

**Project Profile**

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**1. Basic Information**

**1.1 Project title**

Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage I  
Package 1A-1T – Kam Tin Trunk Sewerage Phase I, and  
Package 1B-1T – Kam Tin Trunk Sewerage Phase II.

**1.2 Purpose and nature of the project**

This project is part of the “Yuen Long and Kam Tin Sewerage and Sewage Disposal” (YLKTSSD) scheme recommended by the “Review of Yuen Long and Kam Tin Sewerage and Sewage Treatment Requirements” completed in January 1999 by the Environmental Protection Department. The YLKTSSD scheme is aimed at implementing phased development of sewerage in the Northwest New Territories to match existing and planned developments in the area.

The purpose of this project is to extend the existing sewerage network to the Au Tau and the Kam Tin / Shek Kong areas for the collection, conveyance and proper treatment of sewage generated therefrom. EPD's aforementioned Review recommended the following key elements:

- (a) a trunk sewerage system consisting of gravity sewers, two pumping stations and rising mains from Kam Tin to the existing Yuen Long sewage treatment works, fed by branches from the Shek Kong, Pat Heung and Yuen Kong areas,
- (b) a sewage pumping station in the Sha Po Tsuen area and rising mains leading to the trunk sewerage system in (a),
- (c) sewers in the Au Tau area, and
- (d) an additional rising main from the existing Ha Tsuen sewage pumping station to the existing San Wai sewage treatment works.

The proposed works are more particularly described in Section 1.4 below. It is noted that the details of the proposed works, such as sewer alignments and the number of pumping stations required, are subject to modifications at the design stage.

### 1.3 Name of project proponent

Project Management Division, Drainage Services Department

### 1.4 Location and scale of project and history of site

The proposed works under the project are shown on the layout plan numbered DDN8466A appended herewith. The proposed sewers and rising mains range from 225 mm to around 1650 mm in diameter. The capacities of the three pumping stations, in terms of average dry weather flows, are of the following orders:

Kam Tin sewage pumping station	47,000 m <sup>3</sup> /day
Sha Po sewage pumping station	17,500 m <sup>3</sup> /day
Nam Sang Wai sewage pumping station	75,000 m <sup>3</sup> /day

The project is divided into the following 13 works items and annotated accordingly on drawing DDN8466A.

Works Item	Details
S1	Sewers along Kam Tin main drainage channel adjacent to Kam Sheung Road
S2	Sewers along Kam Tin main drainage channel adjacent to Kam Tin San Tsuen
S3	Sewers in the Kam Tin / Shek Kong areas upstream of KTPS, other than items S1 and S2
P1	Kam Tin sewage pumping station (KTPS)
S4	Sewers between KTPS and Ha Ko Po Tsuen
S5	Sewers between Ha Ko Po Tsuen and Kam Tin River near Tin Fook Wai
P2	Sha Po sewage pumping station (SPPS)
S6	Branch sewers from SPPS to item S5
S7	Sewers between Kam Tin River near Tin Fook Wai to NSWPS
P3	Nam Sang Wai sewage pumping station (NSWPS)
S8	Sewers from NSWPS to Yuen Long sewage treatment works
S9	Sewers in the Au Tau area
S10	Sewers between Ha Tsuen sewage pumping station and San Wai sewage treatment works

### 1.5 Number and type of designated project

On the basis of the latest zoning studies under the "Planning and Development Study on North West New Territories", seven of the works items are Designated Projects within the definition of Schedule 2 of the EIA Ordinance. Items S1, S2, S5, S6 and S8 are of type Q.1, while items P1 and P2 are of type F.3(b).

### 1.6 *Contact person*

Engineer, Project Management Division, Drainage Services Department

## 2. **Outline of Planning and Implementation Programme**

- 2.1 Design and construction supervision of the project will be carried out in-house by the Sewerage Projects Division and the Electrical and Mechanical Projects Division of Drainage Services Department. Construction will be contracted out. Operation and maintenance of the completed works will be taken up respectively by the Mainland North Division and the Sewage Treatment 2 Division of Drainage Services Department.
- 2.2 Construction of the works will be undertaken through a number of contracts scheduled to commence in early 2003 for completion in late 2005. Some parts of the works, particularly those under works items S1 and S3, have interface with a number of other projects, including the Kam Tin Bypass, Improvements to Kam Tin Road Stage 2, the West Rail, Improvements to Fan Kam Road, and Kam Tin Main Drainage Channel Phase 3, and may be carried out in conjunction with such projects on a different programme where appropriate.
- 2.3 The project will be serving existing developments, proposed developments, as well as a number of currently unsewered village and non-development areas. The local sewer reticulation and pumping facilities within these areas will be implemented under a separate project.

## 3. **Possible Impacts on the Environment**

In EPD's "Review of Yuen Long and Kam Tin Sewerage and Sewage Treatment Requirements", an Environmental Review of the proposed works has been carried out to identify possible impacts to the environment.

### 3.1 *During construction stage*

#### (a) Air quality

Dust may be generated from some construction activities, mainly earthworks such as excavation. Gaseous emissions will also arise from construction plant. As tabulated in Section 4.1 below, some of the construction activities will be located close to village houses.

(b) Noise

The construction activities will generate some noise through the use of conventional construction plant and equipment, like air compressors and jack hammers.

(c) Water quality

Run-off from the construction sites, particularly for the works along drainage channels, may contain sediments and silts arising from earthworks, trench dewatering and stockpiled materials, as well as fuel, oil and lubricants from construction vehicles and plant.

(d) Traffic

Construction of the proposed trunk sewers and rising mains along roads will have impacts on traffic. Also, construction-related vehicles will add to the traffic volume.

(e) Ecology

General construction disturbance to nearby habitats may arise from dust, noise and intrusive lighting.

(f) Visual impacts

The presence of construction equipment and stockpiled materials in works sites may be a source of visual impacts if located close to sensitive receivers.

(g) Cumulative effects

As the project programme will overlap with those of some other major projects as mentioned in Section 2.2, there is a potential for magnification of the environmental impacts owing to cumulative effects at the locations of project interface.

### 3.2 *During operation stage*

(a) Air quality

Odour emission from the wet wells of the proposed pumping stations can be a source of air quality impact. The potential for odour impacts is higher where the sewage retention time in rising mains is long, particularly in the summer months.

(b) Water quality

The long-term water quality of the project area will be greatly enhanced as a result of the collection, treatment and proper disposal of sewage after the project is commissioned. Nevertheless, there are risks associated with the failure of pumping stations or the blockage or damage to a rising main, in which case bypass of sewage to the environment may result.

(c) Noise

The pumps and the extraction fans of ventilation systems at the pumping stations are potential noise sources during operation of the project.

(d) Ecology

In the case of sewage being bypassed to watercourses and fish ponds, the avifauna feeding in these wetlands may be affected.

(e) Visual impacts

Aesthetics is an important factor to be considered in the design of the superstructures of the proposed works, particularly the Nam Sang Wai sewage pumping station which will be located on a relatively open area.

(f) Waste

Large-aperture screens will be installed at the pumping stations to prevent the large solid materials in sewage from entering the pumps and causing damage. A small quantity of screenings will thus be generated.

#### **4. Major Elements of the Surrounding Environment**

- 4.1 The project covers an extensive area divided into zones for various uses including residential, industrial, commercial, agricultural and recreation, plus village areas and conservation areas, and areas of undetermined use. The proposed sewers will principally be routed through the access road along the main drainage channels and other public roads. The sensitive receivers in the vicinity of each of the seven proposed works items which are Designated Projects are tabulated below.

<i>Works item</i>	<i>Details of works</i>	<i>Sensitive receivers nearby</i>	<i>Approximate minimum distance apart (m)</i>
S1	Sewers along Kam Tin main drainage channel adjacent to Kam Sheung Road	Villages on either side of the drainage channel Conservation Areas <sup>Note 1</sup> (CA) adjoining the drainage channel	40 0 (works along the access road on the boundary of the CA)
S2	Sewers along Kam Tin main drainage channel adjacent to Kam Tin San Tsuen	Kiu Tau Tsuen Village houses on either side of the drainage channel Conservation Areas <sup>Note 1</sup> (CA) adjoining the northern side of the drainage channel	10 55 0 (works along the access road on the boundary of the CA)
P1	Kam Tin sewage pumping station (KTPS)	Kam Tin Shi, Ko Po Tsuen A school in Kam Tin Shi A Residential (RR2) zone <sup>Note 1</sup> next to Kam Tin Shi	180 170 80
S5	Sewers between Ha Ko Po Tsuen and Kam Tin River near Tin Fook Wai	Conservation Areas (CA) <sup>Note 1</sup> adjoining the west bank of the drainage channel	0 (works along the access road on the boundary of the CA)
P2	Sha Po sewage pumping station (SPPS)	a residential (R2) zone <sup>Note 1</sup> Sha Po Tsuen A Conservation Area to the south	10 270 140
S6	Branch sewers from SPPS	Conservation Areas <sup>Note 1</sup> adjoining the drainage channel	0
S8	Sewers from NSWPS to Yuen Long sewage treatment works	A Conservation Area (CA) adjoining the drainage channel	0 (works along the access road on the boundary of the CA)

\* Note 1: From the latest zoning studies in the "Planning and Development Study on North West New Territories" but not in the prevailing OZPs.

## 5. Environmental Protection Measures to be Incorporated in the Design and Further Environmental Implications

### 5.1 During construction stage

#### (a) Air quality

Air quality impacts, mainly dust, generated by the construction activities will be minimized by the adoption of proper working methods such as regular water spraying, installation of wheel-washing facilities where practical, and shielding of stockpiled materials. Relevant clauses will be incorporated into the contract documents to this end.

(b) Noise

The contractors for the works will have to comply with the provisions of the Noise Control Ordinance. Although some of the construction activities will be undertaken in close vicinity to village houses, the activities are generally of short durations only. Where the works are located close to a school, the works may be scheduled where necessary to avoid sensitive periods like examination time.

(c) Water quality

Close control, such as the requirement to install settlement tanks to remove sand and silt, will be exercised on the quality of effluent from the construction sites to ensure its compliance with the Water Pollution Control Ordinance.

(d) Traffic

Where works are carried out on roads, temporary traffic arrangement measures will be undertaken to maintain traffic flow and minimize traffic impacts. Sewers falling within proposed roadworks areas would be undertaken in conjunction with the roadworks through entrustment arrangements where possible and appropriate.

(e) Ecology

Pollution control measures will be undertaken to alleviate the ecological impacts arising from dust and noise generated by the construction activities.

(f) Visual impacts

At most parts of the works site, visual impacts from construction activities will be of very short durations. Proper control over site cleanliness and the stockpiling of materials will be exercised to alleviate visual intrusion.

## 5.2 *During operation stage*

(a) Air quality

Enclosure of the pollutant source with appropriate ventilation will be implemented for the proposed pumping stations to minimize the air quality impacts arising. Further mitigation measures to reduce the possibility of sewage septicity caused by long retention time in wet wells and rising mains may also be necessary in some of the proposed works.

(b) Water quality

To minimize water quality impacts arising from the bypass of sewage, standby pumps will be provided to cater for periods of equipment breakdown and maintenance. Backup power supply in the form of a ring supply or emergency generators will be provided as far as practicable to reduce the risk of power failure. Due consideration will be given to the presence of sensitive receivers when determining the location of the emergency bypass outlets.

(c) Noise

To minimize any noise impacts generated from pump operation, all pumps will be enclosed in structures and, for the smaller pumping stations, located underground in the wet well. Extraction fans will be located away from the sensitive receivers as far as practicable.

(d) Ecology

The water quality impact mitigation measures to be implemented to reduce the need for sewage bypass will also alleviate the potential of ecological impacts.

(e) Visual impacts

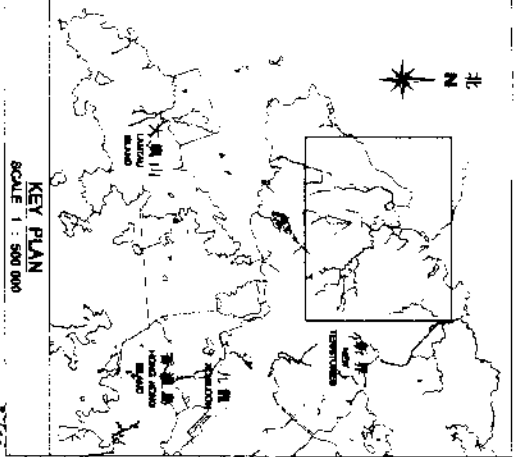
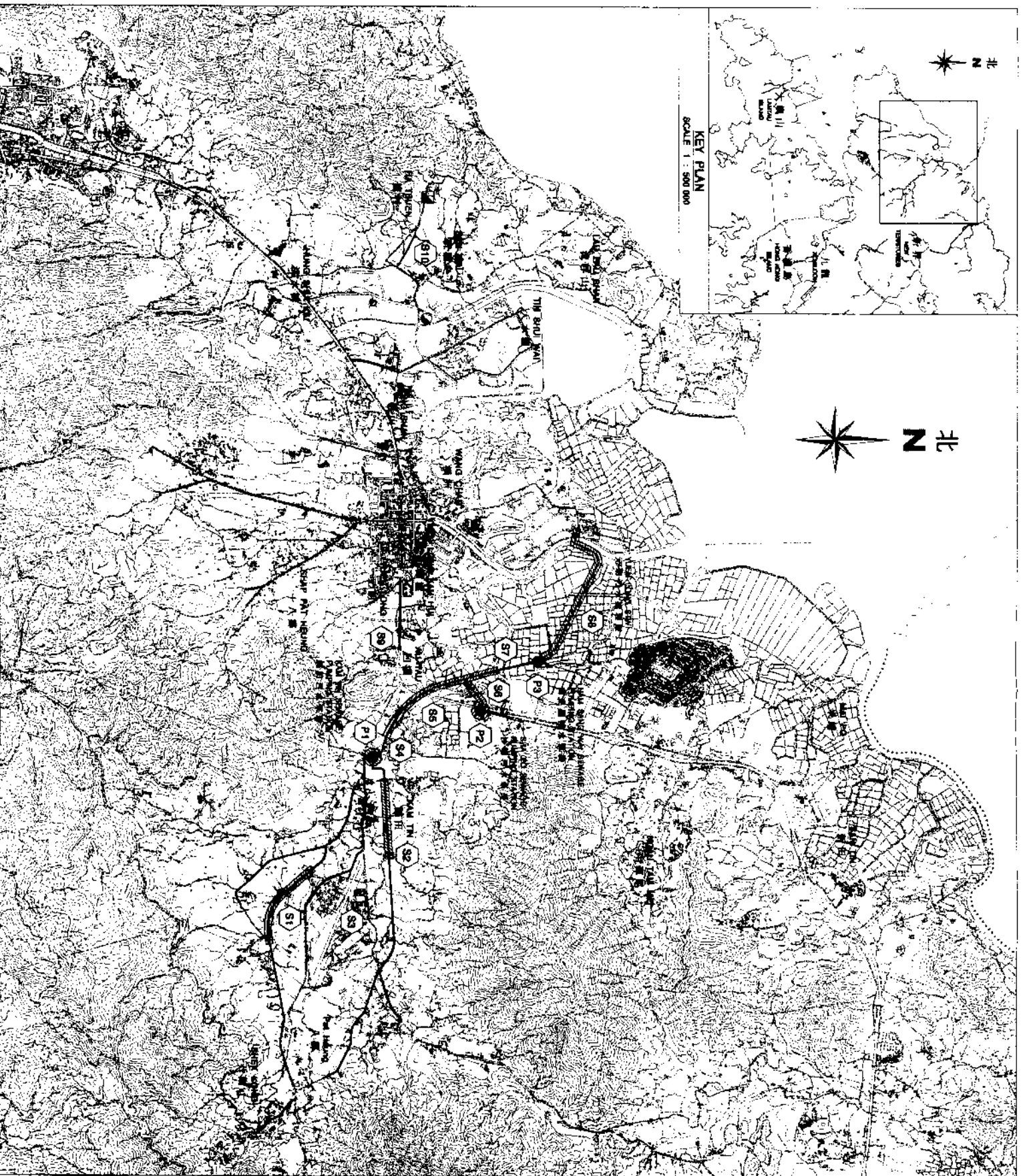
Architectural features and landscaping works will be provided to the superstructures of the proposed pumping stations.

(f) Waste

Screenings generated at the pumping stations will be enclosed in plastic bags before being transported to landfills.









The Environmental Review mentioned in Section 3 concluded that no insurmountable environmental impacts were identified for either construction or operation of the proposed works, but mitigation measures had to be formulated to reduce the environmental impacts to acceptable levels.





NOTES

LEGEND :

-  PROPOSED GRAVITY SEWER
-  PROPOSED RISING MAIN
-  POSSIBLE ALTERNATIVE RISING MAIN / GRAVITY SEWER ALIGNMENT
-  PROPOSED PUMPING STATION
-  DESIGNATED PROJECT UNDER THE EA ORDINANCE
-  EXISTING SANITARY SEWAGE TREATMENT WORKS
-  EXISTING HA TSEI SHAN SEWAGE PUMP/RAISING STATION
-  WORKING ITEM NUMBERS

no.	date	GENERAL REVISION	description
A	05/99		

REVISION

drawn	M. F. LING
checked	
approved	

contract no.

file no. GP / 8 / 4215 DS / S1

project no. 4216 DS

contract

drawing title  
 YUEN LONG AND  
 KAM TIN SEWERAGE AND  
 SEWAGE DISPOSAL STAGE 1  
 PACKAGES 1A-1T AND 1B-1T

drawing no. DDN 8466 A  
 scale 1 : 50 000  
 OR AS SHOWN

office  
 SEWERAGE PROJECTS DIVISION

