



ARCUS

**SHEPHERDS' RIG WIND FARM
ADDITIONAL ENVIRONMENTAL INFORMATION
OUTLINE PEAT MANAGEMENT PLAN**

OCTOBER 2019



Prepared By:

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TABLE OF CONTENTS

1	INTRODUCTION	1
	1.1 Preparation of the Peat Management Plan	1
	1.2 The Revised Development Site.....	2
	1.3 Consultation	2
2	OBJECTIVES	3
	2.1 Introduction	3
	2.1.1 Background.....	3
	2.1.2 Approach to Minimising Peat Excavation	3
	2.1.3 Objectives of the outline Peat Management Plan	4
3	PEAT MANAGEMENT	5
	3.1 Investigations	5
	3.2 Summary of Peat Depths.....	5
	3.2.1 General Peat Classification	6
	3.2.2 Excavation Calculation	7
	3.2.3 Peat Re-use Requirements	8
	3.2.4 Handling and Storage of Peat.....	10
4	CONCLUSION.....	12

1 INTRODUCTION

1.1 Preparation of the Peat Management Plan

This outline Peat Management Plan (oPMP) for Shepherds' Rig Wind Farm (the Revised Development) has been prepared initially to inform the Planning Authority and all statutory consultees of the proposed peat and soils management methodologies to be employed during construction.

The purpose of the oPMP is to:

- Define the materials that will be excavated as a result of the Revised Development, focusing specifically on the excavation of peat;
- Report detailed investigations into peat depths within the site;
- Detail proposals for the management of excavated peat and other soils;
- Determine volumes of excavated arisings, the cut/fill balance of the Revised Development and proposals for re-use or reinstatement using excavated materials; and
- Detail management techniques for handling, storing and depositing peat for reinstatement.

The oPMP has been produced in accordance with Scottish Renewables (SR) and the Scottish Environment Protection Agency (SEPA) Guidance on Peat Excavations and

Management¹. This PMP is intended to be a document that will evolve during the different phases of the project and as such will be subject to continued review to address:

- Requirements to discharge future Consent and Planning Conditions;
- Detailed ground investigations and design development;
- Unforeseen conditions encountered during construction;
- Changes in best practice during the life of the wind farm; and
- Changes resulting from the construction methods used by the contractor(s).

Whilst this oPMP provides a base standard for good practice, where avoidance or further minimisation of risks to the environment can be demonstrated through use of alternative methods or improvements to current practices, the Contractor will implement these wherever possible and will correspond with SEPA and Dumfries and Galloway Council.

1.2 The Revised Development Site

The Revised Development is located approximately 5 km to the east of Carsphairn and 10km north of St John's Town of Dalry, in northern Dumfries and Galloway.

The Revised Development will comprise of 17 turbines with maximum tip height of 149.9 m and approximately 11 km of track. The 'Site Layout Plan' is included in **Figure 1** in Appendix 1.

The superficial soil mapping indicates superficial soils across the majority of the site to be underlain predominantly by areas vacant of significant superficial soil cover, primarily within the regions of Craigengillan Hill and Marscalloch Hill. Till deposits typically comprising clay, sand and gravel were shown across the eastern and southern site areas. Within the north-western site area, peat deposits were shown.

Published bedrock geology mapping indicates the site to be underlain by Caradoc aged rocks comprising Portpatrick Formation Wacke. Localised faulting exists within the central site area at varying dip angles but generally to the south-east.

The proposed access tracks for the Revised Development, along with details of upgrades to existing forestry tracks and the construction of hardstandings and other elements of infrastructure are defined in detail in **Chapter 4** within both the Environmental Impact Assessment (EIA) Report (November 2018) and Additional Environmental Information (AEI) Report (October 2019).

1.3 Consultation

Peat management and the assessment of borrow pit potential within the site was considered throughout the EIA for the Revised Development and the outcomes of studies are reported in the EIA and AEI Reports. The EIA Report formed part of the section 36 application and was made available to the Scottish Government, Dumfries and Galloway Council and its consultees including SEPA.

This oPMP considers assessments included in the EIA Report and responds to the consultees original EIA scoping responses and consultations post submission with SEPA.

A record of the post submission consultation with SEPA is included in Appendix 2.

¹ SR and SEPA (2012). Guidance on the Assessment of Peat volumes, Reuse of Excavated Peat and the Minimisation of Waste [online] Available at: http://www.scottishrenewables.com/media/uploads/publications/a4_developments_on_peatland.pdf [Accessed 21/08/2014].

2 OBJECTIVES

2.1 Introduction

2.1.1 Background

The preparation of an outline 'Peat Management Plan' responds both to the scoping responses and further consultation from April 2018 and August 2019 respectively, and the intent to deliver a construction project that complies with good practice in accordance with SR and SEPA guidance.

By undertaking detailed peat survey work and carrying out assessments such as peat slide risk assessment (PSRA) and borrow pit assessment (BPA) for the EIA, a consistent approach to the management of peat across the site can be achieved.

In addition to the assessments, an outline civil design of the site layout has been undertaken. The overall objective of the outline design has been to minimise the excavation of peat where possible, and achieve as close as practicable an overall material balance within the site. This is considered to give the best opportunity to achieve reinstatement or restoration in accordance with good practice, and remove the need for waste management controls.

This objective is achieved through:

- Ensuring the characteristics of the site are understood through extensive peat probing and assessing the sites topography;
- Developing the outline design based on the access track requirements in 3D; and
- Modelling the peat depth profile based on probing and the topographical survey in 3D;

2.1.2 Approach to Minimising Peat Excavation

The following steps have been taken during the outline design stage of the Revised Development to minimise the impact on peat:

- The development of an access track design which avoids deeper peat where practicable;
- The design and orientation of turbines and crane hardstandings considers local topographical and peat constraints; and
- Consideration of borrow pit locations in an area of shallow peat cover.

At detailed design and construction stage these steps will be further supplemented by taking the following measures to minimise disturbance:

- Maximisation of batter angles in cuttings
- Consideration of floating tracks; and
- The use of appropriate construction plant to avoid unnecessary disturbance of the ground surface.

The fundamental principle upon which this oPMP is based is that achieving a successful materials strategy is contingent on gaining a thorough understanding of the Revised Development site through investigation and developing a design that achieves the materials management objectives. For this Revised Development, this principle is achieved by undertaking significant peat investigation works prior to preparing this oPMP and developing the design in 3D based on the available information.

2.1.3 Objectives of the outline Peat Management Plan

The main objectives of the oPMP is to outline how any peat expected to be excavated will be managed and re-used during the construction of the Revised Development.

This is achieved by responding to the following objectives;

- Providing a description of peat conditions on site and how this was determined;
- Estimation of peat volumes to be excavated and reused;
- Classification of excavated material;
- Consideration of the use of appropriate peat(s);
- Describing how excavated peat will be handled to ensure suitability for re-use;
- Determining if temporary storage of peat will be required during construction and how this will be done to ensure suitability for re-use; and
- Considering the potential volume of peat which may not be suitable for re-use and any requirement for a Waste Management Plan for the Revised Development.

The response to these objectives is provided in the following sections.

3 PEAT MANAGEMENT

3.1 Investigations

The existing peat depths across the Revised Development site have been determined through a peat probe survey undertaken during the EIA. The survey was initiated to inform the EIA and site design work while supporting the peat slide risk assessment.

Initial peat depth surveys were undertaken in October 2013 comprising 100m grid coverage across the site, where accessible. This rationale of probing is in accordance with the Phase 1 approach as detailed in the Scottish Government guidance for investigating peat.

Peat depths ranged from zero to 4.5 m thickness across the Revised Development site and were shown as localised or isolated zones within the western site area. This was consistent with the British Geological Survey mapping.

Further peat depth surveys were undertaken in August and September 2018. The probe positions for these visits were determined by the design freeze layout and provided increased resolution along the access track alignments and in the vicinity of turbine hardstandings. Peat depths were measured at cross sections centred along the proposed access tracks at 50m centres with offsets of 25m on either side of the centre line.

Additional Phase 2 level probing in August 2019 to cover the proposed AEI revisions and areas which were not accessible during the EIA Phase 1 and Phase 2.

Across turbine locations, additional peat probing was carried out at 10m centres for assessment and micro siting of turbines and hardstandings relative to prevailing conditions. The peat depths are illustrated in Figure 2 'Peat Depth Interpolation'.

3.2 Summary of Peat Depths

Throughout the peat surveys to date, a total of 1,465 peat probes were undertaken. The survey was initiated to inform the EIA and site design work while supporting the peat slide risk assessment and comprised of three phases;

- Phase 1 Probing – 100 m Grid across the developable area;
- Phase 2 Probing – Infrastructure focussed probing comprising 50m centres along tracks with perpendicular probes between 10 m and 25 m either side of track, and 10 m cross-hair of turbine locations; and
- AEI Probing – Further Phase 2 level probing to cover the proposed AEI revisions and areas which were not accessible during the EIA Phase 1 and Phase 2.

Phase 1 peat depth surveys were undertaken in October 2013 comprising 100m grid coverage across the site, where accessible. This rationale of probing is in accordance with the Phase 1 approach as detailed in the Scottish Government guidance for investigating peat.

Phase 2 peat depth surveys were undertaken in August and September 2018. The probe positions for these visits were determined by the design freeze layout and provided increased resolution along the access track alignments and in the vicinity of turbine hardstandings. Peat depths were measured at cross sections centred along the proposed access tracks at 50 m centres with offsets of 25 m on either side of the centre line. Across turbine locations, where possible, probing was carried out at 10 m centres for assessment allowing for micro siting of turbines and hardstandings relative to prevailing conditions.

AEI probing was undertaken in August 2019 to support proposed amendments to the site layout following the original EIA submission, capturing the new proposed infrastructure

locations being submitted with the AEI. This included new turbines and track alignments and consisted of an additional 172 probes.

Around 70% of probe locations recorded no peat or peat less than 0.5m while 12% of probes recorded peat between 0.5 m and 1.0 m. Thick peat (where the depth was greater than 1.0m) was recorded in 18% of locations.

Peat was found to be thicker along the western and north-western site area, close to the boundary with pockets of peat up to 4.5m recorded although only 1.5% of probes recorded peat greater than 3.0 m depth.

The distribution of peat deposits along the proposed tracks and infrastructure are shown on Figure 2 'Peat Depth Interpolation' included in Appendix 1.

It was found that peat was generally thinner or absent across the northern, central and eastern areas of the site, with exception of localised pockets in flatter areas. This is consistent with the steeper areas of the Revised Development site.

Where peat is consistently over 1.0 m thick and existing ground levels permit, the use of floating roads should be adopted. Prior to commencing works on site, the Contractor as part of any floating road design will undertake further ground investigation to establish peat characteristics and surcharging strategies. It should be noted that since the EIA submission from November 2018, two turbines have been removed from the layout, while a further six locations have been moved either into shallower peat or out with deep peat where possible to reduce the impact on deep peat.

Correspondence in this regard was undertaken with SEPA in July and August 2019 on the basis of proposed layout changes, letter reference PCS/166896, where SEPA removed an objection against the development in relation to peat. The correspondence is included in Appendix 2.

3.2.1 General Peat Classification

Acrotelmic peat is the upper layer of peat consisting of living and partially decayed material with a higher hydraulic conductivity and a variable water table. These deposits are generally found to exist in the upper 0.5 m of peat deposits and is typically suitable for re-instatement because it contains viable plant life to assist in the regeneration of peatland vegetation and carbon sequestration.

Catotelmic peat is variable in characteristics, with decomposition of fibres generally increasing with depth. Water content can be highly variable and affects the structural strength of the material. Suitability for reuse generally depends on fibre and water content. The upper catotelm is commonly deemed as being appropriate for reuse in restoration due to its relatively high fibre content.

Generally excavated semi fibrous catotelmic peat from the site will have sufficient structural strength to be able to be used in the lower layers of verge restoration as it will not be 'fluid'.

The catotelmic peat would be capped with a surface layer of acrotelm to re-establish the peat vegetation. If any fluid like wet catotelmic peat is encountered then it would be placed in more appropriate locations such as low-lying section of the borrow pits or concave deposition areas.

The following assumptions have been made in classifying peat excavated during the construction work:

- Where the total peat depth was found to be less than 0.5 m, this peat material is assumed to be 100% acrotelmic;
- Where the total peat depth is between 0.5 m and 1.0 m, the upper acrotelmic peat is at least 0.5 m deep; and

- Where the total peat depth as found to be greater than 1.0 m, acrotelmic peat is assumed to account for at least 30% of total depth but generally applying minimum of 0.5m thick.

Existing topography and permitted track gradients drive the design of the infrastructure with due consideration given to potential construction risk and effects on environmentally sensitive receptors including deep peat, watercourse buffers and any GWDTEs. Further micro-siting post-consent would take place in such a way as to avoid where possible the excavation of deep peat.

3.2.2 Excavation Calculation

To derive an accurate estimate of excavated volumes, the access tracks and turbine hardstandings have been developed to outline design stage in 3D based on Ordnance Survey digital Terrain 5 data. This design is overlaid on the 3D peat surface model which has been derived from the extensive peat probe surveying undertaken.

By analysing these models, it is possible to derive volumes of excavation and estimate what the excavated material comprise - be this non peat superficial soils, peat or other materials. Table 4.1 shows the construction activities that will generate excavated peat, and the expected volumes produced from each activity based on the 3D modelling exercise, and without the proposed mitigation of micro-siting.

Table 4.1 Peat excavation volumes based on construction activity

Revised Development Component	Anticipated Volume of Excavated Peat (m ³)	Anticipated Volume of Acrotelmic Peat (m ³)	Anticipated Volume of Catotelmic Peat (m ³)
General earthworks associated with widening/upgrade of existing tracks, new access tracks and crane pads	84,776	33,834	50,942
Borrow pit	6,661	6,661	0
Construction compound/Substation	2,250	2,250	0
TOTAL	93,687	42,745	50,942

A detailed assessment of excavated volumes by location within the site is provided in Appendix 3 of this report.

3.2.3 Peat Re-use Requirements

The principles of re-instating peat and peat soils should be adhered to for all elements of the infrastructure, comprising the below:

- Peat and peaty soils will be reinstated on track and infrastructure verges with turves placed on the upper horizons encouraging re-vegetation;
- All peat, soil and turves excavated from beneath infrastructure (excluding any floating track section) will be re-instated in the vicinity of its original location;
- Any wet catotelmic peat will be placed at the bottom of any restoration profile, followed by semi fibrous catotelmic peat and then acrotelmic should be placed on top; and
- Restoration activities will be overseen by the Ecological Clerk of Works to ensure adhered to methods.

Table 4.2 shows the opportunities for re-use of peat with the site including the demand for acrotelm and catotelm peat. Table 4.3 summarises the total peat balance estimated during construction of the Revised Development.

Table 4.2 Peat Re-use volumes based on construction activity

Revised Development Area	Total Demand Estimate (m ³)	Acrotelm Demand (m ³)	Catotelm Demand (m ³)	Estimated Reinstatement Thickness (max) where gradient permits (m)	Assumptions
General earthworks associated with widening/upgrade of existing tracks, new access tracks, crane Pads and turbine bases	76,264	25,253	51,011	0.60	Earthworks surface area of approximately 202,827m ² – assume up to 0.60 m reinstatement on verge and earthwork banks, both sides of tracks. Dressing off and landscaping of 17 turbines bases.
Borrow Pits	14,099	14,099	0	0.60	Assumption made that peat reinstatement thicknesses will reflect the peat excavated prior to borrow pit workings, i.e up to 0.6m at borrow pits 1 and 2.
Construction Compounds/ Substation	3,484	3,484	0	0.60	Full reinstatement of compound and dressing off of side slopes at sub-station compound.
Total	93,846	42,835	51,011		

Table 4.2 is presented as a summary of the assessment of peat reinstatement volumes. A detailed assessment is provided in Appendix 3 of this report.

The following assumptions have been made in assessing peat re-use:

- New access track sections assume verges on both sides at widths of up to 3.0 m depending on slope gradient/earthworks associated with the design. As the access track edges will have graded slopes, peat depths will vary across the profile to tie into existing ground levels;
- Upgraded track sections assume a verge on the upgraded side 0.5 m wide. As the access track edges will have graded slopes, peat depths will vary across the profile to tie into existing ground levels;
- Verges along the access tracks could consist of up to 0.6 m thick peat. Where possible catotelmic peat will be reinstated along verges in flatter areas;
- No peat will be placed on access track verges where the local topography is steep and/or a watercourse is in close proximity;

- Peat will be laid only to a thickness that maintains hydrological conditions and to avoid drying out. Peat will not be used as a thin layer or on steeper non-peat slopes. Low verges and landscaping will be formed to permit surface water to drain off the access tracks;
- Catotelmic soils will only be used if it is suitable for purpose; and
- Borrow pit reinstatement assumes a maximum peat depth thickness of that which existed prior to borrow pits works, but anticipated not to exceed 0.5 m. This will include the re-use of acrotelmic peat soils and turves.

Table 4.3 - Peat Balance Calculations

Peat Description	Total Peat Demand Estimate for Reinstatement (m ³)	Total Peat Supply from Excavation (m ³)	Surplus (+) or Deficit (-) (m ³)
Acrotelm	42,836	42,745	-91
Catotelm	51,011	50,942	-69
Total	93,847	93,687	-160

The results of the peat balance calculation shown in Table 4.3 demonstrates the total peat excavated during construction marginally exceeds the estimated demand for reinstatement based on the assumptions provided in this section.

The calculations indicate that there will be a small deficit of peat. These volumes should be considered in the context of the total excavated peat during construction.

Where required, other suitable site won materials can be utilised in reinstatement works.

3.2.4 Handling and Storage of Peat

It will be necessary for the Contractor to prescribe methods and timing involved in excavating, handling and storing peat for use in reinstatement. The contractor will be responsible for appointing a chartered geotechnical engineer, as discussed in the CEMP, who will monitor any potential stability risks. Construction methods will be based on the following principles:

- The surface layer of peat (acrotelm) and vegetation will be stripped separately from the catotelmic peat. This will typically be an excavation depth of up to 0.5 m, although could vary locally;
- Acrotelmic material will be stored separately from catotelmic material;
- Careful handling is essential to retain any existing structure and integrity of the excavated materials and thereby maximise the potential for excavated material to be reused;
- Less humified catotelmic peat which maintains its structure upon excavation should be kept separate from any highly humified amorphous or wet catotelmic peat;
- Acrotelmic material will be replaced as intact as possible once construction progresses / as it is complete;
- To minimise handling and transportation of peat, acrotelmic and catotelmic will be replaced, as far as is reasonably practicable, in the locality from which it was removed. Acrotelmic material is to be placed on the surface of reinstatement areas;
- Temporary storage of peat will be minimised, with restoration occurring in parallel with other works;
- Suitable areas should be sited in areas with lower ecological value, low stability risk and at a suitable distance from water courses;
- Reinstatement will, in all instances, be undertaken at the earliest opportunity to minimise storage of turves and other materials;

- Managing the construction work as much as possible to avoid periods when peat materials are likely to be wetter i.e. high rainfall events;
- Temporary storage and replacement of any peat excavated from the borrow pit should occur adjacent to and within the source pit; and
- Transport of peat on site from excavation to temporary storage and restoration site should be minimised.

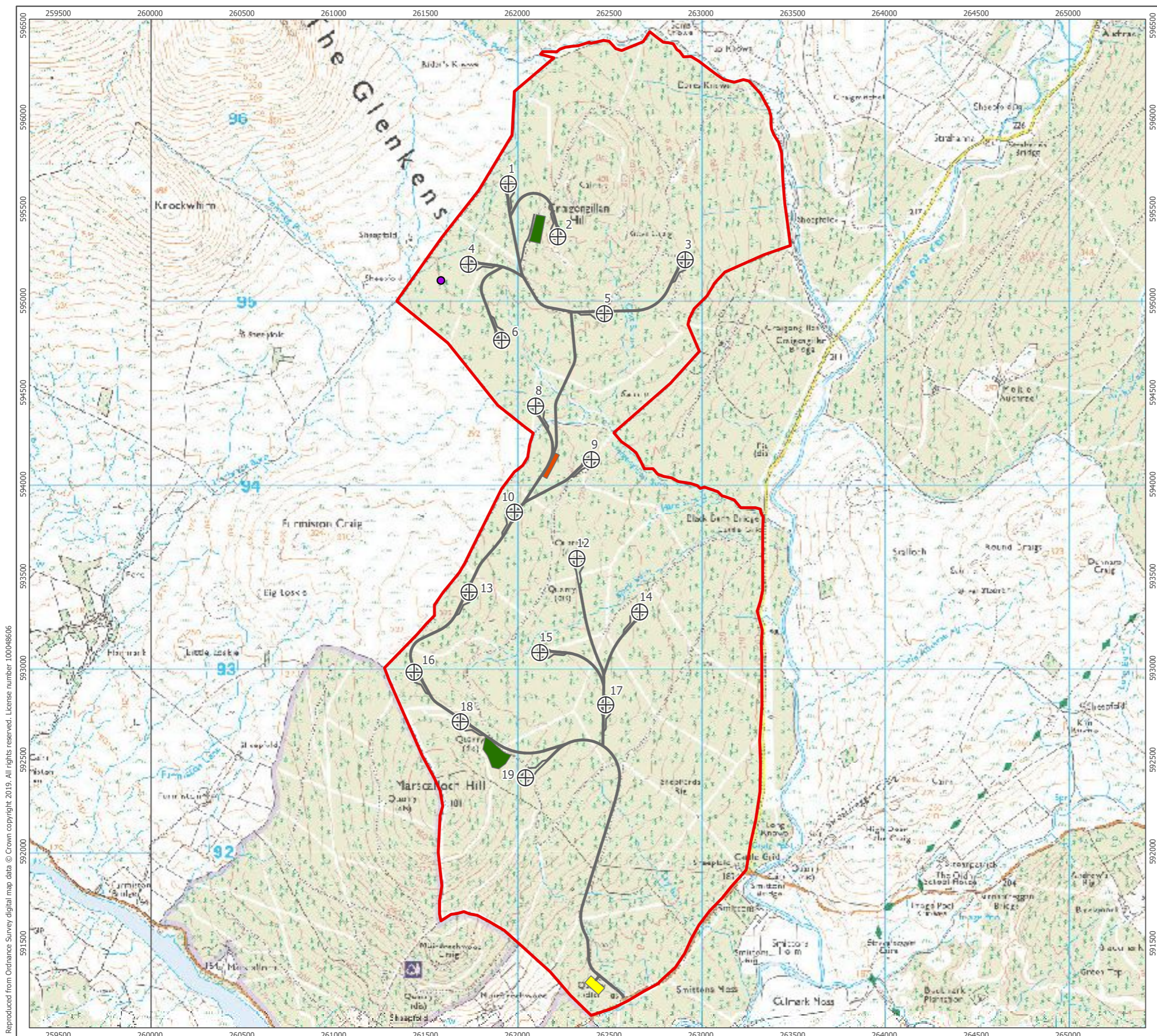
Following consideration of all constraints and considering the above points, three suitable temporary storage areas have been identified on Figure 3 – Temporary Peat Storage Areas.

4 CONCLUSION

The following conclusions are drawn regarding the management of peat and excavated materials within the proposed Revised Development site:

- As a result of the outline 3D modelling of the site layout and the 3D modelling of peat surfaces, the volume calculations demonstrate that all excavated peat can be reused on-site;
- Excavated peat will be used for the reinstatement of access track verges, cut and fill embankment slopes, reinstatement of turbine hardstandings, reinstatement of borrow pits and general landscape fill;
- The estimates of excavated peat provided in this report are likely to be higher than actually occur, as micro-siting during construction will allow for the avoidance of localised pockets of deeper peat;
- Sufficient methods have been defined to ensure that peat can be sensitively handled and stored onsite to allow for effective reuse; and
- No waste licence is required for the construction work.

APPENDIX 1 – FIGURES



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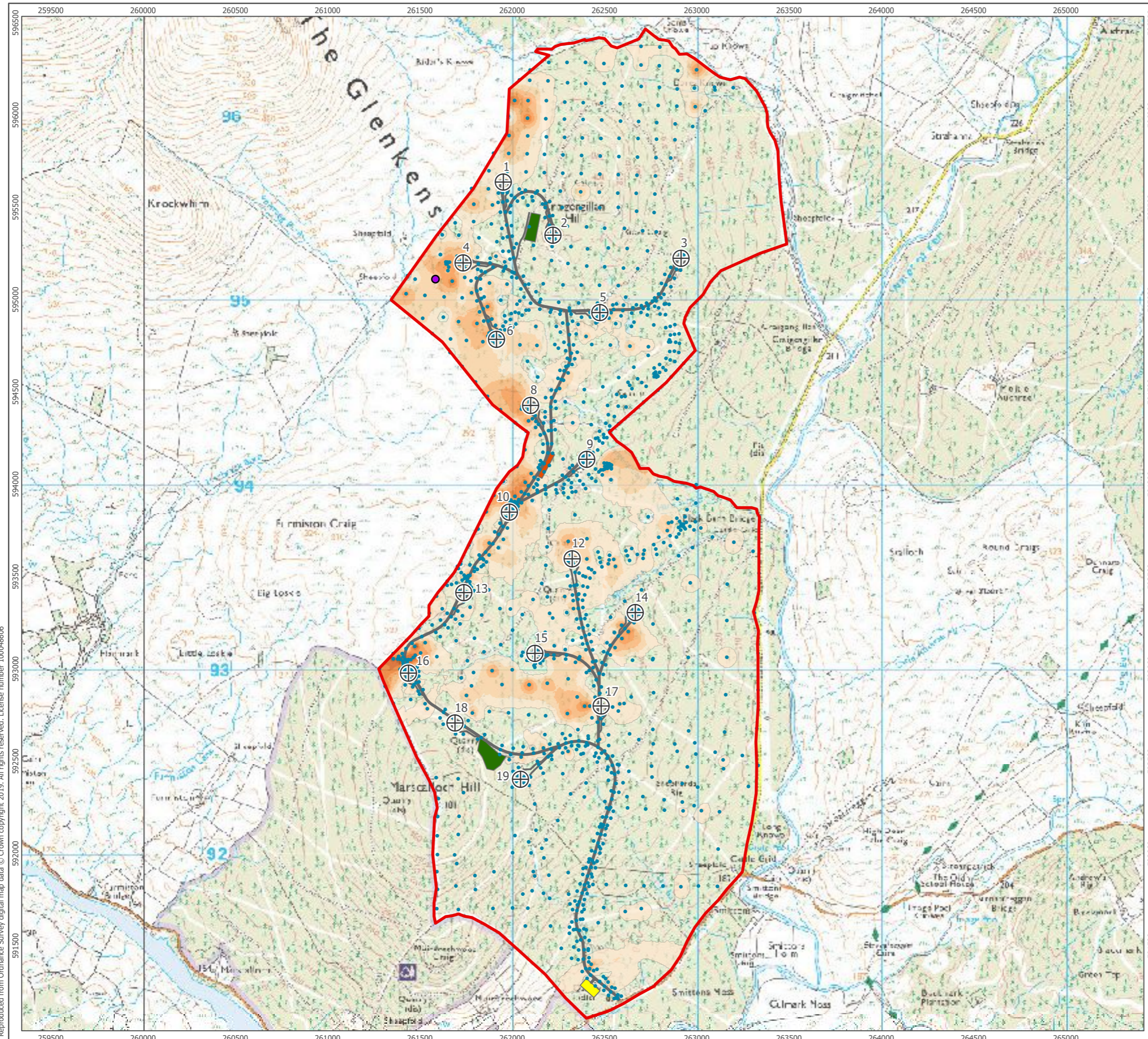
- Site Boundary
- + Proposed Turbine Location
- Meteorological Mast Location
- Tracks and Hardstanding
- Substation
- Construction Compound
- Borrow Pit Search Area

1:20,000 Scale @ A3

NORTH

Produced By: SC	Ref: 3342-REP-005
Checked By: DB	Date: 07/10/2019

Site Layout Plan
Figure 1



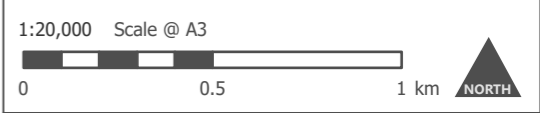
- Site Boundary
- + Proposed Turbine Location
- Meteorological Mast Location
- Peat Probe Locations
- Tracks and Hardstanding

Site Infrastructure poly

- Substation
- Construction Compound
- Borrow Pit Search Area

Peat Depth Interpolation (m)








- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00
- 4.01 - 4.50

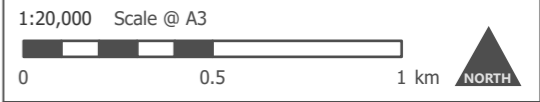
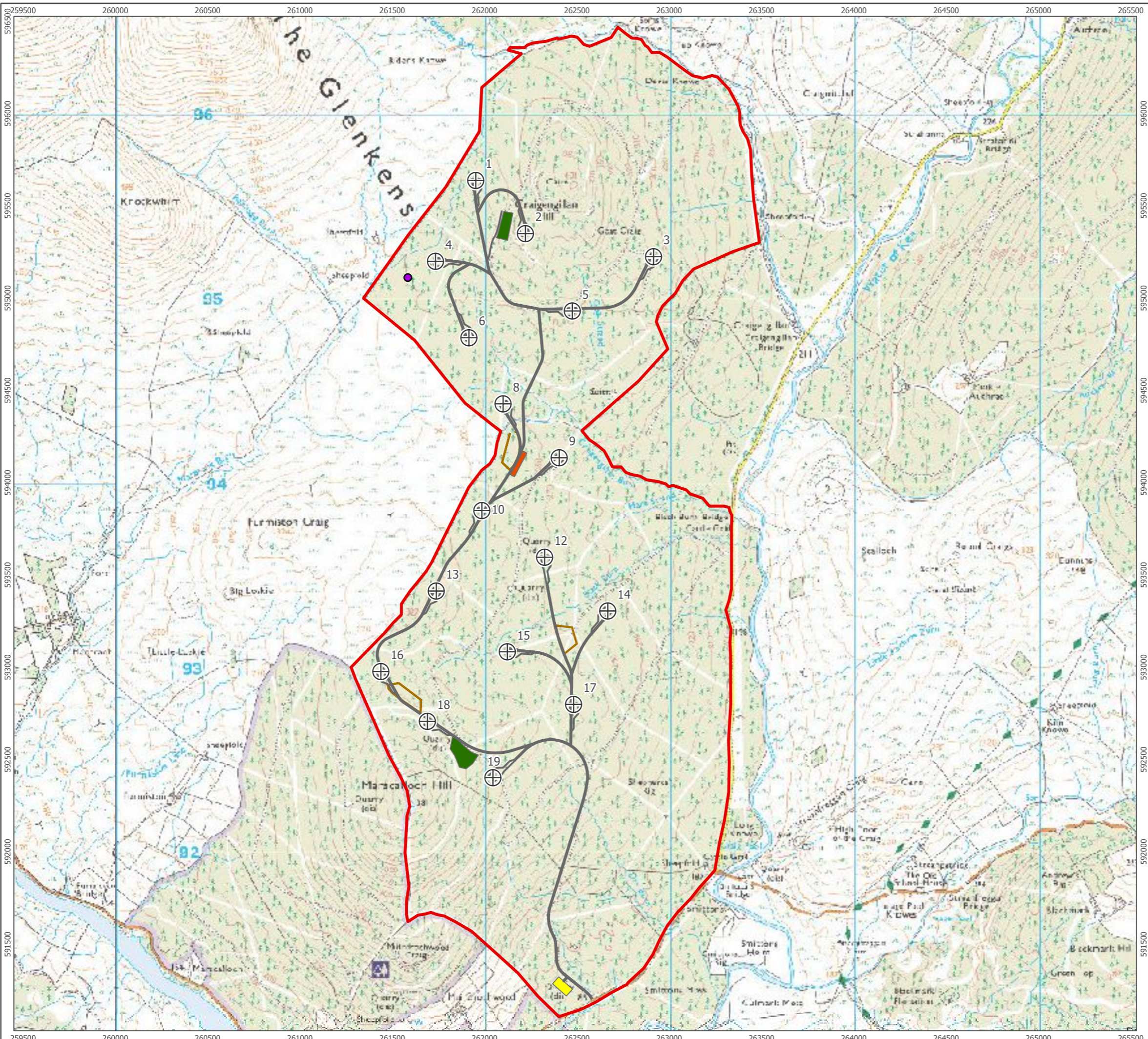


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Checked By: SC	Date: 07/10/2019

Interpolated Peat Depths
Figure 2

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-  Proposed Turbine Location
-  Site Boundary
-  Tracks and Hardstanding
-  Peat Storage Areas
-  Substation
-  Construction Compound
-  Borrow Bit Search Area



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Checked By: DB	Date: 11/10/2019

Temporary Peat Storage Areas
Figure 3

Technical Appendix 12.1
Shepherds' Rig Wind Farm AEI
Peat Management Plan

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APPENDIX 2 – POST-SUBMISSION CONSULTATION



Ms Julie Gerc
SEPA
Rivers House
Lochside Industrial Estate
Irongray Road
DG2 0JE
planning.sw@sepa.org.uk

26 July 2019

Dear Ms Gerc,

Shepherds Rig Wind Farm – Peat Consultation Response

In response to consultation response from SEPA (Reference PCS/162923) dated 14 March 2019, we provide this covering letter and figure in support of the submitted Environmental Impact Assessment Report for Shepherds Rig Wind Farm.

Turbines T4 (84m), T6 (35m), T8 (44m), T9 (120m) T10 (56m), T13 (85m) and T16 (76m) and their associated infrastructure are to be re-sited to areas of thinner peat, and these locations will be the basis of Additional Environmental Information (AEI) submitted to support the EIA Report. Prior to the submission of the AEI, the developer (Infinergy) and consultant (Arcus) have acknowledged the points and advice raised from the consultation letter (ref PCS/162923) in relation to the peat depths at these locations and have sought to address this with re-siting and confirmatory peat depth surveys. See Figure DR-PRE-0001-P6 in Appendix A.

Peat probing was undertaken in July 2019 comprising a further 143 peat probes which were specifically related to the proposed new AEI locations, and full details will be included within the AEI to be submitted later this year. It should also be noted that T7 and T11 along with their associated will be deleted.

The relevant points raised by SEPA and associated project team responses considering the revised layout are summarised as follows:

SEPA Comment:

1.1 SEPA has concerns that turbines will be placed in areas of deep peat (T16, T4, T6, T8, T9, T10 and T13). The "on-site constraints" map (Fig 3.2), does not include the proposed site layout. It is not possible therefore, to confirm that the site infrastructure is best placed to avoid areas of deep peat and associated potential disposal issues.

Arcus Response:

T4: Relocation from peat depths ranging from (2.51 – 3.00) to depths between (1.00 – 2.00). By relocating T4 to an area of peat less than 1.00 metre (m) would mean impacting on a nearby watercourse and associated buffer.

T6: Relocation from peat depths ranging from (1.51 – 2.00) to (1.01 – 1.50). T6 was restricted by deeper peat or watercourses and associated buffers therefore could not be re-located to areas of less than 1.0m deep. Floating tracks will be considered on approach to new location.

T8: Relocation from peat depths ranging from (2.51 – 3.00) to (0.50 – 1.50). Relocation of T8 is restricted by multiple watercourses and associated buffers.

T9: Relocation from peat depths ranging from (2.51 – 3.00) to (0.00 – 0.51). Relocating T9 onto the main proposed spine track removes the need for an additional track spur.

T10: Relocation from peat depths up to 3.0m and locally greater to depths between 0.50 - 1.00.

T13: Relocation from peat depths ranging from (2.01 – 2.50) to (0.00 – 0.50). No significant changes in topography anticipated.

T16: Moving from peat depths ranging from (4.01 – 4.50) to (0.51 – 1.00). No significant changes in topography anticipated.

SEPA Comment:

1.2 The applicant should provide a combined constraints and infrastructure plan which clearly demonstrates that peatlands, and other sensitive environmental receptors, have been avoided. If the proposal includes the placement of infrastructure on areas of deep peat, the applicant should provide justification for the suggested layout.

Arcus Response:

The revised layout is shown on a peat depth and constraints plan within Appendix A, enclosed with this letter.

SEPA Comment:

1.3 Micro-siting of up to 75m is suggested as a possible mitigation measure and again the applicant should provide an appropriate plan which demonstrates that this mitigation measure would be capable of achieving the desired outcome.

1.4 Micrositing of up to 75m is proposed by the applicant; however the applicant should confirm that the determining authority and other statutory consultees in the planning process would be willing to accept this action as a mitigation measure.

Arcus Response:

Micro-siting limits of 75 m will not be required following the re-location of turbines in line with the SEI submission. A standard 50 m micrositing limit is considered likely.

SEPA Comment:

1.5 It is SEPA's understanding that during site restoration, peat will be deposited on areas of the site where previously there was none. Peat reuse on access track verges should be limited to areas where peat is already present and the Peat Management Plan (PMP) should be modified to reflect this.

Arcus Response:

A revised PMP will be prepared as part of the AEI which will reflect the re-location of turbines to thinner peat and further considerations in relation to restoration/reinstatement.

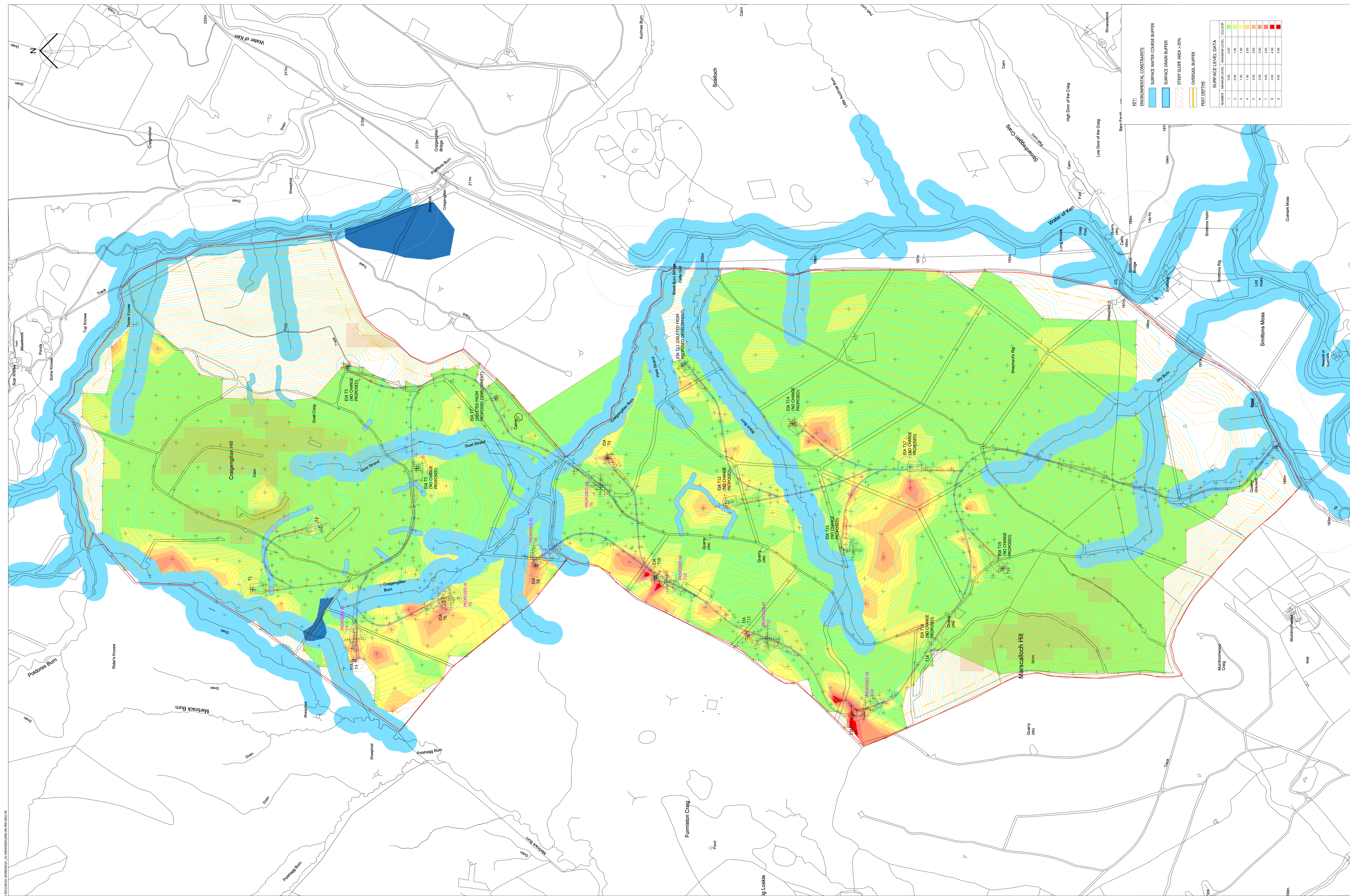
I trust this meets the current requirements, however, if you have any further queries, please do not hesitate to contact us.

Yours sincerely,

David Ballentyne
Engineer

ECopy to: r.frost@infinergy.co.uk; Christopher.Park@gov.scot; heatherk@arcus.co.uk;

Appendix A – Figure DR-PRE-0001-P6 – Proposed Layout and Peat Depth



KEY:

	ENVIRONMENTAL CONSTRAINTS
	SURFACE WATER COURSE BUFFER
	SURFACE DRAIN BUFFER
	STEP SLOPE AREA >20%
	OVERSAIL BUFFER

PEAT DEPTHS		
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL
1	0.00	0.50
2	0.50	1.00
3	1.00	1.50
4	1.50	2.00
5	2.00	2.50
6	2.50	3.00
7	3.00	3.50
8	3.50	4.00
9	4.00	4.50

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
- DO NOT SCALE FROM THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
- ALL DIMENSIONS, CHANGES LEVELS AND COORDINATES ARE IN METRES UNLESS DEFINED OTHERWISE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH & SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.

TRACK AMENDED	KB	TAT	23/07/18	2
CONSTRAINTS AMENDED	KB <td>TAT <td>26/06/18 <td>1</td> </td></td>	TAT <td>26/06/18 <td>1</td> </td>	26/06/18 <td>1</td>	1
Revision Details	By	Check	Date	Su/ls

Purpose of Issue: **PRELIMINARY**
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.
 SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX



Client: **SHEPHERDS RIG WINDFARM**
 Project Title: **ADDITIONAL INFORMATION**

Drawing Title: **PROPOSED LAYOUT AND PEAT DEPTH**

Designed: DB	Drawn: DB	Checked: HL	Approved: JHK
Issue: 01	Date: 29/07/19	Arcus Internal Project No: 2966	
Scale: @ A3: 1:5000			

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 www.arcusgroup.co.uk

Drawn: JHK
2966-DR-PRE-0001

Our ref: PCS/166896
Your ref: ECU00000735

If telephoning ask for:
Julie Gerc

27 August 2019

Chris Park
Scottish Government
4th Floor Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

By email only to: Christopher.Park@gov.scot

Dear Chris Park

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

Planning application: ECU00000735

Application For The Proposed Shepherds' Rig Wind Farm

Near Carsphairn Within The Planning Authority Area Of Dumfries & Galloway Council

Thank you for your consultation email which SEPA received on 31 July 2019.

1. Advice for the planning authority

- 1.1 Having reviewed the latest information provided by Arcus, we are now in a position to remove our objection to this proposal. I would refer you to our previous response 13 March 2019 (PCS/162923) which details the other issues which affect our interests.
- 1.2 Details of regulatory requirements and good practice advice for the applicant can be found on the [Regulations section](#) of our website. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the regulatory services team in your local SEPA office at:

Rivers House
Lochside Industrial Estate
Irongray Road
Dumfries
DG2 0JE

Tel: 01387 720 502
Fax: 01387 721 154



Chairman
Bob Downes
Chief Executive
Terry A'Hearn

Angus Smith Building

6 Farkland's Avenue, Eurocentral,
Holytown, North Lanarkshire ML1 4WQ
tel 01698 830000 fax 01698 738155

www.sepa.org.uk - customer enquiries 03000 95 60 99

If you have any queries relating to this letter, please contact me by telephone on 01698 839337 or e-mail at planning.sw@sepa.org.uk

Yours faithfully

Julie Gerc
Senior Planning Officer
Planning Service

ECopy to: davidb@arcusconsulting.co.uk

Disclaimer

This advice is given without prejudice to any decision made on elements of the proposal regulated by us, as such a decision may take into account factors not considered at this time. We prefer all the technical information required for any SEPA consents to be submitted at the same time as the planning or similar application. However, we consider it to be at the applicant's commercial risk if any significant changes required during the regulatory stage necessitate a further planning application or similar application and/or neighbour notification or advertising. We have relied on the accuracy and completeness of the information supplied to us in providing the above advice and can take no responsibility for incorrect data or interpretation, or omissions, in such information. If we have not referred to a particular issue in our response, it should not be assumed that there is no impact associated with that issue. For planning applications, if you did not specifically request advice on flood risk, then advice will not have been provided on this issue. Further information on our consultation arrangements generally can be found on our [website planning pages](#).

APPENDIX 3 - EARTHWORKS VOLUMES AND CALCULATIONS

3342- Shepherds' Rig AEI, Peat Management Plan					
PEAT EXCAVATION BY INFRASTRUCTURE	m2	Acrotelmic m3	Catotelmic m3	m3	
Peat Volume - Tracks & Crane Pads	173125	33834	50942	84776	
Peat Volume - Borrow Pit	22202	6661		6661	
Peat Volume - Compound Area/Substation	7,500	2250		2250	
TOTAL Peat Volume		42745	50942	93687	
INFRASTRUCTURE AREAS -EW			m/m2	m2 Total	
Tracks			9850	59100	
Crane Hardstanding			1780	30260	
Borrow Pit				22202	
Compound Area/Substation			7,500	6000	
TOTAL AREA				117562	
REINSTATEMENT	m2	Acrotelmic m3	Catotelmic m3	m3	
Earthworks Tracks and Crane Hardstands	126265	25253	51011	76264	Up to 600mm Peat reinstated. Catotelm is placed in the lower horizons, acrotelm will be placed over the top, encapsulating, where appropriate gradients allow. Thicknesses could be thinner locally based on topography and verge widths to suit earthworks Borrow Pits and Consturction compunds will be reinstated with acrotelm overlying non peat superficials.
Borrow Pit Dressing/Reinstatement	22202	14098.27		14098	
Construction Compound /Substation Reinstatement	5620	3484.4		3484	
TOTAL PEAT REINSTATED	154087	42836	51011	93847	
PEAT BALANCE					
Peat +Surplus/-Deficit		-91	-69	-160	