Castle Hill, Isle of Islay
EIA Scoping Report

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EIA Scoping Report

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1 INTRODUCTION

1.1 Terms of Reference

EnviroCentre Limited was commissioned by Diageo Scotland Ltd to prepare an Environmental Impact Assessment (EIA) Scoping Report for Castle Hill, on the Isle of Islay. The Castle Hill site is operated under permit for peat harvesting to supply the whisky industry and has been Islay's primary peat resource for the malting process for over 30 years.

Diageo intend to retain the site and its ongoing harvesting, and to optimise its environmental sustainability, with a focus on environmental management and peatland restoration. A Review of Mineral Permissions, or RoMP, is required as per the 15 year review cycle as per by Section 74 and Schedules 9 & 10 of the Town and Country Planning (Scotland) Act 1997 (as amended). The application does not seek planning permission for a new development, but for the approval of modern conditions, ensuring that activities are carried out to meet current environmental good practice, such as water quality control measures and restoration proposals. To support the RoMP, a Peat Restoration Plan and Environmental Impact Assessment is required.

Argyll & Bute Council consider the Castle Hill site to constitute a Schedule 1 development under The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations, 2017. As such, EIA is considered compulsory and separate screening will not be required ahead of scoping.

The EIA will be informed by various baseline environmental assessments; and will be accompanied by co-ordinated plans for peat harvesting, environmental management and restoration. Ongoing stakeholder engagement will support the process and optimise outcomes.

The site is certified by VeriFlora as a 'Responsibly Managed Peatland'. As part of their commitment to sustainable environmental management, Diageo are keen to take the opportunity to balance harvesting and replenishment through restoration activities to improve the sustainability of the peat operations; and plan to extend the study to include a Biodiversity Net Gain Assessment in order to highlight potential environmental restoration opportunities available within the site, and potentially further afield on the island.

1.2 Scope of Report

This Scoping Report has been prepared under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 for submission to Argyll & Bute Council ('the Council'), and contains the following:

- Section 2 provides general information about the project team, EIA Scoping, Consultation and Stakeholders, and provides an overview of the planning history at the site;
- Section 3 sets out a description of the site and the proposed development;
- Section 4 sets out the approach to EIA based upon the legislative context;
- Sections 5-12 discuss potentially significant environmental effects on a topic by topic basis, and offer methodologies for the assessment of those environmental topics;
- Section 13 documents the topics that are not considered to require full EIA; and
- Section 14 discusses the content and structure of the potential EIA Report, based upon the findings of section 5-1.

1.3 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre.

If this report is to be submitted for regulatory approval more than 12 months following the report date, it is recommended that it is referred to EnviroCentre for review to ensure that any relevant changes in data, best practice, guidance or legislation in the intervening period are integrated into an updated version of the report.

2 GENERAL INFORMATION

2.1 The Applicant

Diageo Plc are a British company producing alcohol internationally. They operate in Scotland under Diageo Scotland Ltd, the largest part of which is their Scotch branch, which produces over 100 whisky brands. Diageo Scotland Ltd hold the minerals permit for peat harvesting at Castle Hill and manage the harvesting operations through a sub-contractor. The land is leased from NatureScot, the landowner (through an arrangement established in 1989 with the intention of safeguarding other, more sensitive, peatlands on the island). Once harvested and dried, peat is taken to Diageo's Port Ellen Maltings facility, in the south of the island, which supplies most of the island's nine distilleries (seven of which are owned by third parties) as well as others on the mainland.

2.2 Project Team

This Scoping Report has been prepared by EnviroCentre Ltd with initial input from other organisations as shown in Table 2-1 below.

Table 2-1: The Project Team

Topic	Specialist
The Client	Diageo Scotland Ltd
Planning Authority	Argyll & Bute Council
Hydrology, Noise, Air Quality, Biodiversity, Geology & Soils, Landscape, Archaeology & Cultural Heritage and "Issues Not Requiring Full EIA"	EnviroCentre Ltd
Peatland Restoration	Land & Habitats Consultancy

2.3 Scoping under the EIA Regulations 2017

The purpose of EIA Scoping is to:

- *"Identify the key issues to be considered;*
- *Identify those matters which can be either be scoped out or which need not be addressed in detail; and*
- *Discuss and agree appropriate methods of impact assessment, including survey methodology, where relevant".*

In accordance with the EIA Regulations, this Scoping Report is submitted to Argyll & Bute Council with the intention that it should form the basis of their Scoping Opinion. Other statutory consultees, local people and organisations and other stakeholders, are invited to comment on the potential environmental effects to be included within the EIA and the assessment methodologies to be used. As such, it should be noted that this document does not seek to assess the environmental effects of the proposed development as this is the purpose of the EIA which will be carried out once the design has been fully evolved including design-led mitigation as required.

This request for a scoping opinion includes (as per the requirements of Regulation 17(2));

a) a description of the location of the development, including a plan sufficient to identify the land;

b) a brief description of the nature and purpose of the development and its likely significant effects on the environment; and
c) such other information or representations as the person making the request may wish to provide or make.

2.4 Consultation

The Applicant recognises the importance of consultation and community involvement throughout the project process in line with "PAN 3/2010 Community Engagement" (PAN 3/2010). PAN 1/2013 also reinforces the importance of public involvement in the Scoping process and makes it clear that the EIA process is intended to ensure that consultation bodies and the public have the opportunity to express their opinion on both the proposed works and the EIA Report (EIAR).

Relevant stakeholders have been identified by the project team, including statutory authorities, landowners, neighbours, local community groups, environmental / heritage trusts and industry groups. The Applicant has already held informal discussions with key stakeholders, and a separate Stakeholder Engagement Plan has been prepared to inform the development of the project, support the approach to obtaining the required consents and approvals and ensure that the peat resource is managed sustainably to protect the environment and the Islay whisky industry, which is known to be of critical importance to the island's rural economy.

2.5 Other Planning Requirements

The National Planning Framework 4 (NPF4) was adopted in February 2023, which presents the Scottish Government's statutory strategy for long term spatial development. This is anticipated to be followed by updates to Scottish Planning Policy (SPP), detailed technical guidance and local planning policies; however at the time of writing, the timing or nature of these is yet to be confirmed.

Both NPF4 and SPP highlight that minerals make an important contribution to the economy, providing materials for construction, energy supply and other uses, and supporting employment. They require planning to safeguard mineral resources and facilitate their responsible use, ensure that an adequate and steady supply is available to meet the needs of industry and secure the sustainable restoration of sites to beneficial after use after working has ceased. NPF4 supports the sustainable management of resources and seeks to minimise the impact of extraction of minerals on communities and the environment.

The Argyll and Bute Local Development Plan (LDP), adopted in 2015, sets out the vision for how Argyll & Bute should change in coming decades. At the time of writing, a draft LDP2 is under consultation.

The guiding principles set out in the current LDP Policies and Supplementary Guidance (SG) will be considered through assessment and design stages, including:

- Policy LDP 3 - Supporting the Protection, Conservation and Enhancement of our Environment;
- Policy LDP 5 - Supporting the Sustainable Growth of Our Economy;
- Policy LDP 10 - Maximising our Resources and Reducing our Consumption;
- SG LDP ENV 1 - Development Impact on Habitats, Species and our Biodiversity;
- SG LDP ENV 7 - Water Quality and the Environment;
- SG LDP ENV 11 - Protection of Soil and Peat Resources;
- SG LDP Sust Check - Sustainability Checklist;
- SG LDP MIN 1 - Safeguarding of Mineral Resources; and
- SG LDP MIN 2 - Mineral Extraction.

3 THE PROPOSED DEVELOPMENT

3.1 Characteristics of the Site

3.1.1 Site Location & Context

The study site is set within Castle Hill Moss, an area of blanket bog on the island of Islay (southernmost of the Inner Hebrides, Argyll and Bute) as shown in Figure 3-1. It is located east of Glenegedale and north of the Leorin Lochs. It is a sloping site on the foothills of a range of hills to the east which include Beinn Sholum, Beinn Uraraidh and Beinn Bhan.

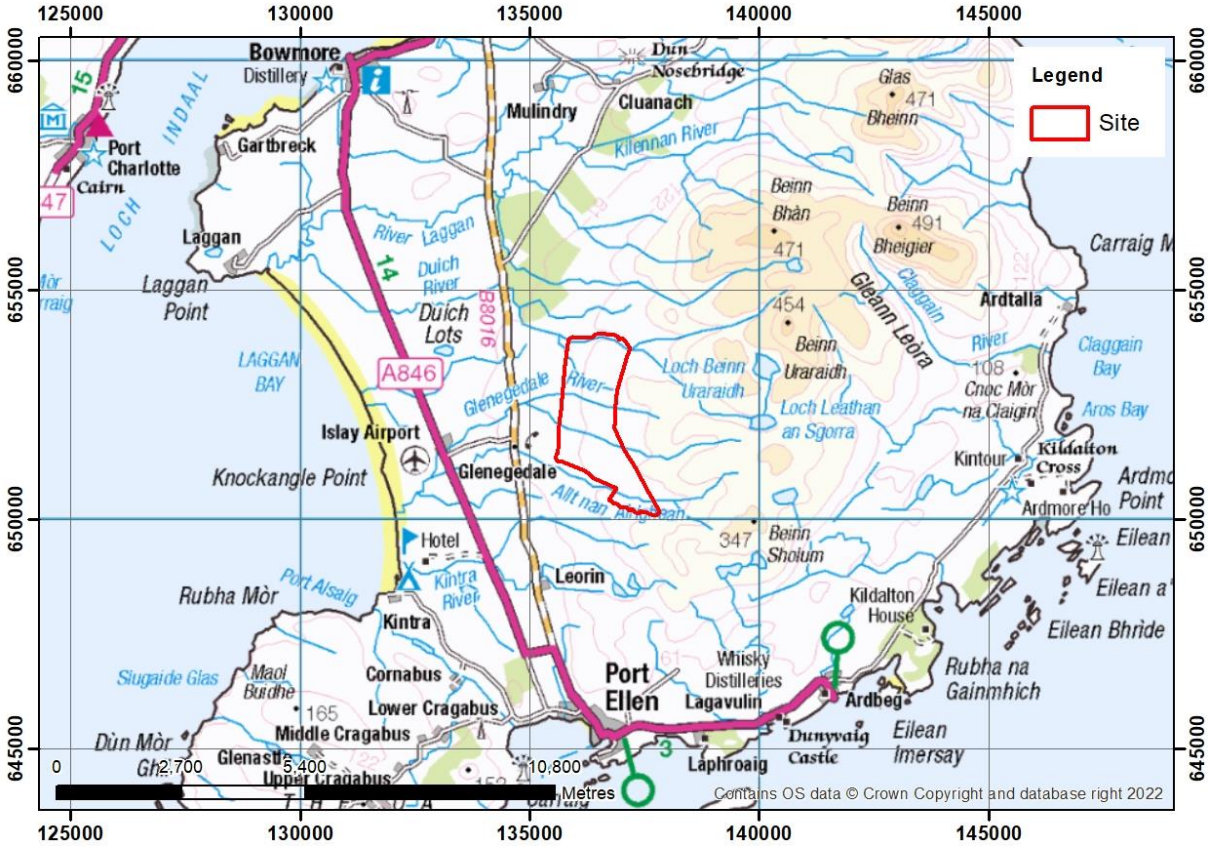

Figure 3-1: Site Location (red outline)

The current active harvesting area covers approximately 70 hectares, although the area covered by the Deed of Servitude is 450 hectares (Figure 3-2). The site occupies elevations from typically between 120 metres Above Ordnance Datum (mAOD) in the west to 160 mAOD in the east.

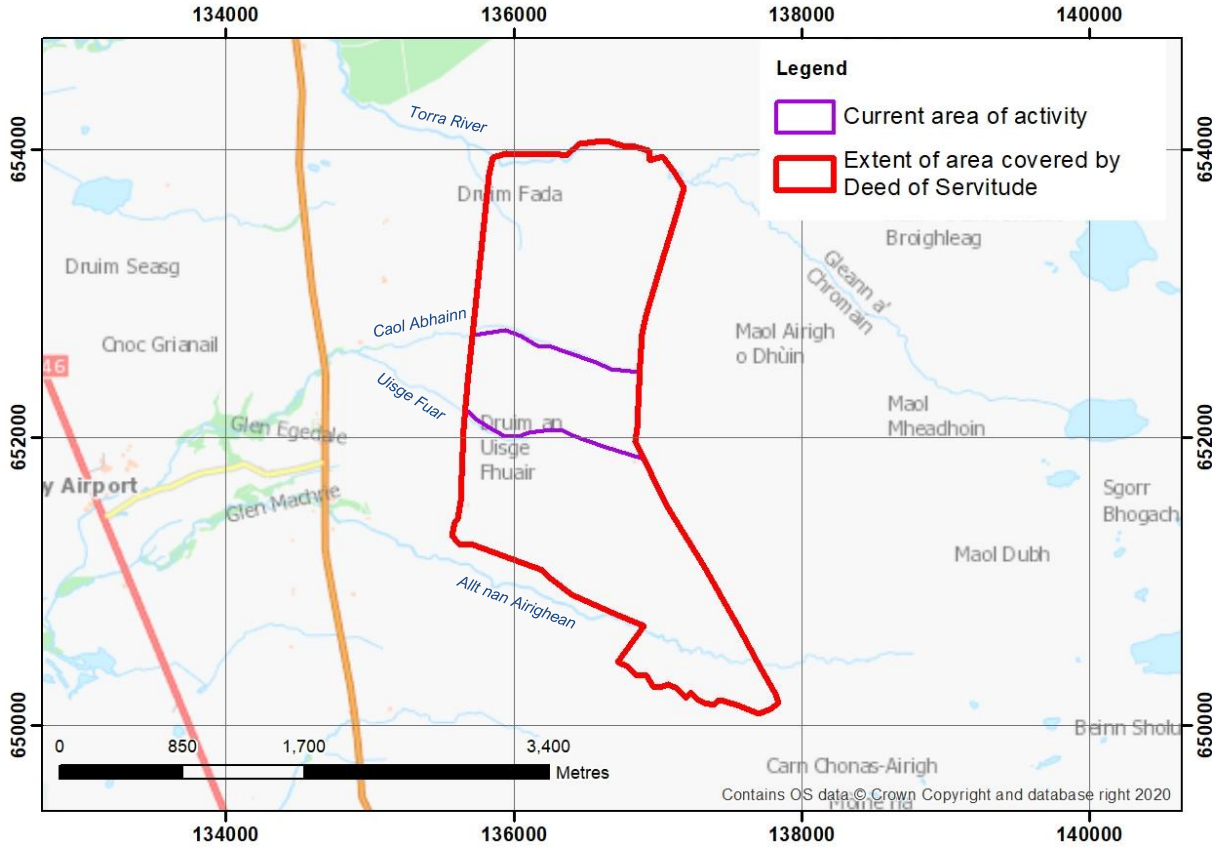

Figure 3-2: Site Boundary

The central active area sits between two tributaries of the Glenegedale River (Caol Abhainn and Uisge Fuar). The leased area to the north extends to the banks of the Torra River. The leased area to the south extends to the banks of the Allt nan Airighean (a tributary of the Glenmachrie River). The Glenegedale & Glenmachrie Rivers join to form the Machrie River, which discharges into Laggan Bay to the south of Islay Airport. These watercourses are mapped on Figure 6-1.

The surrounding landscape is dominated by low intensity pastoral agriculture and open moorland, while on lower ground to the west are some crofts leading towards the B8016, and there are a small number of rural dwellings to the west of the B8016 towards the A846, and beyond this lies Islay Airport (2.8 km to the west of Castle Hill). The local access track through the site also serves a wind turbine located close to the eastern tip of the central active area. The turbine is owned by the Islay Energy Trust, a community-owned charity operating renewable energy projects for the benefit of the community.

There are no natural heritage designations relating to the application site or its immediate surrounds.

A site walkover was undertaken on 3rd November 2022, during a period of dry weather, to characterise site conditions and identify potential opportunities and constraints for future planning phases. A selection of representative photos is given in Appendix A.

3.1.2 Site History

The Castle Hill site is recognised as the primary resource of peat for the Islay whisky industry. It has been operated since the mineral permit was granted in 1989 to Scottish Malt Distillers Ltd, the applicant at that time. Its establishment is understood to have consolidated operations which

historically would have taken place over multiple smaller sites, in potentially more sensitive areas over the entire island in a more piecemeal manner.

Seasonal peat harvesting operations have now been undertaken at Castle Hill under a lease agreement from NatureScot for over 30 years. This arrangement was established on land owned by Scottish Natural Heritage (now NatureScot) as a safeguarding measure, in the context that it was a preferential alternative to the initially proposed site at the nearby Duich Moss, which had more environmental sensitivities requiring protection.

Prior to this, the Castle Hill site was used for low-intensity agriculture and hunting. Signs of historic drainage networks and peat cutting remnants within the area covered by the Deed of Servitude are indicative of historic crofting activities.

3.2 Description of the Existing and Proposed Activity

3.2.1 Peat Harvesting Operations and Use

The site is certified under VeriFlora as a Responsibly Managed Peatland[1]. This certification program applies to all processes and inputs relating to harvesting and handling of peat moss and assesses responsible peatland management practices including bog opening, harvesting, and restoration or rehabilitation activities that occur after bog closing.

Contractors to Diageo undertake harvesting operations and site maintenance. The site is operational seasonally through summer months, when plant access is safer, physical impacts on the environment are lower, and weather conditions are more conducive to peat drying. Winter close-down periods are typically September-March, weather dependent.

Extraction phasing typically begins with drainage 1-3 years before cutting, to draw down the water table to begin the drying process and to make access safer and easier for machinery and contractors. Peat has been harvested at the site using a variety of methods over time, but in recent years it has typically involved peat cutting from an exposed face and transporting via peat trailer to a tracked extrusion plant which generates long ‘sausages’ of peat. These are formed in lines, or windrows, across a lay-down area for drying. The peat is air dried for several weeks, when it will lose approximately 75% of its water content, forming pellets of peat with a natural protective crust which can be stockpiled ready for use.

The active area is zoned as shown on Figure 3-3, with areas at various stages of harvesting; laydown areas for drying of peat sausages, storage areas for stockpiles of dried peat and a central welfare and equipment storage area. The main access road runs along the southern edge of the active area, and a network of local tracks and areas of exposed granular substrate enables movement between the different zones without requiring tracking over soft peat surfaces. The drainage network has evolved along with site operations to generate suitable and safe conditions for harvesting operations and to manage surface water runoff from the site.

[1] https://www.scsglobalservices.com/services/VeriFlora-certified-sustainably-grown

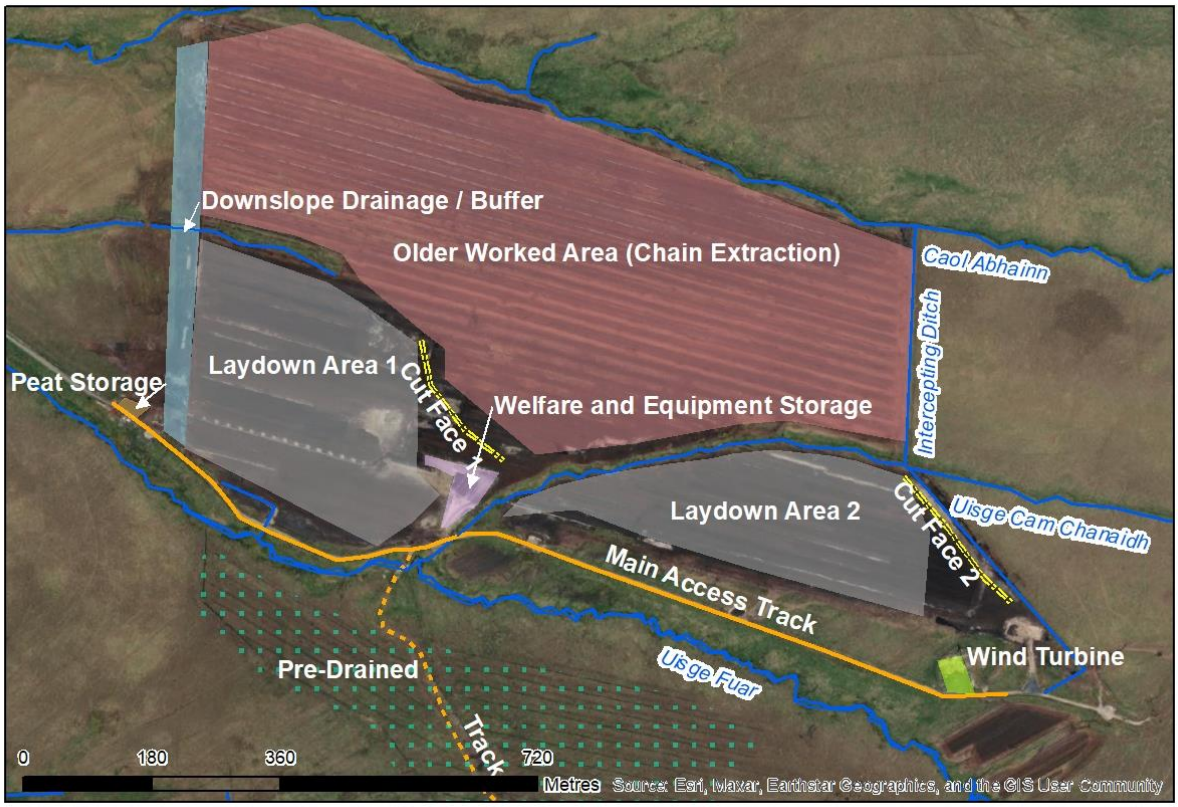

Figure 3-3: Current Working Area Zonation

At the time of writing, the focus of recent harvesting operations has been the exposed face to the east end of the active area (Cut Face 2), where harvesting by excavator has progressed upslope in an eastward direction towards the site boundary (forming Laydown Area 2). Prior to this, the focus was on Cut Face 1, to the eastern end of Laydown Area 1. Extruded peat is laid out in windrows in a west-east orientation on the laydown areas for drying.

The northern part of the active area has historically been harvested by chain extraction, and it is understood that harvestable peat remains, which may be the focus for the next phase of harvesting. To the south of the active area, drainage enhancements have been undertaken in recent years which present another potential area for future harvesting, although it is understood that no immediate plans are in place to do so. There are no detailed plans as yet regarding the remaining areas covered by the Deed of Servitude, although various options will be considered through the development of the phased harvesting and restoration plans.

Limited records of extraction timings or volumes is available, but it is understood that Port Ellen Maltings are the main supplier of malted barley on the island, and use approximately 3,000 tonnes of dried peat per year, predominantly from Castle Hill (occasionally supplemented by supplies from the mainland in wetter years when peat drying becomes a limiting factor). At Port Ellen, barley germination is initiated through the steeping process, using water sourced from the Leorin Lochs. The dried peat is used as a fuel source in the kilning process to dry the malted barley and halt germination, thereby infusing the whisky with its distinctive flavour. The end product from Port Ellen is used directly by Diageo distilleries on Islay (Caol Ila and Lagavulin) and by the other distilleries on the island under third party ownership, although it is understood that Diageo may limit or stop supplying peat malt to other island distilleries from 2024.

3.2.2 Road Network

The site is accessed from a gated private access road leading from the B8016 public road. It is understood that the road is owned by the neighbouring Laggan Estates, which shares access rights along with the Windfarm operators. Within the site there is a network of local access tracks, with bridge / culvert crossings over watercourses and ditches. Access is also achieved over open ground surfaces, preferentially where granular substrates have been exposed. Vehicle parking is provided in the central welfare and equipment storage area.

3.2.3 Mobile Plant on Site

A variety of plant is used for different operations on site. This includes dual-wheel tractors, field press / extruder ("Hydratrack"), chain cutter / extruder, peat harvester, tracked peat trailers (dump trailer with mesh sides), peat grader / leveller, double wheel ditcher and tracked excavator. A 2,000 litre bunded refueller provides a local fuel source.

3.2.4 Vehicle Movements

Given the sensitivity and softness of peat, particularly when wet or unvegetated, vehicle movements over peat surfaces are avoided as far as possible. Plant movements are focussed on the local surfaced road network and areas where more stable underlying substrates have been exposed. Where necessary, movements in and around peat deposits are strategically planned to minimise impact and optimise safety. To minimise rutting, tracked machinery or dual / low ground pressure tyres are used. Smaller vehicles, typically van or quad, are also used for local access to minimise impacts. Local bridge / culvert crossings are used in preference to directly crossing watercourses or ditches. Weather forecasts are regularly monitored and it is understood that operations will be temporarily suspended during and after periods of wet weather to minimise impacts to ground conditions.

3.2.5 Site Maintenance Activities

Site maintenance activities include active management of drainage and road networks, vegetation, dust, water quality and waste. It is understood that these activities are generally undertaken by the site contractor alongside operational activities through the open season, with interim maintenance activities as and when required (e.g. reparatory works to roads and drainage following storm events).

3.2.6 Services Infrastructure

Electrical infrastructure is present within the site, serving the Wind Turbine (understood to be an 11kV cable along the route of the access track between the generator site and an SSE terminal pole in Glenegedale). There is no known electricity provision to the peat harvesting site itself. Nearby cottages to the west are served by Mains Water, SSE electricity and telecoms networks, which are likely to be focussed along the public road. At this stage there are no other known utilities within the active peat harvesting area or wider area covered by the Deed of Servitude. Utility plans will be obtained to confirm the location of recorded infrastructure and support subsequent design stages.

3.2.7 Waste Generation and Waste Management

Given the nature of operations on site, there is a relatively low requirement for import of materials and a low volume of waste is generated. Vegetation and topsoil are not harvested for commercial use and

are stored or redistributed on site to support restoration. Road surfaces have been formed using in-situ substrates and aggregates recycled from site operations. Waste materials such as packaging, waste oils and plastic culvert pipe offcuts are carefully managed, stored and disposed at suitable offsite facilities, following relevant waste management guidance.

3.2.8 Surface Water Drainage / Treatment

A network of open ditches has been formed over much of the site, typically with smaller channels or 'grips' in a parallel or grid pattern with larger main ditches directing flows towards local watercourses. There is a combination of older channels related to historic agricultural improvements, overlain by a more recent network designed to support peat harvesting activities. Roadside drains are also present along the main access track. The drainage network is digitised on Figure 6-1.

For the most part, the more recent ditches appear to have been uniformly cut using a double-wheel ditcher, and culverts have been installed to enable vehicular crossing where required. These channels function to enhance rainfall runoff, lower the water table and reduce water content within the peat itself prior to harvesting.

Along the upslope (eastern) boundary of the active area, intercepting ditches have been formed parallel to contours to catch runoff from the adjacent land and divert it along the edge of the site towards the main watercourses to the north and south. The intention of this is to reduce the amount of water passing over and through the peat, speeding the drying process; and to minimise the volume of surface water passing through the site requiring treatment. This is an important element of the original drainage design, as reducing runoff over exposed peat surfaces (along with maintaining vegetative cover) is fundamental to minimising the mobilisation of particles into the watercourses.

As shown on Figure 3-3, the downslope (western) side of the active area is also an important area for surface water management. Here a larger main ditch receives runoff from a dense series of lateral channels which are set perpendicular to the contours over most of the peat surface. During rainfall events relatively rapid runoff of water carrying peat fines can occur in these lateral ditches. With a shallower slope aligned to the contours, and a series of culverts with a throttling effect, the main ditch has been designed to intercept and slow these flows, promoting settlement of peat fines and sediment particles before water is discharged to the main watercourses to the north and south. Along the western boundary of the active area, there is also a vegetated buffer designed to slow overland flows and prompt sediment deposition. Vegetated buffer strips are also present along watercourses.

To the south of the active area, a series of parallel grips / ditches oblique to contours were formed in 2018 / 2019, with two leader ditches discharging into the Uisge Fuar. This pre-drainage reflects a potential future harvesting area. These channels have been superimposed on top of an older drainage network (parallel and herringbone styles), which are considered likely to be associated with an 1800's scheme involving peat draining and soil improvements.

The current drainage design (as outlined above) and its maintenance will be enhanced through the production of the Surface Water Management Plan (SWMP), which will be submitted with the RoMP application. This will include a combination of short-term and long-term measures which will evolve alongside, and be harmonised with, the Phased Harvesting Plan and Peat Restoration Plan. These plans will develop in collaboration with the site contractor.

Potential impacts on the water environment are explored further in section 6.

4 APPROACH TO EIA AND EIA REPORT

4.1 Introduction

This Scoping Report is submitted to Argyll & Bute Council Planning with the intention that it should form the basis of their Scoping Opinion.

The information contained in this document is based on our current understanding of the nature of the site, the project and preliminary consideration of the potential environmental impacts of the proposed works.

4.2 General Approach to Assessment

The project team benefits from significant experience and technical expertise in environmental assessment and in the management and restoration of extractive sites; and will ensure that the EIA will be carried out in accordance with the EIA Regulations.

The potential environmental impacts during construction, operation and restoration will be identified and assessed in the Environmental Impact Assessment Report (EIAR), based upon the recommendations of the technical EIA team, consultation with statutory consultees, other interested parties and local communities. Topic assessments will be undertaken using best practice methodology, following industry guidelines whenever appropriate and shall be carried out by specialists with relevant professional experience.

It is essential that the methodology used for assessing the significance of environmental effects is set out clearly and transparently within an EIA Report and is justifiable. Significance is generally determined through a combination of the sensitivity of a receptor or resource to an effect and the magnitude of the change resulting from the proposed development, however where this differs the full methodology will be explained within the relevant section as appropriate.

Significant effects are more likely to be predicted where important resources, or numerous or sensitive receptors, could be subject to impacts of considerable magnitude. Effects are unlikely to be significant where low value or non-sensitive resources, or a small number of receptors, are subject to minor impacts. The assessment of significance of an environmental effect resulting from the proposed development will have regard to the following:

- sensitivity, importance or value of the resource or receptor;
- extent and magnitude of the impact;
- duration of the effect;
- nature of the effect;
- performance against environmental quality standards; and
- compatibility with environmental policies.

The methods for predicting the nature and magnitude of any potential impacts vary according to the subject area. Quantitative methods of assessment can predict values that can be compared against published thresholds and indicative criteria in guidance and standards. However, it is not always possible to ascribe values to environmental assessments and thus qualitative assessments are used in some cases. Such assessments rely on previous experience and professional judgement.

The methodologies used for assessing each topic area will be described within the individual chapters of the EIA Report and will follow best practice guidelines where applicable.

4.3 Mitigation

Part 7 of Schedule 4 of the Town & Country Planning EIA Regulations state that the EIA Report must contain a "*a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases*".

As outlined in PAN 1/2017, there is a widely accepted strategy for mitigation which will be followed when considering the environmental effects of the proposed development. This comprises (in order of preference): avoidance, reduction, compensation and remediation. In addition, consideration will be given to providing the opportunity for enhancement. Mitigation and, if appropriate, monitoring proposals, will be described clearly within the EIA Report. The mitigation will be achievable and will be delivered through appropriate mechanisms.

4.4 Requirements of the EIA Regulations

In addition to those items explained above, the EIA Report will include the following items for each technical topic area:

- a description of the development, including description of the location, its physical characteristics, land-use requirements during construction and operation, a description of characteristics of the operational phase, and an estimate of the types and quantities of expected residues and emissions;
- a description of reasonable alternatives, including development design, size, scale, and a justification of the project choices made;
- a description of the baseline environmental situation and an outline of the likely evolution thereof without implementation of the proposed development;
- an assessment of the environmental baseline for each environmental topic scoped into the EIA, with reference to those items specified within Schedule 4 (5) of the EIA Regulations;
- a description of mitigation and monitoring measures (where applicable); and
- a description of any expected adverse impacts in relation to the vulnerability of the proposed development to risks of major accidents and/or disasters which are relevant to the project.

Topics considered within this Scoping Report include:

- Biodiversity
- Hydrology
- Geology and Soils
- Landscape and Visual
- Archaeology & Cultural Heritage
- Noise
- Air Quality
- Climate Change
- Topics Not Requiring Full EIA
    - Population and Human Health
    - Material Assets

- Natural Disasters
- Major Accidents
- Cumulative Assessment

Each of the technical topic Sections considered in this Scoping Report (Sections 5-11) are generally structured as follows:

- Introduction;
- Baseline Conditions;
- Potential Effects;
- Inclusion or Exclusion from EIA;
- Relevant Guidance and Assessment Methodology (if applicable); and
- Mitigation and Enhancement.

5 BIODIVERSITY

5.1 Introduction

The biodiversity assessment will consider the potential effects of the proposed extension to licensed peat harvesting at the site on the following biodiversity features:

- Designated sites;
- Terrestrial habitats and species;
- Birds; and
- Fish.

It is considered that the proposed works have the potential to affect these receptors within the licensed harvesting area as well as adjacent land and watercourses hydrologically connected to the site. The potential impacts to the water environment will be considered within the Hydrology section of this report (Section 6), however any potential impacts affecting biodiversity features will also be taken into consideration within this scoping appraisal.

5.2 Baseline Conditions

Baseline site conditions were established via desk study and field survey conducted in November 2022. Additional details of the survey methods and results can be found in EnviroCentre Report 13090: Castle Hill, Islay Preliminary Ecological Appraisal (2022), which is provided in Appendix A.

5.2.1 Designated Sites

There are two statutory designated sites within 5km of the site. The site designations and features are provided in Table 5-1. There are further designated sites on Islay and in surrounding waters, but these are considered to be outwith the Zone of Influence (ZoI) of the peat extraction works. No non-statutory designed sites are present within the site or predicted ZoI.

Table 5-1: Designated Sites Present Within 5km of the Site.

Site[2]	Designated Site Features	Connectivity to Site
Eilean na Muice Duibhe SSSI, SAC and SPA	Blanket Bog (SSSI + SAC) Depressions on Peat Substrates (SAC) Greenland White-fronted Goose, non-breeding (*Anser albifrons*) (SSSI and SPA)	The site is situated 2km north west of Castle Hill and is hydrologically connected via the Torra River, which flows along the northern extent of Castle Hill. Downstream this joins the Duich River which flows along the southern extent of the designated site. It is also within flight distance of Greenland White-fronted Goose.
Laggan Peninsula and Bay SSSI and SPA	Blanket Bog (SSSI) Sand Dunes (SSSI) Greenland Barnacle Goose (*Branta leucopsis*), non-breeding (SSSI and SPA) Greenland White-fronted Goose, non-breeding (SSSI and SPA)	The site is situated 3.5km to the west of Castle Hill. Castle Hill is connected to the site via the various watercourses which flow through the site and into Laggan Bay in the west. Castle Hill is also within flight distance of geese species present within the designated site.

5.2.2 Habitats

The following habitats (categorised using UKHab method[3]) are present within and adjacent to the site:

- Degraded blanket bog (Annex I habitat);
- Upland flushes, fens and swamps (Scottish Biodiversity List (SBL) Priority habitat);
- Calcium-rich springwater-fed fens; upland (Annex I habitat); and
- Rivers (SBL Priority Habitat).

Blanket bog is the dominant habitat across the site and surrounding area. The central area has already largely been stripped of vegetation and active peat harvesting is taking place. The blanket bog to the north and south has a mix of newly dug and historic drainage grips. Purple moor-grass (*Molinea caerula*) is largely dominant throughout. Peat forming *Sphagnum* mosses are still present in areas but the species predominantly found is *Sphagnum capilifollium* which is capable of persevering in sub-optimal conditions.

There are several streams and rivers flowing through the site with headwaters originating in the east of the site and/or the hills above. Rush dominated acidic to neutral flushes occur around these headwaters in the north and south east of the site. Alkaline fens dominated by black bog rush (*Schoenus nigricans*) are also present around the headwaters. The species present within the alkaline fens are indicative of ground water enrichment and are likely to represent Ground Water Dependent Terrestrial Ecosystems (GWDTEs). Ground water will be considered separately within Section 6.

No Invasive Non-native Species (INNS) were identified within or adjacent to the site.

[2] Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA).

[3] https://ukhab.org/

5.2.3 Protected Species

Suitable habitat for the following protected and notable species was identified within the site:

- Otter (*Lutra lutra*) (European protected species);
- Adder (*Vipera berus*) (protected under the Wildlife and Countryside Act (WCA) 1981 (as amended));
- Common lizard (*Lacerta vivipara*) (protected under the WCA 1981 (as amended)); and
- Common toad (*Bufo bufo*) (SBL Priority species).

5.2.4 Common Frog

The habitat on site is suitable for common frog (*Rana temporaris*). Much of the site is wet with watercourses and bog pools providing suitable breeding habitat. There is suitable foraging habitat throughout the site as well as shelter within tussocky grasses, under heather and bracken.

Common frog are a common and widespread species and considered to be of site importance.

5.2.5 Birds

There is suitable breeding habitat on site for a variety of ground nesting passerines and waders within the blanket bog habitat. The habitat is also likely to support a range of insects and small mammals and so is considered suitable for foraging raptors, passerines and waders throughout the year. The site is not likely to be an important site for most migratory geese and swans who prefer more palatable improved pasture and arable land. Greenland White-fronted Geese are known to roost on peatland sites nearby (SPAs previously noted) however there is no record of them utilising Castle Hill.

The following notable species were observed during the field survey:

- Hen Harrier (*Cicus cyaneus*), (Annex I);
- Golden Plover (*Pluvialis apricaria*), (Annex I); and
- Snipe (*Gallinago gallinago*), (Amber listed).

Additionally, nesting material was identified within the open chimney flue within the derelict property within the south of the site, along with old pellets (c.5) containing fur and bones of small mammals. Due to the size of these (c. 10 x 4 cm) it is considered that they likely were produced by a large raptor or other predatory bird such as an owl.

5.2.6 Fish

It is considered that there is potential habitat for the following Scottish Biodiversity List (SBL) priority fish within the watercourses on site:

- Atlantic salmon (*Salmo salar*);
- River lamprey (*Lampetra fluviatilils*);
- Brook lamprey (*Lampetra planeri);*
- Sea lamprey (*Petromyzon marinus*); and
- Eel (*Anguilla anguilla*).

The Torra River which flows through the northern reaches of the site is connected to the Laggan River which is a known Salmon fishery and contains suitable spawning habitats.

5.3 Potential Effects

5.3.1 Designated Sites

Both designated sites are connected to the site hydrologically via watercourses originating in the site. There is therefore potential for them to be affected by changes to surface water flows, silt or sediment discharge or chemical spills as described in Section 6. These could affect both the habitat and geese features the sites are designated for.

5.3.2 Habitats

The following potential effects may occur without appropriate mitigation in place:

- The blanket bog, Upland flushes, fens and swamps, and Calcium-rich springwater-fed fens within the site may be removed permanently or temporarily (depending on re-instatement) as a result of vegetation removal to facilitate peat harvesting.
- Habitats within and adjacent to the site may become degraded and lose species and/or functionality as a result of changes to both surface and ground water flows relating to increased drainage and peat removal.
- Damage may occur due to inappropriate plant movements, material storage or pollution events.
- Watercourses may also become degraded as a result of increased sedimentation, changes to hydrological regimes and pollution incidents.

5.3.3 Protected Species

The following effects may occur to protected species for which there is suitable habitat on site:

- Loss of suitable foraging and resting habitat for otter, reptiles and amphibians within the peat extraction area.
- Loss of suitable breeding habitat for reptiles and amphibians.
- Reduced quality of foraging and breeding habitat within and adjacent to the site as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Disturbance, death or injury to individuals as a result of vehicle or plant movements and/or pollution events such as fuel or oil spills.
- There are no predicted effects for hibernating amphibians and reptiles as works stop over the winter months when ground conditions are too wet for harvesting works to continue.

5.3.4 Common Frog

- Loss of suitable foraging and resting habitat common frog within the peat extraction area.
- Loss of suitable breeding habitat for common frog.
- Reduced quality of foraging and breeding habitat within and adjacent to the site as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Disturbance, death or injury to individuals as a result of vehicle or plant movements and/or pollution events such as fuel or oil spills.

5.3.5 Birds

It is predicted that the following effects could occur to birds utilising the site:

- Loss of nesting and foraging habitat within the area of peat extraction.
- Reduced quality of foraging habitat as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Disturbance or destruction of nests as a result of vehicle or plant movements within the breeding season.
- Disturbance, death or injury to individuals as result vehicle or plant movements and/or pollution events such as fuel or oil spills.
- It is considered that effects to over-wintering birds will be negligible as works stop over the winter months when ground conditions are too wet for harvesting works to continue.

5.3.6 Fish

There is potential for the following effects to occur to fish which may be utilising watercourses within the site:

- Reduced habitat quality as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Loss of habitat or disruption to access upstream if any watercourse crossings are required for access.
- Disturbance, death or injury to individuals as result of pollution events such as fuel or oil spills.

5.4 Inclusion or Exclusion from EIA

Due to the potential effects which may arise due to extended peat extraction works at the site, it is proposed that biodiversity is scoped into the EIA and that impacts are assessed on all the designated sites, habitats, protected species, birds and fish highlighted as present and/or having suitable habitat within or adjacent to the site.

5.5 Relevant Guidance and Assessment Methodology

It is considered that there is sufficient data available from the baseline desk study and field survey to design mitigation for, and assess impacts to the designated sites, protected species and fish.

Further data is required in relation to terrestrial habitats to inform the impact assessment and design successful mitigation, restoration, monitoring and enhancement strategies. It is proposed that a National Vegetation Classification (NVC) survey is conducted within the optimum period (May – August) to identify the plant communities present and any notable species which may need further consideration.

The NVC survey will also be required to feed into an assessment of ground water features. The survey will follow standard guidance Joint Nature Conservation Committee (JNCC) handbook[4] and will include

[4]Rodwell, J.S. (2006) *National Vegetation Classification: Users' Handbook*. JNCC Peterborough.

potential ground water features up to 250m from the site boundary as per SEPAs guidance on GWDTE assessment[5].

Further survey will also be required to inform the impact assessment and mitigation strategies for the avoidance of impacts to breeding birds. Additional breeding bird surveys will follow the Brown and Shepherd walkover method, comprising of three survey visits.

The general approach to impact assessment will follow that provided in Section 4. Additionally, the Chartered Institute for Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine[6] will be followed. The British Standard for Biodiversity: Code of Practice for Planning and Development (BS 42020:2013) cites the CIEEM EcIA Guidelines as the acknowledged reference on ecological impact assessment. The guidelines are consistent with the British Standard, which provides recommendations on topics such as professional practice, proportionality, pre-application discussions, ecological surveys, adequacy of ecological information, reporting and monitoring.

The assessment will include all direct and indirect, lethal and non-lethal impacts on ecology that could reasonably occur during construction work and in operation of the development.

Table 5-2: Summary of Potential Effects on Biodiversity

Receptor	Effects	Scoped In
Designated Sites	Indirect impacts via hydrological connectivity	✓
Habitats	Degradation of condition / functioning, or loss	✓
Protected Species	Degradation / loss of nesting / foraging / breeding habitats, disturbance / physical harm, population impacts	✓
Birds	Degradation / loss of nesting / foraging / breeding habitats, disturbance / physical harm, population impacts	✓
Fish	Degradation / loss of habitat / food supplies, obstacles to migration, disturbance / physical harm, population impacts	✓

[5] Scottish Environment Protection Agency (SEPA) Land Use Planning System Guidance Note 31: Guidance on Assessing the Impacts of Development on Ground Water Abstractions and Ground Water Dependent Terrestrial Ecosystems Accessed online at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf (accessed November 2022)

[6] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine v1.2 (updated 2022)

6 HYDROLOGY

6.1 Introduction

Peat harvesting has been undertaken on the site for over 30 years, with the current area of activity within the centre of the site as shown in Figure 3-2. To support the RoMP and EIA process, a phased harvesting plan is being prepared to outline future progression, which may extend into the Deed to Servitude areas to the north and south of the site, where appropriate. This will be harmonised alongside a phased restoration plan and SWMP. Further peat harvesting and restoration activities across the site has the potential to cause changes to the hydrological and hydrogeological conditions within the site and surrounding water environment.

6.2 Baseline Conditions

The site is located approximately 1km east of Glenegedale and varies in height between 95 mAOD to 200 mAOD, with steeper ground located on the east of the site, as the land slopes up towards adjacent hills (Maol Airigh o Dhùin, Maol Mheadhoin and Maol Dubh). More details on the site and location are outlined in section 3.1.

6.2.1 Designated Sites

There are no environmental designations within the site. All other designated sites such as Duich Moss are beyond 2km from the site. Smaller headwater tributaries of the Glenegedale and Machrie Rivers originate east of the site and flow through the site. These rivers then discharge approximately 2.8km west of the site into Laggan Bay. Laggan Bay and Peninsula is designated a Site of Special Scientific Interest (SSSI) and Special Protection Area (SPA), with qualifying features including blanket bog, sand dunes, Greenland Barnacle and Greenland White-fronted Geese (non-breeding).

6.2.2 Surface Water

Key hydrological features are shown in Figure 6-1. All watercourses in the study site are within the 'Islay Coastal' catchment, as defined by SEPA. The headwaters of the Struthan an Fheidh, a tributary of the Torra River, originate within the north of the site and flow towards the north-west corner to join the Torra River approximately 300m north-west of the site. The Torra River flows along the northern boundary of the site and this waterbody (ID 10357) designated as having Good overall condition on the SEPA Water Environment Hub (SEPA, 2020). It is classified as Good in terms of water quality and physical conditions, and High in terms of water flows / levels and fish passage.

Several watercourses and tributaries flow through the site with their headwaters originating in the higher ground east of the site. The Caol Abhainn, Uisge Càm Chanaidh and Uisge Fuar flow through the centre of the site, joining approximately 800m west of the site to form the Glenegedale River. The Allt nan Airighean originates southeast of the site and flows through the south of the site, joined by several smaller tributaries. This flows into the Glenmachrie River, which later joins the Glenegedale River, forming the Machrie River, which in turn discharges into Laggan Bay. The Machrie River / Allt nan Airighean waterbody (ID 10361) is designated as having an overall Good condition (SEPA, 2020). It is classified as Good in terms of water quality and physical conditions, and High in terms of water flows / levels and fish passage.

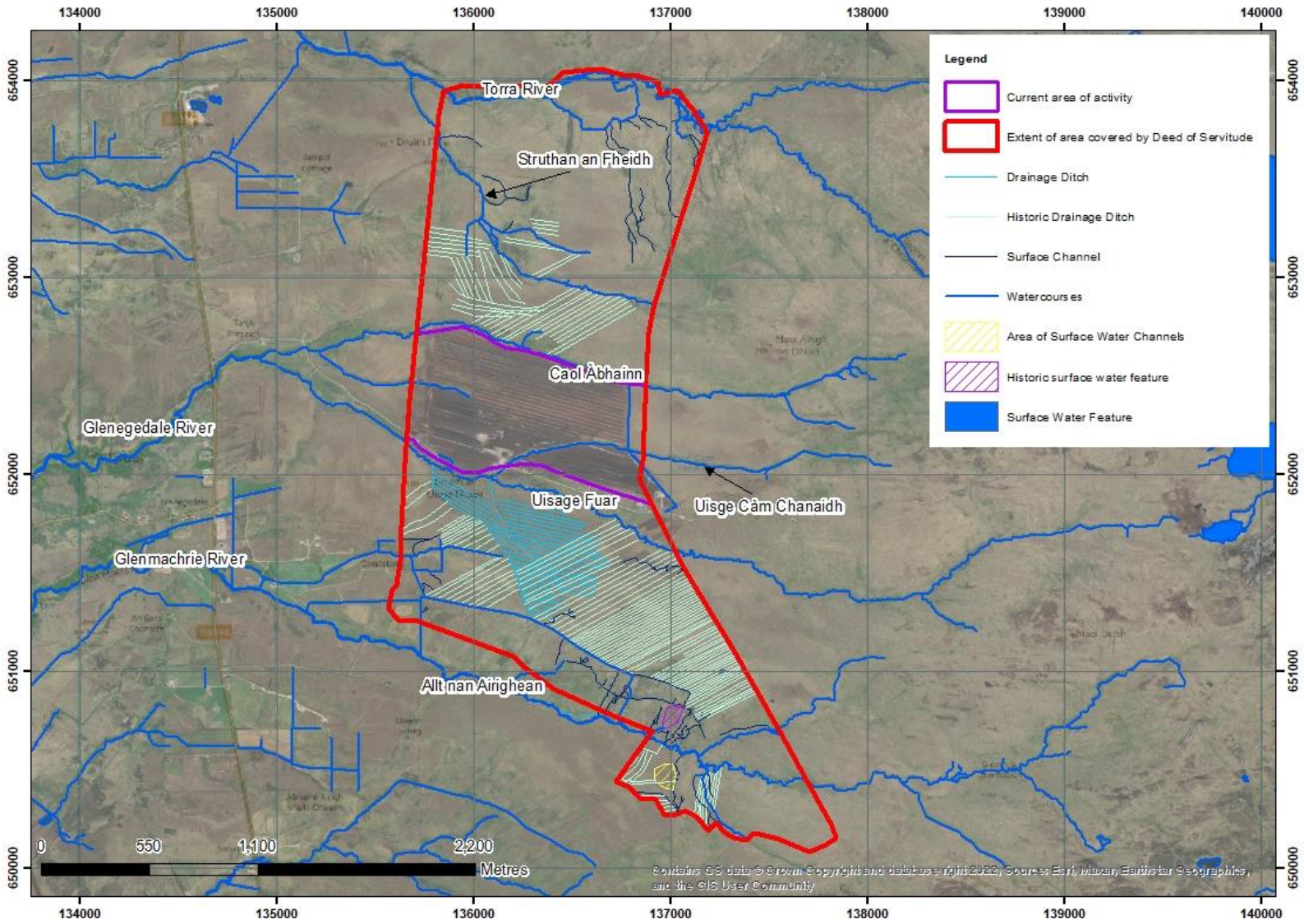

Figure 6-1: Hydrological Features

As detailed in section 3.2.8, a series of linear drainage ditches are present across most of the site. Those visible in aerial imagery have been digitized on Figure 6-1. There is recent drainage associated with the peat harvesting activities (particularly in central areas), superimposed upon historic drainage or 'gripping' associated with agricultural improvements. In both cases, water has been channeled into the watercourses flowing through the site to lower the water content of the peat.

6.2.3 Groundwater

British Geological Survey (BGS) 1:625,000 hydrogeological mapping (BGS, 2019) indicates that the bedrock aquifer underlying the site is of low productivity, consisting of low yielding fracture flows with local karst conditions. The groundwater (waterbody ID 150683) is classified as having Good water quality, flows and levels (SEPA, 2020).

As noted in section 5.2.2, various flushes have been identified to the north and south of the current active area, some of which have been noted as being alkaline in nature, indicative of potential groundwater influence (i.e. GWDTE).

6.2.4 Private Water Supplies and Abstractions

Argyll and Bute Council were consulted to request records of private water supplies (PWS) within a 1km radius of the site and any properties outwith this radius that are downstream of the site and in close proximity to the Glenmachrie and Glenegedale Rivers. No PWS were found on the register and it was noted that mains supply appears to serve the whole area, with the exception of Glenegedalemoor Cottage, Lotts (National Grid Reference, NGR, 135679 651528). This property may have an unregistered supply, which will be investigated further as part of the EIA. SEPA will also be consulted to request details of licenced abstractions within 1km of the site.

6.2.5 Flooding

SEPA Flood Maps[7] indicate that there is no risk of coastal flooding to the site and only isolated surface water flooding on site (pluvial, or rainwater, flooding). Groundwater flood risk is considered low given the sloped setting of the site and its underlying hydrogeology. Within the site there is little to no risk of fluvial (watercourse) flooding identified from the Torra River or Allt nan Airighean; however, there are more extensive areas of fluvial flood risk downstream of the site (SEPA, 2014) where slopes are shallower. A number of smaller tributaries within the centre of the site are too small to be included within the SEPA Flood Maps (e.g. Caol Abhainn, Uisge Càm Chanaidh and Uisge Fuar). It is understood that localised flooding may have occurred downstream in the past, particularly associated with culverts; which according to local anecdotal accounts may have been exacerbated by peat deposits. Localised flood risk, including risks associated with structures such as culverts and bunds will be considered qualitatively through the assessment and design process.

[7] https://www.sepa.org.uk/environment/water/flooding/flood-maps/

6.3 Potential Effects

6.3.1 Surface Water and Groundwater Flow Alteration

As peat harvesting progresses across the permitted area, it will have a potential influence on surface and subsurface flows and on water levels across the site. Peat extraction typically begins with alteration / formation of drainage of ground 1-3 years before peat cutting takes place, making it drier and safer to cut. This will likely lower groundwater levels and affect the hydrological regimes of the receiving watercourses (enhancing extremes of high and low flows).

Vegetation stripping and peat cutting will have the potential to alter localised drainage patterns and could influence infiltration rates across the site. Removal of peat may create open void areas into which surface water and groundwater could collect and the formation of peat stockpiles or new access tracks may influence overland flow pathways and runoff characteristics.

Similarly, restoration activities such as ditch blocking and re-profiling of cut surfaces have the potential to alter local hydrological conditions, requiring careful planning and construction to ensure the changes are positive.

6.3.2 Flooding

Activities on the site could potentially influence local flood dynamics and the risk of flooding within the site and through downstream areas, along the Torra, Glenegedale and Glenmachrie Rivers, as well as smaller tributaries. Potential flood risk receptors downstream include residential and commercial properties, public and private roads, and Islay Airport. As well as changes to the hydrological regime of watercourses, potential flood risk impacts associated with sedimentation of channels and blockage or failure of structures will be assessed as part of the hydrology chapter of the EIAR and in the development of the SWMP and restoration plans.

6.3.3 Sediment Discharges

It is reported that there have been instances of silt, sediment and peat fines or ‘caff’ affecting channel conditions and neighbouring properties downstream, particularly following periods of wet weather. Further works on site have the potential to lead to increased sediment loading in watercourses, for instance, as a result of erosion and runoff over areas of vegetation stripping / peat excavation / storage, and from scouring of drainage channels. The level of risk to surface water channels, watercourses and downstream properties will be assessed further in the hydrology chapter of the EIAR, particularly in terms of water quality, geomorphology and flood risk.

6.3.4 Contaminated Discharge

Machinery used during peat harvesting could result in accidental pollution incidents which could affect the quality of surface water or groundwater within or downstream of the site.

Oils, fuels and hydraulic fluids are hazardous (List I) substances under the Groundwater and Priority Substances (Scotland) Regulations 2009 and their ingress to groundwater must be prevented. Oil and fuel spillages would also have a detrimental impact on surface water quality and could affect fauna and flora.

The most likely sources of oils, fuels and other hydraulic fluids at the site are:

- Spillage or leakage of oils, fuels or hydraulic fluids from site vehicles and machinery; and
- Spillage of oil or fuel from refuelling machinery.

6.4 Design and Mitigation

Mitigation seeks, first, to avoid adverse impacts and, where impacts are unavoidable, to reduce the significance of residual effects to an acceptable level. It also seeks enhancement and compensation, where possible, to provide the best practicable option. The magnitude and extent of effects identified will inform and influence the type of mitigation suitable for the site. Mitigation will be discussed and agreed with Diageo (site user) and NatureScot (landowner), supported by engagement with other stakeholders, and a summary of the residual impacts following mitigation will be provided in the EIAR.

A peat restoration plan will be produced to outline the best types of mitigation measures for the site, which will be harmonised with a phased harvesting plan and SWMP. As well as active restoration measures, recommended mitigation measures will involve minimising the extent of vegetation stripping at any one time; strategic drainage interventions to slow flows, reduce scouring and encourage re-wetting of peat; sediment interception; maintaining a minimal depth of basal peat; stockpiling and replacement of peat turves to facilitate water retention and rapid re-establishment of peat forming conditions; protecting areas of shallow peat and GWDTE; and vegetated watercourse buffers. Mitigation measures will also be outlined for the periods after extraction when peat is air dried for several weeks.

Mitigation on site would also ensure all personnel on site are aware and understand the risks to the water environment, adopting specific measures as required in line with the SEPA Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs).

6.5 Relevant Guidance and Assessment Methodology

The assessment will follow standard EIA procedures which include:

- Desk based study;
- Consultation with key stakeholders;
- Establishing the existing baseline conditions;
- Identifying potential environmental impacts including cumulative impacts;
- Assessment of potential environmental impact magnitude;
- Identification and assessment of mitigation measures; and
- Statement of residual effects.

The assessment will be conducted in accordance with current legislation and good practice guidance including:

- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended): A Practical Guide (SEPA);
- Control of water pollution from construction sites. Guidance for consultants and contractors (CIRIA C532);
- Guidelines for Water Pollution Prevention from Civil Engineering Contracts;
- Pollution Prevention Guidelines and Guidelines for Pollution Prevention 1 – 26 (as appropriate);
- Development of a groundwater vulnerability screening methodology for the Water Framework Directive (WFD28), SNIFFER (2004);
- SEPA Policy No.19: Groundwater Protection Policy for Scotland;
- Drainage assessment; A guide for Scotland (SUDS Working Party);

- Planning for SuDS – making it happen (CIRIA);
- The SUDS Manual (CIRIA); and
- Technical flood risk guidance for stakeholders (SEPA).

The assessment will involve a review of published documents and planning policies relating to receptors scoped into the assessment. Hydrology, water quality, groundwater and PWS/abstractions have been scoped into the assessment. The surface water drainage catchments of the site will also be established. Specifically, baseline work will include a review of Ordnance Survey, SEPA, NatureScot, and Flood Estimation Handbook resources; consultation with stakeholders, particularly to identify PWS and abstractions; an assessment of potential GWDTE area; and an assessment of site hydrology and requirements for flood risk assessment.

A summary of the potential water environment effects to be considered within the Hydrology and Hydrogeology EIA Chapter are outlined in Table 6-1. The assessments will be supported by a targeted monitoring strategy which is under development currently.

Table 6-1: Summary of Potential Effects on Hydrology

Receptor	Effects	Scoped In
Hydrology	Flood risk, changes to surface water flow regime and alterations to drainage ditch network. Increased sediment loading and risk of contaminant discharges. Impact on hydromorphological features and processes.	✓
Groundwater	Flow and level alterations, increased contaminant discharges.	✓
Water Supplies/ abstractions	Flow and level alterations, increased sediment discharges, contaminant discharges.	✓
GWDTE	Flow and level alterations (groundwater draw-down / alteration of flow paths), physical disturbances, contaminant discharges	✓

7 GEOLOGY AND SOILS

7.1 Introduction

Peat harvesting has been undertaken on the site for over 30 years, with the current area of activity within the centre of the site as shown in Figure 3-2. Section 3 provides more background on the activities undertaken on site to date.

Further peat harvesting is proposed within the active area and potentially in the areas to the north and south of the active area. This has the potential to cause changes to hydrogeological and soil conditions within the site and surrounding environment.

7.2 Baseline Conditions

7.2.1 Bedrock Geology

BGS 1:50,000 solid geology mapping (reproduced in Figure 7-1) shows that the west of the site is mostly underlain by Glen Egedale Slate formation (calcareous pelite, phyllitic-graphitic). Along the eastern side of the site there are bands of varying bedrock running in a north-south orientation, including the Kintra Dolostone formation (metadolomite and/or dolomitic limestone), Lossit Limestone Formation (Calcareous pelite, metalimestone and quartzite) and Bhorrodoil Phyllite Member (phyllitic pelite), (BGS, n.d.). To the east of the site bedrock geology is dominated by quartzite of the Jura Formation.

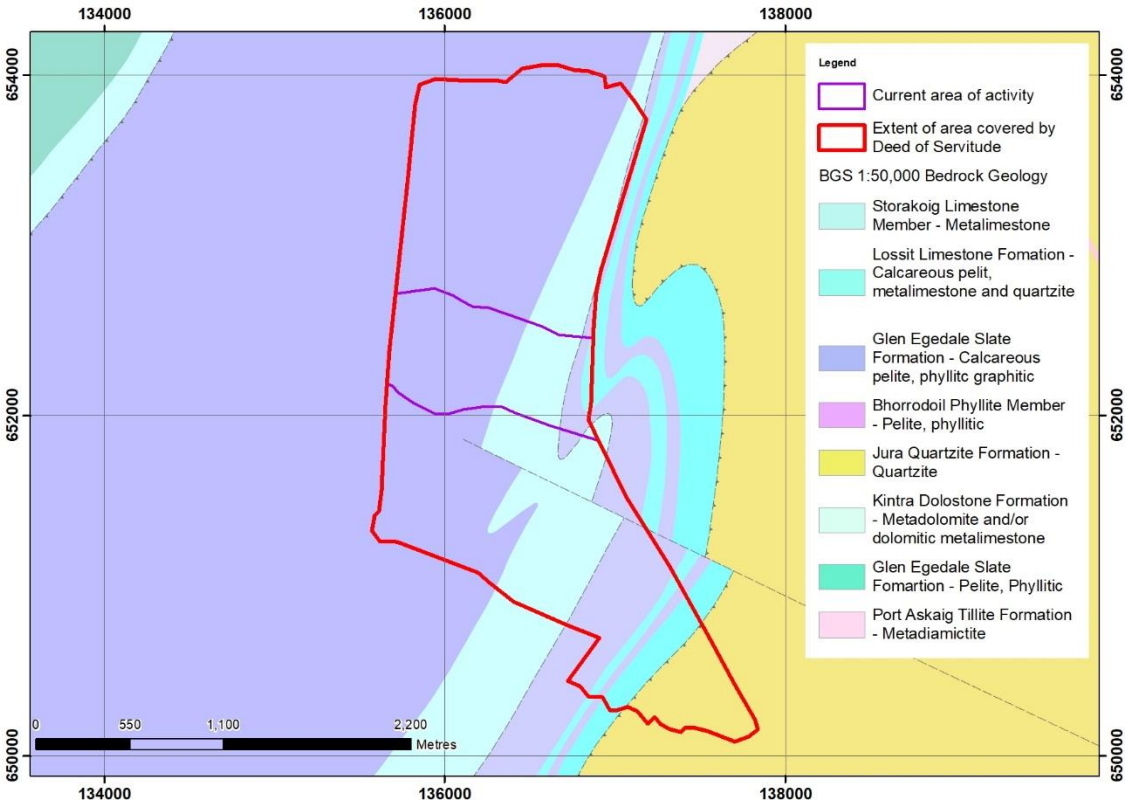

Figure 7-1 Bedrock Geology

Contains British Geological Survey materials © UKRI 2023
Source: Web map services (WMS) - British Geological Survey (bgs.ac.uk).

Several fault lines also pass through the eastern side of the site, which are noted to have unknown displacement. Ordnance Survey 1: 25,000 mapping indicates a series of shake holes generally trending in a north-south orientation beyond the site's eastern boundary, which are likely to coincide with these bedrock bands and fault lines. Such geological boundaries may indicate areas of potential groundwater emergence or springs. No borehole records are present on the site.

7.2.2 Superficial Geology

BGS 1:50,000 mapping shows that till and morainic deposits are present across most of the site (Figure 7-2). Peat is present within the majority of the active area and large pockets of peat are mapped immediately south and north of the active area. In the wider area, there is a similar combination of till, morainic deposits and peat, with unknown areas of superficial geology along the Glenegedale and Torra river corridors (which are considered likely to be dominated by alluvial deposits) and an area of glaciofluvial deposits to the north-west.

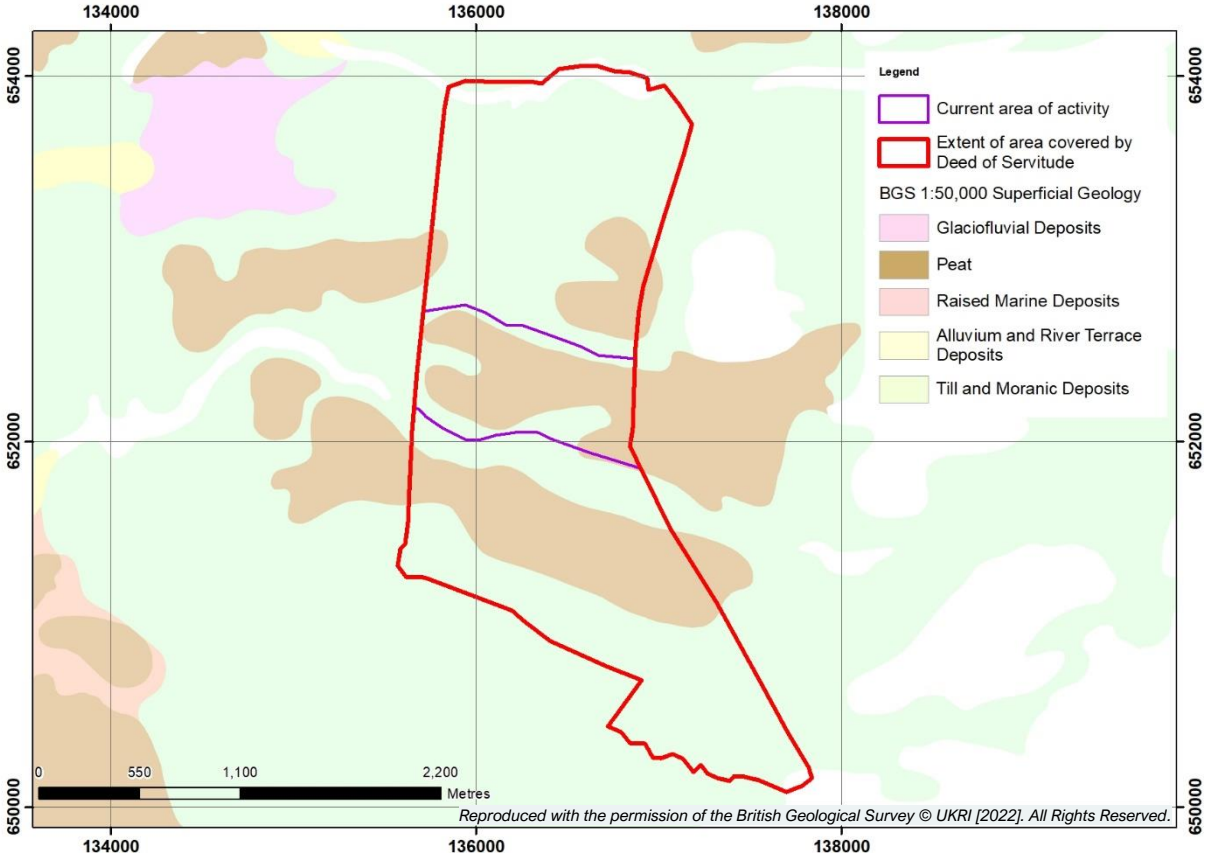

Figure 7-2 Superficial Geology
Contains British Geological Survey materials © UKRI 2023
Source: Web map services (WMS) - British Geological Survey (bgs.ac.uk).

The Carbon and Peatland 2016 map[8] identifies the site as having Class 1 peat soil and peatland vegetation. Dystrophic blanket peat is mapped over most of the site on the National Soil Map of Scotland, with a strip of peaty gleys of the Kintyre Soil Association to the far south of the site.

7.2.3 Peat Depths

Peat has been extracted from the central active area on the site for 30+ years. This area was selected following a peat depth survey undertaken by the Macaulay Institute in 1988, entitled "The Peat Resources of Castle Hill, Isle of Islay", a copy of which has been obtained from the client.

To inform the current project, a Phase 1 peat depth survey was undertaken in November 2023 covering the extent the of study area at 100m grid spacings. The resulting peat depth map is provided in Appendix C, which will be used as a basis for planning of future peat harvesting and restoration activities. More detailed, targeted peat depth surveys (Phase 2) will be carried out when required as these plans evolve.

7.3 Potential Effects

7.3.1 Peat Harvesting and Restoration Activities

A review of baseline information shows that peat has been identified throughout most of the study site and surrounding area. Further peat harvesting on the site could have the potential to result in the disturbance, loss, pollution or instability of peat at a local level. Removal or degradation of peat-forming vegetation, particularly Sphagnum mosses, may hinder peat regeneration (typical accumulation rates in Scotland are approximately 0.5-1mm per year). The compaction and oxidation of peat could also be affected through extraction, which could in turn influence surface water and groundwater hydrology.

Given the shallow slopes and local hydrogeological conditions, landslide risk within the site is considered to be low; however, if it were to occur it would have the potential to impact on the water quality of watercourses; cause damage to downstream properties and ecological features; and risk to the health and safety of workers or other people in the local area.

7.4 Design and Mitigation

Mitigation seeks, first, to avoid adverse impacts and, where impacts are unavoidable, to reduce the significance of residual effect to an acceptable level. It also seeks enhancement and compensation, where possible, to provide the best practicable option. The magnitude and extent of effects identified will inform and influence the type of mitigation suitable for the site. Mitigation will be discussed and agreed with Diageo (site user) and NatureScot (landowner), supported by engagement with other stakeholders, and a summary of the residual impacts following mitigation will be provided in the EIAR.

The peat depth survey data will allow areas where harvesting would be optimal to be determined (in terms of minimising the environmental footprint and optimising operations) and also to highlight areas for avoidance of impact. The impact of landslide risk will therefore be considered within the geology chapter of the EIA, following guidance including the Scottish Government's guidance on Peat

[8] https://map.environment.gov.scot/Soil_maps/?layer=1#

Landslide Hazard and Risk Assessments. This will provide a range of mitigation and operational activities that can reduce destabilisation of peat and the landslide risk on site.

A peat restoration plan will be produced to outline the best types of mitigation measures for the site, which will be harmonised with a phased harvesting plan and SWMP. As well as active restoration measures, recommended mitigation measures will involve minimising the extent of vegetation stripping at any one time; strategic drainage interventions; sediment interception; maintaining a minimal depth of basal peat; stockpiling and replacement of peat turves to facilitate rapid re-establishment of peat forming conditions; transplanting of sphagnum moss plugs; protecting areas of shallow peat and GWDTE; and vegetated watercourse buffers. Mitigation measures will also be outlined for the periods after extraction when peat is air dried for several weeks and is subject to the eroding effects of wind, rain and frost.

7.5 Relevant Guidance and Assessment Methodology

The methodology used for this chapter will be:

- Desk based study;
- Establish Baseline Conditions;
- Undertake a phase 1 and 2 peat depth survey;
- Identify potential environmental impacts;
- Carry out a Peat Instability Hazard Assessment (PIHA);
- Identification and assessment of mitigation measures;
- Production of a peat restoration plan; and
- Statement of residual effects

The assessment will be conducted in accordance with current legislation and good practice guidance including:

- Peatland Survey: Guidance on Developments on Peatland (Scottish Government and NatureScot);
- Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Government);
- Pollution Prevention Guidelines and Guidelines for Pollution Prevention 1 – 26 (as appropriate);
- Guidance on how to restore a Peatland once commercial peat extraction has ceased (NatureScot); and
- Peatland Action Technical Compendium (NatureScot).

The assessment will involve a review of published documents and planning policies relating to receptors scoped into the assessment. Peat and associated effects have been scoped into the assessment. This will involve a desk based assessment of OS maps, geology, soils, and topography; peat depth surveys to establish where peat is present on the site; preparation of a PIHA and a peat restoration plan.

A summary of the potential water environment effects to be considered within the Geology and Soils EIA Chapter are outlined in Table 7-1.

Table 7-1: Summary of Potential Effects on Geology and Soils

Receptor	Effects	Scoped In
Blanket Peat	Disturbance / loss, instability, landslide risk, water quality	✓

8 LANDSCAPE AND VISUAL

8.1 Introduction

It is recognised that the island has a relatively remote and vulnerable community, and that the harvesting of peat for the Whisky industry is very important to securing its long term viability. It is also recognised that tourism plays an important part in sustaining the local economy. The landscape is an important resource, in the sense that it is a habitat, a carbon sink and a cultural landscape with rich history, and efforts will be made to afford it protection through sympathetic peat harvesting and restoration to minimise an adverse environmental impact on the natural and panoramic qualities of this area.

It is understood that the commercial peat extraction at the site can lawfully continue indefinitely (subject to sufficient peat deposits remaining and RoMP approval). However, the intention is understood to be to utilise the site whilst it is environmentally and commercially sustainable to do so, and to progress restoration alongside harvesting operations over that time. Once site activities have ceased the peatland will be reinstated / restored to a condition that will function effectively and promote peat regeneration going forwards, thereby returning the peatland to a natural functioning ecosystem.

The applicant's approach follows best practice experience and scientific guidance.

8.2 Baseline Conditions

Castle Hill is a peat harvesting site used by Diageo to supply peat to the maltings at Port Ellen, Islay. Peat at Castle Hill is harvested over the summer months, with around 75 ha of the site being either active or previously active. Environmental management is generally carried out alongside harvesting activities, although there is currently limited restoration activities being undertaken for the worked areas. The site is owned by NatureScot (404 ha) who would be keen to see peatland restoration progress, whilst recognising the importance of sustainable harvesting for the local community and rural economy.

The prevailing landscape character of the site is one of undulating low rounded hills with intervening shallow valleys. There are some wider hillier areas towards the eastern part of the Site.

Overall, the site is a complex mosaic of habitats comprising degraded blanket bog, upland flushes, fens and swamps, calcium-rich springwater-fed fens, and upland watercourses and tributaries which flow through the site.

8.2.1 Designated Landscapes

The site lies within an area designated as Countryside Zone in the Argyll and Bute Local Development Plan and adjacent to the South & East Islay Area of Panoramic Quality (to the east), as shown in Figure 8-1. The proposed development lies outwith any Green Belt, Wild Land Area, Gardens or Designed Landscapes, Forest Park or Area of Panoramic Quality.

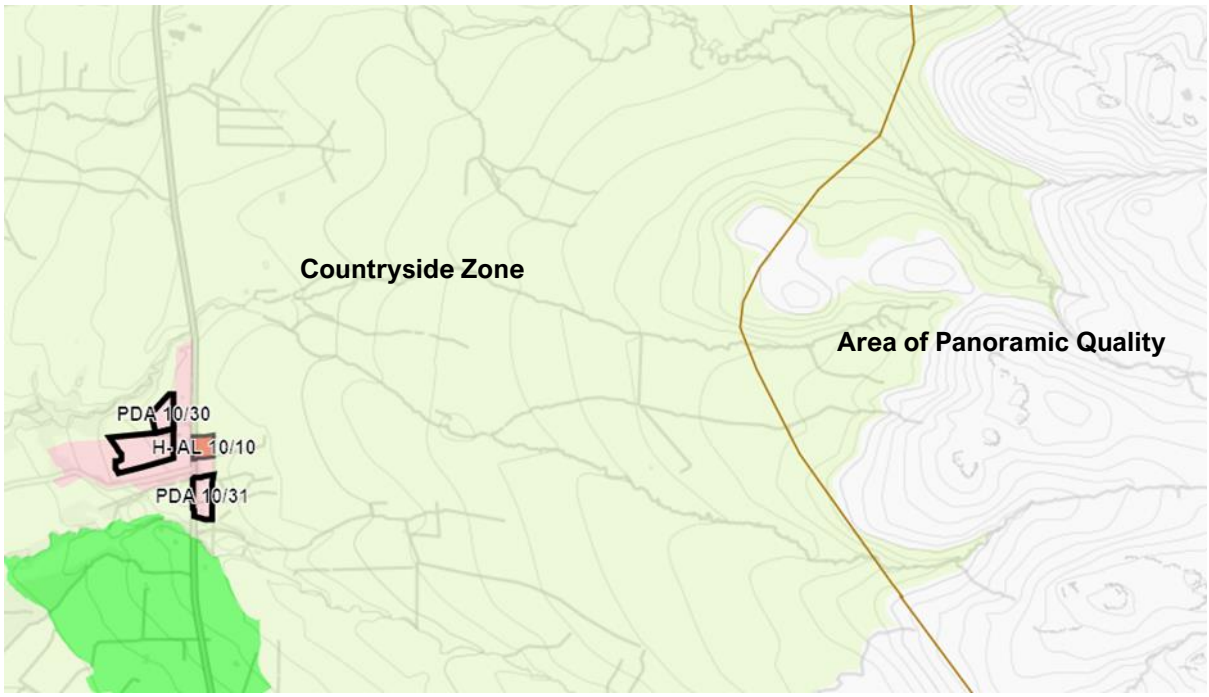

Figure 8-1: Designated Landscapes

8.2.2 Landscape Character

With reference to Landscape Capacity Study commissioned by Argyll and Bute Council, and carried out by Gillespies Landscape Architects (Figure 8-2), the peat extraction and restoration area is located within the 'Marginal Farmland Mosaic' (Landscape Character type - 16).[9] To the west of the peat extraction and restoration area, the Landscape Character type is defined as 'Lowland Bog and Moor' (15).

8.2.3 Marginal Farmland Mosaic

The Marginal Farmland Mosaic (16) character type is shown in the Argyll and Firth of Clyde Landscape Assessment as forming the farmed fringe of the uplands on the island of Islay. It occupies the interior glen stretching from Port Askaig to Bridgend and also forms a linear transition between the 'Lowland Bog and Moor' (15) and more elevated, upland character types, especially 'Moorland Plateau' (8).

[9] https://www.argyll-bute.gov.uk/sites/default/files/planning-and-environment/Islay%20Final%20Part%201.pdf

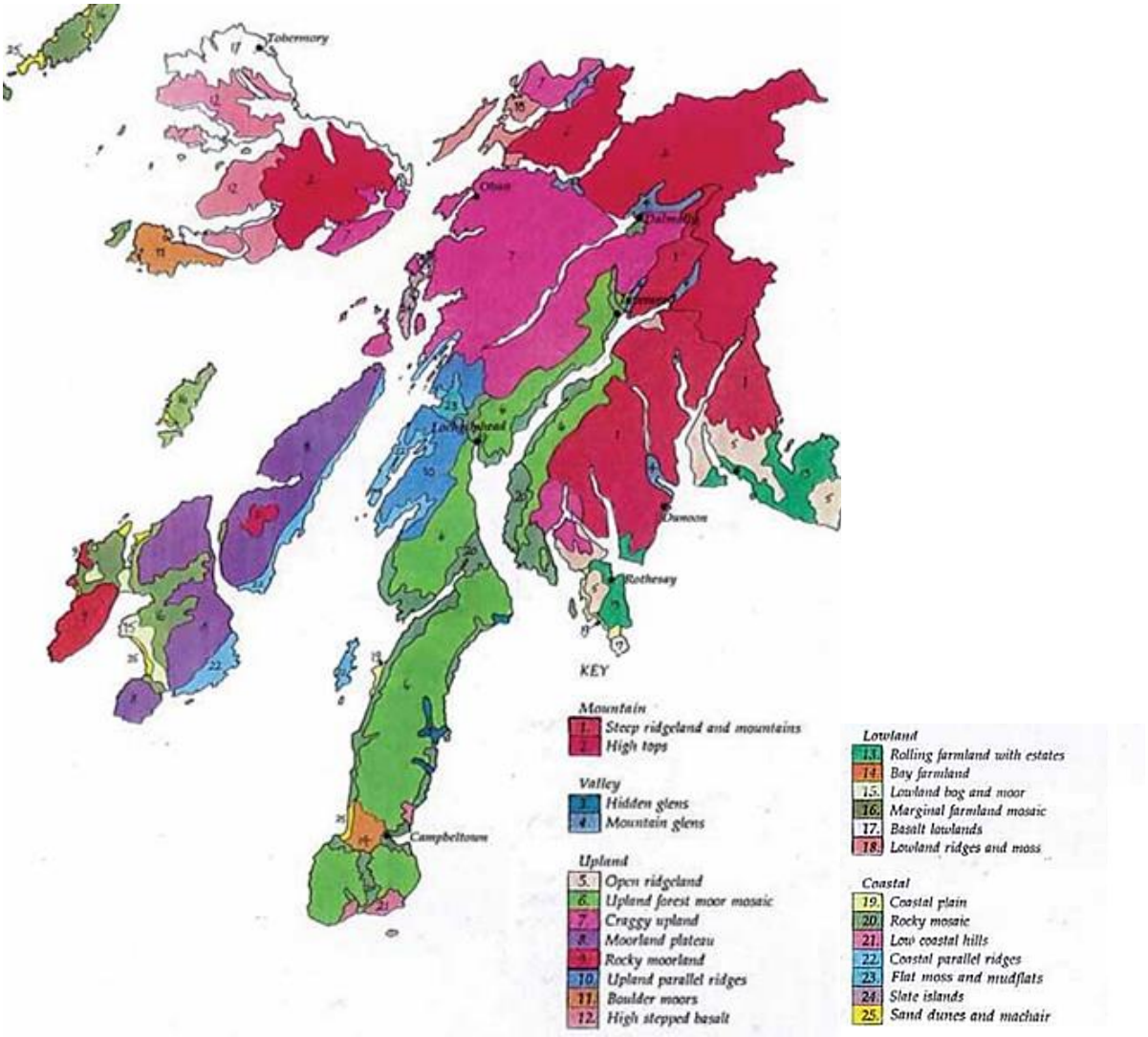

Figure 8-2: Landscape Character Types

The Marginal Farmland Mosaic landscape type extends to include the village of Port Askaig and northeast to include the knolly, settled landscape along the coast to Bunnahabhain, which is similar in character to the glen between Port Askaig and Bridgend.

The relief is low, often with knolly, small-scale landform, and is generally farmed with some moorland. It is overall a diverse landscape but is more open and simple to the west of the island.

8.3 Potential Effects

Castle Hill is a heavily modified area as a result of existing peat extraction dating back to the late 1980s, with extraction rights granted by Scottish Natural Heritage (now NatureScot) to Diageo to protect other, more vulnerable peatland areas on the island, whilst supporting the local whisky industry.

Whilst visual impacts could arise from the re-profiling and use of plant, this would not be dissimilar to the impacts from the consented activities and over the long-term benefits would arise from the improved management of the site and restoration. Overall the restoration proposals will have positive landscape benefits and will restore the natural character of the site.

The nature of the restoration will potentially result in some impacts on existing vegetation. Such impacts are considered acceptable given the value of the ecological habitat to be provided on completion of the works.

It is considered that the restoration scheme will have major benefits to the wider landscape, and the ecological benefits of this restoration scheme cannot be overstated and identifies that this proposal is a unique opportunity. While the landscape and ecological benefits of this scheme could take many years, substantial nature conservation benefits would occur within a short timescale.

8.4 Inclusion or Exclusion from EIA

The land is an operational peat extraction facility and the proposed restoration plan would work to ensure there are both significant landscape and ecological benefits. As such, there would not be a reason for a Landscape and Visual Assessment to be carried out.

9 ARCHAEOLOGY AND CULTURAL HERITAGE

9.1 Introduction

An initial review of the study area consulted readily available historic environment resources to gauge the nature of the known assets that may be impacted and to consider the quality of the existing information base.

9.2 Baseline Conditions

World Heritage Sites

A review of Pastmaps[10] and Scotland's Environment[11] identified there were no World Heritage Sites within proximity of the area covered by the works.

Scheduled Monuments

A review of Pastmaps and Scotland's Environment identified there were no Scheduled monuments within proximity of the area covered by the works.

Conservation Areas

There are no Conservation Areas within proximity of the area covered by the works.

Garden & Designed Landscapes

There are no 'Garden & Designated Landscapes' within proximity of the area covered by the works.

Battlefields

There are no battlefields within proximity of the area covered by the works.

Listed Buildings

There are no listed buildings within proximity of the area covered by the works.

Other Points of Interest

Canmore points catalogue Scotland's recorded archaeology sites, buildings and industrial and maritime heritage. The following items identified in Figure 9-1 and Table 9-1 have also been identified as points of interest on Canmore:

[10] https://pastmap.org.uk (Accessed 21/01/2022)

[11] https://map.environment.gov.scot/sewebmap (Accessed 21/01/2022)

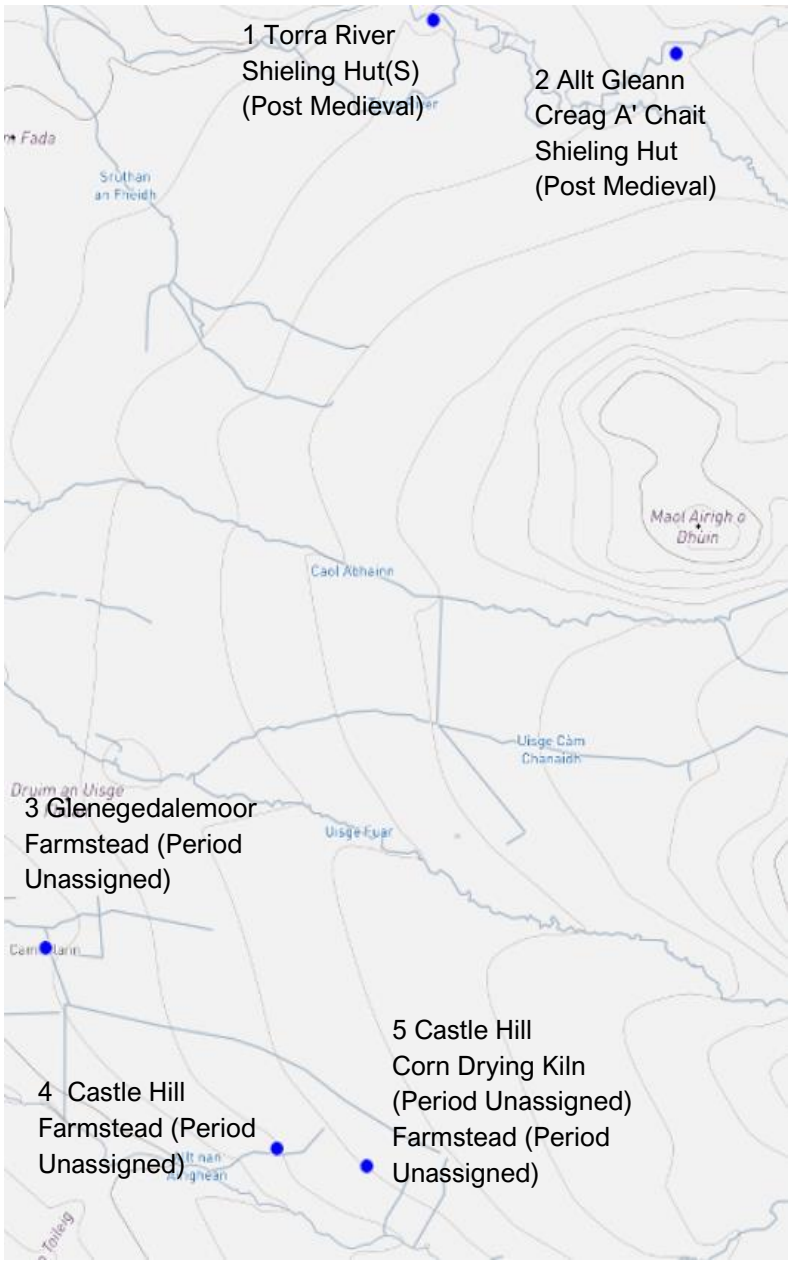

Figure 9-1: Points of Interest

Table 9-1: Points of Interest

Ref.	Site Information
1.	**Site Name Islay,** Torra River **Classification** Shieling Hut(S) (Post Medieval) **Canmore ID** 82919 **Site Number** NR35SE 7 **NGR** NR 3677 5399 **Datum** OSGB36 – NGR **Permalink** http://canmore.org.uk/site/82919
2.	**Site Name** Islay, Allt Gleann Creag A' Chait **Classification** Shieling Hut (Post Medieval) **Canmore ID** 82918 **Site Number** NR35SE 6 **NGR** NR 3745 5390 **Datum** OSGB36 - NGR **Permalink** http://canmore.org.uk/site/82918
3.	**Site Name** Islay, Lenegadalemoor **Classification** Farmstead (Period Unassigned) **Canmore ID** 154041 **Site Number** NR35SE 11 **NGR** NR 3568 5153 **Datum** OSGB36 - NGR **Permalink** http://canmore.org.uk/site/154041
4.	**Site Name** Islay, Castle Hill **Classification** Farmstead (Period Unassigned), Field System (Period Unassigned) **Canmore** ID 153983 **Site Number** NR35SE 13 **NGR** NR 3633 5100 **Datum** OSGB36 - NGR **Permalink** http://canmore.org.uk/site/153983
5.	**Site Name** Islay, Castle Hill **Classification** Corn Drying Kiln (Period Unassigned), Farmstead (Period Unassigned) **Alternative Name(s)** Castle Hill Farm **Canmore ID** 37665 **Site Number** NR35SE 3 **NGR** NR 3658 5095 **Datum** OSGB36 - NGR **Permalink** http://canmore.org.uk/site/37665

9.3 Potential Effects

The subject lands are not proximate to any protected structures or archaeological/cultural heritage assets. The works are expected to have minimal impact on archaeology or cultural heritage.

It is important to note, that previously unknown archaeological artefacts can emerge, and as such, a watching brief may be required.

9.4 Inclusion or Exclusion from EIA

Based upon the desk study, the proposed works are not anticipated to result in discernible loss to the historic environment, and as such, are excluded from EIA.

10 NOISE

10.1 Introduction

This section will consider both the suitability of the site for the intended use and the potential for noise from the project to impact existing residential receptors. The assessment will determine the significance of any noise impacts on sensitive receptors.

10.2 Baseline Conditions

The rural environment associated with peat harvesting activities is such that the nearest noise-sensitive properties are at considerable distances from site activities. The potential noise impacts have been determined to originate from peat extraction and limited harvesting activities and vehicles on the local road network.

Given the location of the site is within an area where peat extraction and harvesting activities are in operation or have been in operation historically, these would constitute a local industry.

The closest residential properties are located over 600m from the western boundary of the site.

The site, being in a predominantly rural location is not located in close proximity to any existing industrial noise sources.

The noise environment to the west of the development area is considered to be characterised by transportation from road traffic on the B8016.

Due to the proximity of the development site to the aforementioned roads and there being no industrial activities identified, the dominant noise source at the site and existing residential properties is considered to be from road traffic.

There are no Candidate Noise Management Areas or Candidate Quiet within the proposed development boundary.[12]

Due to the nature of peat extraction activities, as described in Chapter 3 significant vibration impacts which could give rise to nuisance or damage to properties are not likely to occur due to the distances to local residential properties. No nuisance or damage in terms of vibration associated with peat extraction or the transportation of peat has been recorded. Vibration impacts associated with peat extraction activities and the transportation of the peat by road have therefore not been considered further in this Scoping Report.

10.3 Potential Effects

The range of noise sources associated with each site involves mobile plant only, namely tractors and excavators which are nominally similar to the range of sources which define the current noise

[12] [12] https://noise.environment.gov.scot/noisemap/ (Accessed 27/09/2022)

environment from adjacent agricultural activities. The activities do not involve fixed plant installations which operate continually, hence background noise environment are anticipated to remain similar with or without the extraction activities taking place.

Peat extraction is restricted to the summer months.

Peat production activities generally take place during daylight hours, and typically between the hours of 07:00 and 18:00 hours.

Potential Noise Impacts

There are two potential primary sources of noise in the operational context

- Onsite mobile plant, and;
- Additional vehicles along surrounding roads.

The likely noise impact from site operations at both areas is addressed in turn in the following sections.

The following numbers of equipment have the potential to operate at the sites, during the busiest period of each activity, as advised by the site operators (Table 10-1). These, therefore, represent the worst-case scenario. Source data from each of the plant equipment above have been sourced from the British Standard Document BS 5228 (2009) Code of Practice for Noise and Vibration Control on Construction and Open Sites. Part 1 – Noise which contains a range of source noise levels of operational items of mobile plant inclusive of those on the harvesting and extraction sites.

Table 10-1: Operational Site Equipment

Activity Site	Site Equipment	A – Weighted sound pressure Levell, L_{Aeq} dB at 10m	BS 5228 Source Reference
Extraction	Excavators	76	C2.15
	Tractors	80	C4.74
	Dump trailers	79	C2.30
Extraction (holding area only)	Loading shovel	76	C2.28
Harvesting	Tractors / trailer	79	C4.75
	Bulldozer	86	C5.14
	Diesel water pump	65	C2.45
	Excavator	76	C2.15

The working area in the vicinity of the Castle Hill site is located off the B8016 Road. The closest noise-sensitive location to on-site activities is a residential property to the southwest. The closest working boundary of the Castle Hill site is approximately 600m from this property.

There is potential for impacts on amenity arising from the extraction activities due to the proposed works required on site and the use of plant and machinery. It is considered that the noise impacts likely from this proposal would not be more than those generated by current peat extraction activities and would be acceptable subject to securing planning conditions in respect of restrictions over the hours of operation for restoration works, and silencing of plant and vehicles.

Impacts to wildlife from noise are expected to be minimal given the attenuation of most sounds with distance from the source and as operation peat extraction area many faunal species will accustomed to

new sounds associated with the works. However, noise suppression would be used on vehicles and regular inspections carried out to ensure they are maintained. Treed buffer zones maintained around the perimeter of harvest areas would also help attenuate noise. The remote location should ensure that communities would not be impacted by project noise.

10.4 Inclusion or Exclusion from EIA

It is considered that the noise impacts likely from this proposal would not be more than those generated by current peat extraction activities and would be acceptable subject to securing planning conditions in respect of restrictions over the hours of operation for restoration works, silencing of plant and vehicles, and implementation of best practice measures to control noise emissions.

The nature and level of noise will not be excessive and therefore it will not have a significant effect, and as such, it is proposed to scope noise out of EIA.

11 AIR QUALITY

11.1 Introduction

Peat extraction activities under unfavourable conditions have the potential to emit dust. Dust is characterised as encompassing particulate matter with a particle size of between 1 and 75 microns (1 – 75 µm). Deposition typically occurs in close proximity to the site and potential impacts generally occur within 500 metres of the dust-generating activity as dust particles fall out of suspension in the air. Larger particles deposit closer to the generating source and deposition rates will decrease with distance from the source. Sensitivity to dust depends on the duration of the dust deposition, the dust-generating activity, and the nature of the deposit. Therefore, a higher tolerance of dust deposition is likely to be shown if only short periods of dust deposition are expected and the dust-generating activity is either expected to stop or move on.

The potential for dust to be emitted will depend on the type of activity being carried out in conjunction with environmental factors including levels of rainfall, wind speed and wind direction.

11.2 Baseline Conditions

There are no Air Quality Management Areas (AQMA) within the vicinity of the proposed works.

A review of the Scottish Pollutant Release Inventory[13] (SPRI) website identifies there are no businesses which require reporting their emissions to SEPA within proximity to the proposed development.

11.3 Potential Effects

Due to the relatively limited scale of works, air quality impacts and those likely to arise from transport generation and restoration are unlikely to be significant. Dust-generating impacts could be controlled by a condition such as requiring a dust management plan which can ensure that work activities are properly controlled and mitigated.

11.4 Inclusion or Exclusion from EIA

It is considered that potential air quality impacts from the proposals (road traffic, plant etc) would not be in excess of those generated by current peat extraction activities, and as such, it is proposed to scope air quality out of EIA.

It should be noted that the nature of the peat harvesting activities (both laying out and collection) may cause dust to be raised and transported. Dust will likely include mineral substrate which may have potential to have an impact on adjacent bog vegetation, and as such, dust would be scoped into EIA.

[13] https://map.environment.gov.scot/sewebmap

12 CLIMATE CHANGE RESILIENCE

12.1 Introduction

Climate change has taken a prominent position within policy and legislation at a national level, with the Climate Change (Scotland) Act 2009 creating a long-term framework for ensuring reduction in Scottish greenhouse gas emissions. Degrading peat is estimated to be responsible for about 5% of UK carbon emissions. Emission reductions set under the Climate Change (Scotland) Act 2009 were updated under the Climate Change Emissions Reduction Targets) (Scotland) Act 2019 to net zero by 2045.

Under Schedule 4(4), the EIA Regulations require "*a description of the factors specified in 4(3) likely to be significant affected by the development…(including) climate (for example greenhouse gas emissions, impacts relevant to adaption)*". In addition, Schedule 4(5)(f) of the EIA Regulations requires a "*description of the likely significant effects of the development on the environment resulting from…the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change"*.

12.2 Baseline Conditions

Around 60% of Islay is covered in peat, according to research published by Highland and Islands Enterprise. This is higher than the national context, in that peat-based soils cover 20% of Scotland's land. Scottish peatlands account for more than half of the UK's total peatland area (2.7 million hectares).

The whisky industry accounts for 1% of the peat harvested throughout the UK annually, with the horticultural industry accounting for the majority. As an approximation, Castle Hill's peat extraction to date has been 2.3 hectares per year, and on the basis that an estimated 145,000 hectares of peat is harvested annually across the UK[14], Islay accounts for 0.0016%. The Islay whisky industry's contribution to national peat extraction rates is therefore relatively minor at present; although this balance may be set to change over the future. The UK Government have scheduled a ban on the sale of horticultural peat in England and Wales in 2024, and it is understood that the Scottish Government may also phase out horticultural peat use in coming years.

12.3 Potential Effects

The exposure and harvesting of peat has the potential to release stored carbon to the atmosphere, contributing to climate change. Peatland restoration is the key means to reverse this process and promote the capture and storage of carbon. The net balance between carbon release and capture over time will determine the overall carbon footprint and contribution to climate change.

12.4 Inclusion or Exclusion from EIA

It is proposed that climate change will be scoped into the EIA. As part of the study and design, carbon balance calculations will be undertaken to compare current and proposed scenarios, to promote

[14] https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapitalforpeatlands/naturalcapitalaccounts

restoration activities that are suitably designed to have a neutral or better impact compared to the current carbon footprint of the site, where practicable. Climate considerations will also be taken into account in water management plans, for instance, potential for increased extremes of high and low flows.

13 ADDITIONAL TOPICS NOT REQUIRING FULL EIA

13.1 Introduction

This section incorporates those issues which are relevant to the proposed development but in our view do not merit or justify a full chapter within the EIA Report, or similarly where there is no standard methodology.

13.2 Population and Human Health

The 2017 EIA Regulations require an examination of population and human health to be considered within EIA projects. Given the proposed works it is unlikely to create significant effects, either positive or adverse, on the integrity of local population numbers.

Human health is a loose and wide term for a number of components that influence public health including pollution, amenity and opportunities gained or lost by direct land take. It is considered that the overall health of the local population is not likely to be significantly affected by the proposed development.

Accordingly, population and human health is scoped out of the EIA.

13.3 Material Assets

The proposed works will utilise material assets but given the scale of the works this is not considered to be substantial. As such, significant effects are not considered to be likely.

13.4 Natural Disasters

The proposed development is not located within an area of significant seismic activity, nor are climatic factors prone to creating disasters such as tsunamis, hurricanes or catastrophic flooding. Accordingly, consideration of natural disasters is scoped out of the EIA.

13.5 Major Accidents

Due to the nature of the proposed it is unlikely to give rise to major accidents.

13.6 Cumulative Assessment

It is not proposed to incorporate a section within the EIAR dedicated to Cumulative Assessment. Instead, the Chapter for each environmental discipline will consider the potential for cumulative impacts within their individual impact assessments should they arise.

14 CONTENT AND STRUCTURE OF THE EIA REPORT

The Project Team would be very grateful to receive a formal Scoping Opinion and are committed to working with all consultees to deliver a proportionate, robust EIA. For the avoidance of doubt, we propose the EIAR has the content and structure as detailed in the sections below which has been formulated based on the rationale set out within this report.

14.1 Topics Scoped into the EIAR

Following the rationale set out within the above sections, it is proposed that the final EIA Report is set out within the following structure:

- Volume 1: EIA Report, containing:
    - Preface
    - Chapter 1: Introduction;
    - Chapter 2: EIA Methodology and Scoping;
    - Chapter 3: The Proposed Development;
    - Chapter 4: Biodiversity;
    - Chapter 5: Hydrology;
    - Chapter 6: Geology and Soils;
    - Chapter 7: Air Quality;
    - Chapter 8: Climate Change
    - Chapter 9: Topics not Requiring Full EIA;
    - Chapter 10 Schedule of Mitigation.
- Volume 2: Figures, containing relevant supplementary figures and drawings relevant to Volume 1 chapters;
- Volume 3: Technical Appendices, including reports and technical background documents which support the main assessments contained within Volume 1; and
- A standalone Non-Technical Summary (NTS).

14.2 Topics not Requiring Full EIA

On the basis of professional judgement and the findings of the scoping appraisal, full EIA's are not considered necessary for the following topics, however supporting statements, information and recommended mitigation measures will be provided for each topic within the EIAR, where appropriate:

- Landscape and Visual Assessment;
- Archaeology & Cultural Heritage;
- Noise;
- Population and Human Health;
- Material Assets;
- Natural Disasters;
- Major Accidents; and
- Cumulative Assessment.

14.3 Schedule of Mitigation

The EIA Report would conclude with a Schedule of Mitigation which would highlight all mitigation that the Applicant has committed to, and often takes a tabular format for ease of reference and is split into the stage of development it is required.

REFERENCES

BGS (n.d.). UK Hydrogeology viewer. British Geological Society. Retrieved from http://mapapps.bgs.ac.uk/hydrogeologymap/hydromap.html

SEPA (2014). Flood risk management maps. Stirling: Scottish Environment Protection Agency. Retrieved from http://map.sepa.org.uk/floodmap/map.htm

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APPENDICES

A SITE PHOTOS

1. Aerial Imagery (credit: Google Earth Pro, 2022)	
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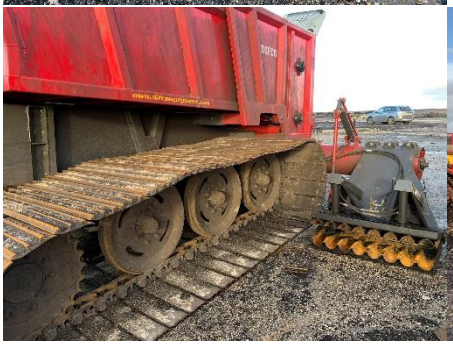
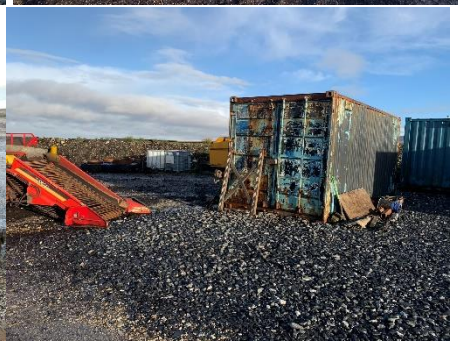
3. Typical plant and storage area	   
4. Substrates over central active area, exposed by previous peat harvesting.	

5. Access track and wind turbine	
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7. Intercepting ditch upslope of active area	

8. Main ditch downslope of active area	
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11. Bog pools along eastern side of southern area	
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B PRELIMINARY ECOLOGICAL APPRAISAL

Castlehill, Islay
Preliminary Ecological Appraisal

March 2023

CONTROL SHEET

Client:	Diageo
Project Title:	Castlehill, Islay
Report Title:	Preliminary Ecological Appraisal
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Project number:	1/76857
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Author:	Mhairi Mackintosh
Checked By:	Aisling Wallace
Approved By:	Gemma Nixon
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2			

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EXECUTIVE SUMMARY

EnviroCentre Ltd were commissioned by Diageo to undertake a Preliminary Ecological Appraisal (PEA) of the site referred to as Castlehill, Islay. The survey is required to inform an application to renew the licence for peat extraction at the site. The aim of the appraisal was to identify baseline ecological conditions, in terms of habitats present and evidence of protected and notable species which may be affected by the extended peat extractions.

No statutory or non-statutory designated sites are present within or adjacent to the site boundary. Eilean na Muice Duibhe SSSI, SAC and SPA are located 2km to the northwest of the site and Laggan Peninsula and Bay SSSI and SPA are 3.5km to the west. Both the designated sites are connected to Castlehill via watercourses.

Habitat on the site is predominantly degraded blanket bog which has either been cut over for peat extraction or has a series of grips installed for drainage. There is also upland flushes, fens and swamp and calcium rich spring water-fed fens (potential Ground Water Dependent Terrestrial Ecosystems (GWDTEs)) around the headwaters of the various watercourses which arise within or to the east of the site.

The habitats on site are suitable for otter, breeding and foraging birds, amphibians and reptiles. The site has low suitability for foraging bats and there is limited opportunities for roosting bats within a derelict farmhouse in the south of the site. The watercourses on site may also provide suitable habitat for fish species such as salmon, lamprey and eels.

A full list of potential impacts can be found in section 4.1 however most relate to the loss and/or degradation of the habitats themselves which are of national and international importance and subsequent effects on the species which occupy those habitats.

An NVC survey is recommended to identify the plant communities and any notable species which may need further consideration as well as inform assessment of GWDTEs. Breeding bird surveys are also advised to inform the impact assessment and mitigation strategies for the avoidance of impacts to breeding birds.

Mitigation recommendations designed to avoid and minimise impacts are provided in 5.1. These include the production of a peat management and restoration plan (including monitoring), a surface water management plan, retention of GWDTEs with appropriate buffer zones and retention of the derelict farmhouse.

Opportunities for delivering biodiversity gain from the project have been identified and include off-site agreements to restore additional areas of peat, removal of defunct post and wire fencing on the site which is a risk to wildlife, riparian tree planting, a herbivore management plan and habitat creation on other land-holdings on the island.

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1 INTRODUCTION

1.1 Terms of Reference

EnviroCentre Ltd were commissioned by Diageo to undertake a Preliminary Ecological Appraisal (PEA) of the site referred to as Castlehill, Islay. The survey is required to inform an application to renew the licence for peat extraction at the site, and the associated Environmental Impact Assessment (EIA) and Peat Restoration Plan.

The 'site' is defined as the area demarcated by the red line boundary as shown in Appendix A. The 'survey area' constitutes the area of the site plus appropriate buffers.

The results and recommendations in this document relate to the site boundary as provided by the client at the time of the survey.

1.2 Scope of Report

The aim of the survey was to establish an ecological baseline and determine important ecological features which may be affected by the proposed renewal of the peat extraction licence. The main objectives were as follows:

- Conduct a desk study to gather pre-existing data relating to the site;
- Identify and map all broad habitat types within the site and appropriate buffers, including any potential Ground Water Terrestrial Ecosystems (GWDTEs) and identify any Invasive Non-Native Species (INNS);
- To identify suitable habitat for protected or notable faunal species;
- To search for field evidence of a range of protected species or notable faunal species which may frequent the site;
- Identify potential impacts to ecological features associated with the proposed works.
- Identify any additional surveys that may be required to inform further site assessment and protected species licensing;
- Identify mitigation measures which can be incorporated during works to avoid and minimise negative impacts; and
- Outline potential enhancements which could be made to deliver biodiversity gain.

1.3 Site Location

The site is located within Castlehill Moss, an area of blanket bog on the island of Islay (Argyll and Bute). It is located south-east of Glenegedale and Glenegedalemoor, north of the Leorin Lochs. The study site lies between the B8016 road in the west and a range of hills to the east which include Beinn Sholum, Beinn Uraraidh and Beinn Bhan. It slopes consistently from between c.160m above sea level (asl) in the east down to c.110m asl in the west. The surrounding landscape is dominated by low intensity pastoral agriculture and open moorland, and there are a small number of rural dwellings to the west of the B8016 road. Islay airport is situated c.4km to the west.

1.4 Project Description

The site is owned by NatureScot and is leased to Diageo for extraction of peat to be utilised in the barley malting process which is key to the Island's whisky industry. The total site area is c.4.5ha with extraction activities currently taking place within 0.7 ha. The existing licence for mineral extraction at the site is coming up for renewal. It is understood Argyll & Bute Council consider the Castlehill site to constitute a Schedule 1 development under The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations, 2017. As such it will be subject to the Environmental Impact Assessment Process.

1.5 Legislation

European and national legislation, planning policies, conservation initiatives and general guidance relevant to this study include:

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Water Framework Directive (2000/60/EC);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Nature Conservation (Scotland) Act 2004;
- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE);
- The Protection of Badgers Act 1992 (as amended by the WANE Act 2011);
- The British Standard for Biodiversity;
- The UK Biodiversity Action Plan (UK BAP);
- The Scottish Biodiversity Strategy;
- Scottish Planning Policy (2014);
- Argyll and Bute Local Biodiversity Action Plan (LBAP)[1]; and
- Argyll and Bute Local Development Plan[2]

A summary of protected species legislation is provided in Appendix B.

1.6 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre Limited.

If this report is to be submitted for regulatory approval more than 12 months following the report date, it is recommended that it is referred to EnviroCentre Limited for review to ensure that any relevant changes in data, best practice, guidance or legislation in the intervening period are integrated into an updated version of the report.

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[1] The Argyll and Bute Local Biodiversity Action Plan 2010 – 2015. Available online at: https://www.argyll bute.gov.uk/sites/default/files/Unknown/AandB%20BAP%20Draft.pdf (Accessed 11th November 2022)
[2] The Argyll and Bute Local Development Plan 2015. Available online at: https://www.argyll-bute.gov.uk/ldp (Accessed 11th November 2022)

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2 METHODOLOGY

2.1 Desk Study

To anticipate the potential ecological sensitivities at the site, a desk study was conducted in advance of the field survey, in November 2022. The following sources were checked:

- NatureScot Sitelink website[3] for statutory designated sites potentially connected to the site;
- Argyll and Bute Local Development Plan for non-statutory designated sites up to 2km from the site;
- The National Biodiversity Network (NBN) Atlas of Scotland[4] for appropriately licensed records of protected or notable species within 2km of the development site;
- The Islay Natural History Trust species lists for the Island[5]; and
- The Scottish Biodiversity List[6] (SBL) and the Argyll and Bute LBAP for national and local priority habitats and species.

2.2 Field Survey

All field survey work was undertaken by EnviroCentre Lead Senior Ecologist Mhairi MacKintosh who is a member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). The survey focussed on plants and habitats on the site and faunal species most likely to be found in the habitats which make up the landscape in and around the site. The survey was undertaken on 15th and 16th November 2022. Conditions over the two days were changeable, between dry with sunshine to overcast and wet. The average air temperature during the surveys was 10°C. The weather in the week pre-ceding the survey was largely wet and water levels and across the site were high at the time of survey.

Table 2-1 provides an overview of the area surveyed for specific habitats, species, and species groups. Detailed methods regarding habitat and species surveys are provided below.

Table 2-1: Survey Areas

Habitat/Species/Species Group	Survey Area
UK Habitat Classification Survey (UKHabs)	Site + 250m buffer
Groundwater Dependent Terrestrial Ecosystems	Site + 250m buffer
Invasive Non-Native Species	Site + 50m buffer
Bats (*Chiroptera spp.*)	Site + 50m buffer
Otter (*Lutra lutra*)	Site + 250m buffer
Birds	Site
Reptiles	Site
Amphibians	Site

2.2.1 UKHab

A UKHab Survey was carried out in accordance with the user manual[1]. UKHab is a hierarchical system for rapidly recording and classifying habitat via satellite imagery and field survey. The system comprises 5 levels of Primary Habitats which include ecosystems, broad habitats, priority habitats and

[3] NatureScot (2009). SiteLink, available from https://sitelink.nature.scot/map (accessed November 2022).
[4] NBN Atlas occurrence download at NBN Atlas accessed on .
[5] Islay Natural History Website available at: https://www.islaynaturalhistory.org/resources (accessed 11th November 2022).
[6] Available from: https://www2.gov.scot/Resource/0041/00419456.xls (accessed November 2022).

Annex I habitats, along with non-hierarchical secondary codes which provide information on the environment, management and origin of Primary Habitats. The secondary codes are also used to map habitat mosaics and identify notable species features. The information collected is used to identify ecologically sensitive features and recommend mitigation and enhancement measures in connection with a proposed development.

The surveyor utilised the UKHab Professional edition with a Minimum Mapping Unit (MMU) of 2500m^2 and aimed to categorise habitats to level 4. Where the level 4 habitat could not be determined due to a lack of indicative species, habitats were categorised to the broader level 3 habitat.

The information is used to identify ecologically sensitive features/habitats, inform relevant species surveys and, aid in the recommendation of mitigation and enhancement measures in connection with a proposed development.

2.2.2 Groundwater Dependent Terrestrial Ecosystems

The Functional Wetland Typology[7] (FWT) was used to aid the identification of wetland habitats that derive their water from groundwater and surface water. This information is useful in identifying if and where further surveys are required to identify the presence and potential sensitivity of Groundwater Dependent Terrestrial Ecosystems (GWDTEs). To help assess ground water dependency, observations of local topography, underlying geology, and features such as springs, diffuse ground water emergence and floristic indicators of base enrichment were made.

2.2.3 Invasive Non-Native Species

The survey included a check for the presence of any invasive non-native species (INNS) including but not limited to the following:

- Japanese knotweed (*Reynoutria japonica*);
- Giant hogweed (*Heracleum mantegazzianum*); and
- Himalayan balsam (*Impatiens glandulifera*).

2.2.4 Bats

An assessment was undertaken in accordance with the criteria set out by the Bat Conservation Trust (BCT)[8]. The suitability of roosting, commuting and foraging habitats was classified according to the criteria in Table 2-2 below.

[7] SNIFFER (2009). WFD95: A Functional Wetland Typology for Scotland; Project Report. Edinburgh: SNIFFER. (accessed November 2022)
[8] Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. (London The Bat Conservation Trust, Ed.) (3rd ed.). (accessed November 2022)

Table 2-2: Suitability Classification of Roosting, Commuting and Foraging Habitats for Bats

Suitability	Roosting Features	Foraging and Commuting Habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edges. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. The site is close to and connected to known roosts.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and/or surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis; or A tree of sufficient size and age to contain potential roost features but with none seen from the ground; or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or a patch of scrub.
Negligible	A structure or a tree with negligible features likely to be used by roosting bats.	Negligible habitat features likely to be used by foraging or commuting bats.

Potential Roosting Features (PRFs) in structures are listed in Table 2-3 below.

Table 2-3: PRFs in Structures Frequently Used by Bats for Roosting

PRFs in trees frequently used as bat roosts	Access points in structures frequently used as bat roosts	Frequently used roosting locations in structures
Hollows and cavities from woodpecker, rot and knot holes	Gaps in windowsills and windowpanes	Top of chimney breasts, gable ends and dividing walls
Hazard beams and other vertical or horizontal cracks and splits in stems or branches	Underneath peeling paintwork or lifted rendering	All beams and roof beams (ridge, hip etc.)
Partially detached plated bark	Behind hanging tiles, weatherboarding, eaves, soffit boxes, fascias and lead flashing	Junction of timber joints, mortise and tenon joints
Cankers, included bark and compression forks with potential cavities	Under tiles and slates	Behind purlins
Partially detached ivy with stem diameters in excess of 50mm	Gaps in brickwork and stonework	Between tiles/slates and the roof lining
Bat or bird boxes	Gaps in rendering behind gutters	Under flat roof materials

2.2.5 Otter

The otter survey followed best practice guidelines[9], and aimed to identify suitable otter habitat and field signs, including:

- Spraints (otter faeces/droppings used as territorial signposts. Often located in prominent positions and can be placed on deliberate piles of soil or sand). Three categories are used for describing otter spraint: Dried fragmented (Df); Dried intact (Di); and Not fully dry (Nd);
- Footprints;
- Feeding remains (can often be a useful indication of otter presence);
- Paths/slides (otter can often leave a distinctive path from and into the watercourse);
- Holts (underground shelter) are generally found:
    - Within trees roots at the edge of the bank of a river;
    - Within hollowed out trees;
    - In naturally formed holes in the river banks that can be easily extended;
    - Or preferably in ready-made holes created by other large mammals such as badger setts, rabbit burrows or outlet pipes; and
- Couches/lay-ups (couches or lay-ups are places for lying up above ground are usually located near a watercourse, between rocks or boulders, under dense vegetation).

2.2.6 Birds

Habitats within the survey area were assessed for their suitability to support breeding, foraging and over wintering birds. Observations of birds were also noted during the survey.

2.2.7 Amphibians

Guidance[10, 11] was used to identify direct evidence of amphibians and to assess the suitability of the habitats for amphibians as follows:

- Direct sightings of amphibians (including spawn, tadpoles, toad/froglets and adults);
- Suitable aquatic habitat: medium (10 – 100m^2) or large (> 100m^2) ponds, on or within 500m of the site; and
- Suitable terrestrial habitat: lightly grazed pasture, scrub, open woodland, gardens and moors.

2.2.8 Reptiles

An assessment of the suitability of the habitats for reptiles was undertaken in accordance with the criteria set out by Amphibian and Reptile Conservation[12]. This considers habitat type, basking and foraging opportunities, and linkages to other areas of potential reptile habitat. The quality of the reptile habitat was assessed using the following criteria:

- High – Suitable vegetation cover offering foraging opportunities, basking sites and a variety of refugia. Good linkages with other areas of reptile habitat. For example, semi-improved grassland with areas of dense continuous scrub.

[9] Chanin, P. (2003). *Monitoring the Otter Lutra Lutra. Conserving Natura 2000 Rivers, Monitoring Series (No. 10).* Peterborough: EN, CCW, EA, SEPA, SNH & SNIFFER. (accessed November 2022)
[10] McInerny, C. & Minting, P. (2016) *The Amphibians and Reptiles of Scotland.* (accessed November 2022)
[11] Beebee TJC, Griffiths RA (2000) *Amphibians and reptiles*. HarperCollins, vol 270. New Naturalist, London (accessed November 2022)
[12] Edgar, P., Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth (accessed November 2022)

- Moderate – Some suitable vegetation cover offering foraging opportunities, basking sites and refugia. Limited linkages to other areas of suitable reptile habitat. For example, dense continuous scrub surrounded by short, improved grassland.
- Low – Unsuitable vegetation cover with no linkages to other areas of suitable reptile habitat. For example, dense mature conifer plantation, closely mown amenity grassland.

In addition, direct sightings of reptiles, and features that offer suitable hibernation refugia (e.g., dry stone walls, vegetated stone piles containing cavities etc.) were recorded.

2.3 Constraints

2.3.1 Desk Study

Desk studies are limited by the reliability of third-party information and the geographical availability of biological and/or ecological records and data. This emphasises the need to collate up-to-date, site-specific data based on field surveys by experienced surveyors. The absence of a species from biological records cannot be taken to represent actual absence. Species distribution patterns should be interpreted with caution as they may reflect survey/reporting effort rather than actual distribution.

2.3.2 Field Survey

The field work was conducted outside the optimum period for botanical surveys. As such it is considered that individual notable species may have been missed. Sufficient data was collected to identify the broad habitats present within the site though.

Direct access to the site north of Torra River and South of the Alt nan Airighean was not possible as no safe access across the watercourses could be found. Access was also limited to the buffer area south of the site due to the presence of a deer fence. These areas were appraised via binoculars and whilst some direct evidence of protected species may have been missed, enough of the area could be seen to assess the broad habitats present and their suitability to host notable species.

High levels of rainfall during and pre-ceding the field work may have washed away evidence of protected species such as otter spraints.

2.4 Evaluation of Ecological Features

European, national and local governments and specialist organisations have together identified a large number of sites, habitats and species that provide the key focus for biodiversity conservation in the UK and Ireland, supported by policy and legislation. These provide an objective starting point for identifying the important ecological features that need to be considered. A geographical level of importance, as described in Appendices C and D, has been assigned to the designated sites, habitats and species identified on the site and in the survey area. Where a feature is important at more than one level in the table, its overriding importance is that of the highest level. Usually only the highest level of legal protection is listed.

3 RESULTS

3.1 Designated Sites

No statutory or non-statutory designated site are present within or adjacent to the site boundary. Two sites with various statutory designations are present within 5km of the site. The location of the designated sites is presented in Appendix E. Due to the European designations the sites are considered of international importance.

Site[13]	Designated Site Features	Connectivity to Site
Eilean na Muice Duibhe SSSI, SAC and SPA	Blanket Bog (SSSI + SAC) Depressions on Peat Substrates (SAC) Greenland White-fronted Goose, non-breeding (*Anser albifrons*) (SSSI and SPA)	The site is situated 2km northwest of Castlehill and is hydrologically connected via the Torra River, which flows along the northern extent of Castlehill, into the Duich River which flows along the southern extent of the designated site. It is also within flight distance of Greenland White-fronted Goose.
Laggan Peninsula and Bay SSSI and SPA	Blanket Bog (SSSI) Sand Dunes (SSSI) Greenland Barnacle Goose (*Branta leucopsis*), non-breeding (SSSI and SPA) Greenland White-fronted Goose, non-breeding (SSSI and SPA)	The site is situated 3.5km to the west of Castlehill. Castlehill is connected to the site via the various watercourses which flow through the site and into Laggan Bay in the west. Castlehill is also within flight distance of geese species present within the designated site.

3.2 Habitats

A summary of the habitats present within the site can be found in Table 3-1, with further description below. The UKHab plan can be found in Appendix F, with Target Note (TN) descriptions and photographs in Appendix G and additional Photographs in Appendix H.

Table 3-1: On-Site Habitats

Habitat Type	Habitat	Primary Codes	Secondary Codes
Wetland	Degraded blanket bog	f1a6	83 - Grips
	Degraded blanket bog	f1a6	85 – Cut over peat
	Degraded blanket bog	f1a6	12 – Scattered bracken 14 – Scattered rushes
	Upland flushes, fens and swamps	f2c	186 – Surface flush, rill or soakaway
	Calcium-rich springwater-fed fens; upland [H7230]	f2c7	
Rivers and lakes	Rivers (Priority habitat)	r2a	

[13] Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA).

3.2.1 Degraded Blanket Bog

The predominant habitat across the site and survey buffer area is degraded blanket bog. Blanket bogs are characterised by water-logged vegetation formed over peat deposits typically over 0.5m deep. Degraded blanket bogs include those where peat forming *Sphagnum* species have largely disappeared due to management such as fire, drainage or peat cutting.

The central area of the site comprises blanket bog which has been stripped for peat extraction (Photo 1). There is limited vegetation within this area with multiple drainage channels having been cut to dry the peat surface and manage surface water run-off.

The areas to the north and south of the site are still vegetated, with habitat dominated by purple moor-grass (*Molinea caerula*) (Photo 2). Associated species include frequent cross-leaved heath (*Erica tetralix*) and tormentil (*Potentilla erecta*). Ling (*Calluna vulgaris*), bog myrtle (*Myrica gale*) and hare's tail cotton-grass (*Eriophorum vaginatum*) are present occasionally. Heath milkwort (*Polygala serpyllifolia*) occurs rarely. There are patches of wetter ground and runnels which also have frequent common cotton-grass (*Eriophorum angustifolium*) and bog asphodel (*Narthecium ossifragum*). Due to the dominance of purple moor-grass and associated litter the moss layer is sparse throughout much of the site, however red stemmed feather-moss (*Pleurozium scherberi*), heath plait-moss (*Hypnum jutlandicum*) and acute leaved bog-moss (*Sphagnum capillifolium*) can be found occasionally.

Where the larger watercourses flow through the site the valley sides are comprised of blanket bog vegetation alongside scattered rushes and bracken (*Pteridium aquilinum*).

A network of historic and more recently dug drainage ditches are present to the north and south of the current extraction area. Historically the site was likely drained to facilitate livestock grazing. There is a derelict croft 'Castlehill' in the south of the site with livestock pens in the surrounding area suggesting sheep and/or cattle would have been present in the past. Defunct livestock fencing is also present around the site (TN 6 and 17). The more recently installed ditches have been cut to facilitate future peat extraction.

Dwarf shrubs across the site were noted to be displaying signs of moderate to heavy browsing (TN 3 and 8), most likely by deer.

A couple of small patches of magellanic bog-moss (*Sphagnum magellanicum*) and papillose bog-moss (*Sphagnum papillosum*) (TN 2 and 7) were found to the south of the Usige Fuar. These species are important for peat formation and suggest at least part of the bog is in reasonable condition and could be restored.

Blanket bogs are an Annex I habitat and considered to be of international importance.

3.2.2 Upland Flushes, Fens and Swamps

Upland flushes are present within the north, east and southern reaches of the site, around the headwaters of the watercourses (TN Photos 13, 21, 22 and 24). This habitat is comprised of waterlogged vegetation where water can be derived from groundwater or slow-moving rainwater.

The dominant species varied within the flushes but generally comprised sharp-flowered rush (*Juncus articulates*) or soft rush (*Juncus effusus*) alongside purple moor-grass. Sedge (*Carex spp*) species are present occasionally along with bent grasses (*Agrostis spp*) and Devil's-bit scabious (*Succisa pratense*). Marsh St Johns Wort (*Hypericum elodes*) was found rarely.

Upland flushes, fens and swamps is an SBL habitat considered to be of national importance.

3.2.3 Calcium-rich Springwater-fed Fens; Upland [H7230]

Calcium-rich spring water-fed fens are also present around the headwaters of watercourses within the north and south east of the site as well as the north west (TN Photos 11, 14, 16 and 23). The habitat is comprised of species which favour alkaline conditions usually associated with groundwater upwelling.

The dominant species present is black bog rush (*Schoenus nigricans*) with carnation sedge (*Carex panicea*), devil's-bit scabious and bog pimpernel (*Anagallis tenella*) occurring occasionally. Alpine meadow-rue (*Thalictrum alpinum*) is present rarely. Within the moss layer, yellow starry feather-moss (*Campylium stellatum*) and hooked scorpion-moss (*Scorpidium scorpioides*) are both present frequently.

Calcium-rich springwater-fed fens; upland are included within the Annex I habitat Alkaline fens and are considered to be of international importance.

3.2.4 Rivers (Priority Habitat)

There are several watercourses which flow through the site from east to west. The two largest watercourses, The Torra River and Alt nan Airighean, are located in the north and south of the site respectively (Photos 3 and 4). These are c. 3-5m wide and variable depth with a stoney bed substrate in places. The remaining watercourses (Uisge Fuar, Caol Abhainn and minor tributaries) are smaller (eg. Photo 5), typically 1-2m wide and although there are some stoney areas, the bed substrate is mostly mud. The banks are all similar with shallow slopes and vegetated with a mixture of purple moor-grass, soft rush or bracken dominated areas. Flows at the time of survey were fast but rainfall had been high in days leading up to and including the survey. There were no obvious alterations or modifications to the watercourses.

Rivers are an SBL priority habitat and are of national importance.

3.3 GWDTEs

The Upland flushes, fens and swamps habitat and the Calcium-rich springwater-fed fens represent the functional wetland typology category '3d Seepages/flushes'. As described in section 3.2.2 and 3.2.3 above these habitats can indicate the presence of ground water.

3.4 INNS

No INNS were identified from the desk study or during the field survey.

3.5 Protected Species

Target Notes relating to protected species can be found in Appendix F and G, with additional photographs in Appendix H.

3.5.1 Disclaimer

Faunal species are transient and can move between favoured habitats regularly throughout and between years. This survey provides a snapshot of field signs present in the survey area in November 2022.

3.5.2 Bats

No records of bats were returned from the desk study. Common and soprano pipistrelles (*Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*) and brown long-eared bats (*Plecotus auritus*) are the only bats regularly found on the island, but they are not abundant.

The blanket bog and watercourses within the site are likely to host insects such as midges and moths which are favoured prey items of bat species present on the island. The site is quite exposed however with no tree cover or hedgerows connecting it to more suitable habitat or potential roosting sites. It is therefore considered to be of **low suitability; "***Suitable but isolated habitat that could be used by small numbers of foraging bats*."

The only structure within the site is the derelict croft in the south (TN15). Woodwork within the property has rotted and there is no roof or windows remaining. The walls are unrendered stone, open to the elements but contain some small gaps suitable for individual roosting bats, however the low suitability of surrounding habitat and exposed nature of the site reduce likelihood of these being utilised. It is c.2km from the closest settlement with other properties more suitable for bats. It is considered that the property is of **low suitability** to host roosting bats; "*A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis*."

All UK bat species are European Protected Species (EPS) and are therefore of international importance.

3.5.3 Otter

The NBN Atlas search identified 2 historic records of otter between 1978 and 1991 approximately 1km west of the site. There is a known otter population present on the island, however.

No evidence of otter was identified during the survey, however the habitats within the site provide suitable foraging ground with prey items such as fish, amphibians, ground nesting birds and small mammals likely present. Areas of tall grass, rush vegetation and the derelict building may provide suitable above ground rest sites.

Otter are European Protected Species (EPS) and are therefore of International Importance.

3.5.4 Birds

The desk study identified several historic protected bird records within 3km of the site. Notable species are presented in Table 3-2 below with those considered to be relevant to the site highlighted in bold.

Table 3-2: Protected Bird Species Within 3km of Site

Species	Designation
Starling (*Sturnus vulgaris*)	BOCC – *Red list*[14]
Whooper Swan (*Cygnus cygnus*)	BOCC – *Amber list*[15]
Manx Shearwater (*Puffinus puffinus*)	BOCC – *Amber list*
Corncrake (*Crex crex*)	BOCC – *Red list*
Oystercatcher (*Haematopus ostralegus*)	BOCC – *Amber list*
Lesser Redpoll (*Acanthis cabaret*)	BOCC – *Red list*
Snipe (*Gallinago gallinago*)	BOCC – *Amber list*
Whinchat (*Saxicola rubetra*)	BOCC – *Red list*
Curlew (*Numenius arquata*)	BOCC – *Red list*
Barn Owl (*Tyto alba*)	BOCC – *Green list*[16]
Reed Bunting (*Emberiza schoeniclus*)	BOCC – *Amber list*
Lapwing (*Vanellus vanellus*)	BOCC – *Red list*
Redshank (*Tringa totanus*)	BOCC – *Amber list*

There is suitable breeding habitat on site for a variety of ground nesting passerines and waders within the blanket bog habitat. The habitat is also likely to support a range of insects and small mammals and so is considered suitable for foraging raptors, passerines and waders throughout the year. The site is not likely to be an important site for most migratory geese and swans who prefer more palatable improved pasture and arable land. Greenland white-fronted Geese are known to roost on peatland nearby (the SPAs) however there is no record of them utilising Castlehill.

The following species were observed during the field survey:

- Golden Plover (*Pluvialis apricaria*), (Annex I);
- Snipe (*Gallinago gallinago*), (Amber listed);
- Hen Harrier (*Cicus cyaneus*) (Annex I);
- Wren (*Troglodytes troglodytes*), (Amber listed);
- Raven (*Corvus corax*), (Green listed); and
- Grey Heron (*Ardea cinerea*), (Green listed).

Additionally, nesting material was identified within the open chimney flue within the derelict property within the south of the site. Old pellets (c.5) containing fur and bones of small mammals (TN15) were also found within the building. Due to the size of these (c. 10 x 4 cm) it is considered that they likely were produced by a large raptor or other predatory bird such as an owl.

Birds of international, national, regional and local importance are present within the site.

3.5.5 Amphibians

No records of amphibians were returned during the desk study.

The habitat on site is suitable for both common frog (*Rana temporaris*) and common toad (*Bufo bufo*). Much of the site is wet with watercourses and bog pools providing suitable breeding habitat. There is

[14] Red-list criteria - Globally threatened, historical decline in the breeding population, severe breeding population decline over 25 years/longer term, severe non-breeding population decline over 25 years/longer term, severe breeding range decline over 25 years/longer term, severe non-breeding range decline over 25 years.
[15] Amber-list criteria - Threatened in Europe, historical decline – recovery, moderate breeding population decline over 25 years/longer term, moderate non-breeding population decline over 25 years/longer term, moderate breeding range decline over 25 years/longer term, moderate non-breeding range decline over 25 years, breeding/non-breeding rarity, breeding/non-breeding localisation, breeding/non-breeding international importance.
[16] Green list criteria: naturally occurring species with self-sustaining populations meeting none of the criteria for BOCC Amber or Red list species.

suitable foraging habitat throughout the site as well as shelter within tussocky grasses, under heather and bracken.

Common toad are listed as priority species on the SBL and as such are considered of national (Scotland) importance.

Common frog are a common and widespread species and considered to be of site importance.

3.5.6 Reptiles

No records of adder or common lizards were returned during the desk study.

The habitats present on site are considered to be moderately suitable for reptiles. Prey items such as small mammals and insects are likely to be present and provide good foraging opportunities. Although the structure of the blanket bog is largely uniform, some variation is provided with more open *Sphagnum* hummocks suitable for basking and tussocky grass, dwarf shrub and areas of bracken which could be utilised as refugia. A derelict stone dyke within the south east of the site (TN9), on a south facing slope, which could be used as a hibernacula.

Adder and common lizard are listed as priority species on the SBL and as such are considered of national importance.

3.5.7 Other Observations

The watercourses within the site are considered to offer suitable habitat for the following fish species:

- Atlantic salmon (*Salmo salar*);
- River lamprey (*Lampetra fluviatilils*);
- Brook lamprey (*Lampetra planeri*);
- Sea lamprey (*Petromyzon marinus*); and
- Eel (*Anguilla anguilla*).

The Torra River which flows through the northern reaches of the site is connected to the Laggan River which is a known salmon fishery and contains suitable spawning habitats.

These fish are all SBL priority species and considered to be of national importance.

4 POTENTIAL IMPACTS, FURTHER SURVEY AND LICENSING

4.1 Potential Impacts

4.1.1 Designated Sites

Both designated sites are connected to the site hydrologically via watercourses originating in the site. There is therefore potential for them to be affected by changes to surface water flows, silt or sediment discharge or chemical spills. These could affect both the habitat and geese features the sites are designated for.

4.1.2 Habitats

The following potential effects may occur without appropriate mitigation in place:

- The blanket bog, Upland flushes, fens and swamps, and Calcium-rich springwater-fed fens within the site may be removed permanently or temporarily (depending on re-instatement) because of vegetation removal to facilitate peat extraction.
- Habitats within and adjacent to the site may become degraded and lose species and/or functionality as a result in changes to both surface and ground water flows relating to increased drainage and peat removal.
- Damage may occur due to inappropriate plant movements, material storage or pollution events.
- Watercourses may also become degraded as a result of increased sedimentation, changes to hydrological regimes and pollution incidents.

4.1.3 Protected Species

The following effects may occur to protected species for which there is suitable habitat on site:

- Loss of suitable foraging and resting habitat for otter, reptiles and amphibians within the peat extraction area.
- Loss of suitable breeding habitat for reptiles and amphibians.
- Loss of low suitability bat roost if the derelict croft is removed to facilitate extraction.
- Reduced quality of foraging and breeding habitat within and adjacent to the site as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Disturbance, death or injury to individuals as a result of vehicle or plant movements and/or pollution events such as fuel or oil spills.
- There are no predicted effects for hibernating amphibians and reptiles as works stop over the winter months when ground conditions are too wet for extraction works to continue.

4.1.4 Birds

It is predicted that the following effects could occur to birds utilising the site:

- Loss of nesting and foraging habitat within the area of peat extraction.
- Loss of nesting and roosting resource if the derelict croft is removed to facilitate extraction.

- Reduced quality of foraging habitat as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Disturbance or destruction of nests as a result of vehicle or plant movements within the breeding season.
- Disturbance, death or injury to individuals as result vehicle or plant movements and/or pollution events such as fuel or oil spills.
- It is considered that effects to over-wintering birds will be negligible as works stop over the winter months when ground conditions are too wet for extraction works to continue.

4.1.5 Fish

There is potential for the following effects to occur to fish which may be utilising watercourses within the site:

- Reduced habitat quality as a result of changes to hydrological regimes, increased sedimentation or pollution events such as fuel or oil spills.
- Loss of habitat or disruption to access upstream if any watercourse crossings are required for access.
- Disturbance, death or injury to individuals as result of pollution events such as fuel or oil spills.

4.2 Additional Survey Work

It is considered that there is sufficient data available from the baseline desk study and field survey to design mitigation for, and assess impacts to the designated sites, protected species and fish.

Further data is required in relation to terrestrial habitats to inform the impact assessment and design successful mitigation, restoration, monitoring and enhancement strategies. It is proposed that a National Vegetation Classification (NVC) survey is conducted within the optimum period (May – August) to identify the plant communities present and any notable species which may need further consideration. The NVC survey will also be required to feed into an assessment of ground water features. The survey will follow standard guidance Joint Nature Conservation Committee (JNCC) handbook[17] and will include potential ground water features up to 250m from the site boundary as per SEPAs guidance on GWDTE assessment[18].

Further survey will also be required to inform the impact assessment and mitigation strategies for the avoidance of impacts to breeding birds. Additional breeding bird surveys will follow the Brown and Shepherd walkover method, comprising of three survey visits.

If the derelict farmhouse requires demolishing, bat and bird roosting/nesting surveys should be conducted in advance to confirm the presence or absence of protected species and determine licensing requirements.

[17] Rodwell, J.S. (2006) *National Vegetation Classification: Users' Handbook*. JNCC Peterborough.

[18] Scottish Environment Protection Agency (SEPA) Land Use Planning System Guidance Note 31: Guidance on Assessing the Impacts of Development on Ground Water Abstractions and Ground Water Dependent Terrestrial Ecosystems Accessed online at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf (accessed November 2022)

5 MITIGATION AND OPPORTUNITIES FOR BIODIVERSITY ENHANCEMENT

5.1 Mitigation

The following broad mitigation strategies are suggested to avoid and minimise the risk of negative ecological outcomes listed in section 4.1. Further, more detailed, mitigation may be required following the recommended further surveys.

- Vegetation stripping should be kept to the absolute minimum required to facilitate peat extraction at any one time to reduce habitat loss and damage and aid surface water management.
- A peat management and restoration plan should be produced and implemented on site to minimise the damage to habitats present and aid successful re-instatement of vegetation. The restoration plan will follow guidance presented in the Peatland Action Technical Compendium[19] and include monitoring to assess success of restoration.
- A surface water management plan should also be adopted to avoid and minimise pollution to watercourses within the site.
- An Environmental Clerk of Works (EnvCoW) should be employed to audit implementation of the peat and surface water management plans at key points of delivery.
- A minimum 10m vegetated buffer should be maintained around all the watercourses.
- No excavations up to 1m deep should take place within 100m of the GWDTEs, or over 1m within 250m. If these buffer zones can't be maintained, then a hydrological risk assessment will be required to assess potential impacts ground water.
- If any watercourse crossings are required for site access they should be designed in such a way as to not block upstream access for any fish species which may be present. Construction methods will also need to be sensitive to fish presence with any crossings micro-sited to avoid key habitats such as gravel beds and timed to avoid sensitive breeding periods. Otter pre-checks are also advised.
- The derelict croft should be retained if possible to provide habitat for nesting and roosting birds as well as roosting bats.
- The stone dyke should also be retained if possible to provide habitat for hibernating reptiles and amphibians.
- It is likely that vegetation removal will be required within the breeding bird season (April – August) as ground conditions will be too wet outside of this. A breeding bird check should be conducted within 48hours prior to vegetation removal by a suitably experienced person and a buffer zone set up to avoid nest disturbance.
- Should Greenland white-fronted geese establish a roost within the site, disturbance would be minimised by avoiding work on site from one hour before dusk until one hour after dawn from October to April.

5.2 Opportunities for Biodiversity Gain

The following opportunities for biodiversity gain could be considered:

- As well as restoring the blanket bog within the site, off-site agreements to restore additional areas of peat could help to offset carbon emissions and damage to blanket bog habitat as a result of peat extraction.

[19] Available at: https://www.nature.scot/doc/peatland-action-technical-compendium (Accessed 14/03/2023)

- Defunct post and wire fencing on the site represents a risk to wildlife and could be removed to improve safety.
- Some of the riparian areas of the site could benefit from tree planting. Species such as willow (*Salix spp*) could be planted along the larger watercourses to provide shading for fish species such as salmon, as well as providing increased habitat for insects, birds and bats.
- A herbivore management plan (inclusive of deer management) could be implemented to reduce damage to the blanket bog habitat from browsing and to help any riparian tree planting become established.
- Option for biodiversity gains could be explored on other landholdings within the island. Actions could include creation of ponds or wildflower areas, provision of bird and bat boxes on trees or buildings as well as “bug hotels”.

APPENDICES

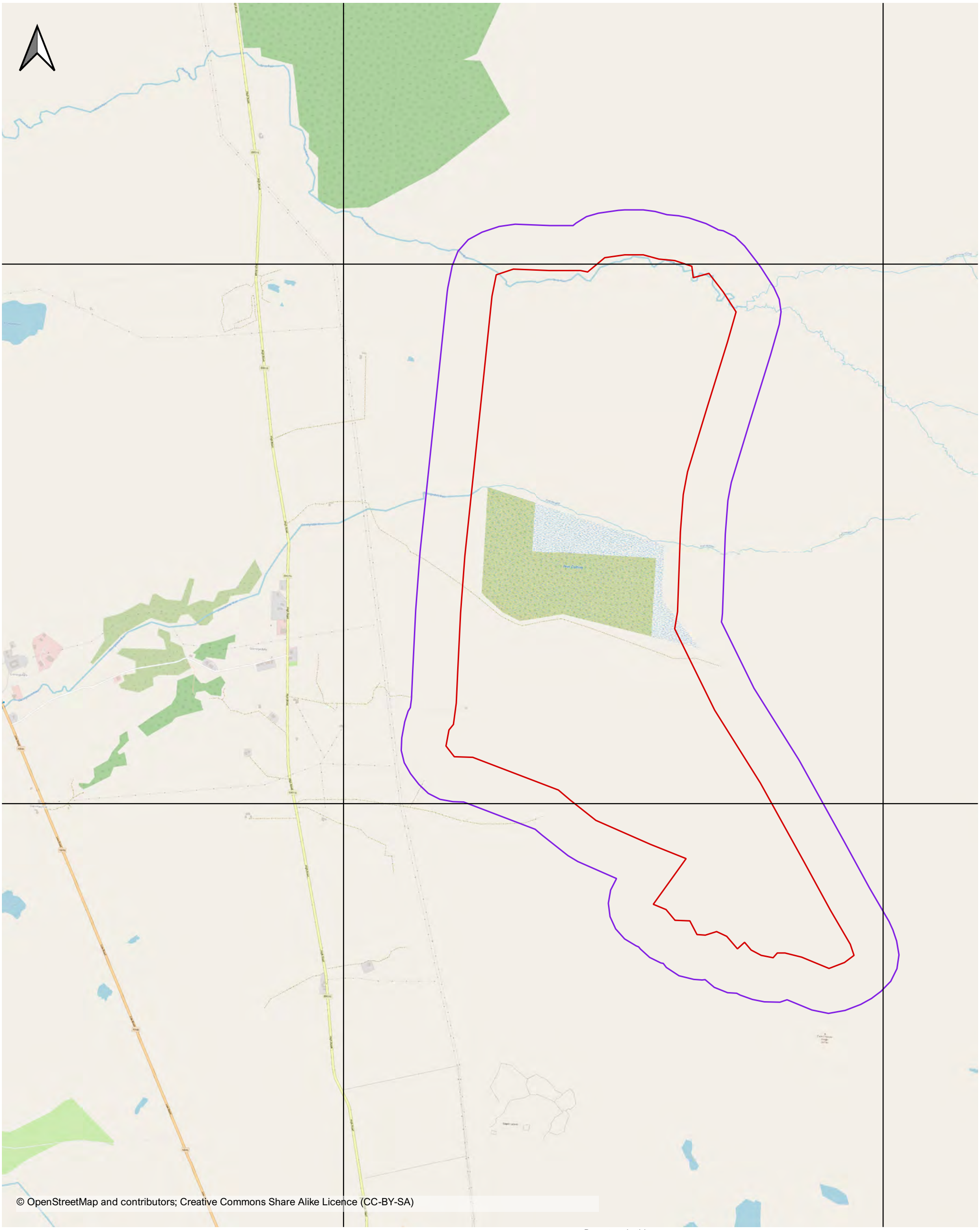
A SITE LOCATION

135000

138000

654000

651000



135000

Do not scale this map

138000

Legend

- 250m Survey Buffer
- Site Boundary

Client
Diageo

Project
Castlehill

Title
Site Location Plan

Scale
1:20,000 @ A3

Status
FINAL

Drawing No.	Revision	Date
176857-QGIS002	-	13 Dec 2022
Drawn	**Checked**	**Approved**
MM	ASH	GN

Rev	Date	Amendment	Initials
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B SUMMARY OF PROTECTED SPECIES LEGISLATION

European Protected Species – all bats & otter

European Protected Species (EPS) are protected under the Conservation (Natural Habitats &c.) Regulations 1994 (the "Habitat Regulations") as amended. Under this legislation it is an offence to deliberately or recklessly:

- capture, injure or kill such an animal;
- harass an animal or group of animals;
- disturb an animal while it is occupying a structure or place used for shelter or protection;
- disturb an animal while it is rearing or otherwise caring for its young;
- obstruct access to a breeding site or resting place, or otherwise deny an animal use of a breeding site or resting place;
- disturb an animal in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species;
- disturb an animal in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
- disturb an animal while it is migrating or hibernating;
- possess, control, transport, sell or exchange specimens of any animal listed on Annex IV of the Habitats Directive. This applies to living or dead specimens and to their derivatives.

It is an offence of strict liability to damage or destroy a breeding site or resting place of such an animal. These sites and places are protected even when the animal isn't present. For example, great crested newt ponds are protected all of the time as long as it can be shown that the newts use the ponds some of the time.

A licence may be issued to permit the otherwise unlawful activities listed above if these three tests are satisfied:

- There must be a licensable purpose which includes 'preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;'
- There is 'no satisfactory alternative'; and
- The derogation (i.e. any permission/licence granted) is 'not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range'.

Birds

All wild bird species in the UK are protected under the Wildlife and Countryside Act 1981 (as amended), with species listed on Schedules A1, 1 and 1A afforded additional protection.

For any wild bird species, it is an offence to intentionally or recklessly:

- kill, injure or take a bird;
- take, damage, destroy or interfere with a nest of any bird while it is in use or being built;
- obstruct or prevent any bird from using its nest;
- take or destroy an egg of any bird;
- possess or control a living or dead wild bird; and

- possess or control an egg of a wild bird (or any such derivatives).

For any wild bird species listed on Schedule 1, it's an offence to disturb:

- any bird while it is building a nest;
- any bird while it is in, on, or near a nest containing eggs or young;
- any bird while lekking; and
- the dependent young of any bird.

For any wild bird species listed on Schedule 1A, it's an offence to intentionally or recklessly harass any bird.

For any wild bird species listed on Schedule A1, it's an offence to intentionally or recklessly take, damage, destroy or interfere at any time with a nest habitually used by any bird.

Licences cannot be issued for the purpose of development in relation to any of the above offences.

Reptiles

Common lizards and adders are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under the legislation you are not permitted to intentionally or recklessly permit or cause the killing and injury of individuals.

Licences permitting otherwise unlawful acts in relation to the above are not available for development purposes.

Invasive Non-Native Species (Plants)

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant, or otherwise cause to grow, any plant in the wild at a location outside its native range.

'Native range' is defined in the 1981 Act as, "the locality to which the animal or plant of that type is indigenous, and does not refer to any locality to which that type of animal or plant has been imported (whether intentionally or otherwise) by any person."

The Scottish Governments Non-natives Code of Practice[20] defines 'in the wild'. Just about everywhere is wild except for:

- arable and horticultural land;
- improved pasture;
- settlements; and
- private and public gardens.

In exceptional circumstances it may be possible to obtain a licence from NatureScot to permit the above offence.

[20] https://www.gov.scot/publications/non-native-species-code-practice/

C GEOGRAPHICAL LEVEL OF IMPORTANCE OF ECOLOGICAL FEATURES

Level of Importance	Sites	Habitats	Species
International	Designated, candidate or proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; UNESCO (Ecological) World Heritage Sites; UNESCO Biosphere Reserves; Biogenetic Reserves.	A viable area of habitat included in Annex I of the EC Habitats Directive; a habitat area that is critical for a part of the life cycle of an internationally important species.	A European Protected Species; an IUCN Red Data Book species that is globally Vulnerable, Endangered or Critically Endangered; a Category A internationally important bryophyte assemblage[21].
National (UK)	Sites of Special Scientific Interest/Areas of Special Scientific Interest; National Nature Reserves; Nature Conservation Review Sites; Marine Conservation Zones (UK offshore).	An area of habitat fulfilling the criteria for designation as an SSSI/ASSI or MCZ; a habitat area that is critical for a part of the life cycle of a nationally important species.	An IUCN Red Data Book species that is Vulnerable, Endangered or Critically Endangered in the UK; a species that is Rare in the UK (<15 10km grid squares); a Schedule 5 (animal) or Schedule 8 (plant) species included in the Wildlife and Countryside Act 1981; any species protected under national (UK) legislation where there is the potential for a breach of the legislation; a Category A nationally important bryophyte assemblage[22]; a species that is Vulnerable, Endangered or Critically Endangered in The Vascular Plant Red Data List for Great Britain[23].
National	National Parks; Marine Protected Areas; Marine Consultation Areas.	Habitats of principal importance for biodiversity in the relevant countries[24], including; Scottish Biodiversity List (SBL) Priority Habitats and Priority Marine Features (PMFs)[25].	Species of principal importance for biodiversity in the relevant countries[26], including; SBL Priority Species and PMFs.
Regional	Regional Parks.	Regional Local	A species that is

[21] Averis, A.B.G, Genney, D.R, Hodgetts, N.G, Rothero, G.P. & Bainbridge, I.P. 2012. Bryological assessment for hydroelectric schemes in the west highlands – 2nd edition. Scottish Natural Heritage Commissioned Report No. 449b

[22] Averis, A.B.G, Genney, D.R, Hodgetts, N.G, Rothero, G.P. & Bainbridge, I.P. 2012. Bryological assessment for hydroelectric schemes in the west highlands – 2nd edition. Scottish Natural Heritage Commissioned Report No. 449b

[23] Cheffings, C.M. & Farrell, L. (eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005) *The Vascular Plant Red Data List for Great Britain. Species Status No. 7*. JNCC, Peterborough. Available at: https://hub.jncc.gov.uk/assets/cc1e96f8-b105-4dd0-bd87-4a4f60449907 (Accessed November 2022)

[24] These are all the habitats that were identified as requiring action in the UK Biodiversity Action Plan and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework, including any additions.

[25] In July 2014, Scottish Ministers adopted a list of 81 priority marine features (PMFs) – many of which are features characteristic of the Scottish marine environment. Most are on other conservation status lists so may be valued higher than this.

[26] These are all the species that were identified as requiring action in the UKBAP and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework, including any additions.

Level of Importance	Sites	Habitats	Species
		Biodiversity Action Plan habitats noted as requiring protection.	Nationally Scarce in the UK (present in 16-100 10km grid squares); a species that is included in the Regional LBAP; an assemblage of regionally scarce species.
County / Metropolitan	Woodland Trust Sites; Royal Society for the Protection of Birds Sites; Local Wildlife Sites.	County LBAP habitats noted as requiring protection; semi-natural, ancient woodland >0.25ha in extent.	A species that is included in the County LBAP; an assemblage of species that are scarce at the county level.
Local		Semi-natural, ancient woodland <0.25ha in extent;; semi-natural habitats that are unique or important in the local area;.	Species as defined by Local Authority lists (if available).
Site		Common and widespread habitats not covered above.	Common and widespread species not covered above.
Negative			An Invasive Non-Native Species (INNS) as defined by the GB Non-Native Species Secretariat (NNSS) and supported by the GB Invasive Non-native Species Strategy (2015); legally controlled species under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended by the relevant country legislation).

D GEOGRAPHICAL LEVEL OF IMPORTANCE OF ORNITHOLOGICAL FEATURES

Level of Importance	Assessment Criteria		
	Legal Protection	Conservation Status	Population Size
International	Any species within Annex 1 of the EU Birds Directive	Any species which is listed as Critically Endangered or Endangered on the IUCN Red List	Supporting greater than 1% of the EC population
National (UK)	Any species within Schedule 1 of the Wildlife and Countryside Act	Any species on the BoCC Red List	Supporting greater than 1% of the UK population
National (England)		Any species that is listed as Species of Principal Importance for Conservation;; any species on the BoCC Red List	Supporting greater than 5% of the English population
National (Scotland)		Any species on the Scottish Biodiversity List	Supporting greater than 5% of the Scottish population
National (Ireland & Northern Ireland)		Any species on the Birds of Conservation Concern in Ireland 2014-19 (BoCCI)	Supporting greater than 5% of the Irish population
National (Wales)		Any species in the Section 7 list of Species of Principal Importance for Conservation; Any species considered to be in decline in The State of Birds in Wales 2011 (SBW)	Supporting greater than 5% of the Welsh population
Regional		Any species on the BoCC Amber List	Supporting greater than 0.5% of the UK population
County		Any species that is listed as a Priority Species in the LBAP	Supporting greater than 0.05% of the UK population
Local		BoCC Green List; or species with no conservation concern; common and widespread throughout the UK	Supporting less than 0.05% of the UK population

E DESIGNATED SITES PLAN

132000 135000 138000

657000 654000 651000

Eilean na Muice Duibhe SSSI + SAC

Laggan Peninsula and Bay SSSI + SPA

Do not scale this map

Legend

- Site of Special Scientific Interest
- Special PRotection Area
- Special Area of Conservation
- Site Boundary

Client Diagio

Project Castlehill

Title Designated Site Plan

Scale 1:27,000 @ A3

Status FINAL

Drawing No.	Revision	Date
176857-QGIS003	-	13 Dec 2022
Drawn	**Checked**	**Approved**
MM	ASH	GN

Rev	Date	Amendment	Initials
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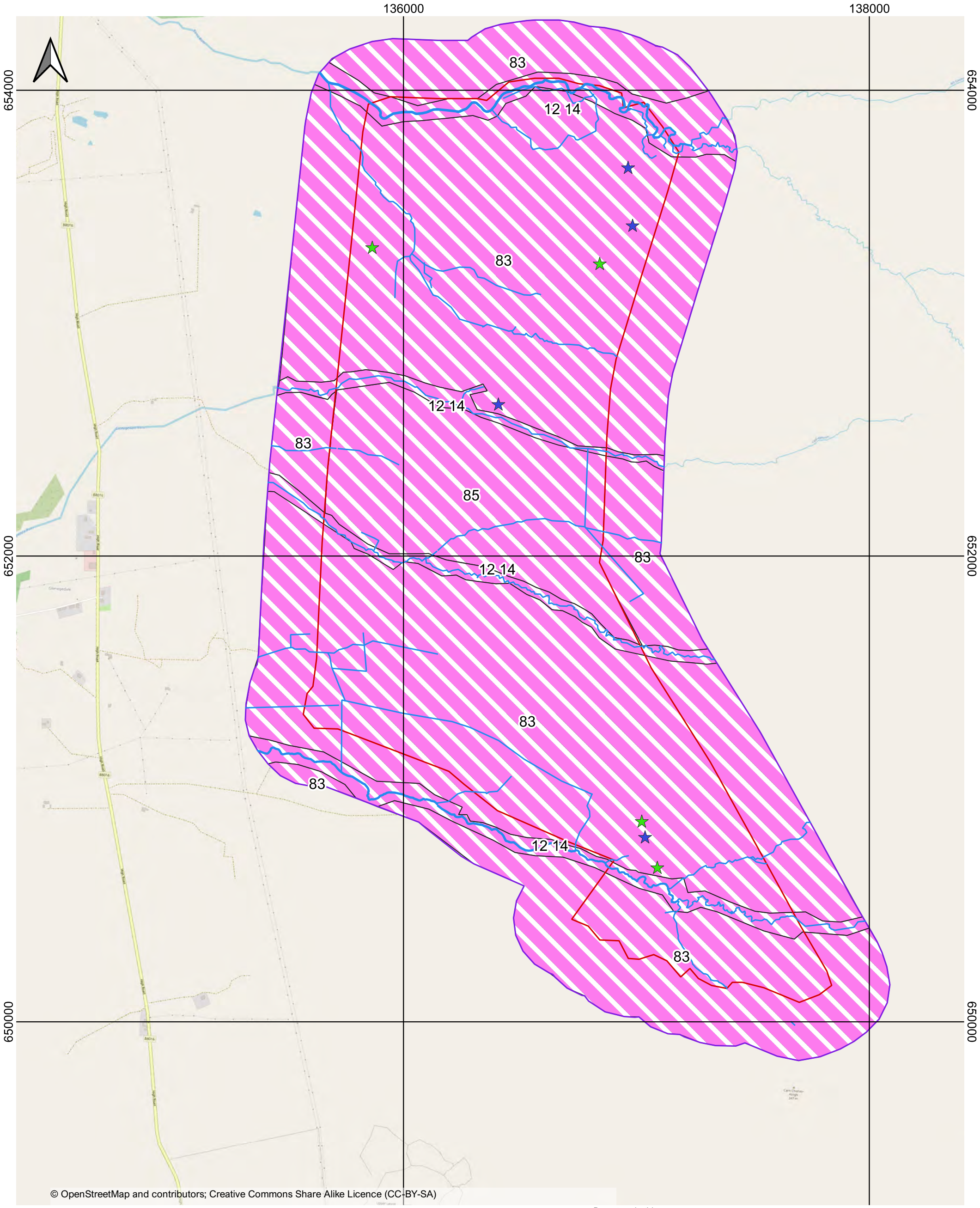
F HABITAT PLAN



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Legend

- Site Boundary

UKHab Classifications

- f1a - Blanket Bog
- f2c - Upland flushes, fens and swamps
- f2c7 - Calcium-rich springwater-fed fens; upland [H7230]
- r2a - Rivers (Priority Habitat)

Secondary Codes

- 12 - Scattered Bracken
- 14 - Scattered Rushes
- 83 - Grips
- 85 - Cut Over Peat

Client
Diagio

Project
Castlehill

Title
Habitat Plan

Scale
1:15,000 @ A3

Status
FINAL

Drawing No.	Revision	Date
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Drawn	**Checked**	**Approved**
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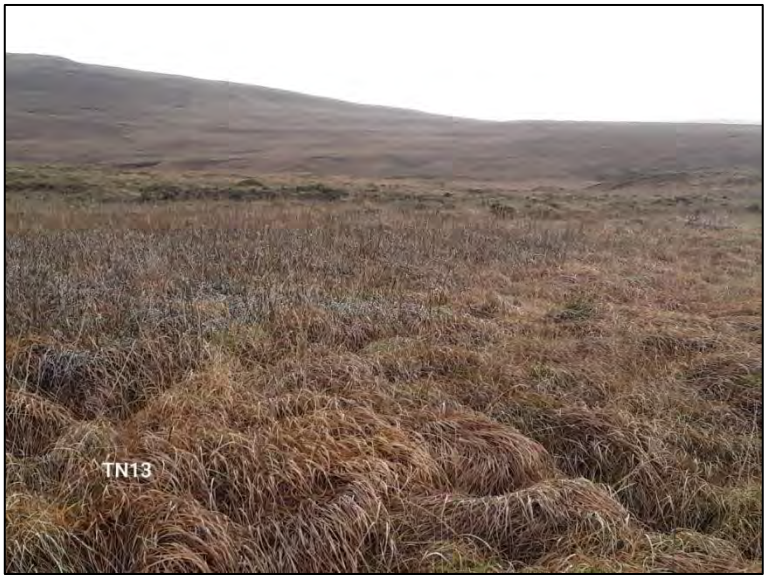
G TARGET NOTES

Number	Description
1	Wren
2	Patch of *Sphagnum magellanicum* and *S.pappilosum*
3	Example of browsed dwarf shrubs 
4	Flock of golden plover c.20
5	Raven call heard
6	Defunct fencing 
7	*S.magellanicum* patch

8 Examples of heavy deer browsing

9 Defunct stone dyke potential reptile refugia

10	Snipe
11	Calcium-rich springwater-fed fens  
12	Snipe

13	Upland Flushes, Fens and Swamps  
14	Calcium-rich springwater-fed fens 

15 Nesting material and pellets in old farmhouse

16	Calcium-rich springwater-fed fens
17	Defunct fencing 
18	Heron
19	Bog area more cotton grass, *S.capillifolium* and *S.subnitens*
20	Area with bog pools 

21	Upland Flushes, Fens and Swamps 
22	Upland Flushes, Fens and Swamps 
23	Calcium-rich springwater-fed fens 

24	Upland Flushes, Fens and Swamps 
25	Male Hen Harrier

135500
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Peat Cutting
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Do not scale this map

Legend

- Target Note
- Site Boundary

Client Diagio

Project Castlehill

Title Target Note Location Plan

Scale 1:12,500 @ A3

Status FINAL

Drawing No.	Revision	Date
176857-QGIS005	-	20 Dec 2022
Drawn	**Checked**	**Approved**
MM	GN	GN

Rev	Date	Amendment	Initials
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H PHOTOGRAPHIC RECORD

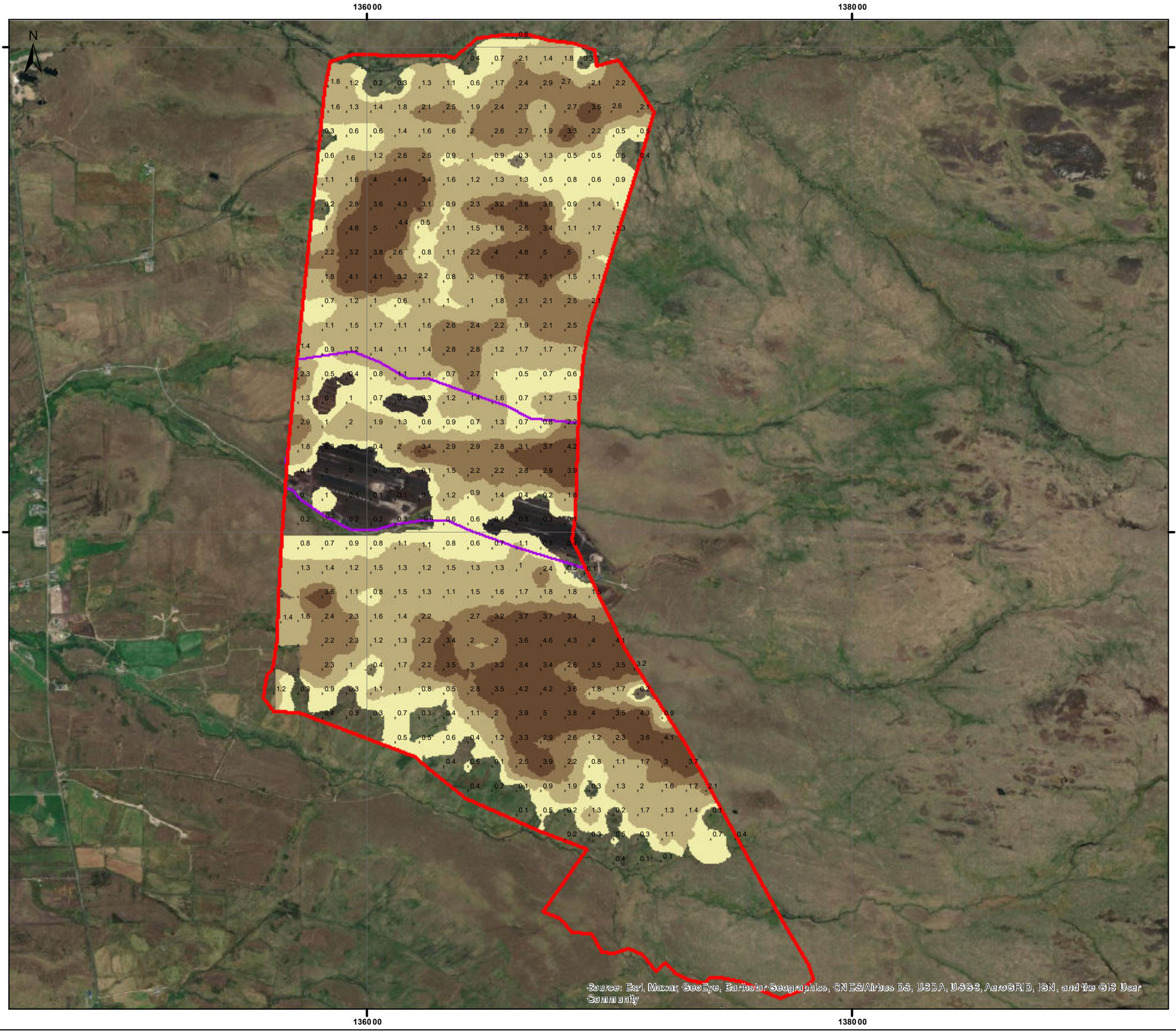
Photo 1: Peat extraction area within the blanket bog.

Photo 2: Degraded blanket bog.

Photo 3: The Torra River in the north of the site.

Photo 4: Alt nan Airighean in the south of the site

C PEAT DEPTH SURVEY (PHASE 1)



Legend

- Probed Locations

Area

- Current area of activity
- Site Boundary

Peat Depth (m)

- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 5.0

Do not scale this map

Client
DIAGEO

Project
Castle Hill

Title
Phase 1 Peat Depth Map

Status
DRAFT

Drawing No.	Revision	Date
176857-GIS001	-	30 Nov 2022
Drawn	**Checked**	**Approved**
SK	EM	EM

Scale
1:15,000 @A3
0 75 150 300 450 Metres

Rev	Date	Amendment	Initials
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