

TA9.7: Habitat Loss Methodology and Calculations



TECHNICAL APPENDIX 9.7

Habitat Loss Calculation Methodology

REPORT

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1 INTRODUCTION

In April 2018 the Strathy South Wind Farm was granted Section 36 consent under the Electricity Act 1989 and deemed planning permission under the Town and Country Planning (Scotland) Act 1997. The application for the grant of these consents was supported by the following environmental information that provided an assessment of the likely significance of effects predicted to be caused by the Consented Scheme to habitats present within the main site and the surrounding the proposed access route. Assessments relevant to the issue of habitat loss were presented in:

- 2013 ES Addendum, Volume 2: Chapter A10 Ecology, Section A10.5.2 Impacts on Habitats and Vegetation for the Modified 2013 Scheme;
- 2013 ES Addendum, Volume 4: Technical Appendix A10.6, Strathy South Wind Farm, Report 5b: An Updated Assessment of Impacts of Access Track Construction on the Caithness and Sutherland Peatlands Special Area of Conservation; and,
- 2014 Further Information Report, Technical Appendix 4.3 Predicted Habitat Loss Values for the T39 Layout.

The Environmental Impact Assessment Report (EIAR) for the Proposed Varied Development seeks to provide updated assessments of habitat loss both for the Consented Scheme and the Proposed Varied Development using revised parameters. These parameters are defined based on an increased understanding of the likely effects to habitats, in particular peatland habitats, gained since preparation of the EIA work for the Consented Scheme, through construction and operation of wind farm developments in the Scottish Highlands in this intervening time period.

The purpose of this report is therefore to:

1. Provide background regarding the habitat loss methodologies used previously for the Consented Scheme;
2. Set out the revised parameters used for habitat loss calculations for the Proposed Varied Development's EIAR; and,
3. Provide an updated assessment of the likely significant effects of the Proposed Varied Development and the Consented Scheme using the revised parameters including all access track route options and the Yellow Bog track.

The following assessment would ensure that, if required, appropriate additional mitigation over and above that proposed for the Consented Scheme would be identified, and subsequently implemented. EIAR Volume 4: Technical Appendix 9.5: Strathy South Outline Habitat Management Plan provides the revised Habitat Management Plan for the Proposed Varied Development. For reference, the layouts of the Consented Scheme and Proposed Varied Development are provided in Figure 9.7.1 and 9.7.2 respectively.

2 CONSENTED SCHEME HABITAT LOSS METHODOLOGY

The habitat loss area for the Consented Scheme in the 2013 ES Addendum and the 2014 Further Information Report, in all cases, was based on the footprint of individual infrastructure components as described in the relevant Chapter of each submission. For tracks, the footprint width varied according to the running width of each track section and whether the track was floating, cut or an upgrade to an existing track. No infrastructure orientation or shape was considered for the assessment of the Consented Scheme and the footprint of each infrastructure component was generated as a polygon based on the proposed dimension of each component.

In addition to the footprint area of each infrastructure component, direct and indirect impact zones (10 m and 15 m respectively) were applied beyond the edge of the development's footprint where the infrastructure crossed peatland habitats. In order to take a precautionary approach to designated sites, where infrastructure interacted with peatland habitats of the Caithness and Sutherland Peatlands Special Conservation Area (SAC) these zones were applied in their entirety.

For the Consented Scheme, the design mitigation of the access track passing from the Strathy North Wind Farm's northern boundary, travelling south through the Caithness and Sutherland Peatlands SAC, to the main site's northern boundary, included restricting widening to the down-slope side only within the SAC. Hence, direct and indirect impacts were only applied on the downslope (western) side of the track. Further details of this assessment are provided in EIA Volume 4: Technical Appendix 9.4: Assessment of the Effects of the Construction and Operation of the Access and Yellow Bog Tracks and the Associated Grid Connection to Qualifying Habitats of the Caithness and Sutherland Peatlands Special Area of Conservation.

Outwith the SAC, due to the presence and strong influence of the conifer plantation and drainage, the indirect impact zone was not applied. In addition, outwith the SAC, the direct impact zone was only applied to new infrastructure involving cut through construction methods. Hence, outwith the SAC, direct impacts were not applied to floating roads or existing track upgrades. This was due to floating roads being unlikely to create a significant hydrological drawdown effect within this zone, and the existing impacts of tracks and forestry resulting in little additional impact from track upgrades. Direct impacts were applied 10 m beyond the edge of the footprint area, where peat was proposed to be cut through, thereby altering the hydrological system and creating a drawdown effect. This approach was agreed with Scottish Natural Heritage (SNH) during submission of the 2013 ES Addendum for the Modified 2013 Scheme.

Indirect impacts within the SAC were calculated in these same situations based on a 15 m zone applied beyond the 10 m direct impact zone. Indirect impacts related to a zone whereby a change in habitat characteristics could occur due to changes in hydrology, albeit of a less serious nature than within the direct impact zone. There was a high degree of uncertainty regarding the level of change within the indirect impact zone and in many instances it was considered the long-term changes could be imperceptible.

Table 9.7.1 below summarises the infrastructure of the Consented Scheme, whether the infrastructure forms a permanent or temporary part of the design, the width of the tracks used for all assessments, and for these components (which fall outwith the SAC), the direct impact buffer which was applied to each component.

Table 9.7.1: Strathy South Wind Farm Consented Scheme Habitat Loss Calculation Parameters

Habitat Loss Parameters				
Infrastructure Component	Permanent / Temporary	Direct Impact	Direct Impact Buffer	Indirect Impact Buffer
Borrow Pits	Temporary	Footprint only	10m	-
Batching Plant	Temporary	Footprint only	10m	-
Construction Compound	Temporary	Footprint only	10m	-
Laydown Areas	Temporary	Footprint only	10m	-
Switching Station	Permanent	Footprint only	10m	-
Hardstanding Areas	Permanent and Temporary	Footprint and 7.8m buffer to temporary infrastructure	10m	-
Main Tracks – Cut	Permanent	11.6m wide footprint	10m	-
Track Spurs - Cut	Permanent	10.6m wide footprint	10m	-
Main Tracks – Floating	Permanent	15.7m wide footprint	-	-
Track Spurs – Floating	Permanent	14.7m wide footprint	-	-
Upgrade of Existing Tracks	Permanent	11.6m wide footprint Existing 6m wide footprint excluded from habitat loss calculations. 2.8m buffer added to existing footprint to account for direct impact.	-	-
Preferred Access	Permanent	11.6m wide footprint	10m	-
Alternative Access	Permanent	11.6m wide footprint	10m	-
Common Access	Permanent	11.6m wide footprint, existing footprint excluded from this.	10m	15m

Using the above methods, the predicted habitat loss for the Consented Scheme was predicted as detailed in Table 9.7.2 below.

Table 9.7.2: Predicted Effects to Habitats from the Consented Scheme Reported in the 2013 ES Addendum and 2014 Further Information Report

Predicted Habitat Loss for the Consented Scheme				
Scheme Area	NVC Community	Habitat Loss and Direct Impact 10m Buffer (ha)	Indirect Impact (15m)	Total Area Affected (ha)
Main Site	H10 <i>Calluna vulgaris</i> – <i>Erica cinerea</i> heath	0.17	-	0.17
	M6 <i>Carex echinata</i> - <i>Sphagnum fallax</i> / <i>denticulatum</i> mire	0.04	-	0.04
	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	5.09	-	5.09
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	10.80	-	10.80

Predicted Habitat Loss for the Consented Scheme				
Scheme Area	NVC Community	Habitat Loss and Direct Impact 10m Buffer (ha)	Indirect Impact (15m)	Total Area Affected (ha)
	M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> mire	0.86	-	0.86
	M20 <i>Eriophorum vaginatum</i> mire	0.58	-	0.58
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	2.78	-	2.78
	U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland	0.12	-	0.12
	Conifer Plantation	46.42	-	46.42
	Sub-Total	66.86	-	66.86
Preferred Access Route	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.01	-	0.01
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	0.05	-	0.05
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.12	-	0.12
	Conifer Plantation	1.67	-	1.67
	Sub-Total	1.85	-	1.85
Alternative Access Route	M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire	0.02	-	0.02
	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.01	-	0.01
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.06	-	0.06
	Conifer Plantation	3.13	-	3.13
	Sub-Total	3.22	-	3.22
Common Access	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.29	1.26	1.55
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire / M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.37	0.99	1.36
	Sub-Total	0.66	2.25	2.91

Table Notes

- The above information was sourced from 2014 Further Information Report: Technical Appendix 4.3: Predicted Habitat Loss Values for the T39 Layout for the main site and from the 2013 ES Addendum: Chapter 10 Ecology, Table A10.12 for the Preferred and Alternative Access Routes and 2013 ES Addendum: Chapter 10 Ecology, Table A10.10 for the Common Access.
- Both direct and indirect effects from the Common Access are to qualifying habitats of the Caithness and Sutherland Peatlands SAC. Effects to non-qualifying habitats for this section of the access route were not reported.

3 REVISED APPROACH

Based on an improved understanding of the likely effects resulting from the construction and operation of wind farm developments in peatland habitats, forestry and those habitats particular to the Scottish Highlands, the revised parameters used to determine the potential effects of the Consented Scheme and the Proposed Varied Development are as follows¹:-

- Direct habitat loss** – the permanent footprint of any component of the built infrastructure for the development which would not be restored following construction. This includes tracks, turbine bases and hardstandings, substations and all areas of permanent drainage.
- Temporary habitat loss** – any infrastructure component that would be restored following construction, for example batching plants, turbine laydown areas and construction compounds. This area also includes a 4 m buffer surrounding infrastructure to allow machinery to work outwith the permanent footprint of any infrastructure component. Such areas would all be restored following construction as detailed in the Construction Environment Management Plan (CEMP)² for the Proposed Varied Development.
- Permanent habitat change (indirect effects)** – a 10 m buffer has been applied to each component of the permanent footprint where hydrologically dependent habitats are present to account for the potential alterations to habitats through changes to hydrological flows to these. Table 9.7.3 provides the habitat types present to which this 10 m permanent habitat change buffer would apply.

Table 9.7.3: Hydrologically Dependent Habitats to which the Permanent Habitat Change Buffer is Applied

Hydrologically Dependent Habitats	
Phase 1 Habitat Type	National Vegetation Classification Community
Blanket bog	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire
Wet heath	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire
Wet heath	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire
Blanket bog	M19 <i>Calluna vulgaris</i> – <i>Eriophorum vaginatum</i> mire
Modified bog	M20 <i>Eriophorum vaginatum</i> mire
Rush pasture	M23 <i>Juncus effusus/acuteiflorus</i> – <i>Galium saxatile</i> mire
Blanket bog	M18 <i>Erica tetralix</i> – <i>Sphagnum papillosum</i> mire
Blanket bog	M1 <i>Sphagnum denticulatum</i> bog pool
Blanket bog	M2 <i>Sphagnum cuspidatum/fallax</i> bog pool
Acidic flush	M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire
Acidic flush	M29 <i>Hypericum elodes</i> – <i>Potamogeton polygonifolius</i> soakway
Swamp	S4 <i>Phragmites australis</i> swamp
Swamp	S9 <i>Carex rostrata</i> swamp
Swamp	<i>Menyanthes trifoliata</i> swamp

Table Notes:

* Total area is taken from the mapped dominant community within any polygon. Consequently, for a number of the communities a total area is not available as these have been mapped as small proportions of polygons where a mosaic of communities has been identified in a larger area.

- Information within this table is taken from EIAR Volume 4: Technical Appendix 9.8: Copy of Technical Appendix A10.2 Strathly South Wind Farm Habitats, Vegetation and Protected Species.

¹ The revised approach outlined in this section was agreed with SNH at a meeting on 03/06/2020.

² EIAR Volume 4: Technical Appendix 2.1: Outline CEMP

The above parameters have been applied to both the main site and the preferred and alternative access routes (Segment 1 of the access track).

The Common Access (access track Segment 2) and the Yellow Bog track both pass through the Caithness and Sutherland Peatlands SAC, and as such have been treated differently with regards to temporary habitat loss and permanent habitat change. For the Common Access, temporary habitat loss would be limited to the current mapped area of disturbance caused by construction of the existing track (inside of the red polygon on Appendix A labelled Edge of Habitat). The footprint and construction areas (polygons labelled Proposed) for the Common Access are also provided in Appendix A to this Technical Appendix. All construction works would be carried out within this defined area of disturbance, and track widening would take place into the western side (downslope side) of the track to minimise potential effects to habitats. Permanent habitat change would be also limited to the western side of the track and within the area of the mapped existing disturbance within the red polygon title “Edge of Habitat” in Appendix A.

For the Yellow Bog track, similarly the widening of the track has been designed to utilise areas of mapped disturbed habitat (titled “Edge of Habitat” in Appendix B) surrounding the existing track’s footprint with all construction works limited to these areas. Temporary habitat loss would therefore be limited to the defined areas of construction within areas of disturbed habitat. As there is no definable slope surrounding the Yellow Bog track permanent habitat change buffers have been applied to both the north and south sides, but the mapped areas of habitat disturbance are removed from this buffer as this would no longer contain hydrologically dependent habitats.

Further information regarding the effects of these track segments to qualifying habitats of the Caithness and Sutherland Peatland SAC are provided in Technical Appendix 9.4 (EIAR Volume 4)³ along with the associated supporting figures.

With regards to the habitat loss calculations completed for the main site, for the Proposed Varied Development a true representation of the its infrastructure was available. For the Consented Scheme this true representation was not available, consequently polygons were created of the representative dimensions of each piece of infrastructure. These polygons were then used for the subsequent habitat loss calculations. The orientation of these polygons has been matched to that of the Proposed Varied Development to make this process as accurate as possible. Figure 9.7.3 provides a comparison of the Proposed Varied Development and Consented Scheme habitat loss calculation layouts for the main site.

³ EIAR Volume 4: Technical Appendix 9.4: Assessment of the Effects of the Construction and Operation of the Access and Yellow Bog Tracks and the Associated Grid Connection to Qualifying Habitats of the Caithness and Sutherland Peatlands Special Area of Conservation

4 PREDICTED EFFECTS TO HABITATS

The following Section details the predicted effects to habitats from the Consented Scheme and Proposed Varied Development using the revised parameters as detailed in Section 3.

4.1 Consented Scheme

Table 9.7.4 details the predicted effects to habitats from the Consented Scheme using the revised 2020 parameters.

Table 9.7.4: Predicted Effects to Habitats from the Consented Scheme

Development Area	National Vegetation Community	Area Affected (ha)			Total Area Affected
		Direct Habitat Loss	Temporary Habitat Loss	Permanent Habitat Change ⁺	
Preferred Access Route	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	0.03	0.02	0.06	0.11
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.08	0.08	0.22	0.38
	Conifer Plantation	0.92	0.85	-	1.77
	Sub-Total	1.03	0.95	0.28	2.26
Alternative Access Route	M6 <i>Carex echinata-Sphagnum fallax/denticulatum</i> mire	0.02	0.01	0.03	0.06
	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.00	0.01	0.03	0.04
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.04	0.05	0.12	0.21
	Conifer Plantation	1.76	1.99	-	3.75
Sub-Total	1.82	2.06	0.18	4.06	
Common Access	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.57	0.63	0.14	1.34
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	0.07	0.07	0.00	0.14
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.66	0.75	0.12	1.53
	Conifer Plantation	0.22	0.11	-	0.33
Sub-Total	1.52	1.56	0.26	3.34	
Main Site	H10 <i>Calluna vulgaris</i> – <i>Erica cinerea</i> heath	0.00	0.16	-	0.16
	M6 <i>Carex echinata-Sphagnum fallax/denticulatum</i> mire	0.01	0.05	0.07	0.13
	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	2.51	5.91	9.47	17.89
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	2.71	8.99	9.62	21.32

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Development Area	National Vegetation Community	Area Affected (ha)			
		Direct Habitat Loss	Temporary Habitat Loss	Permanent Habitat Change ⁺	Total Area Affected
	M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> mire	0.39	0.28	0.63	1.30
	M20 <i>Eriophorum vaginatum</i> mire	0.14	0.35	0.42	0.91
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.87	1.60	2.20	4.67
	U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland	0.04	0.05	0.13	0.22
	Conifer Plantation	14.62	24.42	-	39.04
	Sub-Total	21.29	41.81	22.54	85.64

Table Notes

1. Direct Habitat Loss and Temporary Habitat Loss for the Common Access track are to NVC communities which have been affected by construction of the existing track and are therefore atypical communities
2. Conifer Plantation and dry heath habitats (NVC community H10) are excluded from Permanent Habitat Change effects as these would not be altered by changes to the hydrology of the site. These are therefore noted as (-) in the above table.
3. ⁺ Permanent Habitat Change effects would only be to qualifying habitats of the SAC surrounding the Common Access and Yellow Bog tracks; those which are outwith the mapped areas of disturbance caused by construction of the existing tracks and are therefore typical NVC communities. Effects of the conifer plantation to peatland habitats within the main site and in proximity to the Alternative and Preferred Access routes would already have altered the hydrological regime of any remnant peatland habitats. As such, these are deemed atypical habitat types and would be unaffected by further influences.

4.2 Proposed Varied Development

Table 9.7.5 details the predicted effects to habitats from the Proposed varied Development using the revised 2020 parameters.

Table 9.7.5: Predicted Effects to Habitats from the Proposed Varied Development

Development Area	National Vegetation Community	Area Affected (ha)			
		Direct Habitat Loss	Temporary Habitat Loss	Permanent Habitat Change ⁺	Total Area Affected
Preferred Access Route	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	0.03	0.02	0.06	0.11
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.08	0.08	0.22	0.38
	Conifer Plantation	0.92	0.85	-	1.77
	Sub-total	1.03	0.95	0.28	2.26
Alternative Access Route	M6 <i>Carex echinata-Sphagnum fallax/denticulatum</i> mire	0.02	0.01	0.03	0.06
	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.00	0.01	0.03	0.04
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.04	0.05	0.12	0.21
	Conifer Plantation	1.76	1.99	-	3.75
	Sub-total	1.82	2.06	0.18	4.06

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Development Area	National Vegetation Community	Area Affected (ha)			
		Direct Habitat Loss	Temporary Habitat Loss	Permanent Habitat Change ⁺	Total Area Affected
Common Access	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.57	0.63	0.14	1.34
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	0.07	0.07	0.00	0.14
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.66	0.75	0.12	1.53
	Conifer Plantation	0.22	0.11	-	0.33
	Sub-total	1.52	1.56	0.26	3.34
Yellow Bog Track	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	0.00	0.12	0.00	0.12
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	0.03	0.06	0.43	0.52
	M20 <i>Eriophorum vaginatum</i> mire	0.00	0.01	0.00	0.01
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	0.00	0.05	0.00	0.05
	U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland	0.01	0.01	0.00	0.02
	Sub-total	0.04	0.25	0.43	0.72
Main Site	H10 <i>Calluna vulgaris</i> – <i>Erica cinerea</i> heath	0.00	0.16	-	0.16
	M6 <i>Carex echinata-Sphagnum fallax/denticulatum</i> mire	0.21	0.07	0.15	0.43
	M15 <i>Trichophorum germanicum</i> – <i>Erica tetralix</i> mire	2.72	6.57	9.69	18.98
	M17 <i>Trichophorum germanicum</i> – <i>Eriophorum vaginatum</i> mire	2.70	9.31	10.57	22.58
	M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> mire	0.31	0.28	0.57	1.16
	M20 <i>Eriophorum vaginatum</i> mire	0.17	0.35	0.46	0.98
	M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture	0.05	0.04	0.07	0.16
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	1.46	2.27	2.53	6.26
	U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland	0.05	0.06	0.15	0.26
	Conifer Plantation	20.71	31.74	-	52.45
Sub-total	28.38	50.85	24.19	103.42	

Table Notes

1. Direct Habitat Loss and Temporary Habitat Loss for the Common Access track are to NVC communities which have been affected by construction of the existing track and are therefore atypical communities
2. Conifer Plantation and dry heath habitats (NVC community H10) are excluded from Permanent Habitat Change effects as these would not be altered by changes to the hydrology of the site. These are therefore noted as (-) in the above table.
3. * Permanent Habitat Change effects would only be to qualifying habitats of the SAC surrounding the Common Access and Yellow Bog tracks; those which are outwith the mapped areas of disturbance caused by construction of the existing tracks and are therefore typical NVC communities. Effects of the conifer plantation to peatland habitats within the main site and in proximity to the Alternative and Preferred Access routes would already have altered the hydrological regime of any remnant peatland habitats. As such, these are deemed atypical habitat types and would be unaffected by further influences..

5 SUMMARY

Using the revised parameters to assess effects to habitats from both the Consented Scheme and the Proposed Varied Development, there would be an overall potential increase in effects from the Proposed Varied Development of 17.78 ha when the developments are compared using the same assessment methods (including direct habitat loss, temporary habitat loss and permanent habitat change). This increase in effects is primarily associated with the increase in the size of the turbine hardstandings and the number of borrow pits required for the Proposed Varied Development. These effects are in the main, to conifer plantation areas with an increase in direct and temporary habitat loss of 6.09 ha and 7.32 ha respectively. Small additional habitat loss and permanent change to areas of peatland habitats within the main site account for the remaining 4.37 ha of additional effects.

Outwith the main site, effects to habitats from the Preferred and Alternative Access using the revised parameters have remained relatively consistent between the Consented Scheme and Proposed Varied Development. However, permanent habitat change was excluded from the assessment of these sections of track in the 2013 ES Addendum (termed indirect effect). It is a fair assumption that these habitats would have been affected by influences of previous afforestation, and as such any effect would already have taken place. Taking this into consideration it would be appropriate to discount from this 2020 assessment any effects of permanent habitat change to these sections of track. Predicted effects for the Preferred and Alternative Access routes for the Proposed Varied Development are therefore assessed as 1.98 ha and 3.88 ha respectively (when permanent habitat change for these track sections are excluded) in comparison to those from the Consented Scheme's 2013 ES Addendum of 1.85 ha and 3.22 ha respectively. The majority of the increase in effects to habitats using the revised assessment parameters for the Proposed Varied Development is to conifer plantation habitats.

Overall effects of the Common Access to habitats associated with the Caithness and Sutherland Peatlands SAC were assessed for both the Consented Scheme in the 2013 ES Addendum and for the Proposed Varied Development. These assessments used differing criteria as detailed in previous Sections of this report. The assessment for the Consented Scheme did not report on effects to non-qualifying habitats from the construction of the Common Access and so a comparison of these cannot be completed.

Effects to qualifying habitats were predicted to total 0.59 and 0.66 ha of direct impact and 2.25 ha of indirect impact within the 2013 ES Addendum. For a comparison between the Consented Scheme and the Proposed Varied Development it is has been deemed appropriate to use only the direct impact figures from the 2013 ES Addendum's assessment (0.59 ha and 0.66 ha). In comparison, effects from the Proposed Varied Development to qualifying habitats of the SAC from the Common Access, are predicted to be limited to 0.26 ha of permanent habitat change, with all other effects within previously disturbed ground. This is a decrease overall of between 0.33 and 0.4 ha due primarily to the improvement from the proposed methods of construction of this segment of track.

The Yellow Bog track was not proposed to be widened for the Consented Scheme and was excluded from the 2013 ES Addendum assessment. Predicted effects to qualifying habitats of the Caithness and Sutherland Peatlands SAC from use of this track by the Proposed Varied Development are predicted as 0.43 ha of permanent habitat change to blanket bog habitats, with other effects to atypical habitat types previously affected by construction of the existing track.

The inclusion of the Yellow Bog track in the S36C application for the Proposed Varied Development predicts that the total effects to the Caithness and Sutherland Peatlands SAC would amount to 0.69 ha of permanent habitat change. This would be an increase of between 0.03 and 0.1 ha in comparison to the predicted effects for the Consented Scheme.

In summary, using the revised parameters detailed in this report to assess the predicted effects of the Proposed Varied Development to habitats, key findings are:

- An increased effect to habitats within the main site of 17.78 ha, however only 4.37 ha of these total effects are to non conifer plantation habitats;
- An increased effect to habitats in proximity to the Preferred and Alternative route options, however the majority of these effects are to conifer plantation habitat;
- A decrease of effects to qualifying habitats of the Caithness and Sutherland Peatlands SAC from widening of the Common Access by between 0.33 and 0.4 ha;

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- The overall effects to qualifying habitats of the Caithness and Sutherland Peatlands SAC from the widening of the Yellow Bog track are predicted as 0.43 ha of permanent habitat change;
- An overall increase in effects to qualifying habitats of the Caithness and Sutherland Peatlands SAC are predicted of between 0.03 and 0.1 ha. These are through alterations of hydrological flows in peatland habitats and are limited to permanent habitat change.

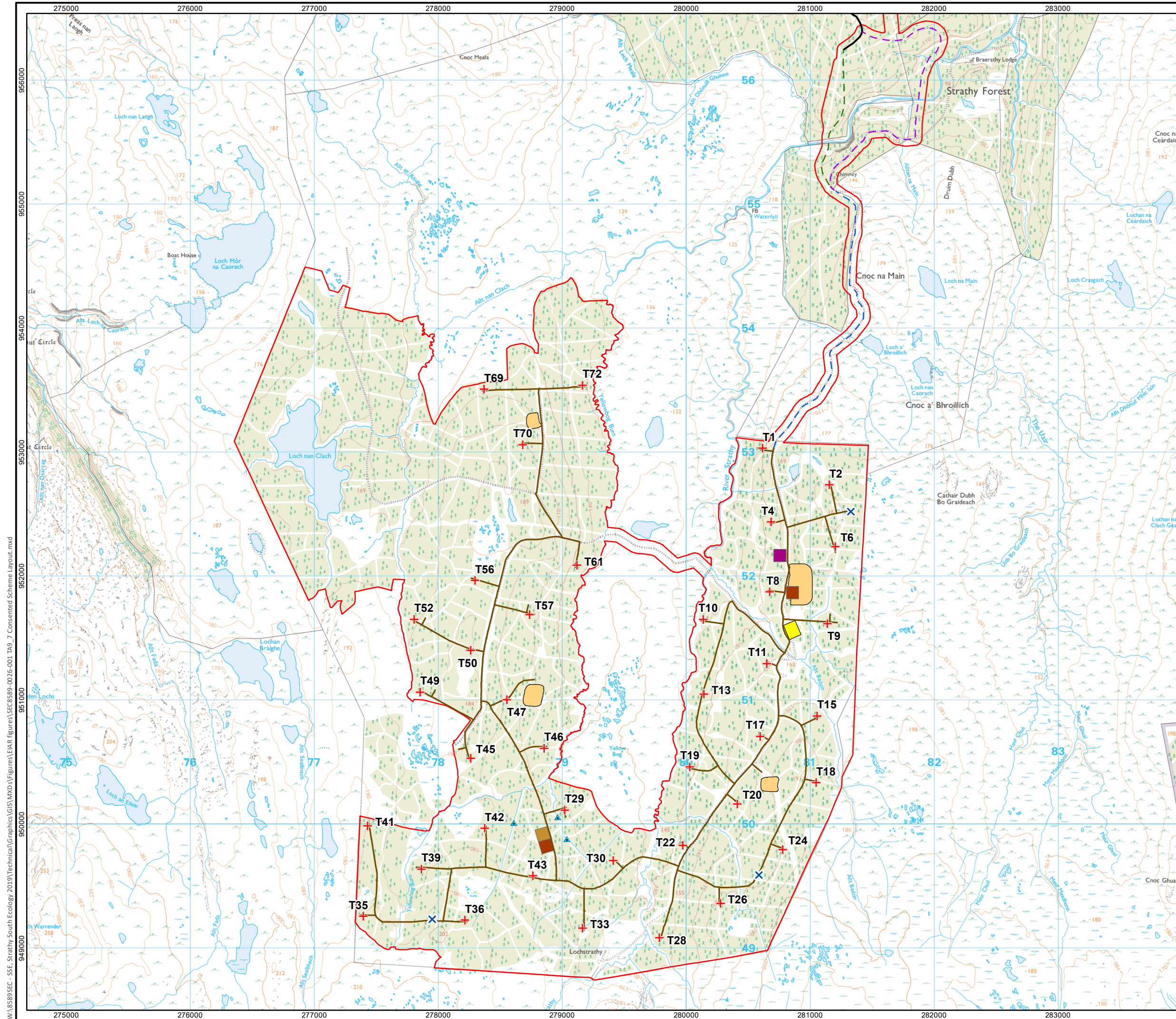
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Figures

Figure 9.7.1: Consented Scheme Layout

Figure 9.7.2: Proposed Varied Development Layout

Figure 9.7.3: Comparison of Strathy South Wind Farm Layouts for Habitat Loss Calculations



- Key**
- Site Boundary
 - + Turbine
 - Tracks
 - x Permanent Met Mast
 - ▲ Water Abstraction Location
 - Preferred Access Route
 - Alternative Access Route
 - Common Access Route
 - Strathy North Access Route
 - Switching Station
 - Concrete Batching Plant
 - Laydown Area
 - Construction Compound
 - Borrow Pit

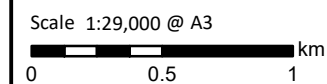


Figure 9.7.1
Consented Scheme Layout

Strathy South Wind Farm
EIAR 2020