

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 - DRAINAGE

Environmental Protection – Sewerage and sewage treatment

338DS – Improvement and upgrading of the sewerage systems in Sha Tin/Ma On Shan New Town

Members are invited to recommend to Finance Committee the upgrading of **338DS** to Category A at an estimated cost of \$74.9 million in money-of-the-day prices for upgrading the sewerage systems in Sha Tin and Ma On Shan.

PROBLEM

The existing sewerage facilities in Sha Tin/Ma On Shan district do not have adequate capacity to cope with the additional sewage flow generated from the planned developments around the Ma On Shan Rail.

PROPOSAL

2. The Director of Drainage Services (D of DS), with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **338DS** to Category A at an estimated cost of \$74.9 million in money-of-the-day (MOD) prices for upgrading the sewerage systems in Sha Tin and Ma On Shan.

PROJECT SCOPE AND NATURE

3. The scope of works under **338DS** comprises –

/(a)

- a) construction of a new sewage pumping station;
- b) construction of rising mains of about 450 metres (m) along Sai Sha Road and about 900 m of sewers along Sha On Street, Sai Sha Road and Che Kung Miu Road;
- c) upgrading of part of the equipment at the Ma On Shan Main Pumping Station; and
- d) associated ancillary works.

Two site plans showing the locations of the proposed works are at Enclosure 1. We plan to start construction in March 2007 for completion in December 2010.

JUSTIFICATION

4. Following the commissioning of Ma On Shan Rail at the end of 2004, the development demands along the railway line will progressively increase. After a critical review, we identified that the existing sewerage facilities would be inadequate to cope with sewage generated from the planned developments around two of the railway stations namely Che Kung Temple Station and Wu Kai Sha Station, and at the upstream areas including Lok Wo Sha, Whitehead and Nai Chung. The proposed sewerage works set out in paragraph 3 will serve the above planned developments with a total projected population intake of about 32 000, and will convey the sewage to the Sha Tin sewage treatment works via the existing sewerage. The population intake will start in mid 2008 for the planned property development at Wu Kai Sha Station and others will follow in phases. We will complete the proposed sewerage works in phases to tie in with the developments.

FINANCIAL IMPLICATIONS

5. We estimate the capital cost of the proposed works to be \$74.9 million in MOD prices (see paragraph 6 below), made up as follows –

	\$million
(a) New sewage pumping station	45.5
(i) civil works	29.9
(ii) electrical and mechanical works	15.6

/(b)

		\$million	
(b)	Rising mains and sewers	6.6	
(c)	Upgrading of the Ma On Shan Main Pumping Station	4.3	
(d)	Ancillary works	5.5	
(e)	Environmental mitigation measures	4.5	
(f)	Contingencies	6.0	
	Sub-total	72.4	(in September 2006 prices)
(g)	Provision for price adjustment	2.5	
	Total	74.9	(in MOD prices)

6. Subject to approval, we will phase expenditure as follows –

Year	\$ million (Sept 2006)	Price adjustment factor	\$ million (MOD)
2007 – 2008	17.0	1.01250	17.2
2008 – 2009	25.2	1.02769	25.9
2009 – 2010	18.2	1.04310	19.0
2010 – 2011	7.2	1.05875	7.6
2011 – 2012	3.0	1.08257	3.2
2012 – 2013	1.8	1.10964	2.0
	72.4		74.9

/7.

7. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period from 2007 to 2013. We will implement the works under two contracts: a civil works contract and an electrical and mechanical (E&M) works contract. We will tender the civil works on a re-measurement basis because of the uncertain underground conditions that may affect the profile of the rising mains and sewers as well as the foundation of the pumping station. The civil works contract will provide for price adjustments because the contract period will exceed 21 months. We will tender the E&M works contract for the supply and installation of E&M equipment on a lump-sum basis without any price adjustment given the clearly defined scope.

8. We estimate the annual recurrent expenditure arising from the proposed works to be about \$0.9 million.

9. Based on the current level of expenditure on operation and day-to-day maintenance of sewerage facilities, the proposed works by themselves will lead to an increase in the recurrent cost of providing sewage services by 0.05%, which will be taken into account in determining future sewage charges.

PUBLIC CONSULTATION

10. We presented the proposal for the implementation of this project to the Development and Housing Committee of Sha Tin District Council on 21 February 2006. The Committee supported the implementation of the project.

11. We consulted the Legislative Council Panel on Environmental Affairs on 3 July 2006 on the project. Members raised no objection to our plan to submit the proposal to the Public Works Subcommittee. Nevertheless, some Members requested the Government to provide information on (a) the policy of the provision of sewerage facilities for private development; (b) the catchment of the proposed project; and (c) the project interface with the proposed low-noise road resurfacing works at Che Kung Miu Road. The relevant supplementary information is provided at Enclosure 2.

12. Panel Members also requested the Government to consider consulting the owners' corporation of the affected residential developments. In July 2006, we consulted the owners' corporations of the affected residential developments, namely Monte Vista and Lee On Estate, through a meeting and posting of notices

/respectively

respectively. They generally supported the implementation of the project. We will incorporate a planting proposal as part of the project and take suitable measures to minimise impacts on the public during construction, operation and maintenance of the project, see paragraphs 13, 16 and 20 below.

ENVIRONMENTAL IMPLICATIONS

13. Among the proposed works, only the proposed sewage pumping station at Area 108 is a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The Director of Environmental Protection granted the environmental permit on 1 September 2006 for the construction and operation of the proposed Ma On Shan Area 108 sewage pumping station. We will install a forced ventilation system fitted with deodorizer in the proposed pumping station to combat the potential odour problem. During construction, we will control noise, dust and site run-off within established standards and guidelines through implementation of mitigation measures, such as the use of temporary noise barriers and quieter construction equipment, and frequent water-spraying on site to reduce dust, and strict control over diversion of site run-off. We will also carry out regular site inspections to ensure that the recommended mitigation measures and good site practices would be properly implemented. We have included \$4.5 million (in September 2006 prices) in the project estimate for implementing the environmental mitigation measures.

14. We have considered ways of minimising construction and demolition (C&D) materials and maximising the use of recycled C&D materials. We will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. We will require the contractor to reuse the excavated materials as filling materials on site or in other construction sites as far as possible, in order to minimise the disposal of C&D materials to public fill reception facilities¹. To further minimise the generation of C&D materials, we will encourage the contractor to use non-timber formwork and recyclable materials for temporary works. We will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities, and we will control the disposal of public fill and C&D waste to public fill reception facilities and landfills respectively through a trip-ticket system. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

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¹ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

15. We estimate that the proposed works will generate about 10 600 tonnes of C&D materials. Of these, we will reuse about 5 000 tonnes (47%) on site, deliver 5 000 tonnes (47%) to public fill reception facilities for subsequent reuse, and dispose of 600 tonnes (6%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$0.2 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne² at landfills).

TRAFFIC IMPLICATIONS

16. We have completed a traffic impact assessment and worked out mitigation measures to minimise possible disruption to the traffic during construction of the sewers. To minimise disturbance and inconvenience to the public during the construction stage, we will carry out the pipe laying works in sections and institute appropriate temporary measures to divert traffic and pedestrians so as to maintain all existing vehicular and pedestrian access. We will also carefully schedule the sewer laying works on Che Kung Miu Road to avoid conflict with the noise enclosure works under another project, so as to minimise disturbance to the road users. To expedite works progress without inducing unacceptable interruption to the traffic, we will also employ the trenchless method to construct a section of rising main across Sai Sha Road.

LAND ACQUISITION

17. The project does not require any land resumption.

BACKGROUND INFORMATION

18. In October 2000, the then Territory Development Department completed a Final Technical Report for Agreement No. NTE/2000 - "Additional Sewerage and Sewage Treatment Works in Sha Tin and Ma On Shan Feasibility Assignment", for reviewing the existing trunk sewerage in Sha Tin and Ma On Shan. The Report identified a need to upgrade part of the existing sewerage system in Sha Tin and Ma On Shan area in order to cater for the sewage increase due to the population intake around the Ma On Shan Rail.

/19.

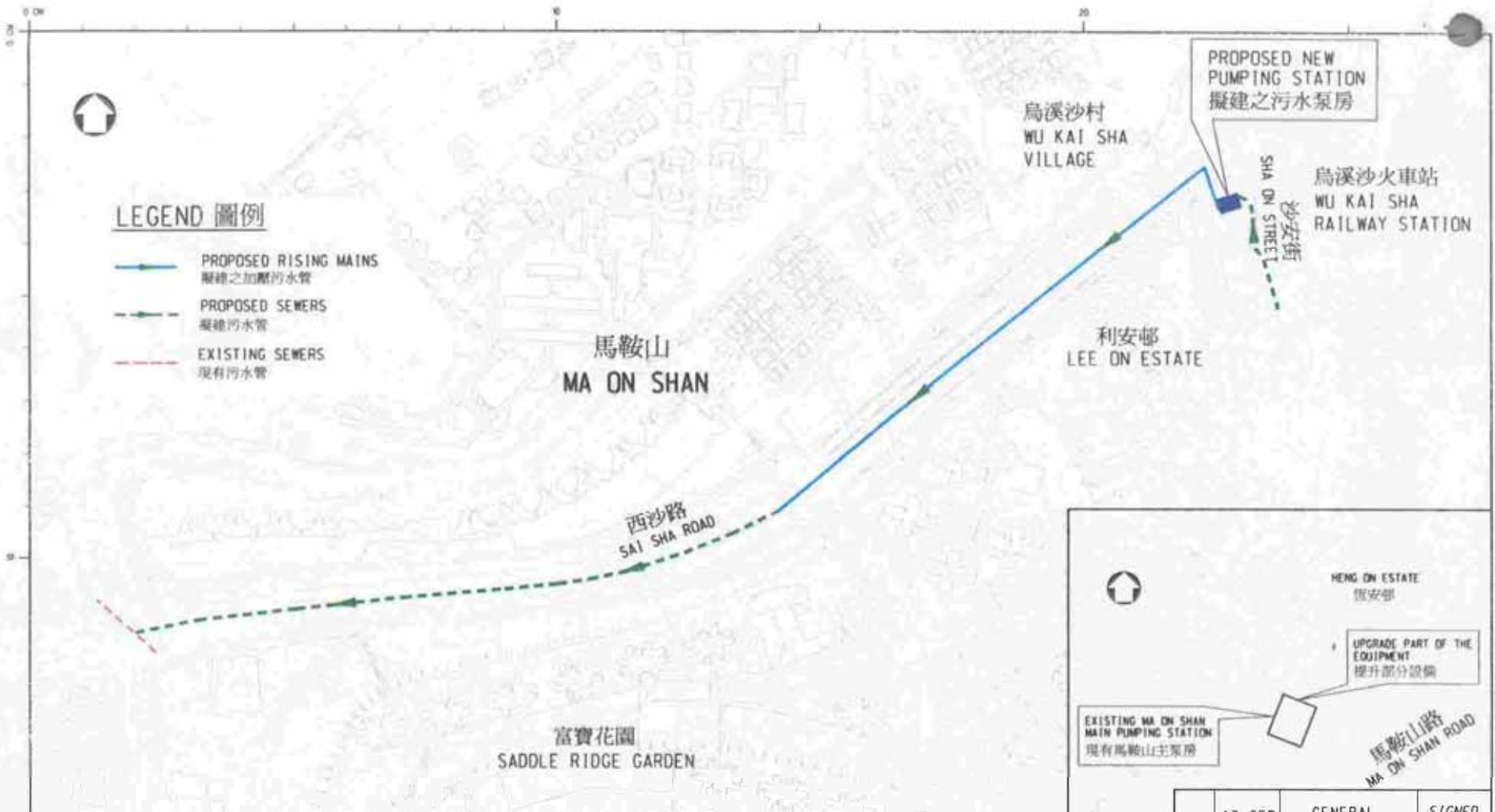
² This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled, and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost of providing new landfills (which are likely to be more expensive) when existing ones are filled.

19. In October 2004, we upgraded **338DS** to Category B.

20. The proposed sewerage improvement and upgrading in Sha Tin/Ma On Shan New Town will not involve any tree removal proposal. We will incorporate the planting of about eight trees as part of the project.

21. We estimate that the proposed works will create about 51 jobs (44 for labourers and another seven for professional/technical staff) providing a total employment of about 2 100 man-months.

Environment, Transport and Works Bureau
October 2006



LEGEND 圖例

- PROPOSED RISING MAINS
擬建之加壓污水管
- - - PROPOSED SEWERS
擬建污水管
- - - EXISTING SEWERS
現有污水管

PROPOSED NEW PUMPING STATION
擬建之污水泵房

烏溪沙村
WU KAI SHA VILLAGE

烏溪沙火車站
WU KAI SHA RAILWAY STATION

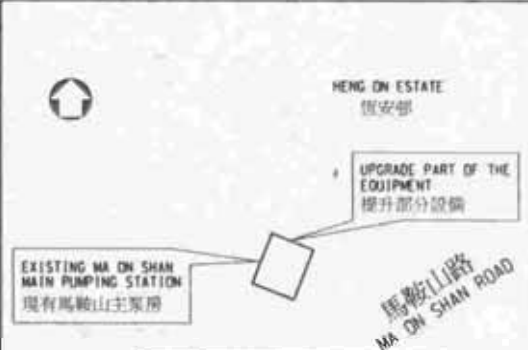
沙安街
SHA ON STREET

利安邨
LEE ON ESTATE

馬鞍山
MA ON SHAN

西沙路
SAI SHA ROAD

富寶花園
SADDLE RIDGE GARDEN



PROVISIONAL
SUBJECT TO AMENDMENT

drawing title

SCHEMATIC LAYOUT OF IMPROVEMENT AND UPGRADING
OF THE SEWERAGE SYSTEMS IN SHA TIN/
MA ON SHAN NEW TOWN

沙田/馬鞍山新市鎮污水收集系統改善及擴建工程概圖

(SHEET 1 OF 2)
(全兩張其一)

drawn	SIGNED K. F. NG	date	29MAY2006
checked	SIGNED S. H. LEUNG	date	12JUNE2006
approved	SIGNED Y. F. KAN	date	13JUNE2006
office	SEWERAGE PROJECTS DIVISION		

A	13 SEP 2006	GENERAL REVISION	SIGNED S. H. LEUNG E/S24
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drawing no. DDN 8545A scale NTS

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DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION

附件一(全兩張其一) Enclosure 1 (Sheet 1 of 2)

**Supplementary information
in response to enquiries raised at the meeting of
Legislative Council Panel on Environmental Affairs on 3 July 2006**

Policy of provision of sewerage facilities for private developments

The Government provides sewage infrastructure for the protection of public health and the attainment of the declared Water Quality Objectives for the receiving water environment. In planning for public sewerage, the Government makes reference to planning data and outline zoning plans with regard to the planned population and intended land use, so as to ensure that the projected sewerage needs would be met.

For private developments covered by the sewerage programme, the Government will construct public sewers and associated facilities up to the lot boundary of the developments. The property developers are required to connect their developments to these public sewers at their own cost.

Together with this well-established responsibility demarcation, the Government assesses the premium for land disposal on the basis that the completed developments will have the support of all public infrastructure services and facilities just as those existing developments in the area have. In the case of sewage infrastructure, this means sewerage provided in accordance with the projected sewerage capacity needs.

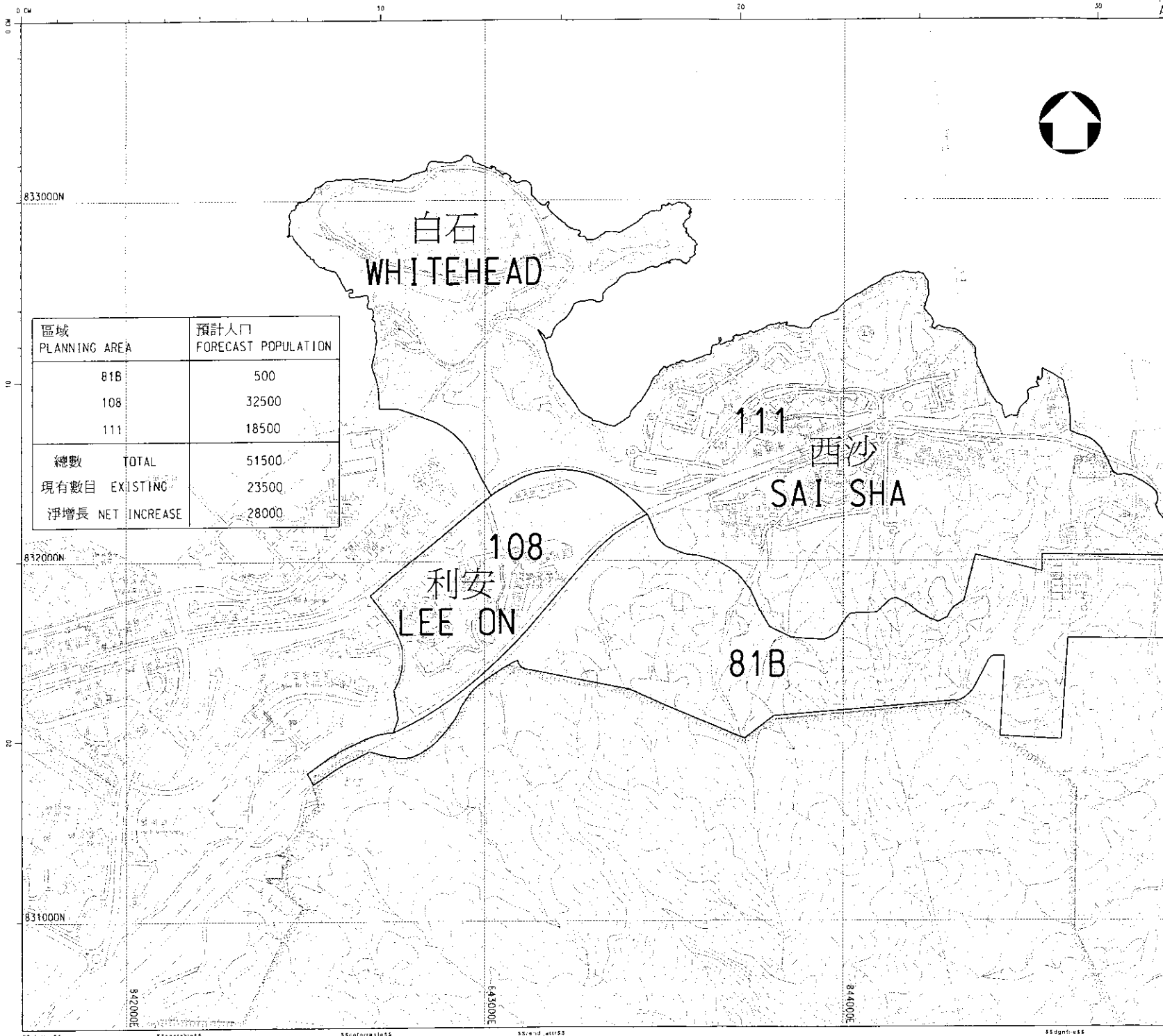
Catchment of proposed project

Two layout plans showing the sewerage catchment of the proposed project are at Annex 1.

Project interface with proposed low-noise road resurfacing works at Che Kung Miu Road

Drainage Services Department has coordinated with Highways Department to identify project interfaces between Highways Department's proposed works and the **338DS** works. We have confirmed that the current implementation programme for the low-noise road resurfacing works does not include the section of Che Kung Miu Road where the proposed sewer under **338DS** will be laid.


However, a noise enclosure is planned to be erected along a section of the westbound portion of Che Kung Miu Road adjacent to Chun Shek Estate under PWP Item No. **6767TH** as shown on the layout plan at Annex 2. As the foundation of the proposed noise enclosure sits on the central divider and footway while the proposed sewer is at the fast lane of the carriageway, there will be no conflict between the works under **338DS** and **6767TH**. The construction programmes of the proposed noise enclosure and the sewer laying works will be coordinated to minimise disturbance to the road users.



區域 PLANNING AREA	預計人口 FORECAST POPULATION
81B	500
108	32500
111	18500
總數 TOTAL	51500
現有數目 EXISTING	23500
淨增長 NET INCREASE	28000

NOTES :

LEGEND :

 CATCHMENT AREA
集水區

A	18SEP	GENERAL REVISION	SIGNED S. H. LEUNG E/S24
no.	date	description	initial

REVISION			
	name	date	
drawn	SIGNED K. F. NG	03 AUG 2006	
checked	SIGNED S. H. LEUNG	12 SEP 2006	
approved	SIGNED Y. F. KAN	13 SEP 2006	

contract no.

file no.

project no.

contract


drawing title
POPULATION DISTRIBUTION AT CATCHMENT
AREA OF MA ON SHAN AREA 10B PUMPING
STATION

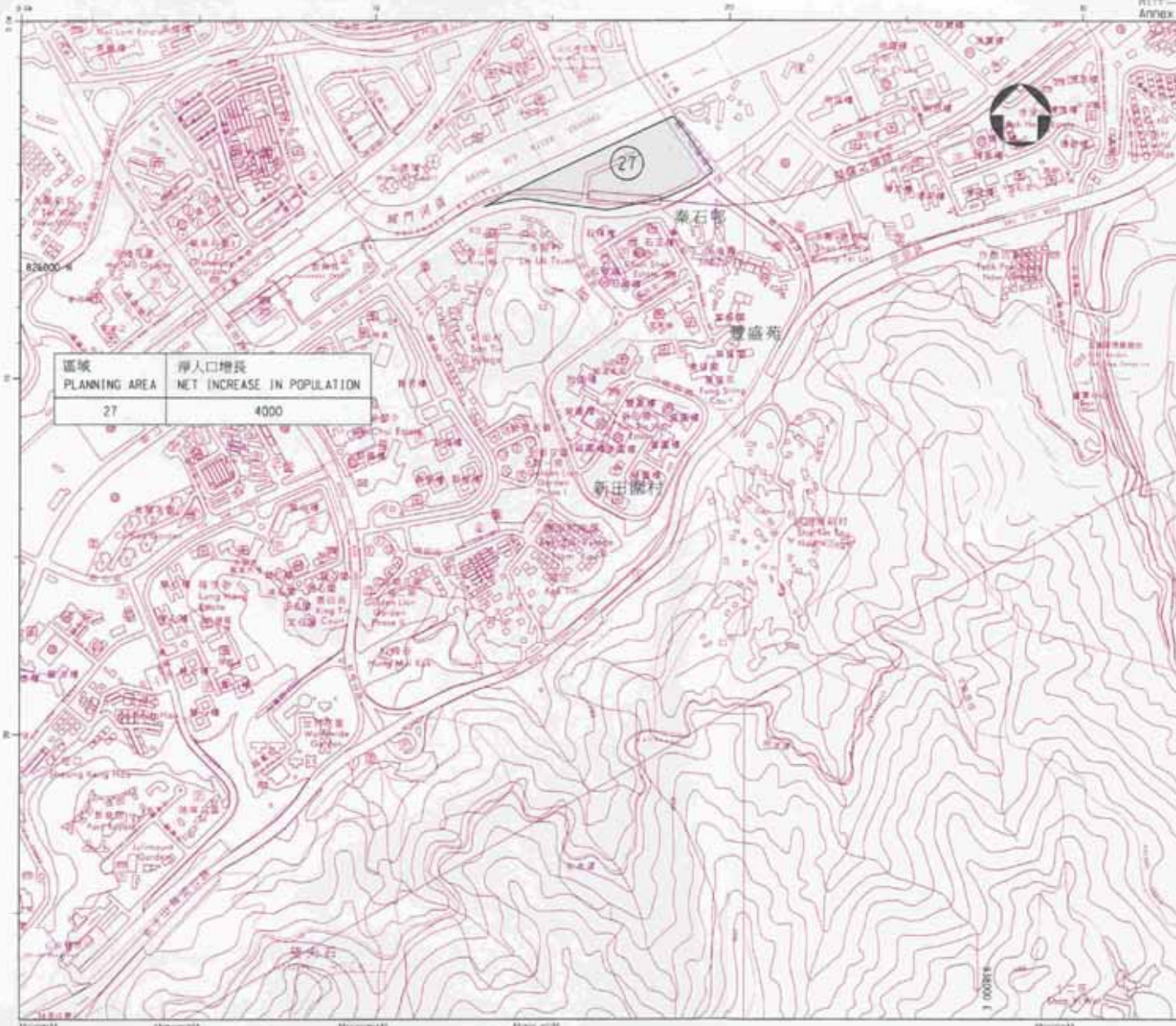
馬鞍山第108區泵房集水區內之人口分佈

drawing no.	scale
DDN 8557A	1:10 000

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區域 PLANNING AREA	淨人口增長 NET INCREASE IN POPULATION
27	4000

NOTES :

LEGEND :

CATCHMENT AREA
 集水區

A	18SEP	GENERAL REVISION	SIGNED
no.	date	description	INITIAL

REVISION	
name	date
drawn SIGNED K. Y. NG	03 AUG 2006
checked SIGNED S. H. LEUNG	12 SEP 2006
approved SIGNED Y. F. KAN	13 SEP 2006

contract no.

file no.

project no.

contract

drawing title
 POPULATION DISTRIBUTION AT
 PLANNING AREA 27
 第27區之人口分布

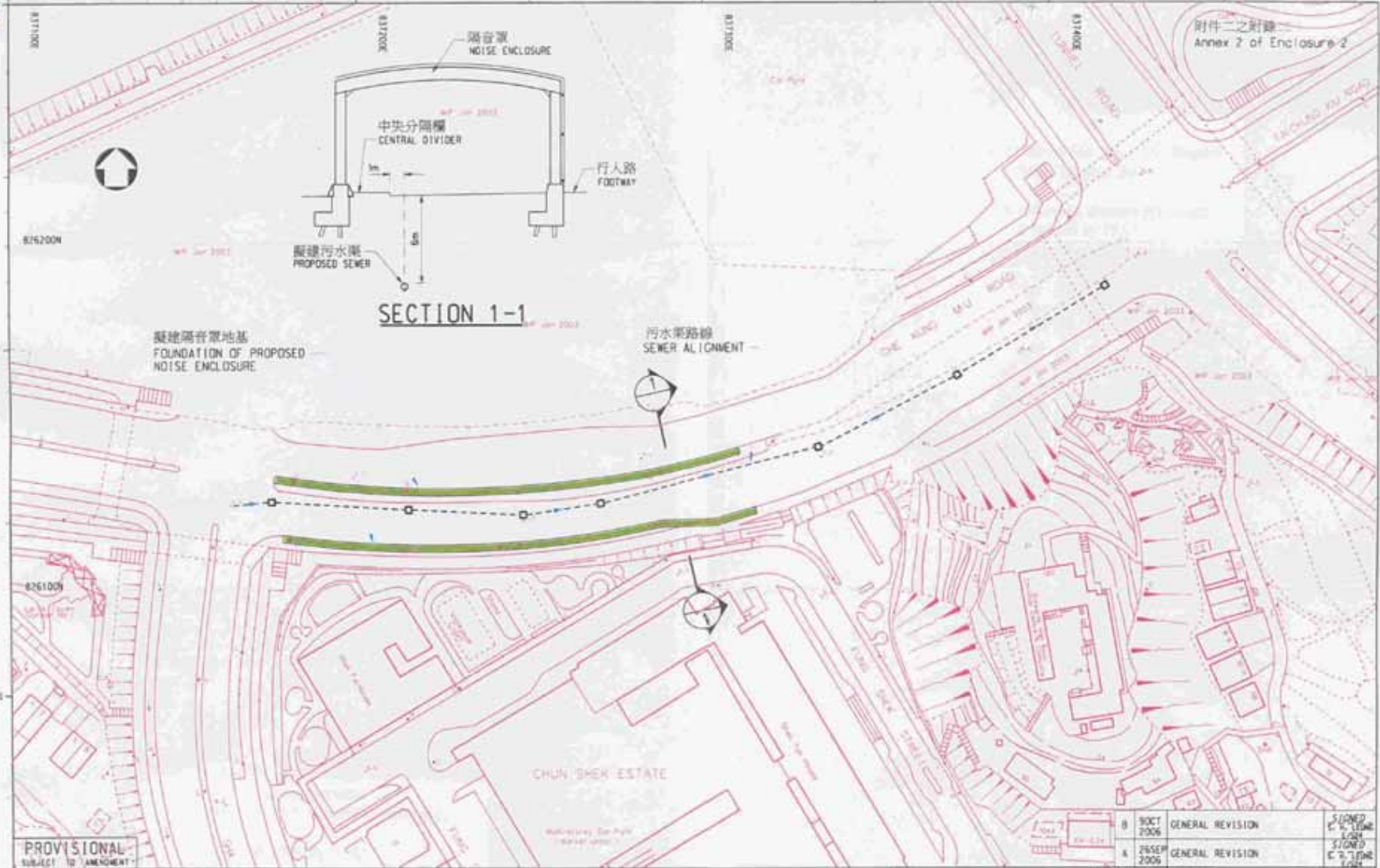
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附件二之附錄
Annex 2 of Enclosure 2



PROVISIONAL
SUBJECT TO AMENDMENT
drawing title

INTERFACE BETWEEN SEWERAGE WORKS UNDER 338DS AND NOISE ENCLOSURE WORKS UNDER 6767TH
338DS 污水渠工程與 6767TH 隔音罩工程的銜接和配合

Drawn	SIGNED K. F. NG	0018	8AUG2006
Checked	SIGNED S. H. LEUNG	0019	12SEP2006
Approved	SIGNED Y. F. TAN	0018	13SEP2006
Office	SEWERAGE PROJECTS DIVISION		

B	30 OCT 2006	GENERAL REVISION	SIGNED C. H. LEUNG
K	26 SEP 2005	GENERAL REVISION	SIGNED C. P. TONG
Drawing no.		DDN 8559B	
Scale		N.T.S.	
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