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Geohazards and Infrastructure in Førde

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This poster is based on the task 'Geohazards and infrastructure in Førde', where the question is whether the hospital in Førde (existing complex and the wing under construction) is located in an area that is heavily prone to geohazards. Furthermore, mitigation efforts in response to any geohazards are highlighted.

Relevant technical reports from the planning and building process were used as a basis for the poster, as well as articles on flooding, quick clay and sedimentary processes in typical post-glacial Western Norwegian setting. Mapping of potential flooding and quick clay areas has been done in ArcGIS.

Førde is situated on a glaciofluvial delta in an area with several potential geohazards. Quick clay and flooding are the two hazards that are most prominent. They pose the largest risk and have the potential to cause the most destruction. Based on these potential dangers, measures have been taken to prevent potential hazards from being triggered.

Floodwalls and sheet piling has been constructed along the river to prevent flooding and the width of the river has been expanded to increase its capacity and keep the water below a desired level. Examples of such measures taken to prevent quick clay landslides are "Salt wells" – where salt is injected to the quick clay so that it does not turn from solid to liquid – and piling the building complex to bedrock. Construction of the hospital is made in an area that follows guidelines stating that retrogressive quick clay landslides do not form where the gradient is less than 1:1.15. In conclusion, it is difficult to construct critical infrastructure in Western Norway without assessing and mitigating any geohazard risks. With the mitigation efforts tied to the construction of the new wing to Førde Hospital, it satisfies current acceptable risk scenarios of return periods for flooding and quick clay landslides.