

ANNEX 21

NETWORK ANALYSIS FOR

IDENTIFICATION ON MINIMUM

REQUIREMENTS OF DISTRIBUTION PIPES

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Although the improvement of distribution network system is not included in the priority projects because of the demarcation of the study between JICA and AFD, to complete Alternative K-1 plan which is selected as the best alternative, installation of 24.2 km length of distribution mains are also required. Selection of priority projects and feasibility study for these facilities will be conducted by the AFD Study as mentioned above. Therefore, distribution pipelines are not included in the priority projects selected by the JICA Study.

The distribution network system is also indispensable for maintaining the function of the water supply system properly and should be implemented at the same time as the projects selected by the JICA Study. It should be noted that without strengthening the distribution network system, water supply system will not function properly even though production capacity will be increased and transmission system will be developed as results of the JICA Study. Therefore, it is strongly recommended that the minimum required distribution mains for the system are better to be installed at the same time as the expansion of treatment plant capacity and development of the transmission system for Vientiane Water Supply Development. This analysis was conducted to identify the minimum required distribution trunk mains.

In this analysis, minimum residual pressure at each junction is not maintained at 15m (1.5 kg/cm²), but average residual pressure should be more than zero meter. This means that water is available some time during a day but not always.

According to the results of the analysis on the minimum required distribution mains only for the 1st Stage, total length of the minimum required distribution mains is estimated at about 15.2 km as shown on Figure 1-1 and its estimated cost will be 3.57 million US Dollars as shown on Table 1-1. Detailed results of the analysis are as follows.

Table 1-1 Length and Cost for Minimum Required Distribution Mains

Dia (mm)	Length (km)	Cost (1000 US\$)
150	4.57	229
250	3.22	309
400	4.89	1,540
600	1.76	1,006
700	0.68	483
Total	15.12	3,567

Figure 1-1 Clear Water Transmission and Minimum Required Distribution Trunk Mains for Priority Project

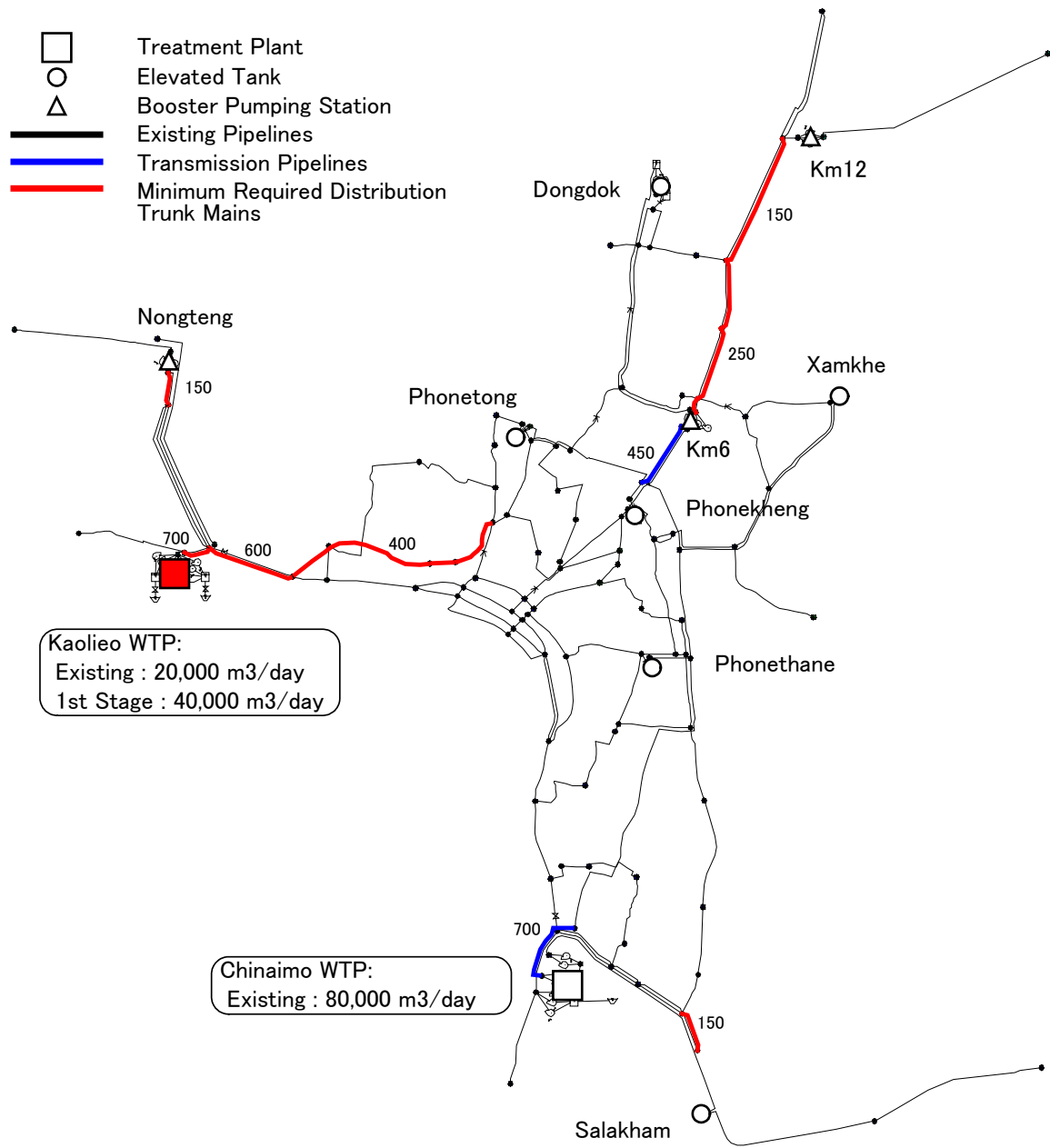


Figure 1-2 Residual Water Pressure Contour at 03:00 for Priority Project with Minimum Required Distribution Trunk Mains

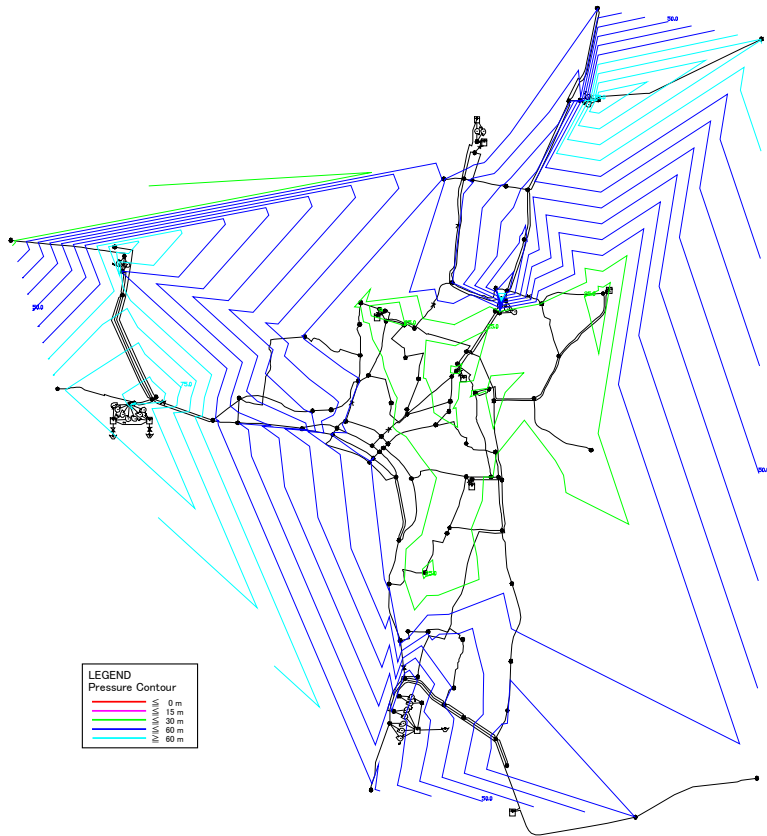


Figure 1-3 Residual Water Pressure Contour at 06:00 for Priority Project with Minimum Required Distribution Trunk Mains

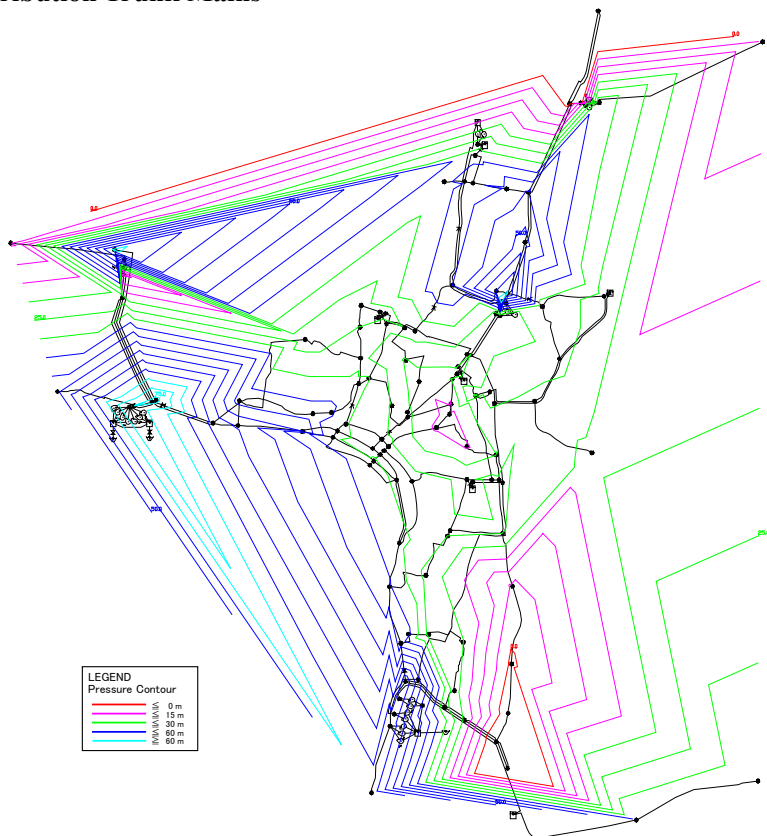


Figure 1-4 Residual Water Pressure Contour at 09:00 for Priority Project with Minimum Required Distribution Trunk Mains

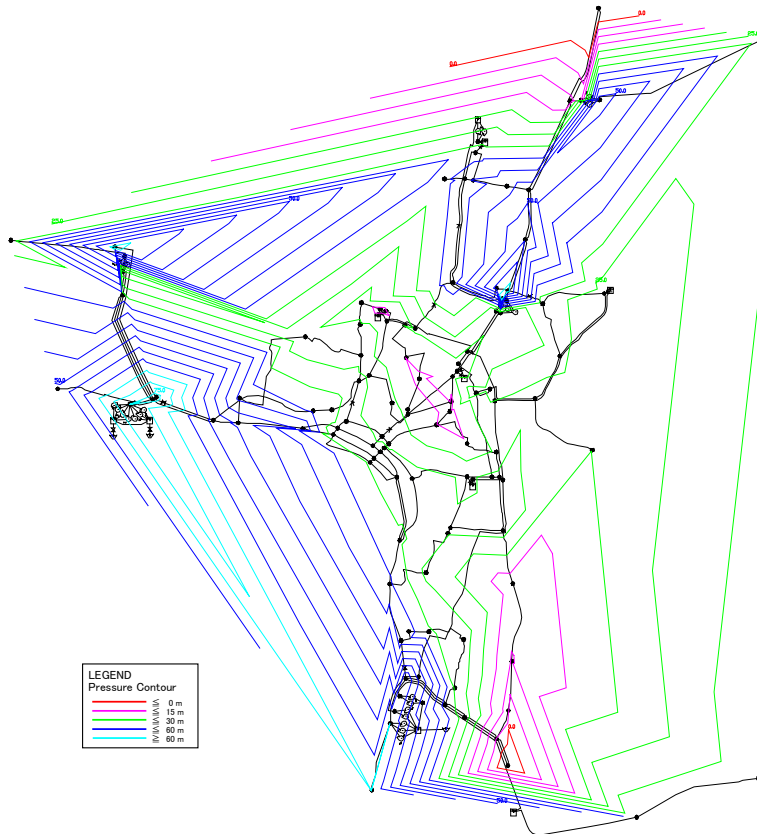


Figure 1-5 Residual Water Pressure Contour at 12:00 for Priority Project with Minimum Required Distribution Trunk Mains

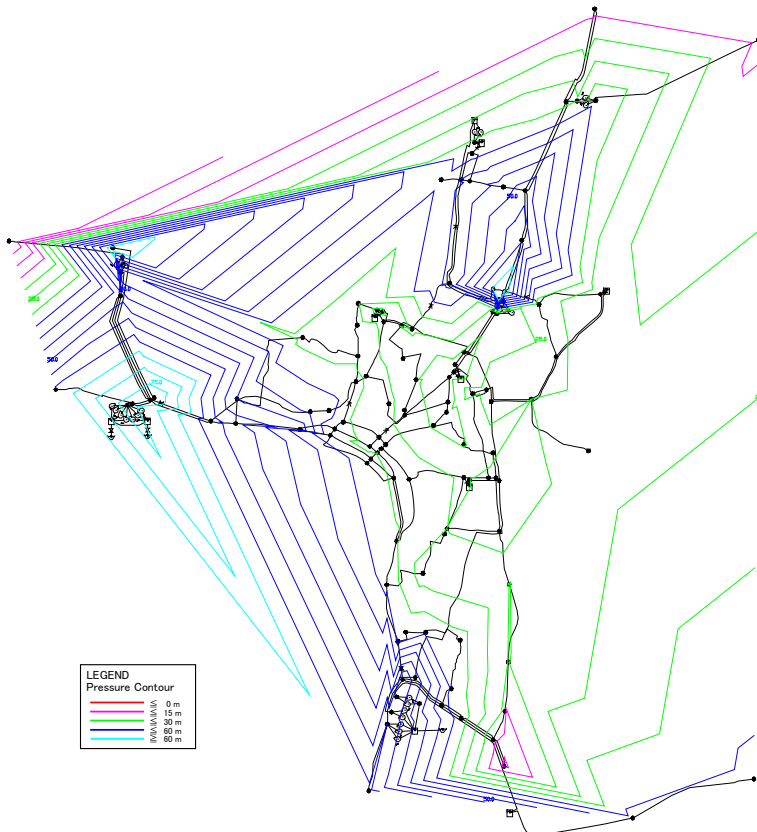


Figure 1-6 Residual Water Pressure Contour at 15:00 for Priority Project with Minimum Required Distribution Trunk Mains

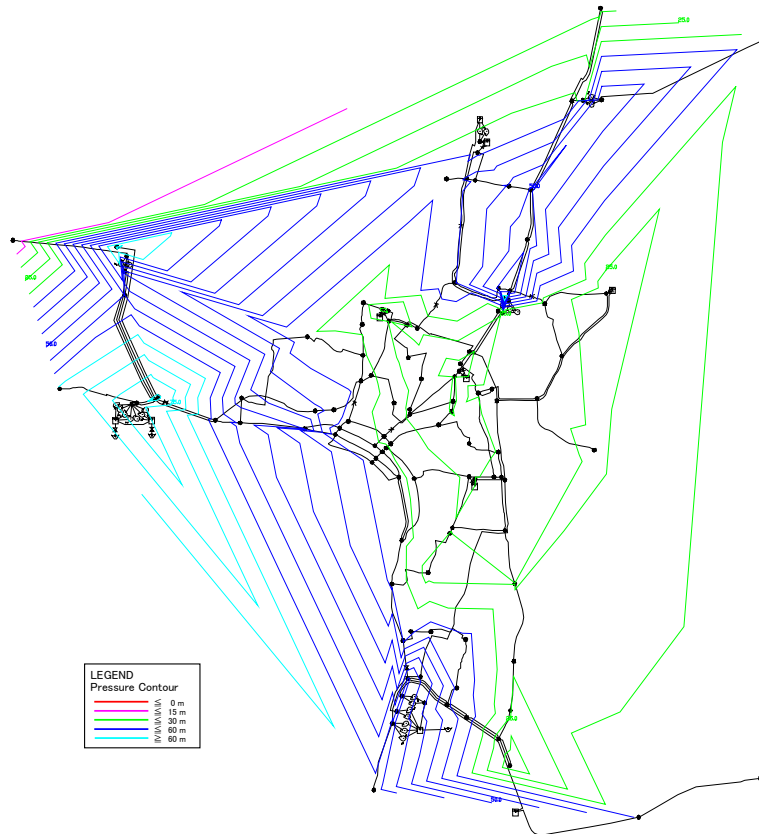


Figure 1-7 Residual Water Pressure Contour at 18:00 for Priority Project with Minimum Required Distribution Trunk Mains

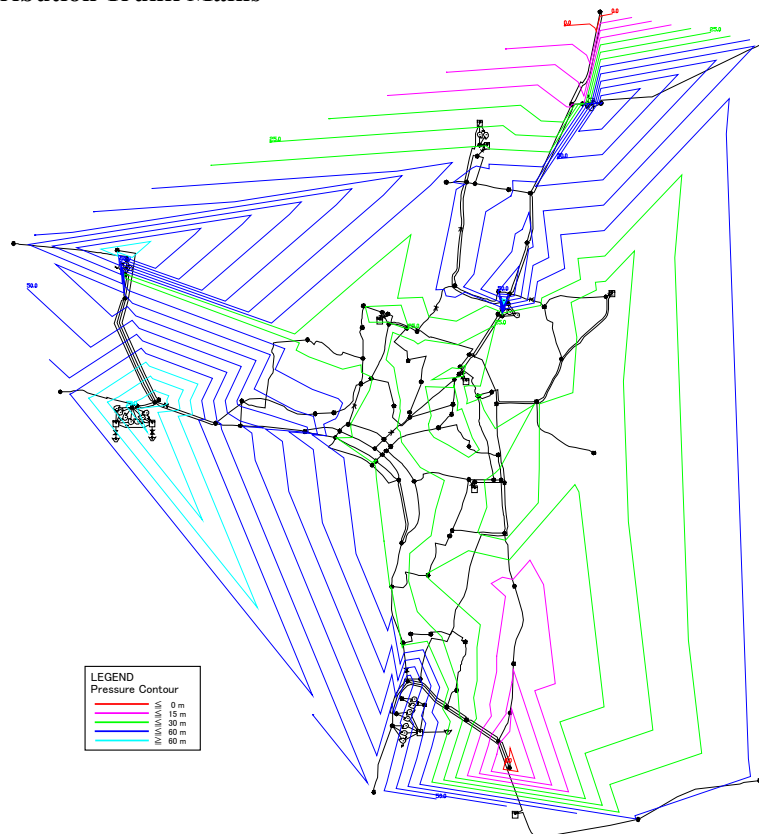


Figure 1-8 Residual Water Pressure Contour at 21:00 for Priority Project with Minimum Required Distribution Trunk Mains

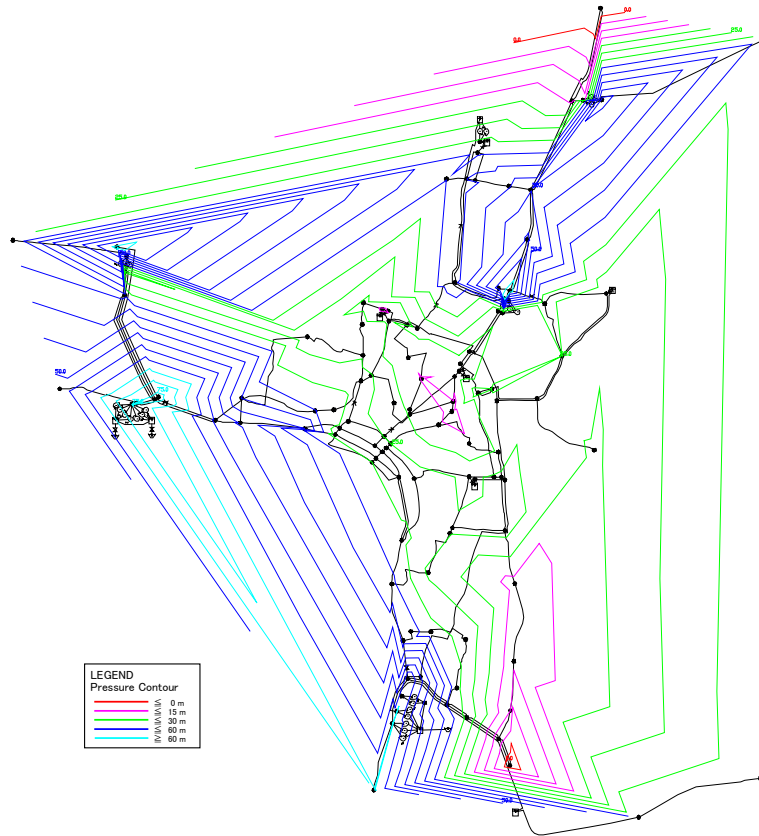


Figure 1-9 Water Level Fluctuations of Tanks for Priority Project with Minimum Required Distribution Trunk Mains

