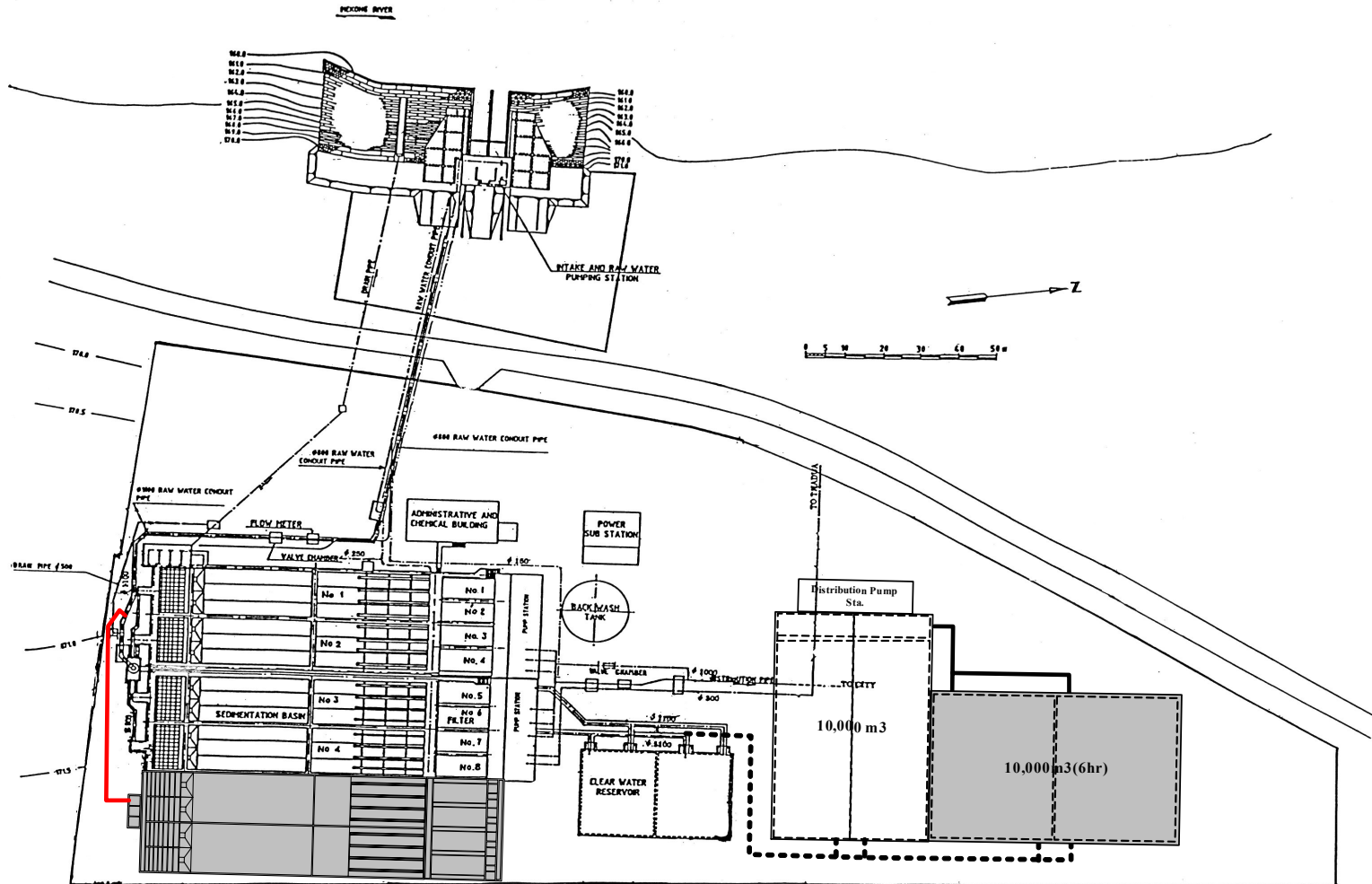
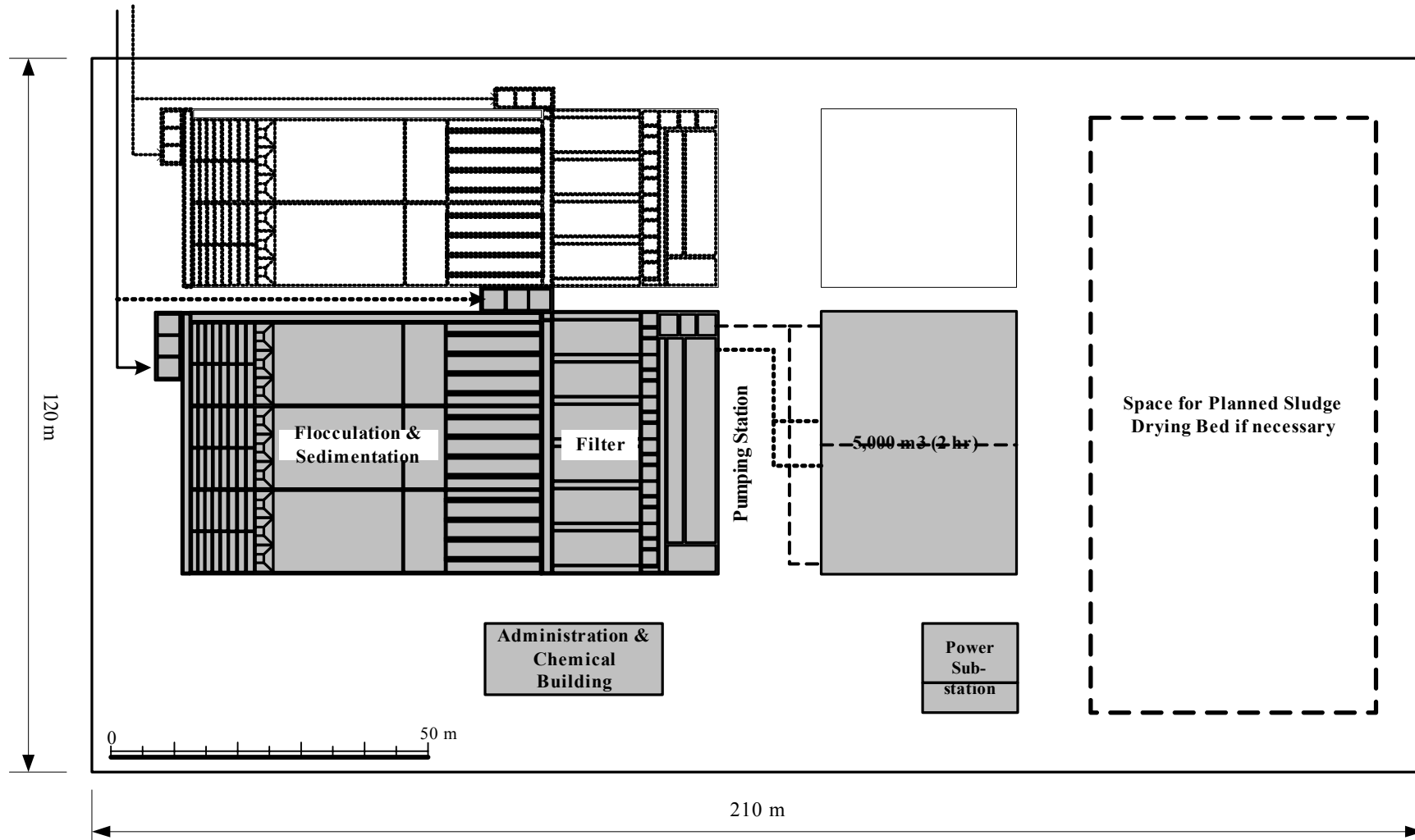


## **2. ALTERNATIVE C-1**

General Plan of Chinaimo Treatment Plant Expansion: 40,000 m<sup>3</sup>/day



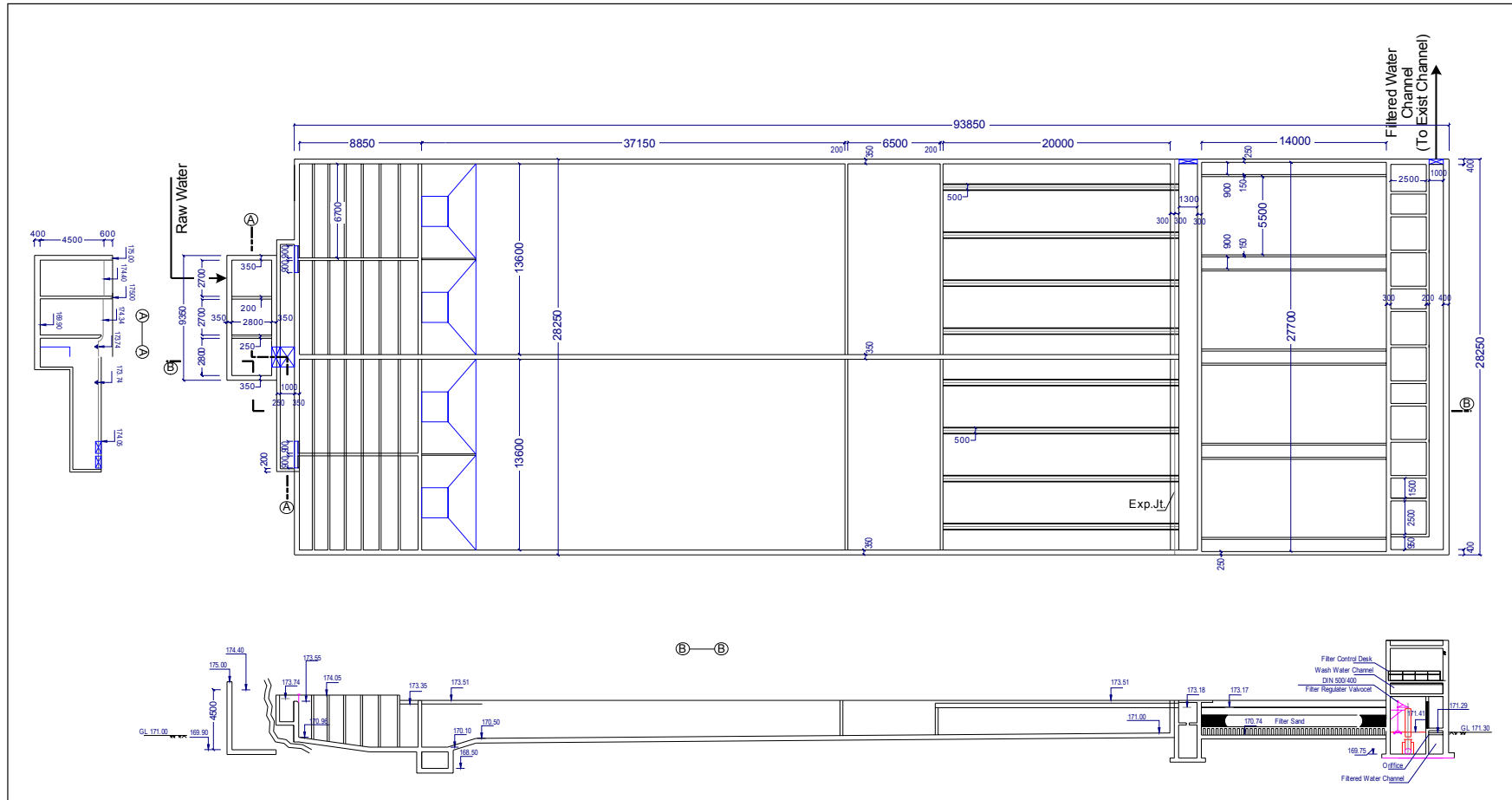
General Plan of Thangone Treatment Plant Construction: 60,000 m<sup>3</sup>/day



**Alternative C-1**  
**Expansion and Construction of Treatment Plants**

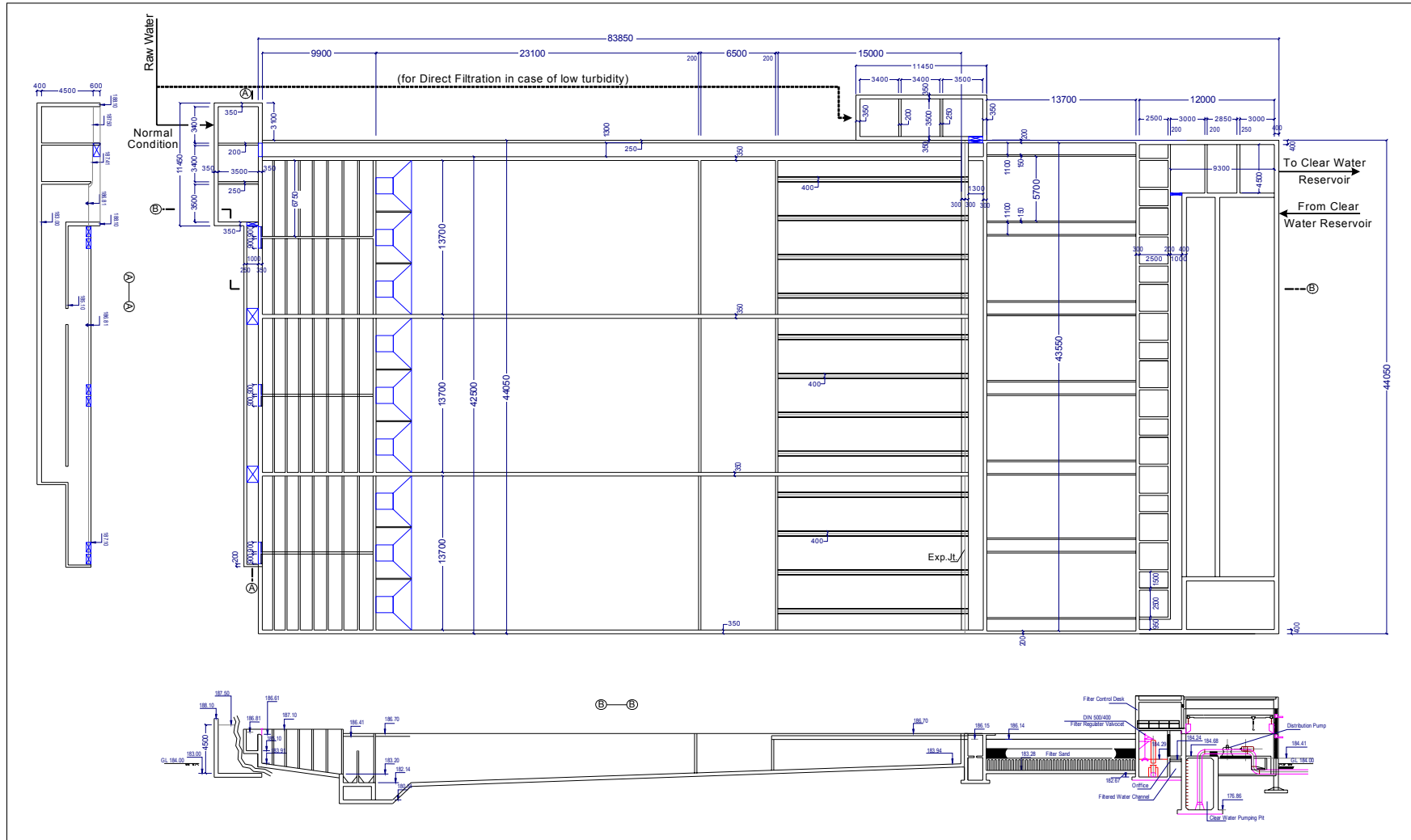
1st Stage		Expansion of 40,000 m <sup>3</sup> /day	2nd Stage		Construction of 60,000 m <sup>3</sup> /day
Planned Components of Expansion of Chinaimo Treatment Plant			Planned Components of Construction of Thangene Treatment Plant		
Intake Facility	Intake Structure	Using the Existing Intake Structure	Intake Facility	Intake Structure	Construction of New Intake
	Intake Pump	25.5 m <sup>3</sup> /min × 185 kW × 4 Units		Intake Pump	15.3 m <sup>3</sup> /min × 140 kW × 4 Units
Raw Water Transmission Pipe		D700 mm × L65 m, Ultrasonic Flow Meter	Raw Water Transmission Pipe		D900 mm × L530 m, Ultrasonic Flow Meter
Receiving Well & Mixing Well	Receiving Well	1 Basin, D.T.=2.3 min.	Receiving Well & Mixing Well (Same Size for Direct Filtration)	Receiving Well	1 Basin (1 Basin), D.T.=2.4 min.
	Mixing Well	1 Basin, D.T.=1.0 min.		Mixing Well	1 Basin (1 Basin), D.T.=1.0 min.
Flocculation & Sedimentation Basin	Flocculation Basin	Up and Down Flow Baffle Channel 2 Units/Basin × 2 Basins, D.T.=22.3 min.	Flocculation & Sedimentation Basin	Flocculation Basin	Up and Down Flow Baffle Channel 2 Units/Basin × 3 Basins, D.T.=27.1 min.
	Sedimentation Basin	Horizontal Flow /w Launder Trough, 2 Basins D.T.=2.40 hr, Ave.Velocity=0.45 m/min.		Sedimentation Basin	Horizontal Flow /w Launder Trough, 3 Basins D.T.=2.00 hr, Ave.Velocity=0.37 m/min.
Filtration Facility	Filter Basin	A=77.0 m <sup>2</sup> × 4 Basins, V=143 m/d	Filtration Facility	Filter Basin	A=78.1 m <sup>2</sup> × 6 Basins, V=141 m/d
	Filter Washing Equipment	Using the Existing Back Wash Pump and Air Blower		Filter Washing Equipment	B.W.P.: 47.0 m <sup>3</sup> /min × 70 kW × 2 Units A.B.P.: 94.6 m <sup>3</sup> /min × 90 kW × 2 Units
Filtered Water Measurement & Chlorine Mixing Chamber	Measurement Chamber	Using the Existing, D.T.=1.6 min.	Filtered Water Measurement & Chlorine Mixing Chamber	Measurement Chamber	1 Basin, D.T.=1.8 min.
	Mixing Chamber	Using the Existing, D.T.=0.6 min.		Mixing Chamber	1 Basin, D.T.=0.7 min.
Clear Water Reservoir	Clear Water Reservoir	V=10,000 m <sup>3</sup>	Clear Water Reservoir	Clear Water Reservoir	V=5,000 m <sup>3</sup>
	Piping	D1100mm, D1200mm		Piping	D800mm, D900mm
Distribution Pumping Facility	Distribution Pump Building	Using the Improved Pumping Building	Transmission Pumping Facility	Transmission Pump Building	A=320 m <sup>2</sup>
	Distribution Pump	12.1 m <sup>3</sup> /min × 67m × 195 kW × 4 Units		Transmission Pump	10.5 m <sup>3</sup> /min × 42.5m × 110 kW × 5 Units
Chemical Feeding Facility	Chemical Feeding Equipment	Installation of Feeding Equipment only	Chemical Feeding Facility	Chemical Feeding Equipment	Installation of Equipment and Solution Tank
	Chemical Building	Using the Existing Building		Chemical Building	In preparation for Administration Building
Electrical Equipment Facility	Power Receiving Facility	Power Receiving and Transformer Equip.	Electrical Equipment Facility	Power Receiving Facility	Power Receiving and Transformer Equip.
	Power Supply Facility	Power Supply Equipment		Power Supply Facility	Power Supply Equipment
	Emergency Generator	Generator Cap. for 1/3 of Dis. Pump Cap		Emergency Generator	Generator Cap. for 1/3 of Tran.s Pump Cap.
	Instrumentation Equipment	Monitoring, Supervising and Controlling		Instrumentation Equipment	Monitoring, Supervising and Controlling
Administration Building		Using the Existing Building	Administration Building		A=300m <sup>2</sup> × 2F,
Laboratory		Water Quality Analysis Equipment	Laboratory		In preparation for Administration Building
Landscaping and Others			Landscaping and Others		

Plan and Section of Flocculation, Sedimentation and Filter in Chinaimo Treatment Plant Expansion: 40,000 m<sup>3</sup>/day

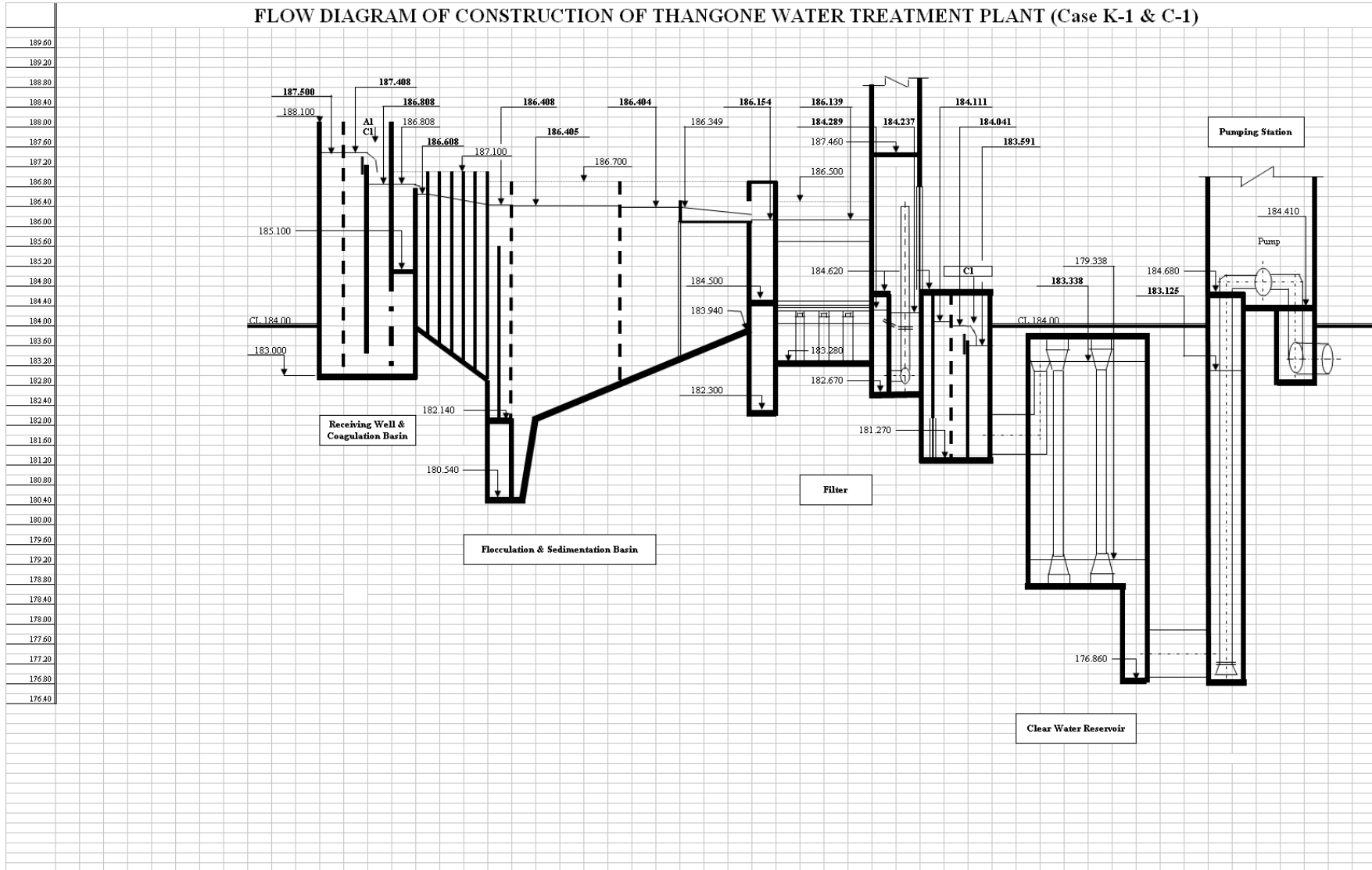




Plan and Section of Flocculation, Sedimentation and Filter in Thangone Treatment Plant Construction: 60,000 m<sup>3</sup>/day



FLOW DIAGRAM OF CONSTRUCTION OF THANGONE WATER TREATMENT PLANT (Case K-1 & C-1)





## 1st Stage

### Improvement of Km6 Booster Pumping Station

Planned Components of Facility		
Booster Pumping Facility	Pump House	A=45 m <sup>2</sup>
	Transmission Pump	4.8 m <sup>3</sup> /min. x 50 m x 57 kW x 2 Units
	Distribution Pump	6.0 m <sup>3</sup> /min. x 50 m x 72 kW x 3 Units
Electrical Equipment Facility	Power Receiving Facility	Power Receiving and Transformer Equipment
	Power Supply Facility	Power Supply Equipment
	Emergency Generator	Generator Capacity for 1/3 of Trans. & Dis. Pump Capacity
	Instrumentation Equipment	Monitoring, Supervising and Controlling
Landscaping and Others	Including demolition of the existing housing	

## 2nd Stage

### Construction of Distribution Center for Thangone System

Planned Components of Facility		
Clear Water Reservoir	Clear Water Reservoir	V=10,000 m <sup>3</sup>
	Piping	D900mm
Distribution Pumping Facility	Distribution Pump Building	A=320 m <sup>2</sup>
	Distribution Pump	13.5 m <sup>3</sup> /min x 67m x 217 kW x 5 Units
Electrical Equipment Facility	Power Receiving Facility	Power Receiving and Transformer Equipment
	Power Supply Facility	Power Supply Equipment
	Emergency Generator	Generator Cap. for 1/3 of Distribution Pump Capacity
	Instrumentation Equipment	Monitoring, Supervising and Controlling
Landscaping and Others		

### Improvement of Km12 Booster Pumping Station

Planned Components of Facility		
Booster Pumping Facility	Pump House	A=25 m <sup>2</sup>
	Distribution Pump	3.3 m <sup>3</sup> /min. x 60 m x 48 kW x 3 Units
Electrical Equipment Facility	Power Receiving Facility	Power Receiving and Transformer Equipment
	Power Supply Facility	Power Supply Equipment
	Emergency Generator	Generator Capacity for 1/3 of Distribution Pump Capacity
	Instrumentation Equipment	Monitoring, Supervising and Controlling
Landscaping and Others	Including demolition of the existing housing	