

**Agreement No. CE 41/94**

Additional Treatment and Water Transfer  
Facilities for the Metropolitan Area  
and North-eastern New Territories  
Investigation Study

**EIA STUDY  
EXECUTIVE SUMMARY  
(Revised)**

EIA-084.2/BC

EIA/005.3/96

EIA-084.2/BC



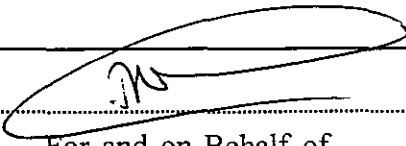
Hong Kong Government  
Water Supplies Department

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Facilities for the Metropolitan Area  
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**EIA STUDY  
EXECUTIVE SUMMARY  
(Revised)  
April 1996**

Report Authorized For  
Issue By:

  
For and on Behalf of  
Binnie Consultants Limited



**BINNIE CONSULTANTS LIMITED**

*Sub-Consultants:*

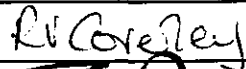

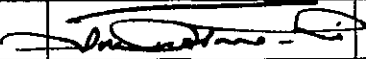
Binnie & Partners  
DNV Technica  
Pro Plan Asia

DOCUMENT CONTROL			Tai Po Treatment Works and Aqueducts	No: 0888/220/2
AMENDMENT RECORD				Prepared by: BCL
EIA Study - Executive Summary			Client: WSD	Initial: RVC/AHSL
				Date: April 1996
Pages	Date	Issue No	Description	Initials
All	25 Jan 1996	A	Text developed from Chapters 1, 2 and 13 of the Final EIA Report (0888/217/1). Summary prepared by R.V. Coverley for review by A.H.S. Li	RVC
All	1 Feb 1996	1	Minor revision for issue as Executive Summary	AHSL
All	18 Apr 1996	2	Paragraph 7.2 revised in accordance with AFD's comments	AHSL

\* The Registered Recipient is responsible for destroying or marking as 'superseded' all superseded documents.

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	Name	Signature	Date
Prepared	R.V. Coverley		19-4-96
Checked	R.C. Deacon		19.4.96
Reviewed	A.H.S. Li		19.4.96

## **1 INTRODUCTION**

- 1.1 The Water Supplies Department (WSD) has identified a shortage of water treatment capacity for the Metropolitan Area and the north-eastern New Territories by the end of 1999. Binnie Consultants Limited has been appointed by WSD to carry out the Investigation Study for a proposed new treatment works and the associated water transfer facilities, which are required to be commissioned by the end of 1999.
- 1.2 The main components of the scheme include a treatment works located near Tai Po; a raw water pipeline and tunnel from the pumping station at Tai Po Tau to the new treatment works; a new service reservoir at Butterfly Valley, and a treated water tunnel from the treatment works to the service reservoir. The general layout is shown in Figure 1.
- 1.3 Operation of the new scheme will benefit a large section of the population of north-eastern New Territories and the Metropolitan Area, which is currently facing a treated water supply deficit by the end of 1999.
- 1.4 An Environmental Impact Assessment (EIA) Study has been undertaken to determine the acceptability of residual environmental impacts and cumulative effects, requirements for implementation of the scheme, and the basis for and implications of those requirements. The EIA Study has contributed significantly to the selection of the chosen scheme layout, which is considered to be the best practicable environmental option.

## **2 VISUAL IMPACT**

- 2.1 The visual assessment has evaluated the existing landscape and visual quality around the sites of the proposed treatment works and service reservoir. The treatment works is located on a ridge above Lam Tsuen Valley and the service reservoir on a hilltop next to the cemetery above Lai Chi Kok: both are visually prominent positions. Without mitigation, the scheme would degrade the existing visual quality.
- 2.2 The landscape plans presented with the visual assessment form the basis of a comprehensive landscaping and tree planting programme designed to ameliorate the visual impacts of the scheme.

### **3 SOCIO-ECONOMIC IMPACT**

- 3.1 The treatment works site is above She Shan Tsuen, a village with thriving fishponds, working agricultural land and Fung Shui woodland. Discussions with the villagers have indicated that Fung Shui issues are of particular concern.

### **4 NOISE**

- 4.1 The noise impact study has identified all noise sensitive receivers adjacent to the sites and along the access roads. The construction noise assessment has included an evaluation of the impact of construction-related traffic on existing roads around the sites.
- 4.2 Detailed noise calculations have shown that, provided the recommended mitigation measures are implemented, construction noise levels can easily be kept below the 75 dB(A) guideline at all residences during the daytime. Tunnelling will take place on a 24-hour basis and, provided that all equipment and works are surrounded by an appropriate acoustic enclosure, construction noise will be kept below the statutory limits.
- 4.3 The detailed assessment of operational noise from the treatment works will take place during the Detailed Design Phase. Noise levels will be kept within the statutory limits. Operation of the water pipeline, tunnels and reservoir will not generate noise.

### **5 AIR QUALITY**

- 5.1 The air quality has identified all air sensitive receivers who may be affected by construction-related dust emissions or by emissions from the new treatment works. Issues such as radon in tunnel air during construction have been discussed in the EIA Study.
- 5.2 The construction of the scheme is not expected to cause any significant dust impacts, provided that good site practices designed to minimise the generation of construction dust are fully implemented. The regular watering of haul roads is of particular importance and special provisions to ensure satisfactory dust suppression effort will be written into the Contract. Adequate ventilation will minimise any health risk to the tunnel construction workers.

- 5.3 The storage and handling of chemicals and the treatment and disposal of treatment works sludge has been assessed in relation to air quality. The Chlorine Store will be fully enclosed and extract ventilated, with a 'contain and absorb' system to minimise any risk of chlorine release. The odour impact associated with the storage and handling of other chemical is negligible. Measures to deal with potential minor odour nuisance from sludge will be dealt with during Detailed Design.

## **6 DRAINAGE IMPACT AND WATER QUALITY**

- 6.1 The study has concluded that the construction and operation of the scheme will not adversely affect surface or ground water systems, provided that the stipulated site management practice and design measures are strictly observed.
- 6.2 Detailed preventative measures will be incorporated into the temporary and permanent works to ensure that construction and operation of the treatment works will not have any adverse impact on the She Shan Tsuen village and its agriculture and fish farming activities.
- 6.3 Whilst there are no published records of land contamination in the area, high levels of lead contamination have been found in sediments in Tolo Harbour.
- 6.4 The water tunnel from the treatment works to the reservoir will be fully lined so that there will be no leakage into or from the tunnel during the operational phase. By this means, contamination of the potable water supply will be prevented.

## **7 ECOLOGY**

- 7.1 Field investigations have been undertaken to assess the overall conservation importance and general wildlife interest of the area. None of the animal and plant species recorded within the site boundary are rare or protected.
- 7.2 Ecological Impacts associated with the scheme are related to site clearance and formation activities. Areas potentially affected include abandoned agricultural land, hillside grassland, scrubland, woodland and stream.
- 7.3 Mitigation measures recommended in the EIA Study relating to water, air and noise, together with the retention of existing trees (where practicable), extensive landscaping and tree planting of appropriate native species, will ensure that adverse effects on ecology at each works site are avoided, minimised or adequately compensated.

- 7.4 Further studies of amphibians and reptiles will be carried out during Detailed Design.

## **8 WASTE AND SPOIL MANAGEMENT**

- 8.1 Waste will inevitably be generated during site clearance and construction of the scheme. A substantial quantity of rock and similar spoil, estimated at around 1.7 Mm<sup>3</sup>, will be generated from site formation and tunnelling. The Fill Management Committee has been informed about the scheme; much of the spoil can be used on projects elsewhere in Hong Kong. The potential for beneficial reuse and recycling of other materials has been considered.

## **9 EM&A MANUAL**

- 9.1 A detailed Environmental Monitoring and Audit (EM&A) Manual has been developed for the construction and operational phases of the treatment works and transfer facilities to ensure that good construction practice and monitoring of environmental impacts is carried out systematically.

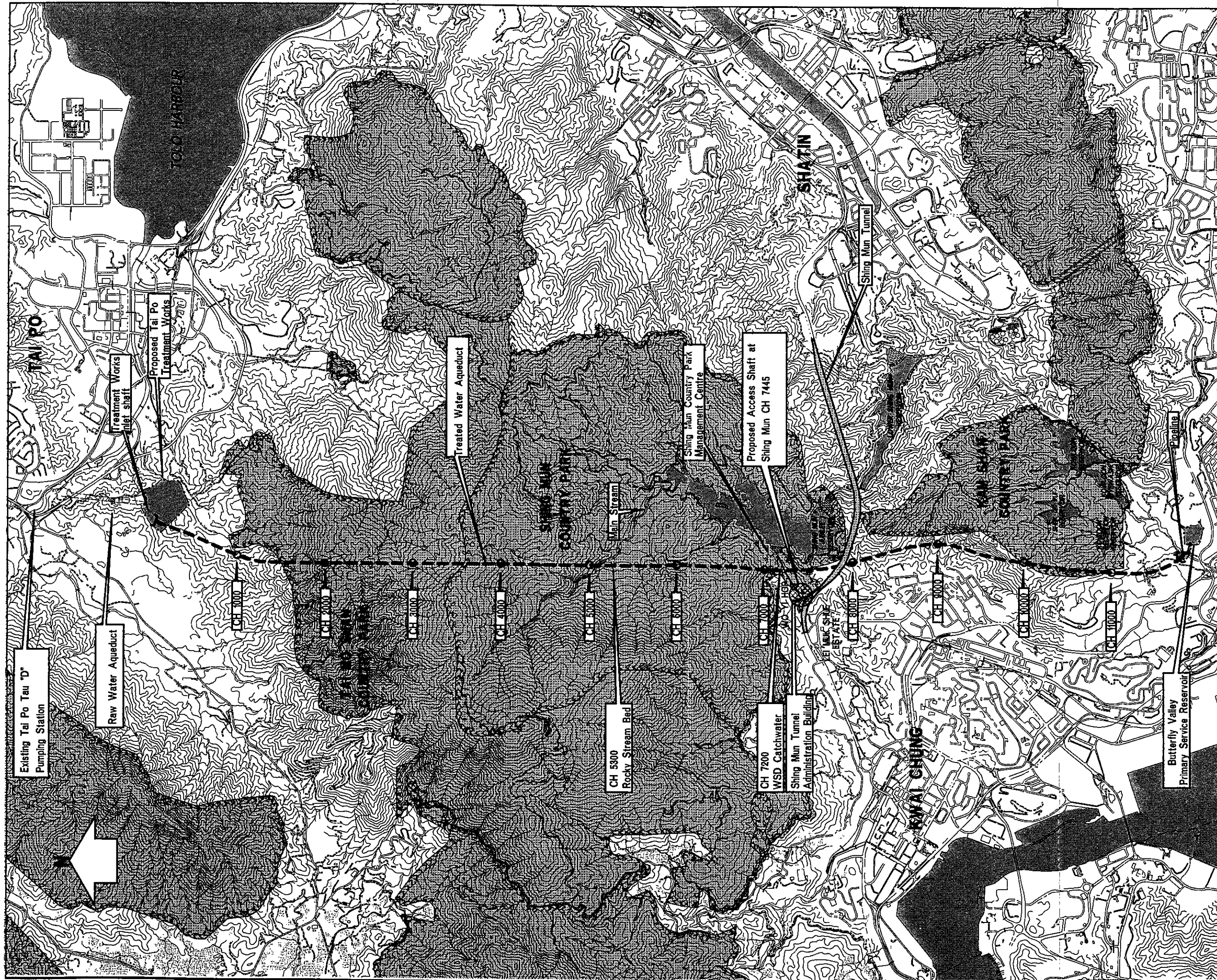
## **10 CONCLUSIONS**

- 10.1 The water treatment and transfer facilities scheme is an integral and essential part of WSD's development of Hong Kong's potable water supply system.
- 10.2 WSD is committed to constructing and operating the scheme in a manner which minimises adverse impacts on nearby residents and the surrounding environment. Operation of the new scheme will benefit a large section of the population of the north-eastern New Territories and the Metropolitan Area by solving the problem of a potential treated water supply deficit.
- 10.3 The initial findings of the EIA Study have influenced site selection and aqueduct routes to minimise both construction and operational impacts.
- 10.4 Provided that the requirements of the EIA Study and EM&A Manual are carried out diligently, the scheme can be constructed and operated with a minimum of impact on the environment.

**END OF TEXT**

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no.	date	description	initial
		name	date
Designed		JDW	4/95
Traced		KCC	4/95
Checked		HL	4/95

Approved

Agreement no. CE 41/94

Contract no.

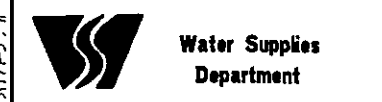
Project title  
 ADDITIONAL TREATMENT  
 AND WATER TRANSFER FACILITIES FOR  
 THE METROPOLITAN AREA  
 AND NORTH-EASTERN NEW TERRITORIES

Drawing title

**LAYOUT PLAN  
 OF THE PROPOSED SCHEME**

Plan register no.  
 BCL1/home3/mapbox/TPWORK/ZF14/TPCOMP7

Drawing no. Figure 1	Scale 1 : 40000
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**Binnie Consultants Limited**, Engineers and Scientists

**Hong Kong Office**

11th Floor, New Town Tower, Pak Hok Ting Street, Shatin, N.T., Hong Kong  
Telephone (852) 2601 1000 Facsimile (local) 2601 3988 (overseas) (852) 2601 3331  
Telex 45819 BINHK HX Email Address : binnie@HK.Super.Net

**Shenzhen Office**

5th Floor, Hong Tao Building, 2 Baoan Road, Shenzhen, P.R.C.  
Telephone / Facsimile (86755) 558 2873

Binnie Group Offices in:

Brunei, Egypt, India,  
Indonesia, Malaysia,  
Peru, Singapore,  
United Kingdom and  
Zimbabwe

