

Climate Risk and Vulnerability Assessment

| Risk No | UK Climate Risk (2021) category | UK Climate Risk (2021) risk reference | Risk description   | Climate variable  | Risk narrative   | Current risk score (no existing controls) |                   |              | Future risk score (2050s) |                   |              | Future risk score (2080s) |                   |              | Risk status - Active, Closed, Not assessed           | Data used to justify the scores   |
|---------|---------------------------------|---------------------------------------|--|---|--|---|-------------------|--------------|---------------------------|-------------------|--------------|---------------------------|-------------------|--------------|--|---|
|         |                                 |                                       |  |   |  | Likelihood risk score                     | Impact risk score | Risk score   | Likelihood risk score     | Impact risk score | Risk score   | Likelihood risk score     | Impact risk score | Risk score   |  |   |
| 1       | N1                              |                                       | Risks to terrestrial species and habitats from changing climatic conditions and extreme events, including temperature change, water scarcity, wildfire, flooding, wind, and altered hydrology (including water scarcity, flooding and saline intrusion). | High temperatures   | Warmer summers and more frequent hot days are expected to have a short-term impact to habitats, becoming more long-term as high temperatures becoming increasingly sustained. However, risks to terrestrial species and habitats in protected environmental designated areas of Brighton & Hove are unlikely to be exacerbated by the forcing urban heat island effect, as they stay cooler during hottest periods of the year than the urban city centre. | Likely (4)                                | Major (4)         | 15           | Almost certain (5)        | Major (4)         | 20           | Almost certain (5)        | Catastrophic (5)  | 25           |  | South Downs National Park (2016): Climate Change Adaptation Plan  |
|         |                                 |                                       |  | Water scarcity  | Reductions in water availability and aquifer storage/recharge can cause calcareous and woodland habitats etc to struggle. The Southern Water Drought Plan 2019 states that Drought Permits/Orders, which can have the potential to detrimentally impact species and habitats, are expected to be required by Southern Water at a return period of 1 in 20 years.   | Likely (4)                                | Moderate (3)      | 12           | Almost certain (5)        | Major (4)         | 20           | Almost certain (5)        | Catastrophic (5)  | 25           |  | The Southern Water Drought Plan 2019  |
|         |                                 |                                       |  | Wildfire  | Severe and long-term damage expected if a wildfire occurred. However, the likelihood is low due to the dominance of resilient broadleaf tree species in Brighton. Please note that if the sensitivity of the broadleaf tree species were to be higher than expected, then the risk could increase.   | Unlikely (2)                              | Major (4)         | 8            | Unlikely (2)              | Major (4)         | 8            | Unlikely (2)              | Major (4)         | 8            |  | Stakeholder workshop  |
|         |                                 |                                       |  | Surface water flooding  | From mapping, can see only small edge areas of sites are at risk from surface water flooding. Events could cause contamination to habitats from surface water runoff. Parks and gardens have a 3% chance of surface water flooding.  | Unlikely (2)                              | Minor (2)         | 4            | Unlikely (2)              | Minor (2)         | 4            | Unlikely (2)              | Minor (2)         | 4            |  | GIS: SW flooding 1 in 100; SW flooding 1 in 100plus 30PC; SW flooding 1 in 100plus 40PC - for national statutory designations and ancient woodlands; and registered parks and gardens |
|         |                                 |                                       |  | Groundwater flooding  | From mapping, some areas of designated sites overlap with areas at risk from groundwater flooding. Waterlogging and soil erosion impacts.  | Unlikely (2)                              | Moderate (3)      | 6            | Unlikely (2)              | Moderate (3)      | 6            | Unlikely (2)              | Moderate (3)      | 6            |  | ArcGIS Web App - GW flooding layer and Env Designations (areas of conservation, local nature reserves, and national nature reserves) layers   |
|         |                                 |                                       |  | Coastal flooding  | If were to occur, could have long-term effects as habitats not resilient to saline seawater. However, likelihood is low as terrestrial habitats are not located near the coast, and are predominantly in the SDNP. From mapping, parks and gardens have a 0% chance of coastal flooding, and national statutory designations and ancient woodlands a 1% chance.  | Almost impossible (1)                     | Major (4)         | 4            | Almost impossible (1)     | Major (4)         | 4            | Almost impossible (1)     | Major (4)         | 4            |  | GIS: Coastal flooding 1in100; Coastal flooding 1in1000 - for national statutory designations and ancient woodlands; and registered parks and gardens                                  |
|         |                                 |                                       |  | High winds  | Referring out to SDNP report.  | Possible (3)                              | Moderate (3)      | 9            | Possible (3)              | Moderate (3)      | 9            | Possible (3)              | Moderate (3)      | 9            |  | South Downs National Park (2016): Climate Change Adaptation Plan  |
|         |                                 |                                       | Saline intrusion   | Saline intrusion could mean terrestrial habitats and species that relies on freshwater could become degraded or lost. | Unlikely (2)   | Major (4)                                 | 8                 | Possible (3) | Major (4)                 | 12                | Possible (3) | Major (4)                 | 12                |              | UK Climate Risk (2021) - Flooding and coastal change |   |
| 2       | N2                              |                                       | Risks to terrestrial species and habitats from pests, pathogens and invasive species   | High temperatures   | Less frost and warmer damp conditions would increase the prevalence of pests, pathogens and invasive species.  | Possible (3)                              | Minor (2)         | 6            | Likely (4)                | Moderate (3)      | 12           | Likely (4)                | Major (4)         | 15           |  | South Downs National Park (2016): Climate Change Adaptation Plan  |
| 3       | N3                              |                                       | Opportunities from new species colonisations in terrestrial habitats   |   |  |   |                   |              |                           |                   |              |                           |                   | Not assessed | Not assessed   |   |
| 4       | N4                              |                                       | Risk to soils from changing climatic conditions, including seasonal aridity and wetness.   | Seasonal aridity  | Considered a high risk at the national picture.  | Possible (3)                              | Catastrophic (5)  | 15           | Possible (3)              | Catastrophic (5)  | 15           | Possible (3)              | Catastrophic (5)  | 15           |  | UK Climate Risk (2021) - Land use, land use change and forestry.  |

|    |     |   |   |  |   |   |                  |                       |              |                  |                       |                  |                  |              |   |  |  |
|----|-----|---|---|--|---|---|------------------|-----------------------|--------------|------------------|-----------------------|------------------|------------------|--------------|---|--|--|
| 5  | 6   | N6  | Risk to soils from changing climatic conditions, including seasonal aridity and wetness.  | Wetness  | Considered a high risk at the national picture. | Possible (3)  | Catastrophic (5) | 15                    | Possible (3) | Catastrophic (5) | 15                    | Possible (3)     | Catastrophic (5) | 15           | Not assessed  | UK Climate Risk (2021) - Land use, land use change and forestry. |  |
|    |     |   | Risks and opportunities for natural carbon stores, carbon sequestration from changing climatic conditions, including temperature change and water scarcity                                  |  |   |   |                  |                       |              |                  |                       |                  |                  |              |   | Not assessed   | Not assessed   |
|    |     |   | High temperatures   | Increased summer temperatures would impact agriculture crops and livestock farming. However, high-grade agricultural land in Brighton & Hove stay cooler during hottest periods of the year than the urban city centre.  | Likely (4)                                      | Major (4)   | 15               | Almost certain (5)    | Major (4)    | 20               | Almost certain (5)    | Catastrophic (5) | 25               |              | South Downs National Park (2016); Climate Change Adaptation Plan  |  |  |
|    |     |   | Water scarcity  | Increased periods of drought would impact agriculture crops and livestock farming.   | Likely (4)                                      | Major (4)   | 15               | Almost certain (5)    | Major (4)    | 20               | Almost certain (5)    | Catastrophic (5) | 25               |              | South Downs National Park (2016); Climate Change Adaptation Plan  |  |  |
|    |     |   | Wildfire  | If they were to occur, wildfires would have major impacts on agriculture. There have been a few cropland fires breaking out in Sussex over the last 5 years, making the risk significant.  | Possible (3)                                    | Major (4)   | 12               | Possible (3)          | Major (4)    | 12               | Possible (3)          | Major (4)        | 12               |              | Stakeholder workshop  |  |  |
|    |     |   | Surface water flooding  | Surface water flooding would increase damage and loss of crops. However, from mapping the chance of agriculture lands being affected by surface water flooding is 1%.  | Unlikely (2)                                    | Major (4)   | 8                | Unlikely (2)          | Major (4)    | 8                | Unlikely (2)          | Catastrophic (5) | 10               |              | GIS: SW flooding 1 in 100; SW flooding 1 in 100plus 30PC; SW flooding 1 in 100plus 40PC - for grade 1-3 agricultural land; and the South Downs National Park (2016); Climate Change Adaptation Plan |  |  |
|    |     |   | Groundwater flooding  | According to the mapping, most of the groundwater flooding would impact the urban and non agriculture areas. If it were to occur, it could have major impact. However, likelihood is low as only some agriculture lands (grade 3) are located near the coast. From mapping, there is a 0% chance of coastal flooding for agriculture land. | Unlikely (2)                                    | Moderate (3)  | 6                | Unlikely (2)          | Moderate (3) | 6                | Unlikely (2)          | Moderate (3)     | 6                |              | ArcGIS Web App - GW flooding layer and Grade 1 -3 agricultural land   |  |  |
|    |     |   | Coastal flooding  | If it were to occur, it could have major impact. However, likelihood is low as only some agriculture lands (grade 3) are located near the coast. From mapping, there is a 0% chance of coastal flooding for agriculture land.  | Almost impossible (1)                           | Major (4)   | 4                | Almost impossible (1) | Major (4)    | 4                | Almost impossible (1) | Major (4)        | 4                |              | GIS: Coastal flooding 1in100; Coastal flooding 1in1000 - for grade 1-3 agricultural land  |  |  |
|    |     |   | Coastal erosion   | If it were to occur, it could have major impact. However, likelihood is low as only some agriculture lands (grade 3) are located near the coast.   | Unlikely (2)                                    | Moderate (3)  | 6                | Unlikely (2)          | Moderate (3) | 6                | Unlikely (2)          | Moderate (3)     | 6                |              | ArcGIS Web App - Grade 1 -3 agricultural land   |  |  |
|    |     |   | High winds  | High winds have the potential to damage trees and hedgerows.   | Possible (3)                                    | Minor (2)   | 6                | Possible (3)          | Minor (2)    | 6                | Possible (3)          | Minor (2)        | 6                |              | South Downs National Park (2016); Climate Change Adaptation Plan  |  |  |
|    |     |   | Saline intrusion  | If it were to occur, it could have major impact. However, likelihood is low.   | Unlikely (2)                                    | Major (4)   | 8                | Possible (3)          | Major (4)    | 12               | Possible (3)          | Major (4)        | 12               |              | ArcGIS Web App - Grade 1 -3 agricultural land   |  |  |
|    |     |   | N7  | Risks to agriculture from pests, pathogens and invasive species  | High temperatures                               | Less frost and warmer damp conditions would increase the prevalence of pests, pathogens and invasive species. | Unlikely (2)     | Moderate (3)          | 6            | Possible (3)     | Moderate (3)          | 9                | Possible (3)     | Major (4)    | 12  |  | South Downs National Park (2016); Climate Change Adaptation Plan |
|    |     |   | N8  | Risks to forestry from pests, pathogens and invasive species   |   |   |                  |                       |              |                  |                       |                  |                  |              |   | Not assessed   | Not assessed   |
|    |     |   | N9  | Opportunities for agricultural and forestry productivity from new/alternative species becoming suitable.   |   |   |                  |                       |              |                  |                       |                  |                  |              |   | Not assessed   | Not assessed   |
| 10 | N10 | Sea level rise  | Impacts to aquifer are possible due to hydrological connectivity.   | Almost impossible (1)  | Major (4)                                       | 4   | Possible (3)     | Major (4)             | 12           | Likely (4)       | Major (4)             | 15               |                  |              |   |  |  |
|    |     | Saline intrusion  | Impacts to aquifer is possible due to hydrological connectivity. Saline intrusion of the aquifer could mean the habitat that relies on the freshwater in the aquifer becomes more degraded. | Unlikely (2)   | Major (4)                                       | 8   | Possible (3)     | Major (4)             | 12           | Possible (3)     | Major (4)             | 12               |                  |              |   |  |  |
| 11 | N11 | Risks to freshwater species and habitats from changing climatic conditions and extreme events, including higher water temperatures, flooding, water scarcity and phenological shifts. |   |  |   |   |                  |                       |              |                  |                       |                  | Not assessed     | Not assessed |   |  |  |
| 12 | N12 | Risks to freshwater species and habitats from pests, pathogens and invasive species   |   |  |   |   |                  |                       |              |                  |                       |                  | Not assessed     | Not assessed |   |  |  |
| 13 | N13 | Opportunities to freshwater species and habitats from new species colonisations   |   |  |   |   |                  |                       |              |                  |                       |                  | Not assessed     | Not assessed |   |  |  |
| 14 | N14 | Risks to marine species, habitats and fisheries from changing climatic conditions, including ocean acidification and higher water temperatures  | High temperatures   | Can drive ocean acidification, which can negatively affect maritime species and habitats by dissolving shells and skeletons made from calcium carbonate (affecting sea snails and oysters). Increasing water temperatures are already globally affecting maritime species and habitats, causing loss of breeding grounds.                  | Possible (3)                                    | Moderate (3)  | 9                | Possible (3)          | Major (4)    | 12               | Likely (4)            | Major (4)        | 15               |              | South Downs National Park (2016); Climate Change Adaptation Plan  |  |  |

Natural Environment and Assets

|    |     |  |   |  |                       |              |    |              |              |    |              |                  |    |              |   |
|----|-----|--|---|--|-----------------------|--------------|----|--------------|--------------|----|--------------|------------------|----|--------------|---|
| 15 | N15 | Opportunities to marine species, habitats and fisheries from changing climatic conditions                    |   |  |                       |              |    |              |              |    |              |                  |    | Not assessed | Not assessed  |
| 16 | N16 | Risks to marine species and habitats from pests, pathogens and invasive species                              | High temperatures                               | Warming of UK shelf seas is projected to continue to 2100 and beyond with most projections indicating increases of between 0.2°C and 0.4°C per decade, but with regional differences and the greatest warming in the Channel and southern North Sea. In addition, many other stressors, including <b>pollution incidents such as sewage spills</b> , ocean acidification and changes in salinity levels due to stratification and modification of currents, are likely to continue, increasing the vulnerability of marine organisms to INNS or pathogens. | Possible (3)          | Moderate (3) | 9  | Likely (4)   | Major (4)    | 15 | Likely (4)   | Catastrophic (5) | 20 |              | UK Climate Risk (2021) - Marine   |
| 17 | N17 | Risks and opportunities to coastal species and habitats due to coastal flooding, erosion and climate factors | Coastal flooding                                | Risks to locally important habitats such as shingles and saltmarshes, diminishing / damaging coastal habitats by eroding substrates that habitats are based on.  | Possible (3)          | Moderate (3) | 9  | Likely (4)   | Moderate (3) | 12 | Likely (4)   | Moderate (3)     | 12 |              | UK Climate Risk (2021) - Marine   |
|    |     |  | Coastal erosion                                 |  | Possible (3)          | Moderate (3) | 9  | Likely (4)   | Moderate (3) | 12 | Likely (4)   | Moderate (3)     | 12 |              | UK Climate Risk (2021) - Marine   |
|    |     |  | High temperatures                               | Coastal species may not survive at the really high temperatures expected. Warming sea waters could also negatively impact coastal species. <b>As identified in the urban heat island modeling, high temperatures are less extreme in coastal regions due to the cooling effects of coastal sea breezes.</b>  | Possible (3)          | Major (4)    | 12 | Likely (4)   | Major (4)    | 15 | Likely (4)   | Major (4)        | 15 |              | UK Climate Risk (2021) - Marine   |
|    |     |  | Sea level rise                                  | Sea level rise can diminish coastal habitats by 'coastal squeeze'.   | Almost impossible (1) | Major (4)    | 4  | Possible (3) | Major (4)    | 12 | Likely (4)   | Major (4)        | 15 |              | UK Climate Risk (2021) - Marine   |
|    |     |  | Extreme weather events (storms, heavy rainfall) | <b>Extreme rainfall events cause sewer overflows along the Brighton and Hove seafront. Storms also cause weather-related erosion.</b>  | Possible (3)          | Moderate (3) | 9  | Likely (4)   | Moderate (3) | 12 | Likely (4)   | Moderate (3)     | 12 |              | UK Climate Risk (2021) - Marine   |
| 18 | N18 | Risks and opportunities from climate change to landscape character   | High temperatures                               | <b>Continuing declines and damage to habitats and species with new or novel species/crops that are more adaptable to increased summer temperatures would change the visual character of the landscape.</b>   | Unlikely (2)          | Moderate (3) | 6  | Possible (3) | Moderate (3) | 9  | Likely (4)   | Moderate (3)     | 12 |              | South Downs National Park (2016); Climate Change Adaptation Plan  |
|    |     |  | Water scarcity                                  | Increased drought conditions may result in a reduction of extensive grazing or arable cropping alongside changes to The Living Coast UNESCO Biosphere designation characteristics and wider SDNP landscape character.  | Likely (4)            | Moderate (3) | 12 | Likely (4)   | Moderate (3) | 12 | Likely (4)   | Moderate (3)     | 12 |              | South Downs National Park (2016); Climate Change Adaptation Plan  |
|    |     |  | Wildfire  | <b>Wildfires can have a major impact on landscape character. Likelihood is low in the areas with broadleaf tree species. However, the risk increases in cropland areas where quite a few fires broke up in the last 5 years.</b>   | Possible (3)          | Major (4)    | 12 | Possible (3) | Major (4)    | 12 | Possible (3) | Major (4)        | 12 |              | Stakeholder workshop  |
|    |     |  | Surface water flooding                          | Flooding would impact the landscape character by damaging habitats and species which cannot survive in these conditions. Surface water flooding focussed in impermeable areas away from designated environmental sites.  | Unlikely (2)          | Minor (2)    | 4  | Unlikely (2) | Minor (2)    | 4  | Unlikely (2) | Minor (2)        | 4  |              | South Downs National Park (2016); Climate Change Adaptation Plan<br>GIS: SW flooding 1 in 100; SW flooding 1 in 100plus 30PC; SW flooding 1 in 100plus 40PC; national statutory environmental designation sites |
|    |     |  | Groundwater flooding                            | Flooding would impact the landscape character by damaging habitats and species which cannot survive in these conditions.   | Unlikely (2)          | Moderate (3) | 6  | Unlikely (2) | Moderate (3) | 6  | Unlikely (2) | Moderate (3)     | 6  |              | South Downs National Park (2016); Climate Change Adaptation Plan  |
|    |     |  | Coastal flooding                                | Flooding would impact the landscape character by damaging habitats and species which cannot survive in these conditions.   | Unlikely (2)          | Minor (2)    | 4  | Possible (3) | Moderate (3) | 9  | Possible (3) | Moderate (3)     | 9  |              | South Downs National Park (2016); Climate Change Adaptation Plan  |
|    |     |  | High winds                                      | Wind could damage trees and hedgerows, which would impact landscape character.   | Possible (3)          | Minor (2)    | 6  | Possible (3) | Minor (2)    | 6  | Possible (3) | Minor (2)        | 6  |              | South Downs National Park (2016); Climate Change Adaptation Plan  |
|    |     |  | Saline intrusion                                | Indirect impacts of saline intrusion of the Brighton chalk aquifer could mean the downland landscape that relies on the freshwater in the aquifer becomes more degraded.   | Unlikely (2)          | Major (4)    | 8  | Possible (3) | Major (4)    | 12 | Possible (3) | Major (4)        | 12 |              | South Downs National Park (2016); Climate Change Adaptation Plan  |

|    |    |  |                        |  |              |           |    |                    |           |    |                    |           |    |  |
|----|----|--|------------------------|--|--------------|-----------|----|--------------------|-----------|----|--------------------|-----------|----|--|
| 19 | 11 | Risks to infrastructure networks (water, energy, transport, ICT) from cascading failures | Several                | <p>Vulnerabilities on one infrastructure network can cause problems on others, and energy infrastructure represents a significant part of this system. Recent research conducted to support the CCRA has indicated that the vulnerability of interconnected systems may be significantly underestimated. The risk of network failures is already high, potentially affecting hundreds of thousands of people per year, in urban areas in particular.</p>   | Likely (4)   | Major (4) | 15 | Likely (4)         | Major (4) | 15 | Likely (4)         | Major (4) | 15 | UK Climate Risk (2021) - Transport   |
| 20 | 12 | Risks to infrastructure services from river, surface water and groundwater flooding      | Surface water flooding | <p>9% of railway stations in the B&amp;H area lie within the 1 in 100 year surface water flood extent (not considering any on-the-ground mitigation measures, or site raising). This increases to 18% when the 1 in 100 year flood event is increased by 30 or 40% as a proxy climate change allowance, as modelled for BHCC. This poses a notable risk to infrastructure services.</p> <p>8% of the total lengths of transport streets within B&amp;H are exposed to a 1 in 100 year surface water flood, increasing to 9% under the 40% climate change scenario. However, 23% of the strategic network, comprised of the roads most used in B&amp;H are exposed for the present-day 1 in 100 year scenario. This poses a notable risk to infrastructure services.</p> <p>No electricity substations in B&amp;H are exposed to surface water flooding.</p> <p>Greater risk of flooding due to increased occurrence and severity of weather events</p> | Likely (4)   | Major (4) | 15 | Likely (4)         | Major (4) | 15 | Likely (4)         | Major (4) | 15 | GIS: SW flooding 1 in 100; SW flooding 1 in 100plus 30PC; SW flooding 1 in 100plus 40PC - for railway stations; railway track; roads - strategic network and transport streets; and substations. |
|    |    |  | Groundwater flooding   | <p>Modelling results suggest 30% of the road strategic network and transport streets are exposed to either a high (5% - where water levels are between 0.025 and 0.5m below ground level) or medium risk of groundwater flooding (25% - where water levels are between 0.5 and 5m below ground level). Groundwater flood events have the potential to close roads, and typically have a longer event length than other types of flooding due to the difficulty in removing the water.</p> <p>Crude modelling suggests that 65% of railway track is at medium risk, and an extra 7% is at high risk of GW flooding. Note this does not consider track elevation.</p> <p>1% of substations in B&amp;H lie within areas at medium or high risk of groundwater flooding.</p> <p>Greater risk of flooding due to increased occurrence and severity of weather events</p>  | Likely (4)   | Major (4) | 15 | Almost certain (5) | Major (4) | 20 | Almost certain (5) | Major (4) | 20 | GIS: GW flooding 0.5-5m and GW flooding 0.025-0.5m - for railway stations; railway track; roads - strategic network and transport streets; and substations.                                      |
|    |    |  | Coastal flooding       | <p>Using the Environment Agency's 1 in 100 and 1 in 1000 year 'Risk of Flooding from Rivers and Sea' extents, less than 1% of roads and streets in Brighton are exposed to coastal flooding under the 1 in 100 year scenario. Rail and energy assets are not exposed. Note this is a defended scenario.</p> <p>Coastal flooding incidents can significantly impact infrastructure, but impacts are tempered by improvements in flood defences and advances in flood forecasting, warning and emergency response.</p>   | Unlikely (2) | Major (4) | 8  | Unlikely (2)       | Major (4) | 8  | Unlikely (2)       | Major (4) | 8  | GIS: Coastal flooding 1in100; Coastal flooding 1in1000 - for railway stations; railway track; roads - strategic network and transport streets; and substations.                                  |

|    |    |  |   |  |              |              |    |                    |           |    |                    |           |    |              |                                     |
|----|----|--|---|--|--------------|--------------|----|--------------------|-----------|----|--------------------|-----------|----|--------------|-------------------------------------|
| 21 | 13 | Risks to infrastructure services from coastal flooding and erosion | Coastal erosion                                 | The Environment Agency's NCERM approach along the B&H coast is to 'hold the line' to avoid any coastal erosion. However the Brighton Marina to Newhaven Western Harbour Arm Plan suggests there are sections along the coastline which are uneconomic to actively defend, leaving properties at-risk Lewes District Council and Brighton and Hove City Council (2016). The economic case is significantly driven by the presence or absence of the A259. Brighton Marina cliff top recession reports indicate the cliff between has receded at an average annual rate of 0.026 metres per year, or 2.6cm per year. Increased erosion of chalk cliffs from increase in storm and wave impact. | Likely (4)   | Major (4)    | 15 | Almost certain (5) | Major (4) | 20 | Almost certain (5) | Major (4) | 20 |              | The Environment Agency's NCERM data |
| 22 | 14 | Risks to bridges and pipelines from flooding and erosion           |   |  |              |              |    |                    |           |    |                    |           |    | Not assessed | Not assessed                        |
| 23 | 15 | Risks to transport networks from slope and embankment failure      | Extreme weather events (storms, heavy rainfall) | Deterioration and failure of these assets have significant negative impacts on transport networks through damage, travel delays and accidents.   | Possible (3) | Major (4)    | 12 | Likely (4)         | Major (4) | 15 | Likely (4)         | Major (4) | 15 |              | UK Climate Risk (2021) - Transport  |
| 24 | 16 | Risks to hydroelectric generation from low or high river flows     |   |  |              |              |    |                    |           |    |                    |           |    | Not assessed | Not assessed                        |
| 25 | 17 | Risks to subterranean and surface infrastructure from subsidence   | Water scarcity                                  | Increased periods of drought increases the risk of subsidence which could damage subterranean and surface infrastructure. Increases in high rainfall and soil moisture fluctuations combined with periods of dry weather and subsequent cracking are expected to lead to an increase in failures across transport assets. There are implications for more rural areas of the UK, where transport infrastructure systems are less resilient, and often follow natural features such as steep sided river valleys prone to landslides.   |              |              |    |                    |           |    |                    |           |    | Not assessed | Not assessed                        |
| 26 | 18 | Risks to public water supplies from reduced water availability     | Water scarcity                                  | Increased periods of drought could impact availability of water supplies to households. As per Southern Water's Water Resources Management Plan, is expected to be less pronounced than other regions of the UK due to the use of groundwater that are less vulnerable to short-term summer deficits in rainfall, compared to regions reliant on surface water sources. However, future increased development and population growth puts pressure on infrastructure, including water availability, which could make the risk more significant.   | Possible (3) | Major (4)    | 12 | Likely (4)         | Major (4) | 15 | Likely (4)         | Major (4) | 15 |              | UK Climate Risk (2021) - Water      |
| 27 | 19 | Risks to energy generation from reduced water availability         |   |  |              |              |    |                    |           |    |                    |           |    | Not assessed | Not assessed                        |
|    |    |  | High temperatures                               | High temperatures can affect the amount of energy generated from thermal generators and solar panels. Some communications equipment supporting the national gas grid have been found to have a maximum operating temperature of 40°C (where external temperature and the load on the asset are contributing factors). Summer operation of some facilities is already being affected and this will be exacerbated by projected increases in summer temperatures.  | Possible (3) | Moderate (3) | 9  | Likely (4)         | Major (4) | 15 | Likely (4)         | Major (4) | 15 |              | UK Climate Risk (2021) - Energy     |

Infrastructure

|    |     |  |                   |  |              |                   |    |                    |                   |    |                    |                   |              |                                    |
|----|-----|--|-------------------|--|--------------|-------------------|----|--------------------|-------------------|----|--------------------|-------------------|--------------|------------------------------------|
| 28 | 110 | Risks to energy from high and low temperatures, high winds, lightning    | Low temperatures  | Line faults can occur in cold temperatures or due to snow and ice. The UK Climate Risk (2021) technical report does not provide detail on the risks to energy from low temperatures. It is anticipated the systems are resilient to cold temperatures currently observed; future trends suggest fewer cold days in the latter half of the 21st century.  | Unlikely (2) | Insignificant (1) | 2  | Unlikely (2)       | Insignificant (1) | 2  | Unlikely (2)       | Insignificant (1) | 2            | UK Climate Risk (2021) - Energy    |
|    |     |  | High winds        | High winds and resultant debris can cause damage to power lines. There is no compelling trend in changes to maximum wind gust speeds. There is significant uncertainty around future projections on how high wind events may evolve throughout the 21st century. <a href="https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK Climate Risk (2021)-Chapter-4-FINAL.pdf">https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK Climate Risk (2021)-Chapter-4-FINAL.pdf</a>   | Possible (3) | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9            | UK Climate Risk (2021) - Energy    |
|    |     |  | Lightning         | Anticipated that buildings and assets are protected against lightning, however if an increase in lightning strikes increased power failures, more standby generators may be needed. There remains uncertainty to the understanding of how climate change will affect lightning hazard. <a href="https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK Climate Risk (2021)-Chapter-4-FINAL.pdf">https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK Climate Risk (2021)-Chapter-4-FINAL.pdf</a>   | Possible (3) | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9            | UK Climate Risk (2021) - Energy    |
| 29 | 111 | Risks to offshore infrastructure from storms and high waves              |                   |  |              |                   |    |                    |                   |    |                    |                   | Not assessed | Not assessed                       |
| 30 | 112 | Risks to transport from high and low temperatures, high winds, lightning | High temperatures | High temperatures lead to buckling of rail lines, line sag and rail speed restrictions, damage to bridges and pavements, deterioration of airport runways, road surfaces and disruption of communications and IT services leading to transport delays. Urban heat island (UHI) modeling results show the 'hot spots' in the city most vulnerable to road/pavement deterioration, including Hanover, Lansdowne Place and the area to the south-west of Brighton Station towards Dyke Road. These areas are particularly vulnerable due to the high impervious surface cover and albedo. | Likely (4)   | Major (4)         | 15 | Almost certain (5) | Major (4)         | 20 | Almost certain (5) | Major (4)         | 20           | UK Climate Risk (2021) - Transport |
|    |     |  | Low temperatures  | Reduced frequency of low temperatures, but potential for cold snaps remains. More evidence of impact from low temperatures on transport networks than other infrastructure systems.  | Possible (3) | Minor (2)         | 6  | Possible (3)       | Minor (2)         | 6  | Possible (3)       | Minor (2)         | 6            | UK Climate Risk (2021) - Transport |
|    |     |  | High winds        | High winds leading to disruption of rail operations due to debris on lines, damage to road infrastructure, closure of bridges, and suspension of port and vessel operations.   | Possible (3) | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9            | UK Climate Risk (2021) - Transport |
|    |     |  | Lightning         | Lightning strikes on railways damaging electronic equipment, line-side trees and buildings, and causing line-side fires.   | Possible (3) | Moderate (3)      | 9  | Possible (3)       | Major (4)         | 12 | Possible (3)       | Major (4)         | 12           | UK Climate Risk (2021)             |
|    |     |  | High temperatures | Heatwaves and droughts can affect information and communications technology (ICT) infrastructure through ground shrinkage that damages underground electrical, gas, and water infrastructure and thus co-sited ICT, and through demands for cooling putting pressure on energy networks, causing energy failures and 'brown outs'. Energy assets near the urban city centre of Brighton are most at-risk during summer months, due to the urban heat island effect. Heat and humidity pose a challenge for data centres, which need to be kept cool to operate.                        | Possible (3) | Major (4)         | 12 | Likely (4)         | Major (4)         | 15 | Likely (4)         | Major (4)         | 15           | UK Climate Risk (2021)             |

|    |     |  |                        |  |                    |                   |    |                    |                   |    |                    |                   |    |  |
|----|-----|--|------------------------|--|--------------------|-------------------|----|--------------------|-------------------|----|--------------------|-------------------|----|--|
| 31 | 113 | Risks to digital from high and low temperatures, high winds, lightning | Low temperatures       | The UK Climate Risk (2021) technical report does not provide detail on the risks to digital from low temperatures. It is anticipated the systems are resilient to cold temperatures currently observed; future trends suggest fewer cold days in the latter half of the 21st century.  | Unlikely (2)       | Insignificant (1) | 2  | Unlikely (2)       | Insignificant (1) | 2  | Unlikely (2)       | Insignificant (1) | 2  | UK Climate Risk (2021)   |
|    |     |  | High winds             | Much of ICT infrastructure is underground. Potential impacts to overhead lines - which can have moderate impact across B&H to residents and businesses.  | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | UK Climate Risk (2021)   |
|    |     |  | Lightning              | There remains uncertainty to the understanding of how climate change will affect lightning hazard. <a href="https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK_Climate_Risk_(2021)-Chapter-4-FINAL.pdf">https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK_Climate_Risk_(2021)-Chapter-4-FINAL.pdf</a>   | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | Possible (3)       | Moderate (3)      | 9  | UK Climate Risk (2021)   |
| 32 | H1  | Risks to health and wellbeing from high temperatures                   | High temperatures      | Recent events have been extreme - during the summer of 2020 for example, an additional ~2,500 deaths were recorded during the heatwave across England, which could not be explained by other factors (UK Climate Risk, 2021).<br><br>Currently, the risk of a '2018 type' summer has already increased to around a 10-20% probability in any one year, and this will almost certainly increase to 50% by 2050 (UK Climate Risk, 2021k).<br><br>Increased frequency / likelihood of Met Office amber heat-health events in future - 0.033 events per year, increasing to 0.8 events per year (4oC warming, 50th percentile) or 2.667 for 90th percentile.<br><br>There is also a projected increase risk of vector-borne diseases, related to the preferred warmer climates for breeding (Greensage, n.d.). | Likely (4)         | Major (4)         | 15 | Likely (4)         | Catastrophic (5)  | 20 | Almost certain (5) | Catastrophic (5)  | 25 | UK Climate Risk (2021) - Health and social care. Greengage, n.d.                         |
|    |     |  | H2                     | Opportunities for health and wellbeing from higher temperatures  |                    |                   |    |                    |                   |    |                    |                   |    | Not assessed   |
| 34 | H3  | Risks to people, communities and buildings from flooding               | Surface water flooding | Surface water flood risk maps show extents are widespread across Brighton and Hove. Surface water flow pathways are concentrated along key roads including the A23 (Preston Road) and A270 (Lewes Road). As the risk is widespread across the whole of Brighton and Hove, it is important for the areas of high vulnerability to be prioritised. The areas where most people live in social housing are near Brighton College and Sallis Benney Theatre, Whitehawk, Woodingdean, Moulsecoomb (especially North), near Mile Oak Primary School and Portland Business Park, amongst others.  | Almost certain (5) | Major (4)         | 20 | Almost certain (5) | Major (4)         | 20 | Almost certain (5) | Major (4)         | 20 | GIS: SW flooding 1 in 100; SW flooding 1 in 100plus 30PC; SW flooding 1 in 100plus 40PC. |
|    |     |  | Groundwater flooding   | Groundwater flooding hotspots include Aldrington, Patcham and around Falmer, including university buildings, the A27, railway lines and the Brighton & Hove Albion Football Stadium.<br><br>There are pockets of areas where houses have basements within Brighton's city centre. These are particularly vulnerable to the impacts of groundwater flooding.<br><br>Impacts of climate change to groundwater flooding is not well understood.<br><br>The vulnerability assessment showcased that there are a few areas with households that are deprived in at least one dimension and at risk of groundwater flooding, especially south of Stanmer, near the University of Brighton, in Patcham, Portslade and Aldrington.   | Likely (4)         | Major (4)         | 15 | Likely (4)         | Major (4)         | 15 | Likely (4)         | Major (4)         | 15 | GIS: GW flooding 0.5-5m and GW flooding 0.025-0.5m.                                      |

|    |    |  |                        |  |              |              |    |                    |              |    |                    |              |              |  |
|----|----|--|------------------------|--|--------------|--------------|----|--------------------|--------------|----|--------------------|--------------|--------------|--|
|    |    |  | Coastal flooding       | <p>The EA maps indicate that only a fairly constrained area along the B&amp;H coastline is at risk from coastal flooding. The areas of greatest extents are shown to be around Brighton Marina and Shoreham Ports/Western Lawns, as well as impacts to the unique undercliff walk. However, it is important to recognise the social as well as economic benefits of the beachfront.</p> <p>Note these maps were produced using a defended scenario.</p> <p>Another point to make is that most people who live near the coastal areas live in accommodation types 4, 5, 6 or 8 (flats, converted buildings, caravans etc), making these areas higher density (and the people more vulnerable). Therefore, more people would be affected if coastal floods were to happen.</p> | Possible (3) | Major (4)    | 12 | Possible (3)       | Major (4)    | 12 | Possible (3)       | Major (4)    | 12           | EA maps  |
| 35 | H4 | Risks to the viability of coastal communities from sea level rise      |                        |  |              |              |    |                    |              |    |                    |              | Not assessed | Not assessed   |
| 36 | H5 | Risks to building fabric   | Surface water flooding | <p>Buildings are at risk from increased damp due to flooding and intense rain. This can result in health (respiratory) and financial impacts. The presence of Bungarosh building materials is also a particular issue where underlying geology includes clay superficial deposits.</p> <p>The SDNP CAP (2016) stated that there is a medium risk of damage and deterioration of the protective building envelope caused by more severe weather conditions.</p>   | Possible (3) | Moderate (3) | 9  | Possible (3)       | Moderate (3) | 9  | Possible (3)       | Moderate (3) | 9            | South Downs National Park (2016): Climate Change Adaptation Plan |
|    |    |  | Groundwater flooding   | <p>There are pockets of areas where houses have basements within Brighton's city centre. These are particularly vulnerable to the impacts of groundwater flooding. The presence of Bungarosh building materials is also a particular issue where underlying geology includes clay superficial deposits.</p> <p>Impacts of climate change to groundwater flooding is not well understood.</p>   | Possible (3) | Moderate (3) | 9  | Possible (3)       | Moderate (3) | 9  | Possible (3)       | Moderate (3) | 9            | Stakeholder workshop   |
|    |    |  | High temperatures      | <p>Buildings constructed during the 1960s and 1970s used more lightweight methods that have been found to be at greater risk of overheating (Greengage, n.d.).</p> <p>Well-insulated more modern buildings that improve winter energy efficiency can also be challenging to keep cool (Greengage, n.d.).</p>   | Likely (4)   | Moderate (3) | 12 | Almost certain (5) | Moderate (3) | 15 | Almost certain (5) | Moderate (3) | 15           | Greengage, n.d.  |
| 37 | H6 | Risks and opportunities from summer and winter household energy demand | High temperatures      | <p>UK-CRI data suggests cooling degree days will become much greater, from 90 to 198 by 2050s (4oC, 50th percentile) or 380 by 2080s (4oC, 50th percentile). This has the potential to significantly increase energy demand in the hottest periods, assuming active cooling solutions are used. From a vulnerability point of view this is particularly concerning as a big part of Brighton and Hove has households that are deprived in at least one dimension. The worst affected areas are central Brighton, near the College, the whole area from Stanmer to Bevendean and down to Whitehawk, Woodingdean and the area south of Brighton and Hove Golf Course around West Blatchington.</p>   | Possible (3) | Minor (2)    | 6  | Almost certain (5) | Minor (2)    | 10 | Almost certain (5) | Minor (2)    | 10           | UK Climate Risk (2021) - Energy                                  |



Health, Communities and the Built Environment

|    |     |   |                        |   |              |              |    |              |              |    |                    |              |              |  |
|----|-----|---|------------------------|---|--------------|--------------|----|--------------|--------------|----|--------------------|--------------|--------------|--|
| 38 | H7  | Risks to health and wellbeing from changes in air quality | High temperatures      | <p>Hotter temperatures and impacts to air quality can exacerbate respiratory health issues. There appears to be correlations between the 'hot spot' areas identified in this modelling and the areas in the city centre identified at high risk of poor air quality (the city's Air Quality Management Area 1). As higher temperatures can exacerbate air pollution issues, this provides additional reason to address air quality in these areas now and into the future.</p> <p>Outdoor air pollution is associated with tens of thousands of deaths per year in the UK (UK Climate Risk, 2021). A KCL study from 9 English cities found that on high pollution days there are 673 additional out-of-hospital cardiac arrests and hospital admissions for stroke and asthma, with spikes in ambulance 999 call-outs (Greengage, n.d.). PM2.5 concentrations are particularly bad in Brighton city centre near the train station (Greengage, n.d.)</p> <p>Given the upwards trend in amber heat-health events and heatwave events as seen in UK-CRI data, expected to also see an increase in related health issues with impacts to local health services.</p> | Possible (3) | Moderate (3) | 9  | Likely (4)   | Moderate (3) | 12 | Almost certain (5) | Moderate (3) | 15           | UK Climate Risk (2021) - Health and social care. Greengage, n.d.   |
| 39 | H8  | Risks to health from vector-borne disease                 |                        |   |              |              |    |              |              |    |                    |              | Not assessed | Not assessed   |
| 40 | H9  | Risks to food safety and food security                    |                        |   |              |              |    |              |              |    |                    |              | Not assessed | Not assessed   |
| 41 | H10 | Risks to water quality and household water supplies       | Water scarcity         | <p>Drought reduces the volumes of water within the chalk aquifer; when rainfall events do occur, these can carry high concentrations of pollutants like nitrates from roads and farms. Potential for water restrictions to be implemented by Southern Water. The company's Drought Plan 2019 states these are expected to occur at a return period of 1 in 10 and 1 in 20 years. An Emergency Drought Order to restrict water use would only occur in a civil emergency (&gt;1 in 500 years). The WRMP develops a plan to ensure the impacts of climate change and increasingly extreme droughts are appropriately</p>  | Unlikely (2) | Major (4)    | 8  | Possible (3) | Major (4)    | 12 | Possible (3)       | Major (4)    | 12           | Southern Water's Drought Plan 2019   |
|    |     |   | Saline intrusion       | <p>The SDNP CAP (2016) states a medium risk of saltwater intrusion causing increased salinity of both surface and groundwater in coastal areas, impacting the quality and availability of drinking water supplies in coastal areas. This is currently managed by preferential pumping of coastal boreholes. Source: <a href="https://www2.bgs.ac.uk/groundwater/waterResources/SouthDowns.html">https://www2.bgs.ac.uk/groundwater/waterResources/SouthDowns.html</a>.</p>  | Unlikely (2) | Major (4)    | 8  | Possible (3) | Major (4)    | 12 | Possible (3)       | Major (4)    | 12           | South Downs National Park (2016): Climate Change Adaptation Plan   |
| 42 | H11 | Risks to cultural heritage                                | Surface water flooding | <p>Of the 17 key cultural sites identified by BHCC, 29% are exposed to present-day 1 in 100 year flood events. This increases to 41% when the flood event magnitude is increased by either 30% or 40%, as a proxy for the projected increased intensity of heavy rainfall events under climate change. Potential economic impacts from damage to key cultural assets</p>  | Likely (4)   | Major (4)    | 15 | Likely (4)   | Major (4)    | 15 | Almost certain (5) | Major (4)    | 20           | GIS: SW Flooding 1in100; SW Flooding 1in100plus30PC; SW Flooding 1in100plus40PC - for Cultural Buildings of Interest |
|    |     |   | Coastal flooding       | <p>Of the 17 key cultural sites identified by BHCC, only 1 (Brighton Palace Pier) is identified as vulnerable to coastal flooding, using the EA maps. Note these maps were produced using a defended scenario.</p>  | Unlikely (2) | Major (4)    | 8  | Unlikely (2) | Major (4)    | 8  | Unlikely (2)       | Major (4)    | 8            | GIS: Coastal flooding 1in100; Coastal flooding 1in1000 - for Cultural Buildings of Interest                          |
|    |     |   | Groundwater flooding   | <p>Of the 17 key cultural sites identified by BHCC, 71% lie in areas at medium risk of GW flooding (where the water table is between 0.5 and 5m below ground levels). None are within the high-risk zone.</p>   | Likely (4)   | Major (4)    | 15 | Likely (4)   | Major (4)    | 15 | Likely (4)         | Major (4)    | 15           | GIS: GW flooding 0.5-5m and GW flooding 0.025-0.5m - for Cultural Buildings of Interest                              |

|    |  |     |   |                        |  |                       |              |    |                       |              |    |                       |              |    |  |
|----|--|-----|---|------------------------|--|-----------------------|--------------|----|-----------------------|--------------|----|-----------------------|--------------|----|--|
|    |  |     |   | High temperatures      | Higher temperatures can cause overheating of buildings and places. Older or less well-maintained properties may be more vulnerable to heat damage. Increasing temperatures can also affect visitor numbers, frequency and behaviours. As shown in the UHI modelling results, the risk of overheating is most acute for those buildings in the city centre including Duke of York's Cinema.   | Possible (3)          | Moderate (3) | 9  | Possible (3)          | Moderate (3) | 9  | Possible (3)          | Moderate (3) | 9  | UK Climate Risk (2021) - Cultural heritage.  |
|    |  |     |   | High temperatures      | The UK Climate Risk Sector briefing states that it has been estimated that up to 90% of hospital wards could be at risk from overheating due to their design. The high density of equipment which produce a lot of waste heat energy, make hospitals a particularly hot building typology. Those constructed in the 1960s and 1970s are at particular risk. <b>Positively, the UHI modelling results show that medical facilities in the city broadly avoid the hottest areas of the city, as identified from UHI modelling.</b> The demographics of many hospital residents are particularly vulnerable to overheating - those aged 65+, with chronic and severe illness and infants. | Possible (3)          | Major (4)    | 12 | Likely (4)            | Major (4)    | 15 | Likely (4)            | Major (4)    | 15 | UK Climate Risk (2021) - Health and social care. Greengage, n.d.   |
|    |  |     |   | Surface water flooding | 24% of all medical facilities within B&H are exposed to present-day 1 in 100 year flood events. This increases to 32% when the flood event magnitude is increased by 30%, and 34% when increased by 40%, as a proxy for the projected increased intensity of heavy rainfall events under climate change.   | Possible (3)          | Major (4)    | 12 | Likely (4)            | Major (4)    | 15 | Likely (4)            | Major (4)    | 15 | GIS: SW Flooding 1in100; SW Flooding 1in100plus30PC; SW Flooding 1in100plus40PC - for Medical Care Buildings |
|    |  |     |   | Coastal flooding       | From the mapping analysis, no healthcare facilities have been found to be exposed to coastal flooding, using the EA maps. Note these maps were produced using a defended scenario.   | Almost impossible (1) | Major (4)    | 4  | Almost impossible (1) | Major (4)    | 4  | Almost impossible (1) | Major (4)    | 4  | GIS: GW flooding 0.5-5m and GW flooding 0.025-0.5m - for Medical Care Buildings                              |
|    |  |     |   | Groundwater flooding   | 4% of all medical facilities in B&H lie within the medium risk GW extent. 2% lie within the high risk area.  | Unlikely (2)          | Major (4)    | 8  | Unlikely (2)          | Major (4)    | 8  | Unlikely (2)          | Major (4)    | 8  | GIS: Coastal flooding 1in100; Coastal flooding 1in1000 - for Medical Care Buildings                          |
| 43 |  | H12 | Risks to health and social care delivery          | Surface water flooding | 15% of all education facilities within B&H are exposed to present-day 1 in 100 year flood events. This increases to 21% when the flood event magnitude is increased by 30%, and 23% when increased by 40%, as a proxy for the projected increased intensity of heavy rainfall events under climate change.   | Possible (3)          | Major (4)    | 12 | Possible (3)          | Major (4)    | 12 | Possible (3)          | Major (4)    | 12 | GIS: SW Flooding 1in100; SW Flooding 1in100plus30PC; SW Flooding 1in100plus40PC - for Education Buildings    |
|    |  |     |   | Coastal flooding       | From the mapping analysis, no education facilities have been found to be exposed to coastal flooding, using the EA maps. Note these maps were produced using a defended scenario.  | Almost impossible (1) | Major (4)    | 4  | Almost impossible (1) | Major (4)    | 4  | Almost impossible (1) | Major (4)    | 4  | GIS: GW flooding 0.5-5m and GW flooding 0.025-0.5m - for Education Buildings                                 |
|    |  |     |   | Groundwater flooding   | From the mapping analysis, 29% of education buildings are within areas of medium (23%) or high (6%) risk of GW flooding. It is not known whether these buildings have basements, which is a critical component of building vulnerability to GW flooding. Basements are commonly used for storing key electrical and heating assets in school buildings.  | Possible (3)          | Moderate (3) | 9  | Possible (3)          | Moderate (3) | 9  | Possible (3)          | Moderate (3) | 9  | GIS: Coastal flooding 1in100; Coastal flooding 1in1000 - for Education Buildings                             |
| 44 |  | H13 | Risks to education <del>and prison services</del> | Water scarcity         | Direct impacts to education buildings from water scarcity is minimal, such as temporary use bans and non-essential use bans affecting watering of vegetation on school grounds. While risk is low, important that everyone plays their part in championing water efficiency to reduce the pressure on water supplies to help protect the natural environment.  | Almost impossible (1) | Minor (2)    | 2  | Unlikely (2)          | Minor (2)    | 4  | Unlikely (2)          | Minor (2)    | 4  | Greater London Authority (2023)  |

|    |    |   |   |  |                       |  |            |                       |                   |            |                       |                   |                    |   |              |                                 |
|----|----|---|---|--|-----------------------|--|------------|-----------------------|-------------------|------------|-----------------------|-------------------|--------------------|---|--------------|---------------------------------|
|    |    |   |   |  | High temperatures     | The age, design, and fabric of school buildings present particular risk factors during hot weather conditions. A recent study conducted by Arup for the Greater London Authority found 78% of 60 identified schools across London have already experienced overheating issued during summer term, with impacts to learning and wellbeing. <b>As shown in the UHI modelling results, educational facilities in the city are broadly located outside the very hottest parts of the city, however some schools are in relatively hot areas, such as Elm Grove Primary School and Bellerbys College.</b> | Likely (4) | Moderate (3)          | 12                | Likely (4) | Moderate (3)          | 12                | Almost certain (5) | Moderate (3)  | 15           | Greater London Authority (2023) |
| 45 | B1 | Risks to businesses from flooding   | Surface water flooding                          | Flooding of access routes into Fairway Business Park, Conway Street Industrial Estate, Goldstone Retail Park as well as some key retail streets in Brighton City Centre.   | Likely (4)            | Major (4)  | 15         | Likely (4)            | Major (4)         | 15         | Likely (4)            | Major (4)         | 15                 | GIS: SW Flooding 1in100; SW Flooding 1in100plus30PC; SW Flooding 1in100plus40PC - for Education Buildings |              |                                 |
|    |    |   | Groundwater flooding                            | There is no direct evidence of groundwater flooding in Brighton City Centre and surrounding areas. However, Business Park both within the 'high risk' GW flood extent. Other GW flood hotspots around Falmer and Patcham can also have impacts to businesses, especially as they intersect the A27.  | Likely (4)            | Major (4)  | 15         | Likely (4)            | Major (4)         | 15         | Likely (4)            | Major (4)         | 15                 | GIS: GW flooding 0.5-5m and GW flooding 0.025-0.5m - for Education Buildings                              |              |                                 |
| 46 | B2 | Risks to businesses and infrastructure from coastal change from erosion, flooding and extreme weather events                          | Coastal flooding                                | Potential impacts to Shoreham Port, as identified from using EA maps.  | Possible (3)          | Major (4)  | 12         | Possible (3)          | Major (4)         | 12         | Possible (3)          | Major (4)         | 12                 | EA maps   |              |                                 |
|    |    |   | Coastal erosion                                 | The Environment Agency's NCERM approach along the B&H coast is to 'hold the line' to avoid any coastal erosion. However the Brighton Marina to Newhaven Western Harbour Arm Plan suggests there are sections along the coastline which are uneconomic to actively defend, leaving properties at-risk Lewes District Council and Brighton and Hove City Council (2016). The economic case is significantly driven by the presence or absence of the A259. Brighton Marina cliff top recession reports indicate the cliff between has receded at an average annual rate of 0.026 metres per year, or 2.6cm per year. | Almost impossible (1) | Minor (2)  | 2          | Unlikely (2)          | Moderate (3)      | 6          | Unlikely (2)          | Moderate (3)      | 6                  | Stakeholder workshop  |              |                                 |
|    |    |   | Extreme weather events (storms, heavy rainfall) | Potential coastal storm impacts to Shoreham Port and tourism along seafront, as identified from using EA maps.   | Possible (3)          | Moderate (3)   | 9          | Likely (4)            | Moderate (3)      | 12         | Likely (4)            | Major (4)         | 15                 | EA maps   |              |                                 |
| 47 | B3 | Risks to business from water scarcity   | Water scarcity                                  | Direct impacts to businesses from water scarcity is minimal as non-household Southern Water customers are not affected by restrictions. While risk is low, important that everyone plays their part in championing water efficiency to reduce the pressure on water supplies to help protect the natural environment.  | Almost impossible (1) | Insignificant (1)  | 1          | Almost impossible (1) | Insignificant (1) | 1          | Almost impossible (1) | Insignificant (1) | 1                  | Southern Water's Drought Plan 2019  |              |                                 |
| 48 | B4 | Risks to finance, investment and insurance including access to capital for businesses   |   |  |                       |  |            |                       |                   |            |                       |                   |                    | Not assessed  | Not assessed |                                 |
| 49 | B5 | Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments | High temperatures                               | The impacts of extreme heat are likely to vary widely across business sectors or geographies, depending on factors such as the type of work, whether work is indoors or outdoors, and the local built environment and infrastructure. Given the dominance of summer tourism and event income to Brighton and Hove, impact is considered major. <b>Air temperatures in the city centre and along the seafront are moderated by coastal sea breezes, although surface temperatures remain higher due to the urban heat island effect.</b>  | Possible (3)          | Major (4)  | 12         | Almost certain (5)    | Major (4)         | 20         | Almost certain (5)    | Major (4)         | 20                 | UK Climate Risk (2021) Business   |              |                                 |
|    |    |   | Extreme weather events (storms, heavy rainfall) | The impacts of extreme weather events on employee productivity due to infrastructure disruptions are likely to vary widely across business sectors or geographies, depending on factors such as the type of work, whether work is indoors or outdoors, if the employees can work from home and the local built environment and infrastructure. Therefore, making it hard to quantify.  | Possible (3)          | Major (4)  | 12         | Likely (4)            | Major (4)         | 15         | Likely (4)            | Major (4)         | 15                 | UK Climate Risk (2021) Business   |              |                                 |

Business and Industry

|    |                          |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |              |
|----|--------------------------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|--------------|
| 50 |                          | B6   | Risks to business from disruption to supply chains and distribution networks                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 51 |                          | B7   | Opportunities for business from changes in demand for goods and services                         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 52 | International Dimensions | ID1  | Risks to UK food availability, safety, and quality from climate change overseas                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 53 |                          | ID2  | Opportunities for UK food availability and exports from climate impacts overseas                 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 54 |                          | ID3  | Risks and opportunities to the UK from climate-related international human mobility              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 55 |                          | ID4  | Risks to the UK from international violent conflict resulting from climate change overseas       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 56 |                          | ID5  | Risks to international law and governance from climate change that will impact the UK            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 57 |                          | ID6  | Opportunities from climate change (including Arctic ice melt) on international trade routes      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 58 |                          | ID7  | Risks associated with international trade routes   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 59 |                          | ID8  | Risk to the UK finance sector from climate change overseas                                       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 60 |                          | ID9  | Risk to UK public health from climate change overseas  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |
| 61 |                          | ID10 | Systemic risk arising from the amplification of named risks cascading across sectors and borders |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Not assessed | Not assessed |