# Climate-driven subsidence risks threaten UK heritage and housing future



Subsidence cases in the UK are rising sharply, increasingly blamed on climate change and its impact on soil conditions, particularly in areas with shrinkable clay, such as London clay. This geological vulnerability is causing serious risks to buildings, especially heritage sites, where conservation poses complex challenges due to the lack of precedent in coping with such climate-driven damage.

A specific case highlighting these challenges is St John the Evangelist Church in Upper Norwood, London. This Grade II\* listed Gothic Revival building, constructed primarily from red brick on London clay, is currently suffering from subsidence caused by soil expansion and shrinkage. Structural cracks have been significant enough to prompt a major restoration effort. According to the Church of England, a £700,000 restoration project has been initiated, funded by grants, to underpin the south wall and stop further structural decline. The work involves underpinning the tower and external walls of the south aisle and Lady Chapel, aiming to secure the church’s future and prevent further subsidence damage.

Subsidence risks across London and the broader UK are projected to worsen considerably in the coming decades. A report highlights that over 40% of London homes could face subsidence by 2030, driven by extreme weather patterns including heatwaves, droughts, and intense rainfall. The dense housing and clay soil composition of the capital make it particularly susceptible. This risk is expected to escalate even further, with ill effects potentially affecting 57% of London properties by 2070. Nationally, the British Geological Survey warns that the number of UK homes at high or extreme risk of "shrink-swell" subsidence could rise from 3% in 1990 to 6.5% by 2030, and reach over four million homes—around 10% of the housing stock—by 2070.

The increase in subsidence damage is already reflected in insurance claims. The Association of British Insurers recorded subsidence-related claims amounting to £153 million in just the first half of 2025, with nearly 9,000 households receiving support and average payouts exceeding £17,000. This surge underscores the growing financial and social impacts of climate change on property stability, especially in regions built on shrinkable clay soils.

Research and ongoing projects, such as the investigation into St John the Evangelist Church, are using physically-based models to analyse structural movements and the precise causes of soil-induced subsidence. This scientific approach aims to help stakeholders devise effective adaptation plans to protect heritage buildings and more general housing stock against future climate-related subsidence risks.

The scale of the issue is vast, particularly in London and the South East of England, where clay shrinkage subsidence has become an increasingly familiar challenge. In recent years, unprecedented hot summers, notably in 2018 and 2022, led to tens of thousands of subsidence insurance claims. Projections by industry experts predict that claim volumes could rise by over 57% by 2070 in London alone, with associated financial consequences potentially reaching billions of pounds.

The plight of heritage sites like St John the Evangelist Church underscores the urgent need for proactive measures. They face difficult balancing acts between preserving historic fabric and addressing the new threats posed by climate change. This situation exemplifies the broader challenge posed to the UK's built environment as climate change accelerates soil movement and infrastructure degradation, demanding innovative engineering solutions and sustained investment.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.ice.org.uk/events/recorded-lectures/climate-change-and-subsidence-risks-a-case-study-approach), [[2]](https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html), [[3]](https://news.sky.com/story/climate-change-millions-of-homes-at-risk-of-subsidence-by-2070-warns-british-geological-survey-12310644), [[7]](https://dwfgroup.com/en/news-and-insights/insights/2024/10/subsidence-fixing-the-foundations)
* Paragraph 2 – [[1]](https://www.ice.org.uk/events/recorded-lectures/climate-change-and-subsidence-risks-a-case-study-approach), [[4]](https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/protecting-church-subsidence), [[6]](https://www.entrust.org.uk/projects/st-john-the-evangelist-upper-norwood-underpinning/)
* Paragraph 3 – [[2]](https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html), [[3]](https://news.sky.com/story/climate-change-millions-of-homes-at-risk-of-subsidence-by-2070-warns-british-geological-survey-12310644)
* Paragraph 4 – [[5]](https://www.standard.co.uk/business/money/england-b1242419.html)
* Paragraph 5 – [[1]](https://www.ice.org.uk/events/recorded-lectures/climate-change-and-subsidence-risks-a-case-study-approach), [[6]](https://www.entrust.org.uk/projects/st-john-the-evangelist-upper-norwood-underpinning/)
* Paragraph 6 – [[2]](https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html), [[7]](https://dwfgroup.com/en/news-and-insights/insights/2024/10/subsidence-fixing-the-foundations)
* Paragraph 7 – [[1]](https://www.ice.org.uk/events/recorded-lectures/climate-change-and-subsidence-risks-a-case-study-approach), [[4]](https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/protecting-church-subsidence), [[6]](https://www.entrust.org.uk/projects/st-john-the-evangelist-upper-norwood-underpinning/), [[7]](https://dwfgroup.com/en/news-and-insights/insights/2024/10/subsidence-fixing-the-foundations)

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## Bibliography

1. <https://www.ice.org.uk/events/recorded-lectures/climate-change-and-subsidence-risks-a-case-study-approach> - Please view link - unable to able to access data
2. <https://www.standard.co.uk/news/london/weather-london-heatwaves-climate-change-flooding-rain-drought-subsidence-b1171175.html> - A report warns that over 40% of London homes could face subsidence by 2030 due to extreme weather. The capital's clay soil, dense housing, and exposure to heat and drought make it especially vulnerable. Projections indicate that properties affected by subsidence will rise from 20% in 1990 to 43% by 2030 and 57% by 2070. The report emphasizes the need for immediate action to prepare for such climate risks.
3. <https://news.sky.com/story/climate-change-millions-of-homes-at-risk-of-subsidence-by-2070-warns-british-geological-survey-12310644> - The British Geological Survey warns that millions of UK homes are at risk of subsidence by 2070 due to climate change. Analysis shows that properties highly or extremely likely to suffer 'shrink-swell' will double from 3% in 1990 to 6.5% by 2030. By 2070, over four million properties (10% of the national total) risk being highly or extremely likely to face subsidence. London, with its clay-rich soils, is particularly vulnerable.
4. <https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/protecting-church-subsidence> - St John the Evangelist Church in Upper Norwood, London, has faced significant subsidence issues, leading to serious structural cracks. A £700,000 restoration project, funded by grants, has been initiated to underpin the south wall and secure the church's future. The project highlights the challenges of preserving heritage sites in the face of climate-induced subsidence.
5. <https://www.standard.co.uk/business/money/england-b1242419.html> - The Association of British Insurers (ABI) reports that subsidence-related insurance claims in the UK totalled £153 million in the first half of 2025. Nearly 9,000 households received support for subsidence damage, with an average payout of £17,264 per claim. The increase in claims underscores the growing impact of climate change on subsidence risks.
6. <https://www.entrust.org.uk/projects/st-john-the-evangelist-upper-norwood-underpinning/> - The 19th-century Grade II\* Listed Church of St John the Evangelist in Upper Norwood is undergoing a £758,056 underpinning project to address subsidence issues. The work includes underpinning the tower and external walls of the south aisle and Lady Chapel, aiming to halt further structural decline and secure the church's future.
7. <https://dwfgroup.com/en/news-and-insights/insights/2024/10/subsidence-fixing-the-foundations> - Clay shrinkage subsidence is increasingly affecting the South East of England, particularly London, where the geology consists of highly shrinkable clay soils. In 2018 and 2022, unprecedented hot summers led to 23,000 subsidence claims each year, with claim volumes expected to rise in London by 57.3% by 2070. The financial implication of this is estimated to be around £1.9 billion.