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## OPTIMAL CROSS SECTION OF A TRAPEZOIDAL ROUND CORNERED CANAL

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## Abstract

The paper deals with the development of a conditions for the most economical trapezoidal section having round cornered at base by considering the total cost of canal in terms of excavation cost including free board area and lining cost with a provision for different unit cost of lining in base and on the sides. While formulating the condition for optimality the flow area is assumed constant as velocity of flow in the canal is predetermined from the consideration of permissible limits of velocity. However the cost of free board portion of canal section is considered as variable. While formulating the optimization problem the free board can be considered either discharge dependent as recommended by Indian standards or depth dependent as recommended by USBR. The condition developed in this paper can be conveniently used by practicing Engineers for the Design of trapezoidal canal section having round corners at base.

Key Words: Wetted Perimeter, Free Board, Excavation, Base Width.

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