

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 707 - NEW TOWNS AND URBAN AREA DEVELOPMENT Civil Engineering – Land development 786CL - Tung Chung New Town Extension**

Members are invited to recommend to the Finance Committee -

- (a) the upgrading of part of **786CL**, entitled “Tung Chung New Town Extension - Reclamation and Advance Works”, to Category A at an estimated cost of \$20,568.9 million in money-of-the-day prices for the reclamation works at Tung Chung East and advance works for the Tung Chung New Town Extension; and
- (b) the retention of the remainder of **786CL** in Category B.

### **PROBLEM**

We need to carry out reclamation works at Tung Chung East (TCE) and advance works for the implementation of Tung Chung New Town Extension (TCNTE) to provide land for phased development, with the first population intake target in 2023.

**/PROPOSAL .....**

## PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade part of **786CL** to Category (Cat) A at an estimated cost of \$20,568.9 million in money-of-the-day (MOD) prices for the reclamation works at TCE and advance works for TCNTE.

## PROJECT SCOPE AND NATURE

3. The part of **786CL** (the proposed works) which we propose to upgrade to Cat A comprises -

- (a) reclamation of the seabed by a non-dredged method<sup>1</sup> at TCE to form a total of about 130 hectares (ha) of land;
- (b) construction of about 4.9 kilometres (km) of seawalls, with an eco-shoreline<sup>2</sup>, three drainage box culvert outfalls, three circulation drains and a seawater intake;
- (c) construction of a 470-metre (m) long multi-cell drainage box culvert (Box Culvert No.1) at TCE;
- (d) provision of infrastructure for Tung Chung Area 58, including construction of a single two-lane road with a footpath of about 270 m in length and the associated utility works; and
- (e) implementation of environmental mitigation measures and an environmental monitoring and audit (EM&A) programme for the works mentioned in (a) to (d) above.

4. Three layout plans showing the proposed works are at Enclosures 1 to 3.

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<sup>1</sup> A non-dredged method is a reclamation method which does not involve dredging of marine sediment.

<sup>2</sup> An eco-shoreline is a shoreline which provides beneficial function to the local ecosystem by providing habitats for colonisation and serves as seawall for coastal protection.

5. Subject to funding approval of the Finance Committee (FC), we plan to commence the proposed works in end-2017 for completion in end-2023. To achieve this programme, the Civil Engineering and Development Department (CEDD) will invite tenders for the proposed works in mid-2017 tentatively so as to meet the first population intake target in 2023, but the tender will only be awarded upon FC's funding approval.

6. We would retain the remainder of **786CL** in Cat B, for which funding would be sought in phases in accordance with the implementation programme of the TCNTE project. The scope of the remainder mainly covers the site formation works at Tung Chung West (TCW), the remaining engineering and supporting infrastructure works at TCE and TCW, and the associated construction supervision cost.

## JUSTIFICATION

7. To meet the housing and other development needs of the community, the Government adopts a multi-pronged strategy to increase land supply in the short, medium and long term. As set out in the Policy Addresses in 2014 to 2017, the TCNTE is one of the major initiatives to increase land supply in the medium and long term, capable of providing some 49 400 flats and 877 000 square meters (m<sup>2</sup>) of commercial floor area, to accommodate an additional population of 144 400.

8. Among the 130 ha of land to be formed at TCE, about 121 ha of land will be provided for development of about 40 800 subsidised and private housing flats<sup>3</sup> for a planned population of about 118 900 as well as for other uses, including commercial uses, government, institution and community (G/IC) facilities, open space, amenity areas, etc. Subject to availability of resources and necessary funding approval from the FC, the remaining 9 ha of land will be provided for construction of a primary distributor road under the subsequent phases of the development to connect the development area at TCE to the North Lantau Highway at Tai Ho. In order to meet the first population intake in 2023, the works under the TCNTE project will be implemented in phases, with the commencement of the reclamation works at TCE in end-2017, with a view to handing over the land to the Housing Department in time for the foundation and building works of the public housing development.

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<sup>3</sup> Of the 40 800 flats, 25 700 flats are for subsidised housing while 15 100 flats are for private housing.

9. In accordance with the Environmental Permit (EP) for the project, we will reclaim the seabed at TCE by adopting a non-dredged method, without removing the marine mud which is weak in nature. To strengthen the weak marine mud, we will adopt the deep cement mixing (DCM) method to stabilise the seabed underneath the seawall before the construction of the seawall foundation and reclamation works.

10. To comply with the conditions set out in the EP for the project, we will provide an eco-shoreline along the proposed seawall at TCE to enhance the ecological functions and facilitate the growth of general marine water habitat.

11. To facilitate the construction of drainage box culverts in subsequent phases of the development, three box culvert outfalls will be constructed at the new seawall. As Box Culvert No. 1 at the western end of TCE will run across the housing sites earmarked for population intakes in 2023, it is necessary to construct this box culvert under the proposed works, which is the first phase of the development.

12. To facilitate the construction of a seawater intake culvert of the new salt water pumping station in subsequent phases of the development, a seawater intake will be constructed at the new seawall.

13. To continue to facilitate water circulation to Tai Ho Wan, three existing circulation drains will be extended for about 50 m to 150 m to the new shoreline during the reclamation.

14. Tung Chung Area 58 is reserved for G/IC uses. As developments at TCW proposed under the TCNTE project would involve acquisition of land which is currently used for G/IC purposes, it is necessary to provide land within Tung Chung Area 58 for G/IC uses in a timely manner, in order to minimise any adverse impact on the provision of G/IC services in Tung Chung as a whole. To this end, supporting infrastructure works within Tung Chung Area 58, including construction of an access road and the associated utility works, will be required as part of the proposed works.

**FINANCIAL IMPLICATIONS**

15. We estimate the capital cost of the proposed works to be \$20,568.9 million in MOD prices (please see paragraph 17 below), broken down as follows –

|   | <b>\$ million</b> |
|---|-------------------|
| (a) Reclamation   | 11,654.7          |
| (i) Construction of seawall   | 2,327.6           |
| (ii) Ground improvement<br>by DCM   | 3,179.1           |
| (iii) Filling and associated<br>works   | 6,148.0           |
| (b) Construction of<br>eco-shoreline  | 161.7             |
| (c) Construction of Box<br>Culvert No.1   | 382.7             |
| (d) Construction of drainage<br>box culvert outfalls  | 31.5              |
| (e) Construction of a seawater<br>intake  | 9.4               |
| (f) Infrastructure works for<br>Tung Chung Area 58  | 11.2              |
| (g) Environmental mitigation<br>measures and EM&A<br>programme for the works in<br>(a) to (f) above | 255.5             |
| (h) Consultants' fees   | 114.4             |
| (i) Contract<br>administration  | 49.0              |
| (ii) EM&A programme   | 48.0              |
| (iii) Management of<br>resident site staff<br>(RSS)   | 17.4              |
| (i) Remuneration of RSS   | 930.0             |

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|     |                                   | <b>\$ million</b> |                               |
|-----|-----------------------------------|-------------------|-------------------------------|
| (j) | Contingencies                     | 1,213.0           |                               |
|     |                                   | 14,764.1          | (in September<br>2016 prices) |
|     | Sub-total                         |                   |                               |
| (k) | Provision for price<br>adjustment | 5,804.8           |                               |
|     |                                   | 20,568.9          | (in MOD<br>prices)            |
|     | Total                             |                   |                               |

16. A breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Enclosure 4.

17. Subject to funding approval, we will phase the expenditure as follows -

| <b>Year</b> | <b>\$ million<br/>(Sept 2016)</b> | <b>Price<br/>adjustment<br/>factor</b> | <b>\$ million<br/>(MOD)</b> |
|-------------|-----------------------------------|--|-----------------------------|
| 2017 - 2018 | 15.0                              | 1.05750                                | 15.9                        |
| 2018 - 2019 | 678.9                             | 1.12095                                | 761.0                       |
| 2019 - 2020 | 1,194.9                           | 1.18821                                | 1,419.8                     |
| 2020 - 2021 | 1,503.3                           | 1.25950                                | 1,893.4                     |
| 2021 - 2022 | 2,154.6                           | 1.32562                                | 2,856.2                     |
| 2022 - 2023 | 3,149.3                           | 1.39190                                | 4,383.5                     |
| 2023 - 2024 | 2,892.7                           | 1.46150                                | 4,227.7                     |
| 2024 - 2025 | 1,470.0                           | 1.52909                                | 2,247.8                     |
| 2025 - 2026 | 1,168.8                           | 1.59790                                | 1,867.6                     |
| 2026 - 2027 | 536.6                             | 1.66981                                | 896.0                       |
|             | 14,764.1                          |  | 20,568.9                    |

18. 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 of public sector building and construction output for the period from 2017 to 2027. Subject to funding approval, we will deliver the proposed works under a re-measurement contract, because the quantity of works described in paragraph 15(a) to (f) may vary considerably, depending on the actual ground conditions. The contract will be prepared in the New Engineering Contract (NEC) form<sup>4</sup> with the provision of price adjustments.

19. We estimate the annual recurrent expenditure arising from the proposed works to be about \$17.5 million.

## **PUBLIC CONSULTATION**

20. From 2012 to 2014, we conducted under the "Planning and Engineering Study on the Remaining Development in Tung Chung – Feasibility Study" (the P&E Study) a three-stage public engagement exercise on the development proposal of the TCNTE. The Legislative Council (LegCo) Panel on Development (Panel) was consulted during the process. The development proposal was generally supported<sup>5</sup>, with calls urging for early implementation of the TCNTE to meet the housing, economic and social needs. We consulted the Panel on 25 April 2017 regarding the current funding application, and Members have no objection on submitting the funding proposal to the Public Works Subcommittee (PWSC) for consideration. The supplementary information requested by Panel Members will be submitted to the Panel before the PWSC meeting.

21. We briefed the Islands District Council (IsDC) on 7 September 2015 on the progress of the P&E Study, the major public views collected through the Stage 3 Public Engagement and the implementation plan for the TCNTE. The IsDC supported implementation of the TCNTE. On 24 October 2016, we updated the IsDC on the progress of the detailed design for the TCNTE project, including the infrastructure works at Tung Chung Area 58. The IsDC reaffirmed their support for early implementation of TCNTE.

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<sup>4</sup> 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.

<sup>5</sup> While LegCo members generally supported the proposal of TCNTE, some raised concerns about environmental issues, the capacity of the MTR Tung Chung Line and local employment. To address such concerns, the Government submitted to LegCo additional information in July 2015 vide CB(1)1132/14-15(01), which can be accessed at <http://www.legco.gov.hk/yr14-15/english/panels/dev/papers/dev20141203cb1-1132-1-e.pdf>.

22. The draft Tung Chung Extension Area Outline Zoning Plan (OZP) was gazetted under the Town Planning Ordinance (Cap. 131) (TPO) in tandem with the gazettal of the reclamation required under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127) (FS(R)O) in January 2016. During the respective statutory plan exhibition period and the objection period, 59 representations and 78 comments on the representations on the draft OZP, and 12 objections to the proposed reclamation scheme, were received. They were mainly related to the possible impacts on air quality, Chinese white dolphins (CWD) and traffic arising from the new development under the TCNTE project. We explained to the objectors that an environmental impact assessment (EIA) was conducted and approved, indicating that TCNTE development would meet the requirements under Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) after implementation of mitigation measures. We further explained that the proposed reclamation site at TCE was rarely used by dolphins and measures had been proposed to reduce the marine traffic volume and the potential disturbance to the CWD during the construction stage. For traffic impact, a comprehensive transport network had been planned to serve the TCNTE. In respect of the representations and comments received under the TPO, the Town Planning Board decided not to propose any amendment to the draft OZP upon its deliberation on 18 November 2016. In respect of the objections to the proposed reclamation scheme received under the FS(R)O, they remained unresolved despite our effort.

23. Having considered the representations and comments on the draft OZP and the unresolved objections to the proposed reclamation scheme, the Chief Executive-in-Council approved the OZP under TPO and authorised the reclamation works without modification under FS(R)O on 7 February 2017. The notices of approval of the OZP and authorisation for the reclamation works were gazetted on 17 and 24 February 2017 respectively.

## **ENVIRONMENTAL IMPLICATIONS**

24. The reclamation works at TCE is a designated project (DP) under Schedule 2 of the EIAO. The environmental implications of the reclamation works together with other items of the proposed works, except the infrastructure works at Tung Chung Area 58, were studied and included in the EIA report for TCNTE development that was approved in April 2016. The EIA report concluded that with the implementation of the recommended mitigation measures, these works would not cause adverse environmental impacts. An EP was issued in August 2016 covering, among other things, the reclamation works at TCE. The infrastructure works at Tung Chung Area 58, which is not a DP under Schedule 2 of the EIAO, are small in scale and of nature having very little potential for adverse environmental impacts. We will undertake to implement the standard pollution control measures as promulgated by the Director of Environmental Protection.

25. We will implement the mitigation measures and an EM&A programme as recommended in the EIA report and other standard pollution control measures. The recommended mitigation measures include construction of an eco-shoreline along the proposed seawalls at TCE. We will adopt a non-dredged method in carrying out the reclamation works and deploy silt curtains at the filling areas to mitigate any adverse impact on water quality. We will also limit the number of trips of works vessels on both daily and hourly bases to minimise their impact on marine ecology. In addition, we will control construction dust and noise by mitigation measures including frequent cleaning and watering of site, provision of wheel-washing facilities and use of quiet powered mechanical equipment and lining or shields for roadworks. We have included the cost of implementing the environmental mitigation measures and EM&A programme in the overall estimate of the proposed works.

26. We have considered all the works for the TCNTE project and their construction sequence to reduce the generation of construction waste where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated materials) 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<sup>6</sup>. We will encourage the contractors to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce generation of construction waste.

27. 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 public fill reception facilities and landfills respectively through a trip-ticket system. With the adoption of a non-dredged method in reclamation works, no dumping of marine mud at a designated dumping ground is required.

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<sup>6</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste at public fill reception facilities requires a license issued by the Director of Civil Engineering and Development.

28. We will use in total about 26 340 000 tonnes of public fill from the Tseung Kwan O and/or Tuen Mun Fill Banks for reclamation, some of which will be used as fill surcharge to accelerate the settlement rate of the newly reclaimed land. An amount of about 1 060 000 tonnes used for fill surcharge will be returned to public fill reception facilities for subsequent reuse. We will dispose of about 6 000 tonnes of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$76.5 million for this project (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

### **HERITAGE IMPLICATIONS**

29. 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. A marine archaeological investigation was conducted under the EIA which concluded that adverse impact on marine archaeology was not anticipated.

### **TRAFFIC IMPLICATIONS**

30. In respect of traffic impact during the construction stage, the proposed works will not cause any significant impact to land traffic as the majority of the works will be carried out by marine plants. Notwithstanding this, temporary traffic arrangements will be implemented to facilitate the construction works. We will display publicity boards on site giving details of the temporary traffic arrangements, and the anticipated completion dates of individual sections of works. In addition, we will set up a telephone hotline to respond to public enquiries or complaints.

31. For marine traffic, we have conducted a marine traffic impact assessment which concluded that, with the implementation of risk mitigation measures, including the installation of additional marker buoys and deployment of guard boats to assist marine traffic control, the proposed works will not cause any significant marine traffic impact. We will also arrange interface and coordination meetings among stakeholders to ensure effective communication.

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## LAND ACQUISITION

32. The proposed works do not require any land resumption or clearance.

## BACKGROUND INFORMATION

33. On 8 July 2011, the FC approved the upgrading of **712CL** “Planning and Engineering Study on the Remaining Development in Tung Chung” to Cat A at an approved project estimate of \$44 million in MOD prices for engaging consultants to undertake the P&E Study. The P&E Study was completed in 2016.

34. We upgraded **786CL** to Cat B in September 2014.

35. On 27 May 2016, the FC approved the upgrading of part of **786CL** to Cat A as **799CL** “Tung Chung New Town Extension – Detailed Design and Site Investigation” at an approved project estimate of \$729.5 million in MOD prices for engaging consultants to undertake the detailed design and site investigation works for the TCNTE project.

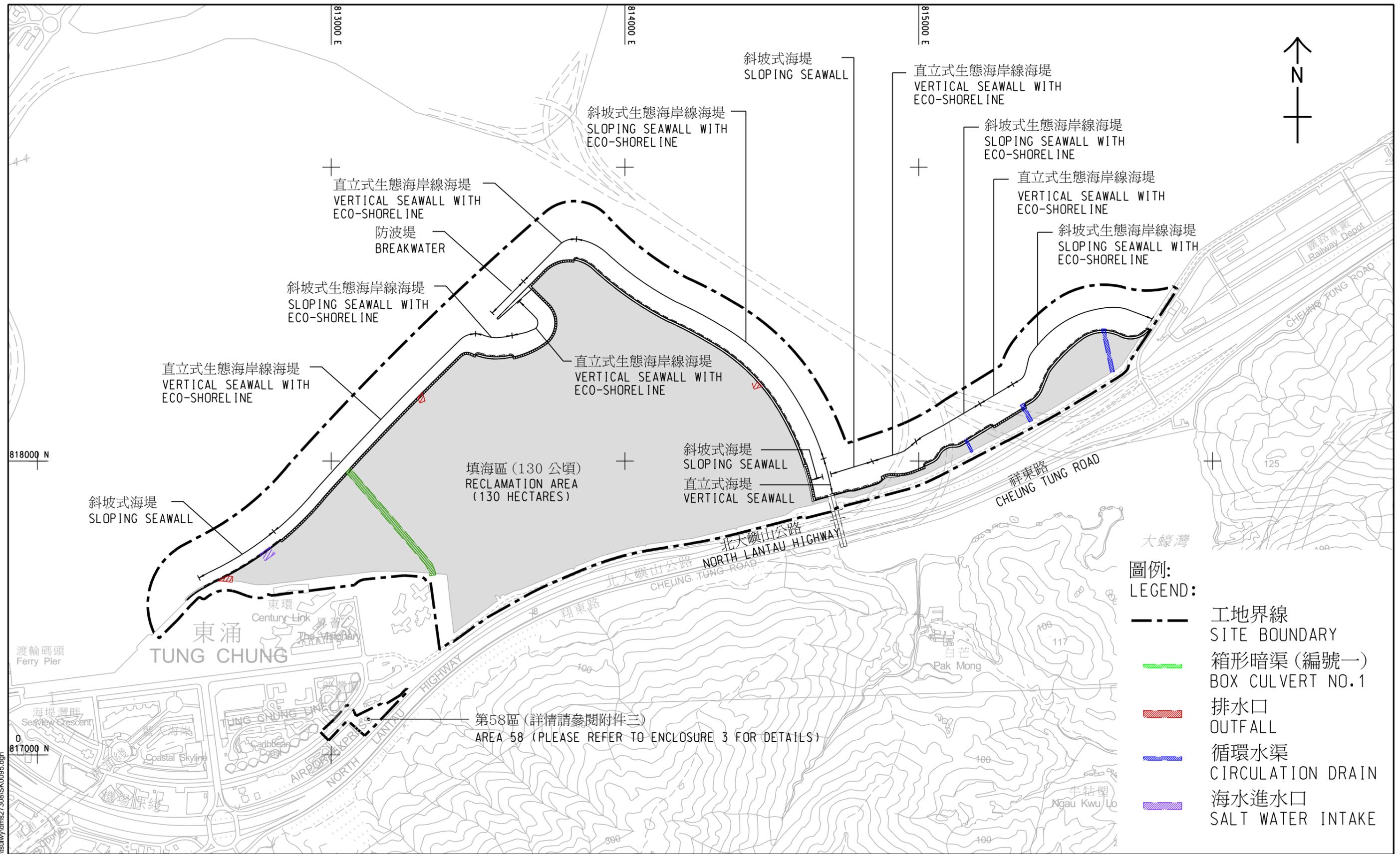
36. Of the 326 trees within the site boundary of the proposed works, 97 trees will be preserved. The remaining 229 trees will have to be felled. All the trees to be felled are not important trees<sup>7</sup>. We will incorporate planting proposals as part of the remaining works for the TCNTE project, including 229 trees as compensatory planting and 35 050 m<sup>2</sup> of green area.

37. We estimate that the proposed works will create about 1 600 jobs (1 300 for labourers and 300 for professional or technical staff), providing a total employment of 90 000 man-months.

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 Development Bureau  
 April 2017

<sup>7</sup> “Important trees” refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance, e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of the overall tree sizes, shape and any special features), e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with a trunk diameter equal to or exceeding 1.0 m (measured at 1.3 m above ground level), or with a height or canopy spread equal to or exceeding 25 m.



- 圖例:  
LEGEND:
- 工地界線  
SITE BOUNDARY
  - ▨ 箱形暗渠 (編號一)  
BOX CULVERT NO.1
  - ▨ 排水口  
OUTFALL
  - ▨ 循環水渠  
CIRCULATION DRAIN
  - ▨ 海水進水口  
SALT WATER INTAKE

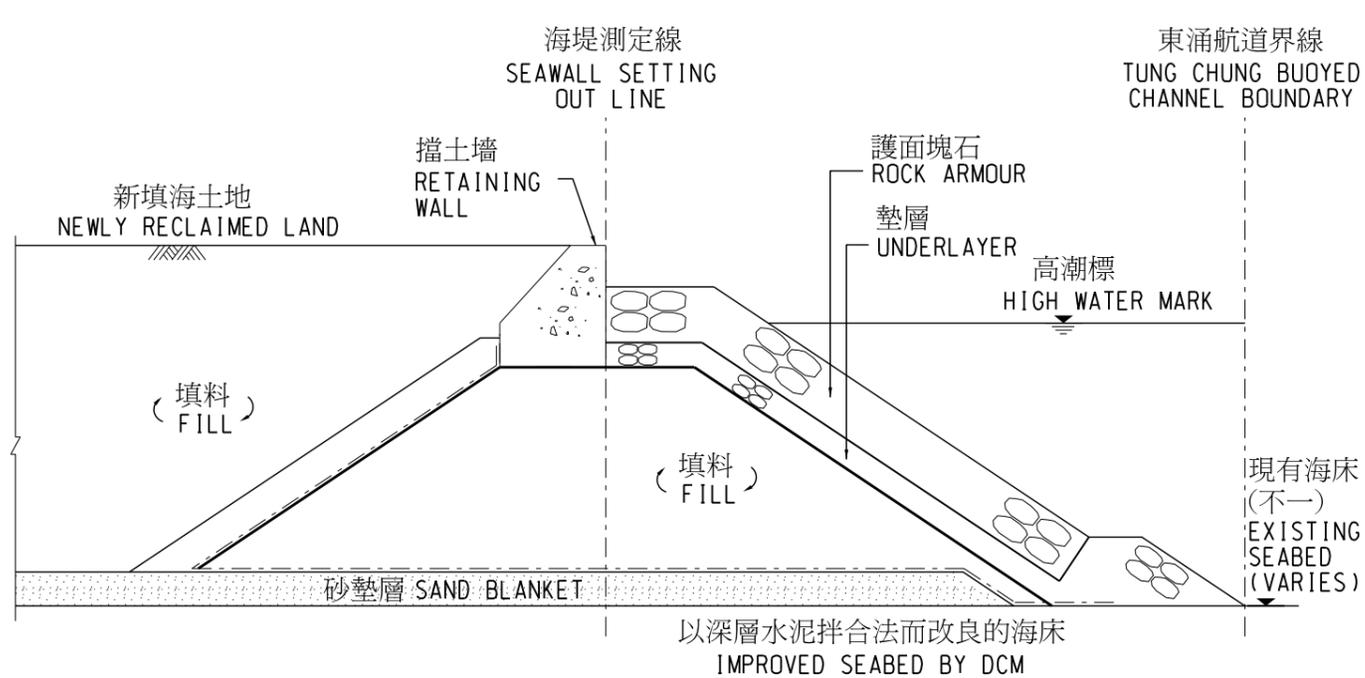
圖則名稱 drawing title

工程項目平面圖 - 東涌新市鎮擴展 - 填海及前期工程  
PROJECT LAYOUT PLAN - TUNG CHUNG NEW TOWN EXTENSION -  
RECLAMATION AND ADVANCE WORKS

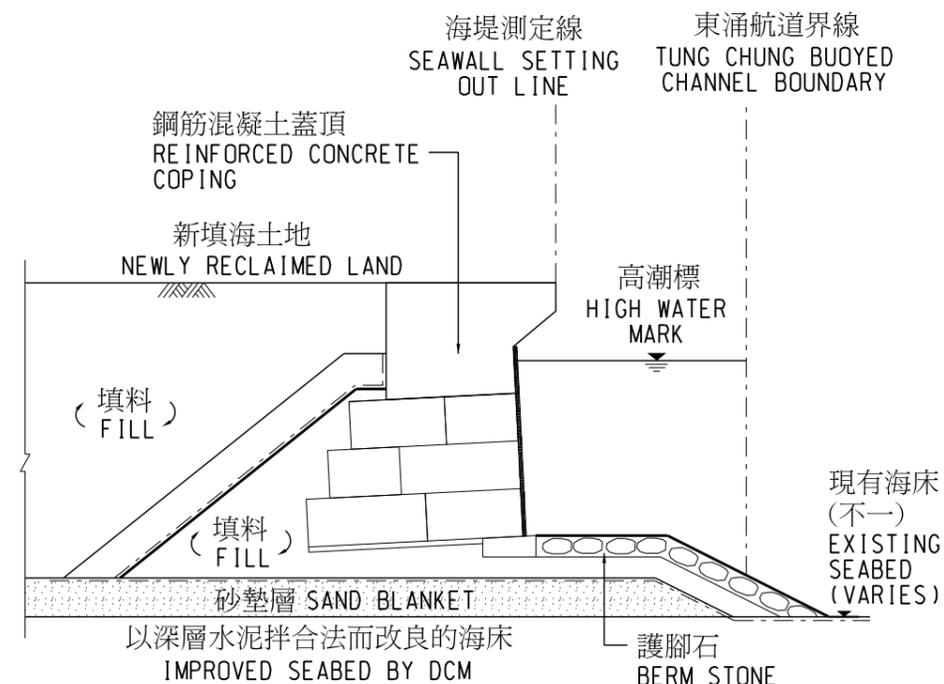
附件一 ENCLASURE 1

Plot File by: Tsuiwy  
4/26/2017  
PATH: c:\pwworking\jaecom\_dsd2\_as\tsuiwy\dms27308\SK0095.dgn

A3 420MM X 297MM



斜坡式海堤典型切面圖  
TYPICAL SECTION OF SLOPING SEAWALL

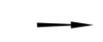


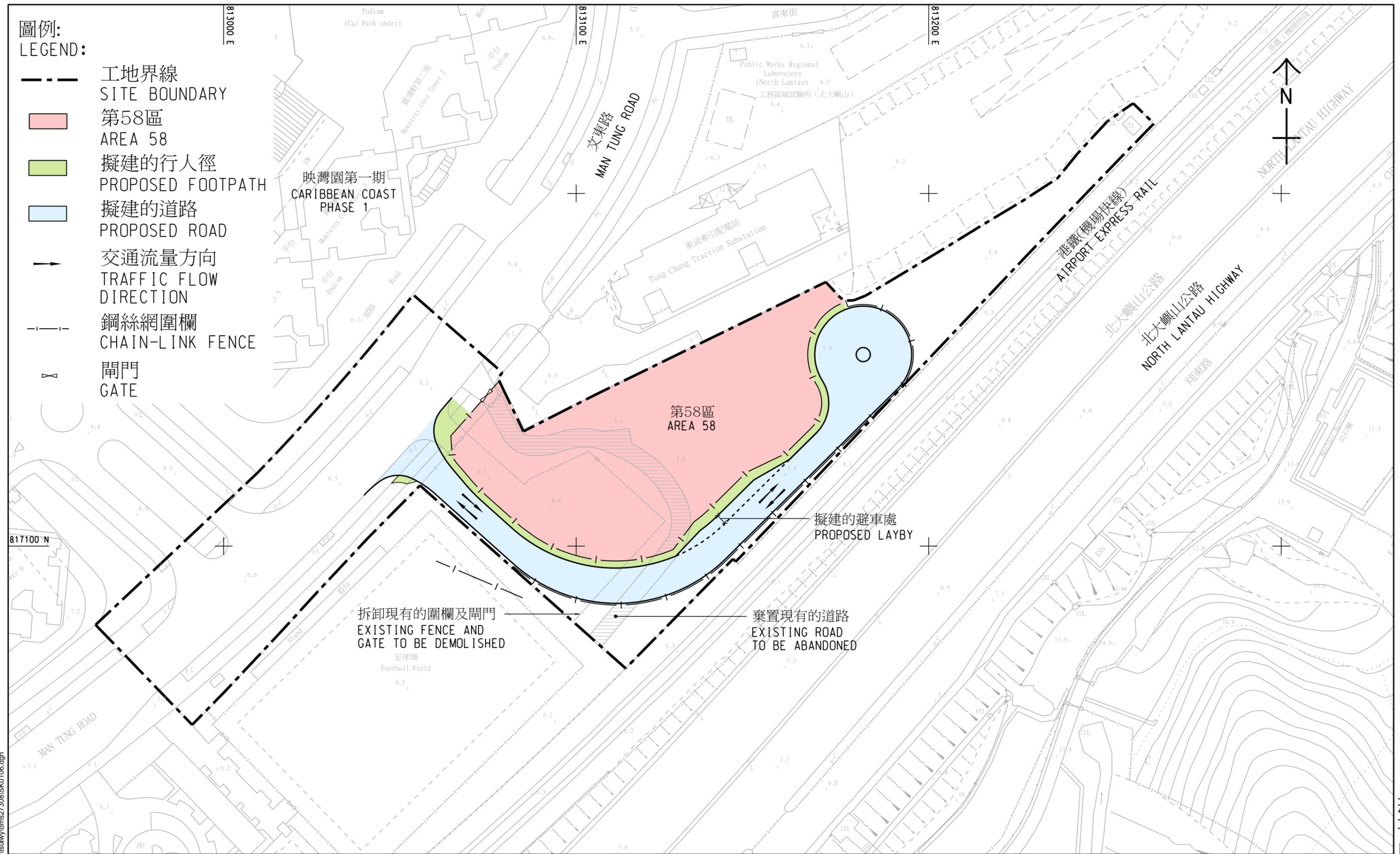
直立式海堤典型切面圖  
TYPICAL SECTION OF VERTICAL SEAWALL

海堤典型切面圖  
TYPICAL SECTION OF SEAWALL

圖則名稱 drawing title

圖例:  
LEGEND:

-  工地界線  
SITE BOUNDARY
-  第58區  
AREA 58
-  擬建的行人徑  
PROPOSED FOOTPATH
-  擬建的道路  
PROPOSED ROAD
-  交通流量方向  
TRAFFIC FLOW DIRECTION
-  鋼絲網圍欄  
CHAIN-LINK FENCE
-  閘門  
GATE



圖則名稱 drawing title

東涌新市鎮擴展工程項目平面圖 - 於東涌第58區的擬議前期工程  
TUNG CHUNG NEW TOWN EXTENSION PROJECT LAYOUT PLAN -  
PROPOSED ADVANCE WORKS IN TUNG CHUNG AREA 58

Plot File by: Tsuiwy 4/26/2017  
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附件三 ENCLASURE 3

**786CL (Part) –Tung Chung New Town Extension –  
Reclamation and Advance Works**

**Breakdown of the estimates for consultants' fees and resident site staff costs  
(in September 2016 prices)**

|              |   |              | Estimated<br>man-<br>months | Average<br>MPS*<br>salary<br>point | Multiplier<br>(Note 1) | Estimated<br>fee<br>(\$million) |
|--------------|---|--------------|-----------------------------|------------------------------------|------------------------|---------------------------------|
| (a)          | Consultants' fees for<br>contract administration<br>(Note 2)                            | Professional | --                          | --                                 | --                     | 40.5                            |
|              |   | Technical    | --                          | --                                 | --                     | 8.5                             |
|              |   |              |                             |                                    | Sub-total              | 49.0                            |
| (b)          | Consultants' fees for<br>environmental<br>monitoring<br>and audit programme<br>(Note 3) | Professional | 207                         | 38                                 | 2.0                    | 32.0                            |
|              |   | Technical    | 300                         | 14                                 | 2.0                    | 16.0                            |
|              |   |              |                             |                                    | Sub-total              | 48.0                            |
| (c)          | Resident site staff (RSS)<br>cost (Note 4)  | Professional | 4 231                       | 38                                 | 1.6                    | 523.4                           |
|              |   | Technical    | 9 925                       | 14                                 | 1.6                    | 424.0                           |
|              |   |              |                             |                                    | Sub-total              | 947.4                           |
| Comprising - |   |              |                             |                                    |                        |                                 |
|              | (i) Consultants' fees<br>for management of<br>RSS                                       |              |                             |                                    | 17.4                   |                                 |
|              | (ii) Remuneration of<br>RSS   |              |                             |                                    | 930.0                  |                                 |
|              |   |              |                             |                                    | <b>Total</b>           | <b>1,044.4</b>                  |

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of RSS supplied by the consultants (as at now, MPS point 38 = \$77,320 per month and MPS point 14 = \$26,700 per month).

2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **786CL**. The construction phase of the assignment will only be executed subject to the Finance Committee's approval to upgrade part of **786CL** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.
4. The actual man-months and actual costs will only be known after completion of the construction works.