

Study on Sewerage Quick Project in Hioki City

Whole Term

Fiscal year 2009

Sewer development in unsewered area

(Purpose of the Study)

This study was carried out as Sewerage Quick Project to verify the effectiveness of “exposed sewer laying” and “pipe bedding by excavated soil” adopted in Hioki City.

(Results of the Study)

The verification results are shown in Table -1 and Table -2

Table-1 Result of Verification (Exposed Sewer Laying)

Items Verified	Results				
Cost Reduction	Scale	Conventional method	Proposed method (Exposed Sewer Laying)	Ratio of reduction	Remarks
	φ 150 54.5m	1,400 thousand yen (13 thousand yen/m)	950 thousand yen (1.7 thousand yen/m)	32%	Length of conventional method 110m
	• Maintenance is carried out through visual check in both cases (→ no reduction in maintenance cost)				
Material Characteristics	—(The pipe strength reduction, expansion and contraction was negative due to simple cover by soil and concrete).				
Flow temperature	• The flow temperature was observed about +3°C of the outside temperature. Minimum outside temperature was about 0°C and no freezing was observed.				
Water Quality (Decomposition)	• Hydrogen sulfide is not generated (decomposition) in summer condition (34°C)				
Construction period	Scale	Conventional method	Proposed method (Exposed Sewer Laying)	Ratio of reduction	
	φ 150 54.5m	28 days	14 days	50%	
	• Construction period was shortened due to cut down in pipe length compared to conventional method.				
Management Mitigation by Resident Participation	• Already finished (common knowledge provided to residents) .				
Impact to the Landscape	• The pipe is covered by soil and concrete therefore it matches with the landscape of path in the rice field and it does not give any impression that a drain pipe exists there.				
Impact to Living Environment (noise, odor emission)	• No complaints about foul smell or noise were received				

Table-2 Result of Verification (Pipe Bedding by Excavated Soil)

Items Verified	Results
Pipe Alignment	• No curve and bend which may cause stagnation were observed.
Flatness check of the foundation	• Displacement of 1cm at ground level and 4mm at bottom of pipe was observed, which can be caused by metrological conditions, therefore, adverse effects to pipe alignment was not observed.

(Conclusion)

No particular adverse effects were observed and satisfactory functioning, cost reduction and shortening of construction period by the adopted technologies were confirmed. Conventional coating in exposed sewer pipe laying was also confirmed to be effective to landscaping..

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Keywords

Sewerage Quick Project, Exposed Sewer Laying, Pipe Bedding by Excavated Soil