

Joint Research on Planning, Design, and Technical Documentation of Large Retention Facility (Osaka City)

Year of Research

2007 • 2008

(Purpose)

In recent years, large retention facilities have been built in many large cities as combined sewage improvement measures or as inundation measures. In recent years it has become particularly difficult to secure plots of land necessary for constructing a large retention facility. Highly developed urban areas have many of existing underground installations, so in an increasing number of cases, the retention pipe has to be installed at a great depth.

Despite the urgent need for these large retention facilities to be built due to the nature of their purpose, technical standards or guidelines for their planning and design have not been prepared and technical matters have never been documented. As a result, no such written documents are available at present.

This research was, therefore, conducted based on the state of existing large retention facilities in Osaka City and on general technical matters concerning large retention facilities. Furthermore, this study was aimed at creating a planning concept for large retention facilities and preparing a technical document by compiling design, maintenance, and hydrological matters.

(Results)

Figure 2 shows the flow for this joint research.

This joint research inventoried the concepts, planning, and design conditions of a large scale retention facility, examined the constitution, layout, and structure of the facility, inventoried maintenance items, and studied the abstraction of challenges and proposal of countermeasures and summarized the findings in a technical manual.

In 2007, I collected and organized past documents, existing guidelines and manuals, and the results of past surveys and research conducted by Osaka City and the Japan Institute of Wastewater Technologies, and at the same time, performed a document survey of existing facilities and abstracted and inventoried challenges and studied proposed countermeasures based on the collected documents.

In 2008, I performed local fact-finding surveys at the locations of two retention facilities in Osaka-City and measured malodorous substances, the grain distribution of the deposited earth and sand and the strong heat weight loss.

And, based on the 2007 results, I collected technical matters concerning the planning and design of a large-scale retention facility as technical documentation and designed a model.

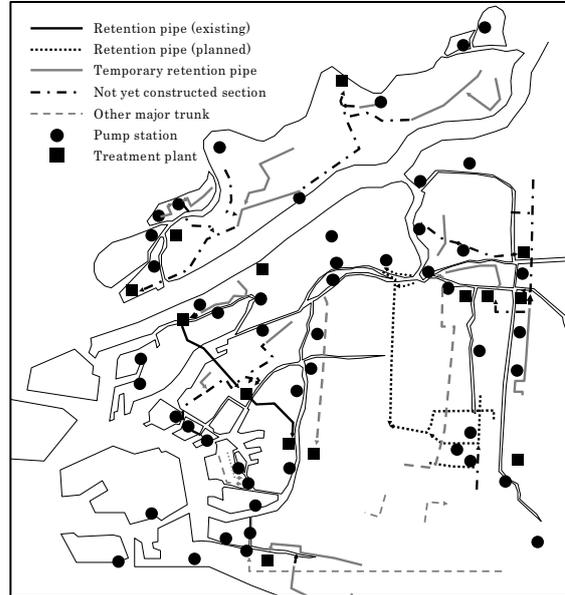


Figure 1 Major retention pipes in Osaka City
* Includes pipes for temporary retention use.

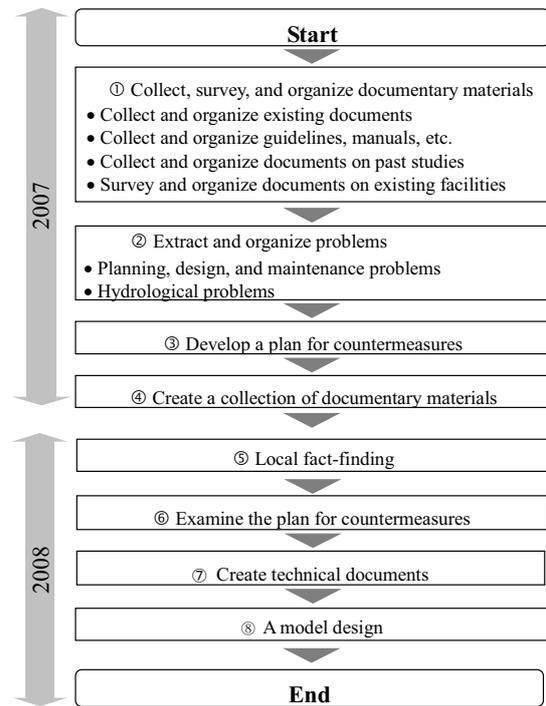


Figure 2 Flow of joint research

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Key words

Large retention facility