"FEASIBILITY OF GREY WATER TREATMENT WITH RIVER SAND AND POLYPROPYLENE PALL RINGS AS FILTER MEDIA"

PROJECT REPORT

Submitted by

KAVYA S S	4AL17CV025
M ADVITH JAIN	4AL17CV030
MITHUN GOWDA B	4AL17CV037
SHRESHTA SHETTY	4AL16CV112

In partial fulfilment of the requirements for the degree of

BACHELOR OF ENGINEERING

In

CIVIL ENGINEERING

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI-590018.

Under the Guidance of

Ms. KAVYASHREE S

Assistant Professor

AIET, Mijar

ALVA'S
Education Foundation

Department of Civil Engineering

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

2020-2021

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -
574225 KARNATAKA

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "**FEASIBILITY OF GREY WATER TREATMENT WITH RIVER SAND AND POLYPROPYLENE PALL RINGS AS FILTER MEDIA**" has been successfully completed by

KAVYA S S	**4AL17CV025**
M ADVITH JAIN	**4AL17CV030**
MITHUN GOWDA B	**4AL17CV037**
SHRESHTA SHETTY	**4AL16CV112**

The bonafide students of Department of Civil Engineering ,Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI** during the year 2021. It is certifiedthat all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of seminar work prescribed for the Bachelor of Engineering Degree.

Ms. KAVYASHREE S
Project Guide

Dr. H AJITH HEBBAR
Head of the Department
H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Dr. PETER FERNANDES
Principal
PRINCIPAL
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225, D.K.

Name of the examiners **Signature with date**

1.
2.

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany a successful completion of any task would be incomplete without the mention of people who made it possible, success is the epitome of hard work and perseverance, but steadfast of all is encouraging guidance.

So, with gratitude I acknowledge all those whose guidance and encouragement served as beacon of light and crowned the effort with success.

I thank my project guide **Ms. KAVYASHREE S**, Assistant professor Department of Civil Engineering, who has been our source of inspiration. She has been especially enthusiastic in giving her valuable guidance and critical reviews.

The selection of this project topic as well as the timely completion is mainly due to the interest and persuasion of our **HOD, Dr. H Ajith Hebbar**, Department of civil engineering.

I sincerely thank, **Dr. H G Umeshchandra**, Associate Professor and Project coordinator, Department of civil engineering who has been the constant driving force behind the completion of the project.

I thank our beloved **Principal Dr. Peter Fernandes**, for his constant help and support throughout.

Also, I thank all the teaching and non-teaching staff of Department of civil engineering for the help rendered.

Finally I would like to thank my family and friends whose encouragement andsupport was invaluable.

KAVYA S S	**4AL17CV025**
M ADVITH JAIN	**4AL17CV030**
MITHUN GOWDA B	**4AL17CV037**
SHRESHTA SHETTY	**4AL16CV112**

ABSTRACT

There is an increase in scarcity of water with rapid population increase in urban areas giving reason for concern and the need for appropriate water management practices. Grey water recycling is emerging as a new trend in water management practices. Initiatives by the Urban Local Bodies have resulted attempting the grey water recycling in urban areas, flats and apartment and also in individual houses. A rational design is not available for grey water recycling unlike domestic waste water. Hence, a study was taken in Alva's Institute of Engineering and Technology (AIET), Shobhavana campus to evaluate the feasibility of treating grey water using river sand and poly propylene pall rings. The methodology involve designing, fabricating and installing a grey water treatment model in . Grey water treatment system installed in AIET food court consisted of anaerobic and aerobic treatment units. The system was monitored over a period of time to check the performance. The sampling of grey water was done weekly and the samples were analyzed for differ water quality parameters like pH, Total Suspended Solids, Total Dissolved Solids, Bio-Chemical Oxygen Demand, Chemical Oxygen Demand, Turbidity and nutrients. The grey water system with river sand Polypropylene Pall Rings as anaerobic and aerobic filter media was effective in removing the turbidity, Total Suspended Solids, Bio-chemical Oxygen Demand, Chemical Oxygen Demand and nutrients from the grey water sample to significant extent. It has shown moderate efficiency in removing Total Dissolved Solids compared to other parameters.

The system has an overall efficiency of 90% in removing pollutants from grey water. Hence the treated grey water can be used for gardening and flushing toilets. But further treatment is required for reuse in other purpose in urban house hold. Based on the studies carried out on laboratory scale model, a treatment system has been proposed to treat 500 l of grey water per day from urban house hold.