BUSITEMA UNIVERSITY

FACULTY OF ENGINEERING

DEPARTMENT OF WATER RESOURCES AND MINING ENGINEERING

Management of Siltation at the Water intake Structures on River Malaba:

(Acase of National Water and Sewerage Coporation-Tororo Area).

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Final year project presented to Department of Water Resources Engineering as a partial fulfillment for the award of Bachelor of Science in Water Resources Engineering of Busitema University

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ABSTRACT:

This final project report comprises of five chapters:-

Chapter one presents project location area, background to siltation management with specific emphasis on National Water and Sewerage Corporation Tororo District. The problem considered in this study is presented in the problem statement and the justification, objectives and scope of the study are also presented.

Chapter two discusses the details of the various aspects involved in siltation management with emphasis on the aspect of causes of silt; classification of silt and different silt management techniques around the world.

In relation to the objectives of this study, the methods and procedures that was followed in order to come up with the siltation management through identifying the causes,classifying,Quantifying silt ,designing Malaba Settling Basin system and identifying other management strategies for silt was also handled in chapter three.

Chapter four includes the predicates of the finding and Discussion of the results for management of silt at the water intake structure on River Malaba particularly at abstraction point of water work from National Water and Sewerage Corporation.

Chapter five entails the Recommendations and Conclusions obtained from the finding and the discussion for each of the Specific Objectives of the research project.

DECLARATION:

I **OCOROMAC DENIS** declare that the work in this project report was carried out in accordance with the Regulations of Busitema University. The work is original except where indicated by special reference in the text and no part of the project has been submitted to any other university for examination and degree award for Bachelor of Science in Water Resources Engineering in Uganda. Any views expressed in the project are those of the author and in no way represent those of Busitema University.

NAME:**Ocoromac Denis**

Date: 17th. JUNE. 2015

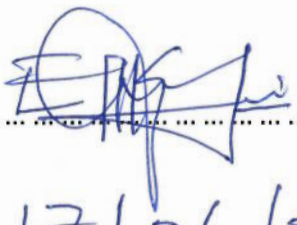
Signature: .....

APPROVAL:

This project report has been submitted to the Department of Water Resources Engineering of Busitema University for examination with the approval of the supervisors below.

Mr.MUYINGO EMMANUEL

(Main Supervisor)

Signature: ……  ……

Date: …… 17/06/2015 ……

Mr.MUGISHA MOSES

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I would like to thank the management of National Water and Sewerage Corporation-Tororo for granting my request to carry out the research about Management of siltation at the Water intake structures on River Malaba with A case of their area at the intake water works.

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List of Abbreviation:

ABBREVIATION	MEANING
MWE	Ministry of Water and Environment
NWSC	National Water and Sewerage Corporation
MOS	Management Of Siltation
ISO	International Standard of Organization
MWO	Meteorological Weather Organization
MC	Moisture Content
FAO	Food Agricultural Organization
USCS	Unified Soil Classification System
AASHTO	American Association of State Highway and Transportation Official
GPS	Global Position System
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity index
LS	Linear shrinkage
MDS	Malaba Desilt System
popn	population
m	meter
m^3	cubic
m/s	Meter per second
mm	millimeter
g	gram
%	percentage
cm	centimeter
BS	British standard
ml	milliliters
s	second
m/hr	Meter per hour
mm^2/s	Square millimeter per second
m^3/s	cumecs
Cu.m/day	Cubic meter per day
ETR	Equal Transit Rate
Kg/m^3	Density unit
km	kilometer
SH	Spot Height
CL	Center Line road
BOQ	Bill Of Quantity

FIGURES:

TABLES:

CHAPTER I:

1.0: Introduction:

This chapter describes the project area location, problem background, problem statement, objectives, scope, and significance or justification of the study.

1.1: Location of the Case study area:

The source of water abstracted is River Malaba. The Malaba water works is located 7km south east of Tororo on Northern bank of River Malaba 4 km due west off Malaba Road at Tororo Girls' School sign post.

The river has two major tributaries; one of its tributaries is in the highland of Western Kenya and the other on the Eastern slopes of Mt.Elgon.

Siltation deposition is the physical process whereby fine particle get into water bodies by suspension and it is one of the ways in which water gets polluted. It is also responsible for siltation of valley banks and can be avoided by providing a buffer land in the immediate and outer catchment areas of the river.

1.2: Problem background:

Portable water in Tororo was initially supplied by water development until 1988 when NWSC took over.

After take over, NWSC design a new line system with an intended output of 7400cu.m/day. However, this system today operates at an average output of 5000cu.m/day which is about 2400cu.m/day less of the design capacity

Generally, human activities (open and poor cultivation method, uncontrolled grazing, rudimentary mining and deforestation) along the river banks coupled with high intensity of rainfalls have cause the soil to be eroded and deposited as silts at specific locations along the open water courses.

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