Study on rainwater infiltration facilities in Chiba City		
Whole term	1998.10～1999.3	

(Purpose)

In Miyazaki drainage district located in the southern portion of Chiba City, the change of wet weather flow situation, such as increase of rainfall runoff volume and reduction of discharge arrival time, has proceeded with the increase of impermeable areas caused by urbanization.

This study was conducted to evaluate rainfall runoff controls by rainfall infiltration facilities in Miyazaki drainage district of about 230.61 ha as a countermeasure for flood control. For design of rainwater infiltration facilities, the map of suitable sites for infiltration was made based on “Technical Manual of Rainwater Infiltration Facilities” developed by this Institute, and the rainfall runoff control effects were evaluated by runoff simulation considering designed infiltration capacity.

(Result)

1. Consideration of suitable sites for infiltration

   A “map of suitable sites for infiltration” was created by comprehensively evaluating geography (geography clarification map), geological condition (subsurface geologic map), and groundwater level (groundwater level contour map) to select suitable sites for infiltration.
2. Examination of capacities of infiltration facilities

   Infiltration experiments were carried out in cylindrical facilities at five points. From experimental results, the unit infiltration flow by infiltration facilities was calculated by using the estimation method developed by the Association for Rainwater Storage and Infiltration Technology.
3. Arrangement plan of infiltration facilities

   Standards for establishment of “public infiltration inlet”, “infiltration inlet for gutter ”, “infiltration trench for gutter”, “infiltration inlet for housing area”, and “combination of infiltration inlet and infiltration trench for gutter” were developed.
4. Calculation of rainfall infiltration flow

   Rainfall infiltration flow of each block was given by multiplying the number of infiltration facilities by design infiltration capacity of each facility.
5. Calculation method for rainfall runoff volume

   Rainfall runoff volume was calculated using the modified RRL method
6. Evaluation of rainfall runoff control effects

   The peak runoff volume can be reduced to 76 % and 94 % in the case of introducing all infiltration facilities and the case of applying only combination of infiltration inlets and infiltration trench for gutter, respectively,

   Therefore, the overall and phased improvement projects, such as implementation of improvement projects about planning culvert sections, runoff control in reservoirs and examination of bypass pipe, as well as the establishment of rainwater infiltration facilities are required for flood damage control.

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Keywords	rainwater infiltration facility, infiltration facility map, rainfall control