

## A C K N O W L E D G E M E N T S

The thesis is the outcome of unceasing endeavour and continuous interaction between the author and his research guide Professor Piyush Parikh. To him the author shall ever be grateful for the invaluable direction in accomplishment of this work.

The author wishes to record his sense of gratitude to Secretary, Water Resources Department, Government of Gujarat, for granting permission to take up the doctoral research work. For the continuous encouragement during the period of research the author is indebted to Shri N.B. Desai, Director, Gujarat Engineering Research Institute (GERI).

Special acknowledgements are due to Prof. S.K. Damle, Prof. A.V. Shroff, Prof. R.M. Bhagia and Dr. K.R. Biyani, of Applied Mechanics Dept. for precious discussions during the research work. Special thanks are due to Prof. S.C. Patodi for the valuable advice from time to time while conducting finite element analysis.

Author wishes to express his deep obligations to Shri J.K. Patel and Shri L.M. Shah of GERI for valuable discussions. Shri N.C. Madnani, Shri S.C. Patel and Shri G.T. Patel deserve special appreciation for their help and co-operation during the present work.

The author is thankful to Shri Adi Karkaria for meticulous electronic typing work and to Shri A.G. Suthar for accurate drafting work.

Inexpressible are my sentiments to Mrs. Ramaben Parikh and Mrs. Smita Datir for bestowing moral strength throughout the work.

18th July 1989

U.D. DATIR