Technical Appendix 3.2: Borrow Pit Assessment

Carn Fearn Wind Farm

Carn Fearna Wind Farm Ltd

Prepared by:

SLR Consulting Limited

SLR Project No.: 405.064563.00001

13 March 2025

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
0	13 March 2025	R. Watson	A. Huntridge	A. Huntridge

Basis of Report

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Table of Contents

Figures in Text

Annexes

1.0 Introduction

SLR Consulting Ltd (SLR) was commissioned by Carn Fearna Wind Farm Ltd (the 'Applicant'), to undertake a Borrow Pit Appraisal (BPA) for the proposed Carn Fearna Wind Farm (the Proposed Development). The Applicant is proposing to submit a Section 36 application to construct and operate a 9-turbine wind farm (of which five are up to 200 m blade tip height, and four are up to 180 m blade tip height), energy storage and associated infrastructure, with a combined rated output in the region of 64.8 MW. **Figure 3.2.1** shows the Proposed Development and the layout of the site infrastructure.

There have been substantial works undertaken to date at the Proposed Development to inform the proposed borrow pit(s), including site reconnaissance visits and several phases of peat probing which are detailed within EIA Report **Technical Appendix (TA) 10.1: Peat Landslide and Hazard Risk Assessment (PLHRA) and TA 10.2: Peat Management Plan (PMP).**

The principal objective of this report is to provide an initial assessment of the aggregate requirements for the Proposed Development and identify the potential borrow pit suitable for providing this aggregate.

The proposed borrow pit search areas reviewed within this report were selected because of morphology, accessibility from proposed tracks, orientation and the expected proximity to suitable rock close to the surface. The Proposed Development is located within an area of peatland and the proposed borrow pit search areas have been selected based on areas where peat coverage is limited, but may be in close proximity to areas of peat and where bedrock may outcrop and potential aggregate reserves are expected to occur near the surface.

The work has been undertaken by a team of Geotechnical Engineers and Geologists with over 17 years' consultancy experience in undertaking borrow pit and geological assessments for renewable power projects in Scotland.

2.0 Desk Based Review

This assessment has been completed through a largely desk-based review of soil and geological maps and Ordnance Survey (OS) contour data with site reconnaissance undertaken by a geologist and geotechnical engineer, to cross-check the geological desk-based review.

2.1 Site Description

The Proposed Development is located approximately 1.55 km from Garve and 6 km north-east of Contin within The Highland Council (THC) local planning authority area. The Proposed Development is characterised by large areas of heathland, rough hill pasture and a small localised area of coniferous plantation forestry located in the north and more extensive plantation forestry on the access road to the main area of the Proposed Development. The topography is typically formed of steep slopes on the main access track which then level out to a plateau with rounded hills, outcropping crags and lochans at the base of the slopes up to Little Wyvis and Carn Gorm to the north-west. Three lochans exist within the central area of the Proposed Development. The highest elevation is at Beinn a' Ghuilbein at 471 mAOD, the lowest elevation is to the south of Allt Cnoc nan Cleireach on the access to the Proposed Development from Silverbridge at 112m AOD.

2.2 Geology and Soils

2.2.1 Artificial Ground

Based on the information available from the British Geological Survey (BGS) Geoindex[1], no made ground deposits are noted across the Proposed Development.

2.2.2 Superficial Geology

Based on the available BGS online data[1] there is an absence of mapped superficial deposits across large parts of the Proposed Development, mainly across steep slopes and hilltops. Glacial Till is mapped across the Proposed Development, generally at lower elevations. Minor Alluvium deposits are also mapped in the north-west near the watercourses at the access entrance and River Terrace Deposits at the Off-site Turning Circle. Peat deposits are extensively mapped across central areas of the Proposed Development but not recorded at the Off-site Turning Circle.

Figure 3.2.2 shows the superficial geology BGS mapping and the Proposed Development.

2.2.3 Bedrock Geology

Based on the available BGS online data[1] the Proposed Development is underlain by a number of different bedrock formations as detailed below:

- Glenfinnan Group – Psammite and Semipelite; the most common bedrock formation covering large parts of the Proposed Development.
- Garve Psammite Formation – Psammite; mapped along main access track and track towards T1 near Beinn a' Ghuilbein.
- Vaich Pelite Formation – Semipelite; mapped at main access track to north of Allt Abhagaith.

1 BGS Online Viewer, available at [https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.133433804.376188765.1646739904-1030004651.1646739904]

- Crom Psammite Formation – Psammite; mapped in the north-west at site access.
- Unnamed Metamorphic Rocks – Gneiss; mapped only on main access track at Glac Bhan.
- Carn Chuinneag And Inchbae Augen Gneiss – Granite Gneissose at the Off-site Turning Circle only.

No igneous intrusions are mapped directly within the main Proposed Development area.

One major fault is inferred south-west to north-east in the north-west of the Proposed Development.

Figure 3.2.3 shows the bedrock geology BGS mapping and the Proposed Development.

2.3 Mining and Quarrying

Information from The Coal Authority Online Viewer[2] indicates that the Proposed Development is not within a coal mining reporting area.

BGS Online data[1] indicate there are no historical pits located in the Proposed Development.

2.4 Hydrogeology

Information from Scotland's Environment Online Map Viewer[3] indicate that the entirety of the Proposed Development is underlain by metamorphic rocks of the Loch Ness Supergroup. These rock types are classified as a low productivity aquifer whereby small amounts of groundwater are expected near surface weathered zones and secondary fractures. The superficial deposits of glacial till are not considered a significant aquifer. However, alluvial deposits mapped can store groundwater and permit groundwater movement through the sand and gravel horizons. This intergranular flow results in localised areas of moderate to high productivity aquifers.

2.5 Hydrology

The Proposed Development is located within the surface water catchments of the Loch na Croic and Loch Garve (ID: 100134) which drain the central and southern areas of the Proposed Development. The northern areas of the Proposed Development are drained by the sub-catchment of the Black Water – Loch Garve to Garbat (ID: 20180).

2.6 Aerial Photography

From review of aerial photography, bedrock outcrops are abundant across the Proposed Development. This was confirmed during site walkovers where bedrock outcrops were frequently encountered. Bedrock was often seen on the tops of ridges and flatter tops, where bedrock was mostly observed as weathered regolith or at near surface.

2 The Coal Authority, The Coal Authority Map Viewer, available online at: https://datamine-cauk.hub.arcgis.com/

3 Scotland's Environment, Scotland's Environment Map, Available online at: https://map.environment.gov.scot/sewebmap/

3.0 Borrow Pit Assessment

This section of the report provides an assessment of the three potential borrow pit search area locations with an evaluation of their potential to meet the Proposed Development's aggregate requirements.

The assessment has been completed through a desk-based review of geological maps and memoirs and is supported by several site visits from SLR geologists and a geotechnical engineer. Potential borrow pit locations were inspected visually with a view to assess ground conditions and to help determine the borrow pit's suitability for use during construction of the Proposed Development.

In exploring the three potential borrow pit search area locations, as defined in **Figures 3.2.4.1 to 3.2.4.3,** consideration has been given to the practical aspects of each borrow pit. The main aspects to consider are as follows:

- ease of access;
- rock type;
- overburden thickness;
- topography;
- current and historical uses;
- proximity to construction activities;
- visual impact; and
- impact on environmentally sensitive areas.

Steeper topography is preferable for quarrying, where peat and soils coverage will be limited. Careful consideration was given to landscape and visual impacts, and other considerations included proximity to watercourses and other constraints. The proposed borrow pits are in areas where the peat cover is typically thinner or vacant and aggregate reserves are expected to occur near the surface.

3.1 Aggregate Requirements

The proposed turbine locations and their subsequent maintenance would require the construction of a purpose-built network of access tracks. These tracks would be single track with occasional passing places, un-metalled and would be constructed to the turbine suppliers' specifications conforming to the Specification for Highway Works (SHW)[4].

The indicative volumes of aggregate required for site infrastructure are summarised in Table A based on the materials calculator provided in **Annex A**.

The aggregate requirements below have been calculated based on estimate of aggregate volumes required.

4 Highways Agency, Manual of Contract Documents for Highway Works Volume 1 Specification for Highway Works, Series 600 Earthworks, Published February 2017.

Table A: Aggregate Requirement Summary

Infrastructure Element	Volume of Aggregate Required (m^3)
Excavated Track	34,893
Upgraded Track	5,009
Turbine Bases - formation only	3,179
Fill above Turbine Bases	11,070
WTG Concrete Foundation Aggregate	4,725
Permanent Hardstandings	33,300
Temporary Hardstandings	33,750
Main Temporary Construction Compound (located next to Substation	5,200
Entrance Temporary Compound (TCC1)	2,400
Satellite Construction Compound (TCC2)	2,400
Substation Compound	12,000
Total	**147,926**

It has been estimated that approximately 147,926 m^3 of suitable quality rock would be required to construct the Proposed Development. This includes SHW[4] classes 6F2, 6N/6P and concrete aggregate. If rock quality is not suitable for each of these engineered materials, then there may be a requirement for imported materials.

No account has been taken in the calculations for the fortuitous 'winning' of rock during the construction phase for example during infrastructure excavations. If such rock was available, the amount extracted from the borrow pits could be reduced.

3.2 Borrow Pit Assessment

This section of the report provides an assessment of the three borrow pit search areas together with an evaluation of their potential to meet the Proposed Development's aggregate requirements. The indicative Borrow Pit design within each search area is detailed within **Figure 3.2.4.1** for Borrow Pit 1**, Figure 3.2.4.1** for Borrow Pit 2 **and Figure 3.2.4.3** for Borrow Pit 3.

All borrow pits could be extended or reduced in size depending on review of aggregate requirements and/or ground investigation data which would be obtained from a detailed geotechnical survey which would be undertaken prior to construction if the Proposed Development was consented.

The geology encountered within the Proposed Development is supported by BGS geological maps for the Proposed Development. The dimensions of the borrow pits, volume of superficial material to be removed and volumes of site won rock for each borrow pit have been estimated based on cross-sections developed through a digital terrain model. These are required to be confirmed by future intrusive ground investigation works.

The calculations provided in this report assume a worst-case scenario and where no other rock or materials would be found on site during construction. In the event that such rock was available the amount extracted from the borrow pits could be reduced.

3.2.1 Borrow Pit 1

Borrow Pit 1 is located in the northern area of the Proposed Development close to turbine T1 at the approximate National Grid Reference (NGR) NH 42255 63492.

Photo 1: BP01 facing west (11/06/2024)

Table B: Borrow Pit 1

Borrow Pit 1	
Superficial Geology	No superficial deposits mapped Peat mapped at eastern and northern extents
Bedrock Geology	Glenfinnan Group – formed of pelite and semipelite
Inferred Design Parameters	Overall slope 1:0.5 Maximum face height 15m
Gradient	Slope increasing steeply towards the west
Details of Extraction	Combination of drilling and blasting
Estimated Excavation Area	13,040 m^2
Estimated Excavation Volume	82,730 m^3

3.2.2 Borrow Pit 2

Borrow Pit 2 is located in the centre of the Proposed Development to the south of turbine T2 at the approximate NGR NH 42793 62850.

Photo 2: BP02 facing south-west (11/06/2024)

Table C: Borrow Pit 2

Borrow Pit 2	
Superficial Geology	Glacial Till – Diamicton, sand, silt and gravel Peat deposits to the south-east
Bedrock Geology	Glenfinnan Group – formed of pelite and semipelite
Inferred Design Parameters	Overall slope angle 1:2 Maximum face height 12m
Gradient	Slope increasing steeply towards the north-east
Details of Extraction	Combination of drilling and blasting
Estimated Excavation Area	12,100 m^2
Estimated Excavation Volume	38,900 m^3

3.2.3 Borrow Pit 3

Borrow Pit 3 is located in the east of the Proposed Development to the north of turbine T7 at the approximate NGR NH 42092 62607.

Photo 3: BP03 facing south-west (09/12/2024)

Table D: Borrow Pit 3

Borrow Pit 3	
Superficial Geology	Glacial Till – Diamicton, sand, silt and gravel Peat deposits to the south-west
Bedrock Geology	Glenfinnan Group – formed of psammite, with pelites mapped only at south-east
Inferred Design Parameters	Overall slope angle 1:1 Maximum face height 15m
Gradient	Slope increasing steeply towards the north-east
Details of Extraction	Combination of drilling and blasting
Estimated Excavation Area	10,940 m^2
Estimated Excavation Volume	57,710 m^3

4.0 Indicative Borrow Pit Design

The indicative borrow pit volumes are presented in Table C to Table F. The design of the borrow pits anticipates extracting a net stone volume suitable for the requirements of the Proposed Development, excluding imported top surface dressing which would require importing. This target capacity has been determined based on the estimated requirements for construction materials together with additional allowances for overburden material. It is envisaged that overburden/soils together with processed materials would be carefully stored adjacent to the excavation void for eventual use in the restoration process.

4.1 Marking Out and Overburden Stripping

The permitted extents of the borrow pit would be marked out with pegs, and overburden, including topsoil, subsoil and weathered rock horizons, would be stripped from within this delineated area.

The overburden and weathered rock horizons would be stripped using a combination of crawler tractor dozers and backtrackers with the material loaded by loading shovels. The overburden (including surface vegetation turves) would be carefully stripped and stored as a series of separate turves, topsoil, subsoil and weathered rock storage mounds to be used for reinstatement purposes.

4.2 Excavations within Rock

Once overburden and weathered rock horizons have been stripped, and stored, a suitably qualified geotechnical engineer/blasting engineer would assess the nature of the underlying solid rock strata. The engineer would provide advice on suitable extraction techniques including; extraction method, bench and cut face design parameters, and blasting design (if required).

If blasting is required, blasting would be undertaken in accordance with the Quarries Regulations 1999[5] and Annex D PAN 50[6].

A combination of digging, ripping and blasting would be utilised to excavate rock (subject to the nature of the material encountered, depth of weathering and level of fracturing) which would be processed using a mobile crushing and screening plant, which would be sited within the base of the working borrow pit.

4.3 Stockpiling of Materials

The initial overburden strip would be stored within temporary screening mounds around the perimeter of the borrow pit. The screening mounds would be at least 1.5m in height.

The remaining unsuitable materials (weathered/unsuitable rock horizons) would be stockpiled within the base of the working borrow pit. The stockpiles would have a maximum height of 5m, with maximum side-slope gradients of 1(Vertical (V)) in 2.5(Horizontal (H)) and be in full compliance with the Quarries Regulations 1999 and Quarries National Joint Advisory Committee (QNJAC) Guidelines[7]. This material would be used as part of the restoration profiling on the cut faces.

5 Health and Safety Executive (2014), Health and Safety at Quarries, Quarries Regulations 1999, Approved Code of Practice and Guidance (Second Edition).

6 Scottish Government (2000), PAN 50 Annex D: Controlling the Environmental Effects of Surface Mineral Works.

7 Quarries National Joint Advisory Committee (2020), Available at: http://qnjac.co.uk/what-is-qnjac/. Last accessed April 2020.

4.4 Access Tracks/Haulage Routes

The proposed access to the borrow pit(s) would involve constructing access tracks from the main wind farm access track. The access tracks would include suitable roadside drainage ditches, with soakaways located, where appropriate.

The tracks (haulage routes) within the borrow pit would have a gradient of no steeper than 1(V) in 10(H).

4.5 Water Management/Drainage

The borrow pit(s) would feature a perimeter surface drain, which would aim to prevent water in-flow into the borrow pit. The water collected within the surface drains would be discharged either into the surrounding vegetation, or into suitably located settlement lagoons.

Where necessary, surface settlement lagoons would be constructed within the borrow pit. These would be constructed with the aim of containing any surface water collection within the excavation voids, and from collection of water from the perimeter surface drains. The lagoons would be contained within a bunded area at the base of the borrow pit, with suitable pumping systems installed allowing water to be pumped to soakaways as required.

4.6 Restoration

When considering the borrow pit excavations the principles of the relevant guidance[8,9] of the re-use of excavated peat and the minimisation of waste have been consulted. This guidance states that across the borrow pit areas, peaty soils may be used at depths of up to 0.5 m as part of the borrow pits' reinstatement works. The final configuration of the borrow pits shall allow retention of rainfall and promote the infiltration of this to the peat and peaty soils used to restore the borrow pits which will prevent peat drying out. Surface vegetation and acrotelmic peat layers, safeguarded from parts of the site where peaty soils and peat are excavated will be used to restore the surface of the borrow pits and prevent erosion.

The formulation of a detailed construction method statement undertaken pre-construction shall incorporate construction design and sequencing for the proposed restoration of borrow pit areas. These plans shall draw on detailed site investigation information gathered as part of the preconstruction phase of works. The final design of borrow pit floor levels and restoration profiles shall depend on the depth of superficial deposits and the quality of rock recorded across the proposed borrow pit locations.

The aim of the restoration of borrow pits is to achieve a self-sustaining hydrological system that retains the carbon stored within the peat deposits. The geometry of the borrow pit shall be such that retention of shallow groundwater once restored will prevent the peat drying out. This could be achieved by the excavation and/or formation of impervious bunds or by combining the two approaches. Bunds should be constructed with stone. Bunds should be approx. 30 m cells or smaller to increase residence times of water within the borrow pit. A further key requirement will be to maintain a source of water to the restoration area to allow for suitable hydrological conditions to develop. The existing peatland within the area is largely fed by ombrotrophic (rain-fed) from rainfall rather than ground-water sources and this should be sufficient to keep the reinstated peat wet.

An assessment of the water level/depth to saturated peat in the borrow pit will be recorded quarterly and reported annually for a period of five years, following placement of peat. This

8 NatureScot (July 2024), Good Practice During Wind Farm Construction. https://www.nature.scot/doc/good-practice-during-wind-farm-construction

9 Scottish Renewables, Scottish Environment Protection Agency. 2012. Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste

could be recorded by inserting a peat probe at a number of locations across the restoration surface or by establishing a small network of hand driven dip wells where it is safe to do so. In addition, annually for a period of five years, following placement of peat:

- the edge of the peat would be inspected to assess for potential loss of water; and
- evidence of drying (e.g. surface cracking and /or erosion) would be assessed and reported.

Should the monitoring data suggest the peat is drying, mitigation measures would be agreed with SEPA and NatureScot.

5.0 Conclusion

In summary, three borrow pit search areas have been assessed as being capable of supplying all the aggregate required for the Proposed Development. The locations and methods of working would be managed to cause minimal impact to the ground conditions and water environment. The borrow pit design and recommended methods of operation are in line with the Quarries Regulations, Approved Code of Practice, 1999[10] (as amended) to provide a safe working environment and minimise risk of instability.

An approximate volume of excavated materials has been calculated for each of the proposed borrow pit locations within the borrow pit search areas, these volumes are based on initial calculations based on assumptions for the Proposed Development. These calculations would be verified by detailed intrusive investigation at the proposed locations, post-consent. Calculations do not take into consideration the 'winning' of materials along the route. Each of the proposed borrow pits selected could be increased or decreased in size, depending on the aggregate requirements or following an assessment of the suitability of aggregate materials following detailed ground investigation.

The quality of rock anticipated on-site is inferred from a visual assessment of rock outcrops and published information. An intrusive ground investigation, sampling and material laboratory testing will be required to confirm ground condition and suitability.

Prior to the construction of the Proposed Development, design and best practices, any required mitigation measures, would be set out in full within a Construction Environmental Management Plan (CEMP) and would be secured by an appropriately worded pre-development condition of consent.

10 Health and Safety Executive (2014), Health and Safety at Quarries, Quarries Regulations 1999, Approved Code of Practice and Guidance (Second Edition).

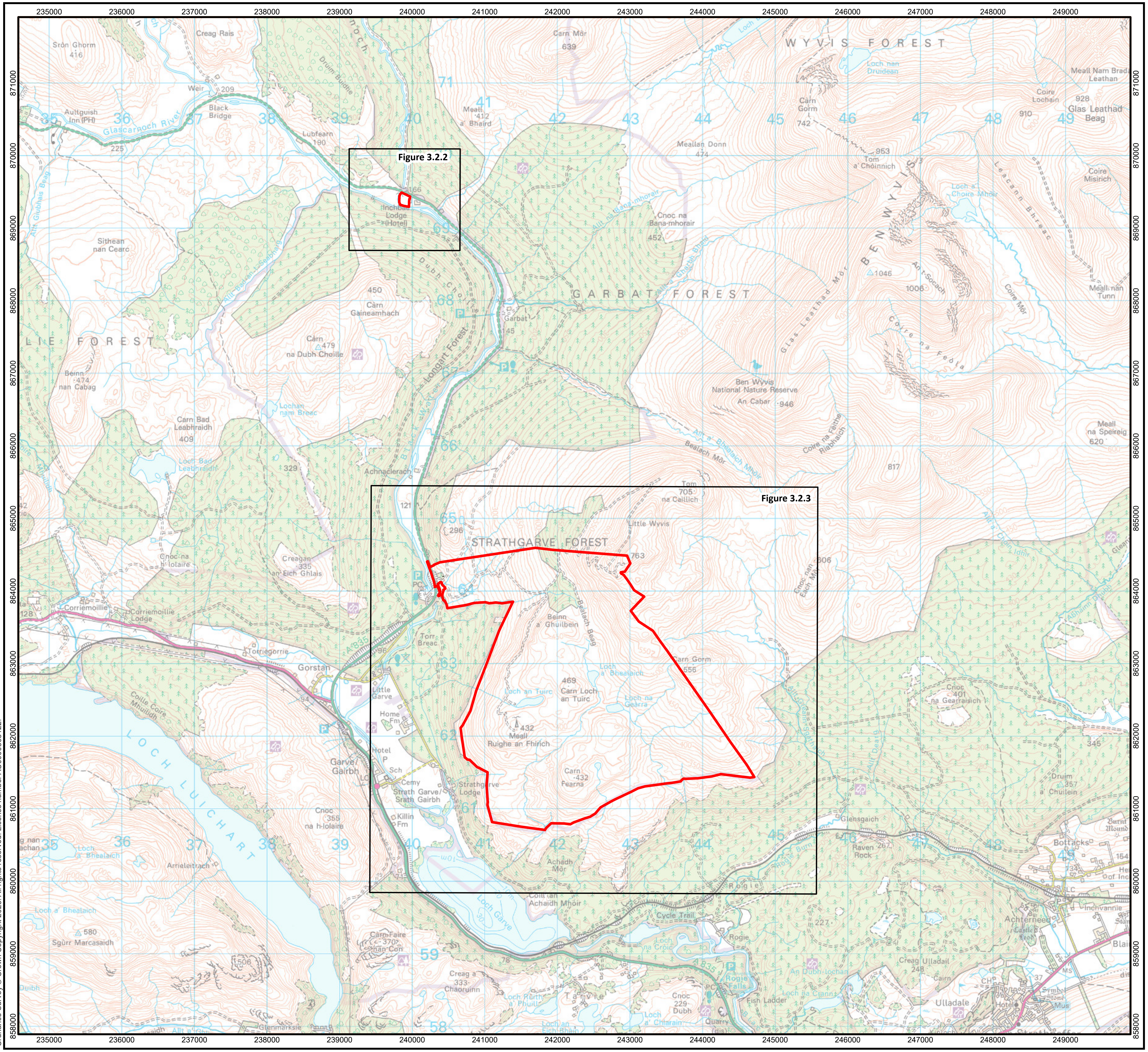
Figures

Technical Appendix 3.2: Borrow Pit Assessment

Carn Fearn Wind Farm

Carn Fearna Wind Farm Ltd

SLR Project No.: 405.064563.00001



Statkraft

N

Site Boundary

1:50,000 on A3

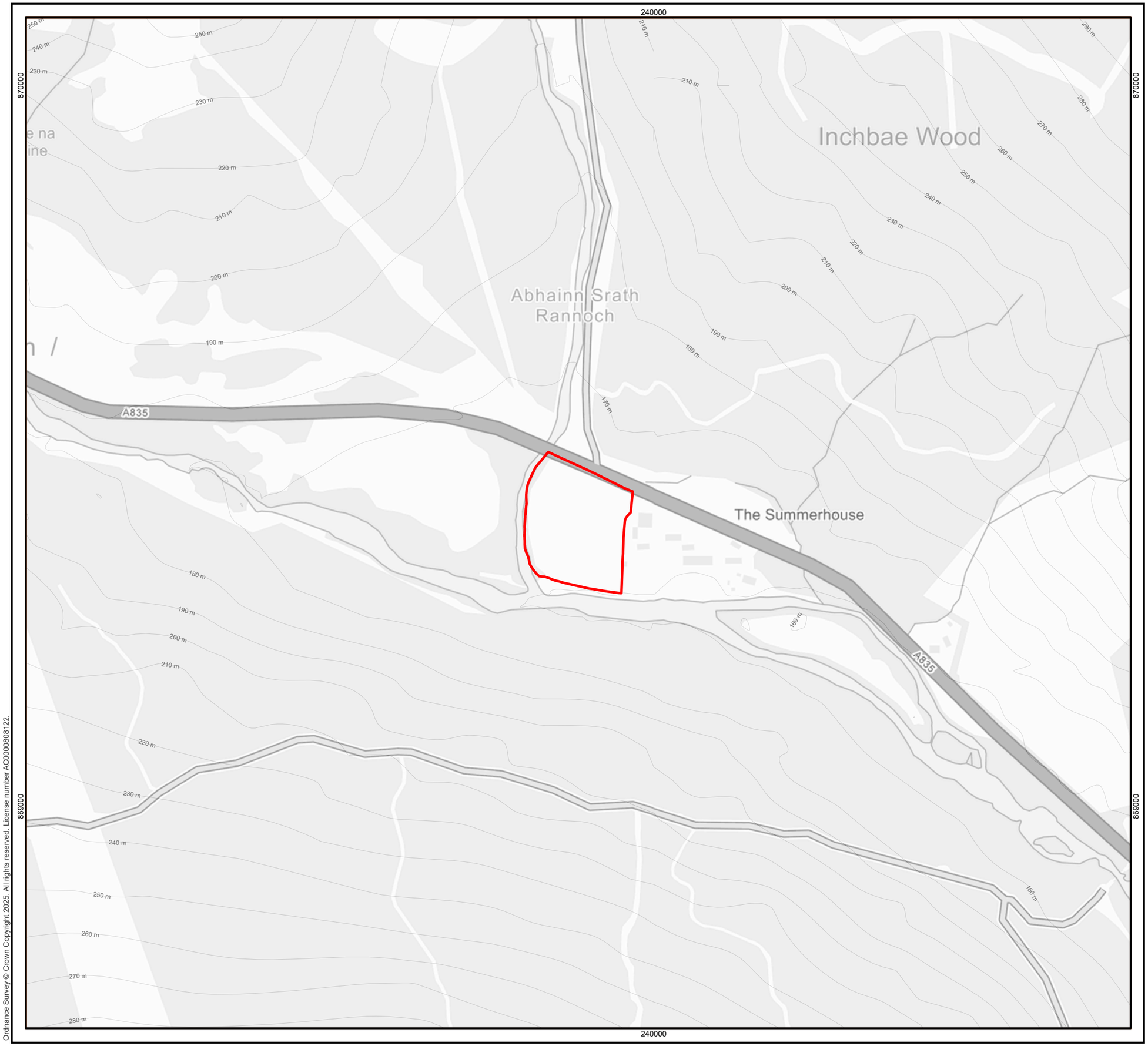
0 0.5 1 Kilometres

Produced By: DB	Version: 2
Checked By: JRS	Date: 02/04/2025

Figure 3.2.1

Site Layout - Overview

Carn Fearna Wind Farm
Borrow Pit Assessment
Environmental Impact Assessment Report



Statkraft

N

Site Boundary

1:5,000 on A3

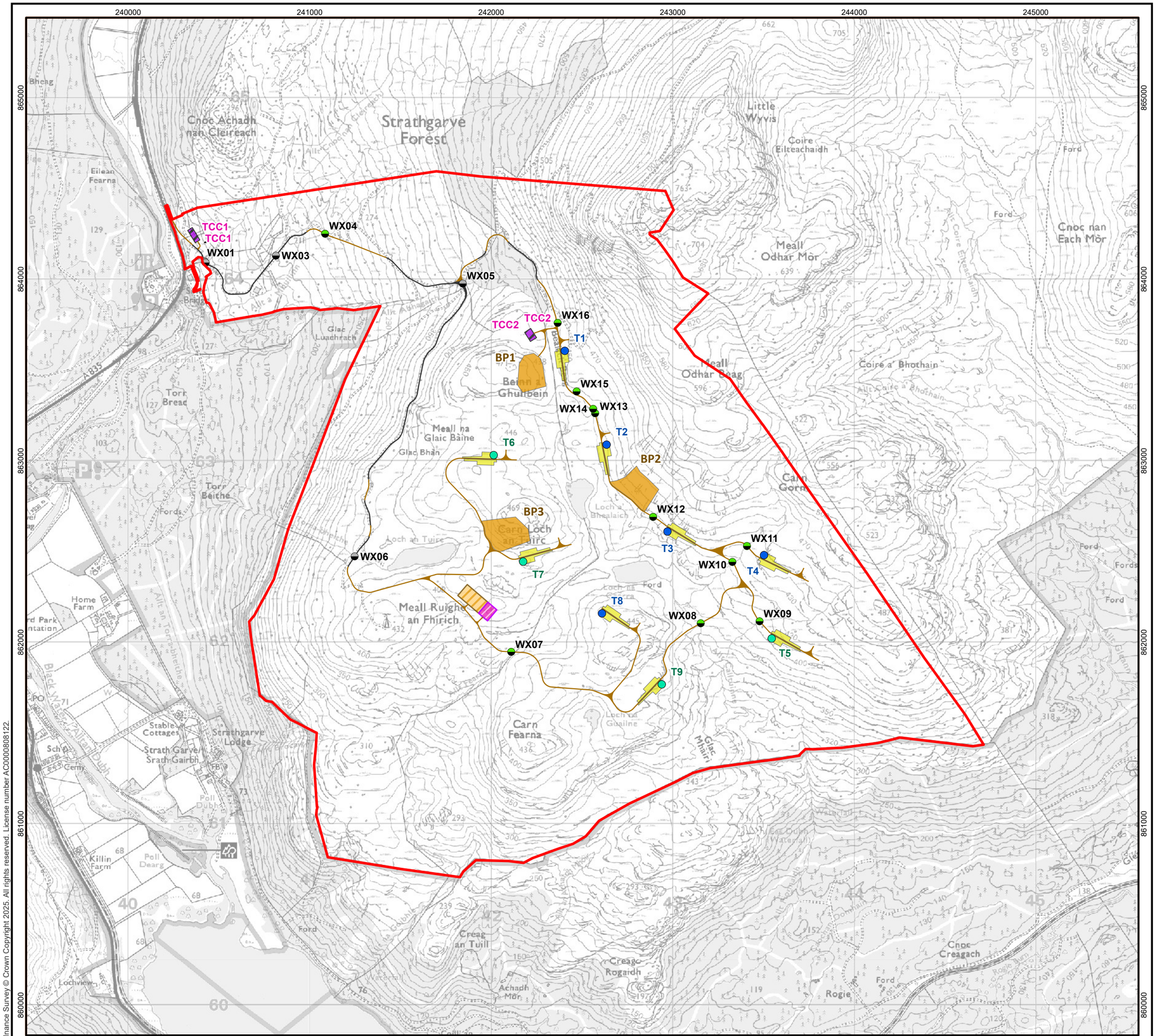
0 100 200

Produced By: DB	Version: 2
Checked By: JRS	Date: 02/04/2025

Figure 3.2.2

Site Layout - Off-site turning circle

Carn Fearna Wind Farm
Borrow Pit Assessment
Environmental Impact Assessment Report



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Statkraft

N

- Site Boundary
- Proposed Turbine Location (180 m Blade Tip Height)
- Proposed Turbine Location (200 m Blade Tip Height)
- Proposed New Access Track
- Proposed Upgraded Access Track
- Proposed Permanent Hardstanding
- Proposed Permanent Substation
- Proposed Temporary Substation Compound
- Proposed Temporary Construction Compound
- Proposed Borrow Pit Search Area
- Existing Watercourse Crossing
- Proposed Watercourse Crossing

1:20,000 on A3

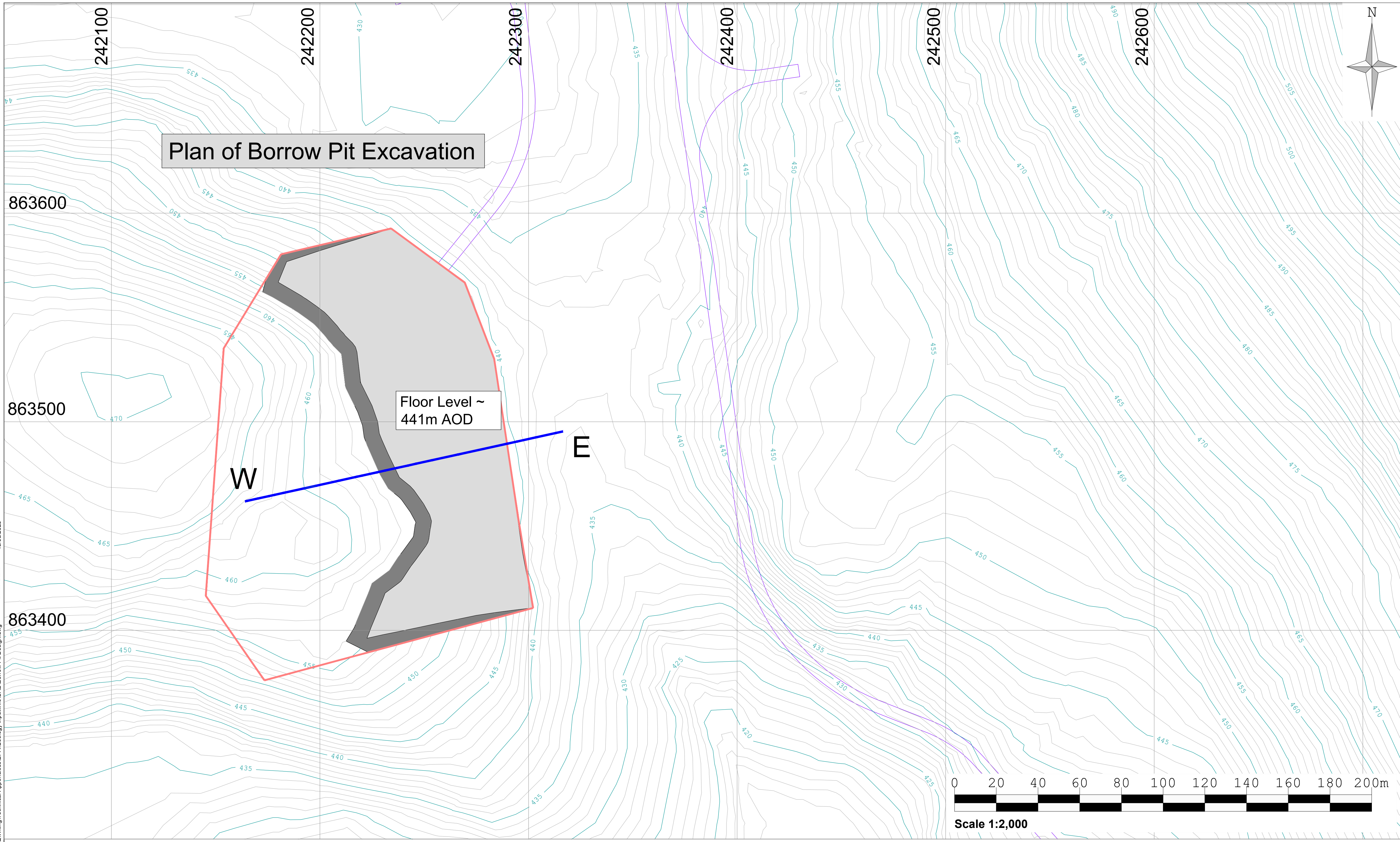
0 0.5 1 Kilometres

Produced By: DB	Version: 2
Checked By: JRS	Date: 02/04/2025

Figure 3.2.3

Site Layout - Wind farm site

Carn Fearna Wind Farm
Borrow Pit Assessment
Environmental Impact Assessment Report



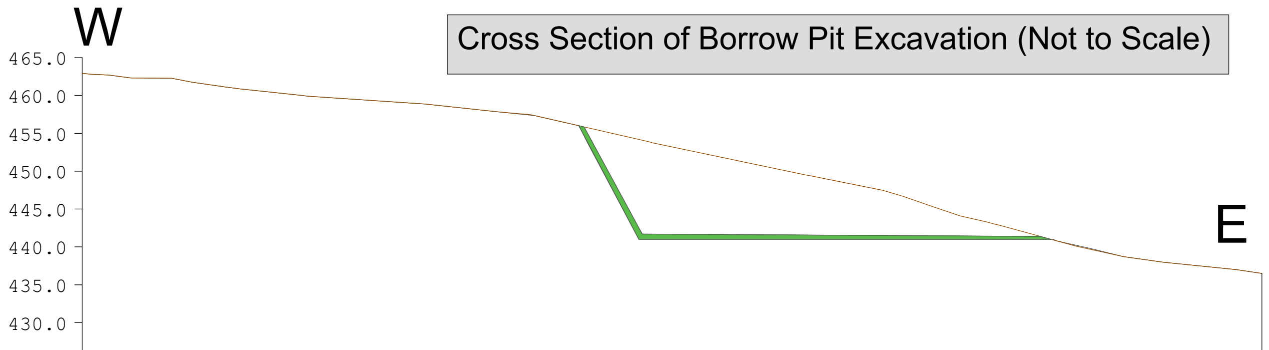
Notes:

1. Design Parameters are indicative and should be redefined upon findings of ground investigations and/or initial excavations, taking into account ground conditions or hydrological issues.
2. Design assumes no overburden.
3. Restoration profile for illustrative purposes only; represents approximately 0.5m of Peat reinstatement.

Legend:

- Borrow Pit Planning Area
- Cross Section Line
- Proposed Site Access Track
- Excavation Wall / Floor
- Restoration Profile
- Site Location (Inset Map)

Cross Section of Borrow Pit Excavation (Not to Scale)



Regular Offsets	Original Topography	Borrow Pit
0.000	462.934	462.934
5.000	462.516	462.516
10.000	462.287	462.287
15.000	461.698	461.698
20.000	460.977	460.977
25.000	460.434	460.434
30.000	459.900	459.900
35.000	459.571	459.571
40.000	459.241	459.241
45.000	458.911	458.911
50.000	458.375	458.375
55.000	457.822	457.822
60.000	457.310	457.310
65.000	456.161	456.000
70.000	455.012	447.805
75.000	453.869	441.000
80.000	452.795	441.000
85.000	451.747	441.000
90.000	450.699	441.000
95.000	449.656	441.000
100.000	448.640	441.000
105.000	447.640	441.000
110.000	446.191	441.000
115.000	444.486	441.000
120.000	443.197	441.000
125.000	441.868	441.000
130.000	440.500	440.876
135.000	439.318	439.386
140.000	438.396	438.396
145.000	437.771	437.771
150.000	437.268	437.268
155.000	436.506	436.506

Borrow Pit 01	
Total Excavation Area	13,040m^2
Total Excavation Volume	82,730m^3
Inferred Design Parameters	Slope angle 1:0.5. Maximum face height of 15m
Rock Type	Pelite and Semipelite
Coordinates for Centre of Borrow Pit	242246E, 863496N

Rev	Amendments	Date	By	Chk	Auth
01	Additional of restoration profile.	MAR 2025	SS	RW	RW

SLR

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Drawing Status & Suitability Code

Client: Statkraft UK Ltd

Project: Carn Fearna Wind Farm

Drawing Title: Borrow Pit 01 Design

Scale		SLR Project No.	
1:2000 @ A3		402.064563.00001	
Designed	Drawn	Checked	Authorised
AD	AD	SS	RW
Date	Date	Date	Date
Jan 2025	Jan 2025	Jan 2025	Jan 2025

Drawing Number: Figure 3.2.4.1 — Rev. 01

13/03/2025

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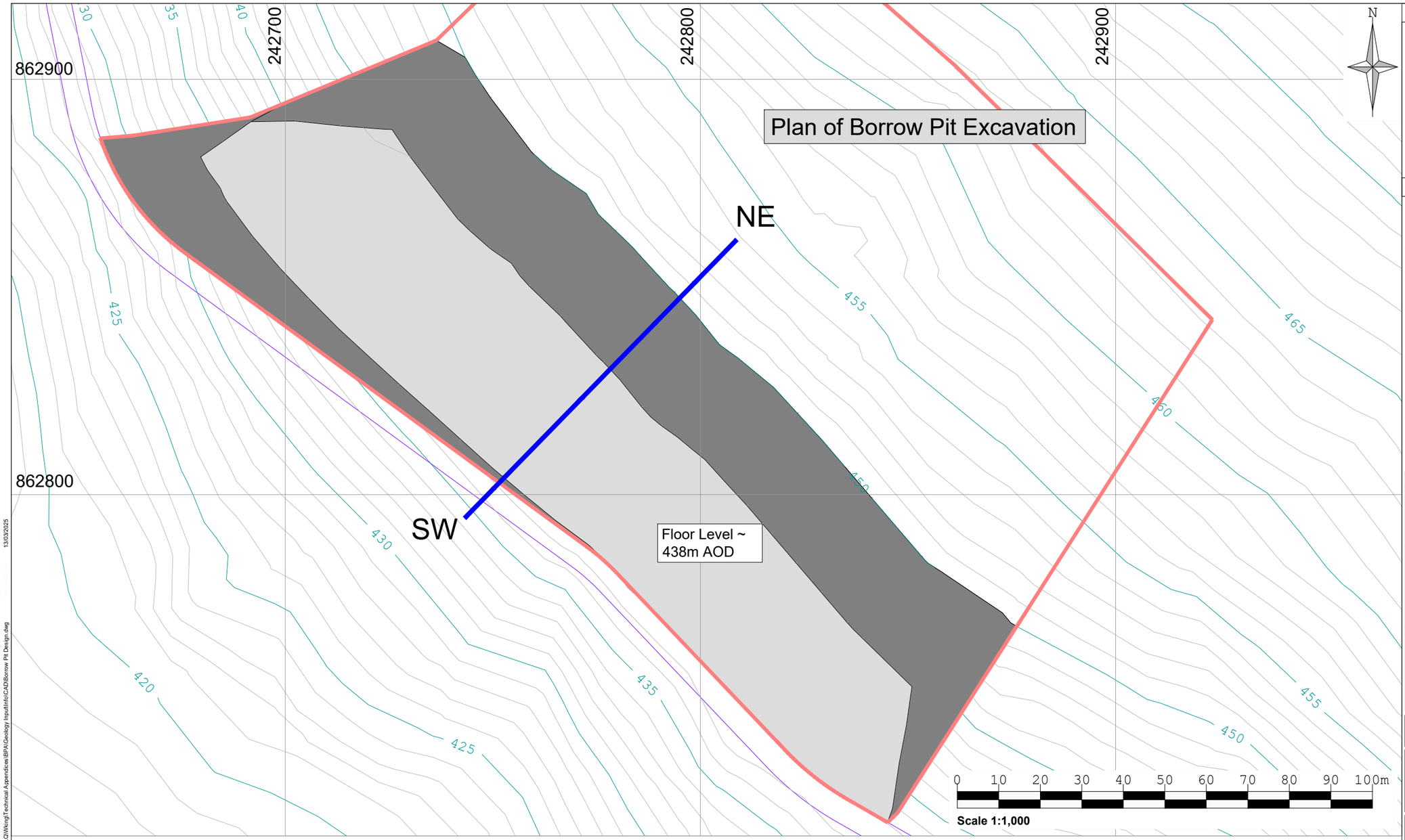
Plan of Borrow Pit Excavation



Notes:

1. Design Parameters are indicative and should be redefined upon findings of ground investigations and/or initial excavations, taking into account ground conditions or hydrological issues.
2. Design assumes no overburden.
3. Restoration profile for illustrative purposes only; represents approximately 0.5m of Peat reinstatement.

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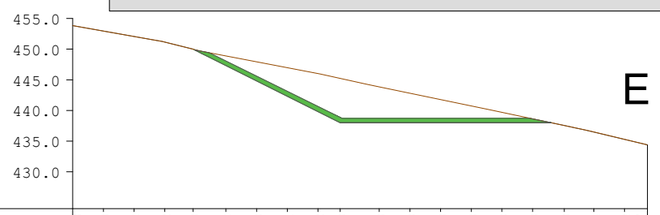
- Borrow Pit Planning Area
- Cross Section Line
- Proposed Site Access Track
- Excavation Wall / Floor
- Restoration Profile
- Site Location (Inset Map)

Cross Section of Borrow Pit Excavation (Not to Scale)



Borrow Pit	453.848	452.960	452.069	451.142	450.000	447.309	444.810	442.311	439.812	438.000	438.000	438.000	438.000	438.000	438.000	438.000	436.474	435.283	434.387
Original Topography	453.848	452.960	452.069	451.142	449.905	448.902	447.939	446.976	446.013	444.921	443.846	442.808	441.770	440.732	439.688	438.635	437.582	436.477	435.283	434.387
Regular Offsets	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000

Borrow Pit 02	
Total Excavation Area	12,100m^2
Total Excavation Volume	38,900m^3
Inferred Design Parameters	Slope angle 1:2. Maximum face height of 12m
Rock Type	Pelite and Semipelite
Coordinates for Centre of Borrow Pit	242767E, 862817N

Rev	Amendments	Date	By	Chk	Auth
01	Additional of restoration profile.	MAR 2025	SS	RW	RW

SLR

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Drawing Status & Suitability Code

Client: Statkraft UK Ltd

Project: Carn Fearna Wind Farm

Drawing Title: Borrow Pit 02 Design

Scale	SLR Project No.
1:1000 @ A3	402.064563.00001

Designed	Drawn	Checked	Authorised
AD	AD	BM	RW
Date	Date	Date	Date
Jan 2025	Jan 2025	Jan 2025	Jan 2025

Drawing Number: **Figure 3.2.4.2** Rev. **01**

13/03/2025

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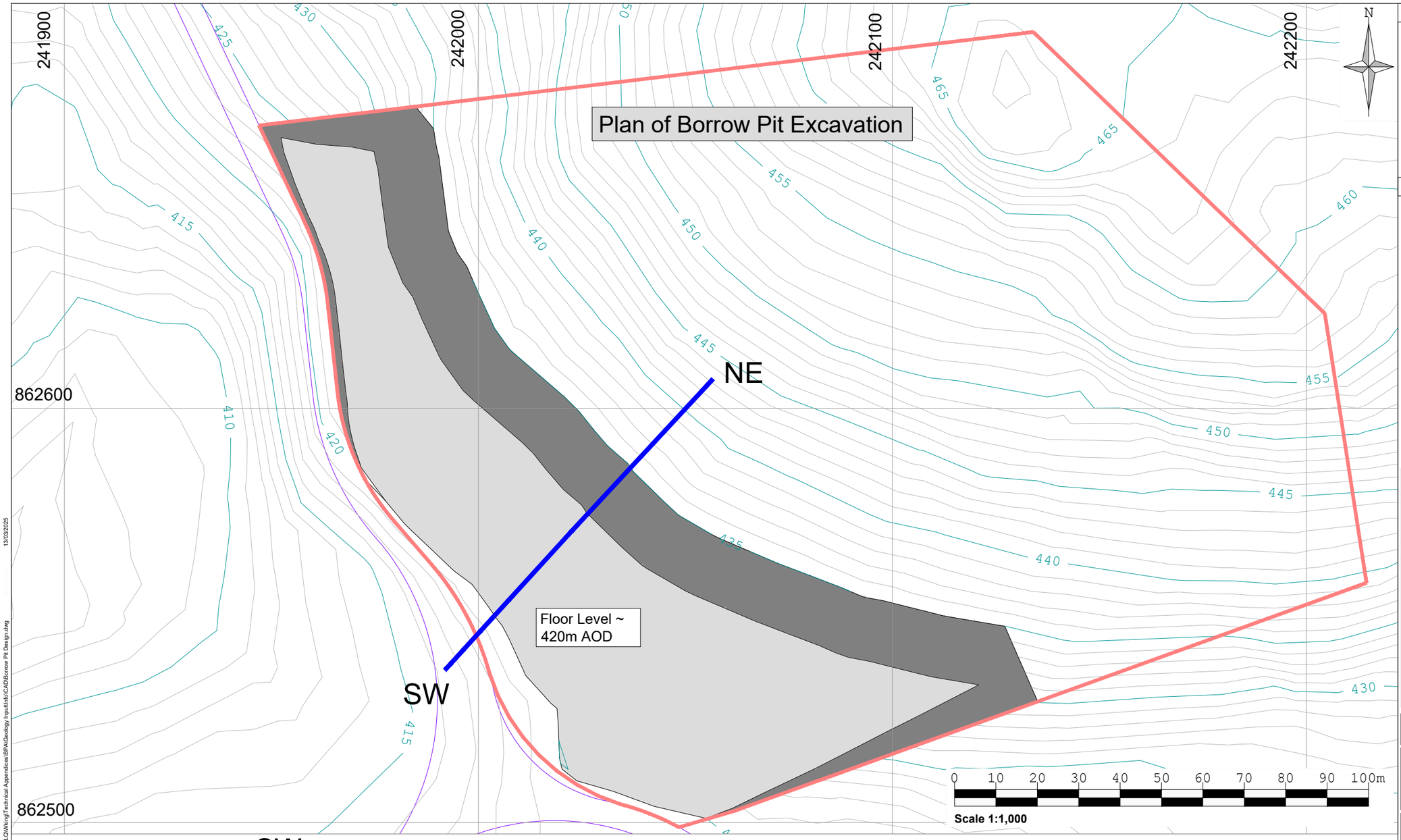
Plan of Borrow Pit Excavation



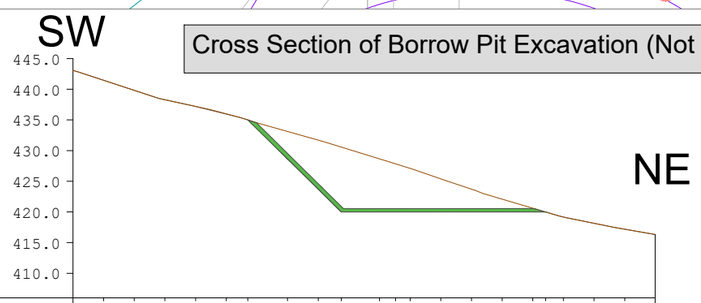
Notes:

1. Design Parameters are indicative and should be redefined upon findings of ground investigations and/or initial excavations, taking into account ground conditions or hydrological issues.
2. Design assumes no overburden.
3. Restoration profile for illustrative purposes only; represents approximately 0.5m of Peat reinstatement.

Legend:

- Borrow Pit Planning Area
- Cross Section Line
- Proposed Site Access Track
- Excavation Wall / Floor
- Restoration Profile
- Site Location (Inset Map)

Cross Section of Borrow Pit Excavation (Not to Scale)



Borrow Pit	443.072	441.457	439.829	438.291	437.184	435.956	435.000	428.621	423.732	420.000	420.000	420.000	420.000	420.000	420.000	420.000	419.175	418.137	417.173	416.319
Original Topography	443.072	441.457	439.829	438.291	437.201	436.000	434.516	433.106	431.706	430.181	428.630	427.094	425.386	423.722	422.087	420.616	419.162	418.137	417.173	416.319
Regular Offsets	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	

Borrow Pit 03	
Total Excavation Area	10,940m^2
Total Excavation Volume	57,710m^3
Inferred Design Parameters	Slope angle 1:1. Maximum face height of 15m
Rock Type	Pelite and Semipelite
Coordinates for Centre of Borrow Pit	242024E, 862558N

Rev	Amendments	Date	By	Chk	Auth
01	Additional of restoration profile.	MAR 2025	SS	RW	RW

SLR

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Drawing Status & Suitability Code

Client: Statkraft UK Ltd

Project: Carn Fearna Wind Farm

Drawing Title: Borrow Pit 03 Design

Scale	SLR Project No.
1:1000 @ A3	402.064563.00001

Designed	Drawn	Checked	Authorised
AD	AD	SS	RW
Date: Jan 2025	Date: Jan 2025	Date: Jan 2025	Date: Jan 2025

Drawing Number: **Figure 3.2.4.3** Rev.: **01**

13/03/2025

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Annex A Aggregate Assessment

Technical Appendix 3.2: Borrow Pit Assessment

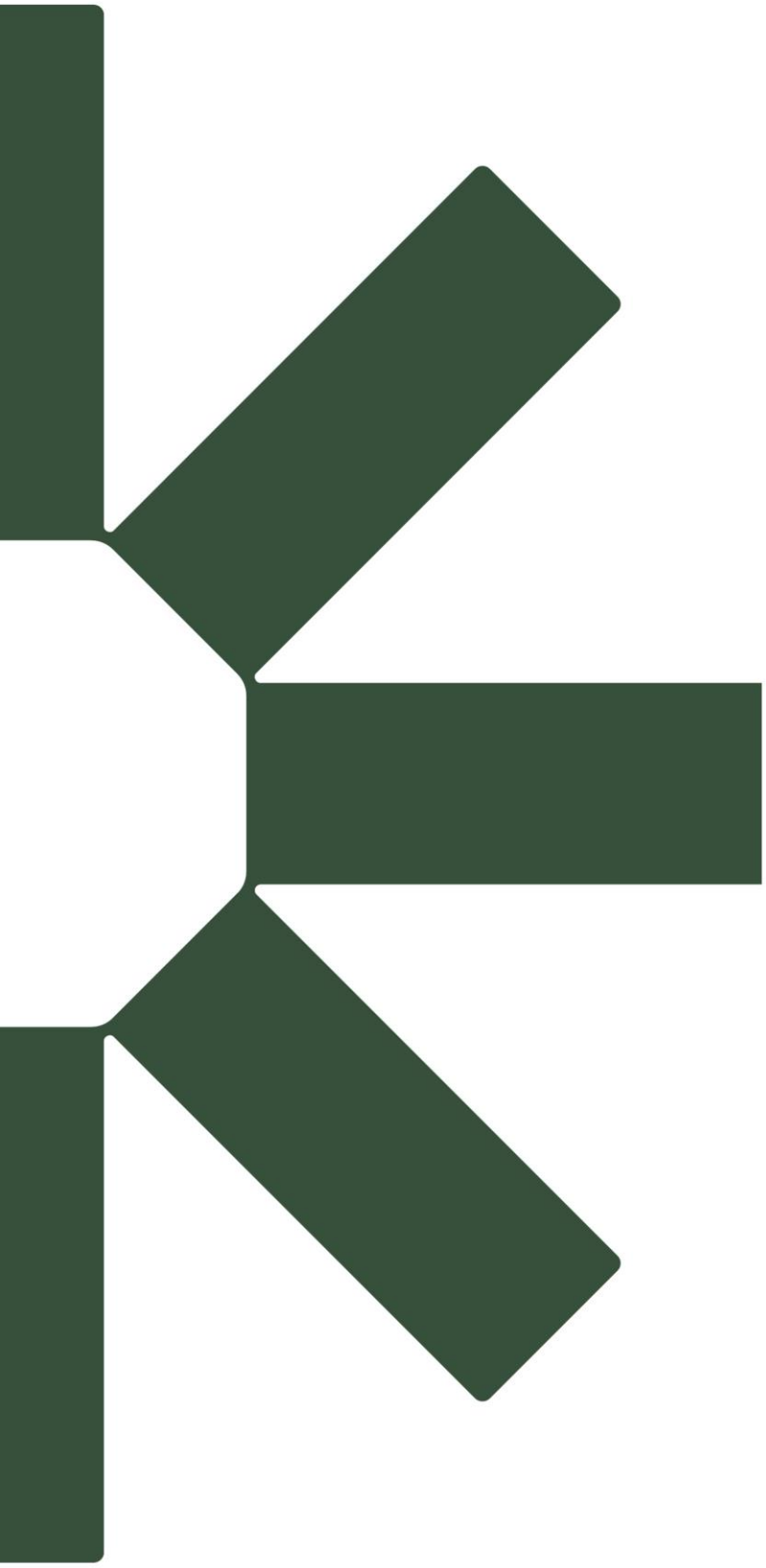
Carn Fearn Wind Farm

Carn Fearna Wind Farm Ltd

SLR Project No.: 405.064563.00001

Infrastructure	Length (m)	Width (m)	Area (m2)	Aggregate Thickness (m)	Number	Aggregate Volume (m^3)	Notes:
Excavated Track	11631	6	69786	0.5	1	34893	Assumes 6m wide track
Upgraded Track	3339	3	10017	0.5	1	5009	Assumes 3m wide upgrade
Turbine Bases - formation only			707	0.5	9	3179	Assumes 30m diameter
Fill above Turbine Bases			1140	2	9	11070	Volume of 1no. foundation = 1050m^3
WTG Concrete Foundation Aggregate					9	4725	Assumes proportion of aggregate is 0.5 of 1m^3. Volume of 1no. foundation = 1050m^3
Permanent Hardstandings			3700	1	9	33300	
Temporary Hardstandings			3750	1	9	33750	
Main Temporary Compound			5200	1	1	5200	
Entrance Temporary Compound			2400	1	1	2400	
Satellite Construction Compound			2400	1	1	2400	
Substation Compound			12000	1	1	12000	
Total Requirement						**147926**	All volumes measurements in m^3, based on turbine requirements and information provided by Client

Potential Volume of Rock to be sourced on site	
BP1	82730
BP2	38900
BP3	57710
Total Volume from Site (m^3)	179340
Surplus Volume (m^3)	31414
minus 15% contingency (m^3)	27317



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