

For discussion
(date to be confirmed)

PWSC(2015-16)11

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 – WATERWORKS

Water Supplies – Combined fresh/salt water supplies

99WC – Water supply to Northwestern Tuen Mun

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **99WC**, entitled “Water supply to Northwestern Tuen Mun, stage 2”, to Category A at an estimated cost of \$87.7 million in money-of-the-day prices; and
- (b) the retention of the remainder of **99WC** in Category B.

PROBLEM

There is currently no fresh and salt water supply to serve the proposed developments in Area 54 of Tuen Mun.

PROPOSAL

2. The Director of Water Supplies, with the support of the Secretary for Development, proposes to upgrade part of **99WC** to Category A at an estimated cost of \$87.7 million in money-of-the-day (MOD) prices for laying water mains to provide fresh and salt water supplies to the proposed developments in Area 54 of Tuen Mun.

/PROJECT

PROJECT SCOPE AND NATURE

3. The part of **99WC** which we propose to upgrade to Category A comprises –

- (a) laying of about 2.1 kilometres (km) fresh water mains ranging from 150 millimetres (mm) to 600 mm in diameter along Ming Kum Road, Hing Fu Street and two new roads, namely Road L54A and Road L54D; and
- (b) laying of about 2.1 km salt water mains ranging from 80 mm to 300 mm in diameter alongside the proposed fresh water mains mentioned in (a) above.

4. Layout plans showing the proposed works are at Enclosures 1 and 2. Subject to funding approval of the Finance Committee, we plan to commence construction of the proposed works in 2015 for completion in 2019.

5. We will retain the remainder of **99WC** in Category B, which comprises the laying of about 4 km fresh and salt water mains in Area 54 of Tuen Mun. Funding for the remainder of **99WC** will be sought at a later stage.

JUSTIFICATION

6. Area 54 of Tuen Mun is being developed in phases. The Civil Engineering and Development Department (CEDD) is seeking to upgrade part of **666CL**, entitled “Formation, roads and drains in Area 54, Tuen Mun - phase 1, stage 1 works” and **681CL**, entitled “Formation, roads and drains in Area 54, Tuen Mun - phase 2, stages 3 and 4A works” to Category A for the site formation and associated infrastructure works for proposed developments in Site 1 & 1A, Site 3/4 (East) and Site 4A (West) in Area 54 of Tuen Mun. The Housing Department aims at providing at Site 1 & 1A and Site 3/4 (East) about 7 000 public housing flats for population intake starting from 2020-21. In addition, a site will be formed for a community hall and sports centre at Site 4A (West).

/7.

7. Fresh and salt water supplies to the proposed developments are to be provided through laying new water mains and connecting them to the existing water mains at Ming Kum Road. The proposed water mains laying works fall mainly within the boundaries of **666CL** and **681CL**. To dovetail with the development programmes and to avoid repeated road openings and interface problems arising from two contractors working on the same site, we plan to entrust the majority (98%) of the proposed works to CEDD for implementation in conjunction with **666CL** and **681CL**.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be \$87.7 million in MOD prices (see paragraph 9 below), broken down as follows –

| | | \$ million |
|-----|--------------------------------------|-------------------|
| (a) | Laying of fresh water mains | 38.3 |
| | (i) conventional method ¹ | 31.8 |
| | (ii) trenchless method ² | 6.5 |
| (b) | Laying of salt water mains | 25.6 |
| | (i) conventional method ¹ | 21.6 |
| | (ii) trenchless method ² | 4.0 |
| (c) | Environmental mitigation measures | 1.6 |

/(d)

¹ Conventional method refers to laying pipelines in trench. It involves opening up the road surface for laying the whole lengths of the pipelines. We estimate that around 97% of the fresh water mains and salt water mains under this project will be laid by conventional method. The actual percentage will depend on the site conditions.

² Trenchless method (sometimes referred to as ‘minimum dig’ or ‘reduced dig’ method) refers to the use of pipe jacking, micro-tunnelling or boring techniques to construct underground pipelines without opening up the road surface for the whole lengths of the pipelines. This method will be employed when the conventional method is not feasible due to site constraints such as unacceptable traffic conditions. We estimate that around 3% of the fresh water mains and salt water mains under this project will be laid by trenchless method. The actual percentage will depend on the site conditions.

| | | \$ million |
|-----|--------------------------------|--|
| (d) | Contingencies | 6.5 |
| | Sub-total | <u>72.0</u> (in September 2014 prices) |
| (e) | Provision for price adjustment | <u>15.7</u> |
| | Total | <u>87.7</u> (in MOD prices) |

9. Subject to funding approval, we will phase the expenditure as follows –

| Year | \$ million (Sept 2014) | Price adjustment factor | \$ million (MOD) |
|-------------|---------------------------|-------------------------------|---------------------|
| 2015 – 2016 | 2.0 | 1.05725 | 2.1 |
| 2016 – 2017 | 14.0 | 1.12069 | 15.7 |
| 2017 – 2018 | 23.0 | 1.18793 | 27.3 |
| 2018 – 2019 | 21.0 | 1.25920 | 26.4 |
| 2019 – 2020 | 9.0 | 1.33475 | 12.0 |
| 2020 – 2021 | 3.0 | 1.40483 | 4.2 |
| | <u>72.0</u> | | <u>87.7</u> |

10. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices for public sector building and construction output for the period from 2015 to 2021. As mentioned in paragraph 7 above, most of the works will be entrusted to CEDD to be carried out in conjunction with **666CL** and **681CL**. CEDD will deliver the works under a New Engineering Contract (NEC)³ with provision for price adjustment.

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³ NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasises cooperation, mutual trust and collaborative risk management between contracting parties.

11. We estimate the additional annual recurrent expenditure arising from this project to be \$138,000.

12. The project will lead to an increase in the production cost of water by 0.03% in real terms by 2021⁴.

PUBLIC CONSULTATION

13. We consulted the Environment, Hygiene and District Development Committee of the Tuen Mun District Council on 19 September 2014. The Committee had no objection to the proposed works.

14. We consulted the Legislative Council Panel on Development on 24 February 2015 and Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

15. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap 499). The works will not have any major environmental impact. We have included in paragraph 8(c) above a sum of \$1.6 million (in September 2014 prices) in the project estimate for the implementation of standard pollution control measures to mitigate environmental impacts during construction. These measures include frequent watering of the site, provision of wheel-washing facilities, covering of materials on trucks and use of silenced construction plant.

16. At the planning and design stages, we have considered the design of the proposed works and the construction sequence to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste at public fill reception facilities⁵. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

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⁴ The increase in production cost of water is calculated at the present price level and on the assumption that the water demand remains static during the period from 2015 to 2021.

⁵ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

17. At the construction stage, we will require the contractor 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 contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

18. We estimate that the project will generate in total about 9 800 tonnes of construction waste. Of these, we will reuse about 3 920 tonnes (40%) of inert construction waste on site and deliver 4 900 tonnes (50%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 980 tonnes (10%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfills is estimated to be \$254,800 for this project (based on a unit charge rate of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

19. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

20. The proposed works will mainly be implemented within the project boundaries of **661CL** and **681CL**. All necessary land resumption under the two projects was completed in July 2014 and clearance is ongoing.

BACKGROUND

21. We upgraded **99WC** to Category B in February 2000.

/22.

22. On 11 May 2012, we upgraded part of **99WC** to Category A as **193WC** entitled “Water supply to Northwestern Tuen Mun, stage 1” at an approved project estimate of \$ 30.3 million for the laying of fresh and salt water mains along San Fuk Road and near Kei Lun Wai for new developments in Area 54 of Tuen Mun. The construction works have commenced in October 2012 for completion in March 2016.

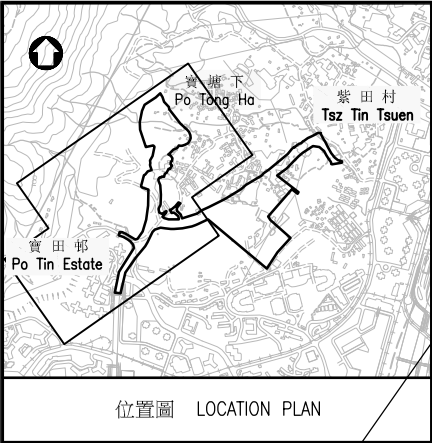
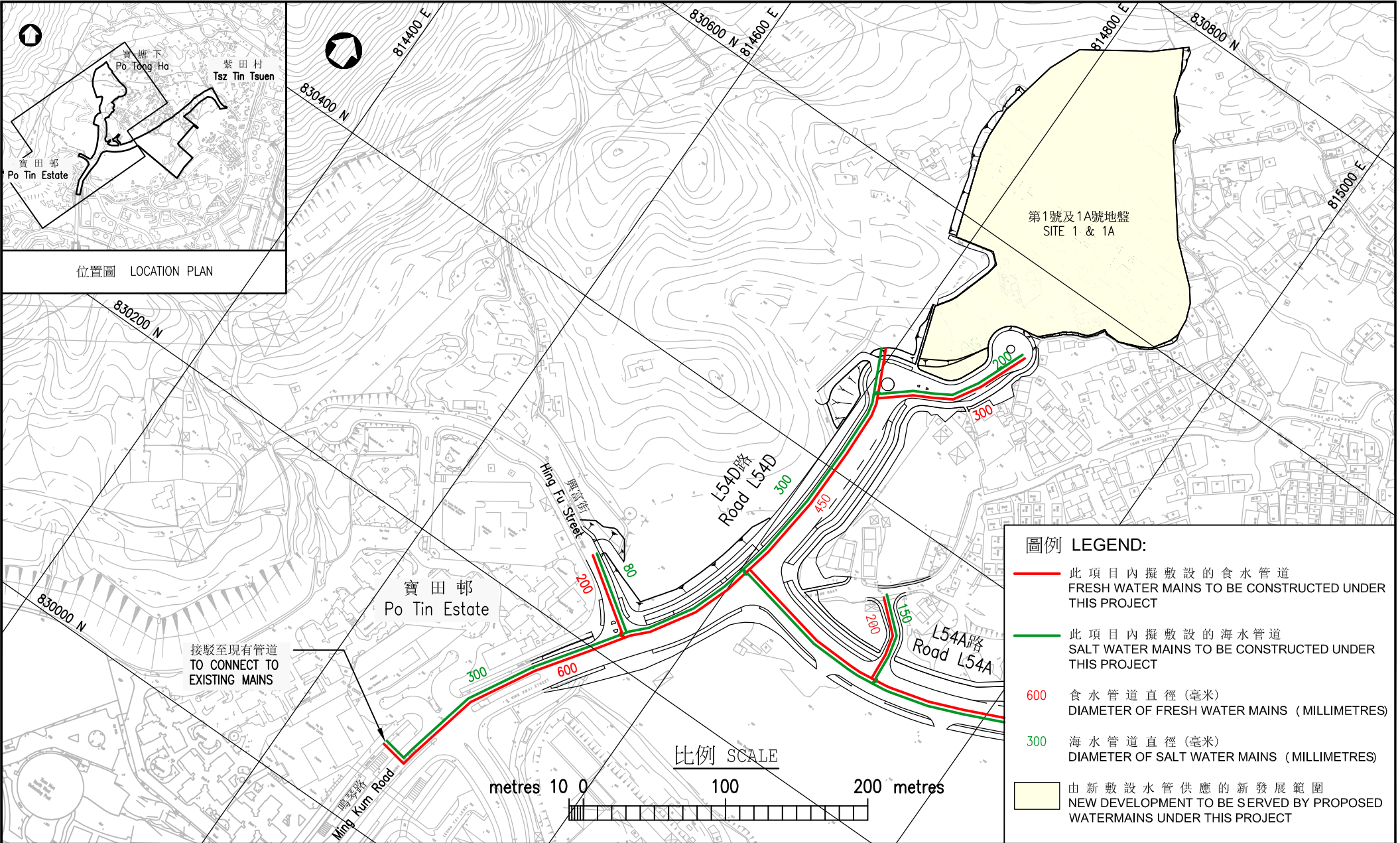
23. We have substantially completed the detailed design of the proposed works using in-house resources.

24. The proposed works will not involve any tree removal or planting proposals as the water mains will be laid on sites and roads to be formed under **666CL** and **681CL**.

25. We estimate that the proposed works will create about 20 jobs (17 for labourers and 3 for professional/technical staff) providing a total employment of 840 man-months.

26. The CEDD will seek to upgrade part of **666CL** and **681CL** to Category A for the site formation and associated infrastructure works at Site 1 & 1A, Site 3/4 (East) and Site 4A (West) in Area 54 of Tuen Mun separately.

Development Bureau
April 2015



位置圖 LOCATION PLAN

- 圖例 LEGEND:**
- 此項目內擬敷設的食水管道
FRESH WATER MAINS TO BE CONSTRUCTED UNDER THIS PROJECT
 - 此項目內擬敷設的海水管道
SALT WATER MAINS TO BE CONSTRUCTED UNDER THIS PROJECT
 - 600 食水管道直徑(毫米)
DIAMETER OF FRESH WATER MAINS (MILLIMETRES)
 - 300 海水管道直徑(毫米)
DIAMETER OF SALT WATER MAINS (MILLIMETRES)
 - 由新敷設水管供應的新發展範圍
NEW DEVELOPMENT TO BE SERVED BY PROPOSED WATERMANS UNDER THIS PROJECT

核准 APPROVED

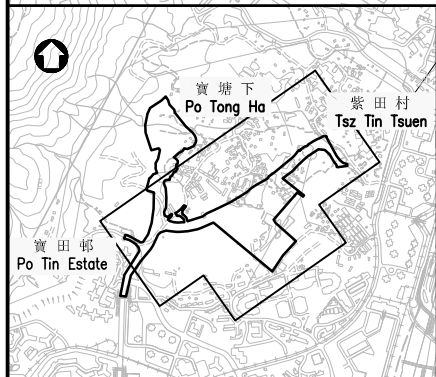
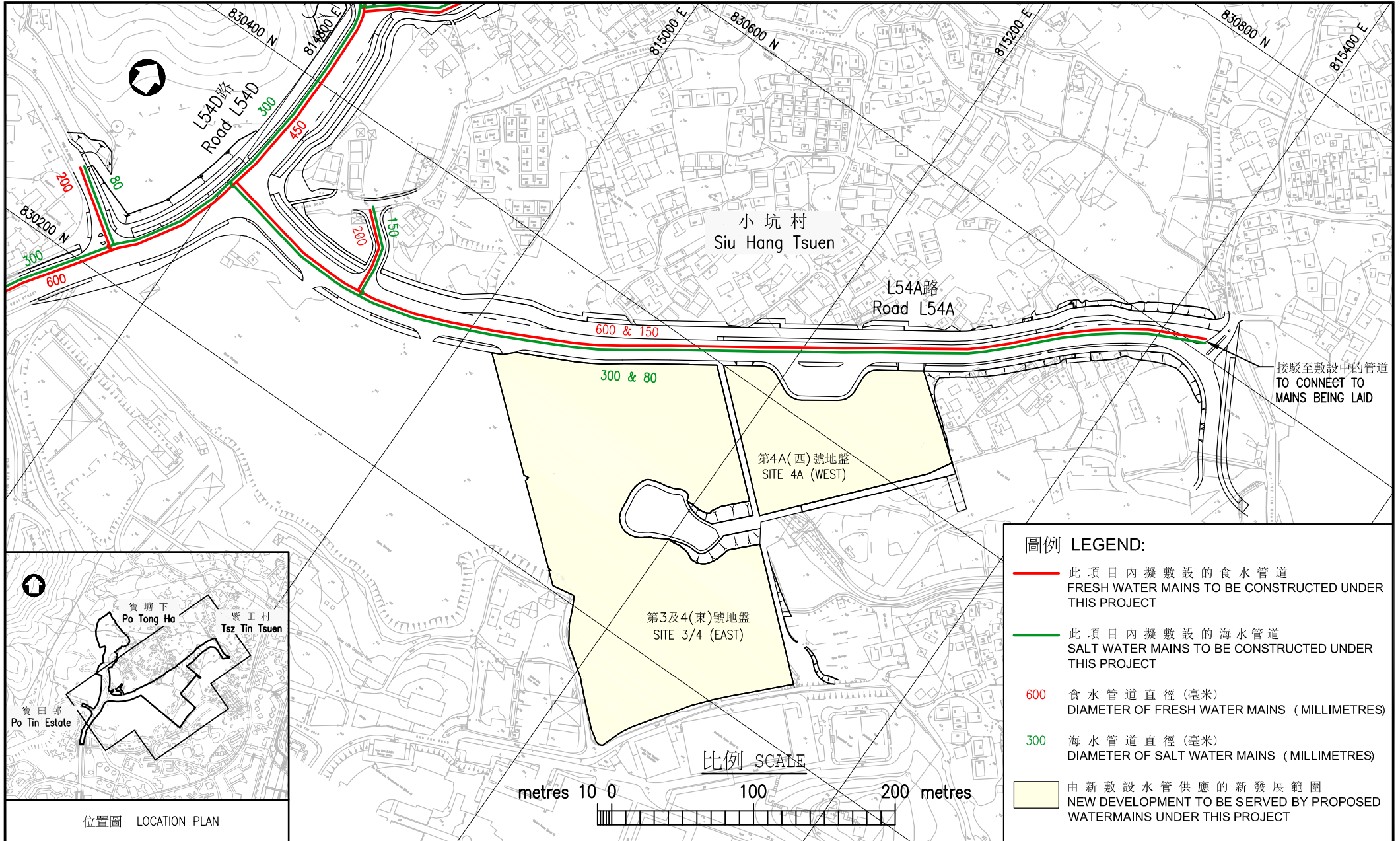
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總工程師/設計 CE / Des

12 / 2 / 2015

工務計劃項目99WC號 --- 屯門西北區供水計劃
P.W.P. Item No. 99WC ---- Water Supply to Northwestern Tuen Mun

 水務署
WATER SUPPLIES DEPARTMENT

草圖編號 SKETCH NO. SK 62014 / 127



位置圖 LOCATION PLAN

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