Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Protected Landscape Climate Change Adaptation Report: Risk/Opportunity Matrix

Likelihood of a risk or opportunity occurring is rated 1 to 5

Likelihood	1	Rare
	2	Unlikely
	3	Possible
	4	Likely
	5	Almost Certain

The impact of a risk or opportunity is rated from -5 to +5

Risk	-5	Catastrophic
	-4	Major
	-3	Moderate
	-2	Minor
	-1	Slight
No Change	0	No Change
Opportunity	+1	Slight
	+2	Minor
	+3	Moderate
	+4	Major
	+5	Fantastic

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Risk/Opportunity Matrix: The combination of likelihood and impact leads to a scoring of risks and opportunities

Risk	-5	Catastrophic	-5	-10	-15	-20	-25
	-4	Major	-4	-8	-12	-16	-20
	-3	Moderate	-3	-6	-9	-12	-15
	-2	Minor	-2	-4	-6	-8	-10
	-1	Slight	-1	-2	-3	-4	-5
No Change	0	No Change	0	0	0	0	0
Opportunity	+1	Slight	1	2	3	4	5
	+2	Minor	2	4	6	8	10
	+3	Moderate	3	6	9	12	15
	+4	Major	4	8	12	16	20
	+5	Fantastic	5	10	15	20	25
			Rare	Unlikely	Possible	Likely	Almost certain
			1	2	3	4	5
			Likelihood				

Simplified Rating (used in the summary of key risks and opportunities)

Risk (-) Score	Simplified RAG Score
1-6	Low
7-15	Medium
16-25	High

Opportunity (+) Score	Simplified RAG Score
1-6	Low
7-15	Medium
16-25	High

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Landscape Character and related special qualities.														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2030 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R1	Landscape character and features	Hotter drier summers	Land use change as the result of changes to climatic conditions.	(a) Reversion to natural grasslands or other land use change may introduce new patterns into the landscape.	2	-3	-6	3	-3	-9	3	-4	-12	This may be within the scope of acceptable change for some landscape types. Grasslands that are priority habitats or species-rich will need to be buffered and resilience built at a landscape scale where possible.
				(b) Increased woodland planting or cover will have an impact on the visual character and pattern of the landscape.	2	-3	-6	3	-3	-9	3	-4	-12	Develop and use woodland opportunity mapping to support local level planning and as a starting point for discussions with landowner and farmers.
				(c) Impact upon wide open, expansive, characteristic or iconic views.	3	-4	-12	4	-4	-16	4	-4	-16	Take a landscape-led approach to new woodland planting. Target woodland planting in areas where it enhances landscape character
				(d) Historic landscapes may see significant changes and loss of character and integrity.	3	-4	-12	4	-4	-16	4	-4	-16	Ensure that any available Historic Landscape Character (HLC) data is used to inform the development of woodland planting or schemes that result in land use change at a significant scale. This may present opportunities to restore or enhance features that have been lost or degraded. Consider how successional planting can be supported through woodland grant schemes or project delivery. Research on suitability and climate resilience of tree species for future schemes.
				(e) Historic and/or designed landscapes may see significant changes and a loss of character and integrity.	3	-4	-12	4	-4	-16	4	-4	-16	
				(f) Loss of veteran or landscape trees due to heat stress or disease will have an impact on landscape character and visual amenity.	3	-4	-12	4	-4	-16	4	-5	-20	
R2	Landscape character and features	Warmer, Wetter winters.	Land use change as the result of changes to climatic conditions and seasonal cycle.	(a) Changes in the variety and contrast of the landscape from changed agricultural practices in response to an extended growing season.	2	-3	-6	3	-3	-9	3	-4	-12	This may be within the scope of acceptable change for some landscape types. Ensure that existing Landscape Character Assessments are up to date.

				(b) Seasonal changes and new variation in colours and textures within the landscape may affect its visual character.	2	+2	+4	2	+3	+6	2	+4	+8	Work to influence positive impact on landscape character and ecosystem function though these assets while recognising that landscape character will still change or alter over time.
		Land management responses to the impacts of climate change and climatic conditions	Increase in cultivated area and removal of field boundary features (D)	(c) Impact upon historic landscape character and biodiversity. Loss of field patterns and historic boundary features.	3	-4	-12	4	-4	-16	4	-4	-16	Ensure that existing Landscape Character Assessments are up to date. Highlight the importance of historic or distinctive field patterns and boundary features.
			Greater intensification of agricultural practices and changes in land use patterns (ID)	(d) Impacts upon the landscape character from changes in land management practices, reduced grazing or intensification.	2	-3	-6	3	-3	-9	3	-4	-12	This may be within the scope of acceptable change for some landscape types. Work to influence positive impact on landscape character and ecosystem function though these assets while recognising that landscape character will still change or alter over time.
				(e) Changes in levels of grazing due to climatic or socio-economic factors will have an impact on landscape character.	2	-3	-6	3	-3	-9	3	-4	-12	Support livestock farming and grazing activity so they are viable and profitable in the long term. Develop and support projects that ensure grazing of priority habitats.
				(f) Changes in land or agricultural practices or new and novel crops may result in a change in the visual character of the landscape.	2	-3	-6	3	-3	-9	3	-4	-12	This may be within the scope of acceptable change for some landscape types.
				(g) Land use change may impact on the variety and contrast within the landscape and change its appearance.	2	-3	-6	3	-3	-9	3	-4	-12	This may be within the scope of acceptable change for some landscape types.
				(h) Historic and/or designed landscapes may see significant changes and a loss of character and integrity.	3	-4	-12	4	-4	-16	4	-4	-16	Ensure that any available Historic Landscape Character (HLC) data is used to inform the development of any schemes that result in land use change at a significant scale. This may present opportunities to restore or enhance features that have been lost or degraded.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

R3	Land use change	Land management responses to the impacts of climate change and climatic conditions	Socio-economic impacts upon land management such as increased oil prices, drive for food and energy security and changes in global markets.	(a) Increase in short rotation or fast-growing biomass crops may change the visual characteristics of the landscape.	2	+2	+4	2	+3	+6	2	+4	+8	This may be within the scope of acceptable change for some landscape types
				(b) De-intensification of agriculture and change in use of some areas that are no longer economically viable for agricultural use.	2	-3	-6	3	-3	-9	3	-4	-12	This may be within the scope of acceptable change for some landscape types
				(c) Opportunities for enhancing or creating new habitat or rewilding of areas no longer required for agricultural use.	3	+4	+12	4	+4	+16	4	+5	+20	Link to nature recovery strategies and targets. Some sites may have potential as recipient sites of BNG or other green finance opportunities – and offer new revenue streams for farmers and landowners.
		Planning or development responses to climate change impacts.	Major infrastructure development such as road, rail, water or power transmission.	(d) Impacts on landscape character and on iconic or distinctive views within and from the Protected Landscape.	3	-4	-12	4	-4	-16	4	-4	-16	Ensure the planning process takes account of the new requirement to 'Seek to Further'. Ensure all relevant bodies are aware of their duties under Sc245 of the LURA Act (2023).
				(e) Potential effect on expansive views and open skylines from incongruous features or development.	2	-3	-6	3	-3	-9	3	-4	-12	Take a landscape-led approach to planning to ensure iconic or distinctive views are protected.
				(f) Introduction of technology and new infrastructure will impact on the character and historic feel of the landscape.	2	-3	-6	3	-3	-9	3	-4	-12	Ensure that the Protected Landscapes are effectively considered and represented in national and regional planning discussions i.e. Regional and Local Area Energy Plans (RAEP/LAEP's)
			Increase in large-scale green infrastructure solutions, natural flood management and sustainable drainage systems.	(g) Potential for positive impact on landscape and ecosystem function though these assets may still change or alter the extant landscape character.	3	+3	+9	3	+4	+12	4	+4	+16	Prepare for and accommodate landscape change. Develop green infrastructure plans and nature-based solutions to help build resilience to climate change at a landscape scale. Restore supporting Ecosystem functions that deliver societal co-benefits.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

			Influence on the type, style and/or pattern of development as a mitigation response to climate change impacts	(h) Potential for long-term change in the style, pattern or location of built development may alter existing settlement patterns and character.	2	-3	-6	3	-3	-9	3	-4	-12	Take a landscape-led approach to planning to ensure landscape or built character and iconic or distinctive views are protected.
				(i) Pressure for development on new or undeveloped land due to coastal squeeze, rising sea levels or restriction in land supply.	2	-3	-6	3	-3	-9	3	-4	-12	Ensure that local plans and planning policies avoid development on areas of high flood risk. Work with natural processes as much as possible and 'make space for water' to deliver Natural Flood Management where appropriate.
R4	Geology, soils and landform	Hotter drier summers	Drier ground conditions caused by higher summer temperatures and occurrences of drought.	(a) Soils less stable and more prone to erosion, exposure of bare ground and other substrates.	2	-2	-6	2	-3	-9	3	-4	-12	Encourage land management practices that maintain the structural and microbial condition of soils and maximise its ability to store water and nutrients. Promote soil conservation measures especially in areas that are prone to erosion or may be more susceptible to drought conditions.
				(b) Higher temperatures and repeated cycles of drought will affect soil's ability to retain/process water and nutrients for plants and habitats.	3	-4	-12	4	-4	-16	4	-5	-20	
		Increased seasonal rainfall	Increased saturation of the ground and soils.	(c) Less slope stability and risk of surface water flooding, sinkholes, landslips and rock falls becoming more frequent.	3	-3	-9	4	-3	-12	4	-4	-16	Work with water companies and relevant authorities to identify high-risk areas. In high-risk areas promote measures that retain soils in situ such as contour ploughing, minimum or 'zero tillage'. Encourage conservation measures such as contour ploughing, buffer strips, improving soil structure or changes in land management such as transition from arable to long-term grass lays or cover crops. Work to restore the hydrological connection between rivers, open water and associated wetlands.
				(d) Transit of soils and increased sediment loads into rivers and watercourses in areas of high erosion risk.	3	-4	-12	4	-4	-16	4	-4	-16	
				(e) Increased turbidity, water contamination and impact upon river habitats.	3	-4	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

														Develop catchment level approaches and techniques that have potential to deliver enhanced flood storage and manage rates of run-off.
		Increase in incidence and severity of seasonal storm events	Greater vulnerability of substrates and soils to be washed away or subside.	(f) The natural function of flood plains or watercourses may be affected by increased sedimentation affecting channel morphology and rates of flow.	3	-4	-12	4	-4	-16	4	4	-16	Work to restore the hydrological connection between rivers, open water and associated wetlands. Develop catchment level approaches and techniques that have potential to deliver enhanced flood storage and manage rates of run-off.
				(g) Rivers carry increased sediment load and deposit more silt onto its floodplain. Potential for improved fertility on gazing marshes.	3	+3	+9	3	+4	+12	4	+4	+16	Improve the morphology of river catchments and main streams to improve their natural resilience to change. Work with natural processes as much as possible and 'make space for water' to deliver Natural Flood Management where appropriate.
				(h) Impact on fluvial geomorphology erosion rates, drying of riverbeds and streams, increased siltation from flash floods and storms	2	-3	-6	3	-3	-9	3	-4	-12	
Coastal erosion and sea-level rise														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Delivery mechanism
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R5	Coastal Erosion	Warmer wetter winters	Increase in incidence and severity of seasonal storm events	(a) Increased rate of erosion of coastline, coastal cliffs and dune systems from stronger storms and wave impact.	3	-4	-12	4	-4	-16	4	-5	-20	Work with statutory bodies and sector partners to ensure coastal defences are maintained and enhanced where economically viable to do so. Restore saltmarsh and natural habitats where they can help to provide additional defence against storm surges, erosion and the impact of heavy waves. Support the delivery of the policy options within the local Shoreline Management Plan (SMP) Opportunity for coastal re-alignment schemes and 'making space for water'
				(b) Increased occurrence and severity of cliff falls in areas that are vulnerable to erosion by wave impacts.	3	-4	-12	4	-4	-16	4	-5	-20	
				(c) Risk to property and farmland along the coastline and on cliff tops.	3	-4	-12	4	-4	-16	4	-5	-20	

				(d) Loss of coastal and cliff top habitats on the undeveloped coastline.	3	-4	-12	4	-4	-16	4	-4	-16	to re-establish more natural functioning systems and to create new habitat. Assess areas that are most vulnerable to coastal erosion and support a transitional plan and explore options for realignment.
				(e) Loss of coastal and cliff top paths and other recreational and cultural assets.	3	-4	-12	4	-4	-16	4	-4	-16	
R6	Sea Level Rise	Increase in incidence and severity of seasonal storm events	Increased risk of flooding due to sea level rise (D)	(a) Low lying coastal areas and settlements at risk from flooding and inundation by the sea.	3	-4	-12	4	-4	-16	4	-5	-20	Opportunity for coastal re-alignment schemes and 'making space for water' to re-establish more natural functioning systems and to create new habitat. Work to restore the hydrological connection between rivers, open water and associated wetlands. Develop catchment level approaches and techniques that have potential to deliver enhanced flood storage and manage rates of run-off. Encourage naturally functioning floodplains and sustainable urban drainage schemes that deliver greater resilience to flooding.
				(b) Increased risk of loss of ecological, heritage or archaeological sites from flooding or inundation by the sea.	3	-2	-6	3	-3	-9	4	-3	-12	
			Reduced effectiveness of existing infrastructure or natural defences (D)	(c) Loss of low-lying land and habitat from coastal squeeze. Increased erosion and sedimentation.	4	-3	-12	4	-4	-16	4	-5	-20	
				(d) Enhanced or heavily engineered coastal flood defences could further impair natural functioning systems and cause knock on problems in other areas of coastline.	3	-4	-12	4	-4	-16	4	-5	-20	
				(e) Inundation and flooding from more frequent storms and sea level rise may damage or disrupt water and waste management systems.	3	-4	-12	4	-4	-16	4	-5	-20	
				(f) Opportunity for coastal re-alignment schemes and 'making space for water' to re-establish more natural functioning	3	+4	+12	4	+4	+16	4	+5	+20	Opportunity for coastal re-alignment schemes and 'making space for water' to re-establish more natural functioning systems and to create new habitat.

				systems and to create new habitat.										
			Saltwater intrusion causing increased salinity of both surface and groundwater in coastal areas. (ID)	(g) Saline intrusion into the water table may impact low-lying farmland and protected sites in coastal areas.	3	-3	-9	3	-4	-12	3	-4	-12	Work with statutory bodies and sector partners to ensure coastal defences are maintained and enhanced where economically viable to do so. Work with statutory bodies and sector partners to manage the impacts of saline intrusion into the water table where it can be controlled or effectively remediated.
				(h) Impact upon the quality and availability of drinking water supplies in coastal areas.	3	-3	-9	3	-4	-12	3	-4	-12	
R7	Development pressure	Coastal Squeeze	Existing developed land becoming inundated or being lost through coastal erosion.	(a) Pressure to allow development on areas that are currently protected as adjoining areas are affected by sea level rise.	3	-4	-12	4	-4	-16	4	-5	-20	Take a landscape-led approach to planning to ensure iconic or distinctive views are protected. Ensure that local plans and planning policies avoid development on areas of high flood risk. Work with natural processes as much as possible and 'make space for water' to deliver Natural Flood Management where appropriate.
			Conflict between different land uses may increase 'less space, more pressure'	(b) Restricted availability of land may result in greater planning or land use pressure on the protected landscape area.	2	-4	-8	3	-4	-12	4	-4	-16	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Water, Soils and Resource Protection													
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R8	Water - Aquifer recharge	Increased seasonal Rainfall	Reduced opportunity for aquifer recharge due to loss from surface run-off (ID)	(a) Lower levels of infiltration mean that the aquifer may become depleted at times of greater demand.	3	-3	-9	4	-4	-16	4	-5	-20	Opportunity to influence water company's forward plans and to actively promote sustainable patterns of water use across the sectors. Work with water companies to promote water efficiency measures for the public.
				(b) Problem may be exacerbated by an increased demand for abstraction during the summer months.	3	-3	-9	4	-4	-16	4	-5	-20	
R9	Surface and groundwater.	Hotter drier summers.	Increased intensity or duration of drought events may impact upon surface and groundwater levels and quality (ID)	(a) Failure of water bodies and ground water to meet existing quality standards in terms of chemical and biological status.	3	-3	-9	3	-4	-12	4	-4	-16	Work with farm cluster groups, catchment partnerships and sector groups to improve the ecological/chemical status of rivers and watercourses. Promote the use of the new NE guidance on landscape-led development of new reservoirs and water infrastructure. Ensure that schemes follow and use the design principles set out for protected landscapes. Ensure that relevant authorities and statutory bodies involved in the planning process take full account of their duties under Section 245 Protected Landscapes of the LURA Act 2023 and that schemes 'seek to further' their statutory purposes.
				(b) Localise or regional effects on water supplies may require water companies to review their supply plans.	3	-3	-9	3	-4	-12	4	-4	-16	
				(c) Impact upon the landscape from additional water infrastructure such as pipelines and reservoirs.	3	-3	-9	3	-4	-12	4	-4	-16	
			Higher air & water temperatures lower dissolved oxygen levels and increase the concentration of pollutants (D)	(d) Failure of water bodies and ground water to meet existing quality standards in terms of chemical and biological status.	3	-3	-9	4	-4	-16	4	-5	-20	Encourage good soil and land management practices that maintain and improve water infiltration and reduces water run-off and diffuse pollution. Maintain flows to streams and rivers so that good chemical and environmental status is maintained.
				(e) Increased need for treatment of drinking water to meet existing quality standards.	3	-3	-9	3	-4	-12	4	-4	-16	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

	Surface and groundwater (Continued)	Hotter drier summers (Continued)	Changes in water temperature leading to increase in occurrence and risk from invasive or harmful water-borne species (ID)	(f) Disruption to water and waste-water systems may require changes in infrastructure to deal with the risks to ecosystem or public health.	4	-3	-12	4	-4	-16	4	-5	-20	Create buffer strips around source protection zones and water courses to reduce excessive nutrient and sediment input into water bodies. Promote catchment level approaches and examine potential for natural flood storage and habitat creation which reduces pollution run-off during extreme weather events. Promote uptake of high precision or low-input farming techniques so that the application of nitrate fertilisers does not result in excess nutrients passing into the aquifers at key times of recharge (Autumn/Winter) Encourage conservation measures such as contour ploughing, buffer strips, improving soil structure or changes in land management such as transition from arable to long-term grass lays or cover crops.
			Higher air & water temperatures combined with increased nutrient pollution causes an increased incidence of harmful algal blooms (ID)	(g) Threats to ecosystem and public health from pollution and microbial contamination of water.	4	-3	-12	4	-4	-16	4	-5	-20	
			Need for greater investment in water infrastructure to maintain the quality of the public water supply. (ID)	(h) Increased costs for ensuring quality and safety of the public water supply	4	-3	-12	4	-4	-16	4	-5	-20	Opportunity to influence water company's forward plans and to actively promote sustainable patterns of water use across the sectors. Work with water companies to promote water efficiency measures for the public.
		Warmer wetter winters	Greater intensity of storm events may exceed the designed capacity of waste-water or storm drainage infrastructure (D)	(i) Increased incidence and severity of flooding could overwhelm or damage existing water and drainage infrastructure.	4	-3	-12	4	-4	-16	4	-5	-20	Promote catchment level approaches and examine potential for natural flood storage and habitat creation which reduces pollution run-off during extreme weather events.
			Increased storm water run-off washing sediments and other contaminants into drinking water sources (D)	(j) Drinking water sources requiring additional treatment to meet existing quality standards in terms of chemical and biological status.	3	-3	-9	3	-4	-12	4	-4	-16	
		Warmer wetter winters	Increase in soil erosion on steep slopes and cultivated land as a result of increased surface run-off (D)	(k) Soil erosion and increased sedimentation and turbidity in rivers and surface waters.	3	-3	-9	3	-4	-12	4	-4	-16	In high-risk areas promote measures that retain soils in situ such as contour ploughing, minimum or low tillage. Promote the use of green manures and cover crops.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Natural Environment – Habitats, species abundance and diversity														
Habitats														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R10	Unimproved, species-rich and semi-natural grassland.	Hotter drier summers.	Impacts on grassland habitats due to greater incidence of drought (D)	(a) Species rich grassland may see changes in species composition and declines in overall species diversity.	3	-3	-9	4	-4	-16	4	-5	-20	Target project funding and environmental grant funding towards measures that increase resilience to a changing climate. Work with partners and specialists to collect and use of appropriate seed stock in habitat restoration or creation of new habitat. Encourage land management practices that support pollinators. Use of natural pest controls or pest resistant crop species to reduce the need for pesticide use.
				(b) Loss of condition of designated sites or priority habitats may occur.	3	-4	-12	3	-4	-12	4	-4	-16	
					3	-3	-9	3	-3	-9	3	-4	-12	
				(c) Fragmentation of some habitat types will limit their adaptive capacity.	3	-3	-9	3	-3	-9	3	-4	-12	Increase habitat connectivity and the permeability of the landscape to wildlife. Undertake adaptive management and ensure that areas of valuable habitat are bigger, better managed and joined up. Increase the quality and habitat diversity of wildlife sites.
				(d) Small, isolated sites may not be resilient to climate change and will be more vulnerable to loss.	3	-3	-9	3	-3	-9	3	-4	-12	Work with partners to address management issues for grassland sites where they may be a barrier to grazing due to climate change impacts. Consider alternative grazing strategies such as more resilient or alternative gazing animals.
R11	Heathland Habitat	Hotter drier summers	Impacts on Heathland habitats due to greater incidence of drought (ID)	(a) Increased levels of fire risk on areas of Heathland.	3	-4	-12	3	-4	-12	4	-4	-16	Work with landowners/organisations to make sure fire monitoring and warning systems are in place Establish local wildfire safety group to help monitor and provide training.
				(b) Potential for increased competition from invasive and non-native species.	3	-4	-12	4	-4	-16	4	-5	-20	

				(c) Fragmentation of some habitat types will limit their adaptive capacity.	3	-3	-9	4	-4	-16	4	-5	-20	Ensure that heathland sites have wildfire management plans in place and staff are trained with the necessary equipment and emergency procedures. Provide training and support for land managers to increase uptake of adaptive management practices.
				(d) Small, isolated sites may not be resilient to climate change and will be more vulnerable to loss.	3	-3	-9	3	-4	-12	4	-4	-16	
		Warmer wetter winters.	Extended growing season for non-specialist or more vigorous species.	(e) Sites may be impacted by scrub or invasive species.	3	-3	-9	3	-3	-9	3	-4	-12	
R12	Hedgerows	Hotter drier summers.	Impacts upon species diversity in hedgerows due to changes in climatic conditions and vulnerability of some species to temperature change (ID)	(a) Decline in species diversity and loss of resources to wildlife.	3	-3	-9	3	-4	-12	4	-4	-16	Promote the benefits of hedgerows and encourage best practice in terms of their management. Improve habitat connectivity, help retain soils, manage surface run-off and increase the permeability of the landscape to wildlife. Develop projects and policies that encourage the retention of hedgerows and that encourages new planting. Work to influence positive impact on landscape character and ecosystem function though these assets while recognising that landscape character will still change or alter over time.
				(b) Loss of key species due to drought stress.	3	-3	-9	3	-4	-12	4	-4	-16	
				(c) Decrease in the overall ecological connectivity of the wider landscape.	3	-3	-9	4	-4	-16	4	-5	-20	
R13	Woodlands	Hotter drier summers	Impacts on woodland habitat due to greater incidence of drought and water deficit (ID)	(a) Broadleaved and native woodland will see changes in species type and composition.	3	-3	-9	3	-4	-12	4	-4	-16	Research on which tree species may be most impacted by changes in climatic conditions. Plan ahead in terms of planting schemes, select species that may be more resilient to prevailing climatic conditions in the medium/long term. Encourage landowners to join approved woodland management plans and apply the UK Forestry Standard and UK Woodland assurance standard Encourage best practice woodland management techniques to adapt to changing climatic conditions.
				(b) Changes in species and composition of woodland ground flora due to a shift in climatic conditions.	3	-3	-9	3	-4	-12	4	-4	-16	
				(c) Loss of veteran or landscape trees that are more susceptible to increased temperatures, water stress or are less drought tolerant e.g. Beech	3	-3	-9	4	-4	-16	4	-5	-20	
				(d)	2	-3	-6	3	-3	-9	3	-4	-12	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

				Extended periods of dry weather, and increase in dry vegetation in the understorey, may increase the risk of forest fires.										Promote the benefits of wood pasture, landscape, in-field and boundary trees.
R14	Woodlands	Warmer wetter winters	Extended growing season and less injury to trees from extreme cold weather (D)	(e) Opportunity for some tree species that are better suited to the climatic conditions may be able to expand their range.	2	-3	-6	3	-3	-9	3	-4	-12	Support and develop projects that ensure successional planting with tree species that are resilient and have equivalent or higher wildlife value.
			Less frost and warmer damp conditions would increase the prevalence of pests, diseases (ID)	(f) Damage and loss of landscape trees to disease and fungal bacteria such as phytophthora e.g. Ash, Horse Chestnut and Beech.	2	-3	-6	3	-3	-9	3	-4	-12	Plan ahead in terms of planting schemes, select species that may be more resilient to prevailing climatic conditions in the medium/long term
			Opportunity for new woodland planting to enhance potential for natural flood management (ID)	(g) Increase in tree cover and related carbon sequestration and other ecosystem service benefits from new planting and more integrated management of catchments.	3	+4	+12	4	+4	+16	4	+5	+20	Encourage woodland management that provides the best range of ecosystem service benefits including enhancing biodiversity, natural flood management, air quality, carbon sequestration and renewable energy potential.
R14	Woodlands	Increase in incidence and severity of seasonal storm events	Extended growing season means that trees retain their leaves till later in the season (D)	(a) Trees in full canopy later in the year may be more at risk and vulnerable to wind-throw.	3	-3	-9	4	-4	-16	4	-5	-20	Encourage best practice woodland management techniques to adapt to changing climatic conditions.
			Damage to trees and woodland by strong winds and increased strength of storms (D)	(b) Loss and damage to woodland, landscape trees and hedgerows from storm damage and wind throw.	3	-3	-9	3	-4	-12	4	-4	-16	
R15	Headwaters, streams and ponds	Hotter Drier Summers	Headwaters, streams and ponds may dry out due to drought conditions or experience changes in flow. (D)	(a) Changes in the chemical and biological status of some water bodies due to reduced flows.	4	-3	-12	4	-4	-16	4	-5	-20	Work with farm cluster groups, catchment partnerships and sector groups to improve the ecological/chemical status of rivers and watercourses. Create buffer strips around source protection zones and water courses to reduce excessive nutrient and sediment input into water bodies.
				(b) Greater incidences of algal blooms and concentration of pollutants in rivers and stream due to reduced flows.	4	-3	-12	4	-4	-16	4	-5	-20	

				(c) Potential drying up springs and streams in their upper courses with impacts upon their associated wetlands.	3	-4	-12	4	-4	-16	4	-5	-20	Promote catchment level approaches and examine potential for natural flood storage and habitat creation which reduces pollution run-off during extreme weather events. Promote uptake of high precision and/ or low-input farming techniques so that the application of nitrate fertilisers does not result in excess nutrients passing into the aquifers at key times of recharge (Autumn/Winter) Encourage conservation measures such as contour ploughing, buffer strips, improving soil structure or changes in land management such as transition from arable to long-term grass lays or cover crops.
				(d) Impact on spawning ground and fisheries due to drought conditions, temperature changes, decreased flow rates or poor water quality.	3	-3	-9	3	-4	-12	4	-4	-16	
		Warmer wetter winters and more intense rain events.	Streams may become flashier or experience higher peak flows due to intense seasonal rain events (D).	(e) Increased sedimentation will lead to substantial changes in rates of flow and channel morphologies.	4	-3	-12	4	-4	-16	4	-5	-20	
R16	Rivers and larger water bodies	Hotter Drier Summers	The rivers are a major source of water abstraction for domestic and commercial uses (ID).	(a) Over-abstraction can cause low flows in the summer months which can adversely impact the biological condition of water quality of rivers and their associated wetlands.	3	-3	-9	3	-4	-12	4	-4	-16	Maintain flows to streams and rivers so that good chemical and environmental status is maintained. Encourage good soil and land management practices that maintain and improve water infiltration and reduces water run-off and diffuse pollution.
				(b) Rivers and water bodies are sensitive to diffuse pollution from agricultural activity, saline intrusion in coastal areas, urban and road related run-off and sewage leakage.	3	-3	-9	4	-4	-16	4	-5	-20	
				(c) Impact upon river ecology, spawning sites and fisheries from low base flows and increased water temperatures.	3	-3	-9	3	-4	-12	4	-4	-16	
		Increase in incidence and severity of seasonal storm events	Increased risk of flooding due to increased seasonal rainfall and severity of storm events.	(d) The river valleys and flood plains have lost much of their flood storage capacity through land use change, agricultural conversions and drainage.	3	-3	-9	4	-4	-16	4	-5	-20	Ensure that local plans and planning policies avoid development on areas of high flood risk. Work with natural processes as much as possible and 'make space for

														water' to deliver Natural Flood Management where appropriate. Develop catchment level approaches and techniques that have potential to deliver enhanced flood storage and manage rates of run-off. Encourage naturally functioning floodplains and sustainable urban drainage schemes that deliver greater resilience to flooding.
				(e) Increased risk of flooding on tidal sections or rivers and coastal areas due to higher storm surges and high tide events.	3	-3	-9	4	-4	-16	4	-5	-20	
R17	Wetlands	Hotter Drier Summers	Changes in flow and alteration of hydrology may impact site conditions .	(a) Wetlands may be impacted due to increased siltation and drying out.	3	-3	-9	4	-4	-16	4	-5	-20	Work to restore the hydrological connection between rivers, open water and associated wetlands.
				(b) Deterioration of wetland habitats due to the impact on their hydrology.	3	-3	-9	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Species abundancy and diversity														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R18	Species Abundancy	Hotter drier summers and Warmer wetter winters.	Potential shift in species range due to changes in climatic conditions. (ID)	(a) Decline in overall species abundancy	3	-3	-9	4	-4	-16	4	-5	-20	Deliver habitat and species conservation measures at a landscape scale. Increase habitat connectivity and the permeability of the landscape to wildlife. Undertake adaptive management and ensure that areas of valuable habitat are bigger, better managed and joined up.
				(b) Impacts upon species phenology with changes in growing season and biological events such as flowering, budding and egg laying/hatching occurring earlier.	3	-3	-9	3	-4	-12	4	-4	-16	
				(c) Arrival of new species and the loss or decline of others less suited to the climatic conditions.	3	-2	-6	3	-3	-9	4	-3	-12	
R19	Species Diversity	Hotter drier summers and warmer wetter winters	Potential shift in species range due to changes in climatic conditions. (ID) .	(a) Loss of species due to the contraction in extent of their range or from the change in climatic conditions.	3	-3	-9	4	-4	-16	4	-5	-20	Deliver habitat and species conservation measures at a landscape scale. Increase habitat connectivity and the permeability of the landscape to wildlife. Undertake adaptive management and ensure that areas of valuable habitat are bigger, better managed and joined up. Increase understanding of climate change, and its impacts on the priority habitat and species. Develop projects that demonstrate what can be done to adapt to changes. Undertake adaptive management and increase the genetic diversity and heterogeneity of key species on wildlife sites. Promote the collection and use of appropriate seed stock in habitat restoration or the creation of new habitat.
				(b) Increase in range and extent of new species and species at the edge of their range due to change on climatic conditions.	3	+3	+9	3	+4	+12	4	+4	+16	
			Loss of habitat or ecological niche for species due to changing climatic conditions. (ID)	(c) Loss of species due to their inability to adapt to the change in climatic conditions.	3	-3	-9	3	-4	-12	4	-4	-16	
				(d) Species with a limited range of environmental conditions or habitat specialists may be lost or replaced by more adaptable or common species.	3	-3	-9	4	-4	-16	4	-5	-20	
			Potential shift in species range due to	(e) Loss of species due to the contraction in extent of	3	-3	-9	3	-4	-12	4	-4	-16	

			changes in climatic conditions. (ID)	their range or from the change in climatic conditions.										Increase the quality and habitat diversity of wildlife sites.
				(f) Increase in range and extent of new species and species at the edge of their range due to change on climatic conditions.	2	+2	+4	2	+3	+6	2	+4	+8	Deliver large scale habitat creation where opportunities exist, create buffer zones for vulnerable or fragmented habitats.
			Loss of habitat or ecological niche for species due to changing climatic conditions. (ID)	(g) Loss of species due to the contraction in extent of their range or from the change in climatic conditions.	3	-2	-6	3	-3	-9	4	-3	-12	
				(h) Increase in extent and occurrence of invasive or pest species	3	-3	-9	3	-4	-12	4	-4	-20	Develop a strategy for tackling invasive and non-native species. Work to reduce their impact and spread within the Protected Landscape.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Historic environment – Historic buildings, cultural heritage and archaeology														
R20	Historic buildings & settlements	Hotter drier summers	Key historic assets may be vulnerable to damage (D)	(a) Historic buildings may be at an increased fire risk due to seasonal changes in climatic conditions.	2	-4	-8	3	-4	-12	3	-4	-12	Identify historic buildings most at risk, make a comprehensive record and develop a scheme of investigation if necessary/feasible. Work with sector bodies to develop local risk assessments to identify key vulnerabilities, the historic building most at risk. Develop and prioritise action plans for highly vulnerable buildings, structure and features.
				(b) Increase in pressure for building adaptation and alterations e.g. air conditioning that may be unsympathetic to their built character.	2	-3	-6	3	-3	-9	3	-3	-9	
				(c) Impact and potential damage to historic building materials and contents from increased ultra-violet radiation.	2	-3	-6	3	-3	-9	3	-3	-9	
			Soil shrinkage and dying out of substrates in areas that are prone to subsistence.	(d) Damage to buildings, structures and features that are vulnerable to subsidence.	2	-3	-6	3	-3	-9	4	-3	-12	
R20	Historic buildings & settlements	Warmer wetter winters	Key historic assets may be vulnerable to damage (D)	(e) Historic building may become more susceptible to decay and damage from damp, water ingress and higher humidity.	2	-3	-6	3	-3	-9	4	-3	-12	Identify historic buildings most at risk, make a comprehensive record and develop a scheme of investigation if necessary/feasible. Work with sector bodies to develop local risk assessments to identify key vulnerabilities, the historic building most at risk. Develop and prioritise action plans for highly vulnerable buildings, structure and features. Follow the latest guidance from Heritage England and statutory bodies to ensure adaptation and alterations follow best practice in terms of building conservation.
				(f) Increased potential for building adaptation and alterations that are unsympathetic to the character e.g. double/triple glazing, exterior cladding and external alterations.	2	-3	-6	3	-3	-9	4	-3	-12	
				(g) Increase in interior dampness and exposure to mould and environmental problems caused by poorer indoor air quality.	2	-3	-6	3	-3	-9	3	-4	-12	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

				(h) Increase risk in infestation from wood boring beetles and other pest species that can damage or destroy the fabric of historic buildings.	2	-3	-6	3	-3	-9	3	-4	-12	
R20	Historic buildings & settlements (Continued)	Increased seasonal rainfall	Cultural Heritage assets may be impacted by increased rain fall or flooding.	(i) Damage and deterioration of heritage assets caused by flooding or waterlogging.	3	-3	-9	3	-4	-12	4	-4	-16	Identify historic buildings most at risk, make a comprehensive record and develop a scheme of investigation if necessary/feasible. Work with sector bodies to develop local risk assessments to identify key vulnerabilities, the historic building most at risk. Develop and prioritise action plans for highly vulnerable buildings, structure and features. Follow the latest guidance from Heritage England and statutory bodies to ensure adaptation and alterations follow best practice in terms of building conservation.
				(j) Historic buildings may have inadequate guttering or on-site drainage resulting in water ingress and structural damage.	2	-3	-6	3	-3	-9	3	-4	-12	
		Increase in incidence and severity of seasonal storm events	Damage to historic buildings caused by severe weather conditions. (D)	(k) Damage and deterioration of the protective building envelope caused by more severe weather conditions.	3	-3	-9	3	-4	-12	4	-4	-16	
				(l) Risk of additional damage to ruins and standing masonry.	2	-3	-6	3	-3	-9	3	-4	-12	
				(m) Potential issues with inundation and increased salt ingress to historic masonry.	2	-3	-6	3	-3	-9	3	-4	-12	
R21	Cultural Heritage	Warmer wetter winters	Increased humidity or changes in environmental conditions (ID)	(a) Perishable or delicate items in museum or historic environment collections may be more susceptible to damage.	2	-3	-6	3	-3	-9	3	-4	-12	Work with sector partners to improve data and evidence on the impacts of climate change on museum collections. Identify assets that are vulnerable or at risk - record and protect if appropriate.
				(b) Impact of pest species that thrive on archival or historic collections (both stored and historic interiors).	2	-3	-6	3	-3	-9	3	-4	-12	
R21	Cultural Heritage	Increase in incidence and severity of seasonal storm events	Loss of cultural heritage assets including impacts to views, vistas and	(c) Loss of ancient trees, historic hedgerows etc. to high winds and associated storm events.	3	-3	-9	3	-4	-12		-4	-16	Encourage best practice woodland management techniques to adapt to changing climatic conditions.

			experiential qualities of the landscape.	(d) Impacts on historic Parks & Gardens, particularly potential loss of designed features.	3	-3	-9	3	-4	-12	4	-4	-16	Promote the benefits of wood pasture, landscape, in-field and boundary trees. Consider how successional planting can be supported through woodland grant schemes or project delivery.
				(e) Changes to landscapes recorded in paintings, prints and photographs by noted artists/creatives.	3	-3	-9	3	-4	-12	4	-4	-16	
R22	Archaeology	Hotter drier summers	Reduction in soil moisture content (ID)	(a) Impact upon the integrity of buried archaeology particularly where there may be waterlogged features that are best preserved in situ.	2	-3	-6	3	-3	-9	3	-4	-12	Work with sector partners to improve data and evidence on the hydrological impacts of climate change. Identify archaeological assets that are vulnerable or at risk - record and protect if appropriate.
			Loss of archaeological deposits, damage to or loss of scheduled features or evidence.	(b) Loss of archaeological deposits, damage to or loss of scheduled features or paleoenvironmental evidence.	2	-3	-6	3	-3	-9	3	-4	-12	
				(c) Wildfire damage causing chemical compositional changes to soils and potential charring of archaeological remains.	3	-3	-9	3	-4	-12	4	-4	-16	
		Warmer wetter winters	Increase in soil moisture or humidity (ID)	(d) Changes in preservation conditions caused by higher humidity and soil moisture and PH during the autumn/winter.	3	-3	-9	3	-4	-12	4	-4	-16	Work with sector partners to improve data and evidence on the hydrological impacts of climate change. Identify historic assets that are vulnerable or at risk - record and protect if appropriate.
		Increased seasonal rainfall	Rising water table and inundation (D)	(e) Changes in preservation conditions caused by fluctuations in the water table may damage archaeological sites or evidence.	3	-3	-9	3	-4	-12	4	-4	-16	
R23	Scheduled monuments and features	Hotter drier summers	Soil shrinkage and dying out of substrates in areas that are prone to subsistence.	(a) Loss or damage to scheduled features and/or archaeological evidence.	3	-3	-9	3	-4	-12	4	-4	-16	Identify structures at risk, make a comprehensive record and develop a scheme of investigation if necessary/feasible.
		Increased seasonal rainfall	Scheduled monuments or features may be	(b)	3	-3	-9	3	-4	-12	4	-4	-16	

			adversely impacted by increased rain fall, inundation or flooding.	Damage and deterioration of scheduled monuments or features caused by flooding or waterlogging.										Work with sector bodies to develop local risk assessments to identify key vulnerabilities, prioritised action plan for highly vulnerable sites.
		Increase in incidence and severity of seasonal storm events	Loss or damage to archaeological assets caused by extreme weather events.	(c) Damage to buried archaeology from storm damage or water logging.	4	-3	-12	4	-4	-16	4	-5	-20	Identify structures at risk, make a comprehensive record and develop a scheme of investigation if necessary/feasible. Work with sector bodies to develop local risk assessments to identify key vulnerabilities, prioritised action plan for highly vulnerable sites.
				(d) Increased soil erosion from run-off exposing sites or damaging stratigraphy, artefacts or evidence.	4	-3	-12	4	-4	-16	4	-5	-20	
				(e) Loss of archaeological sites or assets in coastal areas as a result of storm damage, flooding, land-slides or cliff falls	4	-3	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Built environment, planning, settlements and infrastructure														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R24	Built Environment & planning	Increased seasonal rainfall	Greater risk of flooding due to increased occurrence and severity of weather events (D)	(a) Commercial and residential properties are at an increased risk of flooding.	3	-3	-9	4	-4	-12	4	-5	-20	Discourage development within floodplains and areas that will become prone to flooding. Seek to influence flood management schemes so that they facilitate natural functions and deliver a wide range of Ecosystem Service benefits. Develop catchment level approaches and Natural Flood management techniques have potential to deliver enhanced flood storage and manage rates of run-off. Encourage naturally functioning floodplains and sustainable urban drainage schemes that deliver greater resilience to flooding.
				(b) Opportunities around the design and installation of Sustainable Urban Drainage (SUD) and schemes to improve the permeability of urban surfaces.	3	+4	+12	4	+4	+16	4	5	+20	
			Key assets and infrastructure may be vulnerable to damage from flooding and inundation (D)	(c) Damage and deterioration of the protective building envelope caused by more severe weather conditions.	3	-2	-6	3	-3	-9	4	-3	-12	Develop design codes that result in more sustainable building and schemes, with the best design, layout and materials to make them resilient to climate change.
				(d) Buildings may have inadequate guttering or on- site drainage resulting in water ingress and structural damage.	2	-2	-4	2	-2	-	2	-3	-9	
				(e) Increase in interior dampness and exposure to mould and environmental problems caused by poorer indoor air quality.	2	-2	-4	2	-3	-6	3	-3	-9	
R24	Built Environment & planning (continued)	Hotter drier summers	Key assets and infrastructure may be vulnerable to damage from heat (D)	(f) Higher internal temperatures in poorly adapted or older building stock will put vulnerable groups at risk from heat stress.	3	-2	-6	3	-3	-9	4	-3	-12	Develop design codes that result in more sustainable building and schemes, with the best design, layout and materials to make them resilient to climate change.

				(g) Poorly adapted exterior spaces or public realm within towns and settlements increase risk of exposure and heat stress.	2	-2	-4	2	-2	-4	2	-3	-6	Incorporate passive solar gain, PV, landscaping, grey water storage and other features. Encourage an increase in urban trees to provide ecosystem service benefits within towns and villages. Promote the value of trees, parks and other Green Infrastructure.
				(h) Impact and potential damage to building materials from increased ultra-violet radiation.	2	-2	-4	2	-3	-6	3	-3	-9	
			Key assets and infrastructure may be vulnerable to damage or increased fire risk (D)	(i) Buildings & infrastructure may be at an increased fire risk due to seasonal changes in climatic conditions.	2	-3	-6	3	-3	-9	4	-3	-12	Develop design codes that result in more sustainable building and schemes, with the best design, layout and materials to make them resilient to climate change. Work with local planning authorities and sector partners to develop supportive policies on retrofit and micro-generation. Ensure local communities and businesses can access benefits from low carbon and renewable energy generation. Support energy projects that build resilience and flexibility at local grid level so that communities are less impacted by grid outages. Support opportunities for community-based renewable energy production where they deliver additional social and economic benefits locally.
			Increase in development pressure for building adaptation and alterations e.g. air conditioning.	(j) Challenge in retrofit for existing housing stock in rural communities.	2	-2	-4	2	-3	-6	3	-3	-9	
				(k) Opportunity for new design codes or sustainable build policies to improve resilience.	2	+4	+8	3	+4	+12	4	+4	+16	
				(l) Opportunity to increase resilience of communities through greater use of green infrastructure within urban settlements.	2	+4	+8	3	+4	+12	4	+5	+20	
				(m) Higher demand for fitting solar and PV, changes in the design of buildings.	2	+3	+6	3	+3	+9	3	+4	+12	
R25	Towns and settlements	Increased Summer temperatures	Air Quality Impacts (ID)	(a) Higher temperatures and weaker air circulation leads to increased low level ozone formation and poorer air quality.	3	-3	-9	3	-4	-12	3	-4	-16	Promote the role for Green Infrastructure (GI) and Sustainable Urban Drainage Schemes (SUDS) to enhance the resilience of urban areas. Increase permeability of urban surfaces and use of rain gardens to improve storage and infiltration. Encourage an increase in urban trees to provide ecosystem service benefits within towns and villages.
				(b) Potential lengthening of the ozone 'season' and concentration of ground level ozone, particulates and other air pollutants.	3	-4	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

				(c) Increased exposure to poor air quality for residents and vulnerable groups causing impacts on public health (respiratory illness and risk of premature death).	3	-4	-12	4	-4	-16	4	-5	-20	Promote the value of trees, parks and other Green Infrastructure.
			Key assets and infrastructure may be vulnerable to damage (D)	(d) Buildings & infrastructure may be at an increased fire risk due to seasonal changes in climatic conditions.	3	-3	-9	3	-4	-12	4	-4	-16	
R26	Water Infrastructure	Hotter drier summers and extended periods of hot weather and drought.	Increased pressure on the public water supply with the projected growth in development (D)	(a) Increase in the incidence and severity of drought conditions could lead to water shortages.	3	-4	-12	4	-4	-16	4	-5	-20	Work with area-based water companies to forward plan and develop resilience in their network. Actively promote sustainable patterns of water use across sectors. Work with water companies to promote water efficiency measures and technologies for the public in and around the protected landscapes. Encourage long-term management and integration with wider catchment level approaches.
				(b) Current water supply infrastructure becomes overstretched and isn't resilient enough for the future.	3	-3	-9	3	-4	-12	4	-4	-16	
				(c) Opportunity to influence water company's forward plans and to actively promote sustainable patterns of water use across the sectors.	3	+3	+9	3	+4	+12	4	+4	+16	
R27	Energy Infrastructure	Hotter drier summers	Risk of damage to local energy infrastructure.	(a) Increased outages of local energy supply due to overheating and increased energy demands	3	-3	-9	3	-4	-12	4	-4	-16	Ensure that the Protected Landscapes are effectively considered and represented in national and regional planning discussions i.e. Regional and Local Area Energy Plans (RAEP/LAEP's) Ensure local communities and businesses can access benefits from low carbon and renewable energy generation. Support energy projects that build resilience and flexibility at local grid level so that communities are less impacted by grid outages.
			Longer and more sustained periods of strong sunshine.	(b) Increased potential for solar or PV energy production, lower reliance on the national grid.	2	+2	+4	3	+3	+9	3	+4	+12	
				(c) Higher demand for fitting solar and PV, changes in the design of buildings.	2	+2	+4	2	+3	+6	2	+4	+8	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

		Warmer and wetter winters	Higher winter rainfall	(d) Higher rainfall and head of water would increase the viability of micro-hydro in some locations.	2	+2	+4	3	+3	+9	3	+4	+12	Support opportunities for community-based renewable energy production where they deliver additional social and economic benefits locally.
		Increase in incidence and severity of seasonal storm events	Risk of damage to local energy infrastructure.	(e) Increased outages of local energy supplies, damage to infrastructure, power lines being bought down.	3	-3	-9	3	-4	-12	4	-4	-16	Promote energy efficiency and sustainable building standards in terms of design, materials and site layout.
				(f) Adaptation of energy infrastructure in response to climate change, need for greater resilience to withstand changes in climatic conditions.	2	+2	+4	2	+3	+6	2	+4	+8	Encourage uptake of micro-generation and community based renewable projects that minimises the impact on the landscape.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Agriculture, food production and land management													
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R28	Agriculture and crops	Hotter drier summers	Higher summer temperatures and Increased period of drought impacting on livestock farming (D)	(a) Reduced availability of water supply for livestock causing dehydration, heat stress and other animal welfare issues.	3	-4	-12	4	-4	-16	4	-5	-20	Support for farmers in terms of diversification to new crops and livestock breeds that may be more resilient to changing climatic conditions. Move towards more drought tolerant varieties of arable crops to reduce the need for irrigation. Use of natural pest controls or pest resistant crop species to reduce the need for pesticide use. Encourage sustainable land management that protect the environmental assets and ecosystem services while maintaining the profitability of farming. Encourage adaptation responses and land use practices that support or benefit the special qualities of the Protected Area. Opportunity for increased woodland pasture and tree planting to provide shading and support animal welfare.
				(b) Need for supplementary water supply for livestock will mean increased capital costs and lower returns.	3	-3	-9	4	-3	-12	4	-4	-16	
				(c) Insufficient water supply to support grazing of remote or high drought prone areas and associated habitats	3	-4	-12	4	-4	-16	4	-5	-20	
				(d) Reductions in stocking rates due to drought pressure and impacts upon business viability.	3	-3	-9	4	-3	-12	4	-4	-16	
				(e) Opportunity for increased woodland pasture and tree planting to provide shading and support animal welfare.	3	+3	+9	3	+4	+12	4	+4	+16	
			Lower summer yields of hay, silage and fodder crops during times of drought (D).	(f) Increased costs in terms of buying in supplementary feeds.	2	-3	-6	3	-3	-9	3	-4	-12	
R29	Grazing and livestock	Warmer wetter winters	Increase in pests and diseases that may affect livestock (ID)	(a) Threats to animal health from pests and diseases. Increased costs for preventative treatments and veterinary bills.	2	-3	-6	3	-3	-9	3	-4	-12	Support livestock farming and grazing activity so they are viable and profitable in the long term Develop and support projects that ensure grazing of priority habitats.
		Increased seasonal Rainfall	Waterlogging of land affecting grazing activities. (D)	(b) Reduction in the availability of back-up land suitable for grazing.	2	-3	-6	3	-3	-9	3	-4	-12	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

				(c) Boggier conditions may cause an increase in animal welfare issues.	2	-3	-6	3	-3	-9	3	-3	-9	
				(d) Increase in effluent run-off from grazing land may impact on rivers, streams and watercourse.	3	-4	-12	4	-4	-16	4	-5	-20	
		Land management responses to the impacts of climate change and climatic conditions	Changes in grazing patterns and stocking rates may change (ID)	(e) Reduction on grazing may impact on habitats that require active management such as grazing marshes.	3	-4	-12	4	-4	-16	4	-4	-16	Support livestock farming and grazing activity so they are viable and profitable in the long term. Develop and support projects that ensure grazing of priority habitats.
			Livestock may require more shelter or be bought under cover (ID)	(f) Increased time and costs spent on husbandry, transport and providing shelter.	2	-3	-6	3	-3	-9	3	-3	-9	
R30	Land Management	Increase in incidence and severity of seasonal storm events	Increased level and rate of surface run-off. (D)	(a) Increased soil erosion on steep slopes ridges, valley sides and river catchments.	3	-4	-12	4	-4	-16	4	-4	-16	In high-risk areas promote measures that retain soils in situ such as contour ploughing, minimum or 'zero tillage'. Encourage land management practices that maintain the structural and microbial condition of soils and maximise its ability to store water and nutrients. Promote soil conservation measures especially in areas that are prone to erosion or may be more susceptible to drought conditions. Improve resilience through increasing the capacity to capture and store water on-farm. Consider the scope for new or novel crops that are better adapted to hotter, drier conditions.
				(b) Risk of enhanced nutrient and sediment delivery to rivers and surface waters.	3	-4	-12	4	-4	-16	4	-4	-16	
			Risk of flooding of properties and agricultural land within river valleys and low-lying areas (D)	(c) Loss of livelihood and Increased cost of insurance.	2	-3	-6	3	-3	-9	3	-4	-12	
		Hotter drier summers	Reduced precipitation and increased intensity and duration of drought may affect supply of water for agricultural use (D)	(d) Need to meet increased water demand from groundwater abstraction or on-farm reservoirs.	3	-4	-12	3	-4	-12	4	-4	-16	
				(e) Reduction of water availability for crop irrigation.	2	-3	-6	3	-3	-9	3	-4	-12	
			Drying out of soils and changes in agricultural practices (D)	(f) Extreme cycles of drought and flooding will increase nutrient run-off and change soil microbial activity.	3	-4	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

				(g) Soil drying and resulting changes in agricultural practices may impact on its ability to sequester carbon.	3	-4	-12	4	-4	-16	4	-5	-20	
			Increased difficulty in undertaking safe or controlled moorland burning as a land management technique (ID)	(h) Increase risk of fire getting out of control and unintended damage to peatland soils and vegetation.	3	-4	-12	3	-4	-12	4	-4	-16	Work with landowners/organisations to make sure wildfire monitoring and warning systems are in place Ensure that moorland sites have wildfire management plans in place and staff are trained with the necessary equipment and emergency procedures.
R31	Land Management changes	Land managers response to climate change impacts.	Increase in tree cover, woodland and wood pasture as a result of grant schemes, BNG and carbon incentives.	(a) Trees become more prevalent in the landscape which can benefit landscape character and biodiversity.	2	+2	+4	2	+3	+6	3	4	+12	Ensure that existing Landscape Character Assessments are up to date. Develop and use woodland opportunity mapping to support local level planning and as a starting point for discussions with landowner and farmers. Take a landscape-led approach to new woodland planting. Target woodland planting in areas where it enhances landscape character Work to influence positive impact on landscape character and ecosystem function though these assets while recognising that landscape character will still change or alter over time.
				(b) Potential to impact upon the landscape character of open or extensive landscapes.	2	-3	-6	3	-3	-9	3	-4	-12	
				(c) Loss of defined, cultural or visual characteristics of sensitive or open landscapes.	3	-4	-12	3	-4	-12	4	-4	-16	
				(d) Improved shelter and shade for livestock and grazing animals.	2	+2	+4	2	+3	+6	3	+4	+12	
			Increased tillage and ploughing of new areas (D)	(e) Archaeological assets may experience greater damage and disturbance through increased cultivation, tillage and scrub encroachment.	2	-3	-6	3	-3	-9	3	-4	-12	Ensure that any available Historic Environment record or existing Historic Landscape Character (HLC) data is used to assess potential for negative effects on archaeological assets.
			Opportunities around the adoption of new and more sustainable farming practices (ID)	(f) Increase in regenerative farming practices, low or zero tillage systems will have benefits for ecosystem services and biodiversity.	3	+4	+12	4	+4	+16	4	+5	+20	Some sites may have potential as recipient sites of BNG, carbon credits or other green finance opportunities – and offer new revenue streams for farmers and landowners.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

				(g) Increased opportunities for funding 'nature-based solutions' which will have a benefit for biodiversity, carbon sequestration and climate resilience.	3	+4	+12	4	+4	+16	4	+5	+20	Work with sector partners to support the uptake of adaptive management practices. Support key initiatives such as the NFU Sector Resilience Plans.
R32	Food production	Land managers response to climate change impacts.	Increased need for food production and greater self-sufficiency in food (ID)	(a) Uptake of climate resilient crops, trees and livestock species may offer new commercial opportunities and be more sustainable.	3	+4	+12	4	+4	+16	4	+5	+20	Support for farmers in terms of diversification to new crops and livestock breeds that may be more resilient to changing climatic conditions. Move towards more drought tolerant varieties of arable crops to reduce the need for irrigation. Encourage sustainable land management that protect environmental assets and ecosystem services while maintaining the profitability of farming. Encourage adaptation responses and land use practices that support or benefit the special qualities of the Protected Landscape. Research and monitoring of climate change impacts and trends. Develop research agenda and links with national level research bodies such as LWEC, EKN, NERC and CEH.
				(b) Potential for improved crop yields in areas where average temperatures remain below 20C.	3	+3	+9	3	+4	+12	4	+4	+16	
				(c) Improved grassland productivity in areas where the average temperatures remain below 20C.	3	+3	+9	3	+4	+12	4	+4	+16	
				(d) Risk of externalising or exporting of food growing to other parts of the globe.	3	-4	-12	4	-4	-16	4	-4	-16	
			Changes in climatic conditions may see the appearance of new crops or species better adapted to new growing conditions (ID)	(e) Opportunity to work with landowners and farmers to developed adaptive responses that are sustainable and support productive and profitable farming.	3	+4	+12	4	+4	+16	4	+5	+20	
				(f) Opportunities for increase in biomass and energy crop production to generate on farm energy.	3	+3	+9	3	+4	+12	4	+4	+16	
		Increase in incidence and severity of drought and seasonal rain.	Increased damage and loss of crops due to drought, flooding and water logging of soils. (D)	(g) Financial impact from lower yields or crop loss.	3	-4	-12	4	-4	-16	4	-5	-20	Work with sector partners to support the uptake of adaptive management practices. Support key initiatives such as the NFU Sector Resilience Plans.
				(h) Loss of livelihood and Increased cost of insurance.	3	-4	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Forestry														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R33	Forestry	Hotter drier summers	Loss of native species that may be more susceptible to drought or water stress (ID)	(a) Planting of non-native trees may lead to a decline in native species and composition of woodland	3	-3	-9	4	-4	-16	4	-4	-16	Research on which tree species may be most impacted by changes in climatic conditions. Plan ahead in terms of planting species that may be more resilient to prevailing climatic conditions in the medium/long term. Encourage best practice woodland management techniques to adapt to changing climatic conditions. Encourage woodland management that provides the best range of ecosystem service benefits including enhancing biodiversity, natural flood management, air quality, carbon sequestration and renewable energy potential. Work with forestry partners land managers to increase woodland cover and enhance the capacity for carbon storage and sequestration at landscape scale.
				(b) Species that are adapted to, or reliant on, native trees may be impacted by shift in their range (ID)	3	-3	-9	4	-4	-16	4	-4	-16	
				(c) Opportunity for new species to be planted, increased viability or yields from commercial forestry.	3	+4	+12	4	+4	+16	4	+5	+20	
		Warmer wetter winters	Increase in the spread of tree diseases and pathogens (D)	(d) Increased in the loss of trees to disease and impact of pest species on growth and vigour.	3	-3	-9	4	-4	-16	4	-4	-16	Research on which tree species may be most impacted by changes in climatic conditions. Plan ahead in terms of planting species that may be more resilient to prevailing climatic conditions in the medium/long term. Encourage best practice woodland management techniques to adapt to changing climatic conditions. Encourage woodland management that provides the best range of ecosystem service benefits including enhancing biodiversity, natural flood management, air quality, carbon sequestration and renewable energy potential.
			Improved forest productivity (D)	(e) Increased capacity for CO2 sequestration by trees and soils.	3	+4	+12	4	+4	+16	4	+5	+20	
			Effects of drought on traditional orchards, managed or plantation woodland (D)	(f) Tree loss and reduced crop yields due to water stress.	3	-3	-9	4	-3	-12	4	-4	-16	
			Increase in woodland productivity and biomass (D)	(g) Opportunity for an increase in biomass and energy crop production with fast growing and more climate resilient species.	3	+4	+12	4	+4	+16	4	+5	+20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

R33	Forestry (continued)	Increase in incidence and severity of seasonal storm events	Forestry plantations may suffer damage due to strong winds and increased strength of storms (D)	(h) Loss of trees in commercial plantations from damage and wind throw caused by seasonal storms.	3	-3	-9	4	-3	-12	4	-4	-16	Work with forestry partners land managers to increase woodland cover and enhance the capacity for carbon storage and sequestration at landscape scale.
				(i) Economic impact upon commercial forestry from the loss or damage to plantation trees.	3	-3	-9	4	-3	-12	4	-4	-16	
			Increase in losses of mature and veteran trees (D)	(j) Loss of trees from damage and wind throw caused by seasonal storms.	3	-3	-9	4	-3	-12	4	-4	-16	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Local communities														
Community resilience, public health and local economy.														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R34	Community resilience	Hotter, Drier Summers	Longer and more sustained periods of strong sunshine	(a) Lower reliance on the national grid and opportunity for off-grid properties and communities to decarbonise and become more resilient.	3	+3	+9	3	+4	+12	4	+4	+16	Encourage the development of community-based energy planning. Supports them to consider the future risks associated with climate change. and consider what can be done to adapt or develop resilience. Ensure emergency planning considers the needs of rural communities within the protected areas.
		Increase in flooding incidences and severity of seasonal storm events	Impact on local services for some smaller and more remote communities (ID)	(b) Risk of being cut off or not having access to services during or after extreme events.	3	-3	-9	3	-4	-12	4	-4	-16	
R35	Public Health and well-being	Hotter, Drier Summers	Higher exterior temperatures, exposure to extreme heat or excessive sun. (ID/D)	(a) Increase in heat stress and related illnesses and health impacts for vulnerable groups and communities.	3	-3	-9	3	-4	-12	4	-4	-16	Research needed to increase our understanding of the impacts of climate change on health and community resilience. Encourage an increase in urban trees to provide ecosystem service benefits within towns and villages. Promote the value of trees, parks and other Green Infrastructure in terms of health and climate resilience. Opportunity to extend the scope of volunteer capacity within Parishes and local groups to enhance community resilience to potential climate change impacts. Work with local public health authorities to help them develop health impact assessments for climate change. Ensure emergency planning considers the needs of rural communities within the protected areas.
				(b) Higher exterior temperatures and increased low-level ozone formation resulting in poor air-quality	3	-4	-12	4	-4	-16	4	-5	-20	
				(c) Exacerbation of non-communicable disease and health conditions – such as cardiovascular and respiratory disease.	3	-4	-12	4	-4	-16	4	-5	-20	
				(d) Increase in vector-borne infections and illnesses.	3	-3	-9	3	-4	-12	4	-4	-16	
				(e) Overwhelming of local health services provision due to increased demand.	3	-3	-9	3	-4	-12	4	-4	-16	
				(f) Extreme heat and exposure to excessive heat and sun may impact vulnerable groups or people working outside	3	-4	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

			Increased low-level ozone formation resulting in poor air-quality (D/ID)	(g) Exposure to poor air quality, increasing of respiratory illnesses and risk of premature death or vulnerable groups.	3	-4	-12	4	-4	-16	4	-5	-20	Opportunity to extend the scope of volunteer capacity within Parishes and local groups to enhance community resilience to potential climate change impacts. Work with local public health authorities to help them develop health impact assessments for climate change. Ensure emergency planning considers the needs of rural communities within the protected areas.
R35	Public Health and Well-being (Continued)	Increase in incidence and severity of seasonal storm events	Impact of flooding, storm events and related climate hazards on local communities.(D/ID)	(h) Direct physical injuries and deaths due to extreme weather events.	3	-4	-12	4	-4	-16	4	-5	-20	
				(i) Overwhelming or delayed access to local emergency service provision due to climate hazard, severe and sustained flooding or extreme weather.	3	-3	-9	3	-4	-12	4	-4	-16	
				(j) Impacts on public health and well-being from stress and impacts upon mental health and well-being of vulnerable groups.	3	-3	-9	3	-4	-12	4	-4	-16	
R36	Local economy	Hotter drier summers	Business opportunities driven by increased visitor numbers and spend within the rural economy.	(a) More opportunities for local and small businesses and a stronger local tourism economy especially food, drink and accommodation.	3	+4	+12	4	+4	+16	4	+4	+16	Ensure local communities and businesses can access benefits from low carbon and renewable energy generation. Support energy projects that build resilience and flexibility at local grid level so that communities are less impacted by grid outages. Ensure emergency planning considers the needs of rural communities within the protected areas. Work with natural processes as much as possible and 'make space for water' to deliver Natural Flood Management where appropriate.
		Increase in flooding incidences and severity of seasonal storm events	Business and economic activity in rural areas are adversely impacted.	(b) Disruption to transport, electricity supply and telecommunications from flash floods and storms.	3	-4	-12	4	-4	-16	4	-5	-20	
				(c) Economic impact on rural businesses of flooding and damage to property.	3	-4	-12	4	-4	-16	4	-5	-20	
				(d) Loss of livelihood and Increased cost of insurance.	3	-4	-12	4	-4	-16	4	-5	-20	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Recreation and access														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R37	Tourism and recreational infrastructure.	Hotter drier summers	Increase in visitor numbers.	(a) More opportunities for local and small businesses and a stronger local tourism economy especially food, drink and accommodation.	3	+3	+9	3	+4	+12	4	+4	+16	Promote opportunities for local and small businesses and help develop a stronger local tourism economy especially in the sectors of food, drink and accommodation. Ensure that the potential benefits to the rural economy from increased number of domestic and UK tourists with greater viability for tourism businesses away from the core summer season. Other themed approaches to promoting off-season visits and activities. Creation of welcome pack for off-season visits. Avoid intrusive development that will impact on areas of high tranquillity. Work with constituent local authorities to manage and lessen the impacts of light pollution and retain areas of dark night skies. Promote opportunities for off-season or winter tourism.
				(b) Benefit to the rural economy from increased number of domestic and UK tourists from more 'Staycations' due to better weather.	2	+2	+4	3	+3	+9	3	+4	+12	
				(c) Honeypot sites and popular visitor attractions may become increasingly crowded with a loss of amenity and tranquillity.	2	-2	-4	2	-3	-6	3	-3	-9	
		Warmer wetter winters	Less variation in the seasonality and potential for a longer tourism season.	(d) Increased winter incomes and greater viability for tourism businesses away from the core summer season.	2	+2	+4	3	+3	+9	3	+4	+12	
R38	Rights of way and access	Hotter drier summers and warmer wetter winters	Less variation in the seasonality and potential for a longer tourism season.	(a) Increased traffic on the rural roads network could increase risk to vulnerable non-motorised recreational users (walker, horse riders and cyclists)	3	-3	-9	3	-4	-12	4	-4	-16	Work with partners and recreation interest groups to manage and promote recreational access and to provide a greater variety of recreational activities.
		Hotter drier summers	Increased risk of wildfires on some open access areas.	(b) Some areas of extensive habitat or open access land are at increased fire risk at times of drought or dry weather.	3	-3	-9	4	-4	-16	4	-5	-20	Work with landowners/organisations to make sure wildfire monitoring and warning systems are in place Ensure that open access areas have wildfire management plans in place and staff are trained with the necessary equipment and emergency procedures.

		Warmer wetter winters	Extended growing season for plants and trees.	(c) More dense vegetation affecting rights of way making them overgrown and impassable in places.	3	-2	-6	3	-3	-9	4	-3	-12	
R38	Rights of way and access	Increased seasonal rainfall	Tendency for ground to become waterlogged or flooded.	(d) Rights of way and access corridors become difficult to use or impassable due to poor ground conditions or flooding.	3	-2	-6	3	-3	-9	4	-3	-12	Work with partners and recreation interest groups to manage and promote recreational access and to provide a greater variety of recreational activities. Work with landowners/organisations to make sure wildfire monitoring and warning systems are in place Ensure that open access areas have wildfire management plans in place and staff are trained with the necessary equipment and emergency procedures. Consider adaptive management practices that can ensure rights of way and access routes are more resilient. Where paths are vulnerable or high risk work with the Highways Authorities and amenity groups to identify viable diversion routes and realignments that can ensure Right of Way remain useable in the long-term.
				(e) Loss of path amenity and more path maintenance required to keep them usable and clear of overgrowth.	3	-2	-6	3	-3	-9	4	-3	-12	
				(f) Damage to paths and other tourist infrastructure, temporary closures or diversions.	3	-2	-6	3	-3	-9	4	-3	-12	
				(g) Increased risk to the public posed by landslip and rock falls especially near cliff and on coastal areas.	3	-3	-9	3	-4	-12	3	-4	-16	
		Increase in incidence and severity of seasonal storm events	Greater incidents of river torrents and flooding.	(h) Bridges and other access infrastructure may be damaged by debris or washed away by river torrents	3	-3	-9	4	-3	-12	4	-4	-16	Consider adaptive management practices that can ensure rights of way and access routes are more resilient. Where paths are vulnerable or high risk work with the Highways Authorities and amenity groups to identify viable diversion routes and realignments that can ensure Right of Way remain useable in the long-term.
				(h) Damage or loss of use of riverside paths due to flooding or increased riverbank erosion.	3	-3	-9	4	-3	-12	4	-4	-16	
				(i) Storm damage to wayside trees from strong winds may affect the use or amenity of rights of way.	3	-3	-9	4	-3	-12	4	-4	-16	

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Business continuity and operations													
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R39	Legislative and regulatory drivers	Future development of plans and strategies.	Adaptation planning	(a) Link to statutory Management Plan process, opportunity to deliver on action Plan.	2	+2	+4	3	+3	+9	3	+4	+12	Develop a model process to ensure that adaptation planning and delivery are effectively embedded within the statutory Management Plans for all protected landscapes.
				(b) Development of UK level risk assessment and action plan. Highlight areas where joint delivery can be achieved.	3	+3	+9	3	+4	+12	4	+4	+16	Work with UK protected landscapes and National Trail Partnership to co-ordinate delivery at national level and deliver effectively at scale.
		Climate Change Act (2008) and amendments (2019)	Net Zero targets and decarbonisation plans	(c) Use current carbon baseline work across the UK protected landscapes as the basis for a common framework for metrics and targets.	2	+2	+4	3	+3	+9	3	+4	+12	Establish as effective baseline for UK protected landscapes that can inform evidence-based targets.
					3	+3	+9	3	+4	+12	4	+4	+16	Set evidence-based targets for the UK protected landscapes for key-sector where they can support delivery – such as with habitat or land use, land use change and forestry (LULUCF) based targets.
				(d) Development of targets and decarbonisation plans can act as a driver for delivering on both mitigation and adaptation work.	2	+2	+4	3	+3	+9	3	+4	+12	Carbon footprint (Scope 3 work) to look at the carbon impact of procurement and supply chains both collectively, and at local level. Review procurement processes and how they can deliver additional climate, environmental and social benefit.
				(e) Opportunity to develop consistent and effective climate action plans at individual UK protected landscape level.	3	+3	+9	3	+4	+12	4	+4	+16	Opportunity to use Race to Zero membership and reporting under the Carbon Disclosure project (CDP) to provide objective feedback and insights. Opportunity baseline and to identify gaps and improve our planning/delivery of on climate change.
				(f) Opportunity to link with delivery of Nature Recovery and 30X30 targets at local, regional and national level.	2	+4	+8	3	+4	+12	4	+5	+20	Use the current Protected Landscapes Outcomes Framework to help monitor and deliver habitat restoration targets.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

														Work to define the contribution the protected landscapes can make to 30x30 on a local, regional and national level.
				(g) Land use change – opportunity to support positive transition to a low-carbon future of key sectors such as energy, agriculture in ways that support the rural economy.	2	+4	+8	3	+4	+12	4	+5	+20	Potential to use the principles set out by the UK Land Use Framework to support local discussions on positive change. Use the Protected Landscapes statutory management plans as a mechanism to deliver the best local outcomes.
R39	Legislative and regulatory drivers	Environment Act (2021), Environmental Improvement Plan (EIP) and Defra Protected Landscapes Outcome Framework.	Local Nature recovery Strategies (LNRS)	(h) Opportunity to link with development of LNRS strategies and support their delivery.	2	+4	+8	3	+4	+12	4	+5	+20	Engage with the wider Local Nature Recovery network partnerships. Makes sure local LNR strategies are supported and link effectively to delivery plans across the Protected Landscapes.
				(i) Development of carbon markets, BNG and other green finance/economy measures can help to address funding gap for Nature recovery.	2	+4	+8	3	+4	+12	4	+5	+20	Build on the existing work of the National Parks Partnership to deliver a green finance platform and pipeline of investable projects across the protected landscape family.
Property and estate														
R40	Property and Estate	Hotter Drier Summers	Internal temperature of the NPA building stock may exceed comfortable or safe levels.	(a) Increase risk to health and well-being of staff and volunteers working in offices, building and workshops.	3	-2	-6	4	-3	-12	4	-4	-16	Ensure that climate risks to staff health and well-being are being monitored as part of the organisations risk register. Keep Health and safety policies updated and that staff are aware of safe working practices during spells of hot weather. Provide respite areas if temperatures exceed comfort levels.
				(b) Increased energy consumption from fans and other air conditioning to manage higher interior building temperatures.	3	-2	-6	4	-3	-12	4	-4	-16	
				(c) Greater capacity for micro-generation of electricity from offices and buildings.	3	+3	+9	4	+3	+12	4	+4	+16	Explore the potential for solar or PV or other forms of microgeneration that lower reliance on the national grid.
			Increased risk of fires for offices, buildings and workshops.	(d) Damage to property and risk to injury and death to staff and volunteers from fire.	3	-2	-6	3	-4	-12	4	-4	-16	Up to date fire and emergency evacuation procedures. Provision of fire marshals and training for staff on how to minimise fire risk and how to ensure personal safety.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

			Higher exterior temperatures and increased low level ozone formation and poorer air quality.	(e) Decline in indoor environmental due to increased air pollution.	3	-2	-6	3	-3	-9	4	-3	-12	Ensure this is monitored as part of the organisational risk register. Health and safety policy in place and up to date.
				(f) Increase in the energy need for supplementary cooling of offices and buildings. Higher bills and energy costs to the organisation.	3	-2	-6	3	-3	-9	4	-3	-12	Explore the potential for solar or PV or other forms of microgeneration that lower reliance on the national grid.
R40	Property and Estate	Warmer wetter winters	Internal environment of offices and buildings may be affected by changing climatic conditions.	(g) Deterioration of the building integrity, increased interior dampness and exposure to mould and other biological contaminants.	3	-2	-6	3	-4	-12	4	-4	-16	Maintain quality of the indoor environment. Ensure the correct humidity levels, ventilation and regular cleaning.
				(h) Health risks and environmental problems caused by poorer indoor air quality.	3	-2	-6	3	-4	-12	4	-4	-16	Ensure this is monitored as part of the organisational risk register. Health and safety policy in place and up to date.
				(i) Decrease in the energy need to heat offices and buildings. Potential savings in energy costs.	2	+2	+4	2	+3	+6	2	+4	+8	Limited potential for savings, but could be reinvested in other sustainability measures.
		Increase in incidence and severity of seasonal storm events	Office and buildings may be directly affected by extreme weather events and changing climatic conditions.	(j) Damage and deterioration of the protective building envelope caused by more severe weather conditions.	3	-2	-6	3	-4	-12	4	-4	-16	Plan maintenance and upgrades to buildings to keep the building weather tight. Ensure that existing building insurance policy includes cover for loss of buildings
				(k) Power outages or damage to communication, lighting or security systems caused by severe winds, lightning or other extreme weather events.	3	-2	-6	3	-3	-9	4	-3	-12	Develop a contingency plan and policies that ensure risks are managed and that power outages do not cause disruption to business continuity.
			Risk of flooding due to increased occurrence and severity of weather events (D)	(l) Direct damage to offices, buildings or assets caused by flooding.	3	-2	-6	3	-3	-9	4	-3	-12	Ensure that existing building insurance policy includes adequate cover for damage to offices, buildings or assets.

Annex 2 – Assessment of the principal climate change risks and opportunities for the Isle of Wight National Landscape

Staff and volunteer welfare and working practices														
Risk Code	Area of Impact	Headline Projection	Projected Impact Direct (D), Indirect (ID)	Risks and Opportunities	2020 (Short Term)			2050 (Medium Term)			2080 (Long Term)			Proposed Action
					Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	Likelihood 1 to 5	Impact -5 to 5	Risk	
R41	Staff and volunteer welfare	Hotter drier Summers	Extremes heat or other climatic conditions may impact ranger staff and volunteers working outside.	(a) Increase risk to health and well-being of NPA staff engaged in fieldwork.	3	-2	-6	3	-4	-12	4	-4	-16	Ensure that protective clothing and equipment are made available and used in hot weather by staff and volunteers. Ensure that staff and volunteers are aware of the risks of heat stroke and sunburn when engaged in field work. Consider the availability of shade or respite areas for work tasks on open or exposed sites. Allow for regular opportunities to cool off. Ensure availability of water for staff and volunteers engaged in fieldwork. Risk assessments undertaken for field work activities
			Longer hours of stronger sunlight.	(b) Risk of sunburn and heat stroke for staff and volunteers working outside.	3	-2	-6	3	-4	-12	4	-4	-16	
				(c) Heavy manual labour and activity on exposed sites increases the risk of heat stroke	3	-2	-6	3	-4	-12	4	-4	-16	
		Increased Summer temperatures	Higher exterior temperatures and increased low level ozone formation and poor air quality.	(d) Poor air quality may present a risk in terms of health of staff engaged in outdoor activities.	3	-3	-9	3	-4	-12	3	-4	-12	Make use of local air quality monitoring data. Allow flexibility in outdoor and volunteer tasks so they are not undertaken during times of poor air quality.
		Increase in incidence and severity of seasonal storm events	Risk of flooding due to increased occurrence and severity of weather events (D)	(e) Impact upon staff and volunteer's ability to travel across the National Park at times of extreme weather.	3	-3	-9	3	-4	-12	3	-4	-12	Adopt hybrid working policies that enable flexible delivery of projects. Make use of on-line meetings and technology to cut down on disruption from extreme weather.
				(f) Disruption to work patterns and delays to projects.	3	-3	-9	3	-4	-12	3	-4	-12	