Project Profile

for

Au Tau Sewage Pumping Station

under

PWP Item No. 4274DS
Yuen Long and Kam Tin Sewerage, Stage III
Phase 1A – Shap Pat Heung Rising Mains and Gravity Sewers
Phase 1B – Au Tau Sewage Pumping Station and Ancillary Works

Drainage Services Department
Government of the Hong Kong Special Administrative Region

Content **Page**

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 630m long gravity sewers and 1650m long twin rising mains in Phase 1A; and construction of 50m long twin rising mains, 300m 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 areas 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 is 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.

APP 1

1.6 Contact Person

Engineer, Sewerage Projects Division, Drainage Services Department

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 to be undertaken 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 mid 2003 for completion in mid 2005 tentatively. A copy of the tentative implementation programme for this pumping station is attached in Appendix 2.

APP 2

2.3 The first 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. ( ) in Annex (3) to EP2/N6/41 dated 29 February 1996. A copy of the previously submitted project profile together with DEP's reply memo is attached in Appendix 3. However, 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), this revised project profile is submitted.

APP 3

2.4 The general layout drawings of this project had been circulated to relevant Government Departments and utility undertakings for comments and no major objection has been received. A copy of the relevant memo ref. (1) in SP/8/4274DS/S3P1/77 Part II dated 23.6.99 and letter ref. (2) in SP/8/4274DS/S3P1/77 Part II dated 23.6.99 circulating the drawings to the relevant Government Departments and the utility undertakings is attached in Appendix 4.

APP 4

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.

3.2 *During operation stage*

(a) Odour

The wet well of the pumping station would be a source 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 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. 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 resulted.

(e) Aesthetics

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

4. Major Elements of the Surrounding Environment

4.1 The areas in the east and south of the project site are mostly villages. The nearest distance between the pumping station and the villages will be 40m approximately. The Pok Oi Hospital is located 120m 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 pumping station will be located within an agriculture zone. Planning permission for the proposed Au Tau Sewage Pumping Station was granted by the Town Planning Board (TPB) on 23.10.1998. In the recent project circulation, DPO/TMYL has confirmed that the planning permission is still valid vide his memo ref. ( ) in PDYL 2/10/56 (VIII) dated 8.7.1999. In addition, DPO/TMYL and D of A&F have confirmed that the project will not encroach upon any country park, special area, conservation area, marine park or marine reserve, site of cultural heritage and site of specific scientific interest vide their memos ref. ( ) in PDYL 2/10/56 (IX) dated 17.9.1999 and ref. (6) in AFPOL13/27III dated 13.9.1999 respectively. In addition, S for HA advised vide his memo ref. (15) in HAB AM 81/3/33 dated 15.9.1999 that a portion of the proposed rising main would fall within the works limits of an adjacent project entitled "Yuen Long Bypass Floodway" under which a Heritage Impact Assessment (HIA) would be conducted. A copy each of the extracts from Outline Zoning Plans Nos. S/YL-TT/4 & S/YL/6, planning permission from TPB, and the relevant memos from DPO/TMYL, D of A&F and S for HA are attached in Appendix 5 for reference.

APP 5

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 excavation works. The contractor will be required to provide, where necessary, a silt removal facility on site so as to remove the silt 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.

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 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

APP 6

Appendix 6. The noise impact of the pumping station on the nearest noise sensitive receiver will be within acceptable limit.

(d) Waste

The screenings of the sewage will be enclosed 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 7.

APP 7

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)

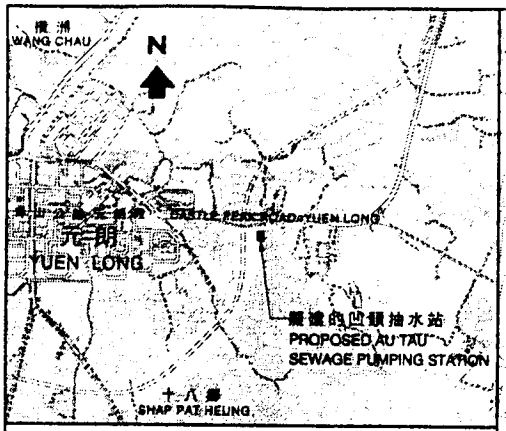
Table 1 (continue)

Operation	Odour nuisance	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	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	1. Containment. 2. Proper disposal.	5.2 (d)
	Visual impacts	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)

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.

END

APPENDIX 1



索引圖 KEY PLAN
比例 SCALE 1 : 50 000

北
N

博愛醫院
POK OI HOSPITAL

834 000 N

833 900 N

博愛交匯處
POK OI INTERCHANGE

青山公路 - 元朗段
CASTLE PEAK ROAD - YUEN LONG

833 800 N

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

YUEN LONG HIGHWAY
元朗公路

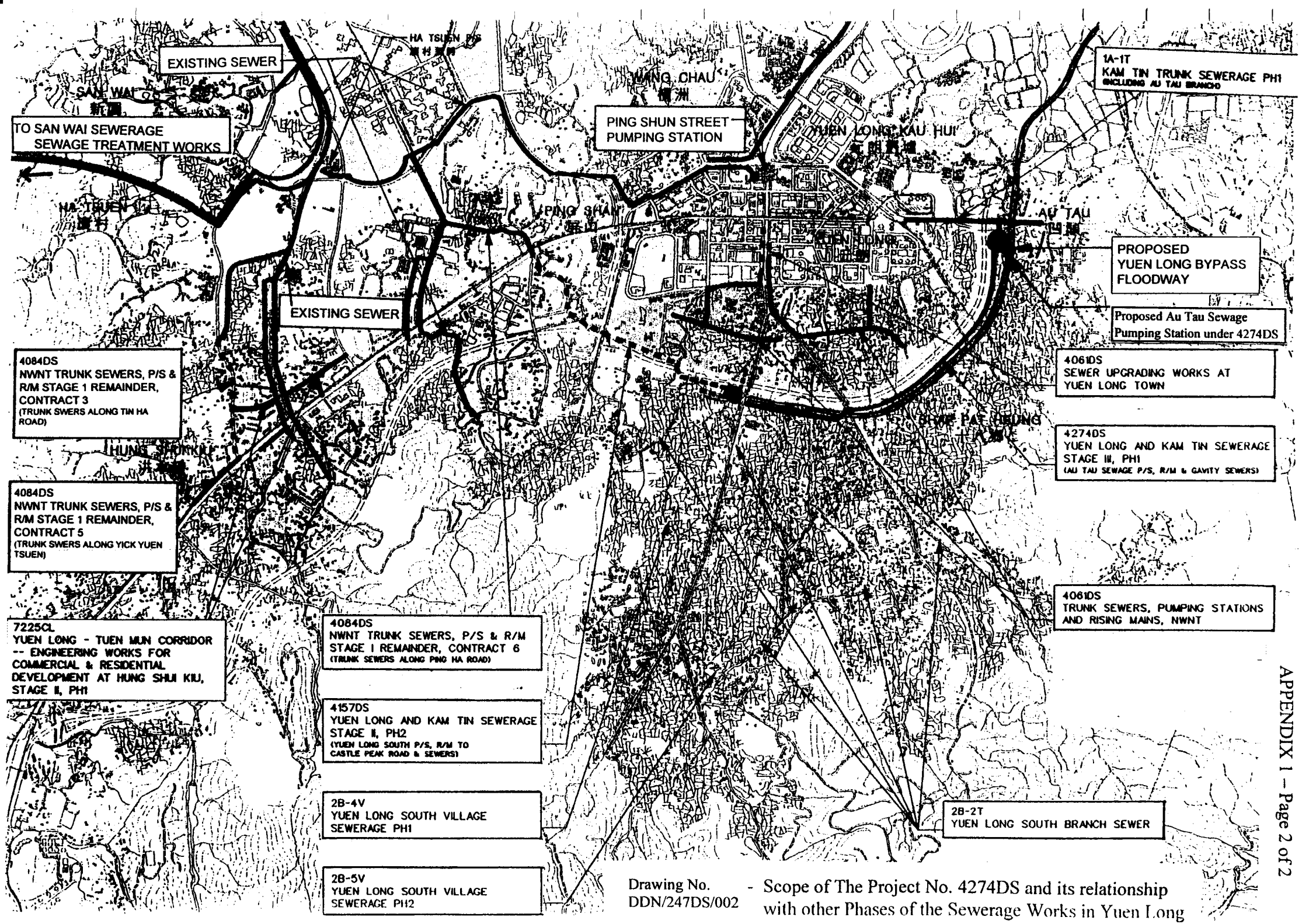
833 700 N

楊屋村
YEUNG UK TSUEN

822 100 E
822 200 E
822 300 E
833 600 N

工務計劃項目 PWD ITEM No. 4274DS			
圖則名稱 drawing title 元朗及錦田污水滙系統第三階段，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	繪畫 drawn by P. S. LAM	日期 date 9 / 99	圖則編號 drawing no. DDN/274DS/001
	批核 approved K. WONG	日期 date	比例 scale 1 : 2 000 OR AS SHOWN
	部門 office 污水工程部 SEWERAGE PROJECTS DIVISION		香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

%%%%%%%%%%%dgnspec%%%%%%%%%%%% $$$$date$$$$

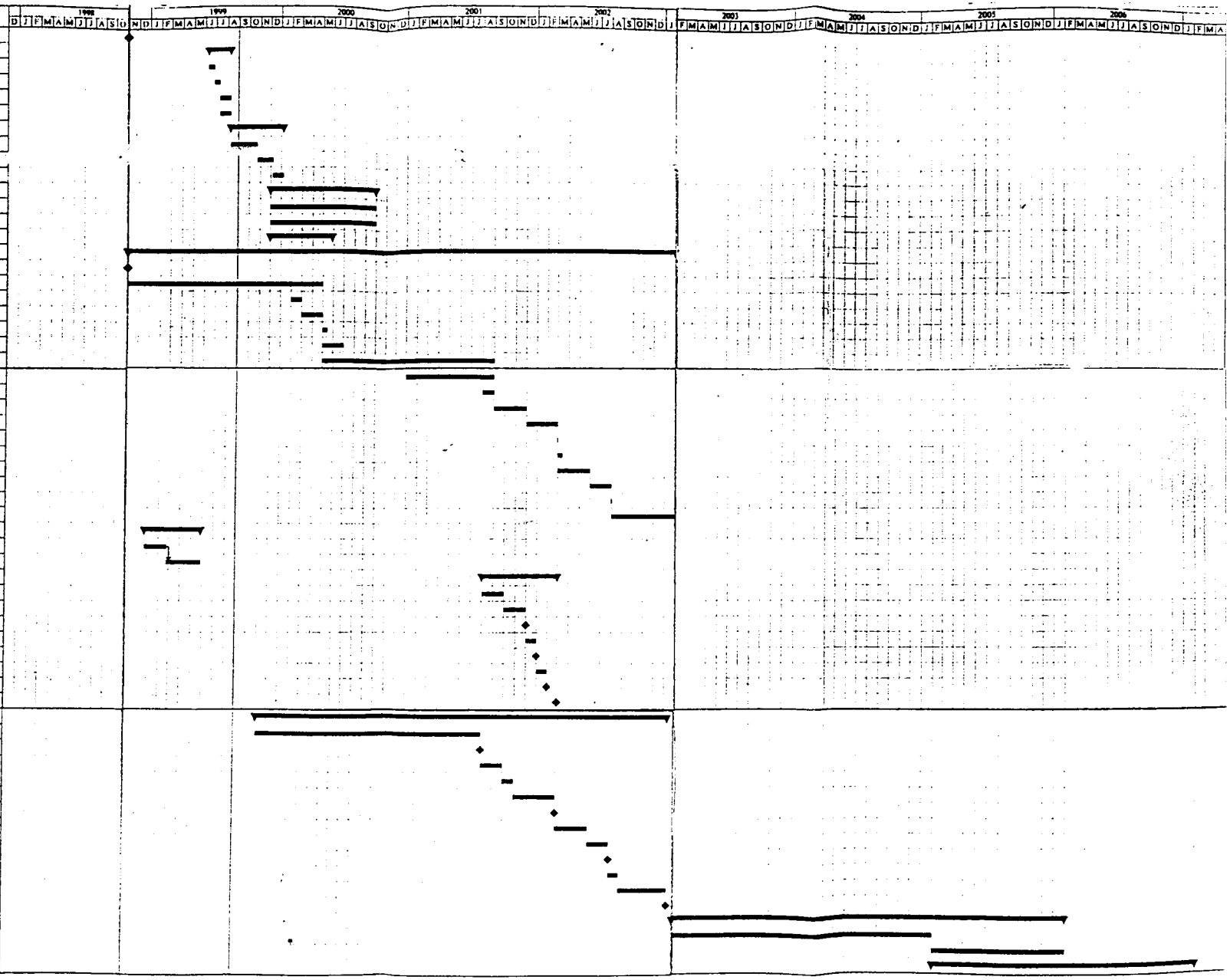


Drawing No. DDN/247DS/002 - Scope of The Project No. 4274DS and its relationship with other Phases of the Sewerage Works in Yuen Long

APPENDIX 2

Project No. 4274DS – Yuen Long and Kam Tin Sewerage Stage III Phase 1B – Sewage Pumping Station and ancillary works

ID	Task Name	Duration	Start	Finish	Action
1	Preliminary Stage (Completed)	1d	01.11.98	01.11.98	FM
2	Preliminary Design	61d	10.06.99	09.08.99	
3	Adoptive Review	16d	10.06.99	25.06.99	FM
4	Prepare revised preliminary layouts	15d	26.06.99	10.07.99	FM
5	Collect Utility Records	30d	11.07.99	09.08.99	FM
6	Circulation	30d	11.07.99	09.08.99	FM
7	EIA	150d	10.08.99	06.01.00	
8	Preparation of Project Profile	75d	10.08.99	[illegible]	FM
9	Application for approval to apply direct for EP	45d	24.10.99	07.12.99	PM/FM
10	Application for EP	30d	08.12.99	06.01.00	PM/FM
11	Investigation	304d	01.12.99	29.09.00	
12	Land Surveying	304d	01.12.99	29.09.00	FM
13	Site Investigation	304d	01.12.99	29.09.00	FM
14	Planning Application	180d	01.12.99	28.05.00	FM
15	Land Acquisition and Clearance	1552d	02.11.98	31.01.03	
16	Submission of CAF	1d	02.11.98	02.11.98	PM
17	Finalize Resumption Plan	546d	02.11.98	30.04.00	DLO
18	Prepare Gazette Documents	30d	31.01.00	29.02.00	PM/FM
19	Circulate and Amend Gazette Documents	61d	01.03.00	30.04.00	PM/FM
20	Gazette Scheme	14d	01.05.00	14.05.00	EPD/FM
21	Objection Notice Period	61d	01.05.00	30.06.00	EPD/FM
22	Resolve Objection	489d	01.05.00	01.09.01	EPD/FM
23	Obtain Exco Final Decision	244d	01.01.01	01.09.01	EPD/FM
24	Authorization of Scheme & Gazettal	32d	01.08.01	01.09.01	EPD
25	Prepare Resumption Submission	90d	02.09.01	30.11.01	DLO
26	Process Resumption Submission by LandsD HQ	90d	01.12.01	28.02.02	DLO
27	Order Resumption	1d	01.03.02	01.03.02	DLO
28	Gazette Land Resumption	14d	01.03.02	14.03.02	DLO
29	Land Resumption Notice Period	92d	01.03.02	31.05.02	DLO
30	Miscellaneous Clearance Preparations	61d	01.06.02	31.07.02	DLO
31	Reversion Date	1d	01.08.02	01.08.02	DLO
32	Clearance	184d	01.08.02	31.01.03	DLO
33	Public Consultation	154d	25.12.98	27.05.99	
34	Prepare Consultation Materials	60d	25.12.98	22.02.99	PM/FM
35	Consultation with VRs, RC & DB	94d	23.02.99	27.05.99	EPD/PM/FM
36	Funding & Approval	213d	01.08.01	01.03.02	
37	Prepare BQ	61d	01.08.01	30.09.01	FM
38	Prepare CURE submission	61d	01.10.01	30.11.01	PM/FM
39	CURE submission	1d	01.12.01	01.12.01	PM
40	Prepare draft PWSC Paper	30d	02.12.01	31.12.01	PM/FM
41	Submit draft PWSC Paper	1d	01.01.02	01.01.02	PM
42	Clearance by DSD HQ	30d	02.01.02	31.01.02	PM
43	PWSC Meeting	1d	01.02.02	01.02.02	PM
44	FC Meeting (Upgrade to Cat. A)	1d	01.03.02	01.03.02	PM
45	Detailed Design & Tender Stage	1172d	01.11.99	15.01.03	
46	Detailed Design & Design Memorandum	639d	01.11.99	31.07.01	FM
47	Circulation of Design Memorandum	1d	01.08.01	01.08.01	FM
48	Finalization of Design	61d	01.08.01	30.09.01	FM
49	Approval of Design	31d	01.10.01	31.10.01	FM
50	Prepare Tender Document	120d	01.11.01	28.02.02	FM
51	Circulation of Tender Document	1d	01.03.02	01.03.02	FM
52	Approval of Tender Document	92d	01.03.02	31.05.02	PM
53	Completion of Tender Document	61d	01.06.02	31.07.02	FM
54	Gazette for Tender	1d	01.08.02	01.08.02	PM
55	Tendering Period	28d	01.08.02	28.08.02	PM/FM
56	Tender Assessment	139d	29.08.02	14.01.03	FM
57	CTB Approval	1d	15.01.03	15.01.03	PM
58	Construction and Maintenance	1097d	01.02.03	01.02.06	
59	Construction	732d	01.02.03	01.02.05	FM
60	Maintenance Period	365d	02.02.05	01.02.06	FM
61	Finalization of Account	731d	02.02.05	02.02.07	FM



APPENDIX 3

MEMO

Encl.
Ans. to
Ans. by

From CE/SP, DSD

To PEPO/EA, EPD

Ref. (1) in SP 8/4274DS/S3P1/17

Tel. No. 2594 7451 Fax. No. 2827 8700

Your Ref. ..... in .....

Date 25 January 1996

dated .....

4274DS - Yuen Long and Kam Tin Sewerage, Stage 3, Phase 1
Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers

Environmental Review

We have identified the site for the proposed Au Tau Sewage pumping station under the above project. We would appreciate if you would carry out an environmental review for the above project to study its possible impacts on the environment and the suitability of the proposed site from environmental point of view. To assist your study, the project profile is enclosed for your reference/information.

2. Since the proposed Au Tau Sewage Pumping Station falls within agricultural land, we need applying to Town Planning Board for the change of land use. We are required to provide statements on the possible environmental impacts of the project to substantiate the application. As such, we would be grateful if we could have your environmental review by mid-February 1996.

(S.S. TAI)
for Chief Engineer/Sewerage Projects
Drainage Services Department

Encl.

-Project Profile

c.c. SEPO, DSD HQ - w/o
CE/PM, DSD (Attn. Mr. C S Cheng) - w/o

KYM/SST

DRAINAGE PROJECTS/ SEWERAGE PROJECTS DIVISION, D.S.D.
26 JAN 1996
DESPATCHED

① in SP/8/4 - 74103 p.4P/17

Ans. to	
Ans. by	

PWP Item 274DS/B - Yuen Long and Kam Tin Sewerage Stage 3

Phase 1: Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers

PROJECT PROFILE

PROJECT DESCRIPTION

1. **Project Title**

274DS - Yuen Long and Kam Tin Sewerage Stage III
Phase 1: Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers

2. **Purpose and Nature of Project**

(a) The project Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers is part of the stage III works recommended under the Yuen Long and Kam Tin Sewerage Master Plan Study Report prepared by EPD's consultancy.

(b) Under this project, sewage system will be provided to convey the waste water generated from the Yuen Long Fringe Areas and Kam Tin Areas to the sewer network leading to San Wai Sewage Treatment Works for treatment before discharging to Urmston Road.

(c) The proposed sewage system will include one pumping station and 1700 m long 900 mm diameter rising main/gravity sewers as shown on the attached drawing no. DDN/274DS/1801 to DDN/274DS/1803.

3. **Nature of the Project Proponent**

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

4. **Location of the Project**

The proposed Au Tau Sewage Pumping Station is located adjacent to the junction of Castle Peak Road and Yuen Long Southern Bypass while the proposed rising main/gravity sewers are to be installed along the Yuen Long Southern Bypass. The detailed layout of the sewage system is shown on the attached drawings mentioned above.

5. **Project Budget**

HK$ 60 millions

6.Name and Telephone of Contact Person

Mr. S.S. Tai
Engineer, Drainage Services Department
Tel. No. 25947451
Fax. No. 28278700

7.Programme of Implementation

The project will be implemented in-house by Drainage Services Department. The project programme is as follows:

Design:	08/95 - 02/99
Tender:	03/99 - 07/99
Construction	08/99 - 01/02

POSSIBLE IMPACTS ON THE ENVIRONMENT

8.Environmental Improvement

After completing the project, the sewage system will convey the sewage generated from the currently unsewered areas in Yuen Long Fringe and Kam Tin to the sewer network leading to San Wai Sewage Treatment Works for treatment before discharging to Urmston Road. Thus, the pressing pollution to the waters of Shan Pui River and Deep Bay will be reduced.

9.Environmental Impacts during Construction and Operation Phase

(a) Rising Main and Gravity Sewers

Construction Phase

Traditional open-cut method will be employed to lay the rising main/gravity sewers along the roads/footpaths while Trenchless Method will be used to install those across the main carriageways. For open-cut method, the potential environmental impacts, namely noise, dust and visual, will not be significant during construction because of the excavation is relatively small in scale. Moreover, the sewers will be constructed in stages with a view to maintaining adequate traffic flow during partial closure of roads. For sewers crossing the main carriageways, trenchless method will be adopted to minimize any disturbance to the existing traffic flow. This method would further minimize the noise, dust and visual impacts.

Operation Phase

After completion, the maintenance of the sewers, i.e. regular cleansing and repair, will be carried out by this department. It is expected that the environmental impacts would be insignificant.

(b) **Pumping Station**

Construction Phase

(i) The proposed Au Tau Sewage Pumping Station will be located adjacent to the junction of Castle Peak Road and Yuen Long Southern Bypass. These two roads form a natural barrier separating the sensitive receivers at the northern and western sides from the proposed pumping station. The immediate sensitive receivers at the East and South, the village residents, are separated from the pumping station by a belt of farmland/agricultural land. Besides, according to the drafted Tai Tong - Outline Zoning Plan (Plan No. S/YL - TT/I), the scheduled land use of the adjacent land is agriculture. As a result, it is expected that there will be no notable increase in the number of sensitive receivers in these areas. Therefore, the potential environmental impacts on the sensitive receivers will be minimal.

(ii) The major construction activities in the construction of the proposed pumping station are excavation, erection of formwork, steel fixing and concreting. It is expected that adverse environmental effects during construction, i.e. noise, vibration and dust, are minimal. Subsequent installation of electrical and mechanical facilities will have negligible effect on the surrounding environment.

Operation Phase

(i) The two major activities taking place in the proposed pumping station are removal of coarse materials from the raw sewage and onward transportation of the screened sewage for further treatment before disposal. The potential environmental impacts are noise, odour and visual.

(ii) The proposed pumping station will be designed in the form of wet well - dry well structure. Four (3 duty + 1 standby) centrifugal pumps will be installed in the underground wet well to handle a design flow of about 900 l/s. The wet well will be equipped with ventilation/deodorisation system and air-tight covers at the openings. In addition, a pump house will be constructed above the wet well . It will house all plant units and will provide an enclosed environment for handling the screenings. The screenings will be trucked away for disposal at landfill. The pump house will not only effectively mitigate the noise and odour pollution, but also will minimize the visual impacts. Furthermore, appropriate choice of architecture and colour scheme will be adopted to harmonise the appearance of the pumping station with its surroundings.

(iii) Provision of an emergency by-pass is one of the pumping station operation requirements. The emergency by-pass will divert the incoming sewage to the nearby stream/storm drains in the event of emergency such as power failure and major overhaul which requires the total shut down of the pumping station. Despite the chance of occurrence of such emergency being rare, in order to safeguard our environment, we will liaise with the power supply company the possibility of provision of dual independent electricity supply systems for the pumping station.

MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

10. The most immediate sensitive receivers are the village residents of Yeung Uk Tsuen. However, as they are separated 150m from the proposed pumping station by a belt of agricultural land, the potential impacts would be insignificant.

ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND CONSTRUCTION

11. During the construction stage, the nearby residents may be affected by the construction activities with respect to air quality and noise. However, all these potential environmental impacts identified above will be kept to minimum by incorporating appropriate specification in the contract documents to ensure the contractor to take necessary mitigation measures.

12. During the operation of the pumping station, the impacts of visual, noise and odour would be effectively mitigated by incorporating appropriate measures such as an enclosed system and deodorizing system for the pumping station. In addition, the most immediate sensitive receivers are quite far away from the pumping station. Therefore, we consider that the potential impacts are insignificant.

- END -

MEMO

From Director of Environmental Protection	**To** CE/SP, DSD (Attn: Mr S S TA)
Ref in Annex(3) to EP2/N6/4!	**Your Ref** (1)inSP8/4274DS/S3P1/17
Tel No. 2835 1293 (FAX 2591-0558)	
Date 29 February 1996	Dated 25.1 .96

Ans. by

5 MAR

RE

4274 DS - Yuen Long and Kam Tin Sewerage, Stage 3, Phase I
Au Tau Sewage Pumping Station, Rising Main and Gravity Sewer
Environmental Review

I refer to your memo under reference.

2. We do not envisage that an EIA is needed for the operational stage. As regards the construction stage, standard pollution control measures should be implemented to prevent nuisance during construction.

Odour

3. During the operational phase, we predict that there would not be long term environmental impacts associated with the rising mains and gravity sewers.

4. As for the pumping station, the project profile delineated that a ventilation/deodorization system and air-tight covers at the openings would be installed in order to alleviate the potential odour impact and it is not expected to have severe odour impact on the environment.

5. We would remind your office that the design of the deodorization system should be adequate to effectively remove the odour from the plant and to prevent odour nuisance at sensitive receptors. Measures should taken during maintenance and transportation of odorous materials with a view to avoiding any nuisance to the surrounding environment.

6. We are now in the process of formulating a standard note/ checklist to remind project proponents the details in the design of a sewage pumping station/rising main. We will forward it to you for incorporation into the design once the paper is finalized.

(Johnson M. K. WONG)
Environmental Protection Officer
for Director of Environmental Protection

Internal S(AP)2,S(NP)3,S(SI)2,S(WP)4, ECTA)||

memo28-2

CE/SP	SE/SP1	SE/SP2	SE/SP3	SE/SP4	SLS	LS	PTO	SSO(Q)	PRO. STAFF	EO	ACCT	PR	CIR	PS II

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	CEO/S

APPENDIX 4

Ans. by

MEMO

From Chief Engineer/Sewerage Projects	*To* Distribution
Ref. (1) *in* SP/8/4274DS/S3P1/77 II	
Tel. No. 2594 7450 *Fax No.* 2827 8700	*Your Ref.* ( ) *in*
Date 23 June 1999	*Dated*

4274 – Yuen Long and Kam Tin Sewerage, Stage 3, Phase 1
Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers

Circulation of Revised General Layout Drawings

I refer to my previous memo ref. (1) in SP8/4274DS/S3P1/57 dated 15 January 1996 circulating the General Layout (Drawings No. DDN/274DS/1801 to DDN/274DS/1803) of the proposed sewerage system under the above project which will serve the Yuen Long Fringe Areas and Kam Tin Areas.

2. Enclosed please find the revised General Layout (Drawings No. DDN/274DS/1801F, 1802D, 1803D and 1804E) for your comment and information.

3. As compared with the previous circulation, the General Layout of the proposed sewerage works has the following major revisions:

(a) The alignment of a section (about 230m) of the rising main in the vicinity of the proposed Au Tau Pumping Station has been shifted to run along the access road of the drainage channel instead of running along the existing channel along the Yuen Long Southern Bypass (Northbound) as shown on Drawing No. DDN/274DS/1801F.

(b) A section (about 580m) of the rising main is incorporated into the works near to Sham Chung Tsuen and Shung Ching San Tsuen as shown on Drawing No. DDN/274DS/1804E.

....../2

4. Since the last circulation, comments have been received from the concerned parties. A summary tabulating the comments and the responses is attached in Appendix A .

5. Please note that the project is scheduled to start in June 2001 and for completion in March 2004. In view of the tight implementation programme, your reply on or before 10 July 1999 will be appreciated. Should any further information be requested, please contact the undersigned or Mr. Y.L. CHAN at 25947453.

(K. WONG)
for Chief Engineer/Sewerage Projects
Drainage Services Department

Encl.

Drawings No. DDN/274DS/1801 to DDN/274DS/1804

Distribution: (-w/e)

CE/MN, DSD
CE/E&MP, DSD
CE/ST, DSD
RHE/NT, HyD
CHE(NT/W), HyD — (3)
CE/Lighting, HyD
CHE/Str, HyD — (8)
CE/R, HyD
CE/WR, HyD — (1)
PM/NTN, TDD
CGE/Mainland West, GEO, CED — (6)
CE/MNW, WSD
DLO/YL, Lands D
DSO/YL, Lands D
DPO/TMYL, Plan D
DO/YL
CE/RPIS, HAD
AC for T/NT — (1)
C of P (CSP Traffic), HKPF — (4)
D of H — (11)
D of A&F
DEMS
Dof FS
DRS
DEP, EPD (SIPG)
DEP, EPD (LCO(TW))
c.c. CE/PM, DSD (Attn: Mr. W.K. FONG) – w/o

KW/

Appendix A

Project: 4274DS/B – Yuen Long and Kam Tin Sewerage Stage 3 Phase 1

Circulation of Revised General Layout Drawings vice CE/SP's memo ref. (1) in SP8/4274DS/S3P1/57 dated 15 January 1996

Summary of Responses to Comments from various Government Departments

Date	From	Ref.	Comments	Responses
24.1.96	PM/NTN, TDD	NTNRU2/10/88	1) Inconsistent connection points between 4274DS/S3P1 & 4157DS/S2P2 2) Provision of tapping points for Areas 14 & 12 Developments	1) Connection points between 4274DS/S3P1 and 4157DS/S2P2 were amended as shown on Drawing No. DDN/274DS/1804E. 2) Tapping point for Areas 14 & 12 will be provided under separate PWP items 4061 and 4215 respectively which will be circulated under separate cover. Provision of sewers under Areas 14 and 12 is beyond the scope of this circulation.
23.1.96	D of Housing	HD(P)7/2/YL2	No comment	Noted.
25.1.96	CE/R, HyD	(2) in RD 7/5/4 Pt 1	No comment	Noted.
26.1.96	CHE/Str, HyD	(12) in STR 7/2/346	No comment	Noted.
29.1.96	Commissioner of Police (CSO Traffic)	(41) in CP/T/TMB 216/280	No comment	Noted.
30.1.96	DFS	(6) in FSD 14/7495/92 III	1) 3.5m wide access to nearby properties alongside the road during construction, should be always maintained for emergency vehicular access 2) temporary covers over road openings should withstand 20 tonnes fire appliances	1) Temporary cover over road opening will be provided. 2) Noted and will be incorporated in the design.

			3) in case of relocation/temporary suspension of fire hydrants, prior consent has to be sought	3) Noted.
30.1.96	CE/E&MP, DSD	(2) in DSD EM/8/4274DS	1) Agree to take up the E&M works	1) Noted.
29.1.96	TE/NTW, TD	NR183/161/PWP-4274DS	1) no space for trenchless construction near Pok Oi Hospital 2) 6m wide maintenance access is too luxury 3) fencing off with a gate at the entrance of the access 4) junction of the proposed access to Yeung Uk Tsuen Road should be as far from the junction of Castle Peak Road and Yeung Uk Tsuen Road as possible 5) temporary traffic arrangement for those footpath and carriageway affected throughout the construction should be submitted for approval	1) Noted. Sewer alignment revised to follow the drainage channel across the Castle Peak Road under the Project 4215DS/B, details of which will be circulated under separate cover. 2) Such access is necessary for maintenance. 3) Noted. This will be incorporated in the detailed design. 4) Noted. However, due to physical constraint, relocation of the junction is not possible. 5) Noted. Temporary traffic arrangement will be submitted for approval in the construction stage.
1.2.96	CE/ST, DSD	DSD ST/7/1/27	No comment	Noted.
2.2.96	DO/YL	(17) in YL132/1/34V	1) Conflict with the proposed 3.5m wide van track at Kong Tau San Tsuen	1) Access will be provided along the drainage channel proposed by DP Division. It is noted that DO/YL has no comment on the gazette drawings enclosed in CE/PM's memo ref. (11) in DSD PM 8/4274DS/25 dated 9.6.99. DO/YL's memo ref. (5) in YL 132/1/34 XI dated 22.6.99 refers.

5.2.96	DLO/YL, LD	(2) in DLOYL 19/YRN/61A	1) Provisional land status plans within the project limit	1) Noted.
6.2.96	D of AF	(21) in AF DVL 12/14 Pt 19	No comment	Noted.
8.2.96	D of Electrical & Mechanical Services	(27) in 30/65/47 II	No comment	Noted.
5.2.96	CE/MNW, WSD	(2) in WWO/M 1374/1744/96	1) Location plans of existing watermains	1) Noted.
6.2.96	CE/MN, DSD	MN 8/4274DS	1) maintenance access should be fenced off properly and used exclusively by MN/DSD 2) some labels shoud be marked on the DI pipes to differentiate from water mains 3) allowance for some spare parts of DI fittings for future maintenance and replacement 4) submission of details of the washouts and air valves for future cleansing 5) no public sewer available in the vicinity for the disposal of the sewage resulting from the cleansing process 6) requirement of a bypass route for the proposed P/S 7) detailed drawings should be forwarded for comment	1) Noted. The maintenance access will be used in connection with the drainage channel proposed by DP Division. Fencing off the access is not appropriate. 2) Noted. This will be incorporated in the detailed design and contract documents. 3) Noted. This will be incorporated in the Contract documents. 4) Noted. 5) Noted. 6) Noted. This will be incorporated in the detailed design. 7) Noted. Detailed drawings will be forwarded for comment when they are available.
7.2.96	CE/Lighting, HyD	291-16/L088/96/DL/SHL	1) Information on the existing public lighting work refers to CLP reply	1) Noted.
9.2.96	CHE/NT, HyD	HNT/712/YL/50	1) pipe jacking method should be used for the section across Castle Peak Road	) Noted. Sewer alignment revised to follow the drainage channel across the Castle

				Peak Road under the Project 4215DS/B, details of which will be circulated under separate cover.
15.2.96	DRS	(6) in RSD1/HQ 752/96(9)	1) no existing facilities affected 2) as general concern about roadside trees, take notice of the guideline on tree preservation as stipulated in WBTC No.24/94	1) Noted. 2) Noted. Tree if any, will be preserved as far as possible.
22.4.99	CE/PM, DSD	(26) in DSD PM 8/4274DS/26 (v)	1) Location plans of existing and proposed utitlities	1) Noted.

Drainage Services Department
Sewerage Projects Division
44th floor, Revenue Tower, 5 Gloucester Road,
Wan Chai, Hong Kong.

渠務署
污水工程部
香港灣仔告士打道5號
稅務大樓44樓

本署檔號 Our Ref : (2) in SP/8/4274DS/S3P1/77 II
來函檔號 Your Ref :
電　　話 Telephone : (852) 2594 7450
圖文傳真 Fax : (852) 2827 8700

23 June 1999

To Distribution

Dear Sirs,

4274 – Yuen Long and Kam Tin Sewerage, Stage 3, Phase 1
Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers

Circulation of Revised General Layout Drawings

I refer to my previous memo ref. (2) in SP8/4274DS/S3P1/57 dated 15 January 1996 circulating the General Layout (Drawings No. DDN/274DS/1801 to DDN/274DS/1803) of the proposed sewerage system under the above project which will serve the Yuen Long Fringe Areas and Kam Tin Areas.

I enclose herewith two copies of the revised General Layout (Drawings No. DDN/274DS/1801F, 1802D, 1803D and 1804E) for your information.

As compared with the previous circulation, the General Layout of the proposed sewerage works has the following major revisions:

(a) The alignment of a section (about 230m) of the rising main in the vicinity of the proposed Au Tau Pumping Station has been shifted to run along the access road of the drainage channel instead of running along the existing channel along the Yuen Long Southern Bypass (Northbound) as shown on Drawing No. DDN/274DS/1801F.

(b) A section (about 580m) of the rising main is incorporated into the works near to Sham Chung Tsuen and Shung Ching San Tsuen as shown on Drawing No. DDN/274DS/1804E.

...../2

Since the last circulation, comments have been received from the concerned parties. A summary tabulating the comments and the responses is attached in Appendix A.

In order to facilitate our planning and design work, please mark and return to me one copy of the attached drawings to indicate any of your proposed and existing utilities/services in the vicinity.

Please note that the project is scheduled to start in June 2001 and for completion in March 2004. In view of the tight implementation programme, your reply on or before 10 July 1999 will be appreciated. Should any further information be requested, please contact the undersigned or Mr. Y.L. CHAN at 25947453.

Yours faithfully,

(K. WONG)
for Chief Engineer/Sewerage Projects
Drainage Services Department

Encl.

Drawings No. DDN/274DS/1801 to DDN/274DS/1804

Distribution: (-w/e)

The Headquarters, PLA Forces Hong Kong
China Light & Power Co. Ltd.
Cable & Wireless HKT
Hong Kong and China Gas Co. Ltd.
Rediffusion (Hong Kong) Ltd.
Wharf Cable TV Ltd.
Cable & Wireless Ltd.

...../3

New T & T Hong Kong Ltd.
New World Telephone Co. Ltd.
Hutchison Communication Ltd.
Networks Communication
Electricity Advisory Services Ltd.
CLP Engineering
Citybus Ltd.
Kowloon Canton Railway Corporation
Kowloon Motor Bus Co. Ltd.

c.c. CE/PM, DSD (Attn: Mr. W.K. FONG) – w/o

Appendix A

Project: 4274DS/B – Yuen Long and Kam Tin Sewerage Stage 3 Phase 1

Circulation of Revised General Layout Drawings vice CE/SP's memo ref. (2) in SP8/4274DS/S3P1/57 dated 15 January 1996

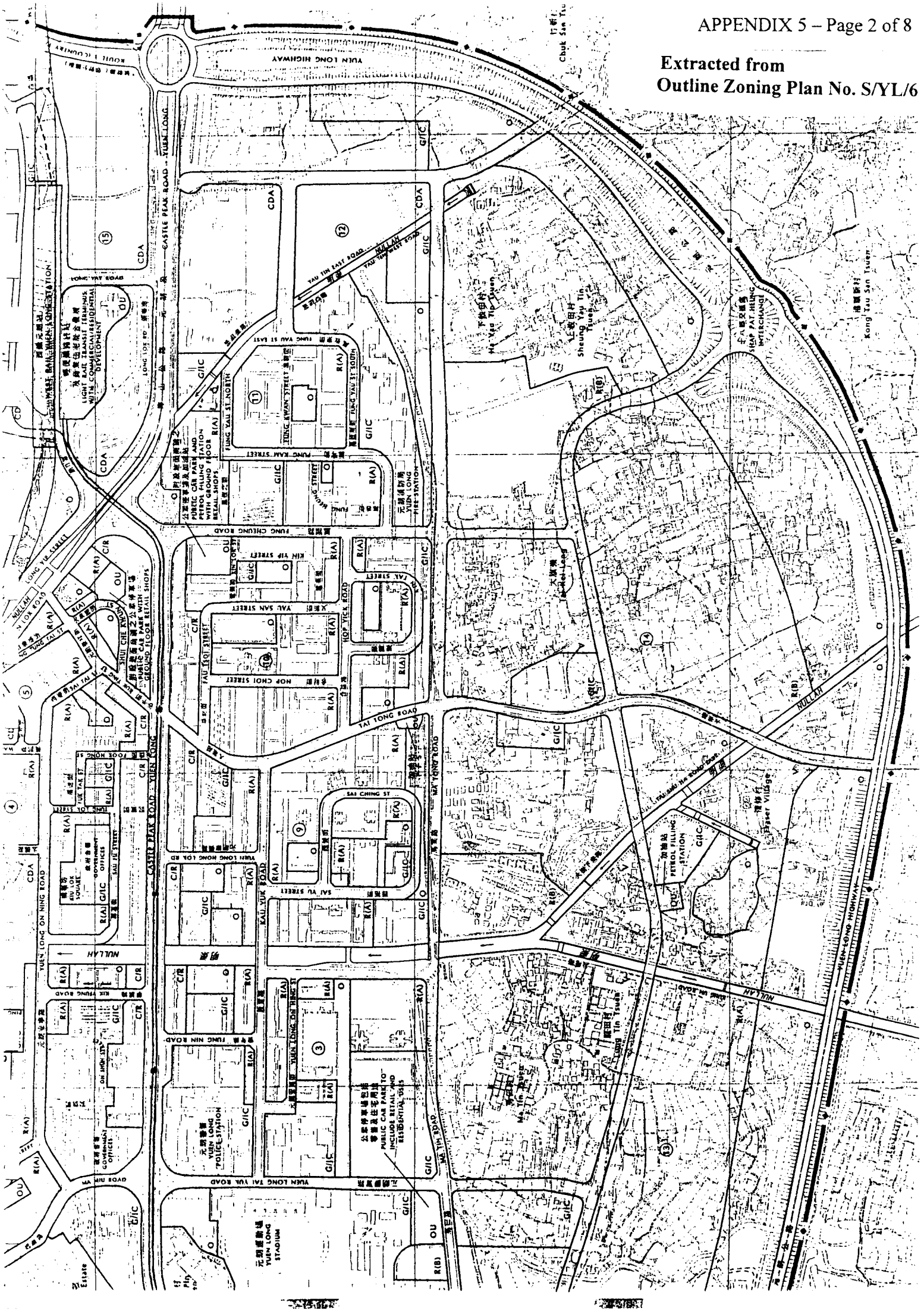
Summary of Responses to Comments from various Utility Companies

Date	From	Ref.	Comments	Responses
22.1.96	Rediffusion (HK) Ltd.	CE/CTN 132/1/96N	No comment	Noted.
23.1.96	Wharf Cable Ltd.	NT692/96/PKL	A proposed 2-way PVC duct adjacent to Pok Oi Hospital will be laid.	Proposal noted. Cable laying work should take into account of the proposed sewer construction.
24.1.96	HK Telecom International Co.	UGTS/03/96	No comment	Noted.
6.2.96	China Light & Power Co. Ltd.	N250-76/L1380/96/MP/CLC	With a copy of location plans of underground cables/overhead	Existing utility services noted.
14.2.96	HK Telephone Co.	EP/NTPD/YLG/769/96/HYY	With a copy of location plan of existing and proposed plant	Existing utility services noted.
22.8.96	Citybus Ltd.	GM/140/96	No comment	Noted.
6.3.98	HK & China Gas Co. Ltd.	TM/O&M/1005A/904/98/1042(KWS)	With a copy of location plans of existing 750mm dia. HP gas main along Yuen Long Highway	Existing utility services noted
5.3.99	HK & China Gas Co. Ltd.	Nu/1999/03198	With a copy of location plans of existing 750mm dia. HP gas main along Yuen Long Highway	Existing utility services noted.

APPENDIX 5

Extracted from
Outline Zoning Plan No. S/YL-TT/4

Extracted from
Outline Zoning Plan No. S/YL/6



Ans. by

MEMO

From :	DPO/TMYL, Planning Department	*To :*	Chief Engineer/Sewerage Projects (Attn : Mr. K. Wong)
Ref. :	( ) in PDYL 2/10/56 (VIII)		
Tel. No. :	2410 8209 *(Fax. No. :)* 2489 9711	*Your Ref. :*	(1) in SP/8/4274DS/S3P1/77 II
Date :	8 July 1999	*Date :*	23.6.1999

4274 – Yuen Long and Kam Tin Sewerage, Stage 3, Phase I
Au Tau Sewage Pumping Station, Rising Main and Gravity Sewers

Circulation of Revised General Layout Drawings

I refer to your memo under reference and the General Layout (Drawings No. DDN/274DS/1801 to DDN/274DS/1803) of the proposed sewerage system enclosed therein.

2. The rising main and gravity sewer of the proposed sewerage system run through a number of land-use zones to the south-east and south of Yuen Long Highway on the Tai Tong and Tong Yan San Tsuen Outline Zoning Plans (OZPs) with the proposed Au Tau Sewage Pumping Station zoned "Agriculture" ("AGR") and its ancillary access road, partly zoned "AGR" and partly zoned "Comprehensive Development Area" on the Tai Tong OZP.

3. I have no objection to the proposed sewerage system as sewage works carried out by Government departments is always permitted on land covered by the above OZPs and planning permission for the proposed Au Tau Sewage Pumping Station has been granted by the Town Planning Board under s.16 application No. A/YL-TT/42 on 25.9.1998. A copy of the approval letter is attached for your reference.

(Ms. Irene Lai)
for District Planning Officer/TMYL
Planning Department

IL/GC

c.c. File A/YL-TT/42

城市規劃委員會
香港北角渣華道三百三十三號
北角政府合署十五樓

TOWN PLANNING BOARD
15/F., North Point Government Offices
333 Java Road, North Point,
Hong Kong.

傳 真 Fax: 2877 0245 or 2522 8426
電 話 Tel: 2231 4810
來函檔號 Your Reference:
覆函請註明本會檔號
In reply please quote this ref.: TPB/LM/A/YL-TT/42

By Registered Post & Fax (2827 8526)

23 OCT 1998

Mr. Cheung Kay Sik
Chief Engineer/Project Management, DSD
5 Gloucester Road
Wan Chai
Hong Kong

Dear Sir,

Proposed Au Tau Sewage Pumping Station,
Lots 933BRP(Part) and 934(Part) in DD 115 and
Lots 257(Part), 259(Part), 260(Part),
263(Part), 264, 265, 266(Part), 267(Part) and
270A(Part) in DD 116 and
Adjoining Government Land,
Au Tau,
Yuen Long

I refer to your application of 10.8.1998 and am pleased to inform you that at its meeting on 25.9.1998, the Town Planning Board (the Board) approved your application for permission under section 16 of the Town Planning Ordinance on the terms of the application submitted to the Board and subject to the following conditions :

(a) the submission and implementation of landscaping proposals, including a tree preservation scheme, to the satisfaction of the Director of Planning or of the Town Planning Board;

(b) the provision of emergency vehicular access, water supplies for fire fighting and fire services installations to the satisfaction of the Director of Fire Services or of the Town Planning Board; and

(c) the permission shall cease to have effect on 25.9.2001 unless prior to the said date either the development hereby permitted is commenced or this permission is renewed.

A copy of the Town Planning Board Paper in respect of the application and the relevant minutes of the Board meeting may be made available to you upon request. Please contact me should you wish to obtain a copy of these documents.

Under section 17(1) of the Town Planning Ordinance, an applicant aggrieved by a decision of the Board may apply to the Board for a review of the decision. If you wish to seek a review, you should inform me within 21 days from the date of this letter. I will then contact you with a view to arranging a hearing before the Board which you and/or your client will be invited to attend.

This approval by the Board under section 16 of the Town Planning Ordinance should not be taken to indicate that any other government approval which may be needed in connection with the development, will be given. You should approach the appropriate government departments on any such matter.

In connection with the expiry of this permission as stated above, you are advised that, if you wish to seek renewal of this permission, an application for such renewal should be received by the Board no later than two months but not earlier than four months before the stipulated date of expiry. No renewal of this permission will be considered if the application for such renewals is received after the date of expiry.

If you have any queries regarding this planning permission, please contact Ms. Lily YAM of Tuen Mun and Yuen Long District Planning Office at 2410 8204. In case you wish to consult the relevant Government departments on matters relating to the above approval conditions, a list of the concerned Government officers is attached herewith for your reference.

Yours faithfully,

(C.K. LEE)

for Secretary, Town Planning Board

BY FAX

(15)

MEMO

From :	DPO/TMYL, Planning Department	*To :*	Chief Engineer/Sewerage Projects Drainage Services Department (Attn : Mr. K. Wong)
Ref. :	( ) in PDYL 2/10/56 (IX)		
Tel. No. :	2410 8209 *(Fax. No. :)* 2489 9711	*Your Ref. :*	( ) in SP/8/4274DS/S3P1/17
Date :	17 September 1999	*Date :*	1.9.1999

Answer to	(19)
Answered by	

4274DS Yuen Long and Kam Tin Sewerage, Stage III, Phase 1A
Shap Pat Heung Rising Mains and Gravity Sewers and
Phase 1B – Au Tau Sewage Pumping Station and Ancillary Works
Designated Project Requiring Environmental Permit

I refer to your memo under reference and the enclosed drawings No. DDN/274DS/1801G, 1802D, 1803E and 1804F showing the General Layout of the proposed sewerage system.

2. As stated in my previous memo of 8.7.1999 in PDYL 2/10/56 (VIII), I have no objection to the proposed sewerage system as no planning permission is required for the proposed rising mains and gravity sewers and planning permission for the Au Tau Sewage Pumping Station has been granted by the Town Planning Board under s.16 application No. A/YL-TT/42.

3. I am not aware that the subject sewerage projects would encroach upon any existing and gazetted proposed country park or special area, conservation area, existing or gazetted proposed marine park or marine reserve, site of cultural heritage and site of specific scientific interest. I trust the ES(AM), HAD and D of A&F would provide their input in this regard.

(Ms. Irene Lai)
for District Planning Officer/TMYL
Planning Department

IL/LY

c.c. ES(AM), HAD
D of A&F

Ann. to
Ann. by

MEMO

From Director of Agriculture & Fisheries	To CE/Sewerage Projects, DSD
Ref. (6) in AF POL 13/27 III	(Attn. Mr. K. Wong)
Tel No. 2733 2662	Your Ref. ( ) in SP/8/4274DS/S3P1/17
Fax No. 2377 4427	dated 1 Sept 1999 Fax No. 2827 8700
Date 13 September 1999	Total Pages 1

4274DS Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage III
Phase 1A, Shap Pat Heung Rising Mains and Gravity Sewers and
Phase 1B Au Tau Sewage Pumping Station and Ancillary Works

Designated Project Requiring Environmental Permit

There is not any existing or gazetted proposed country park or special area, existing or gazetted proposed marine park or marine reserve, or site of special scientific interest in the vicinity of the sewerage project as depicted in the drawings you enclosed.

(Dennis Mok)
for Director of Agriculture & Fisheries

c.c. DPO/TMYL
ES(AM), HAB

DM/dm/4274DS-GenCr

Ans. to
Ans. by

MEMO

From	Secretary for Home Affairs	*To*	CE/Sewerage Projects, DSD
Ref.	(15) *in* HAB AM 81/3/33	*(Attn.:*	Mr. K. WONG)
Tel. No.	2594 5695	*Your Ref.*	____ *in* SP/8/4274DS/S3P1/17
Fax No.	2721 6216	*Dated*	1 Sep 1999 *Fax No.* 2827 8700
Date	15 September 1999	*Total Pages*	1

4274DS Yuen Long and Kam Tin Sewerage, Stage III, Phase 1A
Shap Pat Heung Rising Mains and Gravity Sewers and
Phase 1B - Au Tau Sewage Pumping Station and Ancillary Works
Designated Project Requiring Environmental Permit

Heritage Impact Assessment

I refer to your memo under reference and our subsequent tele-conversation (WONG/LEUNG) dated 9 September 1999.

2. We note that the alignment of the captioned project will be run along with the Yuen Long Bypass Floodway where a Heritage Impact Assessment (HIA) is to be conducted in near future. I therefore would like to inform you that the HIA will also cover the above alignment. The result of the survey and any further mitigation measures required will be given to you in due course.

(Miss Erica LEUNG)
for Secretary for Home Affairs

ACIISCII \ Eia \ 0042.Doc

APPENDIX 6

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 less than 100m 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 1 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.

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. The NSR 2 is about 150 m away from the Yuen Long Highway and Castle Peak Road. With such distance, it is considered that NSR2 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.

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 is 40m. The weather was fine during the measurements.

Average A-weighted noise levels, Leq, 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.

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 130m. The weather was fine during the measurements.

Average A-weighted noise levels, Leq, 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.

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 superstructure. This arrangement is similar to that of Ping Shun Street Pumping Station. Acoustic filters will be installed at extraction fans of the de-odorizer if necessary. Noise of the E&M equipment will be largely enclosed within the pumping station.

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

Date	Time	Location	Distance from Pumps	Leq(30), dB(A)
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 Yuen Long South 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 :

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

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

To allow for facade effect, the noise level for one pump = 57.3dB(A) + 3dB(A)
= 60.3 dB(A)

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

To allow for facade effect, the total noise level = 60.3dB(A) + 3dB(A)
= 63.3 dB(A)

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 (distance ratio)

= 20 log (40 / 20)

= 6.0 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 dB(A) – 6.0 dB(A)
= 57.3 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) – 6.0 dB(A)
= 54.3 dB(A)

Determination of Corrected Noise Level

In accordance with Paragraph 3.3.5 of the TM, the Corrected Noise Level (CNL)
= MNL + c_{tone} + c_{imp} + c_{int} 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 = 57 dB(A)
the Corrected Noise Level CNL for the period 2300 – 0700 hours = 54 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 4.1.

6.2 NSR 2

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

= 20 log (130/20)
= 16.3 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 dB(A) – 16.3 dB(A)
= 47.0 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) – 16.3 dB(A)
= 44.0 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 dB(A)
the Corrected Noise Level CNL for the period 2300 – 0700 hours = 44 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)

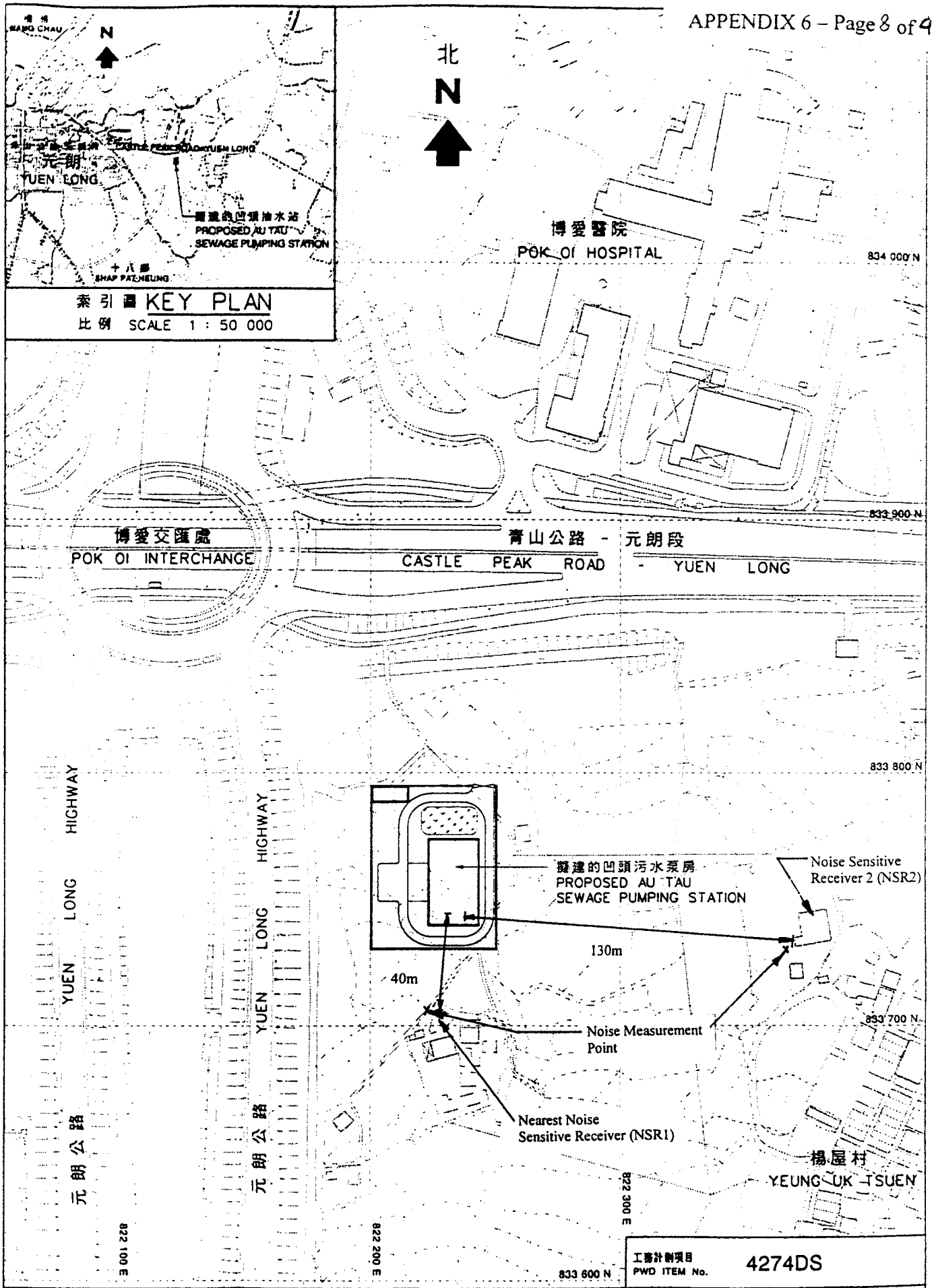
The forecast noise levels for the two periods are within the allowable limit.

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

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



工務計劃項目 PWD ITEM No. 4274DS			
圖則名稱 drawing title: Location of the Noise Sensitive Receivers for the proposed Au Tau Sewage Pumping Station	繪圖 drawn by: P. S. LAM	日期 date: 9 / 99	圖則編號 drawing no.: Drawing No. 1
	批核 approved: K. WONG	日期 date:	比例 scale: 1 : 2 000 OR AS SHOWN
	部門 office: 污水工程部 SEWERAGE PROJECTS DIVISION		香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

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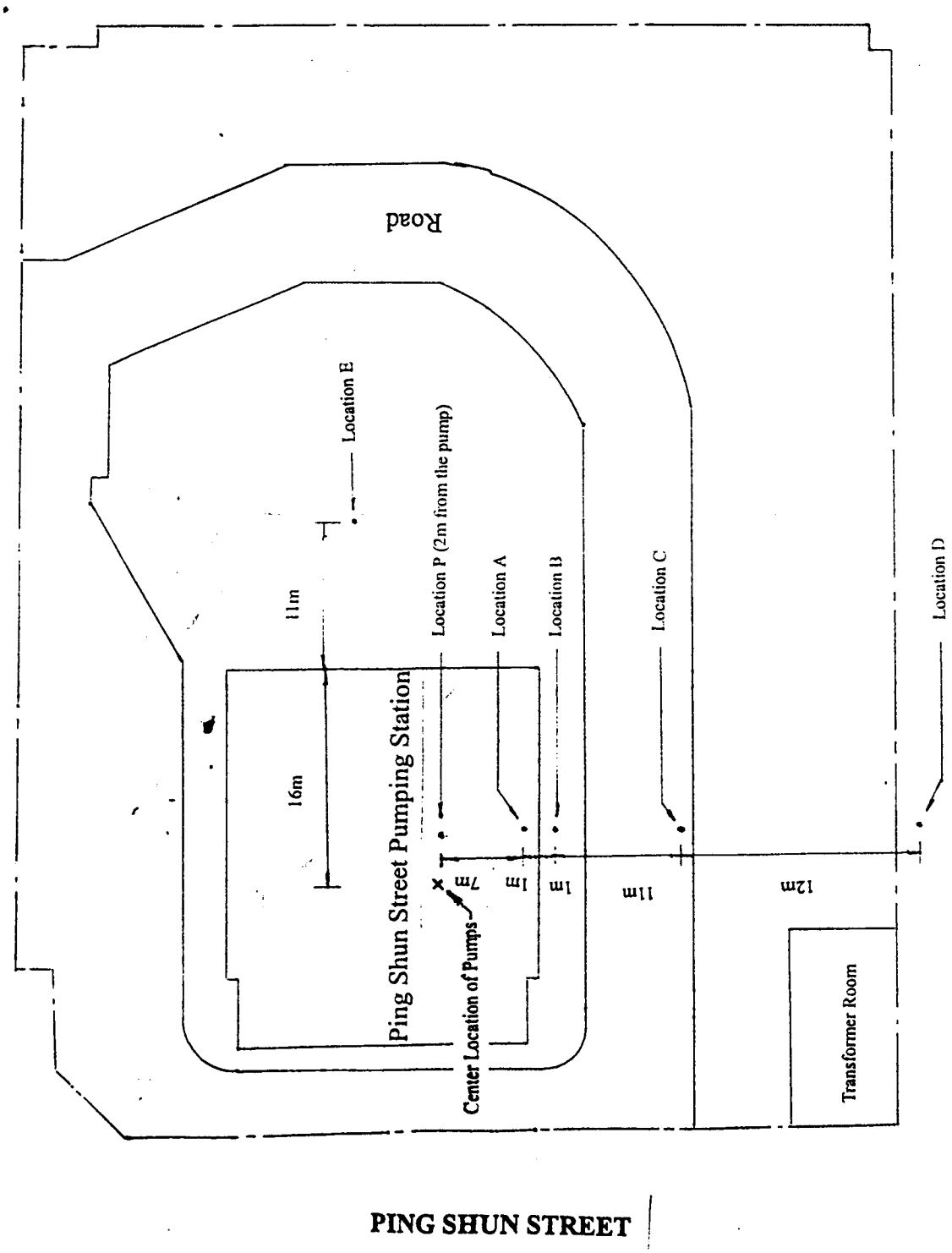
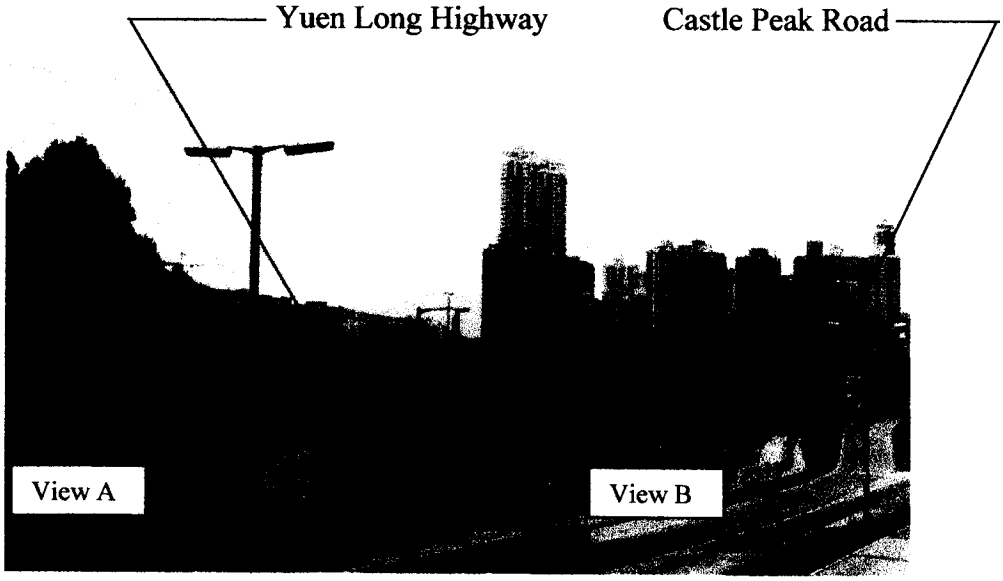
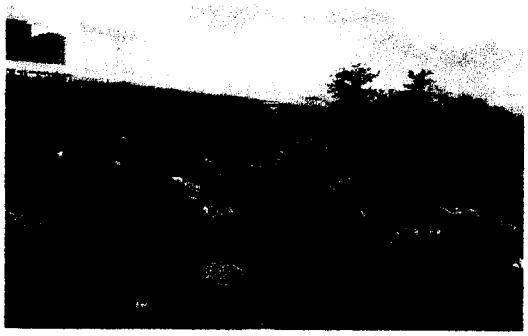


Drawing No. 2 – Location of the Noise Monitoring Points for the Ping Shun Street Pumping Station in Yuen Long

APPENDIX 7





View A

View B

Approximate Location for Au Tau Sewage Pumping Station

Proposed Location for Au Tau Sewage Pumping Station