

**For discussion
on 28 May 2012**

**Legislative Council
Panel on Environmental Affairs**

274DS — Yuen Long and Kam Tin sewerage, stage 3

332DS — Lam Tsuen Valley sewerage, stage 2

PURPOSE

This paper seeks Members' support for our proposals to —

- (a) upgrade part of **274DS — Yuen Long and Kam Tin sewerage, stage 3** to Category A at an estimated cost of \$213.4 million; and
- (b) upgrade **332DS — Lam Tsuen Valley sewerage, stage 2** to Category A at an estimated cost of \$588.3 million

in money-of-the-day (MOD) prices.

PROJECT SCOPE

274DS — Yuen Long and Kam Tin sewerage, stage 3

2. The part of **274DS** that we propose to upgrade to Category A comprises the construction of —

- (a) about 6.5 kilometres (km) of sewers for six unsewered areas, namely Nam Pin Wai, Sai Pin Wai, Tai Tong Tsuen, Tsoi Uk Tsuen, Wong Uk Tsuen and Ying Lung Wai ;
- (b) about 3.6 km of gravity trunk sewers in the vicinity of the areas mentioned in (a) above; and
- (c) ancillary works.

————— A site plan showing the proposed works is at **Enclosure 1**.

332DS — Lam Tsuen Valley sewerage, stage 2

3. The scope of **332DS** comprises the construction of —
- (a) about 17.2 km of sewers for 13 unsewered areas, namely Chai Kek, Ma Po Mei, Ng Tung Chai, Pak Ngau Shek Sheung Tsuen, Pak Ngau Shek Ha Tsuen, Ping Long, San Tong, Sha Pa, She Shan Tsuen, Shui Wo, Tai Mong Che, Tai Om and Wo Liu;
 - (b) four sewage pumping stations (SPSs) respectively at Ma Po Mei, Pak Ngau Shek, Sha Pa and She Shan Tsuen;
 - (c) about 1.0 km of twin rising mains in association with construction of the SPSs in (b) above; and
 - (d) ancillary works.

————— A site plan showing the proposed works is at **Enclosure 2**.

JUSTIFICATIONS

274DS — Yuen Long and Kam Tin sewerage, stage 3

4. At present, sewage from a number of village areas in Yuen Long and Kam Tin is often treated and disposed of by means of private on-site treatment facilities (such as septic tanks and soakaway (STS) systems). Such facilities might however become ineffective due to their proximity to watercourses¹ or inadequate maintenance². Sewage from such areas has therefore been identified as a source of water pollution to nearby watercourses and the receiving waters of Deep Bay.

5. The aforesaid situation will persist unless sewerage infrastructure is made available to collect and treat sewage from the areas concerned properly. In this regard, the Environmental Protection Department has formulated as a long-term measure a programme under the Yuen Long and Kam Tin Sewerage Master Plan (SMP) to provide public sewerage for these areas. We now propose to upgrade part of

¹ STS systems operate by allowing the effluent to percolate through gravels whereby pollutants are removed in a natural manner. However, if a STS system is located in an area where the ground water table is high, such as an area in proximity to watercourses, it will not function properly due to ineffective percolation.

² Inadequate maintenance of STS systems would affect their pollutant removal efficiency and might even lead to overflow of effluent.

274DS to Category A for taking forward the proposed sewerage works at six unsewered areas, namely Nam Pin Wai, Sai Pin Wai, Tai Tong Tsuen, Tsoi Uk Tsuen, Wong Uk Tsuen and Ying Lung Wai. Upon completion of the proposed works and associated sewerage works in the vicinity³, sewage collected from these areas will be diverted away to the Yuen Long sewage treatment works (STW) and the San Wai preliminary treatment works for proper treatment and disposal. This will minimise the release of pollutants into the environment and bring about sustainable improvement to the water quality of nearby watercourses and Deep Bay.

6. We plan to submit the funding proposal for the proposed works under **274DS** to the Public Works Subcommittee for endorsement in June 2012 with a view to seeking funding approval of the Finance Committee (FC) in July 2012. The proposed works are expected to take about four years to complete. We will retain in Category B the remainder of **274DS**, which comprises the construction of about 16 km of sewers for 19 other unsewered areas in Yuen Long and Kam Tin. Funding for the remainder will be sought at a later stage after completion of the design and preparatory work.

332DS — Lam Tsuen Valley sewerage, stage 2

7. The Administration is undertaking a programme that aims to establish public sewerage in Lam Tsuen Valley in accordance with the Tolo Harbour SMP. A total of 27 unsewered areas will be served and the sewerage works are grouped under three packages for implementation in phases. In November 2008, we upgraded the first package to Category A as **364DS — Lam Tsuen Valley sewerage — trunk sewers, pumping station and rising mains** for construction of the main sewerage facilities along Lam Kam Road. The second package, comprising sewerage works for 14 unsewered areas in the lower catchment⁴, was subsequently upgraded to Category A as **373DS — Lam Tsuen Valley sewerage, stage 1** in July 2011. The two packages are scheduled for completion by September 2012 and August 2015 respectively.

³ The sewerage for Nam Pin Wai and Sai Pin Wai will be connected to the gravity trunk sewers being laid under **370DS — Village sewerage at Wang Chau of Yuen Long** whereas that for Tai Tong Tsuen will be connected to the gravity trunk sewers being laid under **368DS — Yuen Long South sewerage and expansion of Ha Tsuen sewage pumping station**. The two projects are scheduled for completion by June 2013 and October 2013 respectively. The sewerage for Tsoi Uk Tsuen, Wong Uk Tsuen and Ying Lung Wai will be connected to the existing gravity trunk sewers near Pok Oi Interchange.

⁴ These areas include Chuen Shui Tseng, Chung Uk Tsuen, Fong Ma Po, Hang Ha Po, Kau Liu Ha, Ko Tin Hom, Lam Tsuen San Tsuen, Lung A Pai, Pak Tin Kong, San Uk Pai, San Uk Tsai, Tin Liu Ha, Tong Min Tsuen and Wo Tong Pui.

8. We now propose to upgrade **332DS** to Category A for commencing the last works package of Lam Tsuen Valley sewerage. It covers the remaining 13 unsewered areas mostly in the upper catchment, namely Chai Kek, Ma Po Mei, Ng Tung Chai, Pak Ngau Shek Sheung Tsuen, Pak Ngau Shek Ha Tsuen, Ping Long, San Tong, Sha Pa, She Shan Tsuen, Shui Wo, Tai Mong Che, Tai Om and Wo Liu. We also propose to construct four SPSs under this works package for overcoming the topographical constraints along some sections of the sewer alignment.

9. The proposed works under **332DS** are expected to take about 50 months to complete. Upon completion of the necessary statutory procedures and preparatory work, FC's funding approval will be sought for implementation of the construction works. Sewage to be collected from the areas mentioned above will be conveyed to the Tai Po STW for proper treatment and disposal when both the proposed works and the preceding works packages are completed. The water quality of both Lam Tsuen River and the receiving waters of Tolo Harbour will be better protected by then.

FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the proposed works under **274DS** and **332DS** to be \$801.7 million in MOD prices made up as follows —

	\$ million (MOD)
(a) 274DS — Yuen Long and Kam Tin sewerage, stage 3 (<i>part</i>)	213.4
(b) 332DS — Lam Tsuen Valley sewerage, stage 2	588.3
Total	801.7

11. We estimate that implementation of the proposed works under **274DS** and **332DS** will create 59 jobs and 183 jobs respectively, providing a total employment of 9 540 man-months. Detailed breakdown is as follows —

PWP item no.	(A) Number of jobs to be created for labourers	(B) professional / technical staff	(A) + (B) Total number of jobs created	(C) Employment in man-months
274DS (<i>part</i>)	48	11	59	2 580
332DS	148	35	183	6 960
Total	196	46	242	9 540

PUBLIC CONSULTATION

274DS — Yuen Long and Kam Tin sewerage, stage 3

12. We consulted the Shap Pat Heung Rural Committee (RC) on 8 December 2006. Members were supportive of the proposed works and suggested that more villages should be covered. We consulted the Environmental Improvement Committee of the Yuen Long District Council (DC) on 19 May 2008 and 14 March 2011. Members supported the proposed works.

13. We gazetted the proposed works in accordance with the Water Pollution Control (Sewerage) Regulation (WPC(S)R) under three schemes between December 2010 to July 2011. Since we did not receive any objection during the respective statutory objection periods, the Director of Environmental Protection (DEP) authorised the proposed works between May 2011 and December 2011.

332DS — Lam Tsuen Valley sewerage, stage 2

14. We consulted Tai Po RC and the Environment, Housing and Works Committee under Tai Po DC on 24 July 2007 and 12 March 2008 respectively. Both committees supported the proposed works.

15. We gazetted the proposed works in accordance with the WPC(S)R under four schemes⁵ between June 2009 and July 2010 and 14 objections to the original schemes were received. We then prepared the first amendment schemes for all the four schemes after considering the objectors' grounds of objections. As a result, 11 of the objections were withdrawn unconditionally whereas two further objections to two of the first amendment schemes were received. We further met with the objectors and prepared the second amendment schemes for the two schemes concerned. The two objections against the first amendment schemes were then withdrawn unconditionally while a further objection to one of the second amendment schemes was received.

16. Since all the objections to three of the four schemes were resolved, the DEP authorised the proposed works concerned between January 2011 and January 2012. As for the remaining scheme with four objections not withdrawn after the second amendment scheme (three objections against the original scheme and one against its second amendment scheme), a third amendment scheme was prepared. Two of the remaining four objections were in turn withdrawn by the objectors unconditionally and we did not receive any further objection to this third amendment scheme during the statutory objection period. Funding approval for the works concerned will be sought upon completion of the statutory procedures regarding the two remaining objections for authorisation of the remaining scheme.

HERITAGE IMPLICATIONS

17. The proposed works under **274DS** will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office. For the proposed works under **332DS**, the Preliminary Environmental Review (PER) has identified that several proposed sewers will be located in the vicinity of some village houses currently situated near to graded buildings or within sites of archaeological interest. Adequate mitigation measures will be implemented in accordance with the recommendations of the PER to ensure no adverse impact on the graded buildings and sites of archaeological interest.

⁵ For one of the schemes, only part of the works belongs to **332DS** whereas the rest are being implemented under **373DS**. Figures relating to objections as stated in paragraphs 15 and 16 include only those concerning the former.

LAND ACQUISITION

18. We have to resume a total of 469 private agricultural lots (about 15 200 square metres (m²)) for implementation of the proposed works. Of the 469 lots, 69 (about 1 932 m²) are for **274DS** and 400 (about 13 268 m²) are for **332DS**. The land resumption and clearance will not affect any households or domestic structures.

ENVIRONMENTAL IMPLICATIONS

19. The proposed works under both **274DS** and **332DS** are not designated projects under the Environmental Impact Assessment Ordinance (Cap. 499). DSD completed an Environmental Study for the proposed works under **274DS** in July 2008 and a PER for the proposed works under **332DS** in May 2011. It was concluded that, with the implementation of appropriate mitigation measures, the proposed works would not have long-term adverse environmental impacts.

20. For short-term environmental impacts during construction, we will control noise, dust and site run-off to levels within established standards and guidelines through implementation of environmental mitigation measures, such as the use of silenced construction equipment and noise barriers to reduce noise generation, water-spraying to reduce emission of fugitive dust, and proper treatment of site run-off before discharge. We will also carry out regular site inspections to ensure that these recommended mitigation measures and good site practices will be properly implemented on site. We have included sums of \$6.3 million and \$9.7 million (in September 2011 prices) in the project estimates of the proposed works under **274DS** and **332DS** respectively for implementation of the necessary environmental mitigation measures.

21. At the planning and design stages, we have considered ways to reduce the generation of construction waste (e.g. to design the alignment of the proposed sewers in such a manner that excavation and demolition of existing structures will be minimised) where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible in order to minimise the disposal of inert construction waste at public fill reception facilities (PFRF)⁶. We will encourage the

⁶ PFRF are specified in Schedule 4 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in PFRF requires a licence issued by the Director of Civil Engineering and Development.

contractors to maximise the use of recycled/recyclable inert construction waste and non-timber formwork to further reduce the generation of construction waste.

22. At the construction stage, we will require the contractors to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractors to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

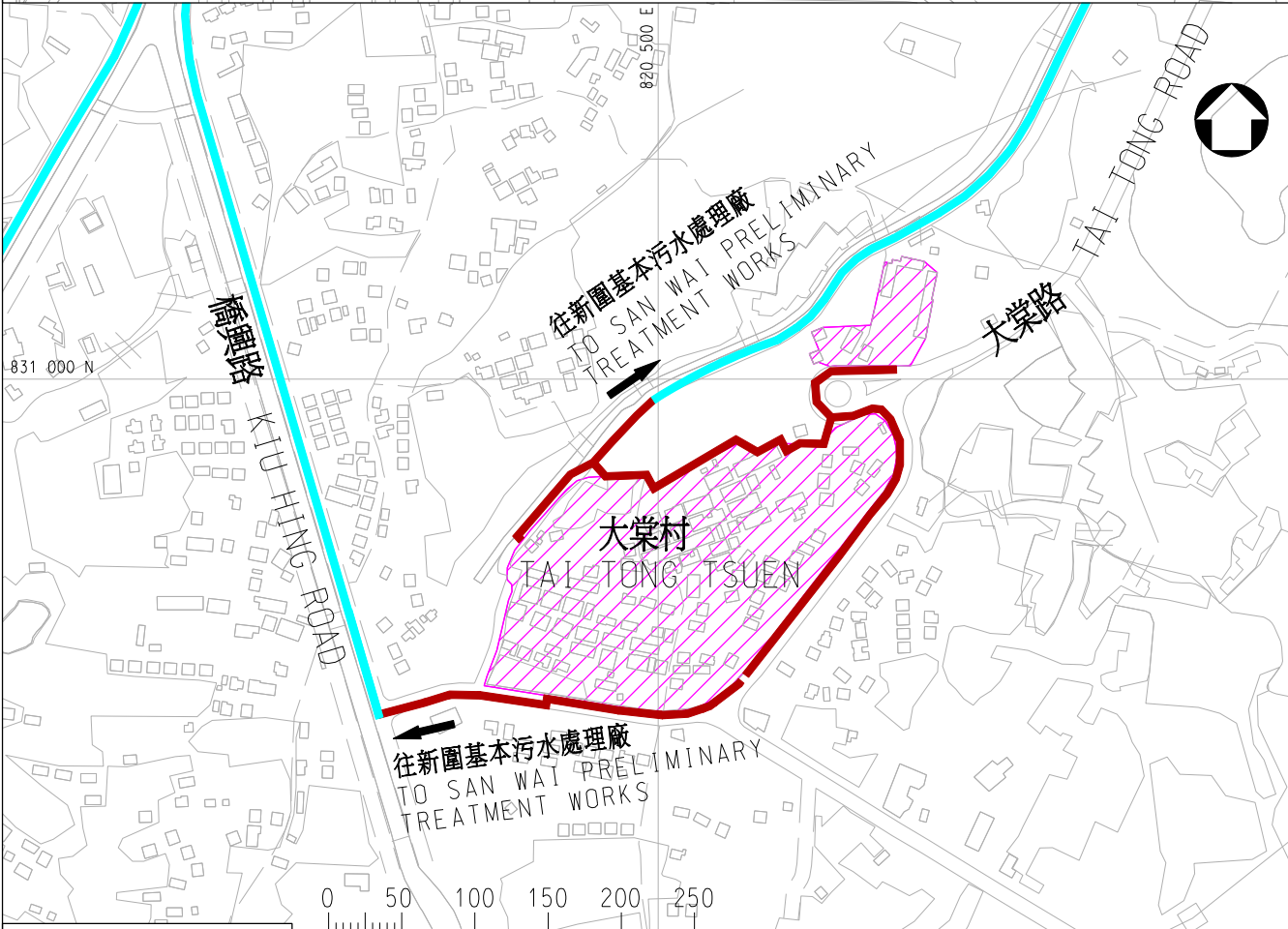
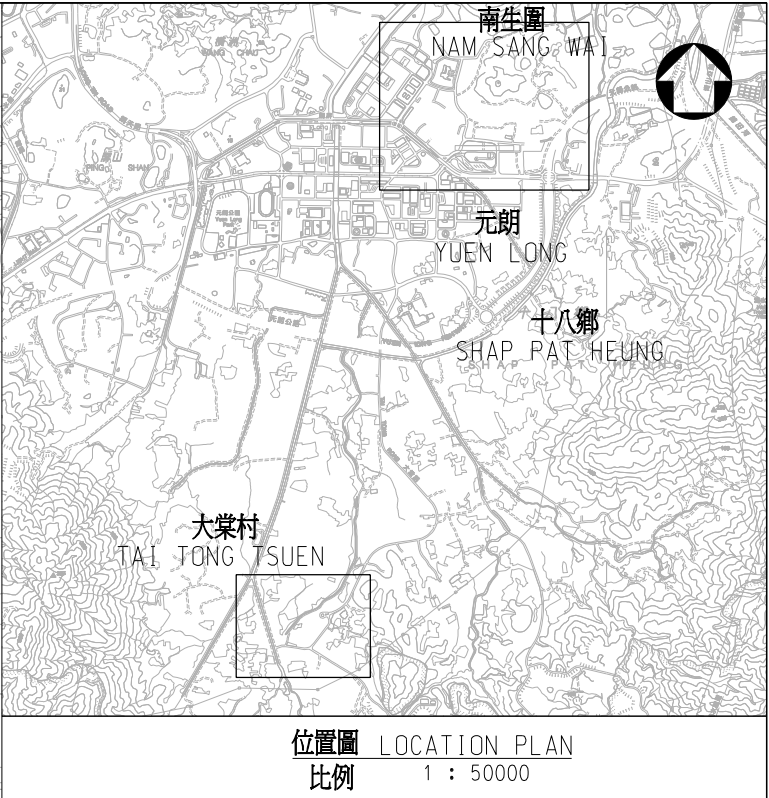
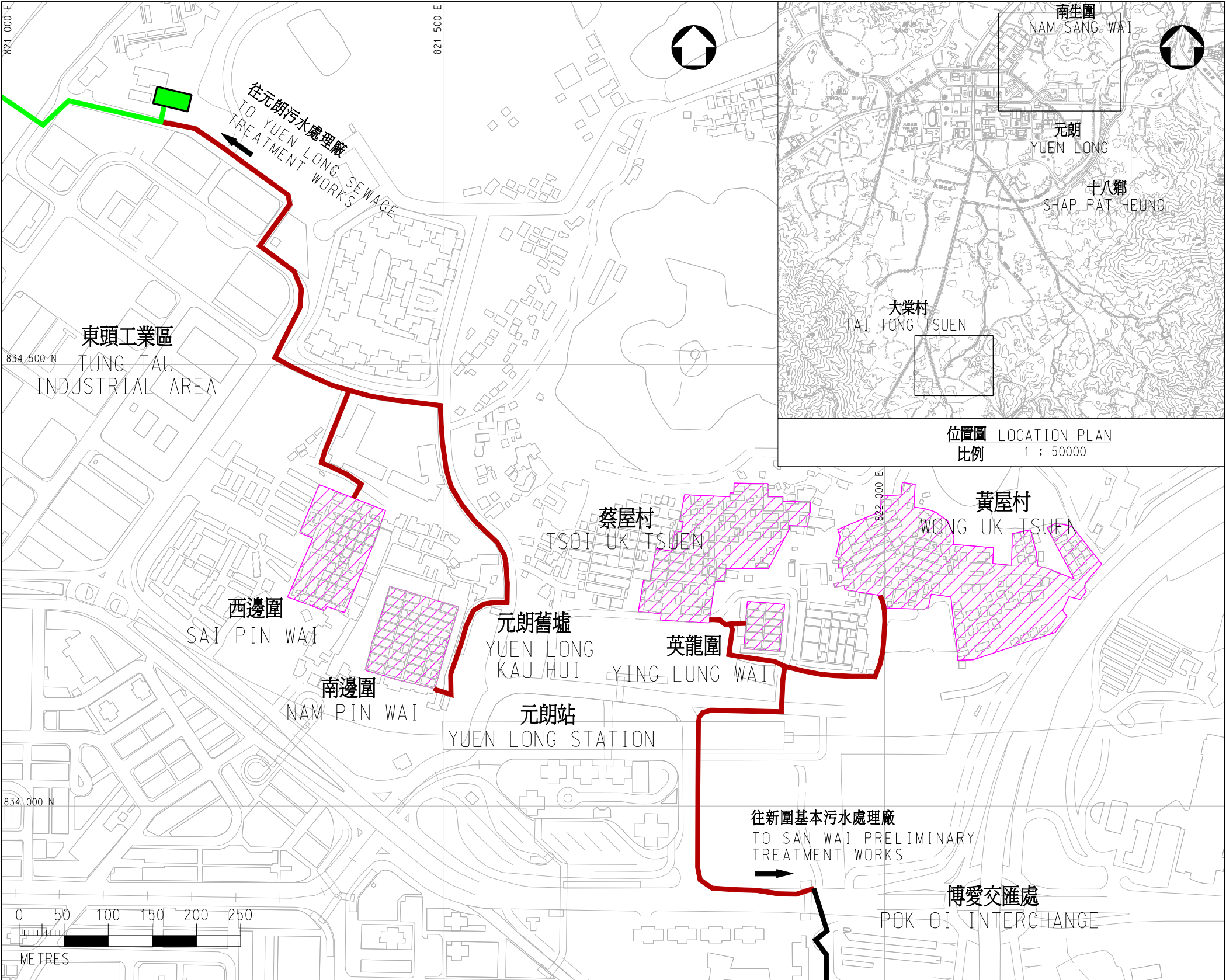
23. We estimate that the proposed works will generate about 57 125 tonnes of construction waste in total (10 350 tonnes and 46 775 tonnes for the proposed works under **274DS** and **332DS** respectively). Of these, we will reuse 28 100 tonnes (49.2%) of inert construction waste on site and deliver another 28 100 tonnes (49.2%) to PFRF for subsequent reuse. We will dispose of the remaining 925 tonnes (1.6%) of non-inert construction waste at landfills. The total cost of accommodating construction waste at PFRF and landfill sites is estimated to be \$0.13 million and \$0.74 million for the proposed works under **274DS** and **332DS** respectively (based on a unit cost of \$27 per tonne for disposal at PFRF and \$125 per tonne⁷ at landfills).

ADVICE SOUGHT

24. Members are invited to support our proposals for upgrading the proposed works under **274DS** and **332DS** to Category A.

Environmental Protection Department
Drainage Services Department
May 2012

⁷ 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 per cubic metre), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.



圖例:
LEGEND:

- 現有的無壓污水幹渠
EXISTING GRAVITY TRUNK SEWERS
- 擬建的無壓污水幹渠
PROPOSED GRAVITY TRUNK SEWERS
- ▨ 擬建的鄉村污水收集系統範圍
PROPOSED AREA FOR IMPLEMENTATION OF VILLAGE SEWERAGE WORKS

建造中相關工程
RELATED WORKS UNDER CONSTRUCTION

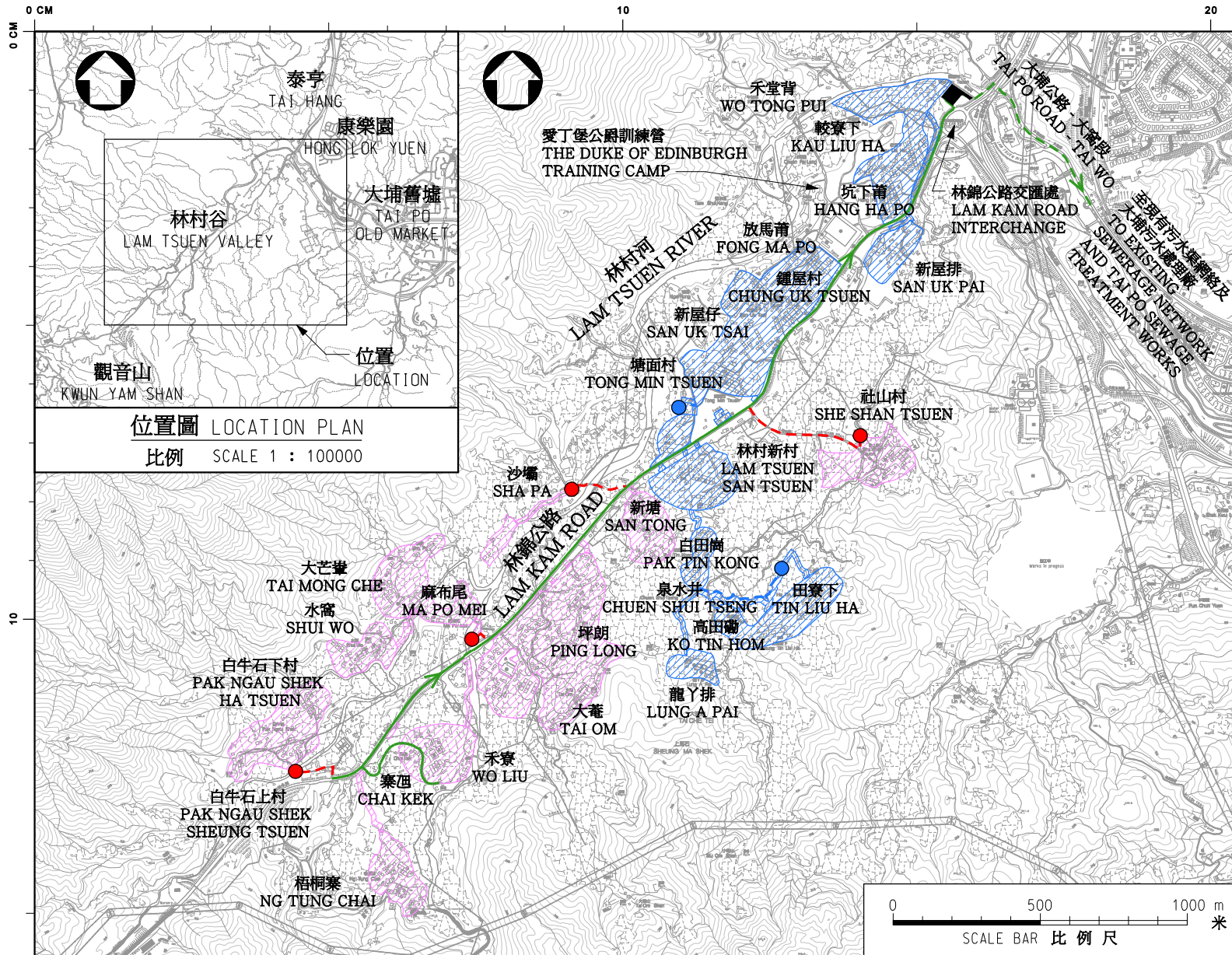
項目第370DS
ITEM 370DS

- 污水泵房
SEWAGE PUMPING STATION
- 無壓污水幹渠
GRAVITY TRUNK SEWERS




項目第368DS
ITEM 368DS

- 無壓污水幹渠
GRAVITY TRUNK SEWERS

<div>PROVISIONAL</div> <div>SUBJECT TO AMENDMENT</div>		<div><div></div><div>METRES</div></div>		<div>版</div> <div>no.</div>	<div>日期</div> <div>date</div>	<div>修改項目</div> <div>description</div>	<div>簡簽</div> <div>initial</div>
<div>圖則名稱 drawing title</div> <div>工務計劃項目第 274 DS 號 — 元朗及錦田污水收集系統第三階段</div> <div>PWP ITEM NO. 274 DS — YUEN LONG AND KAM TIN SEWERAGE, STAGE 3</div>		<div>繪畫 drawn</div> <div>C. C. CHAN</div>			<div>日期date</div> <div>19 MAR 2012</div>	<div>圖則編號 drawing no.</div> <div>DSP/274DS/11031</div>	<div>比例 scale</div> <div>-</div>
		<div>核對 checked</div> <div>Ir K. L. WONG</div>			<div>日期date</div> <div>19 MAR 2012</div>		
		<div>批核 approved</div> <div>Ir W. C. LEUNG</div>			<div>日期date</div> <div>19 MAR 2012</div>	<div>保留版權 COPYRIGHT RESERVED</div>	
		<div>部門 office</div> <div>污水工程部</div> <div>SEWERAGE PROJECTS DIVISION</div>			<div><div></div><div>香港特別行政區政府渠務署</div><div>DRAINAGE SERVICES DEPARTMENT</div><div>GOVERNMENT OF THE</div><div>HONG KONG</div><div>SPECIAL ADMINISTRATIVE REGION</div></div>		






圖例
LEGEND:

-  擬建的鄉村污水收集系統範圍
PROPOSED AREA FOR IMPLEMENTATION OF VILLAGE SEWERAGE WORKS
-  擬建的污水泵房
PROPOSED SEWAGE PUMPING STATION
-  擬建的雙管壓力污水管
PROPOSED TWIN RISING MAINS

建造中相關工程
RELATED WORKS UNDER CONSTRUCTION

項目373DS
ITEM 373DS

-  鄉村污水收集系統範圍
VILLAGE SEWERAGE AREA
-  污水泵房
SEWAGE PUMPING STATIONS
-  雙管壓力污水管
TWIN RISING MAINS

項目364DS
ITEM 364DS

-  無壓污水幹渠
GRAVITY TRUNK SEWERS
-  雙管壓力污水管
TWIN RISING MAINS
-  林村谷污水泵房
LAM TSUEN VALLEY SEWAGE PUMPING STATION

圖則名稱 drawing title

工務計劃項目第332DS號 —
林村谷污水收集系統第二階段

PWP ITEM NO.332DS —
LAM TSUEN VALLEY SEWERAGE, STAGE 2

繪畫 drawn	T.M. SIU	日期 date	26 MAR 2012
核對 checked	W.C. YIP	日期 date	26 MAR 2012
批核 approved	H.S. KAN	日期 date	26 MAR 2012
部門 office 工程管理部 PROJECT MANAGEMENT DIVISION			

圖則編號 drawing no.	比例 scale
DPM/332DS0/0009	N.T.S.

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