Study on the Project for the Quick Elimination of Sewer Unavailability in Ninohe City (Joubouji Treatment District)

Year of research	2007～2014	Construction of efficient sewage

(Purpose)

Ministry of Land, Infrastructure, Transport and Tourism (MLIT) launched the Project for the Quick Elimination of Sewer Unavailability in FY 2008. In the Project, social experiments to introduce new sewerage development methods possible to develop a sewerage system quickly and in relatively low cost have been implemented with due consideration to local characteristics.

This study is carried out to analyze and study data concerning performance evaluation of "quick piping (exposed piping of pipes and culverts)" and of "quick piping (utilization of street drains)" implemented in Joubouji Treatment area in Ninohe City and to work out a plan for items and methods to be verified to demonstrate the effectiveness of these technologies.

(Results)

Items to be verified and verification methods for quick piping (utilization of street drains) in this study are summarized in Table-1 and image diagram of quick piping (utilization of street drains) is illustrated in Figure-1. Moreover, further verification was to be carried out for quick piping (exposed piping) which had been generalized in FY 2009 and thus freeze-up of foundation as a new item to be verified was studied.

Table-1 Items and methods to be verified for quick piping (utilization of street drains)

Items to be verified	Verification methods
Construction cost	Estimate cost reduction effect by comparing construction cost with conventional method
O & M cost	Identify cost reduction effect by comparing O & M cost with conventional method
Water tightness at pipe joints	・Check by visual observation from downstream manhole by making pipes in existing drains (street drains) submerged ・Check whether bubbles are generated at pipe joints by visual observation
Bending of pipes	Check whether water is stagnant in pipes by CCTV investigation by making pipes in existing drains (street drains) submerged
Flow condition and change of temperature (freezing, temperature drop)	Check flow condition by visual observation at manhole located downstream end of area utilizing street drains Measure temperature for atmosphere, inside the pipes, and sewage at public inlet near the end of pipes installed in the existing drains
Construction period	Estimate construction period curtailment effect of new construction method by comparing construction period with conventional method
Alleviation of O & M due to citizen participation	Confirm the degree of citizens' cooperation concerning O & M rules established in the study by hearing *O & M rules such as identification and detection of abnormal conditions and method of reporting thereof were presented and explained to citizens before the commencement of service.
Impacts on living environment	Check the increase of sewage flowing noise due to piping in existing drains through questionnaires to citizens
O & M for existing drains	Check whether there is decrease of workability for O & M through hearing from administrators of existing drains and citizens around piping routes
Flow conditions in existing drains	Check whether there is change in flow conditions which may cause functional problems by hearing from administrators of existing drains and citizens around piping routes as well as by visual observation especially on rainy days.

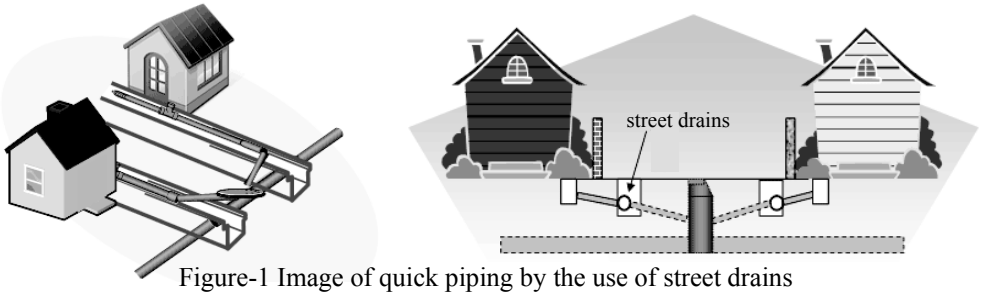

Figure-1 Image of quick piping by the use of street drains

(Future subject)
From FY 2011, effectiveness of quick piping (exposed piping) and quick piping (utilization of street drains) will be verified based upon verification plan described above.

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Key words	Sewerage quick project, quick piping (exposed piping), quick piping (use of street drains)