This research is a comparative study on the effect of cylinder diameter(44,64,74 mm.) and rate of filtration (2,4,6 gpm/ft^2) upon the filterability index . The filter medium was 10 cm. deep of sand with effective size 0.84 mm. and Uniformity Coeffient of 1.73. The turbidities of raw water were 20 NTU and 100 NTU. The alum dosages were of various concentration (0,5,10,20,30,40 and 50 mg/l) and filtration time was 8 minutes. The filterability index were then calculated. For each experiment, the lowest filterability index and residual turbidity will be the best result.

The result of the study showed that the turbidity of raw water of both 20 NTU and 100 NTU,size of cylinder diameter and rate of filtration had effects on the filterability index with a significant difference at p-values < 0.0001. Interaction between

cylinder diameter and rate of filtration had an effect on the filterability index with a significant difference at p-values < 0.0001.

The conclusion of this study was that at the identical level of the filtration rate,the filterability index varied directly with cylinder diameter. Likewise, at the equal dimension of cylinder diameter the filterability index vary according to the filtration rate. Considering the common effects of cylinder diameter and rate of filtration at raw water turbidity of 20 NTU the filterability index increased with larger cylinder diameter and higher filtration rate. For raw water turbidity 100 NTU, the filterability index of filtration rate 2 gpm/ft^2 and 64,74 mm. of cylinder diameter yielded an indifferent filterability index. In addition, at the rate of filtration 4,6 gpm/ft^2 , it was observed that the filterability index increased with larger cylinder diameter and higher rate of filtration.