

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

### **HEAD 705 – CIVIL ENGINEERING**

#### **Civil Engineering – Land development**

#### **768CL – Strategic studies for artificial islands in the central waters**

Members are invited to recommend to the Finance Committee the upgrading of **768CL** to Category A at an estimated cost of \$248.7 million in money-of-the-day prices for carrying out the strategic studies for artificial islands in the central waters and associated site investigation works.

### **PROBLEM**

We need to conduct strategic studies to explore the feasibility of constructing artificial islands in the central waters between Hong Kong Island and Lantau (the Study), including development of an East Lantau Metropolis (ELM).

### **PROPOSAL**

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade **768CL** to Category A at an estimated cost of \$248.7 million in money-of-the-day (MOD) prices to carry out the Study and the associated site investigation works.

**/PROJECT .....**

## PROJECT SCOPE AND NATURE

3. The scope of **768CL** comprises –
  - (a) engineering feasibility and infrastructure study for constructing artificial islands in the central waters including broad reclamation extent and transport links;
  - (b) preliminary planning proposals including possible land uses;
  - (c) port operations and marine traffic and safety study;
  - (d) strategic environmental assessment;
  - (e) fisheries impact assessment;
  - (f) consultation exercises with relevant stakeholders; and
  - (g) associated site investigation works including supervision.
  
4. A plan showing the study area and the conceptual location of ELM is at Enclosure 1.
  
5. Subject to funding approval of the Finance Committee, we plan to commence the Study and the associated site investigation works in August 2016 for completion in August 2019.

## JUSTIFICATION

6. We started the technical studies and two-stage public engagement (PE) exercise for the “Enhancing Land Supply Strategy (ELSS): Reclamation outside Victoria Harbour and Rock Cavern Development” in July 2011. During the Stage 1 PE conducted from November 2011 to March 2012, there has been broad support for a six-pronged approach<sup>1</sup> for increasing land supply, including reclamation outside Victoria Harbour.

/7. ....

---

<sup>1</sup> The six-pronged approach includes re-zoning, resumption, redevelopment, reclamation outside Victoria Harbour, rock cavern development and re-use of ex-quarry sites.

7. Taking into consideration the public views on site selection criteria, we identified after the Stage 1 PE five potential near-shore reclamation sites and the potential of constructing artificial islands. On the locations of artificial islands, we have reviewed the eastern, the central and the western waters of Hong Kong. We considered the central waters to have good potential for artificial island development since they are neither bounded by shorelines of high ecological value as in the eastern waters nor constrained by many major infrastructure projects under planning or construction as in the western waters. There is potential for sizable reclaimed land, which can provide opportunities for significant supply of new land and comprehensive land use planning and design.

8. During the Stage 2 PE conducted from March to June 2013, the public was consulted on the possible land uses for the proposed reclamation sites and artificial islands as well as the areas of concern for further study. For artificial islands, residential development (in particular public rental housing), tourism-related facilities, recreational or leisure facilities, utilities, new towns and land reserve are the major supported land uses. Marine ecology, ecological conservation, transport infrastructure, cost-effectiveness and the need to expedite land supply are the major concerns. A summary of the views on artificial islands in the central waters collected during the Stage 2 PE is at Enclosure 2.

---

9. As set out in the 2016 and previous Policy Addresses, the Government will initiate study to explore ways to develop the waters east of Lantau Island and neighbouring areas, with a view to developing the ELM for accommodating new population and a new core business district in addition to Central and Kowloon East for promoting economic development and providing abundant job opportunities, including the provision of strategic transport infrastructure to link up to the western part of the New Territories, Kowloon and Hong Kong Island.

10. Apart from the artificial islands in the ELM, there is great potential for developing artificial islands in other areas of the central waters in the longer term for accommodating other beneficial uses, with a view to releasing the scarce land resources in existing urban areas and providing new land to meet our socio-economic needs.

11. We propose to carry out the Study to formulate proposals at strategic level for potential artificial islands and associated reclamation in the central waters. The Study will ascertain the preliminary engineering feasibility and evaluate cost-effectiveness and environmental implications of the artificial islands, with due regard to concerns expressed by the public during the Stage 2 PE. Separate planning and engineering studies will then be carried out on the artificial islands and associated reclamation proposed in the Study as necessary.

## FINANCIAL IMPLICATIONS

12. We estimate the cost of the Study and the associated site investigation works to be \$248.7 million in MOD prices (please see paragraph 14 below), broken down as follows –

		\$ million
(a)	Consultants' fees for	164.6
	(i) engineering feasibility and infrastructure study	45.4
	(ii) preliminary planning proposals	23.5
	(iii) port operations and marine traffic and safety study	35.2
	(iv) strategic environmental assessment	33.3
	(v) fisheries impact assessment	16.6
	(vi) consultation exercises with relevant stakeholders	7.4
	(vii) supervision of associated site investigation works	3.2
(b)	Site investigation works	32.4
(c)	Contingencies	19.5
	Sub-total	216.5 (in September 2015 prices)
(d)	Provision for price adjustment	32.2
	Total	248.7 (in MOD prices)

13. In view of the complex and multi-disciplinary nature of the Study requirements, we propose to engage consultants to undertake the Study and supervise the associated site investigation works. A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 3.

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

<b>Year</b>	<b>\$ million (Sept 2015)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2016 – 2017	37.7	1.05775	39.9
2017 – 2018	85.6	1.12122	96.0
2018 – 2019	70.9	1.18849	84.3
2019 – 2020	16.9	1.25980	21.3
2020 – 2021	5.4	1.33539	7.2
	<hr/> 216.5 <hr/>		<hr/> 248.7 <hr/>

15. We have derived the MOD estimate 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 2016 to 2021. We will engage consultants to undertake the Study on a lump sum basis with provision for price adjustment. We will tender the proposed site investigation works under a standard re-measurement contract because the quantity of works involved may vary depending on actual ground conditions. The contract will provide for price adjustment.

16. The Study and the associated site investigation works will not give rise to any recurrent consequences.

## **PUBLIC CONSULTATION**

17. We have completed a two-stage PE exercise on "ELSS: Reclamation outside Victoria Harbour and Rock Cavern Development" as mentioned in paragraphs 6 and 8 above.

/18. ....

18. As part of the Stage 2 PE, we briefed the Islands District Council (IsDC) on the proposal of constructing artificial islands on 22 April 2013. Members requested more details and expressed concerns on the proposal. We further consulted IsDC on the Study on 24 February 2014. Members requested that the Study should take into account the possible transport links to the existing road network on Lantau and other technical issues such as impact on water flow, port operation, marine safety and cost-effectiveness of the proposal etc. Members had no further comment on the Study after we re-affirmed that these issues will be addressed in the Study.

19. We consulted the Legislative Council Panel on Development on 7 April 2014. Members generally supported submitting the funding proposal to the Public Works Subcommittee (PWSC) for consideration.

20. At the PWSC meetings on 18, 24 and 25 June 2014, 2 July 2014, 29 October 2014 and 26 November 2014, Members expressed mainly the following concerns –

- (a) a territorial planning review should be conducted to provide an updated spatial planning framework;
- (b) the 2007 Revised Concept Plan for Lantau (RCP) should be taken as a constraint for development;
- (c) the Study area is too extensive; and
- (d) the location of the ELM is unclear.

21. After prolonged deliberations, the Government withdrew the item at the PWSC meeting on 26 November 2014.

22. On the issue of territorial planning review for Hong Kong as a whole, the Government is now preparing the “Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030” (“Hong Kong 2030+”) with a view to providing an updated spatial planning framework and broad directions for planning and land and infrastructure development for Hong Kong beyond 2030, in the light of our latest needs and other considerations. There is a clear need to identify additional development capacity to meet the social and economic needs beyond 2030 and the proposed ELM is one of the options identified to meet such demand. We will ensure that the Study will be consistent with the territorial development strategy being formulated in the “Hong Kong 2030+”.

23. In response to the comment that the RCP shall be taken as a constraint for Lantau development, we would like to point out that the Government established the Lantau Development Advisory Committee (LanDAC) in early 2014. After two years' work, the LanDAC formulated in early 2016 a proposed development strategy for Lantau with the proposed development vision, strategic positioning and planning principles having due and full regard to the RCP and also the changing planning circumstances surfaced after the publication of the RCP in 2007.

24. Taking the RCP alone as a constraint might not be practical as the circumstances have already changed substantially since 2007. The latest proposal of the LanDAC recommends in its spatial planning and land use concept that the central waters have great potential for the development of ELM as a long-term strategic growth area. From end January to April 2016, the LanDAC and the Government together conducted a public engagement exercise on the proposals of Lantau development which include the ELM. We also briefed the Panel on Development on the proposed development strategy for Lantau, with ELM as one of the components, on 23 February 2016. We have received many public views that there is insufficient information about the proposed ELM. The proposed Study is hence needed to determine the necessary information and feasibility of the proposed reclamation of artificial islands and the development of the ELM.

25. On the comment that the Study area is too extensive, we will carry out assessments on various potential impacts including water flow, marine ecology, fisheries resources, port operation, marine traffic and safety, etc. of the artificial islands in the central waters to the surrounding areas in a holistic manner under the Study. The Study area shown in Enclosure 1 only serves to delineate the area for the above impact assessments.

26. In consideration of Members' concerns, we have indicated the conceptual location of ELM in Enclosure 1.

## **ENVIRONMENTAL IMPLICATIONS**

27. The Study and the associated site investigation works are not designated projects under the Environmental Impact Assessment (EIA) Ordinance (Chapter 499) and will not cause any adverse environmental impact. A strategic environmental assessment will be conducted under the Study to evaluate the environmental implications and avoid potential environmental problems.

28. The proposed site investigation works will only generate very little construction waste. We will require the consultants to fully consider measures to be implemented in future construction stage to minimise the generation of construction waste and to reuse or recycle construction waste as much as possible. We will implement suitable mitigation measures to control any short-term environmental impacts arising from the site investigation works.

29. The proposed reclamation, major infrastructure and future follow-up engineering feasibility studies are designated projects under the EIA Ordinance. EIA will be carried out under the respective future studies to confirm their environmental acceptability and mitigation measures, and environmental permits are required prior to the commencement of construction and operation of these projects.

## **HERITAGE IMPLICATIONS**

30. Cultural heritage impact assessment for the proposed development and infrastructure will be carried out as part of the strategic environmental assessment in the Study.

## **LAND ACQUISITION**

31. The Study and the associated site investigation works will not require any land acquisition.

## **BACKGROUND INFORMATION**

32. On 24 May 2011, we briefed Members of the Legislative Council Panel on Development on our plan to launch a two-stage PE on enhancing land supply strategy and conduct technical studies to explore the options of reclamation on an appropriate scale outside Victoria Harbour and rock cavern development. Members supported the commencement of the technical studies and the PE exercise.

33. We launched the Stage 1 PE on 10 November 2011 and briefed Panel Members on 22 November 2011 on the progress of the technical studies and Stage 1 PE, key issues including the proposed six-pronged approach of increasing land supply, and the initial site selection criteria for reclamation outside Victoria Harbour and rock cavern development.



34. The Panel on Development held a special meeting on 10 March 2012 to hear public views on the proposed strategy on enhancing land supply.

35. On 22 January 2013, we briefed Panel Members on the policy initiatives of the Development Bureau in the 2013 Policy Address. Among others, we outlined the results of the Stage 1 PE.

36. We launched the Stage 2 PE on 21 March 2013 and briefed Panel Members on 23 April 2013 on the possibility of further exploring the development of artificial islands in the central waters.

37. The Panel on Development held a special meeting on 1 June 2013 to hear public views on the proposed reclamation sites including artificial islands in the central waters.

38. We upgraded **768CL** to Category B in September 2013.

39. On 28 January 2014, we briefed Panel Members on the results of Stage 2 PE and the new initiatives of developing an ELM.

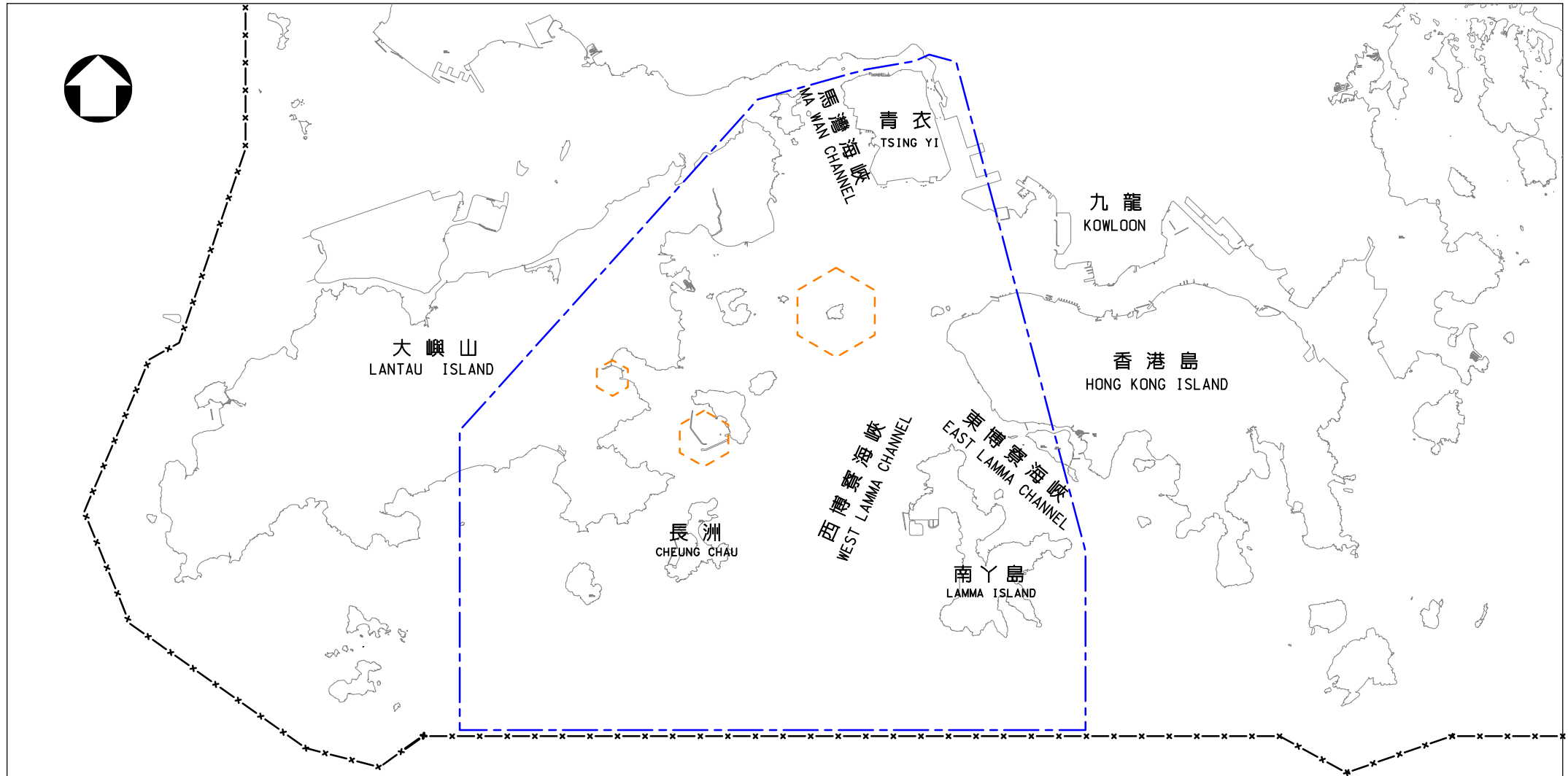
40. We submitted paper PWSC(2014-15)11 for the upgrading of **768CL** to Category A to the PWSC. The paper was discussed at the meetings on 18, 24 and 25 June 2014, 2 July 2014, 29 October 2014 and 26 November 2014. The item was withdrawn at the PWSC meeting on 26 November 2014. To address Members' concerns, we have provided additional information in this paper (see paragraphs 20 to 26 above). We have also revised the programme, estimated cost and cashflow of the item in paragraphs 5, 12 and 14 above and indicated the conceptual location of ELM in Enclosure 1.

41. The Study and the associated site investigation works will not involve any tree removal or planting proposals.

42. We estimate that the proposed Study and the associated site investigation works will create about 51 jobs (16 for labourers and another 35 for professional or technical staff) providing a total employment of 1 251 man-months.

-----

Development Bureau  
June 2016



圖例 :

LEGEND:

—x—x—x—x—

香港特別行政區區界

BOUNDARY OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

— — — — —

研究範圍

STUDY AREA



東大嶼都會的大概位置

CONCEPTUAL LOCATION OF EAST LANTAU METROPOLIS

保留版權  
COPYRIGHT RESERVED

名稱 title

工務計劃項目第768CL號

中部水域人工島策略性研究的研究範圍

PWP ITEM NO. 768CL

STUDY AREA OF STRATEGIC STUDIES FOR  
ARTIFICIAL ISLANDS IN THE CENTRAL WATERS

辦事處  
office

海港工程處  
土木工程處

PORT WORKS DIVISION  
CIVIL ENGINEERING OFFICE

圖則編號 drawing no.

PW-SK15-020

比例 scale

1 : 200 000



土木工程拓展署  
CIVIL ENGINEERING  
AND DEVELOPMENT  
DEPARTMENT

**A summary of views collected in Stage 2 Public Engagement on  
artificial islands in the central waters**

Land Use

Land reserve and residential development (in particular public rental housing) are the most supported land uses for possible artificial islands in the central waters between Lantau and Hong Kong Island.

2. Other major supported land uses covered uses for commercial, industrial, Government, institution or community, open space and utilities. These included tourism-related facilities, recreational or leisure facilities, holiday village, tourist spot, industrial land, industrial estate or industrial facilities, and Not-in-my-backyard (NIMBY) facilities relocated from urban areas.

3. New town, which is in the form of comprehensive development, received more support as potential land use for artificial islands than for other potential near-shore reclamation sites.

4. However, there are also similar number of comments which did not support the use of artificial islands to house NIMBY facilities.

Aspects of Specific Concern

5. A considerable number of respondents indicated that reclamation works would increase job opportunities and help alleviate housing problem. Some considered that constructing artificial islands in the central waters would be beneficial to local community and economic growth.

6. Impact on marine ecology, ecological conservation, transportation, cost-effectiveness and the need to expedite land supply were major concerns about the artificial islands in the central waters.

7. Other concerns included deterioration of seawater quality, air and noise pollution near the development site, impact on fisheries, local community, water flow, shipping routes or safety, construction cost and engineering feasibility.

8. The Executive Summary of Stage 2 Public Engagement is available at the website of the Civil Engineering and Development Department<sup>1</sup>.

---

<sup>1</sup> <http://www.cedd.gov.hk/eng/landsupply/doc/Report%20on%20Stage%202%20Public%20Engagement%20-%20Executive%20Summary.pdf>

## Enclosure 3 to PWSC(2016-17)35

### 768CL – Strategic studies for artificial islands in the central waters

#### Breakdown of the estimates for consultants' fees (in September 2015 prices)

Consultants' staff costs <sup>(Note 1)</sup>			Estimated man- months	Average MPS* salary point	Multiplier <sup>(Note 2)</sup>	Estimated fees (\$ million)
(i)	Engineering feasibility and infrastructure study	Professional	245	38	2.0	36.4
		Technical	176	14	2.0	9.0
(ii)	Preliminary planning proposals	Professional	119	38	2.0	17.7
		Technical	114	14	2.0	5.8
(iii)	Port operations and marine traffic and safety study	Professional	173	38	2.0	25.7
		Technical	186	14	2.0	9.5
(iv)	Strategic environmental assessment	Professional	167	38	2.0	24.8
		Technical	167	14	2.0	8.5
(v)	Fisheries impact assessment	Professional	77	38	2.0	11.4
		Technical	101	14	2.0	5.2
(vi)	Consultation exercises with relevant stakeholders	Professional	32	38	2.0	4.7
		Technical	52	14	2.0	2.7
(vii)	Supervision of associated site investigation works	Professional	9	38	2.0	1.3
		Technical	37	14	2.0	1.9
					<b>Total</b>	<b>164.6</b>
*	MPS = Master Pay Scale					

#### Notes

- The actual man-months and fees will only be known when we have selected the consultants through the usual competitive fee bidding system.
- A multiplier of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices (as at now, MPS point 38 = \$74,210 per month and MPS point 14 = \$25,505 per month).