



УНИВЕРСИТЕТ ПО АРХИТЕКТУРА, СТРОИТЕЛСТВО И ГЕОДЕЗИЯ  
Международна юбилейна научна конференция „80 години УАСГ“

9 – 11 НОЕМВРИ 2022  
9 – 11 NOVEMBER 2022

International Jubilee Scientific Conference “80<sup>th</sup> Anniversary of UACEG”  
UNIVERSITY OF ARCHITECTURE, CIVIL ENGINEERING AND GEODESY

## GIS-BASED SELECTION OF A DETENTION/RETENTION POND LOCATION IN A SMALL UNGAUGED CATCHMENT

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*Keywords: GIS, detention/retention pond, ungauged catchment*

### ABSTRACT

The construction of detention/retention ponds is one of the main structural measures for reducing the flood risk. These ponds are usually located adjacent to watercourse, where water is purposely released on average once every few years while the land is used for different purposes in the meantime. There is a set of natural and man-made constraints when considering potential location for a detention/retention pond. A case study of the Gatrovačka river drainage catchment in the vicinity of the City of Niš, Serbia is considered for the demonstration of GIS-based analysis for the location of such ponds. The upper part of this small catchment is situated in natural environment, mid-part in rural and peri-urban, while its confluence is in the city. Potential locations for the detention/retention pond were analyzed for the case that the flood wave volume is: 1) retained and removed by infiltration, and 2) detained until the flood event is over and then gradually released back to the watercourse. The flood volume is estimated from the design hydrograph obtained by the methods for ungauged basins using design rainfall. As a part of the catchment analysis, the conditions that could prevent the implementation of the detention/retention pond were considered. Based on the public data available for the examined area in GIS environment, one location adequate for the detention pond is found.

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**THE ORGANIZING COMMITTEE  
CERTIFIES THE ATTENDANCE OF**

**B. Blagojević**

**WITH PRESENTATION ENTITLED**

*GIS-based selection of a detention/retention pond  
location in a small ungauged catchment*

at International Jubilee Scientific Conference  
"80th Anniversary of UACEG"  
9-11 November 2022, Sofia, Bulgaria

*On the behalf of the Organizing Committee*

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