ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT

Civil Engineering – Land Development 748CL – Development of Lok Ma Chau Loop – land decontamination and advance engineering works

760CL - Development of Lok Ma Chau Loop - Main Works Package 1

Members are invited to recommend to the Finance Committee—

- (a) the upgrading of **748CL** to Category A at an estimated cost of \$517.6 million in money-of-the-day prices;
- (b) the upgrading of part of 760CL, entitled "Development of Lok Ma Chau Loop – Main Works Package 1 – detailed design and site investigation" to Category A at an estimated cost of \$268.3 million in money-of-the-day prices; and
- (c) the retention of the remainder of 760CL in Category B.

PROBLEM

There is a pressing need to carry out land decontamination and advance engineering works (Advance Works) at the Lok Ma Chau Loop (the Loop) to pave way for the ensuing site formation and infrastructure works within the Loop. We also need to engage consultants to undertake the detailed design and site investigation for the site formation and associated infrastructure works of Phase 1 of the Loop development.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development and Secretary for Innovation and Technology, proposes to upgrade **748CL** and part of **760CL** to Category A at an estimated cost of \$517.6 million and \$268.3 million in money-of-the-day (MOD) prices respectively for carrying out the Advance Works and engaging consultants to undertake the detailed design and site investigation for the site formation and associated infrastructure works of Phase 1 of the Loop development.

PROJECT SCOPE AND NATURE

Advance Works

- 3. **748CL** which we propose to upgrade to Category A comprises
 - (a) land decontamination treatment within the Loop;
 - (b) establishment of an Ecological Area (EA) within the Loop;
 - (c) construction of a temporary access to the Loop (comprising an approximately 60-metre-long temporary vehicular bridge across the old Shenzhen River meander), minor improvement works to Ha Wan Tsuen East Road and other ancillary works;

- (d) construction of temporary noise barriers and miscellaneous road works along Lok Ma Chau Road;
- (e) ground treatment works to the first batch of land parcels within the Loop for development of buildings and associated facilities for Phase 1 of the Hong Kong-Shenzhen Innovation and Technology Park (the Park), and for development of the western electricity substation; and
- (f) implementation of environmental mitigation measures and an environmental monitoring and audit (EM&A) programme for the works mentioned in paragraphs 3(a) to (e) above.
- 4. A layout plan showing the proposed scope of works under Advance Works is at page 1 of Enclosure 1.

Main Works Package 1 – detailed design and site investigation

- 5. The part of **760CL** which we propose to upgrade to Category A comprises
 - (a) detailed design of various works including site formation works, road works, infrastructure/supporting facilities and environmental mitigation works of Phase 1 of the Loop development;
 - (b) site investigation works and supervision; and
 - (c) preparation of tender documents and assessment of tenders for the future construction works of the Main Works Package 1.

- 6. A plan showing the scope of Main Works Package 1 to be covered by the proposed detailed design and site investigation works is at page 2 of Enclosure 1.
- 7. Subject to funding approval of the Finance Committee, we plan to start the construction of the Advance Works and the detailed design and site investigation of the Main Works Package 1 in mid-2018 for completion by end 2021 and early 2023 respectively.
- 8. We will retain the remainder of **760CL** for the construction of the Main Works Package 1 in Category B. Funding for the remainder of **760CL** will be sought to dovetail with the implementation programme of the Loop development.

JUSTIFICATION

9. The Loop development, as one of the ten major infrastructure projects announced in the 2007-08 Policy Address for economic growth, is a mega and complex project. The planning and engineering study for the development of the Loop (the P&E Study) funded under PWP Item No. **735CL** was completed in 2014. The P&E Study investigated the feasibility of and formulated a comprehensive development plan for the Loop taking into account the prevailing planning circumstances and public views collected through public engagement.

- 10. On 3 January 2017, the Hong Kong Special Administrative Region Government (HKSARG) and Shenzhen Municipal People's Government signed a memorandum of understanding (the MOU), agreeing to, under the "one country, two systems" principle and in accordance with the Basic Law, jointly develop the Loop into the Park and establish a key base for co-operation in scientific research with related higher education, cultural and creative and other complementary facilities in the Park. According to the MOU, the HKSARG will be responsible for the construction of the infrastructure within the Loop (including site formation and infrastructural facilities) and the provision of supporting infrastructural facilities outside the Loop which are necessary to the development of the Loop and its surrounding areas. The HKSARG will lease the formed land within the Loop to Hong Kong Science and Technology Parks Corporation (HKSTPC) by appropriate land disposal means for the development of the Park. The HKSTPC has set up a wholly-owned subsidiary company vested with the responsibility to build the superstructure of the Park, as well as to operate, maintain and manage the Park. On 6 October 2017, the subsidiary company named Hong Kong-Shenzhen Innovation and Technology Park Limited was incorporated.
- 11. The Park will be developed with innovation and technology (I&T) as the main focus, where a key base for cooperation in scientific research, and relevant higher education, creative and cultural and other complementary facilities will be set up. The Park will provide a maximum total gross floor area of 1.2 million square metres, which will be the largest I&T platform ever established in the history of Hong Kong and the most important infrastructure for driving research and development and "re-industrialisation".

- 12. The Park will be developed in two main phases. The site formation and infrastructure of the Loop development will be delivered through different works packages, with initially the Advance Works and then the Main Works Package 1. The Advance Works are to pave way for subsequent construction works for the Loop development and to enable provision of the first batch of land parcels by 2021 for development of buildings and associated facilities for Phase 1 of the Park, and construction of the western electricity substation by CLP Power Hong Kong Limited. Paragraphs 28 to 30 below provide justifications for the proposed land decontamination treatment and EA under the Advance Works.
- 13. This funding application also deals with the funding requirement for the detailed design and site investigation for Main Works Package 1 which covers mainly site formation for the whole Loop area, as well as infrastructure works for Phase 1 of the Loop development.

FINANCIAL IMPLICATIONS

Advance Works

14. We estimate the capital cost of the Advance Works under **748CL** to be \$517.6 million in MOD prices (see paragraph 16 below), broken down as follows –

\$ million (in MOD prices)

(a)	Land decontamination	58.9
(b)	Establishment of an EA	230.1
(c)	Construction of a temporary access, minor improvement works to Ha Wan Tsuen East Road and other ancillary works	60.9

		\$ million (in MOD prices	s)
(d)	Construction of temporary noise barriers and miscellaneous road works along Lok Ma Chau Road	4.1	
(e)	Ground treatment works	55.3	
(f)	Environmental mitigation measures and EM&A programme for the works in (a) to (e) above	12.1	
(g)	Consultants' fees for (i) contract administration (ii) EM&A programme (iii) management of resident site staff (RSS)	7.6 4.1 0.7 2.8	
(h)	Remuneration of RSS	41.8	
(i)	Contingencies	46.8	
	Total	517.6	

- 15. A breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Enclosure 2.
- 16. Subject to approval, we plan to phase the expenditure as follows –

	\$million
Year	(MOD)
2018 - 19	81.0
2019 - 20	111.0
2020 - 21	98.4
2021 - 22	73.0
2022 - 23	67.5
2023 - 24	53.2
2024 - 25	33.5
	517.6

- 17. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output from 2018 to 2025. Subject to funding approval, we will deliver the Advance Works under a re-measurement contract using New Engineering Contract (NEC) form¹ with provision for price adjustment.
- 18. We estimate the annual recurrent expenditure arising from the Advance Works to be about \$3.9 million.

Main Works Package 1 – detailed design and site investigation

19. We estimate the cost of the detailed design and site investigation under **760CL** (**part**) to be \$268.3 million in MOD prices (see paragraph 21 below), broken down as follows –

\$ million (in MOD prices)

(a)	Consultants' fees for (i) detailed design ² (ii) preparation of tender documents and assessment of tenders (iii) management of RSS for site investigation works	190.1 16.3	206.6	
(b)	Remuneration of RSS for site		3.4	

investigation works

/**\$ million**

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.

Item (a)(i) above is for reviewing the findings of the P&E Study, carrying out environmental review, traffic impact assessments and detailed design of various works including site formation works, road works, infrastructure/supporting facilities and environmental mitigation works for Phase 1 of the Loop development. The consultants also need to closely coordinate with HKSTPC and its subsidiary company, Hong Kong-Shenzhen Innovation and Technology Park Limited, for the planning of the Park and liaise with different departments, bureaux and MTR Corporation Limited, etc. for carrying out the design.

			\$ million (in MOD prices)
(c)	Site investigation works		34.0
(d)	Contingencies		24.3
		Total	268.3

- 20. A breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Enclosure 3.
- 21. Subject to approval, we plan to phase the expenditure as follows –

	\$million
Year	(MOD)
2018 - 19	12.0
2019 - 20	32.0
2020 - 21	38.3
2021 - 22	57.7
2022 - 23	60.5
2023 - 24	53.4
2024 - 25	14.4
	268.3

We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output from 2018 to 2025. We will invite tenders for the detailed design on a lump sum basis using NEC contract form with provision for price adjustment. We will procure the site investigation works under standard re-measurement contract because the quantities of works involved may vary depending on the actual ground conditions. The contract for site investigation works will provide for price adjustment.

23. The detailed design and site investigation works will not give rise to any recurrent consequences.

PUBLIC CONSULTATION

- We consulted the Legislative Council Panel on Commerce and Industry, Panel on Development and Panel on Information Technology and Broadcasting on 6 March 2017 on the development plans of the Park. Members supported the development of the Park.
- We consulted San Tin Rural Committee (STRC) on 24 February 2017 and the Town Planning and Development Committee (TPDC) of Yuen Long District Council (YLDC) on 15 March 2017 on the Advance Works. STRC and TPDC had no objection to the Advance Works. We also consulted STRC on 26 May 2017, YLDC on 27 June 2017, Sheung Shui District Rural Committee (SSDRC) on 13 July 2017 and North District Council (NDC) on 27 July 2017 on the Loop development when their views were sought on the draft Lok Ma Chau Loop Outline Zoning Plan. STRC, SSDRC, YLDC and NDC had no objection to the proposed Loop development but requested the Government to further consider bundling the Loop development with the development of adjacent areas and implementing appropriate traffic improvement measures. We will consider their views and consult them again during the detailed design of the Main Works Package 1.
- We gazetted the proposed road works of the Advance Works under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) on 8 June 2017. During the statutory objection period, no objection to the proposed road scheme was received. The authorisation notice was gazetted on 22 September 2017. The draft Lok Ma Chau Loop Outline Zoning Plan was approved by the Chief Executive in Council on 30 January 2018.

27. We consulted the Legislative Council Panel on Commerce and Industry on 16 January 2018. Members supported in principle the submission of these funding proposals to the Public Works Subcommittee for consideration.

ENVIRONMENTAL IMPLICATIONS

- The P&E Study mentioned in paragraph 9 above is a Designated Project (DP) under Schedule 3 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). In October 2013, the EIA report for the Loop development was approved by the Director of Environmental Protection pursuant to the EIA Ordinance. The EIA report concluded that with implementation of the recommended mitigation measures and EM&A programme, the environmental impacts arising from the proposed works could be mitigated to ensure compliance with the statutory requirements.
- 29. According to the approved EIA report, a series of ecological mitigation measures shall be implemented to reduce the ecological impact during the construction and operation stages of the Loop development. One of the key ecological mitigation measures to be implemented under the Advance Works is to establish an EA of about 12.8 ha comprising reed marsh and marsh habitat for reed marsh compensation prior to the complete clearance of the affected reed marsh within the Loop. The works for establishing this EA involve site formation, embankment formation, planting and establishment of reed marsh and marsh habitat and associated works. Apart from ecological mitigation measures, we will incorporate other recommended mitigation measures into the Advance Works contract to control environmental impacts arising from the construction works to comply with established standard and guidelines. These measures include erection of site hoarding, noise barriers, noise enclosures, use of quiet powered mechanical equipment, construction of a site drainage system and conducting dust suppression spraying, etc.

- 30. Land contamination assessment was also carried out under the P&E Study. According to the findings of the P&E Study, land contamination within the Loop was not serious. Further site investigation carried out during the detailed design of the Advance Works confirmed that contaminated soil necessitating treatment was limited to local spots with a total quantity of about 57 000 cubic metres. This was in line with the findings of the approved EIA report. We will carry out land decontamination treatment by solidification/stabilisation method for these local spots in accordance with the Remediation Action Plan recommended in the EIA report. The remediated soil would be backfilled within the Loop and would not be conveyed to landfill sites or other places.
- 31. At the planning and design stages, we have considered the design and construction sequence to reduce 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 minimise disposal of inert construction waste to public fill reception facilities³. We will encourage the contractor to maximise use of recycled or recyclable inert construction waste, and use of non-timber formworks to further reduce generation of construction waste.
- 32. 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 whenever practicable 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 to public fill reception facilities and landfills respectively through a trip-ticket system.

/33.

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 in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

- 33. We estimate that the Advance Works will generate a total of 734 100 tonnes of construction waste. Of these, we will reuse 679 200 tonnes (92.5%) of inert construction waste on site and deliver 5 200 tonnes (0.7%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of 49 700 tonnes (6.8%) of non-inert construction waste at landfills. The total cost for disposal of the remaining construction waste at public fill reception facilities and landfill sites is estimated to be \$10.3 million for the Advance Works (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).
- 34. The site investigation works will only generate minimal construction waste. We will require the consultants to comprehensively examine measures to minimise generation of construction waste and to reuse or recycle construction waste as much as possible for implementation in the construction stage of the Loop development in future.

HERITAGE IMPLICATIONS

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

TRAFFIC IMPLICATIONS

36. The traffic impact assessment carried out under the P&E Study reveals that the Advance Works will not cause any significant traffic impact. To minimise disturbance to the traffic in the course of the Advance Works, we will maintain the existing number of traffic lanes along the affected roads as far as practicable. In addition, we will establish Traffic Management Liaison Group and closely liaise with the Transport Department, the Hong Kong Police Force and other stakeholders to discuss, scrutinise and review proposed temporary traffic arrangements with a view to minimising traffic impacts arising from the Advance Works.

LAND ACQUISITION

37. While the Advance Works under **748CL** do not involve any land resumption, minor clearance of Government land is required. Ex-gratia Allowance (EGA) will be paid to the few affected cultivators under the current EGA policy. The estimated cost of land clearance is about \$220,000, which will be charged to **Head 701 – Land Acquisition**. A breakdown of the land clearance costs is at Enclosure 4. The detailed design and site investigation works for Main Works Package 1 under **760CL** (**part**) do not require any land resumption and clearance.

BACKGROUND

- 38. On 24 April 2009, the Finance Committee approved upgrading of **735CL** "Planning and engineering study and site investigation on development of Lok Ma Chau Loop: consultants' fees and site investigation" to Category A at an approved project estimate of \$33.7 million in MOD prices for engaging consultants to undertake the P&E Study. The P&E Study was completed in 2014.
- We upgraded **748CL** to Category B in September 2010. In June 2014, we employed consultants, under a Category D Item **7E10CL**, to carry out the detailed design and site investigation for the Advance Works. We have substantially completed the detailed design of the Advance Works.
- 40. We upgraded **760CL** to Category B in September 2012.

- 41. Of the 1 982 trees within the site boundary of the Advance Works, 30 trees will be preserved. The remaining 1 952 trees will have to be felled. All the trees to be felled are not important trees⁴. We plan to incorporate planting proposals as part of Main Works Package 1, including 1 952 trees as compensatory planting.
- 42. The detailed design and site investigation under **760CL** (**part**) will not directly involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the design stage. We will also incorporate tree planting proposals, where possible, in the construction phase in the future.
- 43. We estimate that the Advance Works under **748CL** will create 290 jobs (235 for labourers and another 55 for professional or technical staff) providing a total employment of 5 700 man-months.
- 44. We estimate that the detailed design and site investigation under **760CL** (part) will create 35 jobs (10 for labourer and 25 for professional or technical staff) providing a total employment of 1 150 man-months.

Development Bureau Innovation and Technology Bureau February 2018

⁴ "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

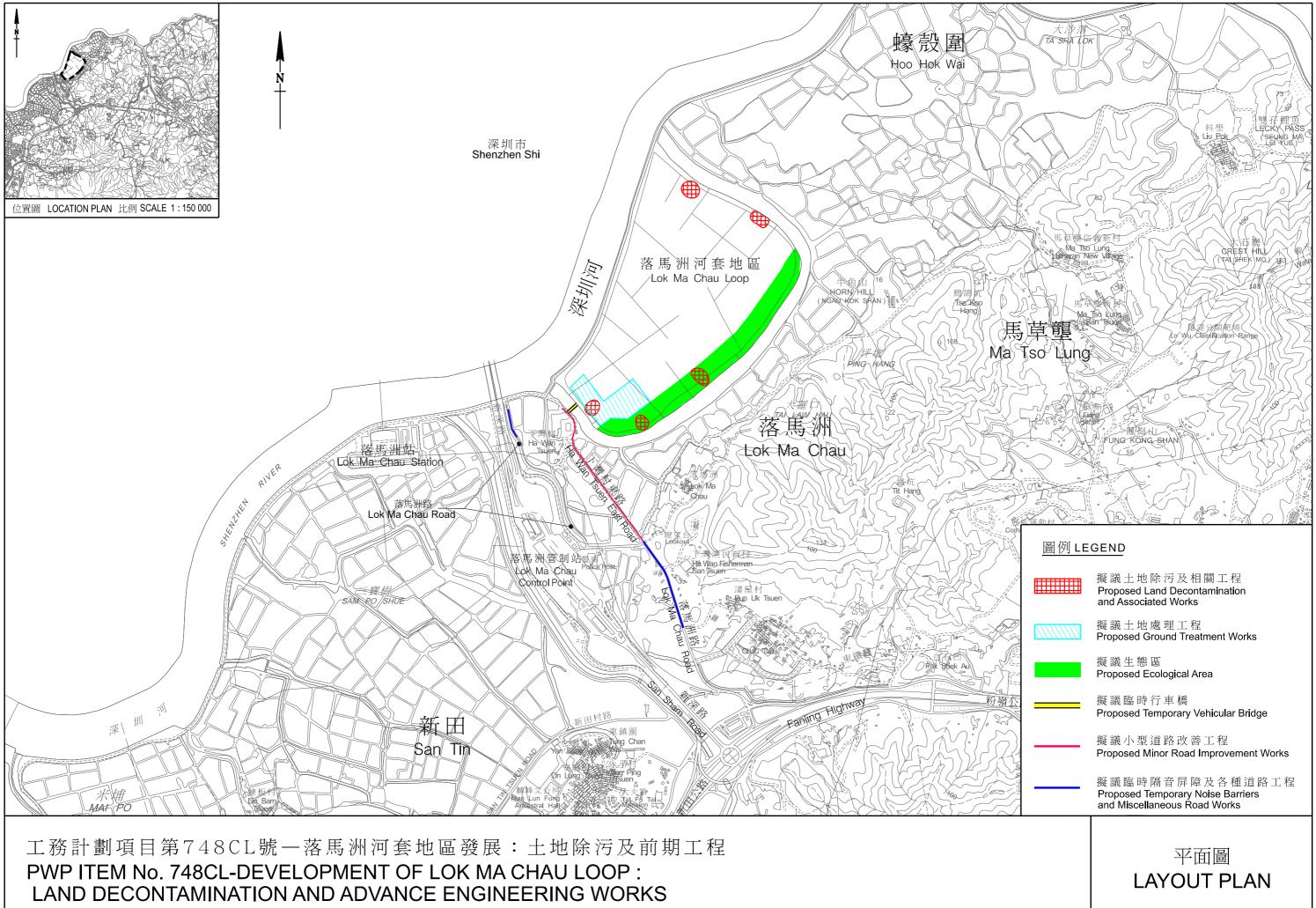
⁽a) trees of 100 years old or above;

⁽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;

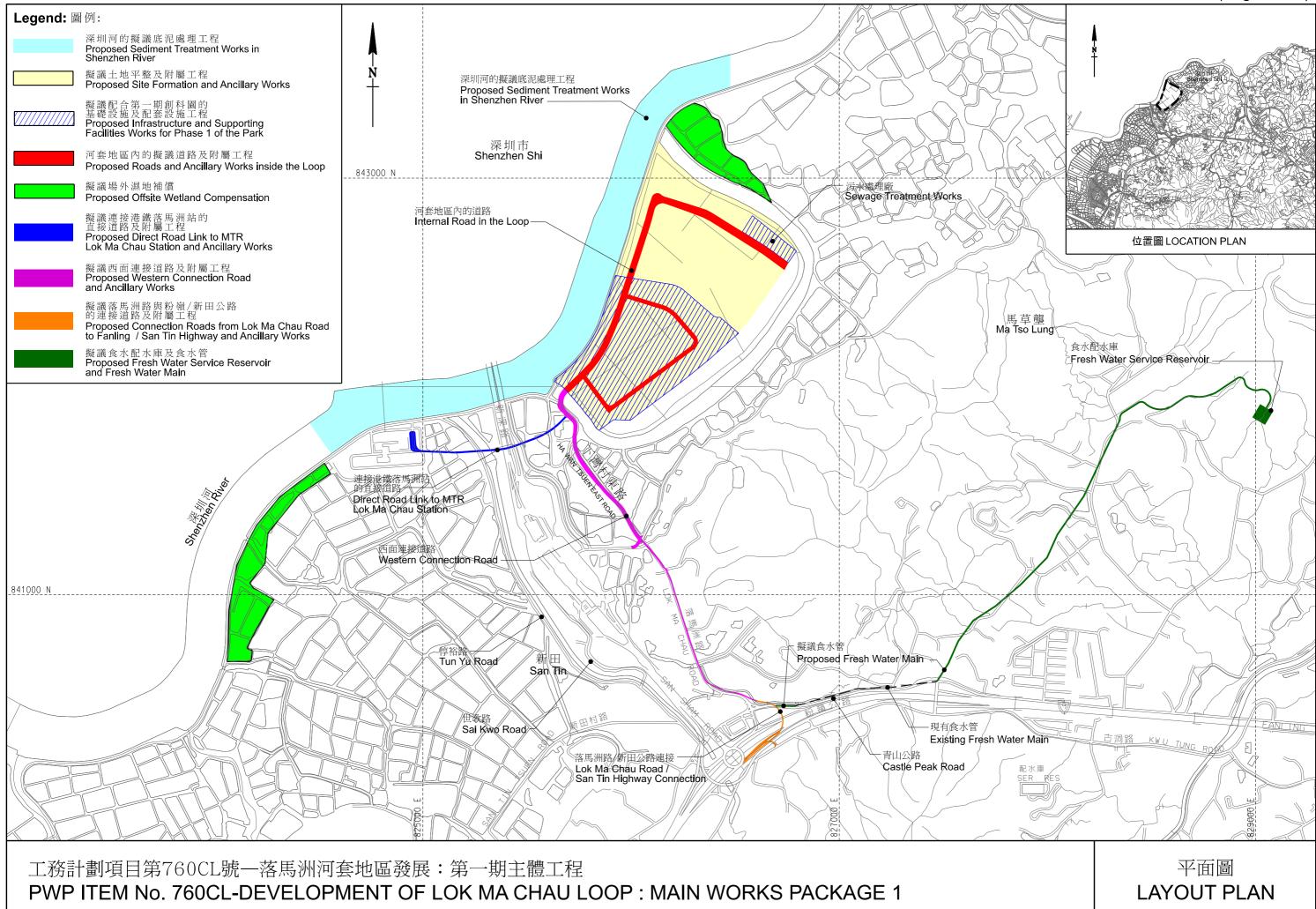
⁽c) trees of precious or rare species;

⁽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/canopy spread equal to or exceeding 25 m.



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748CL – Development of Lok Ma Chau Loop – land decontamination and advance engineering works

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2017 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional Technical	-	-	-	2.7 0.7
					Sub-total	3.4#
(b)	Consultants' fees for environmental monitoring and audit programme (Note 3)	Professional	4	38	2.0	0.6
					Sub-total	0.6#
(c)	Resident site staff (RSS) costs (Note 4)	Professional Technical	173 359	38 14	1.6 1.6	21.8 15.8
	Comprising –				Sub-total	37.6
	(i) Consultants' fees for management of RSS				2.4#	
	(ii) Remuneration of RSS				35.2#	
					Total	41.6

^{*} MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff cost including the consultants' overheads and profit for the staff employed in the consultants' offices (as at now, MPS point 14 = \$27,485 per month and MPS point 38 = \$78,775 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 the Advance Works.
- 3. The actual man-months and actual fees will only be known after the consultants have been selected.
- 4. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The cost figures in this Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 14 of the main paper.

760CL(Part) - Development of Lok Ma Chau Loop -Main Works Package 1 - detailed design and site investigation

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2017 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for detailed design (Note 2)	Professional Technical	926 97	38 14	2.0 2.0	145.9 5.3
					Sub-total	151.2#
(b)	Consultants' fees for preparation of tender documents and assessment of tenders (Note 2)	Professional Technical	76 16	38 14	2.0 2.0	12.0 0.9
					Sub-total	12.9#
(c)	Resident site staff (RSS) costs (Note 3)	Professional Technical	12 22	38 14	2.0 2.0	1.9 1.2
	Comprising –				Sub-total	3.1
	(i) Consultants' fees for management of RSS for site investigation works				0.2#	
	(ii) Remuneration of RSS for site investigation works				2.9#	
					Total	167.2

^{*} MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff cost including the consultants' overheads and profit for the staff employed in the consultants' offices (as at now, MPS point 14 = \$27,485 per month and MPS point 38 = \$78,775 per month).

- 2. The actual man-months and actual fees will only be known after the consultants have been selected.
- 3. The actual man-months and actual costs will only be known after completion of the works.

Remarks

The cost figures in this Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 19 of the main paper.

748CL – Development of Lok Ma Chau Loop – land decontamination and advance engineering works

Breakdown of the land resumption and clearance costs

			\$ million
(I)	Estimated cost for land acquisition (resumption of priva	ate land)	-
(II)	Estimated cost for land clearance		0.20
(a)	Ex-gratia allowances of crop compensation for agricultural undertakings	0.20	
(b)	Ex-gratia allowances for domestic occupiers	-	
(c)	Ex-gratia allowances for business undertakings	-	
(d)	Ex-gratia allowances for miscellaneous villager matters	-	
(III)	Interest and Contingency Payment		0.02
(a)	Interest payment on land compensation and ex-gratia allowances	-	
(b)	Contingency on the above costs	0.02	
		Total	0.22