



# COMHAIRLE NAN EILEAN SIAR

The Town and Country Planning Scotland Act 1997 – Section 36(1)

Town and Country Planning General Development Procedure Order 2013 Regulation 16

Planning Register – Part 1

## Application Details

Reference Number	24/00199/PPD
Date registered as valid	02/07/2024
Description of Development	Install Hydro scheme: repurpose existing dam and outlet; installation of new penstock; and construction of small turbine house.
Address or description of location to which the development relates	Hydro Scheme, Scaliscro Lodge, Uig, Isle of Lewis
Co-ordinates	N 927 237, E 113 683
Applicant Name	Scaliscro Estates Limited
Applicant Address	Scaliscro Estate, Uig, Isle of Lewis, HS2 9EL
Agent name (if applicable)	Proterra Energy Per Ms Laura Stebbings
Agent Address (if applicable)	41 Carsegate Road, Inverness, IV3 8EX

**The above application summary is accompanied by plans and drawings sufficient to describe the development and where relevant any design statement.**

Important Note: on Tuesday 07 November 2023, Comhairle nan Eilean Siar experienced a criminal cyber incident and is working with Police Scotland, the Scottish Government and the National Cyber Security Centre to investigate the matter.

The Online Planning Portal remains unavailable as does our suite of integrated software and hardware systems. In order to enable access by the wider public to application documents and consult upon planning applications, interim systems have been put in place on the temporary website of Comhairle nan Eilean Siar, including a rudimentary facility to display a limited number of documents per application.

Any party wishing to view the application file in full may do so at the offices of Comhairle nan Eilean Siar at Sandwick Road, Stornoway Isle of Lewis, HS1 2BW or Balivanich, Isle of Benbecula. HS7 5LA, ordinarily between 9am and 5pm Monday to Friday (excluding public and local holidays). It is recommended that in advance of visiting an office to view an application that you make an appointment by sending an email to [planning@cne-siar.gov.uk](mailto:planning@cne-siar.gov.uk)



NOTES:  
Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

**Development Area**  
**Abstraction Construction Area:**  
 = 10 x 5 m  
 = 50m<sup>2</sup>

**Penstock Excavation:**  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

**Turbine House Construction Area:**  
 = 6 x 6 m  
 = 36m<sup>2</sup>

**Electrical Cable Installations:**  
 = 110x 0.3m (Turbine House to Lodge)  
 = 33m<sup>2</sup>

**Laydown Area (existing storage area):**  
 = 15 x 15 m  
 = 225m<sup>2</sup>

**Total Development Area = 1779 m<sup>2</sup>**

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

Rev.	Drawn	Checked	Description	Date
03	LS	TFS	Revised to show hydro development only	20/06/24
02	KM	LS	Updated to show revised turbine house location and solar array location	23/04/23



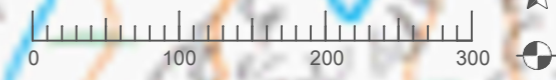
Project  
**234 Scaliscro**

Drawing Description  
**Ownership and Development Boundaries (Hydro Only)**

Drawn (init./date) KM 28/03/24	Checked (init./date) LS 28/03/24
-----------------------------------	-------------------------------------

Scale & sheet size NTS	Dimensions n/a
---------------------------	-------------------

Drawing No. **234A-06-DWG07-REV03**



NOTES:  
Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 33m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
234 Scaliscro

Drawing Description  
Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No. 234A-06-DWG07A-REV02



NOTES:  
 Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 33m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



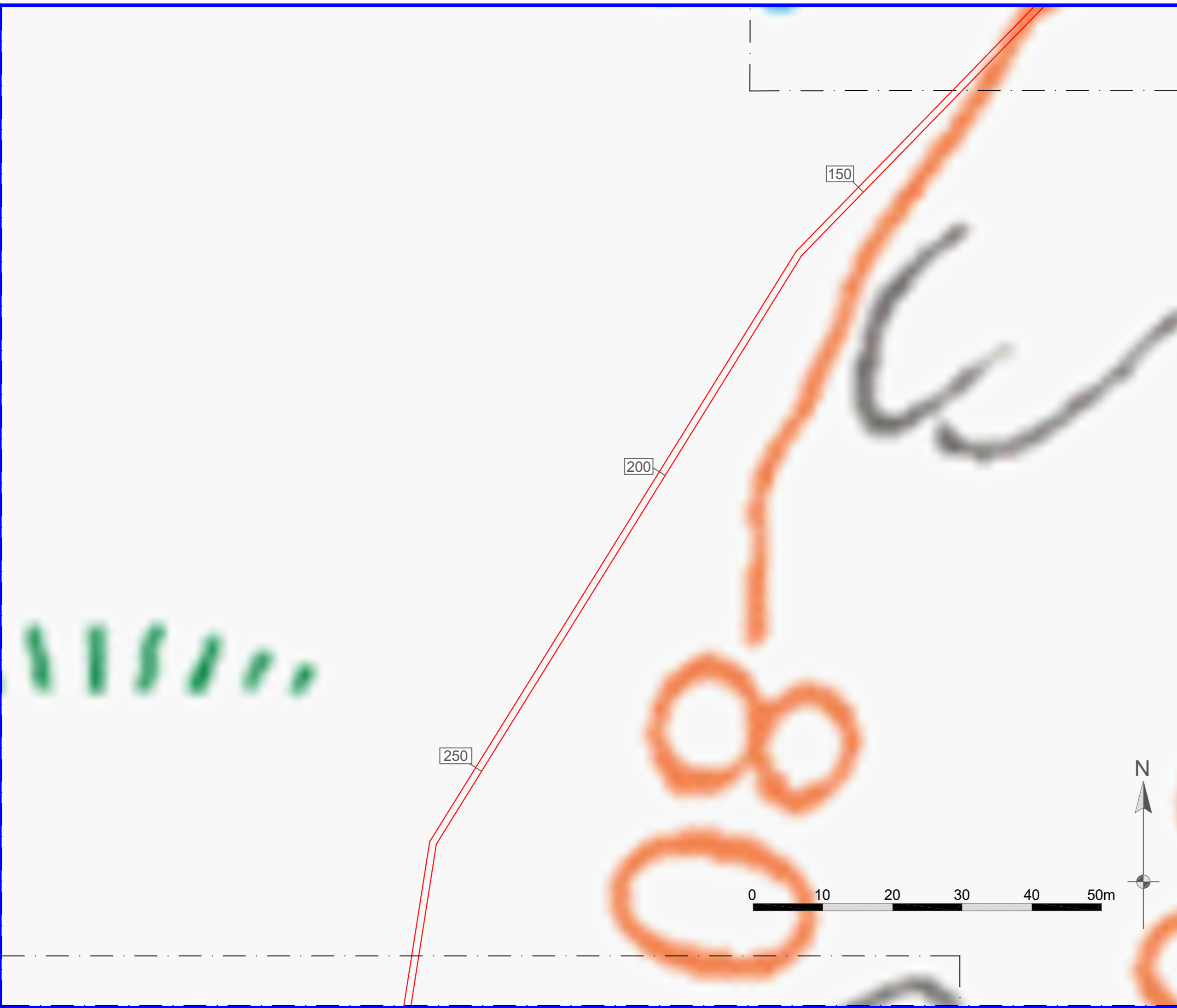
Project  
 234 Scaliscro

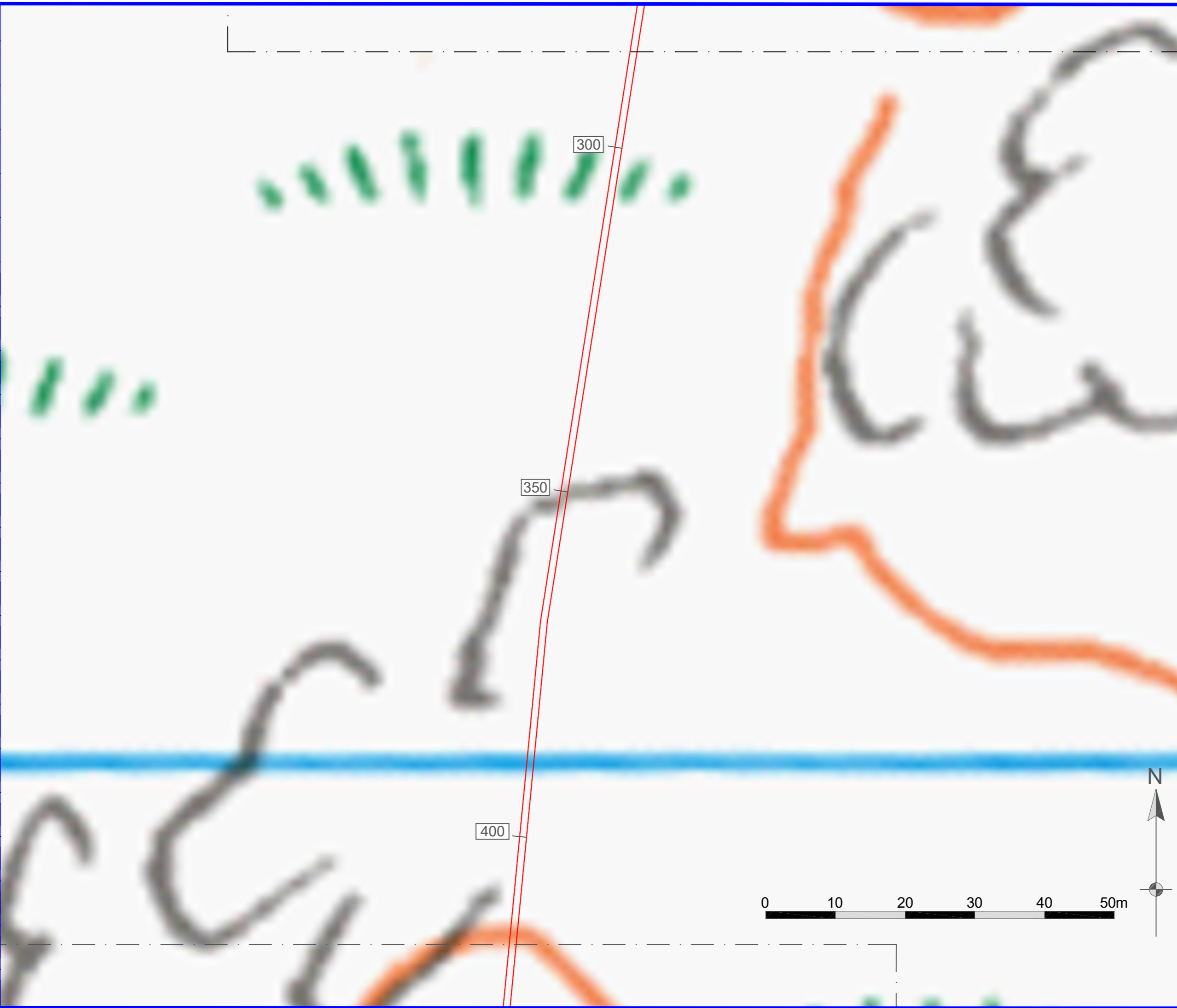
Drawing Description  
 Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No.  
 234A-06-DWG07B-REV02





NOTES:  
Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 31.5m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
234 Scaliscro

Drawing Description  
Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No. 234A-06-DWG07C-REV02

NOTES:  
 Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 31.5m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



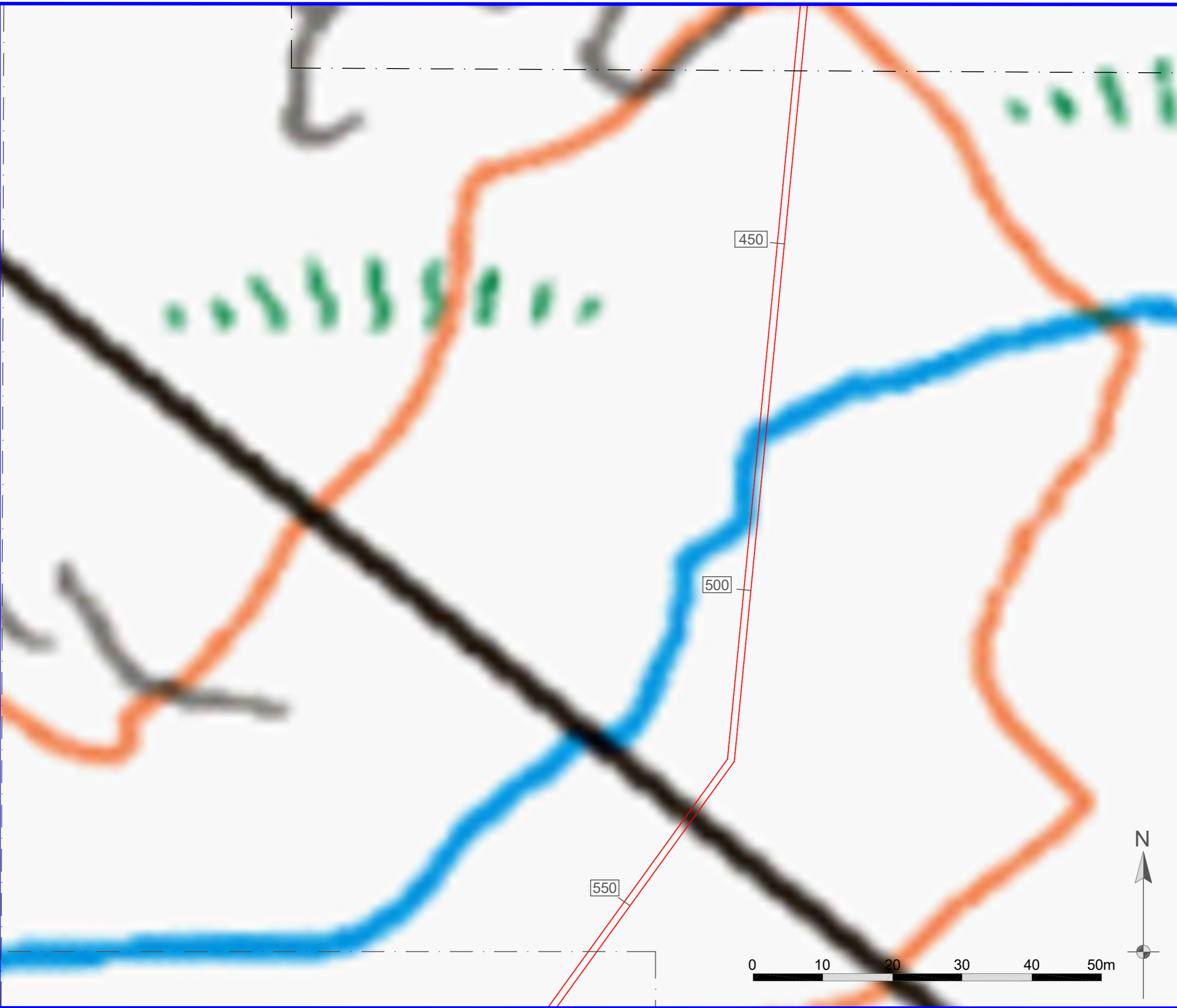
Project  
 234 Scaliscro

Drawing Description  
 Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No. 234A-06-DWG07D-REV02



NOTES:  
 Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

**Development Area**  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 31.5m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

**Total Development Area = 1779 m<sup>2</sup>**

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
 234 Scaliscro

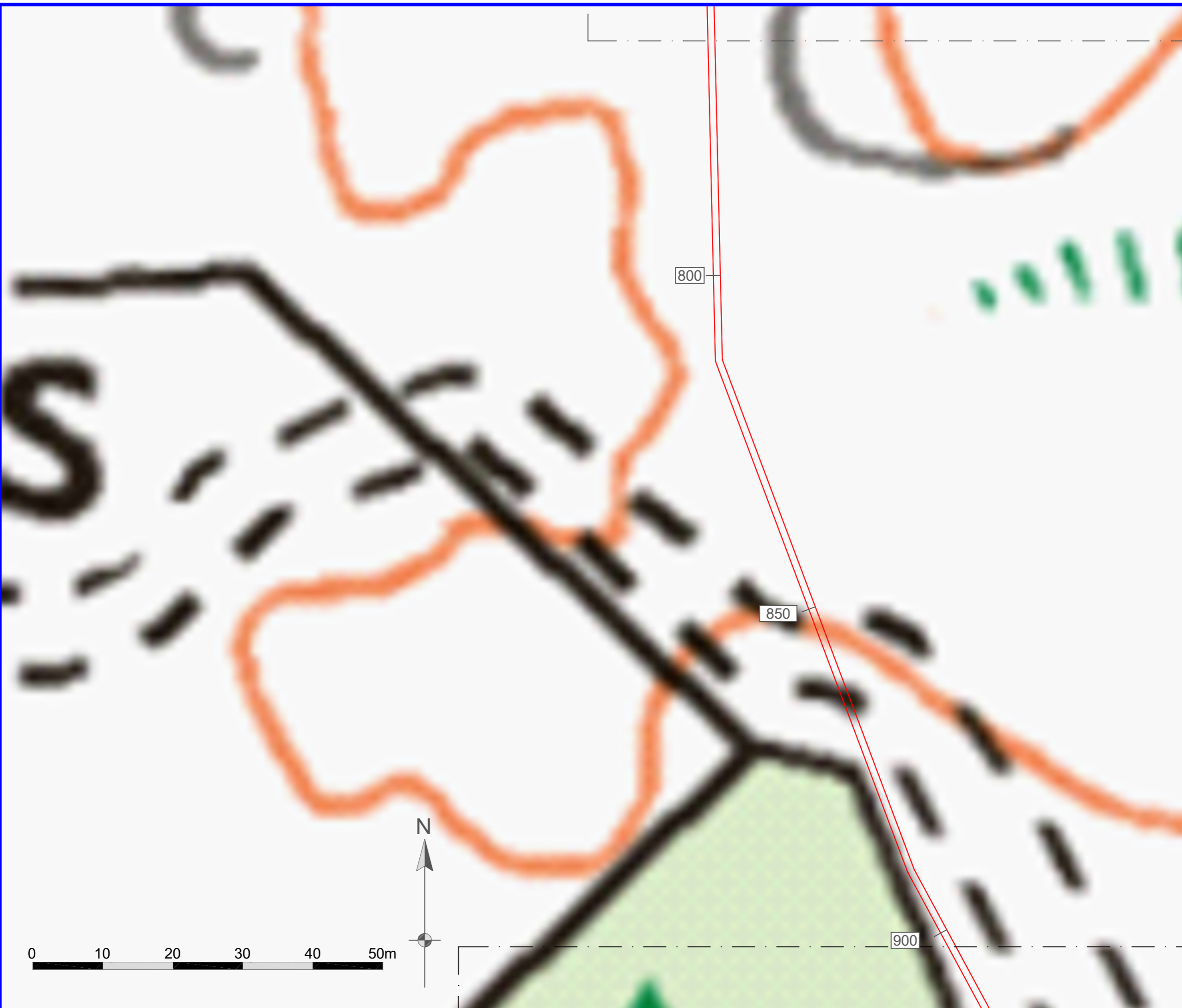
Drawing Description  
 Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No.  
 234A-06-DWG07E-REV02





NOTES:  
Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

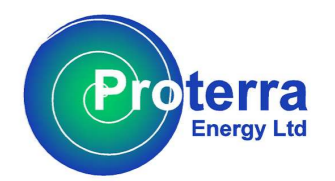
Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 33m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
234 Scaliscro

Drawing Description  
Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No. 234A-06-DWG07F-REV02





NOTES:  
Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

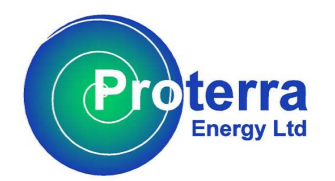
Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 31.5m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
234 Scaliscro

Drawing Description  
Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No. 234A-06-DWG07G-REV02

NOTES:  
 Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

**Development Area**  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>

Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>

Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>

Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 33m<sup>2</sup>

Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>

**Total Development Area = 1779 m<sup>2</sup>**

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
 234 Scaliscro

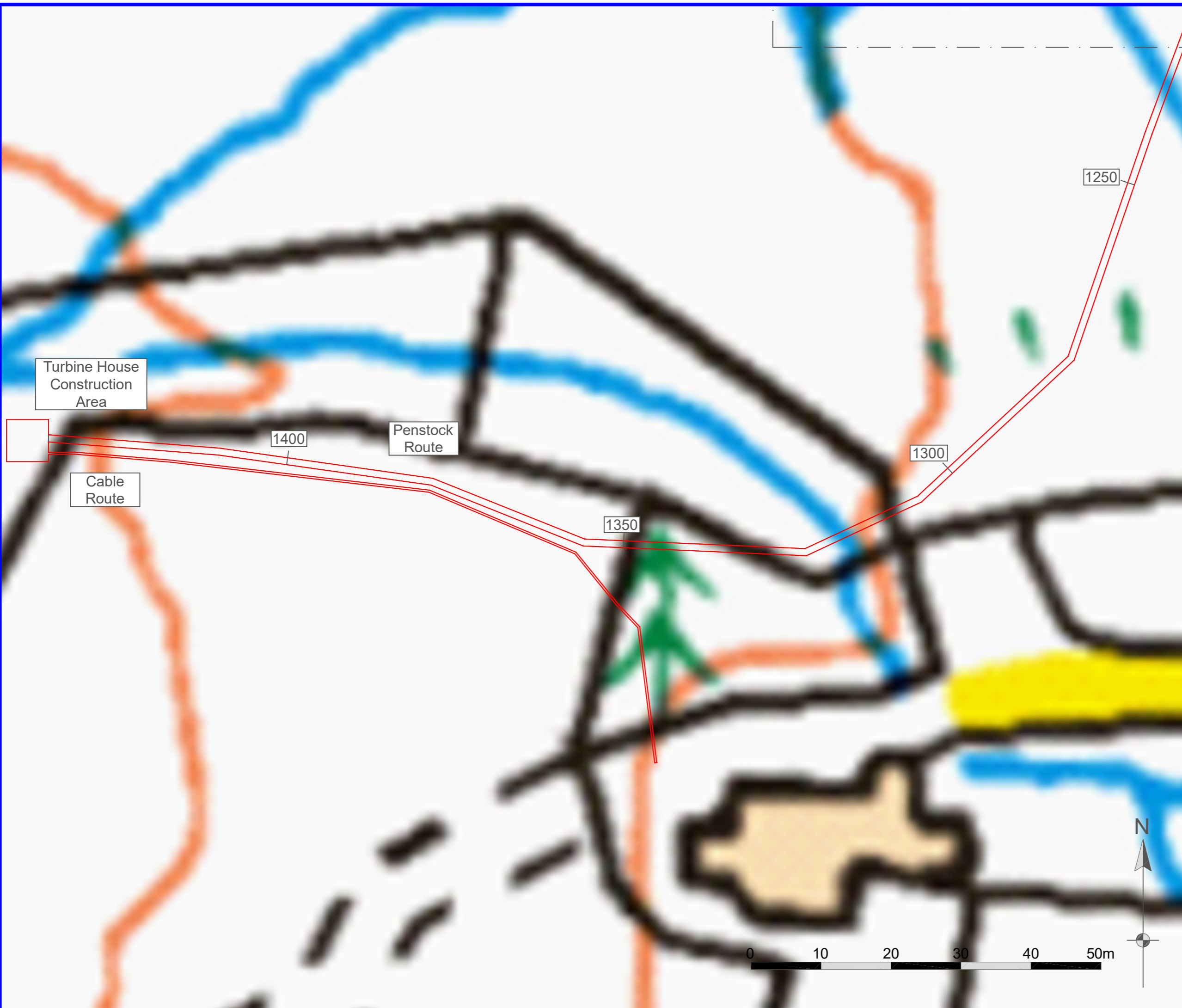
Drawing Description  
 Hydro Development Boundary

Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No.  
 234A-06-DWG07H-REV02





NOTES:  
 Plan showing the development and ownership boundaries, including key items of infrastructure.

- Ownership Boundary
- Development Boundary

- Development Area  
 Abstraction Construction Area:  
 = 10 x 5 m  
 = 50m<sup>2</sup>
- Penstock Excavation:  
 = 1435 x 1 m  
 = 1435m<sup>2</sup>
- Turbine House Construction Area:  
 = 6 x 6 m  
 = 36m<sup>2</sup>
- Electrical Cable Installations:  
 = 110 x 0.3m (Turbine House to New Lodge)  
 = 33m<sup>2</sup>
- Laydown Area:  
 = 15 x 15 m  
 = 225m<sup>2</sup>
- Total Development Area = 1779 m<sup>2</sup>

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

02	KM	LS	Updated to show chainage along the penstock route	02/07/24
Rev.	Drawn	Checked	Description	Date



Project  
 234 Scaliscro

Drawing Description  
 Hydro Development Boundary

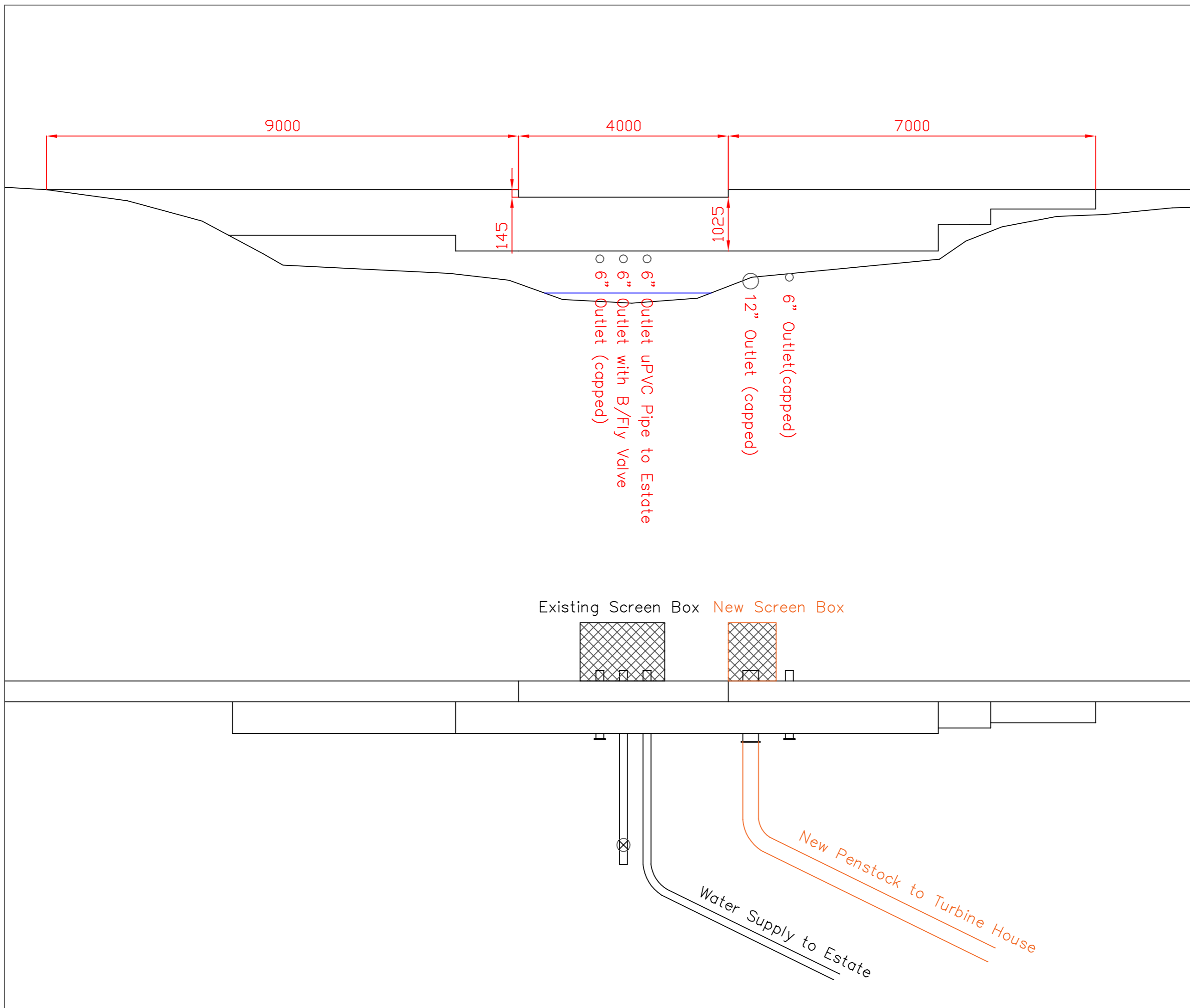
Drawn (init./date) KM 26/06/24	Checked (init./date) LS 26/06/24
-----------------------------------	-------------------------------------

Scale & sheet size 1:500 @A3	Dimensions n/a
---------------------------------	-------------------

Drawing No.  
 234A-06-DWG07I-REV02

NOTES:

Plan and elevation of existing dam, showing existing and proposed infrastructure.



This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

Rev	Drawn	Checked	Description	Date



Project  
234 Scaliscro

Drawing Description  
Abstraction

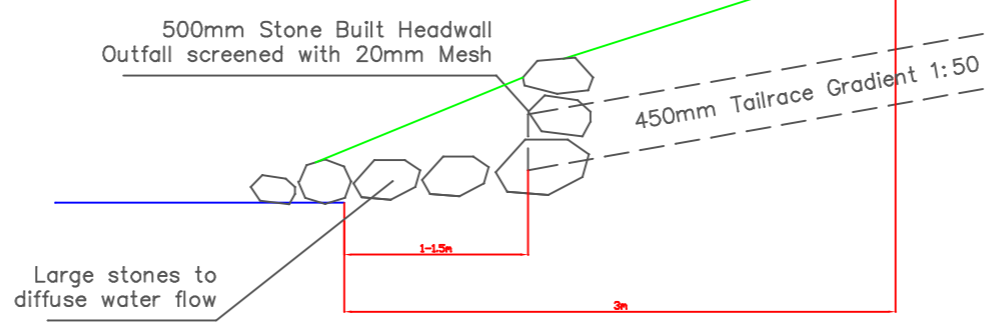
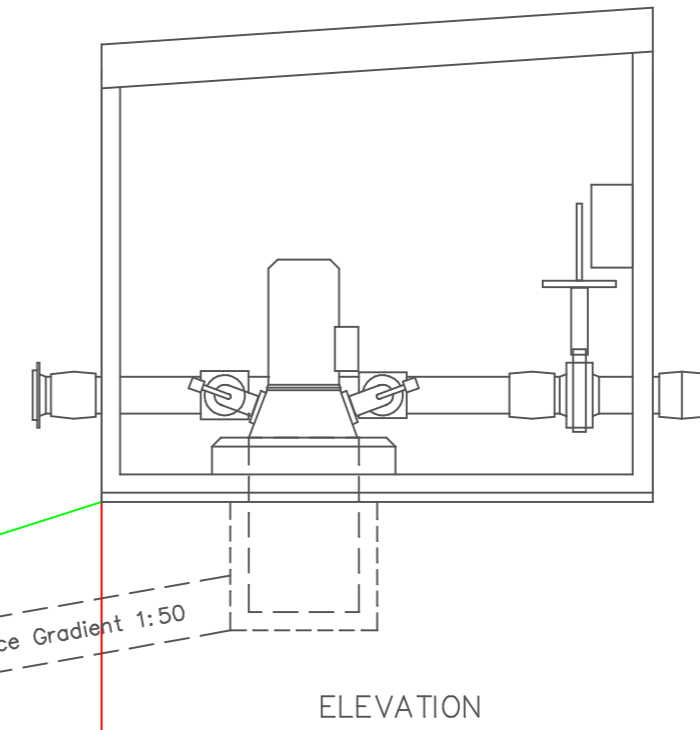
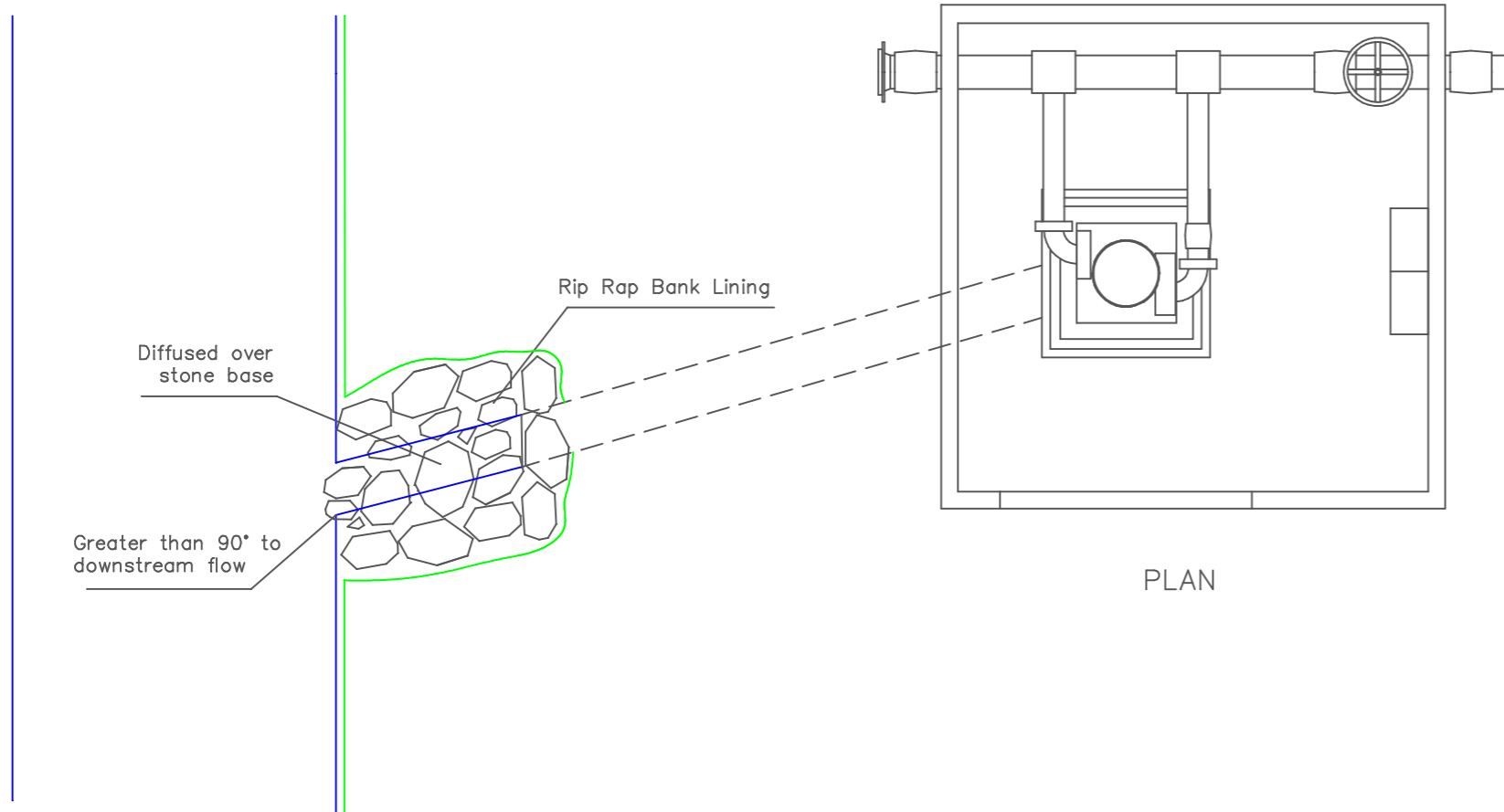
Drawn (init./date) LS 12/10/23	Checked (init./date) TFS 12/10/23
-----------------------------------	--------------------------------------

Scale & sheet size NTS	Dimensions mm
---------------------------	------------------

Drawing No. 234A-06-DWG02-REV01

NOTES:

Outfall Arrangement with the proposed location shown in the inserted photo.



This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

Rev	Drawn	Checked	Description	Date



Project

234 Scaliscro

Drawing Description

Outfall Arrangement

Drawn (Init./date) KM 23/04/24	Checked(Init./date) LS 23/04/24
-----------------------------------	------------------------------------

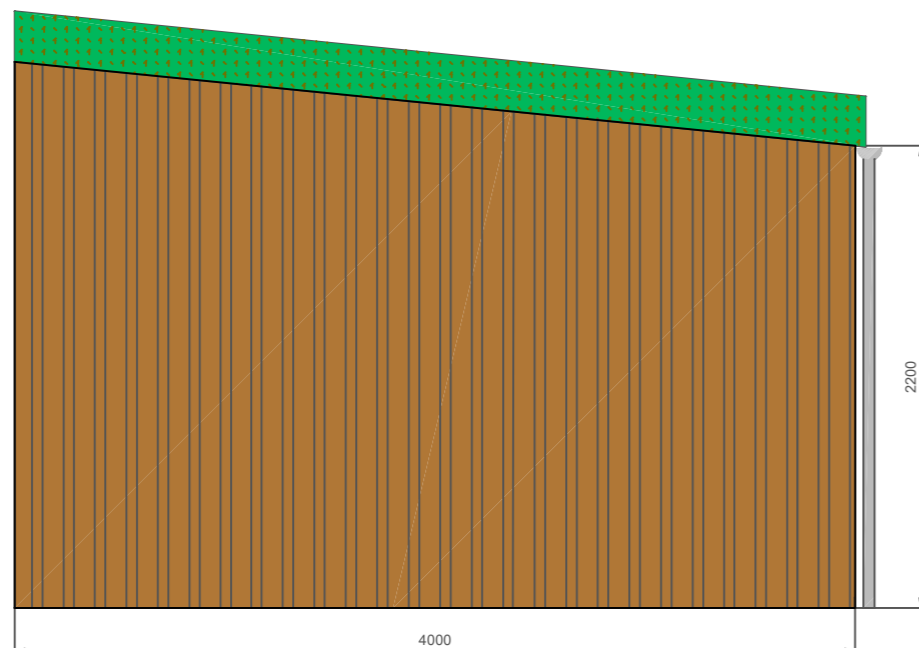
Scale & sheet size NTS	Dimensions n/a
---------------------------	-------------------

Drawing No. 234A-06-DWG13-REV01

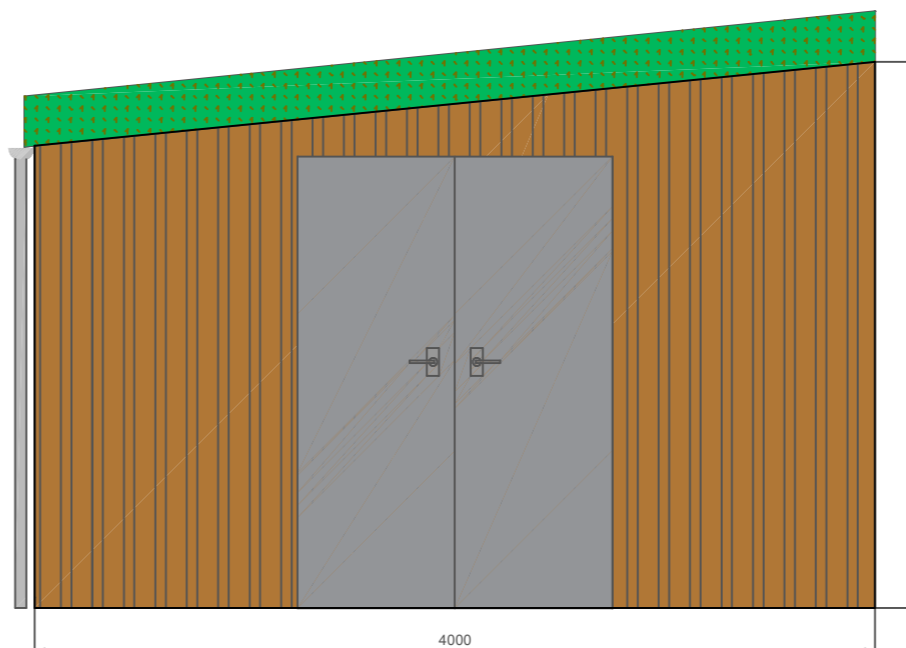


LODGE  
←

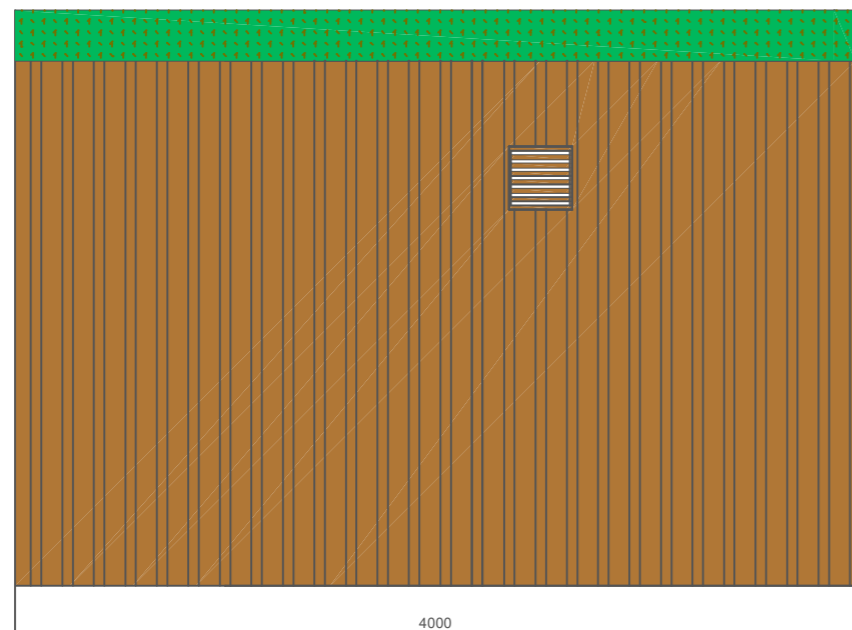
BURN SIDE  
→



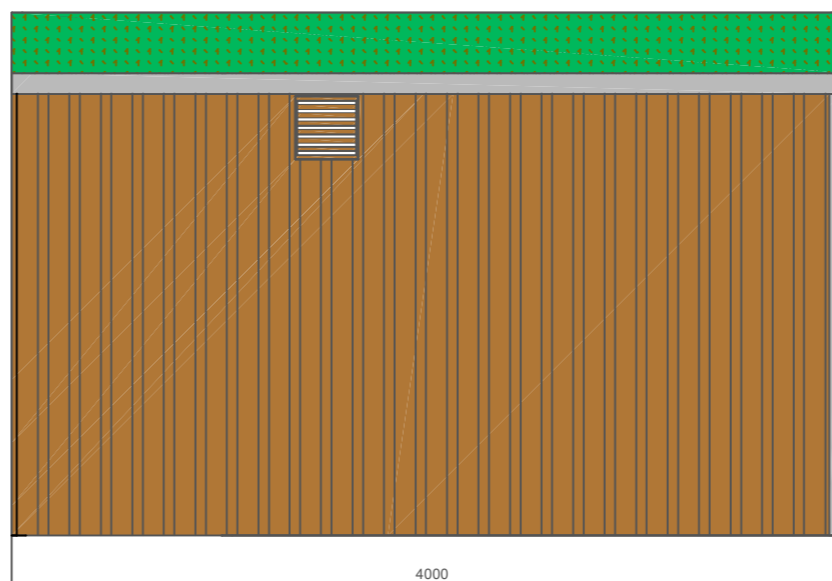
NORTH FACING ELEVATION



SOUTH FACING ELEVATION



WEST FACING ELEVATION



EAST FACING ELEVATION

...

NOTES:

Turbine house roof to be covered with locally won turf.

Grey security doors could be wooden if aesthetically preferred.

Larch clad black/grey flashings below turf roof infrastructure.

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

Rev.	Drawn	Checked	Description	Date



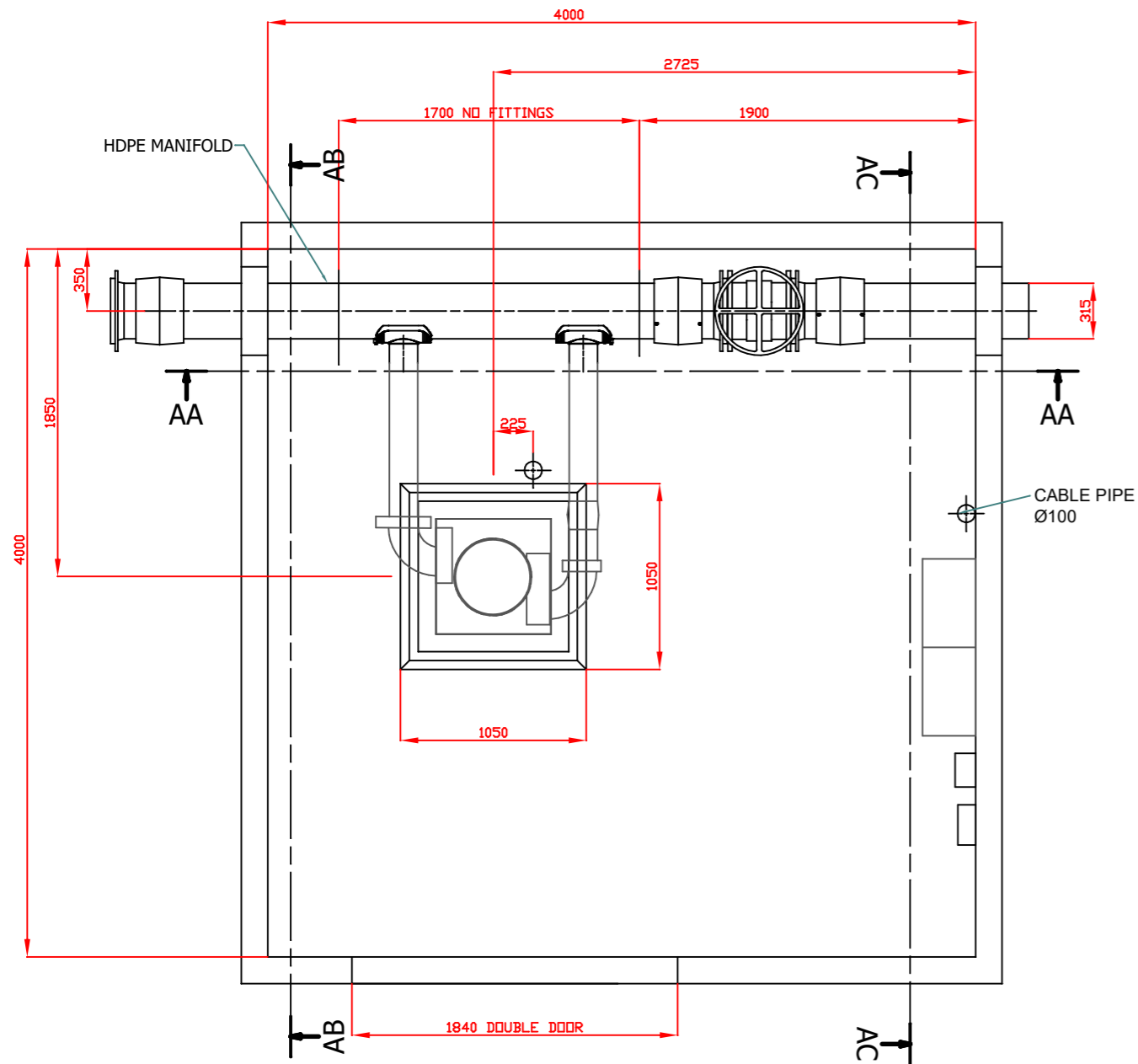
Project  
234 Scaliscro

Drawing Description  
Turbine House Elevations

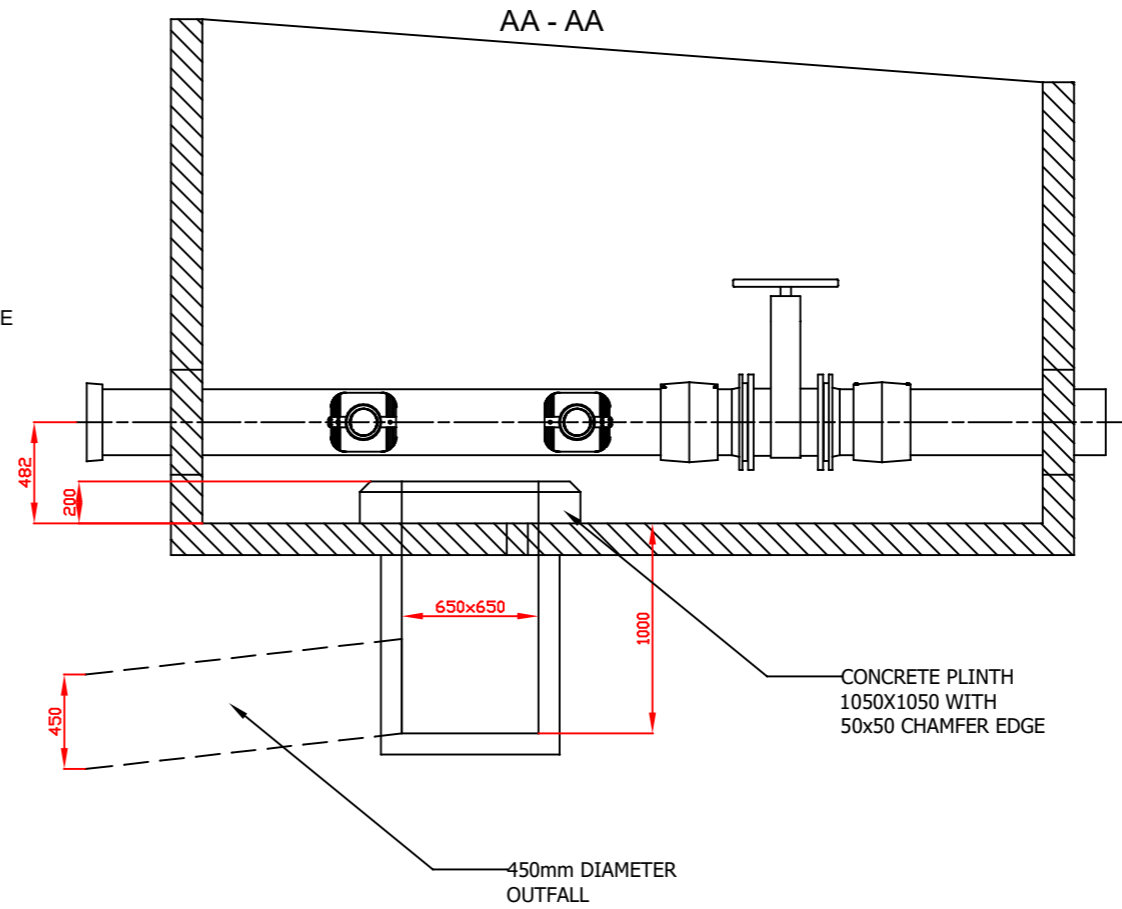
Drawn (init./date) KM 23/04/24	Checked (init./date) LS 23/04/24
-----------------------------------	-------------------------------------

Scale & sheet size NTS	Dimensions mm
---------------------------	------------------

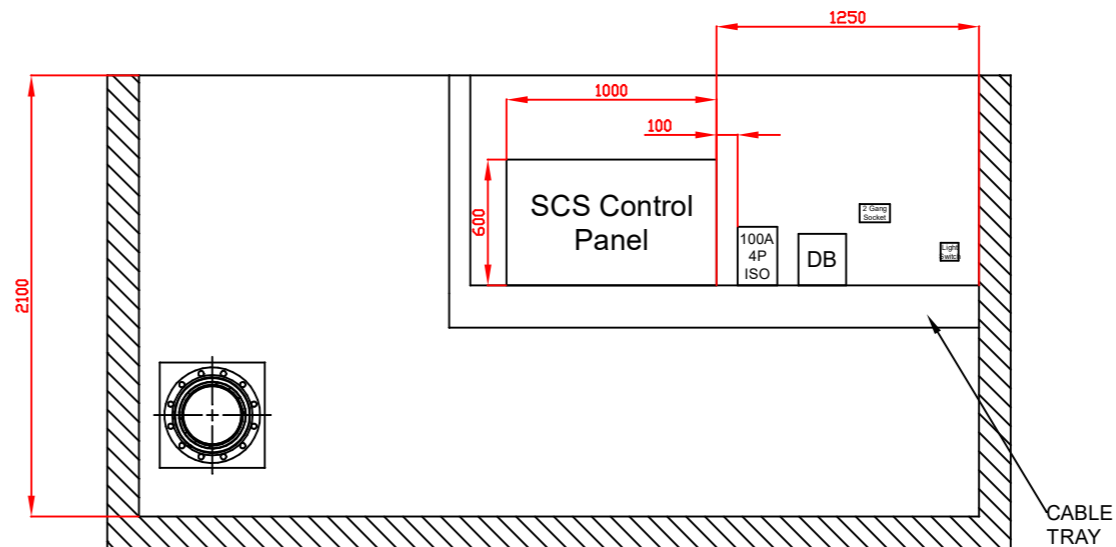
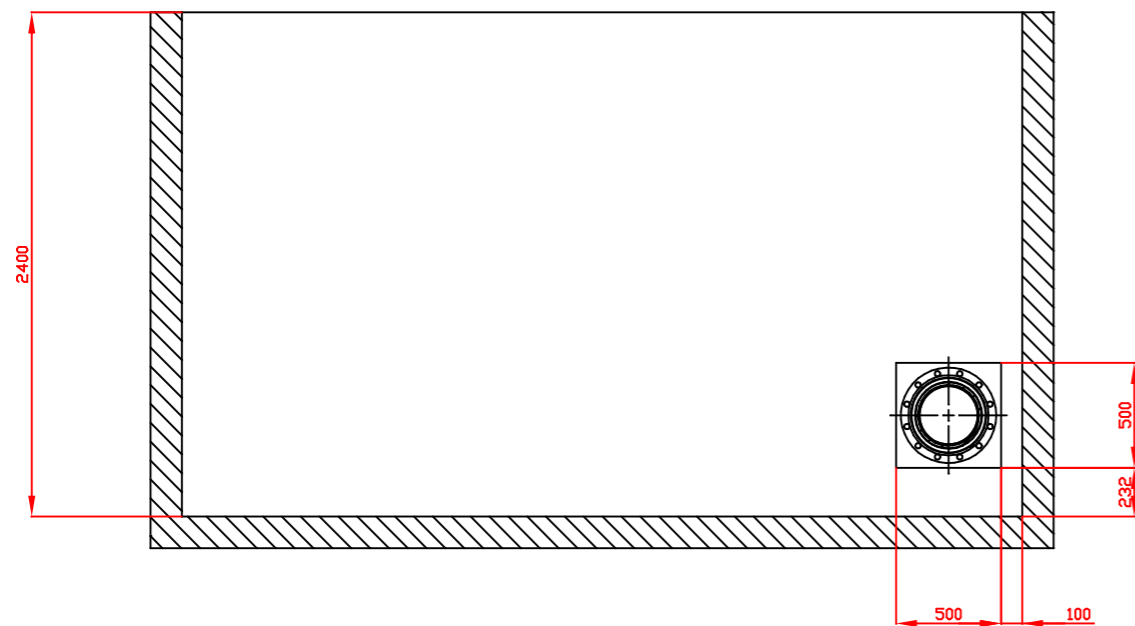
Drawing No. 234A-06-DWG14-REV01



AB - AB



AC - AC



NOTES:

Internal turbine house layout with the final size and shape to be discussed with the landscape architect

Double door dimensions:  
Height - 2075mm  
Width - 1840mm

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

Rev	Drawn	Checked	Description	Date
02	KM	LS	Turbine house updated to show manifold and concrete plinth	16/04/23



Project  
234 Scaliscro

Drawing Description  
Turbine House Layout

Drawn (init./date)  
KM 16/04/24

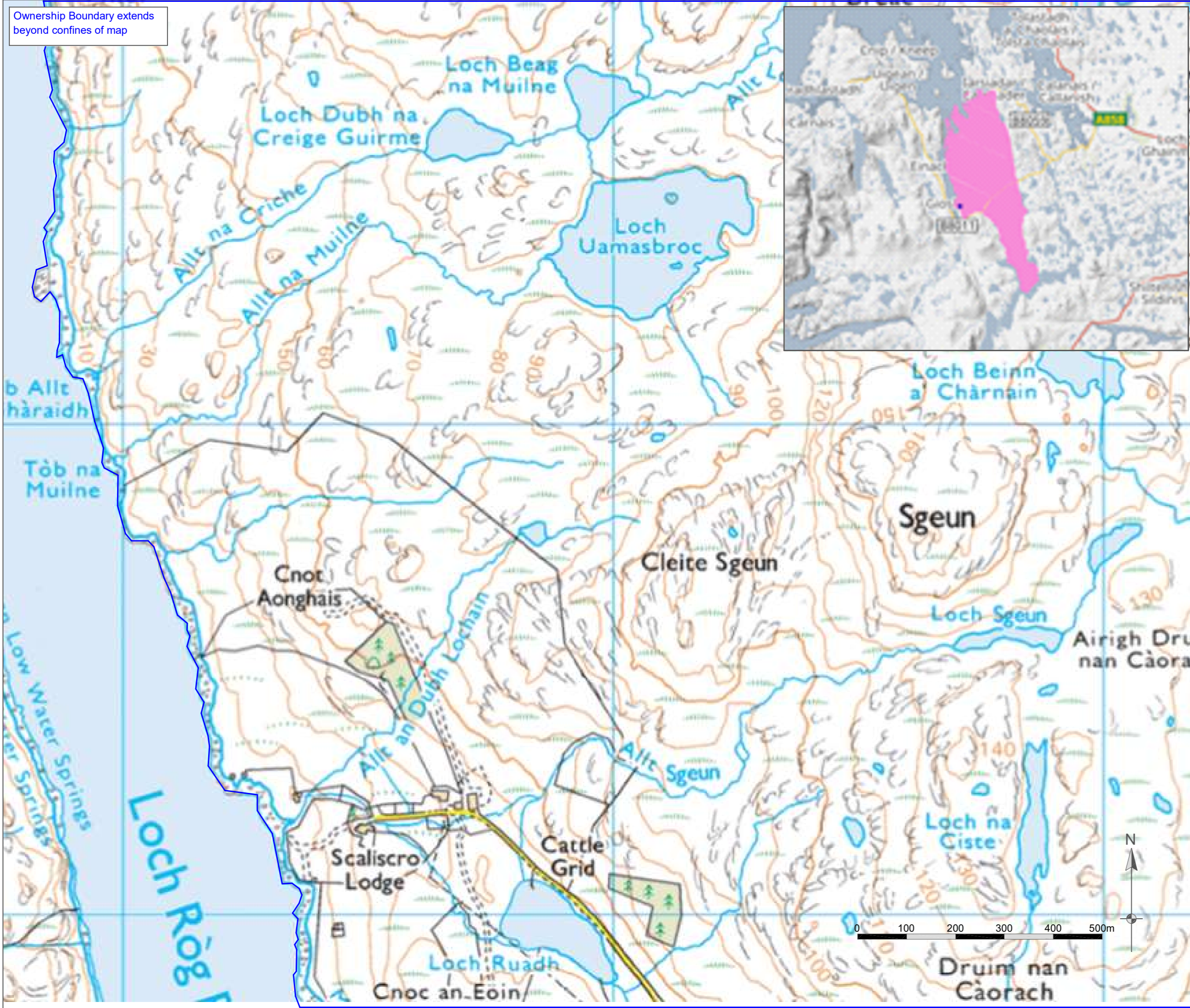
Checked (init./date)  
LS 16/04/24

Scale & sheet size  
NTS

Dimensions  
mm

Drawing No.  
234A-06-DWG11-REV02

Ownership Boundary extends beyond confines of map



NOTES:

Property Boundaries are shown in blue.  
The boundaries extend to the coastline and beyond the confines of the map.

See the insert for wider property boundaries.

This document is confidential and for the sole use of the intended recipient. Any unauthorised use of this document is strictly prohibited.

Rev.	Drawn	Checked	Description	Date



Project  
234 Scaliscro

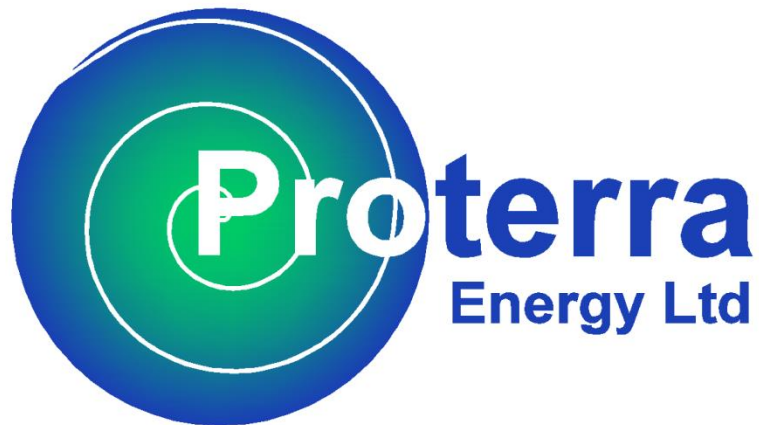
Drawing Description  
Ownership Boundary

Drawn (Init./date) LS 22/4/24	Checked(Init./date) TS 22/4/24
----------------------------------	-----------------------------------

Scale & sheet size Grid = 1km	Dimensions n/a
----------------------------------	-------------------

Drawing No. 234A-06-DWG05-REV01





# Scaliscro Micro Hydro Installation

## Planning Application Design Statement

**234-06-PLA01-Rev01**

Rev	Document	Author		Checked		Approved By		Date
		Initials	Signature	Initials	Signature	Initials	Signature	
0	Draft	KM						
01	Issued	KM		LS		TFS		0705/2024
02								

**Confidentiality Notice**

This communication and the information it contains:-

- (a) Is intended for the person(s) or organisation(s) named above and for no other person(s) or organisation(s).
  - (b) May be confidential, legally privileged and protected in law. Unauthorised use, copying or disclosure of any of it may be unlawful.
- If you have received this communication in error, please contact us immediately by email at [info@proterra-energy.com](mailto:info@proterra-energy.com).

# Contents

<b>Contents .....</b>	<b>2</b>
<b>1.0 Introduction .....</b>	<b>3</b>
1.1 Project Proposal .....	3
1.2 Project Benefits .....	4
1.3 Developer .....	4
1.4 Consultations.....	4
1.5 Additional Documents .....	5
<b>2.0 Project Design.....</b>	<b>6</b>
2.1 Scheme Layout .....	6
2.2 Existing Site Conditions .....	7
2.3 Access.....	7
2.4 Scheme Design .....	7
2.4.1 Intake .....	7
2.4.2 Penstock .....	9
2.4.3 Turbine House & Outfall.....	10
2.4.4 Electrical Connection .....	12
2.5 Hydrology .....	12
<b>3.0 Environmental, Landscape &amp; Amenity .....</b>	<b>14</b>
3.1 Environmental Assessment.....	14
3.1.1 Environmental Surveys .....	14
3.1.2 Flood Risk Assessment .....	15
3.1.3 Noise Assessment .....	15
3.1.4 Peat Management.....	15
3.1.5 Pollution Prevention .....	16
3.2 Landscape Visual Impact Assessment / Landscaping / Planting.....	17
3.5 Landscape / Scheme Maintenance Access & Management .....	19
<b>4.0 Construction Management .....</b>	<b>20</b>
<b>5.0 Operation .....</b>	<b>20</b>
<b>6.0 Decommissioning .....</b>	<b>20</b>

## 1.0 Introduction

### 1.1 Project Proposal

#### Net Zero Context

Scalisco Estate is currently undergoing significant redevelopment under new ownership, including the refurbishment of a large, modern Lodge building and additional staff accommodation.

In line with the Scottish Government's *Heat in Buildings Strategy*, heating for the new Lodge will be provided by 2 x 30kW Air Source Heat Pumps (ASHPs). There are also plans to install ASHPs for the new Estate Cottages, in order to futureproof the Estate development and contribute towards Net Zero Targets as Laid out in *The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019*.

The current grid connection to the Estate is insufficient to support the increased electrical demand of the ASHP systems, as previously the Estate ran on oil powered heating and had lower electrical consumption. Due to the remote location of the Estate, and the magnitude of increase in supply required, the cost of upgrading the grid connection is considered to be prohibitively expensive.

Therefore, the Client has decided to install an off-grid system to provide power to the properties. The off-grid system will be powered by a combination of hydro and solar power, supported by a back-up diesel generator. The off-grid system will incorporate battery storage to maximise utilisation of the renewable energy produced.

This documents outlines the proposal for a 30kW hydro system to feed the off-grid system. A separate support document, 234-06-PLA02-REV01, details the solar generation proposals.

#### Hydro Development

The proposal is to install a 30kW micro hydro scheme on the Allt na Muilne watercourse, Scalisco Estate. The watercourse is fed from Loch Uamasbroc, which was previously dammed to provide a water supply to the Estate Hatchery (now decommissioned). The hydro system will reuse existing infrastructure where possible, including the main dam and outlets, follow the existing pipe route and use the existing flow and return points.

The proposed hydro scheme will reuse the existing dam; it will not be possible to reuse the existing pipework as the hydro scheme will require higher flows than the existing 6" pipe can carry. Additionally, the existing pipework runs to the Hatchery building, whilst the proposed turbine house location is below the Lodge. Therefore, it will be necessary to lay a new penstock pipe. This will follow the existing pipe route as far as reasonably practical before diverging towards the turbine house location.

The proposed development is located on land owned by the Estate, there is no formal public access to the turbine house or abstraction locations. Scalisco Estate is located at the end of a private road, therefore there is no through traffic.

Access to the abstraction location will be via the existing hill track. Access to the turbine house will be via the existing in bye Estate roads / tracks.

Power generated by the hydro system will be fed into the off-grid system to provide electricity to the Estate properties. The off-grid system will be fed by both hydro and solar generation, with diesel generator back-up. Battery storage will also be integrated into the off-grid system to maximise renewable energy utilisation and self consumption.

The construction works associated with the hydro are relatively minor in comparison to the scale on the ongoing Estate redevelopment works. The proposed timescale for the build would make use of the existing contactors infrastructure, plant, working areas etc.

Extensive pre-application consultation has been undertaken with SEPA on these proposals and the use of existing infrastructure.

## **1.2 Project Benefits**

Scientific evidence suggests that Climate Change is occurring, this is being reflected in emerging changes in weather patterns and increased extreme weather events globally and nationally. Policies from Local and National Government support the development of renewable energy schemes. A small scale, run of river project such as is suggested in this proposal is an effective and relatively low impact method of generating renewable energy, especially where existing infrastructure can be repurposed.

Local economic benefits derived from the scheme include the provision of locally generated renewable energy. Local sub-contractors will also be appointed to carry out elements of the work such as construction of the turbine house. Additionally, long term benefits will also include a part time skilled local person to carry out periodic maintenance.

The installation of the proposed hydro system has the potential to generate up to **134,500kWhr** of electricity annually through a renewable energy source. This will provide a significant contribution towards annual Estate consumption and directly support the energy demands of the renewable heating systems.

## **1.3 Developer**

The project is part of wider Estate redevelopment that is being managed on behalf of the Estate owner by Fowler Fortescue, Rural Asset Management. The Estate has engaged an architect and Principle Contractor, as well as a team of sub-contractors, on the Estate redevelopment.

Proterra Energy (PE) will be the Designer of the hydro system. PE will also undertake the installation and testing of all hydro specific infrastructure and control systems. The Estate's existing on site Civils Contractor will carry out excavation and laying of the penstock and construction of the turbine house.

## **1.4 Consultations**

A Fish Habitat Survey have been carried out and included with this submission (Outer Hebrides Fisheries Trust).

A CAR Licence Application has been completed and submitted in parallel with this Planning Application.

## **1.5 Additional Documents**

The following supporting documents are also included with the planning submission. They should be read in conjunction with the Planning Support Statement.

- Fish Habitat Report (Outer Hebrides Fisheries Trust)
- Construction Method Statement
- Pollution Prevention Plan
- Drawing Pack:
  - 234A-06-DWG02-Rev01 Proposed Abstraction
  - 234A-06-DWG05-Rev01 Ownership Boundary
  - 234A-06-DWG07-Rev02 Development and Ownership Boundaries
  - 234A-06-DWG13-Rev01 Proposed Outfall Arrangements
  - 234A-06-DWG14-Rev01 Proposed Turbine House

## 2.0 Project Design

### 2.1 Scheme Layout

Loch Uamasbroc is situated within Scaliscro Estate. The proposal is to build a micro hydro run of river scheme with a maximum power output of 30kW. The scheme will follow the typical layout of a run of river system; an abstraction, a buried penstock taking water to a small turbine house, and an outfall. The abstraction will make use of an existing weir at the western side of Loch Uamasbroc.



**Figure 1:** The site location on the Allt na Muilne.

The Allt na Muilne flows from Loch Uamasbroc, south westward through Scaliscro Estate to Loch Rog Beag. There is an existing weir at Loch Uamasbroc that has previously been used to abstract water for an Estate Hatchery (now decommissioned). The water supply for the Estate comes from the same abstraction point.

The loch and burn lies entirely within the ownership of Scaliscro Estate. All construction works fall within land belonging to the Applicant.

The existing abstraction weir is located at NB 13862 28333, at an accessible location on the edge of Loch Uamasbroc. Using the existing weir reduces the cost of the scheme and minimises disruption of the ground due to construction work.

The penstock will follow the route of the existing abstraction penstock towards the hatchery before turning to run past the forestry block, to the turbine house location. The total penstock length will be approximately 1300m. An electrical cable will run between the turbine house and the Lodge in order to feed hydro generation back to the off-grid system via an interconnecting electrical cable that will be laid between the Lodge and Hatchery as part of the Estate refurbishment works.

Electricity generated by the hydro scheme will be available for consumption in any of the Estate buildings from the central off-grid system located in the Hatchery building. Any excess generation will be stored in the battery bank until required, or distributed to assist heating and hot water creation.

## **2.2 Existing Site Conditions**

The site of the proposed scheme is open Estate ground. The topography surrounding the loch and burn remains open, heath covered, hillside along the course of the burn. The penstock route passes through similar topography, briefly passing by a small forestry block on approach to the turbine house.

## **2.3 Access**

Access to run of river schemes is often a key consideration of scheme design and construction. As the scheme is located on private ground, there is currently no public access to the dam or the turbine location.

Access to the abstraction location will be via the existing track. Low ground bearing machinery will be used to limit environmental impact. The modern abstraction has been designed so as to minimise the requirement for heavy machinery at the intake, aside from burying the new penstock.

Access to the turbine house location will be via a newly constructed Estate track as part of other works.

Access to the site will be required during construction and from time to time during operation for maintenance. Due to the nature of the scheme and its small size, access for construction will be limited to 5-6 HGV deliveries consisting of:

- 3 x HGV to deliver penstock materials
- 1 x HGV to deliver turbine house materials
- 1 x Delivery of construction plant, including Excavator and tracked dumper.

The remainder of materials, including the turbine would be taken to the site by 4x4 and trailer. Due to ongoing work at the site, the required construction plant may already be on site reducing the requirement for additional deliveries.

Once on site, access throughout the development will be via 4x4 or ATV. Temporary laydown areas will be designated in the Estate yard, behind the Hatchery. Materials will be offloaded in the laydown areas and moved, as required, to the appropriate construction location using ATV or tracked dumper.

## **2.4 Scheme Design**

A micro hydro scheme of this nature consists of five key infrastructure elements:

1. An intake, this is where water is abstracted from the burn. The intake serves to filter the water and also regulates the amount of water that can be abstracted.
2. The penstock (a pipeline) carries the water downhill to the turbine.
3. The turbine house, housing the turbine, generator and the control system.
4. Outfall, where the abstracted water is returned back to the burn.
5. Electrical Connection which exports the generated electricity onto the local off-grid system for consumption.

### **2.4.1 Intake**

During the site survey, an existing abstraction location was identified at NB 13862 28333. Using this existing weir reduces the construction near the watercourse and limits the potential for environmental impact by reducing the volume of material and vehicle trips required.



**Figure 2:** Existing abstraction location.

The existing dam has a capped 12" UPVC outlet. This will be used as a submerged abstraction point with the new penstock attached to it. Screening will be installed on the upstream face of the dam over the new abstraction point. This will prevent fish and debris from entering the penstock system. Hands Off Flow provision will also be made at the abstraction in line with SEPA guidance. This modern CAR Licence approach to abstraction will provide a net environmental improvement to the Allt a Muilne.

A level sensor will be fitted to the upstream face of the dam to control abstraction volumes in line with SEPA CAR licence conditions. Any surplus flow not required by the turbine will overtop the dam at the spillway and return to the burn.

A separate CAR licence application has been submitted to SEPA in parallel with this Planning Application. Included in the CAR application are details for the compensation flow (or Hands off Flow) of  $Q_{90}$ . This HoF will bypass the intake before any abstraction commences and ensure there is always flow down the burn.

The fish habitat survey completed by Outer Hebrides Fisheries Trust concluded that:

- Only a small amount of habitat is accessible (to fish) in the lower end of the Allt na Muilne as there are two significant natural barriers within 125m of where the river enters Little Loch Roag (tidal area). The second barrier would prohibit upstream passage of all migratory fish, regardless of flow conditions.
- The shallow depth of the pool below the dam at Loch Uamasbroc (<25cm) would prevent fish from leaping the dam, making it a barrier regardless of flow conditions. However, the natural barriers identified downstream mean that migratory fish cannot reach the dam.
- Spawning habitat above Loch Uamasbroc is very limited, and the two potential trout spawning habitats identified would not be affected by drawing the water level in the Loch down by 200-300m.

Further details can be found in the full survey report, included with the submission.



## 2.4.2 Penstock

From the intake, a 315mm diameter penstock will be routed alongside the existing penstock, following the gradient of the land to ensure a constant fall and the minimum, self-cleaning, gradient. This ensures that sediment does not build up in the pipe and reduces the likelihood of air entrapment. It will then diverge from the existing penstock route to run to the turbine house location. The penstock will run for approximately 1300m between the abstraction and turbine house locations. The penstock will be routed over 10m away from any burn for the majority of the route.

The penstock will be buried along the majority of its length, with the route being excavated for installation and reinstated in stages. Burying the penstock will reduce the residual visual impact of the development and help protect the pipe from frost and other environmental factors. The penstock route runs through open hill ground, terminating at the turbine house at the foot of the hill. Downstream of the turbine house, the burn flows into Loch Rog Beag.

Prior to construction, a basic ground survey will be carried out by probing the ground to ascertain soil depth and avoid any sections where rock is near the surface. This will help reduce the risk of excessive rock breaking during the penstock excavation.



**Figure 3:** Typical Topography in upper section of penstock route alongside the existing penstock which is visible.



**Figure 4:** Mid and lower penstock route (Estate track out towards abstraction).

For this scheme, it is proposed that the penstock be made of 10 bar, 315mm OD HDPE pipe. The pipe would be welded into 120m lengths at a designated welding area before being towed up the hill to the installation location.

### 2.4.3 Turbine House & Outfall

During the site survey, a preferred location for the turbine house was identified at NB 13374 27238 below the Lodge. This location was chosen as it maximises the head available to the scheme and is easily accessible from the main Estate. The turbine house will only be visible from within the Estate, owing to its small scale (4x4m), local topography and cover from existing buildings.

Externally, the turbine house will have timber clad walls and a turf roof to help it blend into the natural surroundings and reduce visual impact. The structure will be set into the ground. Earth excavated from the turbine house location will be used to grade the slope behind the turbine house such that the turf roof appears level with the surrounding ground when viewed from the Lodge.



**Figure 5:** Turbine house location (not to scale).

Figure 5 shows the approximate location of the turbine house. The footprint of the turbine house will be 4x4m with 2.4m high walls. Figure 6 shows an example of a similar turbine house structure built by Proterra Energy on the Isle of Skye.



**Figure 6:** Example Turbine House (Isle of Skye).

The buried outfall will extend from beneath the turbine house over to the edge of the burn. The outfall will be constructed using a twin wall pipe with a stone built headwall around it into the bank of the burn. The outfall will be fitted with a rubber finger baffle to reduce noise.



Mean Flows with Timeframe		Annual Flow Duration Curve Statistics	
	Flow (m <sup>3</sup> /s)	Percentile (Q)	Flow (m <sup>3</sup> /s)
Annual	0.084	5	0.301
January	0.130	10	0.209
February	0.103	20	0.127
March	0.094	30	0.085
April	0.060	40	0.060
May	0.043	50	0.043
June	0.037	60	0.031
July	0.041	70	0.023
August	0.058	80	0.016
September	0.077	90	0.010
October	0.114	95	0.007
November	0.120	98	0.005
December	0.132	99	0.005

**Table 1:** Summary of Modelled flow statistics for Allt na Muilne.

Table 1 contains a summary of the LowFlows data provided for the Allt na Muilne. Columns 1 & 2 display the annual and monthly mean flows for the burn. This highlights the difference in flows throughout the year, with the months between September and March being noticeably higher than the summer months. This is typical for most burns and has a direct relationship with the average rainfall figures for the area.

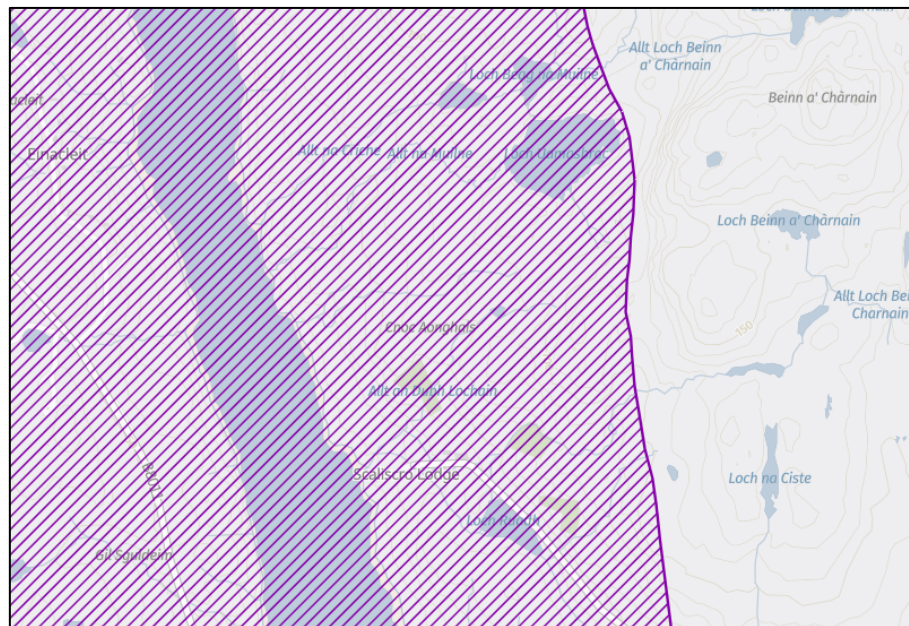
Columns 3 & 4 display the annual flow percentile figures for the burn. These figures are often displayed as Q5 or Q90 and relate to the percentage of time that the burn will exceed a certain flow. For example, the Q30 flow for the watercourse is 0.085m<sup>3</sup>/s (85l/s). This means that the flow in the burn is expected to exceed 0.085m<sup>3</sup>/s for 30% of the year.

This catchment and abstraction fed the fish farm at Scaliscro for many years.

## 3.0 Environmental, Landscape & Amenity

### 3.1 Environmental Assessment

A review of the NatureScot Sitelink database shows that the proposed development does not fall within a listed Site of Special Scientific Interest (SSSI) or a Special Area of Conservation (SAC). Although the development falls within the greater South Lewis, Harris and North Uist National Scenic Area (NSA) it lies on the eastern extent of the boundary. The proposals comprising; reuse of existing dam, buried pipeline and small timber clad turbine house, should not negatively affect the designation. Particularly when set in the wider context of the extensive Estate refurbishment works currently being implemented.



**Figure 8:** Map showing Local Designated Areas.

#### 3.1.1 Environmental Surveys

As discussed in Section 2.4, the fish habitat survey carried out by Outer Hebrides Fisheries Trust concluded:

- Only a small amount of habitat is accessible in the lower end of the Allt na Muilne as there are two significant natural barriers within 125m of where the river enters Little Loch Roag (tidal area). The second barrier would prohibit upstream passage of all migratory fish, regardless of flow conditions.
- The shallow depth of the pool below the dam at Loch Uamasbroc (<25cm) would prevent fish from leaping the dam, making it a barrier regardless of flow conditions. However, the natural barriers identified downstream mean that migratory fish cannot reach the dam.
- Spawning habitat above Loch Uamasbroc is very limited, and the two potential trout spawning habitats identified would not be affected by drawing the water level in the Loch down by 200-300m.

The proposed abstracted reach is west facing with no tree coverage. Additionally, the channel is not deeply incised and it is therefore unlikely that an Oceanic Bryophyte survey will be required.

No evidence of otter activity has been identified near the dam during site visits. Work at the dam will be limited to mechanical pipe installation, rather than construction work, and penstock excavation will be carried out remote from the watercourse environment.

Standard good practice will be adopted to protect all wildlife species during installation works;

- Excavations will be reinstated as soon as practicable. Timber ramps will be placed at the end of the day where excavations are left open to ensure that any animal can safely exit the trench.
- Pipes ends will be capped / covered at the end of each day to prevent access of wildlife.
- In the event that any protected species are encountered during the course of work, work will be stopped and advice sought from a qualified ecologist.

### 3.1.2 Flood Risk Assessment

In practice, the run of river hydropower process can actually reduce the risk of flooding through the abstracted reach because a proportion of the flows in the burn are removed and diverted through a penstock, thus reducing the water passing down the burn.

The hydro scheme will make use of an existing weir for abstraction so will not add an additional impoundment. Therefore, it will not pose an increased flood risk upstream.

Although the outfall will return water to Allt an Dubh Lochain, rather than Allt na Muilne, it does so directly before the watercourse discharges into Loch Rog Beag. Therefore, there is little risk of the water discharged from the turbine backing up the watercourse channel. This follows the same outfall arrangement previously used by the fish farm, which ran for many years without issue.

### 3.1.3 Noise Assessment

Noise measurements of similar schemes, show the following operational noise levels:

- Inside the turbine house next to the operating turbine – 75dB(A)
- Outside the turbine house 1m from doors, doors open – 65 dB(A)
- Outside turbine house 1m from doors, doors closed – 56 dB(A)

The nearest property to the turbine house is Scaliscro Lodge (Estate owned) ~120 m to the east. At this distance, the residual noise level is calculated as 33dB(A), assuming a clear line of transfer. In reality, the turbine will be positioned in a low point meaning visual and noise impact will be attenuated by surrounding topography. Additionally, a baffle will be fitted to the outfall to reduce the noise from the outfall.

### 3.1.4 Peat Management

In the event that areas of deep peat (>1m) are identified during installation of the penstock and cannot be avoided, the following measures will be put into place to minimise the impact:

- Where it is possible to avoid sensitive areas these should be fenced off so as not to allow accidental damage.
- Turf and peat handling should be kept to a minimum by the removal and storing coinciding. The following actions shall be undertaken to ensure minimal disturbance to turf/peat layers:
  - Turf and peat removal should not take place during very wet conditions as it may damage the structure of the peat.
  - Excavated material will be stored separately to avoid the mixing of layers of peat/soil and rock.
  - The top layer of peat and turf will be removed to a depth of approximately 500mm and carefully relocated to the side of the penstock route.
  - Double-handling will be minimised to avoid further degradation of turf caused by it falling apart or roots becoming damaged.
  - To reduce compaction at the bottom of a pile which would result in de-oxygenation, peat and turf will be stored in heaps ≤ 0.5m high.

- To maintain healthy plants which will be useful for quick restoration, turf will be stored for as short a period as possible.
- Turf will be stored green side up to avoid drying out of the peat and encourage vegetation growth during storage.
- Moisture content of stored/stockpiled peat will be monitored and if it falls below 25% of that measured in surrounding intact peat then it will be watered.
- To reduce the risk of erosion of peat particles and dissolved organic carbon entering the burn, care will be taken to store peat such that it will not be possible for run-off from the pile to directly enter the watercourse.
- Pipe route will be excavated and laid in sections ~120m long.
- Low ground bearing machinery to be used.

To permit the restoration of the full range of plant community species along the corridor, turf and top peat will be replaced from as near as possible to its site of origin. The following measures will be taken:

- Follow the pattern of the existing landscape and avoid neat, even finishes. Place the peat to create undulations and local variation in the soil's surface, which should assist the establishment of seeds.
- Ensure edges of turfed areas are level to existing ground to prevent wind erosion.
- After re-instating peat/turf avoid trafficking over it again. This will be helped by working out of an area, so that the re-instatement work is the last action.
- Place turfs green side up with roots buried;
- Turf and top peat should be placed loosely and firmed down by gently tamping down with the digger bucket teeth or by treading on.
- Should turf supply become limited, it should be placed in an irregular, pattern with gaps between turfs into which vegetation will spread;
- Follow the pattern of the density of rocks in the adjacent landscape. If these are scattered sparsely or in dense groups this should be replicated in the restoration;
- Should the turves be replaced during a hot/rainless period, watering may be required to ensure organic matter does not dry out

### 3.1.5 Pollution Prevention

The following table outlines the main pollution risks associated with the work and the typical mitigation methods which will be used to minimise these risks. A more extensive pollution prevention plan will be prepared for this development and submitted as part of the pre-construction notifications.

<b>Risk</b>	<b>Mitigation action</b>
Workers unaware of on-site environmental procedure	<ul style="list-style-type: none"> <li>● Daily toolbox talks to be held as well as confirming presence of a copy of Risk Assessment, Construction Management Plan and Incident Response Plan.</li> </ul>
Introduction of foreign pathogens	<ul style="list-style-type: none"> <li>● Footwear should be sprayed with disinfectant on introduction to site.</li> </ul>
Risk of fuel/chemical leaks into watercourse	<ul style="list-style-type: none"> <li>● The main store for fuel and cement will be at the main lay down area in the Estate yard. There will be a spill kit on site at all times during construction.</li> <li>● Any re-fuelling shall take place a minimum of 10m from the watercourse using provided drip trays and funnels.</li> </ul>
Pollution caused by excavator.	<ul style="list-style-type: none"> <li>● Excavator washed prior to entry to site.</li> <li>● Excavator checked for leaks daily.</li> <li>● Spill kit kept within excavator at all times.</li> </ul>



Potential of siltation/pollution of watercourse through on-going work.	<ul style="list-style-type: none"> <li>• Silt barriers set up at any point where work is due to commence within 10m of burn edge.</li> </ul>
Risk of run-off from excavated materials entering watercourse.	<ul style="list-style-type: none"> <li>• Excavated vegetative turf layer should be stored on the opposite side of the excavation to the watercourse.</li> <li>• Any extra substrate should be compacted to reduce the risk of run-off during wet conditions</li> <li>• If necessary, any excavated soil could be covered by a waterproof membrane to ensure it is not washed in to burn. This decision can be informed by knowledge of the surrounding topography and an up to date weather forecast.</li> <li>• Install any excavated soil/turf as soon as possible.</li> </ul>
Pollution of watercourse during abstraction installation.	<ul style="list-style-type: none"> <li>• Pumped water to be released over 10m away from watercourse and allowed to dissipate through vegetation before re-entering burn.</li> <li>• Care must be taken to avoid resin entering watercourse.</li> </ul>
Penstock acting as preferential drain.	<ul style="list-style-type: none"> <li>• A dry clay mix plug will be laid into the penstock trench at points where it is thought that the backfilled trench is at risk.</li> </ul>

**Table 2:** A summary of the main risks and mitigations included in the full pollution prevention plan.

### **3.2 Landscape Visual Impact Assessment / Landscaping / Planting**

The scheme is located on Scaliscro Estate, which has a mixture of open hill ground and rough grassland as well as in bye land. There are a variety of buildings on the Estate including; farm sheds, workshops and residential properties (including several cottages being constructed). The visual impact of the installation has been taken into account in the design of the scheme.

From a visual impact perspective, the scheme has a number of short term and long term elements:

- Short Term
  - Access
  - Scheme Construction
  - Penstock Installation
  - Electrical Cable Installation
- Long Term
  - Intake
  - Penstock
  - Turbine House
  - Electrical Cable
  - Access

**Short Term - Access**

Access to Scaliscro Estate is along a private road, approximately 2.5km long, from the B8011. A private road serves the Estate properties with a series of tracks leading to more remote areas of the Estate. Access to the turbine house location will be via existing tracks. Access to the intake will be via existing tracks suitable for tracked / low ground impact vehicles.

Due to the small scale of the development, delivery of equipment and materials to the site will mainly be 5-6 HGVs and thereafter 4x4 and trailer. Deliveries can be made to the temporary laydown areas then transported to the required construction area using ATV or tracked dumper.

Short term access will not cause significant visual impact beyond the normal workings of the Estate and current construction/building works.

**Short Term - Construction**

Turbine house construction and work on the lower reaches of the penstock may be visible from the public road on the other side of Loch Rog Beag (subject to weather conditions and vantage point). The works may be visible from a residential property on the other side of Loch Rog Beag, however this property is over 1km away so the visual impact will be minimal, and significantly less than current Lodge works which are openly visible and of much larger (x20) scale.

There will be a medium visual impact during the construction period, consisting of penstock excavation and turbine house erection. This impact is commensurate with current construction works on the Estate.

Works at the abstraction will not be visible from the public road due to the topography of the site.

**Short Term – Penstock & Electrical Cable Burial**

An excavator will be used to install the 315mm diameter penstock down the south east side of the burn. Works on the lower section of the penstock may be visible from the public road.

Trenching will be carried out in a manner so as to reduce the length of time the trench is open and the ability of the affected ground to be reinstated. The top level of turf will be removed and placed directly to one side to be re-laid. The excavated material will be positioned separately and once the penstock is installed and tested, the trench will be reinstated with the turf replaced on the top. There will be short term scarring along the route of the penstock which will heal over time. The lower half of the penstock is through land occupied by cattle and horses and any marking of the ground will be indistinguishable from the current cattle pouching / movement.

**Long Term – Intake**

Due to the remote location and topography, the intake will not be visible outwith the immediate area. Access for weekly maintenance / checking of the intake will be made on foot or ATV along the existing access track.

**Long Term – Penstock**

The penstock will be buried and ground reinstated, natural cover will re-establish over time.

**Long Term – Turbine House**

The exterior finish of the turbine house, stone and turf cladding, will ensure that the structure does not contrast with its surroundings even when viewed at close proximity. From a distance, the structure will blend into the landscape.

The risk matrix below shows the potential for Visual Impact and mitigating actions that can be taken to reduce the impact.

<b>Scheme Element</b>	<b>Location relative to site</b>	<b>Visual Impact (H/M/L)</b>	<b>Mitigation Action (A) / No Action (NA)</b>	<b>Residual Impact (H/M/L)</b>
Access	To Site	L	Use existing access tracks and access across open estate land.	L
Access	Entire Site	M	Construction phased to minimise impact on environment. Use of off road, low impact ATVs. (A)	L
Intake	Upper Section	L	Intake is concealed by topography of site (NA)	L
Penstock	Entire Length	L	Buried, non-visible (A)	L
Turbine House	Lower	M	Timber and turf finish to blend with natural surroundings, semi buried.	L
Electrical Cable	Lower	L	Buried along length and reinstated post construction.	L

**Table 3:** Risk Matrix - Visual Impact.

### **3.5 Landscape / Scheme Maintenance Access & Management**

The maintenance requirements of the scheme will be:

- Maintenance checks on the Intake
- 6 monthly Maintenance of the Turbine

#### **Intake Checks**

Intake checks will be carried out weekly/fortnightly by the Applicant or when the performance of the system suggests there may be a blockage. Access to the intake location will be via the existing ATV track. Cleaning does not require the use of any plant or equipment, just the manual removal of debris from the intake screen.

#### **Turbine Maintenance**

Turbine maintenance will be carried out 6 months after commissioning and then annually thereafter. There is no requirement for plant or equipment to access the site for maintenance. Access will be by foot or 4x4 along the existing Estate track to the turbine house.

## **4.0 Construction Management**

A construction method statement has been prepared and included with this submission. It details those involved in the construction and provides an overview of the steps undertaken to build the different parts of the scheme. The small size of the scheme and its similarity to others already constructed by Proterra Energy mean that the construction method is relatively well known.

Detailed site risk assessments will be prepared in advance of the construction of the scheme and will be issued to all parties. Day to day tool box talks and reviews of risk assessments and methods of working will ensure that any unknown features or events can be incorporated into the work plan.

## **5.0 Operation**

Once the scheme is installed and commissioned it can be operated relatively unobtrusively. The control system features automatic shutdown procedures in the event of system or component failure.

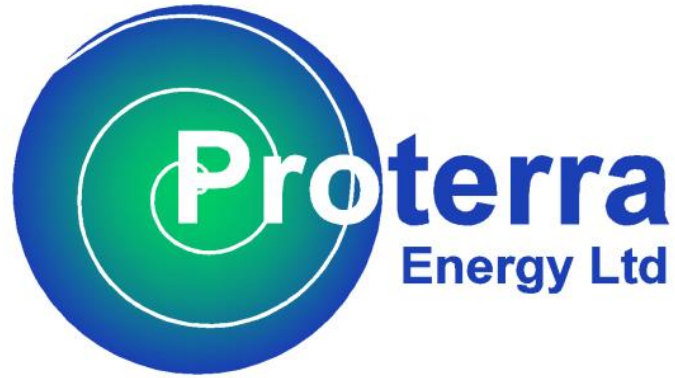
The automatic head level sensor will allow the system to constantly monitor water levels in the loch and ensure that the turbine runs efficiently but within the boundaries of the abstraction licence and shuts down under low flow conditions to protect the watercourse system.

The scheme will, on average, be visited once per week throughout the year. This may involve a check on the intake and a check on the performance of the turbine system from the turbine house.

## **6.0 Decommissioning**

A well designed and maintained hydro scheme can have a life expectancy of over 30 years. Maintenance, repairs and replacement parts can be sourced / carried out economically. At the end of its operating life which may be up to 50 years from commissioning the small size of the scheme means that it can be decommissioned relatively easily in a similar fashion to the agreed method for others of its size.

The turbine can be removed and sold for a reasonable scrap value, considering its metallic content, or renovated and used elsewhere. The penstock would be capped and left in the ground, unless another worthwhile use could be found for it or the recycled value of polyethylene was worth the cost (and environmental impact) of removing it. The turbine house could either be raised to the ground or repurposed depending on the needs of the estate at the time. If raised, the materials could be recycled or reused on site.



# Scaliscro Micro Hydro Scheme

## Pollution Prevention Plan

**234-06-PPP01-Rev01**

Rev	Document	Author		Checked		Approved By		Date
		Initials	Signature	Initials	Signature	Initials	Signature	
00	Draft	KM						
01	Issued	KM		LS		TFS		30/04/2024

**Confidentiality Notice**

This communication and the information it contains:-

- (a) Is intended for the person(s) or organisation(s) named above and for no other person(s) or organisation(s).
- (b) May be confidential, legally privileged and protected in law. Unauthorised use, copying or disclosure of any of it may be unlawful.

If you have received this communication in error, please contact us immediately by email at [info@proterra-energy.com](mailto:info@proterra-energy.com)

## Revision History

Revision No.	Details
00 01	<p><b>Previous Versions:</b> Draft issue</p> <p><b>Issued on:</b></p> <p><b>Client:</b></p> <p><b>Authorities:</b></p> <p style="padding-left: 40px;">SEPA</p> <p style="padding-left: 40px;">Comhairle nan Eilean Siar (Western Isles Council) Planning Authority</p> <p><b>Proterra Energy File Reference:</b></p> <p style="padding-left: 40px;">234-06-PPP01-Rev01</p>

**Scaliscro Project 234 - Environmental Pollution Prevention Plan**

<b>Action</b>	<b>Risk</b>	<b>Mitigation/Action</b>
<p>1. Arrive on site and receive site induction.</p> <p>This will include low risk tasks such as setting up signage/barriers and marking any no go areas</p>	<p>1. Workers/Visitors unaware of environmental procedure on site.</p> <p>2. Introduction of foreign pathogens.</p>	<p>1a. Daily toolbox talks to be held as well as a review of risk assessment, construction management plan and Incident Response Plan.</p> <p>2a. Spraying of footwear with disinfectant on introduction to site to be carried out by all visitors/workers.</p> <p>2b. Spraying of footwear will be carried out after any other sites have been visited during the course of the construction period.</p> <p>2c. All visitors/workers to be reminded of risk, and advised to avoid unnecessary contact with the watercourse (i.e. walking/standing in watercourse).</p> <p>2d. All workers to be taught correct use of spill-kit.</p> <p>2e. All workers will be informed of number to call in case of a pollution incident – SEPA Hotline 0800 80 70 60. This is stored in the Incident Response Plan.</p>
<p>2. Set up silt barriers where required</p>	<p>1. Potential for siltation/pollution of watercourse through on-going excavation/construction work.</p>	<p>1a. Silt barrier will stop any excavated materials from falling or being washed into the watercourse throughout construction.</p> <p>1b. Barriers will be located at points where work will commence within 10m of the watercourse. The requirement</p>

		<p>for barriers throughout the site will be monitored by Proterra Energy.</p> <p>1c. Any barriers should be removed at the end of the construction stage or later if regeneration is still required.</p>
<p>3. Create access to site and clear turbine house location</p>	<p>1. Risk of washing away of excavated materials.</p> <p>2. Risk of hydraulic oil/fuel leak.</p>	<p>1a. Silt barriers to be set up along edge of burn adjacent to Turbine House location.</p> <p>2a. Before entering the site any plant should be cleaned so that there are no pollutants carried on site and any leaks are obvious.</p> <p>2b. Check excavators/machinery for leaks daily. If necessary fix/clean before use.</p> <p>2c. Have spill kit with machinery at all times.</p>
<p>4. Set up laydown area</p>	<p>1. Risk of fuel/chemical leaks into watercourse.</p>	<p>1a. The main store for fuel and cement will be at the laydown area next to the hatchery. This location is over 10m from the watercourse. There will be a spill kit on site at all times during construction.</p> <p>1b. The main off loading point from phased delivery vehicles will be at the existing construction laydown area next to the hatchery, thereafter, materials will be moved to their respective construction sites via ATV or tracked dumper.</p> <p>1c. Fuel stores to be kept at the main laydown area and banded.</p>



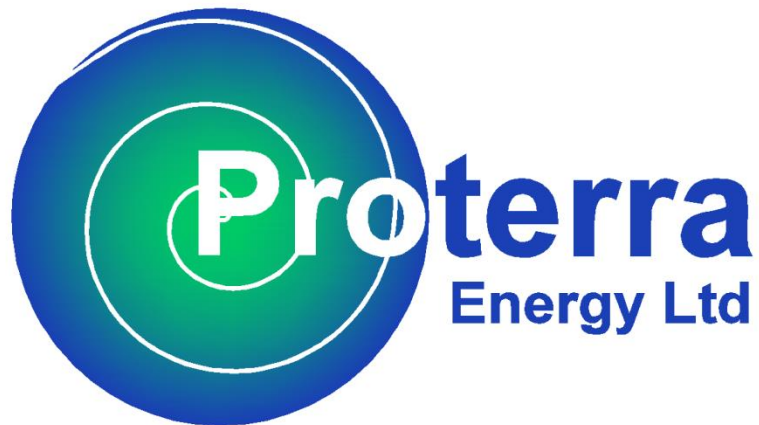
<p>5. Form penstock route to abstraction.</p>	<p>1. Risk of washing away of excavated materials.</p>	<p>1a. Bentonite bridges will be built in to the penstock route ditch and around the penstock to act as water weirs - to prevent water migration along the penstock route.</p>
<p>6. Installation of Penstock and Transfer Pipe  Joint pipe and bury, working downwards from the abstraction.</p>	<p>1 Risk of hydraulic oil/fuel leak</p> <p>2. Risk of washing away excavated materials as the pipe is covered.</p>	<p>1a. Check pipe welder for leaks at laydown area on arrival to site. On-going checks to plant will be carried out throughout work. Any machinery found to be leaking will be fixed/cleaned prior to use.</p> <p>1b. Re-fuelling of associated generator should be carried out over 10m away from the burn using suitable funnel with a spill kit present.</p> <p>2a The installation of the penstock will be completed progressively in phases. The 12m sections being welded into 120m strings to make up the entire penstock length in the estate yard.</p> <p>The penstock is then laid into an excavated trench from the abstraction location downwards along the penstock route trench in opened short sections as detailed below:</p> <ol style="list-style-type: none"> <li>1. The Trench curves are excavated and laid to the side of the trench.</li> <li>2. The trench soil section is excavated and laid to the opposite side of the trench.</li> <li>3. The welded penstock is then lifted up, slewed over the trench and laid and positioned in sections in to the excavated trench.</li> </ol>

		<p>4. The laid intervals of penstock will then be re-covered/filled in using the excavated soil. Where applicable, bentonite clay bridges will be installed across the trench and around the penstock pipe prior to re-covering.</p> <p>5. Then the top turves will be re-instated.</p>
7. Excavate turbine house, exhaust chamber and outfall.	1. Risk of washing away of excavated materials	<p>1a. Material to be stockpiled away from the burn.</p> <p>1b. Excavation of tailrace should be avoided during high/spate flow. This will be informed by a daily assessment of the weather forecast and the existing conditions on site.</p>
8. Construct foundations and exhaust chamber and outfall.  The mixing of concrete will take place more than 10m away from the water course.	1. Potential for pollution of watercourse.	<p>1a. Ensure minimal leaking from any shuttering before introducing concrete.</p> <p>1b. If heavy rain is forecast the mixing of concrete will be postponed until the weather clears. Wet concrete should be covered overnight in case of rain where forecast.</p>
9. General concreting of small batches using on-site mixer  Quantities will be very small, less than 3m <sup>3</sup> in total over several batches	1. Potential for pollution of watercourse.	<p>1a. Set up mixer on flat ground over 10m away from the burn.</p> <p>1b. Move aggregate/sand as required from lay down area to mixer.</p> <p>1c. Open bags of cement will be covered and stored in the laydown area overnight.</p> <p>1d. Ensure minimal leaking from any shuttering before introducing concrete.</p>

		<p>1e. Batch “medium” loads of concrete. This will reduce chances of spilling from barrow/bucket and leave less extra at the end of day. Efforts should be made to have as close to no spare left over as is practical.</p> <p>1f. No pouring of concrete to take place if heavy rainfall is predicted. This should be checked on the morning of any planned concrete work. Concrete should be covered overnight in case of rain.</p> <p>1g. Wash water from the mixer will be stored in a sump which will be designed to contain 1.5 x the mixer volume and be lined with plastic sheeting. This will then settle to be re-used the following day. The sheeting and any leftover concrete in the sump will be removed at end of job and contents disposed of.</p>
<p>10. Lay in tailrace pipe to outfall.</p> <p>This will be done mid stage 8, between the foundation for the exhaust chamber setting and the construction of the exhaust chamber around the tailrace pipe.</p>	<p>1. Potential for siltation/pollution of watercourse.</p> <p>2. Risk of hydraulic oil/fuel leak.</p>	<p>1a. Ensure pipe is clean of oil/soil.</p> <p>1b. Top end of pipe should be blocked to avoid concrete spilling down and into river.</p> <p>1c. Ensure footwear of anyone by the river bank is clean of excess soil mud or any cement based material.</p> <p>2a. Check excavator for leaks daily. If necessary fix/clean before use.</p> <p>2b. Have spill kit by machinery at all times.</p>
<p>11. Construct turbine house as per Proterra Energy drawings.</p>	<p>1. Potential for siltation/pollution of watercourse.</p>	<p>1a. Any chemicals/paints will be stored away from the burn.</p>

	<p>2. Risk of hydraulic oil/fuel leak</p>	<p>1b. Any work requiring the use of a Stihl saw will be carried out over 10m away from the water’s edge and ideally downwind of the watercourse.</p> <p>2a. Drip tray should be used for any static machinery within 10m of the watercourse.</p>
<p>12. Bury electric cable from turbine house to grid connection point.</p> <ul style="list-style-type: none"> <li>• Excavate cable trench to depth min. 0.6m - 1.0m below ground level.</li> <li>• Lay cable and warning tape</li> <li>• Backfill trench</li> <li>• Fix cable to underside of bridge</li> </ul>	<p>1. Risk of hydraulic oil/fuel leak</p> <p>2. Potential for siltation/pollution of watercourse</p> <p>3. Potential for electrocution</p>	<p>1a. Check excavator for leaks daily. If necessary fix/clean before use.</p> <p>1b. Refuel over 10m away from watercourse using drip tray.</p> <p>2a. Barriers will be located at points where work will commence within 10m of the watercourse. The requirement for barriers throughout the site will be monitored by Proterra Energy.</p> <p>2b. Any barriers should be removed at the end of the construction stage or later if regeneration is still required.</p> <p>3a. Careful consideration to routing design and handling of power export cable- as follows:</p> <p>3b. Excavation for cable track will from the Turbine house to the new grid connection point.</p>
<p>13. Excavate penstock route below abstraction location.</p>	<p>1. Risk of heavy rain washing away soil/rock.</p>	<p>1a. During excavation, move any soil/rocks away from water’s edge.</p>

		<p>1b. If necessary, any excavated soil could be covered by a waterproof membrane to ensure it is not washed in to burn. This decision can be informed by surrounding topography and knowledge of an up to date weather forecast.</p>
<p>14. Install turbine and electrical system and carry out commissioning trials.</p>	<p>1. Introduction of foreign bacteria/parasites</p>	<p>1a. At this late stage in the project it will be worth reminding remaining workers and visitors of the need to disinfect their footwear. This will be essential when the installer of the electrical system and electrician visit the site, due to the potential of foreign pathogens reaching the watercourse.</p>
<p>15. Handover to client and provide “operating and maintenance” paperwork.</p>	<p>1. Future pollution/siltation issues.</p>	<p>1a. Client will be advised to check site regularly to make sure no further issues have arisen, especially immediately downstream of the outfall. Any issues that arise should be noted and Proterra Energy Ltd contacted to provide advice.</p> <p>1b Client/maintenance team will be provided with commissioning handover document containing copies of contact details for SEPA and SNH and a copy of the CAR License.</p>



# Scaliscro Micro Hydro Installation

## Construction Method Statement

**234-06-CMS01-Rev01**

Rev	Document	Author		Checked		Approved By		Date
		Initials	Signature	Initials	Signature	Initials	Signature	
0	Draft	KM						
1	Issued	KM		LS		TFS		29/04/2024

**Confidentiality Notice**

This communication and the information it contains:-

- (a) Is intended for the person(s) or organisation(s) named above and for no other person(s) or organisation(s).
- (b) May be confidential, legally privileged and protected in law. Unauthorised use, copying or disclosure of any of it may be unlawful.

If you have received this communication in error, please contact us immediately by email at [info@proterra-energy.com](mailto:info@proterra-energy.com).

## Contents

<b>Contents .....</b>	<b>2</b>
<b>1.0 Introduction .....</b>	<b>3</b>
1.1 Notes on Design.....	3
<b>2.0 Roles &amp; Responsibilities.....</b>	<b>4</b>
2.1 Project Manager (PM - Proterra Energy) .....	4
2.2 Proterra Energy (PE).....	4
2.3 Building/Machinery Contractor (BC/MC) .....	4
2.4 The Client.....	4
2.5 Health & Safety .....	4
<b>3.0 Environmental Control .....</b>	<b>5</b>
3.1 Basic Operational Issues .....	5
3.2 Mammals.....	5
3.3 Aquatic Environmental Controls.....	5
<b>4.0 Pollution Control.....</b>	<b>6</b>
<b>5.0 Construction Method.....</b>	<b>7</b>
5.1 Setting out .....	7
5.2 Turbine House Site .....	7
5.3 Penstock.....	8
5.4 Intake.....	9
5.5 Installation of Turbine.....	9
5.6 Commissioning.....	9
<b>6.0 Other Elements .....</b>	<b>10</b>
6.1 Access.....	10
6.2 Contacts .....	10
6.3 Waste .....	10
6.4 Noise .....	10

## 1.0 Introduction

This Construction Method Statement covers the work involved in installing the micro hydro system on Loch Uamasbroc, Scaliscro, including the civil works, installation of the turbine and commissioning.

The proposed scheme uses an existing intake on Loch Uamasbroc. This will feed water in a new penstock running down the hill to a turbine house. The abstracted water will drive the turbine before being discharged, via a tailrace, into an adjacent watercourse. This follows the abstraction regime of the hatchery that used to operate on site. The abstracted reach is approximately 1300m.

The construction work will comprise the following key steps:

- The excavation of the turbine house and laying of foundations.
- The excavation of the penstock route.
- Penstock connection to the existing weir and installation of intake screen.
- The building of a small timber clad turbine house, complete with turf roof.
- The installation of turbine system.
- Testing and commissioning of the system.

It is envisaged that the works would be completed within 6-8 weeks, subject to weather conditions, some elements of the work may be carried out in advance or after others.

A copy of this document will be kept with others on site during the construction phase for reference.

### 1.1 Notes on Design

#### Intake

The design uses an existing 12" UPVC outlet within the existing concrete weir. The intake has been designed to abstract the flow required by the turbine, 62l/s. The new penstock will be modified to allow for provision of a hands off flow which was previously not accounted for.

#### Outfall

The proposed outfall drawings, submitted in the CAR Licence Application, show a single 450mm twinwall outfall pipe discharging, via an outfall splay, to the Allt an Dubh Lochain. The end of the pipe will be screened to 20mm to prevent wildlife access.

#### Turbine House

The turbine house will be a 4x4m timber clad construction with a single pitched, turf roof. The turbine house has been sized to be the minimum required size in order to reduce the excavation and construction required and to reduce the overall visual impact of the scheme.



## **2.0 Roles & Responsibilities**

This is a small sized scheme and will involve working with multiple parties on site. These are identified as:

- Main Contractor – Proterra Energy Ltd
- Machinery/Building Contractor – Duncan Mackay Ltd
- Client

All work will be carried out in accordance with planning conditions, CAR licence regulations and any other instructions or guidelines issued by statutory bodies and approved by the Project Manager.

### **2.1 Project Manager (PM - Proterra Energy)**

The Project Manager will attend site during the construction phase of work. Responsibilities will include supervising activities of Proterra Energy staff and sub-contractors. The Project Manager will also have responsibility for ensuring that the scheme is constructed in accordance with planning conditions and in accordance with guidelines from statutory bodies, particularly those in relation to working near water bodies.

### **2.2 Proterra Energy (PE)**

Proterra Energy is the designer of the hydro scheme and will be responsible for the installation and testing of all mechanical and electrical hydro infrastructure.

### **2.3 Civils/Building Contractors (CC/BC)**

The Clients existing Civils Contractor will be responsible for installing the main body of the HDPE penstock including all excavation and reinstatement works. They will also be responsible for excavating and laying the turbine house floor.

The Clients existing Building Contractor will be responsible for building the turbine house structure.

### **2.4 The Client**

The Client, or their onsite representative) will be responsible for providing clear and unimpeded access to the site including space at the laydown area(s). Information on any services and land boundaries will also be required.

### **2.5 Health & Safety**

All parties are responsible for contributing to health & safety on site and the protection of the environment. Copies of this plan and risk assessments will be kept on site and should be consulted if there are any questions over methodology. If there are any doubts, work should be stopped and the Project Manager consulted before continuing.

- Site standard PPE will include safety boots as minimum. Hard hats to be worn if lifting above head height or working below others is to be carried out. Where machinery and vehicles are moving in and around the site, for example deliveries, then high visibility vests / clothing to be worn.
- All accidents / near misses are to be reported to the Project Manager no matter how small and will be reviewed prior to the next day's work and discussed at the next morning's briefing.
- Hot Work risk assessment to be carried out before welding or grinding activities.
- A lifting plan to be agreed before any lifts are carried out.

## **3.0 Environmental Control**

### **3.1 Basic Operational Issues**

The construction and installation of the scheme does not involve any activities that are known to have a direct negative effect on the environment. However, prior to beginning work the Project Manager will review with staff and contractors on site the following operational issues:

- Worker's footwear and equipment should be cleaned on arrival or when moving between different water bodies to avoid unintentional movement of species. Given the layout of this scheme this is likely, so suitable disinfectant will be provided for use if required.
- There are no significant features due to mammals, however if any species are found in the site, then work should be stopped and the Project Manager consulted.
- The working boundaries of the site will be marked out and work should be contained within these areas to avoid unnecessary disturbance.
- There is no regular access to the general public, however warning barriers will be put up to alert anyone who does approach the work site.
- Restoration of the ground will be carried out once the works are complete. The areas of excavation will have turf lifted and placed to one side and materials excavated. These will be returned in the same layers and turf replaced.

### **3.2 Mammals**

A fish habitat survey has been carried out for the development locations. A copy of the report is included with the Planning Submission. The survey did not identify any showstoppers to the development.

The scheme will be constructed with consideration for the movement of animals, for example any excavations left open overnight will either be covered or a ramp left in place to allow animals to get out. Penstock ends to be covered/capped at end of day.

### **3.3 Aquatic Environmental Controls**

The scheme will be constructed following SEPA's guidance on hydropower construction best practice.

Worker's PPE and machinery will be cleaned before moving between sites. A disinfectant spray will be kept on site for this purpose and for visitors.

In river construction works will be carried out in during the spring/summer months, out with the time when fish are likely to be spawning (October to March).

## 4.0 Pollution Control

- Before any works begin near the burn's edge at the turbine house, a silt barrier will be placed along the river bank around that section of the site to ensure no debris falls into the river. It will also serve to avoid unintentional access into the river.
- Where manual work requires to be carried out from the edge of, or in the watercourse this must be in agreement with the Project Manager and only when the work cannot feasibly or safely be done from the bank – an example is installation of the instake screen.
- Any machinery or power tools that require refuelling will be refuelled at laydown areas, more than 10m away from the edge of the burn.
- No machinery to be left next to the burn bank overnight.
- Spill kits will be kept on site for the unlikely event that any chemicals or materials are spilt. Due to the scale of the construction this is only likely to be litres in volume. Any contaminated ground would be removed and bagged for disposal.
- No pouring of concrete will take place when heavy rain is imminent unless the site is protected (under cover).
- SEPA guidelines on Pollution Control will be followed.
- Silt barrier fencing to be kept on site in case conditions change or more is required.
- Where silt barriers are installed they will be checked regularly (every 2-3 days) and cleaned if necessary. They will also be checked after periods of high rainfall.

A Pollution Prevention Plan will be written up which specifically refers to activities that have the potential to impact upon the environment. This will be kept on site along with this document and discussed with all work parties. A copy of this will be submitted for approval with pre-construction paperwork.

An Incidence Response Plan will be drawn up using the suggested format in SEPA's Pollution Prevention Guidelines PPG21. A copy of this will be kept in the site folder and it will be discussed with all parties on site. A copy of this will be submitted for approval with pre-construction paperwork.

## 5.0 Construction Method

Some general points for construction:

- The Project Manager or Site Representative will inspect the site at the beginning and the end of each working day to ensure activities are being carried out according to plan.
- A morning meeting will take place with all site operatives to review the day's activities and review risk assessments and ensure they are still relevant or to draw up new ones if required.
- Where an activity is to be carried out in a different way to originally planned, a toolbox talk to be held by those involved to discuss new methodology. If any change to environmentally sensitive activity then Project Manager to be contacted in advance of work. All parties are to be made aware of the change.
- All cement / concrete will be stored at the lay down areas and mixed away from the edge of the river.
- Where work is to continue in low light, lighting rigs should be set up in advance.

Construction to be carried out using tracked excavators and dumpers to limit ground impact. Plant will be supplied by the Civils Contractor.

The tasks detailed below will not necessarily be carried out in the order in which they are laid out.

### 5.1 Setting out

Item	Description	Responsible
5.1.1	Project Manager will conduct a site walk round to identify areas to be marked off	PM
5.1.2	Barriers to be erected around site	PM
5.1.3	Peg mesh fencing along edge of river where required	PM
5.1.4	Carry out review of CMP and Risk Assessments	All
5.1.5	Set out site levels and markers, including penstock and associated working corridors	PE
5.1.6	Clear site ready for construction	PE
5.1.7	Identify laydown area in Estate yard next to hatchery, as required.	PE

### 5.2 Turbine House Site

The turbine house is a 4m x 4m building with a single pitched roof. It will be timber clad with a turf roof.

Item	Description	Responsible
5.2.1	Ensure silt barrier installed along edge of burn at outfall	PE
5.2.2	Excavate soil layer to depth. Lay turf and soil to one side for reuse	CC
5.2.3	Excavate outfall and install tailrace pipe	CC/PE
5.2.4	Install 20mm screen at end of outfall pipe	CC/PE
5.2.5	Cover tail race and replace turf over riverside section of ground	CC/PE
5.2.6	Lay foundation for exhaust chamber	CC
5.2.7	Build exhaust chamber and leave to set	CC

5.2.8	Back fill base of turbine house around exhaust chamber, compacting in layers	CC
5.2.9	Set out shuttering for foundation of turbine house	CC
5.2.10	Lay damp proof membrane over ground inside shuttering	CC
5.2.11	Install reinforcement mesh, 50mm above base	CC
5.2.12	Mix and pour foundation	CC
5.2.13	Once foundation has set, remove shuttering and store at laydown area.	CC
5.2.14	Build turbine house wall frames and dwang	BC
5.2.15	Build turbine house roof frames and dwang	BC
5.2.16	Install turf roof	BC
5.2.17	Cover turbine house walls with building paper	BC
5.2.18	Install Board on Board cladding around turbine house	BC
5.2.19	Install turbine house doors, guttering and edge profiles	BC
5.2.20	Tidy site and remove silt barriers. Re-lay turf around the turbine house and landscape.	BC/CC

### 5.3 Turbine Infrastructure

Item	Description	Responsible
5.3.1	Install turbine on plinth and control system on the wall	PE
5.3.2	Install level sensor on upstream side of dam.	PE

### 5.4 Penstock

Item	Description	Responsible
5.4.1	Confirm marked out route of penstock	PM
5.4.2	Make up penstock in ~100-120m lengths, by butt welding, in Estate yard.	CC
5.4.3	Pull penstock into position	CC
5.4.4	Connect upper end of penstock to weir.	
5.4.5	Remove turf layer on penstock route and lay to one side, at same time excavate trench.	CC
5.4.6	Where required, insert culverts or create gullies for drainage. Culverts to be laid during excavation to carry water above trench, culverts to be temporarily lifted (or cut and recoupled) to allow pipe to be laid in trench.	CC
5.4.7	Ensure availability of clay plugging material to stop penstock becoming preferential drain area (if required)	CC
5.4.8	Lay penstock in excavated trench, making final joints	CC
5.4.9	Lay head level sensor cable in penstock trench	PE
5.4.10	Recover trench using excavated materials, topping with previously removed turves	CC

5.4.11	Connect lower end of penstock to valve and manifold in turbine house	PE
5.4.12	Fit flushing section to end of penstock and flush	PE
5.4.13	Fill penstock with water and pressure test	PE

### 5.5 Intake

Item	Description	Responsible
5.5.1	Plug upstream side of 12" outlet under dam (pipestop bag or similar)	PE
5.5.2	Manually excavate gravel / rocks from around 12" pipe outlet (downstream side)	PE
5.5.3	Install intake screen on upstream side of dam	PE
5.5.4	Install new penstock infrastructure (isolation valve and pig access)	PE

### 5.6 Installation of Turbine

Item	Description	Responsible
5.6.1	Run main export cable from generator to control panel	PE
5.6.2	Run Spear Valve and turbine light cables from turbine to control panel.	PE
5.6.3	Install isolation switch and consumer unit	PE
5.6.4	Fit light and socket and wire up to consumer unit	PE
5.6.5	Fit generation meter	PE
5.6.6	Lay power cable from turbine house to Lodge	PE/CC
5.6.7	Make electrical connection from hydro scheme to off-grid system	PE
5.6.8	Re-cover trench	CC
5.6.9	Carry out Test Run for Voltage Check	PE

### 5.7 Commissioning

Item	Description	Responsible
5.7.1	Carry out test run of turbine	PE
5.7.2	Check communication with head level sensor, set operating levels, start levels and shut down levels	PE

## 6.0 Other Elements

### 6.1 Access

- Access to the main site will be via the existing entrance to the Estate, and the existing tracks.
- Deliveries will be by HGV for the main material delivery and by 4x4 and trailer for remaining items. Due to the small nature of the project, HGV deliveries will be limited to 6-8 over the 6-8 week construction period. All equipment and materials will be kept at the temporary laydown area next to the hatchery, then moved to the appropriate construction location.

### 6.2 Contacts

Position	Name	Contact
Proterra Energy	Terry Stebbings	Mob:07739 720 167 Email: <a href="mailto:terry.stebbing@proterra-energy.com">terry.stebbing@proterra-energy.com</a>
Machinery Contractor	TBC	Mob: Email:
Building Contractor	TBC	Mob: Email:
First Aider Appointed person on Site	TBC	Mob: Email:

### 6.3 Waste

All waste to be removed from site where required and disposed of appropriately.

### 6.4 Noise

Construction work will only take place on site during normal working hours, 07:00 to 18:00 on weekdays and if required 07:00 – 13:00 on Saturdays.