THE Major Project on

“COMPARATIVE STUDY OF STABILIZATION OF EXPANSIVE SOIL USING MICROSILICA AND RICE HUSK ASH”

Submitted in Partial Fulfillment for the Award of the Degree of

MASTER OF TECHNOLOGY

IN

CIVIL ENGINEERING

With Specialization in

GEOTECHNICAL ENGINEERING

By

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CERTIFICATE

This is to certify that the project report entitled "COMPARATIVE STUDY OF STABILIZATION OF EXPANSIVE SOIL USING MICROSILICA AND RICE HUSK ASH" is a bonafide record of work carried out by Rohit Ralli (2K12/GTE/14) under my guidance and supervision, during the session 2014 in partial fulfillment of the requirement for the degree of Master of Technology (Geotechnical Engineering) from Delhi Technological University, Delhi.

This is to certify that the above statement made by candidate is correct to the best of my knowledge.

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DECLARATION

I Rohit Ralli hereby certify that the work which is presented in the Major Project entitled "COMPARATIVE STUDY OF STABILIZATION OF EXPANSIVE SOIL USING MICROSILICA AND RICE HUSK ASH" is submitted in the partial fulfillment of the requirement for the award of degree of "MASTER OF TECHNOLOGY" with specialization in "GEOTECHNICAL ENGINEERING" at Delhi Technological University is an authentic record of my own work carried under the Supervision of **Prof. A.K. Gupta**. I have not submitted the matter embodied in this major project for the award of any degree or diploma also it has not been directly copied from any source without giving its proper reference.

ROHIT RALLI

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ABSTRACT

The engineering properties of expansive soils may need to be improved to make them suitable for construction using some sort of stabilization methods. Stabilization of pavement subgrade having expansive soils has traditionally relied on treatment with lime, cement, or waste materials such as microsilica. Most transportation agencies, however, are hesitant to specify these non-traditional stabilizers without reliable data to support vendor claims of product effectiveness. The main objective of this study is to investigate the effect of the engineering properties of expansive soils when blended with microsilica and Rice husk ash. Utilizing some of these materials as alternative materials for the construction in no doubt is a best solution. Hence an attempt is made to justify the use of microsilica and RHA for stabilization of expansive soil. This paper highlights the effectiveness of using these materials in the treatment of soil. Laboratory test results presents the influence of different mix proportions of microsilica and rice husk ash on compaction, strength and swelling nature properties of soil.

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LIST OF ABBREVIATION & SYMBOL

The principal symbol used in this thesis is presented for easy reference. A symbol is used for different meaning depending on the context and defined in the text as they occur.

S.No	Notation	Description
1	SF	Mirosilica
2	RHA	Rice husk ash
3	G	Specific gravity
4	LL	Liquid limit
5	PL	Plastic limit
6	PI	Plasticity index
7	C_u	Coefficient of curvature
8	C_c	Coefficient of uniformity
9	OMC	Optimum Moisture Content ,%
10	MDD	Maximum Dry Density, gm/cc
11	UCS	Unconfined Compressive strength,KN/m^2
12	CBR	California Bearing Ratio Test
13	DST	Direct Shear test
14	C	Unit Cohesion, KN/m^2
15	AR	Aspect Ratio
16	ϕ	Angle of Internal Friction
17	BCS	Expansive Soil
18	XRD	X-Ray Diffraction
19	SEM	Scanning Electron Microscope
20	M.C	Moisture Content
21	c	Intercept
22	M.C	Moisture Content

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