

AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
IRRIGATION AND HYDRAULICS DEPARTMENT

DEWATERING BY HORIZONTAL INFILTRATION GALLERIES

BY

MOHAMED ABD EL-KHALEK IBRAHIM

Research Assistant, Engineering Department, National Research Center.

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Supervised by

Prof.Dr.Mohamed El-Niazy Aly Hammad

Professor of Irrigation Design and Hydraulics

Faculty of Engineering, Ain Shams University

Prof.Dr. Mahmoud Abdellatef Mohamed

Professor of Irrigation Design and Hydraulics

Faculty of Engineering, Ain Shams University

Prof.Dr.Mohamed Abbas Rasheed

Professor of Agriculture and Soil Science

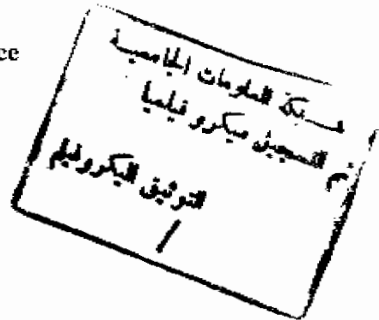
National Research Center

Dr. Mohamed Adel Garieb El-Gamal

Associate Professor of Soil Mechanics

National Research Center

Cairo, November 1996



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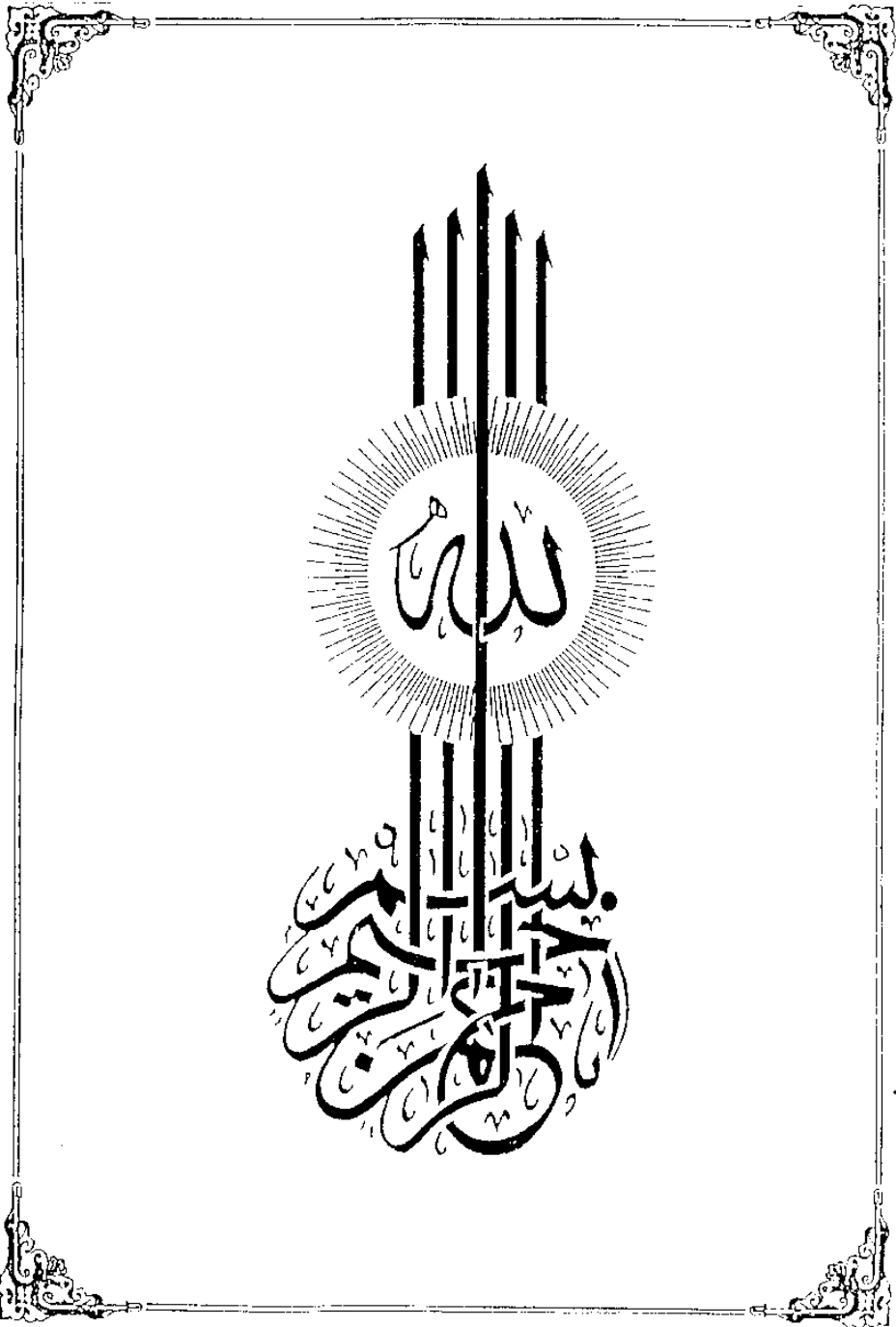
بسم الله الرحمن الرحيم

قاله المحمد رب السموات ورب الأرض رب العالمين

وله الكبرياء في السموات والأرض وهو العزيز

الحكيم

صدق الله العظيم



To My Parents

My Wife

My Son Ahmed

My Daughter Joka

My Brothers

My Sisters

We certify that we have read this thesis and that in our opinion it is fully adequate,
in scope and quality as a dissertation for the degree of Maser of Science.

EXAMINERS COMMITTEE:

Name, Title & Affiliation

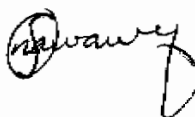
Signature

1-Prof. Dr. Mohamed Hamdy El-Kateb



*Professor of Irrigation and Structures Design
Irrigation and Hydraulics Department,
Faculty of Engineering, Cairo University.*

2- Dr. Osman Ali Mosa El-Nwawy



*Assoc Professor of Irrigation and Hydraulics
Irrigation and Hydraulics Department,
Faculty of Engineering, Ain Shams University.*

3-Prof. Dr. Mohamed El-Niazy Aly Hammad



*Professor of Irrigation and Structures Design
Irrigation and Hydraulics Department,
Faculty of Engineering, Ain Shams University.*

4-Prof. Dr. Mahmoud Abdellateef Mohamed



*Professor of Irrigation and Structures Design
Irrigation and Hydraulics Department,
Faculty of Engineering, Ain Shams University.*

STATEMENT

This thesis is submitted to Ain Shams University for the degree of Master of Science in Civil Engineering

The work included in this thesis was carried out by the author in the department of Irrigation and Hydraulics, Ain Shams University from January 1993 to November 1996.

No part of this thesis has been submitted for a degree of a qualification at any other University or Institution.

Date: / /1996

Name: Mohamed Abd El-Khalek Ibrahim
Signature

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LIST OF SYMBOLS

Symbol	Description
K	Coefficient of permeability.
g	Acceleration due to gravity.
u	Components of the velocity in x-direction.
v	Components of the velocity in y-direction.
ϕ	Velocity potential.
ψ	Stream Function.
(x, y)	Space perpendicular coordinates system.
ω	Complex potential= $\phi + i\psi$.
i	$(-1)^{1/2}$.
z	Analytic function = $x+iy$, Physical plane.
m	The strength of the drain.
Q	The discharge reaching unit length of the drain.
h	Maximum head of water above the drain.
C, C_1, C_2	Arbitrary constants.
$P(\eta, \xi)$	Pressure at general point(η, ξ) on the phreatic surface of water.
d	Drain diameter.
S	Horizontal distance from drain to the begining of the phreatic surface.
L	Spacing between two drains.
B, B_1, B_2	Arbitrary constants.
H	Height of water midway between two drains.
F_1, F_2, F_3	Local function, were defined in equations (3.43), (3.44), (3.45).
F	Local function, were defined in equation (3.54).
L_1	Total length = $L+2S$.
$p\%$	Perforation Ratio, The opening area to the total surface area of the drain.
Q'	Relative Discharge reaching unit length of drain per panel = Q/Kh .
d'	Relative drain diameter = d/h .
S'	Relative Distance = S/h .
L'	Relative spacing between two drains = L/h .

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