NEW CONTRIBUTIONS OF THE THESIS

Thesis title: **Research on ODM-2F filter medium for suspended solid removal by wastewater advanced treatment to reuse in urban**

Field of study: Infrastructure Engineering

Code Number: 62.58.02.10

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New contributions of the Thesis

1. Selecting a wastewater treatment process with the combination of organic matter and nutrient removal by MBBR and the process to remove suspended solid and dissolved sustances by ODM-2F filter medium to ensure water quality for for reuse of Fire Protection,Tree and Road Watering in urban areas

2. Experimental research results demonstrate the excellent suspended solid removal ability of the Dynamic medium and from those results, a calculation method for the ODM-2F filter facility in the wastewater advanced treatment has been established for reuse of Fire Protection, Tree and Road Watering in urban areas. Calculation method for ODM-2F filter facility including 5 steps:

- Determine the need for recycled wastewater according to the formula established in the thesis: $Q_{cnđt(III,tsd)} = 0,6125q_oN$ (for urban centers of grade III or higher) and $Q_{cnđt(IV,tsd)}=0,54q_oN$ (urban areas of grades IV and V)

(Note: q_o-Supplying water volume, l/person/day; N – Population, people);

+ Select filter cycle time according to the graph in Figure 4.3 which was established in the thesis, then determine the filter thickness by theoretical formulas;

+ Determine the filter area;

+ Determine the number of filter tanks;

+ Check the enhanced filter velocity;

+ Calculation of filtration and distribution systems.

3. Economic and technical calculations show that the solution of treating and reusing wastewater for the purpose of Fire Protection, Tree and Road Watering in urban areas is completely applicable and brings economic, social, social and environmental benefits