

## Research on investigation (Urban flood relief measure promotion scheme investigation) about the secular fall of the infiltration capacity in the osmosis institution of rain water

Whole term

2004.11 ~ 2005. 3

### (Purpose)

At the *Particular Urban River* and the *Particular Urban River Valley* which were specified in the "*Particular Urban River Flood Damage Protection Legislation*" enforced in May, 2004, that "The amount of assignments is clarified on the occasion of installation of a rainwater osmosis institution in order to attain a retting measure target" was specified as new regulation about rain water osmosis institution installation.

This investigation arranges "the investigation example about the secular fall of infiltration capacity" and "the knowledge about the situation of an institution." By it, the subject in the case of expecting an osmosis institution in a sewerage rainwater exclusion plan and future directivity are clarified.

### (Outline of investigation)

#### 1. The collection and research of the report and reference about the evaluation technique of infiltration capacity and a secular fall

This investigation collected and arranged from various criteria and paper about the investigation example about the evaluation technique of infiltration capacity.

#### 2. The questionnaire about institution introduction

This investigation performed the questionnaire about some contents about the osmosis institution, infiltration capacity, and the maintenance, and frequency, to 34 public bodies that have the installation result of an osmosis institution in sewerage statistics (Recovery 25/34=74%).

The arrangement of the subject, accompanying introduction of institution, and a problem and future directivity.

### (Outline of result)

In order to include the infiltration capacity in a sewerage rainwater exclusion plan, it is necessary to quantify the capacity proper. This investigation was performed to the institution to which 1-20 years after completion passed.

#### 1. The necessity for the periodical maintenance by cleaning etc

When maintenances, such as cleaning, are not performed, infiltration capacity declines in almost all institutions. Five public bodies are conducting some follow-up survey. The decreasing rate of a rainwater osmosis basin became about 30 to 80% by progress of one year. Moreover, the decreasing rate of an osmosis trench became about 65 to 100%.

When maintenances, such as cleaning, are performed, although it changed with some conditions, infiltration capacity was recovered on almost all institutions, and the necessity for periodical maintenances, such as cleaning, has been confirmed.

#### 2. The evaluation technique of infiltration capacity

In calculation of the amount of unit osmoses, almost all the calculation formula indicated by the existing manual has applied the blinding coefficient as a parameter in connection with a secular fall.

In some institutions, although there was dispersion (As compared with a track record value being 0.1-2.9 ℓ /min, the design value was 1.3-41.5 ℓ /min) in a value according to terms and conditions as a result of comparing the infiltration capacity track record value and design value before cleaning the track record

value was comparable as the design value, or had the capacity beyond it.

### 3. Importance of the continued follow-up survey

The recovery situation of infiltration capacity changes with the kind of osmosis institution, installed place, surrounding situation, and maintenance methods.

In order to perform a confirmation and ex post facto evaluation of the validity of a plan, it is important to carry out the osmosis examination for grasping the effect of cleaning and the situation of infiltration capacity periodically.

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key words

Osmosis basin, Osmosis trench, Secular fall, Maintenance