

**For discussion  
on 25 March 2013**

**Legislative Council  
Panel on Environmental Affairs**

**125DS — Tolo Harbour sewerage of unsewered areas, stage 2**

**339DS — North District sewerage, stage 1 phase 2C and stage 2 phase 1**

**PURPOSE**

This paper seeks Members' support for our proposals to —

- (a) upgrade part of **125DS — Tolo Harbour sewerage of unsewered areas, stage 2** to Category A at an estimated cost of \$364.7 million; and
- (b) upgrade part of **339DS — North District sewerage, stage 1 phase 2C and stage 2 phase 1** to Category A at an estimated cost of \$319.1 million.

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

**PROJECT SCOPE**

**125DS — Tolo Harbour sewerage of unsewered areas, stage 2**

2. The part of **125DS** that we propose to upgrade to Category A comprises the construction of —

- (a) about 11.7 kilometres (km) of sewers for nine unsewered areas in Sha Tin, namely Siu Lek Yuen, Ngau Pei Sha, Tsok Pok Hang, Sha Tin Heights, Fui Yiu Ha, Kwai Tei New Village and Sha Tin Fishermen's New Village (also known as Ah Kung Kok Fishermen Village), Kau To and Tin Liu, as well as two unsewered areas in Tai Po, namely Ha Wun Yiu and Shan Tong;
- (b) one sewage pumping station (SPS) at Kau To in Sha Tin;
- (c) about 130 metres (m) of twin rising mains in association with construction of the SPS in (b) above; and
- (d) ancillary works.

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

### **339DS —North District sewerage, stage 1 phase 2C and stage 2 phase 1**

3. The part of **339DS** that we propose to upgrade to Category A comprises the construction of —

- (a) about 7.3 km of sewers for two unsewered areas in Tai Po, namely Nam Wa Po and Wai Tau Tsuen;
- (b) two SPSs at Nam Wa Po and Wai Tau Tsuen in Tai Po;
- (c) about 170 m of twin rising mains in association with construction of the SPS at Nam Wa Po; and
- (d) ancillary works.

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

## **JUSTIFICATIONS**

### **125DS —Tolo Harbour sewerage of unsewered areas, stage 2**

4. At present, sewage from unsewered areas in Sha Tin and Tai Po 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 watercourses<sup>1</sup> and inadequate maintenance<sup>2</sup>. Sewage from such unsewered areas has therefore been identified as a source of water pollution to nearby watercourses and the receiving waters of Tolo Harbour.

5. The aforesaid situation will persist unless sewerage infrastructure is made available to collect and treat sewage from these areas properly. The Environmental Protection Department (EPD) has formulated as a long-term measure a programme under the Tolo Harbour Sewerage Master Plan (SMP) to provide public sewerage for these areas.

6. We now propose to upgrade part of **125DS** to Category A for taking forward the proposed works at nine unsewered areas in Sha Tin, namely Siu Lek Yuen, Ngau Pei Sha, Tsok Pok Hang, Sha Tin Heights, Fui Yiu Ha, Kwai Tei New Village and Sha Tin Fishermen's New Village (also known as Ah Kung Kok Fishermen Village), Kau To and Tin Liu, as well as two unsewered areas in Tai Po, namely Ha Wun Yiu and Shan Tong. Upon completion of the proposed works

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<sup>1</sup> 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.

<sup>2</sup> Inadequate maintenance of STS systems would affect their pollutant removal efficiency and may even lead to overflow of effluent.

under **125DS**, sewage collected from the areas concerned will be conveyed to the Sha Tin Sewage Treatment Works (STW) and Tai Po STW 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 Tolo Harbour.

7. We plan to submit the funding proposal for the proposed works under **125DS** to the Public Works Subcommittee (PWSC) for endorsement in May 2013 with a view to seeking funding approval of the Finance Committee (FC) in June 2013. The proposed works are expected to start in July 2013 for completion in September 2017. We will retain the remainder of **125DS** in Category B, which comprises the construction of about 60 km of sewers for 30 other unsewered areas in Sha Tin and Tai Po. Funding for the remainder will be sought at a later stage after completion of the design and preparatory work.

### **339DS —North District sewerage, stage 1 phase 2C and stage 2 phase 1**

8. At present, sewage from the village areas in Kau Lung Hang, Tai Po is often treated and disposed of by means of private on-site treatment facilities (such as STS systems). Such facilities might however become ineffective due to their proximity to watercourses and inadequate maintenance. Sewage from such unsewered areas has therefore been identified as a source of water pollution to Ng Tung River and the receiving waters of Deep Bay.

9. The aforesaid situation will persist unless sewerage infrastructure is made available to collect and treat sewage from these areas properly. The EPD has formulated as a long-term measure a programme under the North District SMP to provide public sewerage in Kau Lung Hang. The programme is being implemented in phases. Under **366DS — Kau Lung Hang sewerage — trunk sewers, pumping station and rising mains**, construction of the gravity trunk sewers bridging Fanling and Kau Lung Hang was substantially completed in end 2012; whereas sewerage improvement works in Kau Lung Hang San Wai, Kau Lung Hang Lo Wai and Tai Hang as well as the laying of trunk sewer between Nam Wa Po and Wai Tau Tsuen under **386DS –Village sewerage in Kau Lung Hang San Wai, Kau Lung Hang Lo Wai and Tai Hang, and southern trunk sewer between Wai Tau Tsuen and Nam Wa Po** have commenced for completion by December 2016. Relevant parts of the two works projects are also shown in the site plan at **Enclosure 2** for reference.

10. We now propose to upgrade part of **339DS** to Category A for taking forward the proposed sewerage works at two unsewered areas, namely, Nam Wa Po and Wai Tau Tsuen. Upon completion of the proposed works under **339DS** and the adjacent sewer segments under **366DS** and **386DS**, sewage collected from these two areas will be conveyed to the Shek Wui Hui STW 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 Ng Tung River

and Deep Bay.

11. We plan to submit the funding proposal for the proposed works under **339DS** to the PWSC for endorsement in May 2013 with a view to seeking funding approval of the FC in June 2013. The proposed works are expected to start in July 2013 for completion in September 2017. We will retain the remainder of **339DS** in Category B, which comprises the construction of about 21.6 km of sewers for 14 other unsewered areas in North District and Tai Po. Funding for the remainder will be sought at a later stage after completion of the design and preparatory work.

## FINANCIAL IMPLICATIONS

12. We estimate the capital cost of the proposed works under **125DS** and **339DS** to be \$364.7 million and \$319.1 million respectively, both in MOD prices.

13. We estimate that implementation of the proposed works under **125DS** and **339DS** will create a total of 100 jobs (80 for labourers and another 20 for professional / technical staff) and 90 jobs (75 for labourers and another 15 for professional / technical staff) respectively, providing a total employment of 8 130 man-months. The detailed breakdown is as follows —

PWP item no.	(A)	(B)	(A) + (B)	(C)
	Number of jobs to be created for labourers	professional / technical staff	Total number of jobs created	Employment in man-months
<b>125DS</b> (part)	80	20	100	4 280
<b>339DS</b> (part)	75	15	90	3 850
<b>Total</b>	155	35	190	8 130

## **PUBLIC CONSULTATION**

### **125DS –Tolo Harbour sewerage of unsewered areas, stage 2**

14. We consulted the Development and Housing Committee under Sha Tin District Council as well as the Environment, Housing and Works Committees under Tai Po District Council on 30 April 2009 and 13 May 2009 respectively. Both committees supported the proposed works.

15. We gazetted the proposed works in Siu Lek Yuen and Ngau Pei Sha, Tin Liu and Kau To in accordance with the Water Pollution Control (Sewerage) Regulation (WPC(S)R) under three schemes between December 2011 to January 2013. For the scheme that covers the proposed works in Siu Lek Yuen and Ngau Pei Sha, four objections were received on land resumption and sewer alignment issues. We met with the objectors and prepared an amendment scheme in September 2012 in response to their concerns. Upon gazettal of the amendment scheme, all four objectors have withdrawn their objections unconditionally. As all the objections have been resolved, the Director of Environmental Protection (DEP) authorised the proposed works in Siu Lek Yuen and Ngau Pei Sha in November 2012. No objection was received on the proposed works in Tin Liu and the scheme was subsequently authorised in March 2013. Subject to the outcome of gazettal, authorisation of the remaining scheme on Kau To is tentatively scheduled in April 2013.

### **339DS –North District sewerage, stage 1 phase 2C and stage 2 phase 1**

16. We consulted the Tai Po Rural Committee on 11 May 2007 and the Environment, Housing and Works Committee under Tai Po District Council on 14 September 2007. Both committees supported the proposed works.

17. We gazetted the proposed works in accordance with the WPC(S)R in February 2011 under a single scheme and received six objections concerning land resumption and sewer alignment issues. We met with the six objectors and they all withdrew their objections unconditionally. An amendment scheme was subsequently prepared in August 2012 to further optimize the scheme. No objection to the amendment scheme was received. DEP therefore authorised the proposed works in Nam Wa Po and Wai Tau Tsuen in November 2012.

## HERITAGE IMPLICATIONS

### **125DS –Tolo Harbour sewerage of unsewered areas, stage 2**

18. The proposed works in Ha Wun Yiu fall within the Wun Yiu Site of Archaeological Interest. We will conduct rescue excavation before commencement of the proposed sewerage works and conduct an archaeological watching brief in the course of the proposed sewerage works in Ha Wun Yiu. Besides, the proposed works in Tin Liu will be in close vicinity to some graded buildings at Pai Tau (adjacent to Tin Liu). Necessary precautionary and protective measures will be implemented during the works if there is any anticipated impact on the graded buildings.

### **339DS – North District sewerage, stage 1 phase 2C and stage 2 phase 1**

19. The proposed works under **339DS** 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.

## LAND ACQUISITION

20. We have to resume a total of 117 private agricultural lots (about 5 575 square metres (m<sup>2</sup>)) for carrying out the proposed sewerage improvement works — 21 lots (about 531 m<sup>2</sup>) under **125DS** and 96 lots (about 5 044 m<sup>2</sup>) under **339DS**. The land resumption and clearance will not affect any households or structures.

## ENVIRONMENTAL IMPLICATIONS

21. The proposed sewerage works in Tsok Pok Hang (Shui Chuen Au Street) under **125DS** constitute a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) and an Environmental Permit (EP) is required for its construction and operation. Having regard to the project profile prepared and submitted by the Drainage Services Department (DSD), DEP was satisfied that the environmental impacts of the works concerned could meet the requirements of the Technical Memorandum on Environmental Impact Assessment Process. With the consent of the Secretary for the Environment, the permission to apply directly for an EP was granted on 12 December 2012 and the EP was issued on 5 February 2013. DSD shall implement the mitigation measures as set out in the EP and comply with any requirements therein accordingly.

22. As regards the part of the proposed works under **125DS** which are not designated projects under the EIAO, DSD completed a preliminary environmental review (PER) in December 2009. It was concluded that, with the implementation of appropriate mitigation measures, these sewerage works would not have long-term adverse environmental impacts.

23. The proposed works under **339DS** are not designated projects under the EIAO (Cap. 499). DSD completed the PER for **339DS** in September 2008. It was concluded that the proposed works would not have long-term adverse environmental impacts upon implementation of appropriate mitigation measures.

24. 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 \$3.7 million and \$3.0 million (in September 2012 prices) in the project estimates of the proposed works under **125DS** and **339DS** respectively for implementing these environmental mitigation measures.

25. 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)<sup>3</sup>. We will encourage the contractors to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

26. 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

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<sup>3</sup> PFRF are specified in Schedule 4 of the 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.

PFRF and landfills respectively through a trip-ticket system.

27. We estimate that the proposed works will generate about 91 755 tonnes of construction waste in total (53 105 tonnes and 38 650 tonnes for the proposed works under **125DS** and **339DS** respectively). Of these, we will reuse 44 269 tonnes (48.3%) of the inert construction waste on site and deliver another 43 072 tonnes (46.9%) to PFRF for subsequent reuse. We will dispose of the remaining 4 414 tonnes (4.8%) of non-inert construction waste at landfills. The total cost of accommodating construction waste at PFRF and landfill sites is estimated to be about \$1.16 million and \$0.55 million for the proposed works under **125DS** and **339DS** respectively (based on a unit cost of \$27 per tonne for disposal at PFRF and \$125 per tonne<sup>4</sup> at landfills).

## **ADVICE SOUGHT**

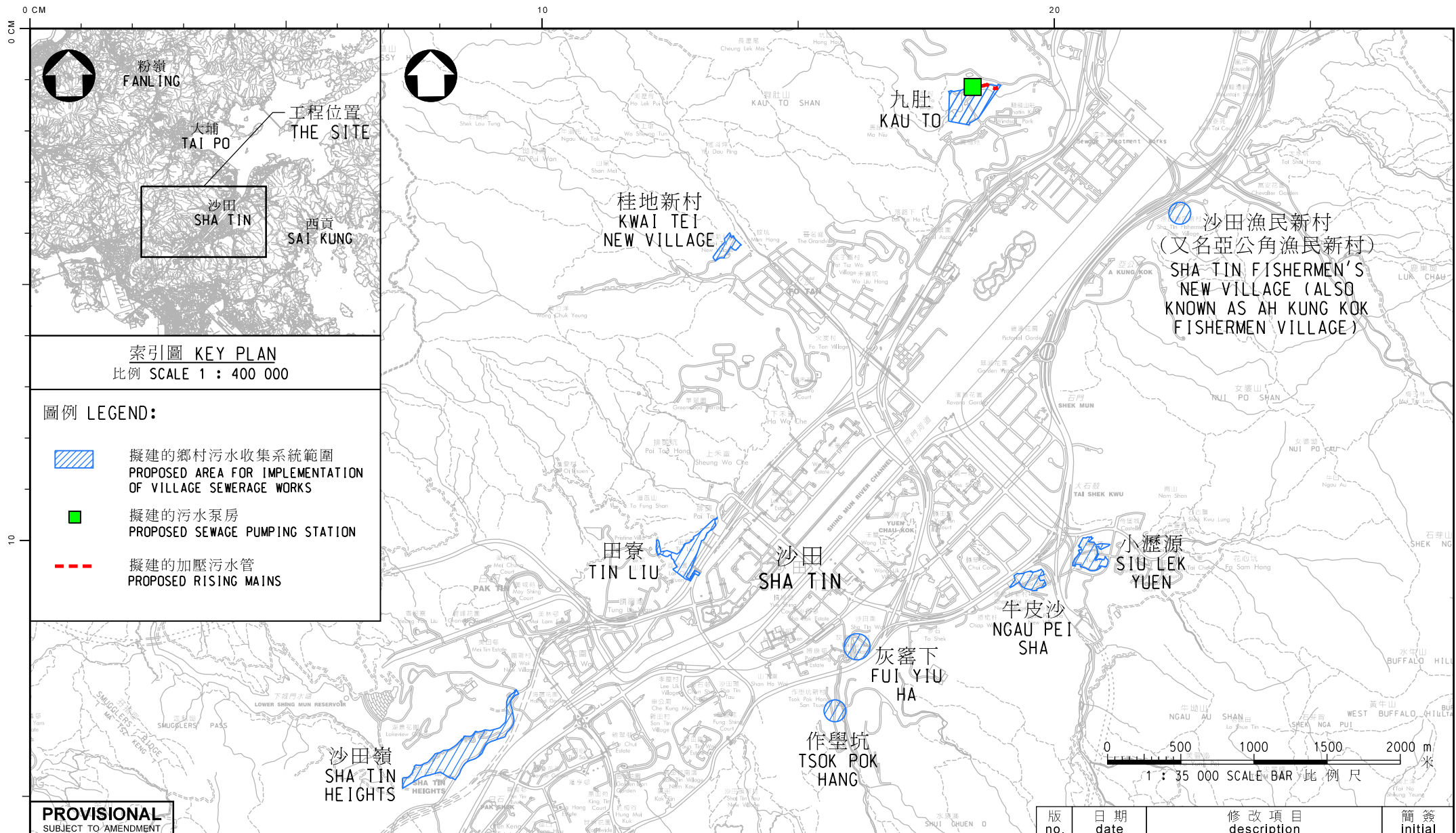
28. Members are invited to support our proposals for upgrading the proposed works under **125DS** and **339DS** to Category A.

**Environmental Protection Department**  
**Drainage Services Department**  
**March 2013**

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<sup>4</sup> The 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 m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.



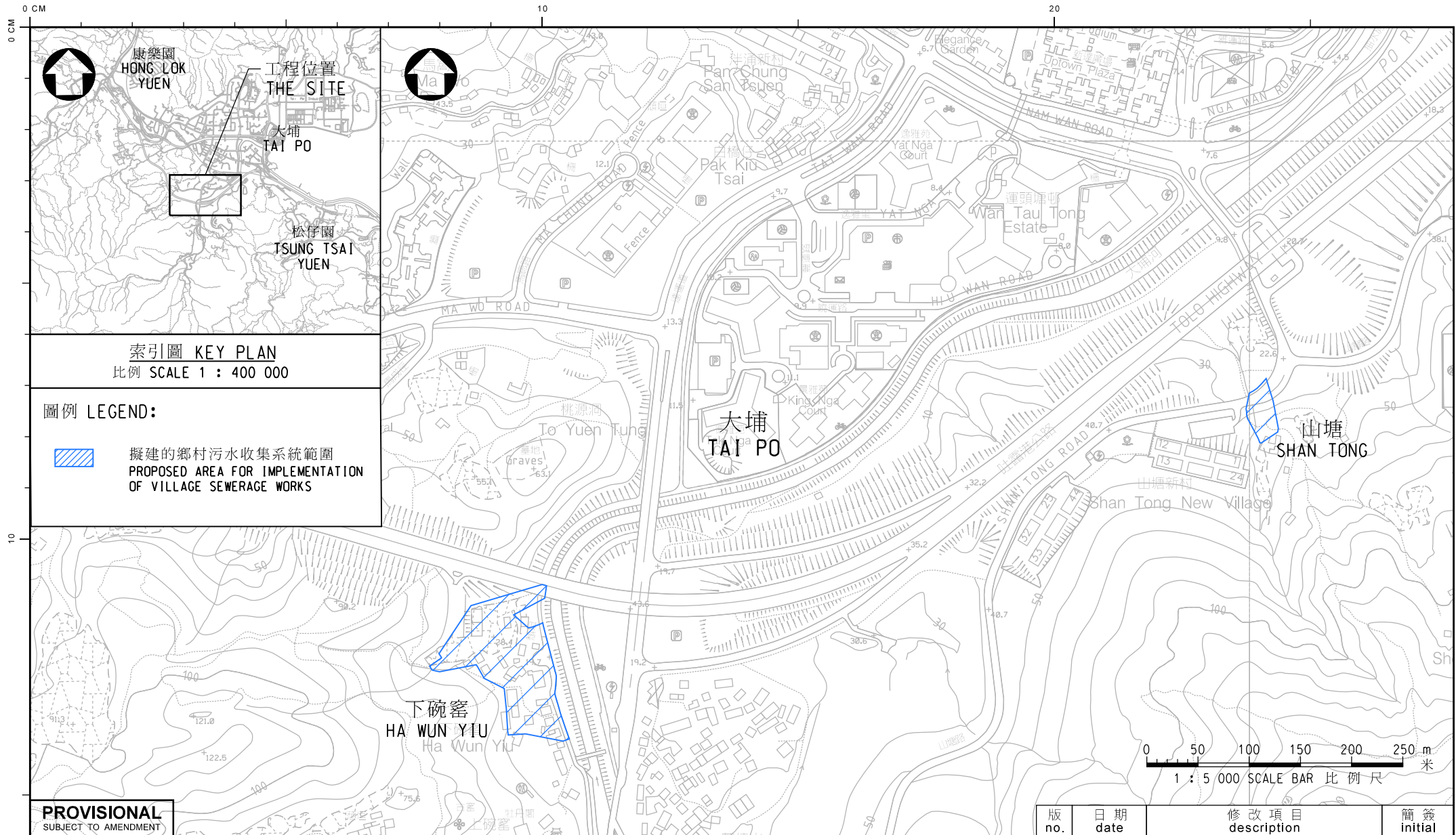


**PROVISIONAL**  
SUBJECT TO AMENDMENT


圖則名稱 drawing title  
 工務計劃項目第125DS號  
 - 吐露港未敷設污水設施地區的污水收集系統，第2階段  
 PWP ITEM NO. 125DS  
 - TOLO HARBOUR SEWERAGE OF UNSEWERED AREAS, STAGE 2

版 no.	日期 date	修改項目 description	簡簽 initial
	日期 date	圖則編號 drawing no.	比例 scale
核對 checked	日期 date	DCM/2013/015	如圖示 AS SHOWN
批核 approved	日期 date	保留版權 COPYRIGHT RESERVED	
部門 office 顧問工程管理部		香港特別行政區政府渠務署	
<b>CONSULTANTS MANAGEMENT DIVISION</b>		DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	

附件 1 (全二張其一) ENCLOSURE 1 (SHEET 1 OF 2)




索引圖 KEY PLAN  
比例 SCALE 1 : 400 000

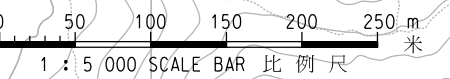
圖例 LEGEND:  
 擬建的鄉村污水收集系統範圍  
 PROPOSED AREA FOR IMPLEMENTATION OF VILLAGE SEWERAGE WORKS

**PROVISIONAL**  
SUBJECT TO AMENDMENT

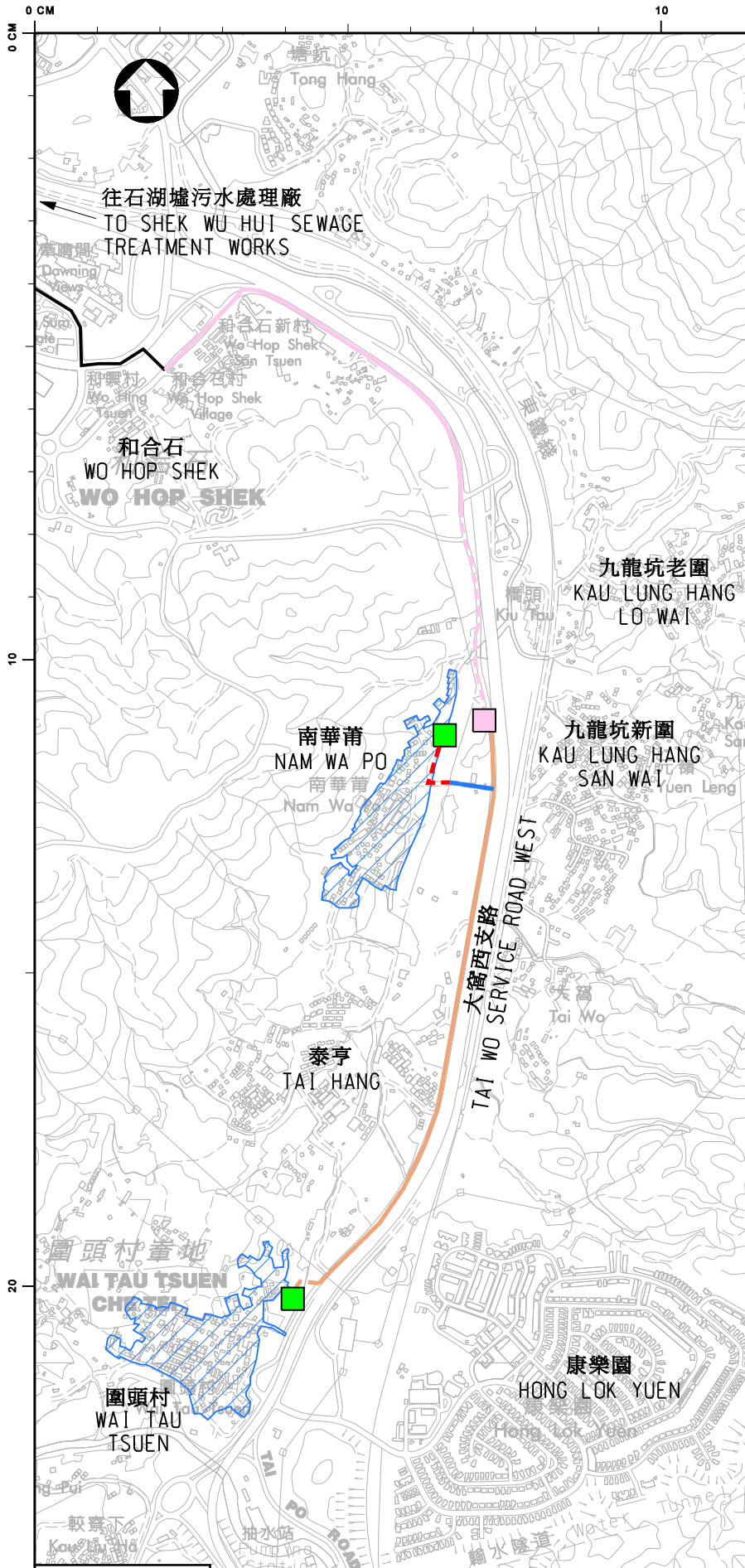
圖則名稱 drawing title

工務計劃項目第125DS號  
 - 吐露港未敷設污水設施地區的污水收集系統，第2階段  
 PWP ITEM NO. 125DS  
 - TOLO HARBOUR SEWERAGE OF UNSEWERED AREAS, STAGE 2

版 no.	日期 date	修改項目 description	簡簽 initial
	W. Y. HUI	圖則編號 drawing no.	比例 scale
核對 checked	日期 date	DCM/2013/016	如圖示 AS SHOWN
批核 approved	日期 date	保留版權 COPYRIGHT RESERVED	
部門 office	顧問工程管理部	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	
<b>CONSULTANTS MANAGEMENT DIVISION</b>			



附件 1 (全二張其二) ENCLOSURE 1 (SHEET 2 OF 2)



索引圖 KEY PLAN  
比例 SCALE 1 : 150 000

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
- 擬建的加壓污水管  
PROPOSED RISING MAINS
- 擬建的污水渠以連接加壓污水管和無壓污水幹渠  
PROPOSED SEWER CONNECTING RISING MAINS AND GRAVITY TRUNK SEWER
- 現有的無壓污水幹渠  
EXISTING GRAVITY TRUNK SEWERS

大致完成的相關工程 (項目366DS)  
RELATED WORKS SUBSTANTIALLY COMPLETED (ITEM 366DS)

- 南華莆污水泵房  
NAM WA PO SEWAGE PUMPING STATION
- 無壓污水幹渠  
GRAVITY TRUNK SEWERS
- 加壓污水管  
RISING MAINS

建造中相關工程 (項目386DS)  
RELATED WORKS UNDER CONSTRUCTION (ITEM 386DS)

- 無壓污水幹渠  
GRAVITY TRUNK SEWERS
- 加壓污水管  
RISING MAINS



<b>PROVISIONAL</b> SUBJECT TO AMENDMENT	版 no.		日期 date		修改項目 description		簡簽 initial	
	繪畫 drawn		日期 date		圖則編號 drawing no.		比例 scale	
圖則名稱 drawing title 工務計劃項目第339DS號 - 北區污水收集系統第1階段第2C期 及第2階段第1期 PWP ITEM No. 339DS - NORTH DISTRICT SEWERAGE, STAGE 1 PHASE 2C AND STAGE 2 PHASE 1	核對 checked		日期 date		DCM/2012/128		如圖示 AS SHOWN	
	批核 approved		日期 date		保留版權 COPYRIGHT RESERVED			
	部門 office		顧問工程管理部		香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION			
<b>CONSULTANTS MANAGEMENT DIVISION</b>								

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