

UNIVERSITY GRANTS
COMMISSION BAHADUR SHAH
ZAFAR MARG NEW DELHI-110 002

**PROFORMA FOR SUBMISSION OF INFORMATION AT THE TIME OF SENDING THE
FINAL REPORT OF THE WORK DONE ON THE PROJECT**

1. Title of the Project... Composite Foundation for flood prone areas subjected to scouring of foundations

2. NAME AND ADDRESS OF THE PRINCIPAL INVESTIGATOR

Prof S. M. Ali Jawaid, Civil Engg Deptt, M MM Univ of Technology, Gorakhpur

3. NAME AND ADDRESS OF THE INSTITUTION

M MM University of Technology, Gorakhpur, U.P., India

4. UGC APPROVAL LETTER NO. AND DATE... 41-195/2012(SR) dated 13 July 2012

5. DATE OF IMPLEMENTATION 24.08.2012

6. TENURE OF THE PROJECT..... R & D (Experimental).....

7. TOTAL GRANT ALLOCATED... Rs. 7.60 Lakh.....

8. TOTAL GRANT RECEIVED..... Rs 6.50 Lakhs.....

9. FINAL EXPENDITURE..... Rs. 6,92,898.32.....

10. TITLE OF THE PROJECT

Composite Foundation for flood prone areas subjected to scouring of foundations

11. OBJECTIVES OF THE PROJECT

The objectives are

- To study the scouring behaviour of group of short rigid composite foundation embedded in soil beds, subjected to varying flow condition experimentally.
- To predict the depth of scour experimentally and compared the observations with the available theoretical solutions.

12. WHETHER OBJECTIVES WERE ACHIEVED...yes

13. ACHIEVEMENTS FROM THE PROJECT

Indo-gangetic plains of India experience large floods regularly and are frequently subjected to flooding damage. The flood in the year 1998 in eastern Uttar Pradesh was the greatest since independence of India.

Jawaid & Madhav (2008) had proposed a suitable and economic foundation for alluvial

lowlands /flood prone areas christened it as "Composite rigid caisson with granular core (abbreviated as Composite Foundation).

Present study established the suitability of the proposed foundation under scour condition.

14. SUMMARY OF THE FINDINGS.....

The clear-water local scour depth at the Composite foundation, which was related to the components that are exposed to the flow in the channel, was studied experimentally for the steady clear-water condition as the clear water scour is maximum.

The experiment was performed for the different locations of the composite foundation model in the flume and for all the calculations, discharge (Q), approaching flow velocity (U) was kept constant for a particular run during the experiment. Pile diameter for every case was kept same.

The present experimental study focuses on the variation of the clear-water local scour depth (Ds) with time (t) for the case of steady flow. For the experimental setup, a composite foundation model composed of the pile groups was inserted in uniform, steady flows in wide rectangular channel with flat bed composed of uniform, non-ripple forming sand. The effect of time on the process of scouring at the composite foundation was investigated. It was concluded that the scour experiment at composite foundation model was done for six run (i.e. each run of 10 hours) may essentially connected with the essential uncertainties on the clear-water local scour depth.

A mathematical model for the variation of the scour depth around the composite foundation has been developed and from this model analysis, an equation for the prediction of clear-water local scour been developed. A dimensional analysis of scour depth variation with time and other parameters has been made around the composite foundation, and also on the basis of dimensional analysis of different parameters affecting scour depth around composite foundation has been made and scour predictors around the composite foundation has been developed.

After finding the predicted value of the clear-water scour depth and observe value of the clear-water scour depth, a regression analysis graphs have been prepared comparing these two values of clear-water scour depth around the composite foundation model. A satisfactory value of the regression coefficient (r) have been found which satisfies the experimental data and procedure of finding the clear-water scour depth at the composite

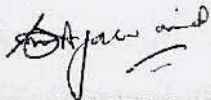
foundation model in the flood plain area.

15. CONTRIBUTION TO THE SOCIETY.....

Due to the drastically increasing population of country, a situation of scarcity of the land for the residential area have been taking place. So due to the scarcity of the land a huge mass of our country has caused the deforestation and gradually migrating towards the bank of the river in search of the residential land. So near the river bank a very high level flood occur and due to this building constructed near the river bank are not safe and damages occur due to the high scouring at the foundation level caused by the high floods. So my study about the prediction of scour depth at composite foundation in flood plain area focuses over the prediction of scour depth at composite foundation in flood plain area. So by properly designing the composite foundation in the flood plain area near the river bank can minimize the damages of the building foundations caused due to the high floods.

16. WHETHER ANY PH.D.ENROLLED/PRODUCED OUT OF THE PROJECT...One M Tech Completed

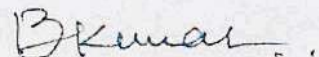
17. NO.OF PUBLICATIONS OUT OF THE PROJECT ...01(published)



(PRINCIPAL INVESTIGATOR)



(CO-INVESTIGATOR)


01.11.2021
(REGISTRAR)

(Seal)
Registrar
Madan Mohan Malaviya University of Technology
Gorakhpur - 273010 (U.P.)