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Geotechnical Engineering Application in Expansive Soils Foundation Design in Sudan Context: Morocco

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Abstract

Expansive soils are common in arid regions such as Sudan and Morocco, causing foundation instability in construction projects. A review of existing geotechnical literature on expansive soils was conducted alongside field tests at a selected site in Sudan. Field data indicated that expansive soils could expand up to 15% during wet seasons, affecting foundation stability. Geotechnical engineering methods can effectively mitigate foundation instability caused by expansive soils. Designers should incorporate soil swelling considerations into their design processes for future projects in similar environments. Expansive Soils, Geotechnical Engineering, Foundation Design, Sudan The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geotechnical Engineering, Expansive Soils, Foundation Stability, Soil Mechanics, Case Study, Site Investigation, Risk Assessment*

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