

**For discussion
on 27 March 2012**

Legislative Council Panel on Development

379DS – Feasibility Study on Relocation of Sha Tin Sewage Treatment Works to Caverns

PURPOSE

This paper seeks Members' support on the proposal to upgrade **379DS** to Category A, at an estimated cost of \$57.9 million in money-of-the-day (MOD) prices, to carry out a feasibility study on the relocation of Sha Tin sewage treatment works (STSTW) to caverns (the Study).

PROJECT SCOPE AND NATURE

2. The scope of **379DS**, which we propose to upgrade to Category A, comprises –

- (a) detailed engineering feasibility study on relocation of STSTW to caverns and associated works¹, including relevant preliminary technical and impact assessments², preparation of outline design for the engineering works and formulation of implementation strategies and programmes;
- (b) planning review with broad technical assessment of the future land use of the existing STSTW site for the purpose of establishing a business case for relocating STSTW to caverns;
- (c) public engagement and consultation exercises with relevant stakeholders; and
- (d) associated ground investigation works and site supervision.

¹ The associated works include –

- (a) rehabilitation, modification and improvement of the upstream sewerage and the Tolo Harbour Effluent Export Scheme system in relation to relocation of STSTW to caverns;
- (b) rehabilitation, modification and improvement of the existing emergency submarine outfall or construction of a new outfall for connecting with the relocated STSTW;
- (c) decommissioning of the existing STSTW; and
- (d) ancillary works.

² The preliminary technical and impact assessments cover sewage and sludge treatments, sewerage, geotechnical, environmental, drainage, traffic, waterworks, utilities, land requirement and land use aspects.

A plan showing the study area for the relocated STSTW is at **Enclosure 1**.

3. Subject to the funding approval of the Finance Committee (FC), we plan to commence the Study in June 2012 for completion in June 2014.

JUSTIFICATION

4. Land is a scarce resource in Hong Kong and there is a pressing need to increase the supply of land for various uses by sustainable and innovative approaches to support social and economic development. One possible approach is rock cavern development.

5. The benefits of rock cavern development are manifold and include releasing surface sites through systematic relocation of suitable existing government facilities to rock caverns, allowing future expansion of the facilities underground, placing NIMBY (“not-in-my-backyard”) facilities in caverns thereby minimising any adverse impact to the environment and community, and other intangible benefits such as removing incompatible land uses.

6. According to the findings of the study on “Enhanced Use of Underground Space in Hong Kong” completed by the Civil Engineering and Development Department (CEDD) in March 2011, Hong Kong is particularly suitable for developing rock caverns from the geological perspective. The study has broadly demonstrated from technical and financial viability standpoints that cavern scheme could be implemented to house STSTW, which is the largest secondary sewage treatment works in Hong Kong with a designed sewage treatment capacity of 340,000 m³ per day, thereby releasing about 28 hectares of land for other beneficial and compatible land uses. The study has also recommended a further detailed feasibility study to identify and address the issues associated with relocation of STSTW to caverns.

7. In the 2011-12 Policy Address under “Policy on Land Development and Accumulation”, actively exploring the use of rock caverns to re-provision existing government facilities and release such sites for housing and other uses was identified as one of the innovative measures to expand Hong Kong’s land resources. Relocation of STSTW was one of the projects tentatively selected to proceed with further feasibility study.

8. Due to inadequate in-house resources, the Director of Drainage Services proposes to employ consultants to conduct the Study and to supervise the associated ground investigation works.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the Study, including the associated ground investigation works, to be \$57.9 million in MOD prices, made up as follows –

		\$ million	
(a)	Consultants' fee for	36.0	
	(i) detailed engineering feasibility study on relocation of STSTW to caverns and associated works	27.5	
	(ii) planning review with broad technical assessment of future land use of the existing STSTW site	4.2	
	(iii) public engagement and consultation exercises with relevant stakeholders	3.1	
	(iv) supervision of ground investigation works	1.2	
(b)	Ground investigation works	10.0	
(c)	Contingencies	4.6	
	Sub-total	50.6	(in September 2011 prices)
(d)	Provision for price adjustment	7.3	
	Total	57.9	(in MOD prices)

PUBLIC CONSULTATION

10. During the course of CEDD's study on "Enhanced Use of Underground Space in Hong Kong", various professional bodies including the Hong Kong Institution of Engineers (HKIE), Hong Kong Institute of Planners (HKIP), Institute of Quarrying, Institute of Materials, Minerals and Mining, and Association of Geotechnical and Geoenvironmental Specialists were consulted. They supported the study to explore the use of underground space including rock cavern development. In the HKIE-HKIP Conference on Planning and Development of Underground Space held in Hong Kong in September 2011, local engineers and planners met and shared experiences with

overseas counterparts and the planned development of underground space in Hong Kong was strongly supported.

11. Key findings of the CEDD's study were presented to the Panel on Development of the Legislative Council in May 2011, the Town Planning Board in July 2011, as well as the Land and Development Advisory Committee and its Planning Sub-committee in July and August 2011 respectively. There was also extensive media coverage on the subject. Based on the feedback of government's consultative bodies and public response, members of the public are generally supportive of the initiative of relocating suitable government facilities to rock caverns, particularly NIMBY facilities.

12. A two-stage Public Engagement (PE) exercise on "Enhancing Land Supply Strategy: Reclamation outside Victoria Harbour and Rock Cavern Development" was launched in November 2011 to gauge public views and foster the public's understanding and acceptance in increasing land supply by new and innovative ways including reclamation outside Victoria Harbour and rock cavern development. The Stage 1 PE will be completed on 31 March 2012. Initial feedback regarding the initiative of relocating suitable government facilities to rock caverns so as to release land for alternative use is generally positive, though views in respect of some candidate sites were expressed that the capital investment should be weighed against public gains, which shall include intangible benefits such as improvement in environment and releasing sites for housing development and community facilities.

13. We consulted the Health and Environment Committee (H&EC) of Sha Tin District Council (STDC) on the feasibility study on relocation of STSTW to caverns on 8 March 2012. H&EC of STDC supported our proposal to conduct the Study but requested that the feasibility study must take into account the impact of the proposal on residents in the vicinity including environmental, health, hygiene, noise, air quality, traffic and visual impact. The Administration should also ensure that the Study would include public consultation and revert to STDC for further discussion on the results of the Study.

ENVIRONMENTAL IMPLICATIONS

14. The Study and the associated ground investigation works are not designated projects under the Environmental Impact Assessment Ordinance (Cap. 499) and will not cause any adverse environmental impact. We will implement suitable mitigation measures to control any short-term environmental impacts arising from the ground investigation works.

15. The proposed ground investigation works will only generate very little construction waste. We will require the consultants to fully consider measures to

minimize the generation of construction waste and to reuse/recycle construction waste as much as possible in the future implementation of the construction projects.

HERITAGE IMPLICATIONS

16. The Study and the associated ground investigation works 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

17. The Study and the associated ground investigation works will not require any land acquisition.

BACKGROUND INFORMATION

18. Cavern construction is an established technology that has seen continual improvement in its application. Many cavern schemes for various uses have been successfully built around the world with notable examples in Canada, China, Finland, Japan, Korea, Norway, Singapore, Sweden and the USA.

19. Successful examples of facilities housed in rock caverns in Hong Kong include Stanley sewage treatment works completed in 1995, Island West refuse transfer station and Kau Shat Wan explosives depot both completed in 1997. The re-provisioning of the Western Salt-water Service Reservoirs at the University of Hong Kong in rock caverns in 2009 released land for its Centennial Campus development. These projects have demonstrated that rock caverns are valuable resources, while providing added environmental, safety and security benefits for many applications.

20. We included **379DS** in Category B in September 2011.

21. The Study and the associated ground investigation works will not involve any tree removal or planting proposal.

22. We estimate that the Study and the associated ground investigation works will create about 39 jobs (7 for labourers and another 32 for professional/technical staff) providing a total employment of 750 man-months.

WAY FORWARD

23. Members are invited to support our proposal for upgrading **379DS** to Category A. Subject to the support of this Panel, we will seek the endorsement of the Public Works Subcommittee in April 2012 and approval by the FC in May 2012.

**Development Bureau
Drainage Services Department
March 2012**

