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Civil Engineering

Design Gravity dam for the non- overflow section of a gravity dam with the following data for an extreme loading condition:

- I. R. L. of deepest foundation level 100 m
- II. R. L. of roadway at the top of dam 161 m
- III. Full reservoir level 152 m
- IV. Design flood level 155 m
- V. Maximum tail water level 106.9 m
- VI. Minimum tail water level 100 m
- VII. Maximum deposited silt level on the upstream 105.3 m.
- VIII. Location of centre of drainage gallery from u/s face of dam 7 m
- IX. Roadway width at the top 6.1 m
- X. Downstream vertical face up to El. 154.28 m
- XI. Upstream face of dam vertical
- XII. Downstream face of dam 0.9 horizontal to 1.0 vertical
- XIII. Dry density of silt 1360 kg/m³
- XIV. Unit weight of concrete 25 KN/m³
- XV. Safe bearing capacity 1672 KN/m²
- XVI. Shearing resistance of concrete (average) 2060 KN/m²
- XVII. Shearing resistance of foundation (average) 1300 KN/m²
- XVIII. Minimum allowable shear friction factor under a. Normal loading = 5.0 b. Extreme loading = 4.0
- XIX. Maximum coefficient of sliding under Normal loading = 0.75
- XX. Horizontal seismic coefficient = 0.2
- XXI. Vertical seismic coefficient = 0.1
- XXII. Fetch distance 18 km
- XXIII. Average wind speed 25 m/s