

Geotechnical Embankment Stability Analysis



BACKGROUND

Proposed projects that would alter or relocate any part of a levee may require embankment stability analysis. The analysis and report documenting the findings should be certified by a Professional Engineer and submitted to MCD.

PROJECT REQUIREMENTS

Geotechnical Exploration

Geotechnical/subsurface exploration, analysis, and documentation may be required to develop parameters for the embankment stability analysis and are the responsibility of the project owner.

Stability Analysis

- Embankment and slope stability analyses must be performed using OPF and effective FEMA base flood water surface elevations.
- Embankment stability and slope stability analyses should follow guidelines of U.S. Army Corps of Engineers EM 1110-2-1902, "*Slope Stability*" (2003).
 - Four load cases (if applicable) need to be evaluated for each independent levee segment
 - End-of-construction
 - Steady-state seepage
 - Sudden drawdown
 - Seismic
 - Minimum Allowable Factors of safety can be found in EM 1110-2-1913, Table 6-1b

Material Specifications

Materials used for embankment construction must conform to MCD Land Use Policy, Appendix V "*Material Specifications*"

- Fill material should be naturally occurring or blended clayey material.
- Soil that are classified as CH and CL according to ASTM D2487 and USCS are suitable for fill
- Soils must be clean, free of organic masses, concrete, and other debris.
- Environmental and inorganic composition testing may be required.

QUESTIONS

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