Appendix 1: Strathy South and Strathy Wood Grid Connections Southern Section: Comparative Route Appraisal

	Category	Sub-Topic	Route Option SS-SN 1 Rating OHL (steel tower) and UGC	Route Option SS-SN 2A Rating OHL (steel tower) and UGC	Route Option SS-SN 2B Rating OHL (steel tower) and UGC	Route Option SS-SN 3 Rating UGC
Environmental	Natural Heritage	Designations	The route crosses 8.5 km of the Caithness and Sutherland Peatlands Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar and the West Halladale Site of Special Scientific Interest (SSSI). The route also falls within a Candidate World Heritage Site (WHS), however the effects of this route option on habitat loss and degradation, at the scale of the WHS, are expected to be minimal.	The route crosses 2.7 km of the Caithness and Sutherland Peatlands SPA, SAC and Ramsar and the West Halladale SSSI, The route falls within a Candidate WHS, however the effects of this route option on habitat loss and degradation, at the scale of the WHS, are expected to be minimal.	The route crosses 2.7 km of the Caithness and Sutherland Peatlands SPA, SAC and Ramsar and the West Halladale SSSI. The route falls within a Candidate WHS, however the effects of this route option on habitat loss and degradation, at the scale of the WHS, are expected to be minimal.	The route crosses 1.5 km of the Caithness and Sutherland Peatlands SPA, SAC and Ramsar and the West Halladale SSSI. The route falls within a Candidate WHS, however the effects of this route option on habitat loss and degradation, at the scale of the WHS, are expected to be minimal.
		Protected Species	Potential habitat for pine marten (Martes martes), otter, water vole (Arvicola amphibius), bats, badger (Meles meles) and reptiles have been identified across the route. Potential for disturbance could be reduced by undertaking pre-construction surveys and adopting appropriate mitigation (e.g. Species Protection Plans).	Potential habitat for pine marten (Martes martes), otter, water vole (Arvicola amphibius), bats, badger (Meles meles) and reptiles have been identified across the route. Potential for disturbance could be reduced by undertaking pre-construction surveys and adopting appropriate mitigation (e.g., Species Protection Plans).	Potential habitat for pine marten (Martes martes), otter, water vole (Arvicola amphibius), bats, badger (Meles meles) and reptiles have been identified across the route. Potential for disturbance could be reduced by undertaking pre-construction surveys and adopting appropriate mitigation (e.g., Species Protection Plans).	Potential habitat for pine marten (Martes martes), otter, water vole (Arvicola amphibius), bats, badger (Meles meles) and reptiles have been identified across the route. Potential for disturbance could be reduced by undertaking pre-construction surveys and adopting appropriate mitigation (e.g., Species Protection Plans).
		Habitats	Route Option SS-SN 1 passes through extensive areas of blanket bog, and wet heath with less extensive areas of dry dwarf shrub heath, acid flush, marshy grassland, forestry plantation and acid grassland. Potential loss of sensitive habitats from construction of infrastructure, albeit opportunities for restoration for the section of UGC. Micro-siting would be required where possible to limit the impact on sensitive habitats within this route. There will be large extensive areas of blanket bog which will not be avoidable along this route.	The habitats within Route Option SS-SN 2a are very similar to those described for Route Option SS-SN 1 but it avoids more of the habitat on the open hill instead travelling through conifer plantation in Strathy Forest. Potential loss of sensitive habitats from construction of infrastructure albeit opportunities for reinstatement for the section of UGC. Micro-siting would be required where possible to limit the impact on sensitive habitats within this route. There will be large extensive areas of blanket bog which will not be avoidable, however there are opportunities at alignment stage to design an alignment at the very edge of areas of blanket bog or through conifer plantation, reducing severity of impacts.	Route Option SS-SN 2b follows a very similar route to Route Option SS-SN 2a. However, travelling through Strathy Forest, Route Option 2b passes through larger areas of marshy grassland found within the forestry and crossing the River Strathy. Potential loss of sensitive habitats from construction of infrastructure albeit opportunities for reinstatement for the section of UGC. Micro-siting would be required where possible to limit the impact on sensitive habitats within this route. There will be large extensive areas of blanket bog which will not be avoidable, however as for Route Option SS-SN 2a, there are opportunities at alignment stage to design an alignment at the very edge of areas of blanket bog or through conifer plantation, reducing severity of impacts. There is also opportunity for Route Option SS-SN 2b to follow the disturbed ground adjacent to the existing track for a longer stretch, which would minimise impacts on blanket bog.	Route Option SS-SN 3 initially overlaps with Route Option SS-SN 2a and 2b for 3.2 km. Beyond this, Route Option SS-SN 3 moves into plantation and felled forestry. Potential loss of sensitive habitats from construction of infrastructure, albeit in smaller quantities than other routes. Micro-siting would be required where possible to limit the impact on sensitive habitats within this route.
		Ornithology	Bird surveys have recorded a diverse range of species in the area, including upland and lowland waders, divers and protected raptors. Several of these species are qualifying species	Bird surveys have recorded a diverse range of species in the area, including upland and lowland waders, divers and protected raptors. Several of these species are qualifying species	Bird surveys have recorded a diverse range of species in the area, including upland and lowland waders, divers and protected raptors. Several of these species are qualifying species	Bird surveys have recorded a diverse range of species in the area, including upland and lowland waders, divers and protected raptors. Several of these species are qualifying species

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			for the Caithness and Sutherland Peatlands SPA. The southern section of the route passes in proximity to an unnamed set of lochans that have historically been used by nesting red throated diver, but as this route option would comprise an UGC through this section, potential impacts would be minimised. Potential for habitat loss, disturbance during construction, barrier effects and collision risk with this route option. Mitigation measures would be required to minimise effects.	for the Caithness and Sutherland Peatlands SPA. The southern section of the route passes within 350 m of an unnamed set of lochans that have historically been used by nesting red throated diver, but as this route option would comprise an UGC through this section, potential impacts would be minimised. Potential for habitat loss, disturbance during construction and collision risk with this route option. Mitigation measures would be required to minimise effects.	for the Caithness and Sutherland Peatlands SPA. The southern section of the route passes within 350 m of an unnamed set of lochans that have historically been used by nesting red throated diver, but as this route option would comprise an UGC through this section, potential impacts would be minimised. Potential for habitat loss, disturbance during construction and collision risk with this route option. Mitigation measures would be required to minimise effects.	for the Caithness and Sutherland Peatlands SPA. The southern section of the route passes within 350 m of an unnamed set of lochans that have historically been used by nesting red throated diver. Potential for habitat loss, disturbance during construction and collision risk with this route option. Mitigation measures would be required to minimise effects.
		Geology, Hydrology and Hydrogeology	The route is within the surface water catchment of the River Strathy, an important fishery, and would cross several watercourses. SEPA published floodplain mapping shows a floodplain associated with The Uair and the River Strathy however flood extents are largely confined to the watercourse channels. The route is located within Class 1 and Class 2 peatland, and crosses areas of deep peat. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated.	The route is within the surface water catchment of the River Strathy, an important fishery and would cross over several watercourses. SEPA published floodplain mapping shows a floodplain associated with The Uair and the River Strathy however flood extents are largely confined to the watercourse channels. A wider flood extent is shown on mapping at the confluence of two watercourses to the north of the route but does not extend to the route itself. The route is located within Class 1 and Class 2 peatland. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated	The route is within the surface catchment of the River Strathy, an important fishery and would cross over several watercourses. SEPA published floodplain mapping shows a floodplain associated with the River Strathy, with flood extents shown to be wider than the river channel within the central and eastern section of this Route. The route is located within Class 1 and Class 2 peatland. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated	The route is within the surface water catchment of the River Strathy, an important fishery and would cross over several watercourses including the Allt an Fhithlich and two crossings of the River Strathy, with ground falling relatively steeply toward the River Strathy. SEPA published floodplain mapping shows a floodplain associated with the River Strathy however flood extents are largely confined to the watercourse channels. A short section of the route in the southern extent is located within Class 1 peatland. Subject to further review at the alignment selection stage, and the implementation of best practice construction and mitigation, it is likely that impacts on soils, peat, geology and the water environment can be mitigated
	Cultural Heritage	Designations	This route option is over 5 km from all identified designated cultural heritage sites. Limited potential for indirect impacts on designated heritage sites due to distance and presence of wind turbines in the area.	This route option is over 5 km from all identified designated cultural heritage sites. Limited potential for indirect impacts on designated heritage sites due to distance and presence of wind turbines in the area.	This route option is over 5 km from all identified designated cultural heritage sites Limited potential for indirect impacts on designated heritage sites due to distance and presence of wind turbines in the area.	This route option is over 5 km from all identified designated cultural heritage sites Limited potential for indirect impacts on designated heritage sites due to distance and presence of wind turbines in the area.
		Cultural Heritage Assets	This route contains a number of minor sites of local interest, Potential impacts along the route could be minimised through sensitive placement of infrastructure and appropriate mitigation during construction.	This route avoids all identified cultural heritage assets.	This route crosses the Early Modern Settlement of Brarathy, of regional importance, immediately north of Strathy Wood substation. Given the extents of the settlement, this route option would not be able to avoid the asset and is highly likely to result in direct impact to the site. Potential to avoid or minimise direct impacts on surviving features through sensitive placement of infrastructure and appropriate mitigation during construction.	This route comprises two minor sites of local interest. Potential impacts along the route could be minimised through sensitive placement of infrastructure and appropriate mitigation during construction.
	People	Proximity to Dwellings	It is anticipated that a 100 m separation buffer applied to all properties could be observed for the entirety of the option.	It is anticipated that a 100 m separation buffer applied to all properties could be observed for the entirety of the option.	It is anticipated that a 100 m separation buffer applied to all properties could be observed for the majority of the option. Although there is a	N/A

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					potential pinch point at Braerathy Lodge although this building is unoccupied and likely to be demolished.	
	Landscape and Visual	Designations	The route does not pass through any designated or protected landscapes.	The route does not pass through any designated or protected landscapes.	The route does not pass through any designated or protected landscapes.	The route does not pass through any designated or protected landscapes.
		Character	This route falls entirely within LCT 134: Sweeping Moorlands and Flows, the key sensitivity of which is the openness of moorland. The UGC section of this route is unlikely to compromise the key characteristics of this LCT. Given that the OHL portion of this route follows the edge of existing and proposed wind farm sites hugging the line of coniferous forestry, it is unlikely to compromise key characteristics of this LCT.	This route falls entirely within LCT 134: Sweeping Moorlands and Flows, the key sensitivity of which is the openness of moorland. The UGC section of this route is unlikely to compromise the key characteristics of this LCT. Given that the OHL portion of this route follows the edge of existing and proposed wind farm sites and access tracks, it is unlikely to compromise key characteristics of this LCT.	This route falls entirely within LCT 134: Sweeping Moorlands and Flows, the key sensitivity of which is the openness of moorland. The UGC section of this route is unlikely to compromise the key characteristics of this LCT. Given that the OHL portion of this route follows the edge of existing and proposed wind farm sites and access tracks, it is unlikely to compromise key characteristics of this LCT.	This route falls entirely within LCT 134: Sweeping Moorlands and Flows, the key sensitivity of which is the openness of moorland. Given that the route is through an existing wind farm and alongside an existing track, it is unlikely to compromise key characteristics of this LCT.
		Visual	This route may result in visual effects on Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy during construction and operation. The southern UGC section is unlikely to result in any long term visual effects from the Scottish Hill Track, although there would be temporary effects during construction. The northern OHL section runs parallel to the hill track which may compromise the visual amenity of this stretch of the track given the proximity. However, the presence of the Strathy North turbines to the west somewhat reduces sensitivity.	This route may result in visual effects on Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy during construction and operation. The southern UGC section is unlikely to result in any long term visual effects from the Scottish Hill Track although there would be temporary effects during construction. The northern OHL section runs parallel to the hill track which may compromise the visual amenity of this stretch of the track given the proximity. However, the presence of the Strathy North turbines to the west somewhat reduces sensitivity.	This route may temporarily compromise the visual amenity of Braerathy Lodge during construction however it is understood that this building is unoccupied and likely to be demolished. It may also result in visual effects on Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy during construction and operation. The southern UGC section is unlikely to result in any long term visual effects from the Scottish Hill Track although there may be temporary effects during construction. The northern OHL section runs parallel to the hill track which may compromise the visual amenity of this stretch of the track given the proximity. However, the presence of the Strathy North turbines to the west somewhat reduces sensitivity.	This route may result in temporary visual effects on Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy during construction. However, as an UGC, this option is unlikely to result in long term visual effects from the track or any other visual receptors. The presence of the Strathy North turbines to the west also somewhat reduces sensitivity
	Land Use	Agriculture	The agricultural land within the route options is identified as being of Class 4.1 or lower. As such, this is not a particularly sensitive or fertile category and any impacts on agriculture as a result of any of the route options is considered to be low.	The agricultural land within the route options is identified as being of Class 4.1 or lower. As such, this is not a particularly sensitive or fertile category and any impacts on agriculture as a result of any of the route options is considered to be low.	The agricultural land within the route options is identified as being of Class 4.1 or lower. As such, this is not a particularly sensitive or fertile category and any impacts on agriculture as a result of any of the route options is considered to be low.	The agricultural land within the route options is identified as being of Class 4.1 or lower. As such, this is not a particularly sensitive or fertile category and any impacts on agriculture as a result of any of the route options is considered to be low.

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		Forestry	Minimal interaction with conifer planation forestry. Avoids native woodland and AWI areas.	The UGC portion of the route may require some felling of conifer planation to accommodate working areas for installation however this could be partially replanted following completion of construction. Potential for the cable to encounter areas of native woodland, although such effects could be minimised through appropriate alignment to minimise impacts. Avoids AWI.	As per Route Option SS-SN 2a, the UGC portion of the route may require some felling of conifer planation to accommodate working areas for installation however this could be partially replanted following completion of construction. Potential for effects on native woodland, although such effects could be minimised through appropriate alignment, although fewer opportunities are present to make use of existing open areas through this woodland compared to Route Option SS-SN 2a. Avoids AWI.	This route may require felling of conifer planation woodland and may encounter a small area of native woodland at which it crosses the River Strathy, potentially requiring some removal to establish working areas for installation, although there may be opportunity to avoid this through careful placement of infrastructure at alignment stage. Avoids AWI areas.
		Recreation	This route option includes a Scottish Hill Track between Trantlebeg and Strathy, salmon fishing in the River Strathy, and shooting may occur on estates in the area. It is anticipated that recreational opportunities would be unlikely to be affected.	This route option includes a Scottish Hill Track between Trantlebeg and Strathy, salmon fishing in the River Strathy, and shooting may occur on estates in the area. It is anticipated that recreational opportunities would be unlikely to be affected	This route option includes a Scottish Hill Track between Trantlebeg and Strathy, salmon fishing in the River Strathy, and shooting may occur on estates in the area. It is anticipated that recreational opportunities would be unlikely to be affected.	This route option includes a Scottish Hill Track between Trantlebeg and Strathy, salmon fishing in the River Strathy, and shooting may occur on estates in the area. It is anticipated that recreational opportunities would be unlikely to be affected.
	Planning	Policy	Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites of international and national importance. The use of UGC would serve to mitigate potential adverse collision risk effects of diver species which are qualifying species of the SPA.	Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites of international and national importance. The use of UGC and selection of an alignment close the established track would serve to reduce potential adverse effects on the designated sites and would mitigate potential collision risk by diver species, reduce long term forestry impacts and minimise interaction with wind farm developments.	Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites of international and national importance. The use of UGC and selection of an alignment close the established track would serve to reduce potential adverse effects on the natural heritage designations and would mitigate potential collision risk by diver species, reduce long term forestry impacts and minimise interaction with wind farm developments.	Compatibility to National and Regional planning policy will in large part depend on avoiding or minimising potential constraints noted, particularly in relation to potential impacts on the natural environment given presence of designated sites of international and national importance. However, a shorter stretch of this route passes through the natural heritage designated sites and the use of UGC and selection of alignment close to the established track would serve to reduce potential adverse effects compared to other options. The use of UGC would also mitigate potential collision risk by diver species, reduce long term forestry impacts and minimise interaction with wind farm developments.
		Proposals	This route passes partially through Strathy South Wind Farm, but it is anticipated that a path for an UGC could be identified that would minimise interaction with wind turbines and associated infrastructure.	This route passes in proximity to Strathy Wood Wind Farm but it is anticipated that a path for an UGC could be identified that would minimise interaction with wind turbines and associated infrastructure.	This route passes in proximity to Strathy Wood Wind Farm but it is anticipated that a path for an UGC could be identified that would minimise interaction with wind turbines and associated infrastructure.	This route passes in proximity to Strathy North Wind Farm.
Engineering	**Infrastructure Crossings**	Major Crossings (132kV, 275kV, Rail, 200+m wide river, navigable canal, gas or hydro pipeline)	No major crossings are required.	No major crossings are required.	No major crossings are required.	No major crossings are required.

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		Road Crossings	No public road crossings are required, however this option crosses Scottish Hill Track 344 and estate tracks crossed. Least number required.	No public road crossings are required, however this option crosses Scottish Hill Track 344 and estate tracks crossed.	No public road crossings are required, however this option crosses Scottish Hill Track 344 and estate tracks crossed.	No public road crossings are required, however this option crosses Scottish Hill Track 344 and estate tracks crossed.
	Environmental Design	Elevation	The altitude along the route option is entirely below 200 m AOD.	The altitude along the route option is entirely below 200 m AOD.	The altitude along the route option is entirely below 200 m AOD.	The altitude along the route option is entirely below 200 m AOD.
		Pollution Areas	No high pollution areas have been identified within the route.	No high pollution areas have been identified within the route.	No high pollution areas have been identified within the route.	No high pollution areas have been identified within the route.
		Contaminated Land	There is no known risk of contaminated land identified within the route.	There is no known risk of contaminated land identified within the route.	There is no known risk of contaminated land identified within the route.	There is no known risk of contaminated land identified within the route.
		Flooding	This route would encounter minimal interaction with flooding areas.	This route would encounter minimal interaction with flooding areas.	This route would encounter flooding areas associated with the River Strathy near Strathy Wood substation.	This route would encounter minimal interaction with flooding areas.
	Ground Conditions	Terrain	Passes through rolling undulating terrain with occasional steep slopes.	Passes through rolling undulating terrain with occasional steep slopes.	Passes through rolling undulating terrain with occasional steep slopes. A single pinch-point present north-west of Strathy Wood substation.	Passes through rolling undulating terrain with occasional steep slopes.
		Peat	The route crosses areas of deep peat and would require peat probing during the next stages of design. Amber rating conservatively applied.	The route crosses areas of deep peat and would require peat probing during the next stages of design. Amber rating conservatively applied.	The route crosses areas of deep peat area and would require peat probing during the next stages of design. Amber rating conservatively applied..	The route crosses areas of deep peat area and would require peat probing during the next stages of design. Amber rating conservatively applied.
	Construction / Maintenance	Access	Limited access available from Scottish Hill Track. No public road access.	Limited access available from Scottish Hill Track. No public road access.	Limited access available from Scottish Hill Track. No public road access.	Minimal to no existing access along this route. Distant from all public roads.
	Proximity	Clearance Distance	Situated within 250 m of Dallangwell. While the Dallangwell property is no longer in SSE Renewables ownership the future use is unknown at present.	Situated within 250 m of Braerathy Lodge and Dallangwell. While the Dallangwell property is no longer in SSE Renewables ownership the future use is unknown at present. Braerathy Lodge is currently unoccupied and likely to be demolished for construction of Strathy Wood substation.	Situated within 100 m of Braerathy Lodge. Braerathy Lodge is currently unoccupied and likely to be demolished for construction of Strathy Wood substation.	Situated within 100 m of Dallangwell Situated within 100 m of Braerathy Lodge. While the Dallangwell property is no longer in SSE Renewables ownership the future use is unknown at present. Braerathy Lodge is currently unoccupied and likely to be demolished for construction of Strathy Wood substation.
		Proximity to Windfarms	Within 750 m of Strathy South and Strathy Wood Wind Farms.	Within 750 m of Strathy South and Strathy Wood Wind Farms.	Within 750 m of Strathy South and Strathy Wood Wind Farms.	Within 750 m of Strathy South, Strathy Wood and Strathy North Wind Farms.
		Communication Masts	No communication masts identified within proximity of the route.	No communication masts identified within proximity of the route.	No communication masts identified within proximity of the route.	No communication masts identified within proximity of the route.
		Metallic pipes	No known metallic pipes have been identified within proximity of the route.	No known metallic pipes have been identified within proximity of the route.	No known metallic pipes have been identified within proximity of the route.	No known metallic pipes have been identified within proximity of the route.
		Urban Environments	Not present within urban environments.	Not present within urban environments.	Not present within urban environments.	Not present within urban environments.
Cost	**Capital**	Construction, Diversions, Public Road Improvements, Felling, Land Assembly and Consent Mitigations	Comparable with Route Options SS-SN 2a and SS-SN 2b. Slightly less optimal due to marginally greater length and worse access.	Comparable with Route Option SS-SN 2b.	Comparable with Route Option SS-SN 2a.	Least optimal due to additional UGC length.
	Operational	Inspections and Maintenance	Comparable with all other route options.	Comparable with all other route options.	Comparable with all other route options.	Comparable with all other route options.