operations, regardless of whether the woodland is actively managed for commerce or has been abandoned, must minimise negative impacts on soils, water environments, and adjacent protected areas. The upcoming felling of the conifer plantation block outwith the SSSI must incorporate robust pollution prevention and soil stabilisation mechanisms. This is legally required to safeguard adjacent sensitive coastal receptors and ensure that the removal of the crop does not result in siltation, runoff, or ecological degradation of the neighbouring SSSI and marine boundary.

Water Environment Regulatory Safeguards

Any planned physical interventions that interact with watercourses or riparian zones are governed by the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) (as amended), enforced by SEPA. Under these regulations, operations such as the removal of engineered bank structures or the application of herbicides near water require specific authorisations to prevent morphological channel damage and aquatic pollution. This legal framework requires that any eventual removal of structurally compromised burn gates must adhere strictly to General Binding Rules to eliminate instream siltation. Furthermore, any chemical applications used for riparian invasive species control must rely entirely on specialised, aquatic-approved systemic herbicide formulations and follow strict notification parameters to safeguard the broader aquatic corridor.