
1. Basic Information

1.1 Project Title

The Au Tau Sewage Pumping Station (as a part of the PWP Item No. 4274DS - Yuen Long and Kam Tin Sewerage Stage III Phase 1B - Au Tau Sewage Pumping Station and Ancillary Works)

1.2 Purpose and Nature of Project

Sewerage works under PWP Item No. 4274DS comprise the construction of 680m long gravity sewers and 1700m long twin rising mains in Phase 1A; and construction of 70m long twin rising mains, 30m long access road and the proposed Au Tau Sewage Pumping Station in Phase 1B. The project, Au Tau Sewage Pumping Station, will serve to convey sewage generated from Au Tau and part of Yuen Long South to the sewerage network leading to San Wai Sewage Treatment Works for treatment before discharging to Urmston Road.

1.3 Name of the Project Proponent

Drainage Services Department is the works department and Environmental Protection Department is the client department.

1.4 Number and type of designated project

The proposed Au Tau Sewage Pumping Station constitutes a Designated Project of type F.3 (b) in Schedule 2 of the EIA Ordinance. The rising mains, gravity sewers and access road are not designated projects and therefore will not be included in this project profile.

1.5 Location and Scale of Project

A copy each of the location plans numbered DDN/274DS/001 and 002 showing the location of the pumping station and its relationship with other phases of the sewerage works in Yuen Long are attached in Appendix 1. The average dry weather flow of the pumping station is 12,200 cu.m/day. Two duty pumps and one standby pump will be installed underground inside the pumping station. The pumping station will be fully enclosed by a superstructure.

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1.6 Contact Person

Engineer, Sewerage Projects Division, Drainage Services Department
Tel. No.
Fax. No.

2. Outline of Planning and Implementation Programme

2.1 The Sewerage Projects Division and the Electrical and Mechanical Projects Division of Drainage Services Department will carry out design of the sewage pumping station. They will also supervise the construction of the sewage pumping station by qualified contractors. The Sewage Treatment 1 Division of Drainage Services Department will operate and maintain the new pumping station.

2.2 Design process of the proposed sewerage works is underway. Construction for the Au Tau Sewage Pumping Station is scheduled to commence in 6/2003 for completion in 6/2005 tentatively.

A project profile for this project was submitted to EPD vide CE/SP, DSD's memo ref. (1) in SP/8/4274DS/S3P1/17 dated 25 January 1996. DEP confirmed that there was no need to conduct EIA vide his memo ref. Annex (3) to EP2/N6/41 dated 29 February 1996. Due to subsequent changes in both the estimated flow and the catchment areas for the proposed pumping station as recommended in the Review of Yuen Long and Kam Tin Sewerage and Sewage Treatment Requirements (Agreement No. CE 55/95), a revised project profile was submitted to EPD for approval to apply directly for an environmental permit for the project vide CE/PM, DSD's memo ref. (5) in DSD PM 8/4274DS/17 dated 20 December 1999. DEP advised vide his letter ref. Ax. (6) to EP2/N6/F/32 dated 31 January 2000 that the ecological impact of the proposed Au Tau Sewage Pumping Station should be assessed and included in the project profile. In addition, the location of the pumping station should be reviewed so as to avoid encroachment upon the existing lotus ponds in the vicinity.

As such, the Sewerage Projects Division of Drainage Services Department has carried out an ecological impact assessment for the proposed pumping station and further revised the project profile to incorporate the following amendments:-

- i) the proposed pumping station has been relocated and the revised location is shown on the location plan numbered DDN/274DS/001 attached in Appendix 1; and
- ii) the size of the pumping station site has been reduced.

2.4 The revised pumping station had been circulated to relevant Government Departments and utility undertakings for comment and no objection to the revised location has been received.

3. Possible Impacts on the Environment

3.1 During construction stage

(a) Dust

Dust may be generated from the construction activities, mainly earthworks.

(b) Noise

The construction activities will generate some noise through the use of conventional construction plants and equipment.

(c) Water

During the course of construction, muddy underground water, if any, will be pumped away from the excavation pit into a silt removal facility before discharging into the nearby stormwater drains.

(d) Construction and Demolition Materials (C&DM)

Excavation will be required for the construction of dry-wet well of the pumping station. Construction waste such as timber used in formwork and temporary works will also be generated. However, it is anticipated that the surplus construction and demolition materials generated will be below 300,000 m³. The project will not involve reclamation or earth filling with imported fill.

3.2 *During operation stage*

(a) Odour

The wet well of the pumping station would be the sources of odour nuisance if no mitigation measure is incorporated into the design of the pumping station.

(b) Water quality

The proposed pumping station is an integral part of the Yuen Long and Kam Tin sewerage works. It will collect sewage generated from Au Tau and part of Yuen Long South to the sewage treatment works for treatment before discharging to Urmston Road. Implementation of the pumping station will enhance the water quality of the surrounding environment, and will not cause any adverse impact except if sewage is bypassed under emergency conditions. In such case, it will be discharged into the nearby drainage channel. However, with the implementation of preventive measures described in paragraph 5.2(b) below, the probability of bypass will be extremely remote.

(c) Noise

The pumps and the extraction fans of the de-odourizer are potential noise sources during operation of the proposed pumping station.

(d) Waste

Screens will be installed at the inlet of the pumping station to prevent large solid materials in sewage from entering the pumps and causing damage. A small quantity of screenings will thus be generated.

(e) Aesthetics

In order to minimize the visual impact of the proposed pumping station, aesthetics will be a key factor to be considered.

3.3 *Ecological Impact Assessment*

In order to preserve the existing lotus ponds, the proposed pumping station has been relocated as shown on the location plan numbered DDN/274DS/001 attached in Appendix 1. Following detailed site investigation, the relocated pumping station will not encroach upon the existing lotus pond in the vicinity. The relocated pumping station will be approximately 20m away from the nearest lotus pond and therefore no ecological impact on the lotus pond is envisaged.

4. Major Elements of the Surrounding Environment

4.1 The areas in the east and south of the project site are mostly villages. The distance between the pumping station and the nearest village will be 80m approximately. The Pok Oi Hospital is located 100m away in the north of the proposed site. However, the hospital is separated from the pumping station by the Castle Peak Road which forms a natural barrier. With the implementation of proper mitigation measures and at such a long distance, the pumping station will have insignificant effect on the nearby villages and the Pok Oi Hospital.

4.2 The proposed Au Tau Sewage Pumping Station will fall on both the agriculture and residential (group C) zones. In the recent circulation of the revised pumping station, DPO/TMYL has confirmed that the planning permission is required vide his memo ref. PDYL 2/10/56 (XI) dated 3.4.2000. In addition, D of AFC has confirmed that the revised pumping station is located far away from the ecologically important lotus ponds vide his memo ref. (14) in AF POL 13/27 IV dated 30.3.2000.

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

5.1 *During construction stage*

(a) Dust

The effect of dust generation from the construction works is expected to be insignificant with the implementation of proper mitigation measures. The impact will be minimized by the adoption of proper working methods such as regular water spraying and providing wheel-washing facilities. Relevant clauses will be incorporated into the contract documents in this regard.

(b) Noise

The construction activities involved in the project will include earthworks and general concrete building works. Common construction plant including backhoe, concrete mixer, vibratory poker, pneumatic breaker and the like will be used. It is anticipated that only minor noise impacts will be generated. Notwithstanding this, clauses will be incorporated into the construction contract requiring the contractor to comply with the Noise Control Ordinance, Technical Memorandum of the Environmental Impact Assessment Ordinance (EIAO) and other relevant regulations so as to control the noise level within acceptable limit during the construction stage.

(c) Water

It is anticipated that minor water quality impact will be generated during the excavation works. The contractor will be required to provide, where necessary, a silt removal facility on site so as to remove the silt in the ground water before discharging into the nearby stormwater drains. Such a silt removal facility will be provided by the contractor on site before commencement of the excavation. If the underground water is found to be contaminated, the Contractor will be required under appropriate contractual provisions to dispose of the contaminated underground water at an appropriate site.

(d) Construction and Demolition Materials (C&DM)

Although it is anticipated that the surplus C&DM generated will be below 300,000 m³, in the design, consideration will be put on to minimizing the amount of excavation, thus the amount of C&DM. Moreover, a trip-ticket system will be implemented to control the disposal of C&DM. The C&DM will be sorted on-site to facilitate reuse, recycling and disposal as appropriate. Furthermore, the use of timber will as far as practicable be replaced by steel in formwork and temporary works so as to reduce the generation of waste.

5.2 *During operation stage*

(a) Odour

To minimize odour impacts, the wet well of the proposed pumping station will be located underground and enclosed by air-tight covers. A reinforced concrete superstructure will be provided to enclose the underground substructures

including the wet well, inlet chamber, screening chamber, etc. In addition, a de-odourizer and a forced ventilation system will be installed to remove odour before discharging air from the pumping station to open air. With these measures incorporated into the design of the pumping station, it is anticipated that potential odour impacts can be mitigated.

(b) Water quality

To minimize water quality impacts arising from the bypass of sewage, a standby pump will be provided to cater for breakdown and maintenance of the duty pump so as to avoid sewage bypass. In order to minimize the chance of power failure, a transformer will be installed by the China Light and Power Co. Ltd. for power supply from a ring circuit. In addition, a telemetry system will also be provided in order to send signals showing irregularity or any operation problem of the pumping station to the existing Yuen Long Sewage Treatment Works such that immediate actions could be taken in case of emergency. Besides that, the rising mains are designed as twin so as to facilitate inspection, maintenance and pipe replacement works by closing one main and operating the other. With all these measures incorporated into the design of the pumping station, it is anticipated that the chance of emergency sewage bypass will be extremely remote.

(c) Noise

To minimize potential noise impact from the operating pumps, all the pumps will be located underground and be enclosed inside the pumping station superstructure. Acoustic filters will be installed at the extraction fans of the de-odourizer if necessary. A noise forecast for the proposed pumping station is attached in Appendix 2. The noise impact of the pumping station on the nearest noise sensitive receiver will be within acceptable limit.

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(d) Waste

The screenings of the sewage will be packed in plastic bags. This operation will be conducted inside the pumping station. The screenings will then be transported to landfill site for disposal.

(e) Visual impacts

Aesthetics will be a major consideration in the design of the pumping station. Architectural aspects of the pumping station including colour scheme, types of external finishing and layout of the pumping station will be carefully designed taking into account the features of surrounding land and buildings. Moreover, plantation will also be provided to further improve the aesthetic appearance of the pumping station. Photographs showing the location of the pumping station are attached in Appendix 3.

APP 3

5.3 Summary of potential environmental impacts and mitigation measures

The potential environmental impacts and proposed mitigation measures to be incorporated into the design and construction contract of the proposed Au Tau Sewage Pumping Station are summarized in the following Table 1:-

Table 1

Project Stage	Potential Environmental Impact	Mitigation Measures	Relevant Section in the Project Profile
Construction	Minor dust nuisance	Control by contract specification	5.1 (a)
	Minor noise impact	Control by contract specification	5.1 (b)
	Minor water impact	Control by contract specification	5.1 (c)
Operation	Odour nuisance	<ol style="list-style-type: none"> 1. Enclosing odour source. 2. A de-odourizer will be installed to remove odour from the air. 	5.2 (a)
	Water quality impact from emergency sewage bypass	<ol style="list-style-type: none"> 1. A standby pump will be provided. 2. Power supply will be supplied from a ring circuit. 3. A telemetry system will be provided to send signals showing irregularity or any operation problem from the pumping station to the existing Yuen Long Sewage Treatment Works. 4. The rising mains are designed as twin so as to facilitate maintenance and repair by closing one main and operating the other. 	5.2 (b)
	Minor noise impact	Enclosing the pumping station by a superstructure and using acoustic filter to further reduce noise level of extraction fans.	5.2 (c)
	Generation of screenings	<ol style="list-style-type: none"> 1. Containment. 2. Proper disposal. 	5.2 (d)

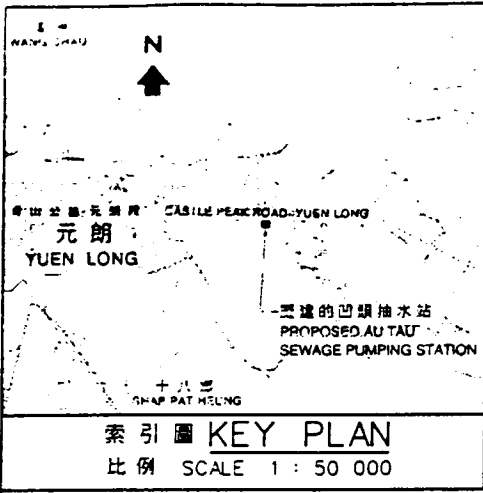
	Visual impacts	<ol style="list-style-type: none">1. Architectural aspects of the pumping station including colour scheme, types of external finishing and layout of the pumping station will be carefully designed taking into account the surrounding land features and buildings.2. Peripheral planting.	5.2 (e)
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With the above-mentioned mitigation measures incorporated into the design and construction contract, the proposed Au Tau Sewage Pumping Station will cause insignificant environmental impacts on the surrounding environment. In conclusion, the above preventive and mitigation measures are considered sufficient to mitigate the possible environmental impacts that may arise from the pumping station.

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APPENDIX 1

APPENDIX 1



博愛醫院
POK OI HOSPITAL

834 000 N

博愛交匯處
POK OI INTERCHANGE

青山公路 - 元朗段

CASTLE PEAK ROAD - YUEN LONG

833 900 N

元朗公路
YUEN LONG HIGHWAY

元朗公路
YUEN LONG HIGHWAY

擬建的凹頭污水泵房
PROPOSED AU TAU SEWAGE PUMPING STATION

擬建的圍牆
PROPOSED BOUNDARY WALL

833 800 N

833 700 N

楊屋村
YEUNG UK TSUEN

822 300 E

833 600 N

工務計劃項目
PWD ITEM No. 4274DS

圖則名稱 drawing title
元朗及錦田污水渠系統第三階段
第1期乙工程 -
凹頭污水泵房及附屬工程
YUEN LONG AND KAM TIN SEWERAGE
STAGE III, PHASE 1B -
AU TAU SEWAGE PUMPING STATION
AND ANCILLARY WORKS

繪圖 drawn by
P. S. LAM

日期 date
9 / 99

批核 approved
K. WONG

日期 date

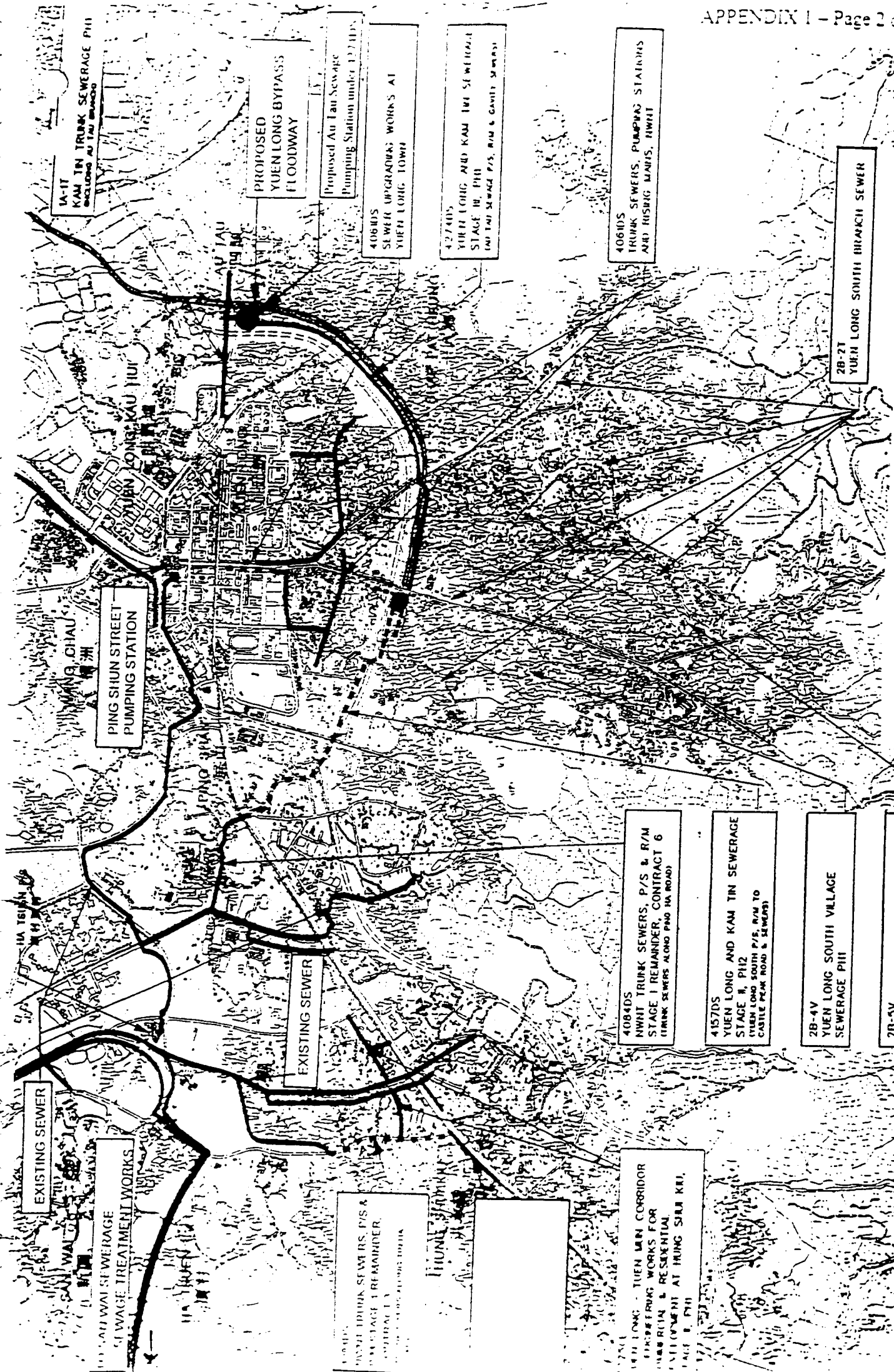
部門 office
污水工程處
SEWERAGE PROJECTS DIVISION

圖則編號 drawing no.
DDN/274DS/ 001

比例 scale
1 : 2 000
OR
AS SHOWN



香港特別行政區政府工務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION



Drawing No. DDN/247DS/002
 - Scope of The Project No. 4274DS and its relationship with other Phases of the Sewerage Works in Yuen Long

EXISTING SEWER

EXISTING SEWERAGE TREATMENT WORKS

EXISTING SEWER

4084DS
 SEWER UPGRADES WORKS AT YUEN LONG TOWP

4064DS
 TRUNK SEWERS, PUMPING STAIRS AND RISING MAINS, HWWT

4084DS
 NWAIT TRUNK SEWERS, P/S & R/M STAGE I REMAINDER, CONTRACT 6 (TRUNK SEWERS ALONG PAO HA ROAD)

4157DS
 YUEN LONG AND KAM TIN SEWERAGE STAGE II, PHII (YUEN LONG SOUTH P/S, R/M TO CASTLE PEAK ROAD & SEWERS)

2B-4V
 YUEN LONG SOUTH VILLAGE SEWERAGE PHII

2B-5V
 YUEN LONG SOUTH VILLAGE SEWERAGE PHII

PROPOSED YUEN LONG BYPASS FLOODWAY

Proposed Air Fan Sewage Pumping Station under PHII

4084DS
 SEWER UPGRADES WORKS AT YUEN LONG TOWP

4274DS
 YUEN LONG AND KAM TIN SEWERAGE STAGE III, PHII (INT. INT. SEWAGE P/S, R/M & GAVIT SEWERS)

1A-IT
 KAM TIN TRUNK SEWERAGE PHII EXCLUDED AT TAU MUKO

2B-2T
 YUEN LONG SOUTH VILLAGE SEWER

APPENDIX 2

APPENDIX 2

**NOISE FORECAST FOR THE PROPOSED
AU TAU SEWAGE PUMPING STATION**

**Under PWP Item No. 4274DS – Yuen Long and Kam Tin Sewerage, Stage III, Phase 1B, Au
Tau Sewage Pumping Station and Ancillary Works**

1. Purpose of the Noise Forecast

The purpose of this forecast is to assess the anticipated noise level that will be generated as a result of the operation of the proposed Au Tau Sewage Pumping Station. The assessment is based primarily on the noise level generated by an existing pumping station, named Ping Shun Street Pumping Station, in Yuen Long. The forecast noise level will be compared with the statutory criteria.

It should be noted that the actual noise level generated by the proposed pumping station could only be ascertained when the detailed design of both the civil and E&M works are completed at a later stage.

2. Procedure for the Noise Forecast

This noise forecast for the proposed Au Tau Sewage Pumping Station is carried out in accordance with the “Technical Memorandum for the Assessment of Noise From Places other than Domestic Premises, Public Places or Construction Sites” (TM for NCO) issued under the Noise Control Ordinance and the “Technical Memorandum on Environmental Impact Assessment Process” (TM for EIA) published by EPD. The procedures are as follows :

- (i) determine the appropriate Acceptable Noise Level for the Noise Sensitive Receiver in question.
- (ii) conduct measurements to obtain the Corrected Noise Level of the noise of a similar pumping station.
- (iii) compare the Corrected Noise Level with the Acceptable Noise Level to determine if the noise of the proposed pumping station is acceptable.

3. Determination of the Acceptable Noise Levels

Two Noise Sensitive Receivers (NSR 1 & 2) are identified for the determination of the Acceptable Noise Levels (ANL).

The nearest Noise Sensitive Receiver (NSR 1) in accordance with paragraph 2.3.3 of the TM for NCO is a domestic house south of the proposed Au Tau Sewage Pumping Station. The location of

the NSR 1 is shown on the attached Drawing No.1. It is in a low density residential area consisting of low-rise developments. It is about 150m away from the Yuen Long Highway and Castle Peak Road. With such distance, it is considered that NSR1 is indirectly affected by the Influencing Factors, which are Yuen Long Highway and Castle Peak Road. According to Table 1 of TM for NCO, the Area Sensitivity Rating should be "B". The ANL according to Table 2 of TM for NCO should be 65 dB(A) from 0700 to 2300 hours and 55 dB(A) from 2300 to 0700 hours.

The location of NSR 2 is also shown on Drawing No. 1. It is also a low density residential area consisting of low-rise developments. It is less than 100 m away from the Yuen Long Highway. Hence, the dominant feature of the noise climate is the traffic noise. With reference to TM for NCO, the NSR 2 is at such a location that it is directly affected by an Influencing Factor, which is the Yuen Long Highway. According to Table 1 of TM for NCO, the Area Sensitivity Rating should be "C". The ANL according to Table 2 of TM for NCO should be 70 dB(A) from 0700 to 2300 hours and 60 dB(A) from 2300 to 0700 hours.

4. Background Noise Measurement

4.1 NSR 1

In order to determine the background noise, measurements were conducted at the nearest noise sensitive receiver (NSR 1) on 10 December 1999. The location selected for the noise measurements is shown on the attached Drawing No. 1. The measurement point is at a position 1m from the exterior boundary wall of a domestic house south of the proposed Au Tau Sewage Pumping Station. The distance between the center location of pumps in the proposed pumping station and 1m from the façade of the nearest NSR 1 is 80m. The weather was fine during the measurements.

Average A-weighted noise levels, L_{eq} , over a 30-minute period were taken at the monitoring point in the afternoon. The average noise level is 53.9 dB(A).

It should be noted that the background noise came mainly from the nearby Yuen Long Highway and Castle Peak Road.

4.2 NSR 2

Noise measurements were conducted at NSR 2 on 10 December 1999. The location selected for the noise measurements is also shown on the attached Drawing No.1. The measurement point is at a position 1m from the exterior boundary wall of a domestic house. The distance between the center location of pumps in the proposed pumping station and 1m from the façade of the NSR 2 is

120m. The weather was fine during the measurements.

Average A-weighted noise levels, L_{eq} , over a 30-minute period were taken at the monitoring point in the afternoon. The average noise level is 61.0 dB(A).

It should be noted that the background noise came mainly from the nearby Yuen Long Highway and Castle Peak Road.

5. Noise Forecast of the proposed Pumping Station

In order to forecast the noise impact of the proposed Au Tau Sewage Pumping Station, noise measurements were conducted at an existing pumping station, named Ping Shun Street Pumping Station, in Yuen Long. The average dry weather flow of the Ping Shun Street Pumping Station is 45,792 cu.m/day, which is much larger than 12,200 cu.m/day of the proposed pumping station. This noise forecast based on the noise of the Ping Shun Street Pumping Station therefore will be on the conservative side. The noise measurements were carried out on 30 September 1999 and 8 October 1999 when the pumping station was operational. The locations selected for the noise measurements are shown on Drawing No. 2. The weather was fine during the measurements.

The detailed layout of the Au Tau Sewage Pumping Station is being designed. However, it can be confirmed at this stage that the pumps will be located underground and enclosed inside the pumping station building. This arrangement is similar to that of Ping Shun Street Pumping Station. The extraction fans of the de-odorizer will also be located within the building. Noise of the E&M equipment will be largely enclosed within the pumping station.

Average A-weighted noise levels, L_{eq} , over a 30-minute period were taken at the monitoring points. The noise results are summarized as follows :

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Distance from</u>	
			<u>Pumps</u>	<u>$L_{eq}(30)$, dB(A)</u>
30.9.99	8:40-9:10	C	20m	60.9
	10:30-11:00	C	20m	59.6
	12:45-13:15	C	20m	59.5
	14:45-15:15	C	20m	58.9
	15:20-15:50	E	27m	59.9
	17:30-18:00	C	20m	60.5

It is noted that the noise level at location E is worse than that at location C because there is an open door facing location E. The orientation of the proposed Au Tau pumping station will be roughly

the same as the Ping Shun Street pumping station. There will be no open door or extraction fan facing the NSRs.

Date	Time	Location	Distance from	
			Pumps	Leq(30), dB(A)
8.10.99	9:24-9:54	P	2m	74.7
	9:55-10:25	A	7m	74.5
	10:25-10:55	B	9m	61.3
	10:56-11:26	C	20m	59.2
	11:27-11:57	D	32m	58.6

It should be noted from the results that the noise of the pump was reduced significantly by the concrete superstructure of the pumping station.

All the above noise level figures were measured when only one pump operated. The noise level at location C is used to predict the noise level at the NSR. From the measured figures, the maximum noise level at this location is 60.9dB(A).

In order to measure the background noise of the Ping Shun Street Pumping Station, a measurement was taken at location C on 16.11.99 at 11:30am-12:00pm when there was no pumps running. The measured noise level was 58.4 dB(A).

The Measured Noise Level (MNL) for only one pump running adjusted by the background noise therefore is :

$$60.9 \text{ dB(A)} = 10 \log (10^{0.1 \times \text{MNL}} + 10^{0.1 \times 58.4}) \text{ dB(A)}$$

$$\text{MNL} = 57.3 \text{ dB(A)}$$

$$\begin{aligned} \text{To allow for facade effect, the noise level for one pump} &= 57.3 \text{ dB(A)} + 3 \text{ dB(A)} \\ &= 60.3 \text{ dB(A)} \end{aligned}$$

$$\begin{aligned} \text{If two duty pumps operate together, the total noise level} &= 10 \log (10^{0.1 \times 57.3} \times 2) \\ &= 60.3 \text{ dB(A)} \end{aligned}$$

$$\begin{aligned} \text{To allow for facade effect, the total noise level} &= 60.3 \text{ dB(A)} + 3 \text{ dB(A)} \\ &= 63.3 \text{ dB(A)} \end{aligned}$$

6. Predicted Noise Level at the Noise Sensitive Receivers (NSR 1 & 2)

6.1 NSR 1

According to general acoustic principle, correction for distance from measured noise level =
 $20 \log (\text{distance ratio})$
 $= 20 \log (80 / 20)$
 $= 12.0 \text{ dB(A)}$

During the period 0700-2300 hours:

Assume the proposed Au Tau Sewage Pumping Station is in full operation to accommodate the flow during the peak hours, i.e. two duty pumps are running.

Therefore, the noise level taking into account of distance
 $= 63.3 \text{ dB(A)} - 12.0 \text{ dB(A)}$
 $= 51.3 \text{ dB(A)}$

During the period 2300 – 0700 hours:

During the late night period, only one pump will be operated occasionally.

Therefore, the noise level taking into account of distance
 $= 60.3 \text{ dB(A)} - 12.0 \text{ dB(A)}$
 $= 48.3 \text{ dB(A)}$

Determination of Corrected Noise Level

In accordance with Paragraph 3.3.5 of the TM, the Corrected Noise Level (CNL)
 $= \text{MNL} + c_{\text{tone}} + c_{\text{imp}} + c_{\text{int}} \text{ dB(A)}$

Since all the pumps will be properly maintained, the tonality factor f_{tone} is considered to be less than 3 dB. According to Table 3, the tonality correction is equal to zero.

As the pumps will run constantly and continuously, the noise is not impulsive in character. The correction for impulsiveness c_{imp} therefore can be ignored.

Furthermore, the A-weighted sound pressure level of the noise under investigation is not subject to rapid changes in level of 5 dB(A) or more within the sample time period, the correction for intermittency therefore can be ignored.

Hence, the Corrected Noise Level CNL for the period 0700 – 2300 hours = 51.3 dB(A)

the Corrected Noise Level CNL for the period 2300 – 0700 hours = 48.3 dB(A)

Compliance with statutory requirements

	Table 2 of TM for NCO	Table 1A of TM for EIA
Acceptable Noise Level for 0700 – 2300 hours	65 dB(A)	60 dB(A)
Acceptable Noise Level for 2300 – 0700 hours	55 dB(A)	50 dB(A)

The forecast noise levels for the two periods are within the allowable limit.

The noise impact due to the proposed pumping station is negligible in comparison with the background traffic noise as detailed in Section 4.1.

6.2 NSR 2

According to general acoustic principle, correction for distance from measured noise level should be $20 \log$ (distance ratio)

$$= 20 \log (120/20)$$

$$= 15.5 \text{ dB(A)}$$

During the period 0700-2300 hours:

Assume the proposed Au Tau Sewage Pumping Station is in full operation to accommodate the flow during the peak hours, i.e. two duty pumps are running.

Therefore, the noise level taking into account of distance

$$= 63.3 \text{ dB(A)} - 15.5 \text{ dB(A)}$$

$$= 47.8 \text{ dB(A)}$$

During the period 2300 – 0700 hours:

During the late night period, only one pump will be operated occasionally.

Therefore, the noise level taking into account of distance
 = 60.3 dB(A) – 15.5 dB(A)
 = 44.8 dB(A)

Determination of Corrected Noise Level

Similar to NSR1 , c_{tone} , c_{imp} , and c_{int} can be ignored.

Hence, the Corrected Noise Level CNL for the period 0700 – 2300 hours = 47.8 dB(A)
 the Corrected Noise Level CNL for the period 2300 – 0700 hours = 44.8 dB(A)

Compliance with statutory requirements

	Table 2 of TM for NCO	Table 1A of TM for EIA
Acceptable Noise Level for 0700 – 2300 hours	70 dB(A)	65 dB(A)
Acceptable Noise Level for 2300 – 0700 hours	60 dB(A)	55 dB(A)

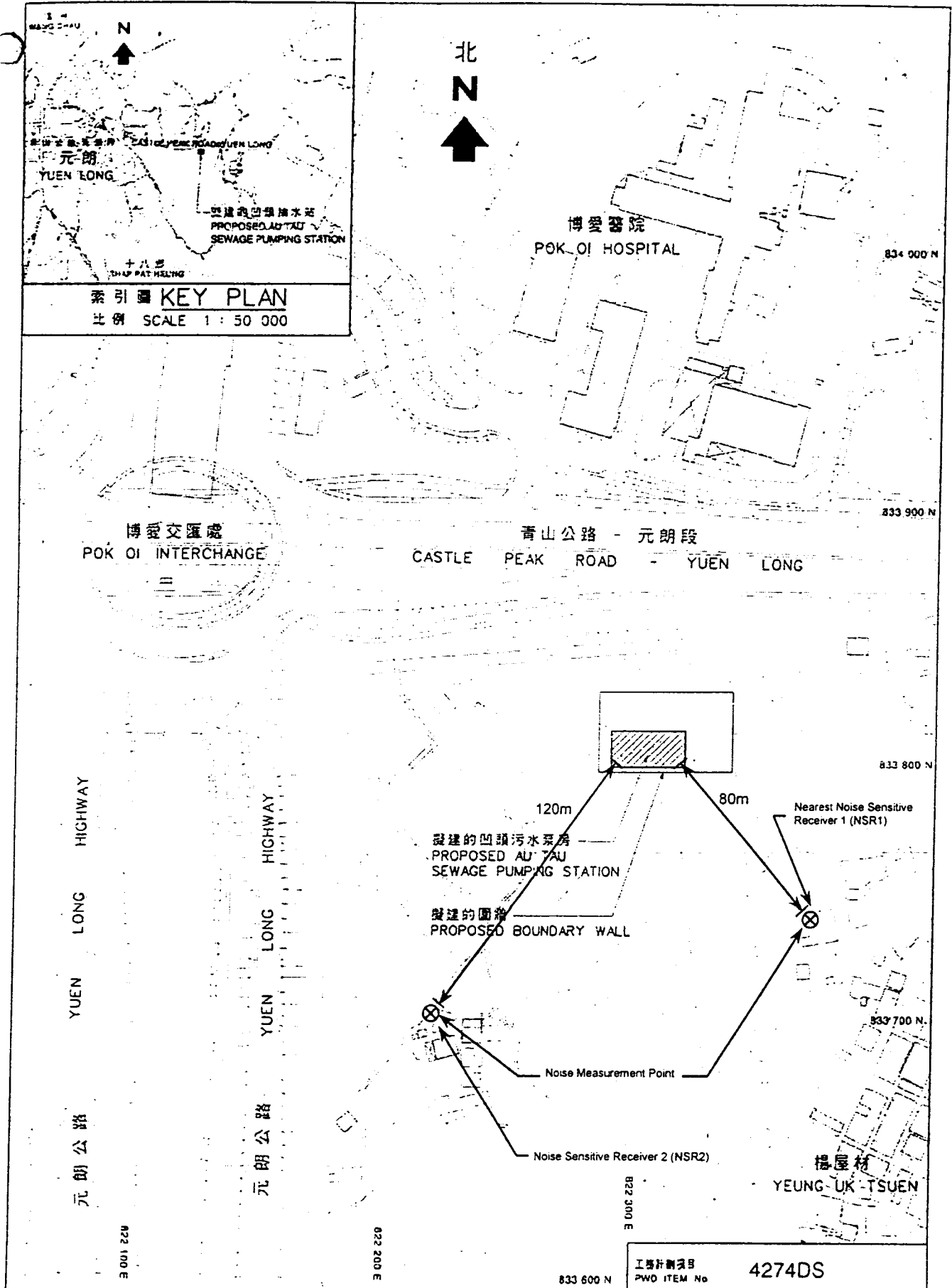
The forecast noise levels for the two periods are within the allowable limit.

The noise impact due to the proposed pumping station is negligible in comparison with the background traffic noise as detailed in Section 4.2.

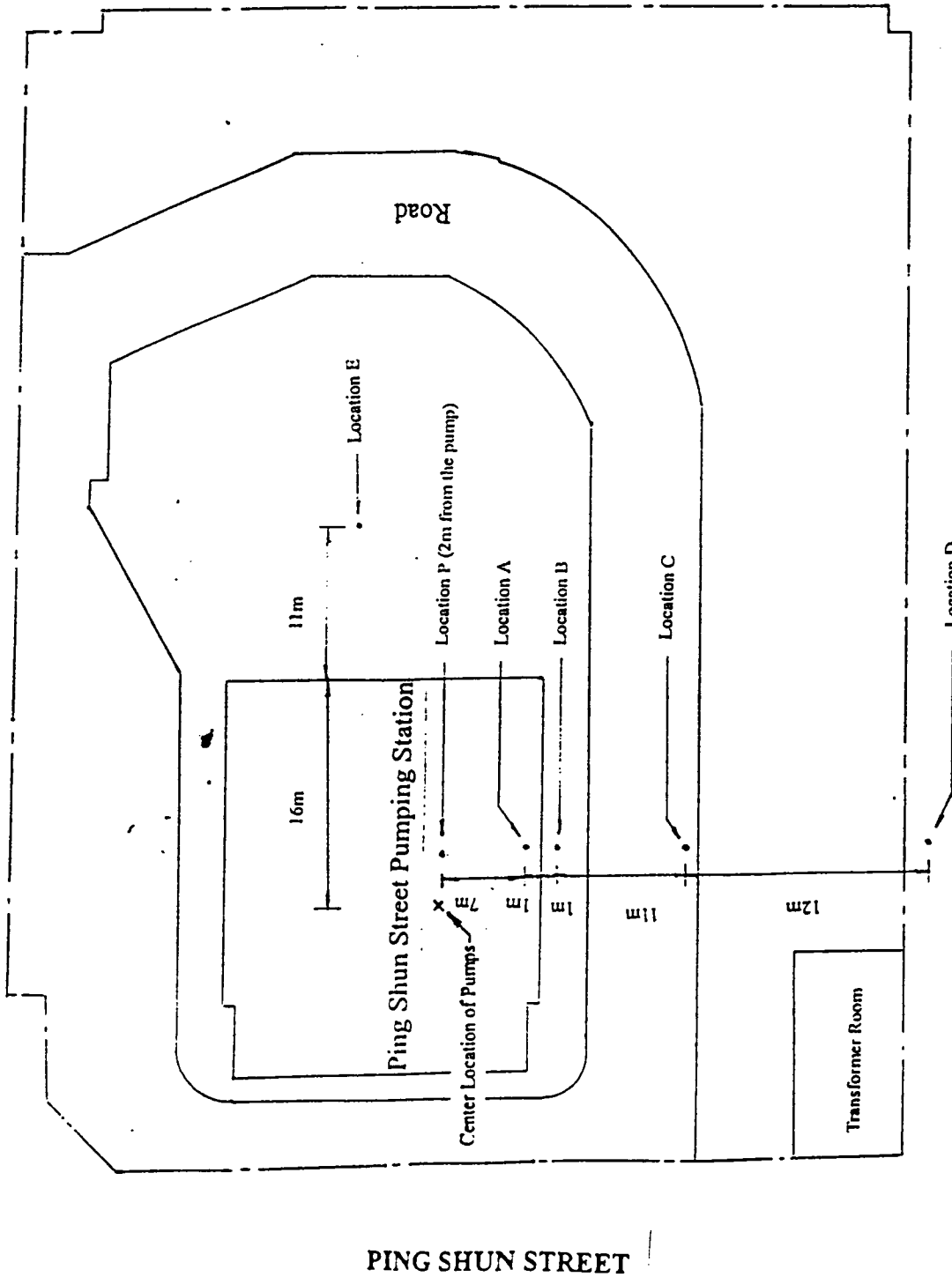
7. Conclusion

Noise measurements were conducted for the background and an existing similar Ping Shun Street pumping station in Yuen Long. The forecast noise level of the proposed pumping station is within the allowable limits set out in the TM for NCO and TM for EIA. It should be noted that the capacity of the Ping Shun Street Pumping Station is much larger than that of the proposed Au Tau Sewage Pumping Station. The noise level forecast in Section 6.1 and 6.2 based on Ping Shun Street Pumping Station will hence be well on the conservative side. Based on the assessment, it is concluded that the impact of noise on the nearby noise sensitive receivers is negligible compared with the existing traffic noise.

END

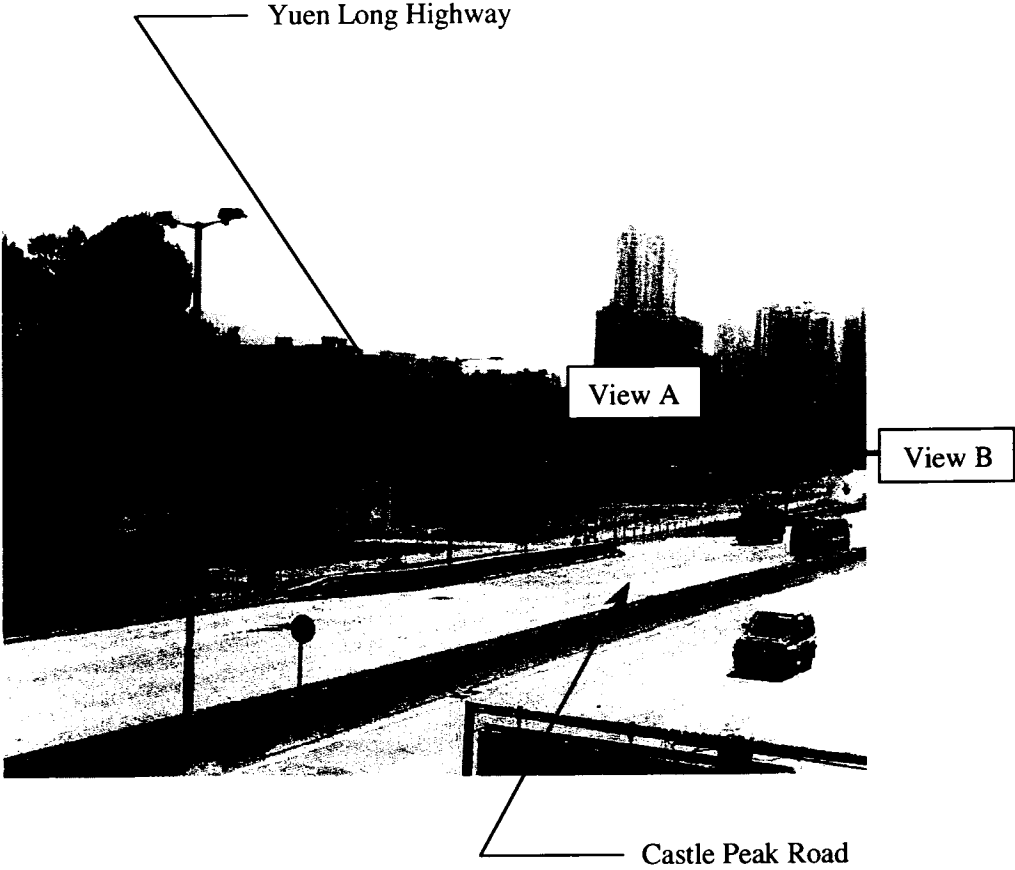


圖則名稱 Drawing title 元朗及坑田污水渠系統第三階段 第一期之工程 凹頭污水泵房及附屬工程 YUEN LONG AND KAM TIN SEWERAGE STAGE III PHASE 1B AU TAU SEWAGE PUMPING STATION AND ANCILLARY WORKS		繪圖 Drawn by P. S. LAM	日期 Date 9 / 99	圖則編號 drawing no. Drawing No. 1	比例 scale 1 : 2 000 OR AS SHOWN
		校核 approved K. WONG	日期 Date	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	
		部門 Office 污水工程處 SEWERAGE PROJECTS DIVISION			



Drawing No. 2 - Location of the Noise Monitoring Points for the Ping Shun Street Pumping Station in Yuen Long

APPENDIX 3



View A



View B



Approximate Location for Au Tau Sewage Pumping Station

Proposed Location for Au Tau Sewage Pumping Station