Effect of the amplification factor on seismic stability of expanded municipal solid waste landfills using the pseudo-dynamic method

基于拟动力方法的增强型市政固体废物垃圾填埋场中放大倍数对于抗震稳定性的影响

Citation: Xiao-bo Ruan, Shu-lin Sun, Wen-liang Liu, 2013. Effect of the amplification factor on seismic stability of expanded municipal solid waste landfills using the pseudo-dynamic method. *Journal of Zhejiang University-SCIENCE A (Applied Physics & Engineering),* 14(10):731-738.
[doi:10.1631/jzus.A1300041]

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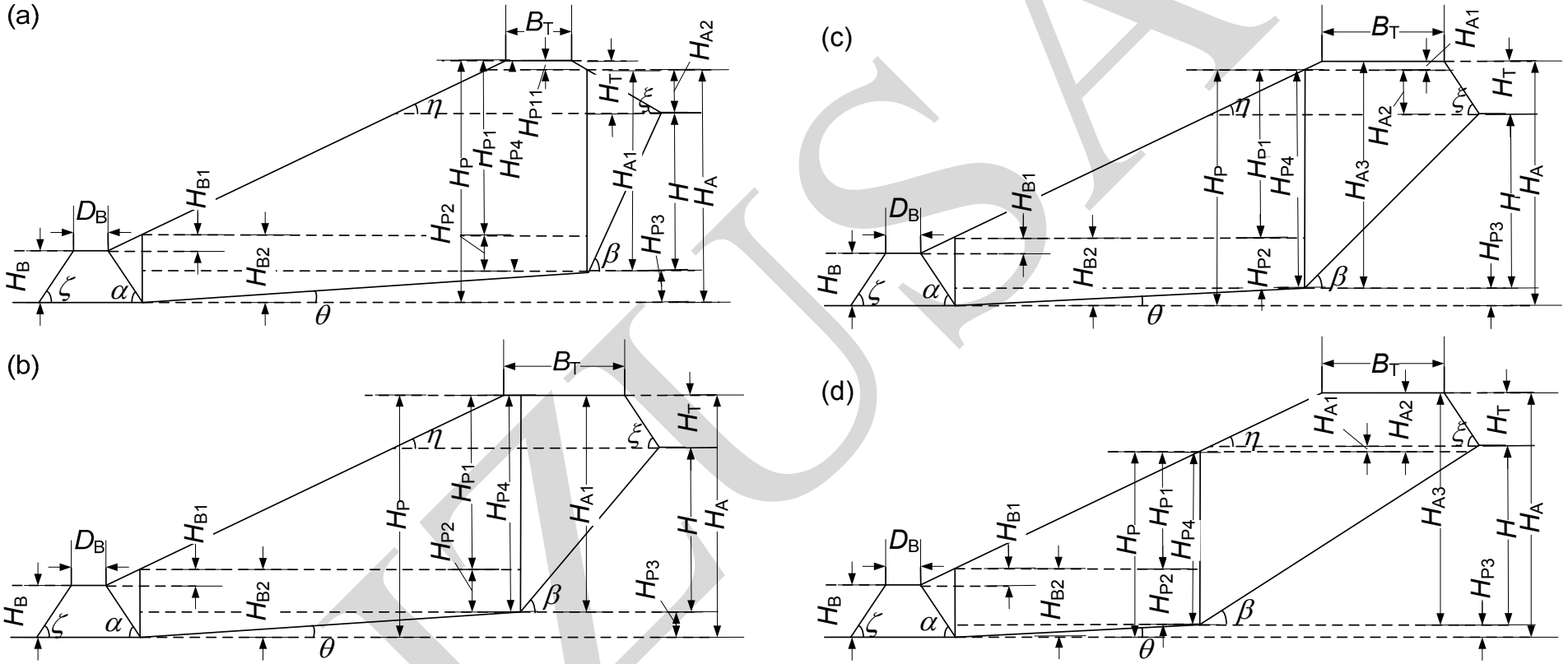
- In this paper, the pseudo-dynamic method was used to calculate the average safety factor for the expanded landfill with a trapezoidal berm based on under-berm failure conditions, considering the different landfill cells (see Fig.1.).

- The period of lateral shaking for the most unfavorable condition was obtained with different seismic conditions.

- With the increase of the amplification factor, the influence of the vertical seismic coefficient, height of berm, or angle of back slope of the berm on the seismic stability of the expanded landfill is weakened. On the contrary, the influence of the horizontal seismic coefficient on the seismic stability of the expanded landfill is strengthened.

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- The average safety factor generally decreases with the increase of the amplification factor. The reasonable consideration of the amplification factor is therefore conducive to seismic design of the expanded landfill.



- Fig. 1 Geometric factors of the expanded landfill cell for different conditions (a)$H\cot\beta<H_T\cot\xi$; (b)$H_T\cot\xi\leqslant H\cot\beta<B_T+H_T\cot\xi$; (c) $B_T+H_T\cot\xi\leqslant H\cot\beta\leqslant B_T+H_T\ (\cot\xi+\cot\eta)$; (d) $H\cot\beta>B_T+H_T\ (\cot\xi+\cot\eta)$

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