For information

Legislative Council Panel on Development

160CD – Happy Valley Underground Stormwater Storage Scheme

PURPOSE

This paper informs Members of a proposal to upgrade **160CD** to Category A, at an estimated cost of $1,065.8 million in money-of-the-day (MOD) prices, for constructing an underground stormwater storage tank with a capacity of 60 000 cubic metres (m^3), a pump house and the associated drainage works at Happy Valley Recreation Ground.

PROJECT SCOPE AND NATURE

2. The scope of works proposed under Happy Valley Underground Stormwater Storage Scheme (the Scheme) includes –

(a) construction of an underground stormwater storage tank with a capacity of 60 000 m^3 and a pump house with a design pumping rate of 1.5 m^3 per second;

(b) construction of about 650 metres (m) long twin-cell box culvert with internal cell dimensions of 2 m high and 4 m wide;

(c) construction of about 70 m long twin drainage pipes of 2.1 m diameter;

(d) modification of an existing box culvert, and construction of a stilling basin[1], an access manhole and associated drainage works;

(e) associated electrical and mechanical (E&M) works; and

(f) reprovision of the sport pitches surface and landscaping works after construction of the underground storage tank.

3. Part of the above works, including 250 m long twin-cell box culvert in item (b) and the item (c) above would be funded and constructed by the Hong Kong Jockey

[1] The stilling basin is to allow flow collected to steady out and for silt trapping.

.

Club (HKJC). The capital funding now sought under **160CD** covers the remainder of the works.

A site layout plan of the Scheme is at **Enclosure**.

4. Subject to approval of the Finance Committee, we plan to commence construction in late 2011 for completion of the works in two phases. Under phase 1, about half of the underground stormwater storage tank, twin-cell box culvert, twin drainage pipes, an access manhole and a stilling basin including the part of works to be constructed by HKJC will be put into operation in early 2015 to bring about early commissioning of the Scheme. The remaining works will be implemented under Phase 2 for completion in early 2018 providing the full storage capacity of 60 000 m^3. The phased works would minimize the number of sport pitches to be closed in each phase and hence disturbance to the public.

JUSTIFICATION

5. During the major rainstorms in August 2000, April 2006 and June 2008, severe floodings occurred at Happy Valley and adjacent areas including Sing Woo Road, Wong Nai Chung Road, Morrison Hill Road, Lap Tak Lane and the Happy Valley Racecourse and Recreation Ground. In these heavily trafficked and densely populated areas, there are limitations to carry out extensive on-line upsizing of the existing drains to relief the flooding problem. On-line upsizing would involve extensive road opening works which not only causes serious disruption to the public but is also practically impossible in some locations due to congested underground utilities. Making reference to the flood storage approach adopted for Tai Hang Tung Storage Scheme and Sheung Wan Floodwater Pumping Station which have successfully alleviated the flooding problem in urban low-lying area with least disturbance to the public, it is proposed to adopt underground stormwater storage scheme at Happy Valley. The Happy Valley Recreation Ground, being the lowest spot in the area, provides the ideal location for implementing the stormwater storage scheme from both land use and hydraulic point of view.

6. The proposed stormwater storage tank underneath the Recreation Ground is encompassed by the race track of the Happy Valley Racecourse. To connect the existing drainage system outside the Racecourse to the proposed storage tank, drains crossing both the race track and the Recreation Ground would need to be constructed. Taking into account the need to minimize disruption to the operation of the tracks and views of HKJC, Drainage Services Department (DSD) developed the current design which posed the minimum disruption to the racecourse operation during construction and it also enhanced the flood protection performance of the Scheme. HKJC welcomes the current design as it minimizes disruption to the operation of the racecourse and public use of the Recreation Ground. Constructing drains across and near to the race track would need to meet stringent HKJC's racing programme and construction requirements to avoid disrupting the horse racing activities. Acknowledging the above benefits, and to be assured that the programme and construction of the drains across and near to the race track would fully meet

HKJC's requirements, HKJC offers to construct this part of the works and at their own cost as a token in support of the project.

7. The proposed underground storage tank to be built at the Recreation Ground will temporarily store part of the stormwater collected from the Recreation Ground and the upstream catchment during heavy rainstorms for attenuating the peak flow through the downstream stormwater drainage systems. After the rainstorms, the stored water will be discharged from the storage tank into an existing box culvert at Canal Road. Upon completion of the works, the main drainage systems in Happy Valley and the adjacent areas will generally have a capacity to withstand a design rainstorm with an intensity of a 50-year return period.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be carried out by DSD to be $1,065.8 million in MOD prices –

			$ million	
(a)	Construction of		546.4	
	(i) underground storage tank and pump house	505.9		
	(ii) twin-cell box culvert	34.2		
	(iii) associated works	6.3		
(b)	E&M works		86.0	
(c)	Reprovision of the sport pitches surface and landscaping works		67.0	
(d)	Environmental mitigation measures		15.5	
(e)	Contingencies		71.4	
	Sub-total		786.3	(in September 2010 prices)
(f)	Provision for price adjustment		279.5	
	Total:		1,065.8	(in MOD prices)

9. The above cost does not include the works comprising sections of the proposed box culvert and drainage pipe underneath or near the race tracks to be constructed and financed by HKJC as mentioned in paragraph 3.

PUBLIC CONSULTATION

10. On 7 December 2010 and 18 January 2011, we consulted the District Works and Facilities Management Committee of Wan Chai District Council (WCDC) and WCDC respectively on the project. WCDC supported the implementation of the project.

11. We consulted HKJC, the Hong Kong Football Association and Hong Kong Ruby Football Union on the project and the programme of temporary closure of sport pitches due to this project. All of them welcomed and supported the project, and agreed to the proposed closure programme. Furthermore, HKJC agreed in principle to undertake the proposed works underneath or near the race tracks and hand them over to DSD for maintenance after completion.

ENVIRONMENTAL IMPLICATIONS

12. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We have completed a preliminary environmental review which concluded that the project will not cause long-term environmental impact. We have included $15.5 million (in September 2010 prices) in the project estimate to implement suitable mitigation measures to control short term environmental impacts.

13. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of temporary noise barriers, quieter construction equipment and frequent cleaning and watering of the site.

14. At the planning and design stages, we have considered ways to optimise the size and shape of the proposed underground drainage works in order 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 facilities[2]. We will encourage the contractor to maximize the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

15. 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

---

[2] 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.

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 construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

16. We estimate that the project will generate in total about 430 240 tonnes of construction waste. Of these, we will reuse about 33 200 tonnes (7.7%) of inert construction waste on site and deliver 386 200 tonnes (89.8%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 10 840 tonnes (2.5%) 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 $11.7 million for this project (based on a unit cost of $27 per tonne for disposal at public fill reception facilities and $125 per tonne[3] at landfills).

HERITAGE IMPLICATIONS

17. There is no existing or proposed historic building partly or wholly within the site areas of the project. However, the City of Victoria Boundary Stone, which is the Government Historic Site; and St. Paul's Primary Catholic School, which is a grade 2[4] historic building, are located within 50 m of the project site boundary. We have consulted Antiquities and Monuments Office (AMO) who confirmed that a Heritage Impact Assessment is not required for this project. Nevertheless, we will incorporate protective measures and monitoring system to minimize disturbance to the adjacent historic structures during the course of the works. We will require the contractor to submit the design and method statement for precautionary measures on protection of the historic structures to AMO for comment before construction. We will also inform AMO the condition of the historic structures before and after the works.

18. Wong Nai Chung Village in Happy Valley was one of the few early villages on Hong Kong Islands. As the site is located closed to the Wong Nai Chung Village and has not been investigated during the development of racecourse, an archaeological impact assessment (AIA) in accordance with Guidelines for Cultural Heritage Impact Assessment has been conducted to ascertain the archaeological impact of the works. The AIA concluded that the site area is considered to have low archaeological potential. Pursuant to the Antiquities and Monuments Ordinance, we will inform AMO immediately in case of discovery of antiquities or supposed antiquities while carrying out excavation.

---

[3] This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at $90 per m^3), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled

[4] Grade 2 historic buildings are those of special merit in Hong Kong. Efforts should be made to selectively preserve the building.

TRAFFIC IMPLICATIONS

19. We have completed a traffic impact assessment. It concludes the impact on traffic would be minimal. We have worked out mitigation measures to minimize any possible disruption to traffic during construction. We will maintain all existing vehicular entry and exit points, pedestrian routes and pedestrian crossing facilities, and also design temporary traffic arrangements according to prevailing site constraints and in compliance with required standards.

20. During the construction period, we will establish a Traffic Management Liaison Group to discuss, scrutinize and review the proposed temporary traffic arrangements. We will maintain close contact with the Transport Department, various public transport operators, the Hong Kong Police Force and relevant government departments to review the situation so as to minimise any disruption.

LAND ACQUISITION

21. The proposed works do not require any land acquisition.

BACKGROUND INFORMATION

22. In October 2009, we upgraded **160CD** "Happy Valley Underground Stormwater Storage Scheme" to Category B of the Public Works Programme.

23. All of the 60 no. of trees within the project boundary will be preserved. The proposed road and drainage works will not involve any tree removal proposal.

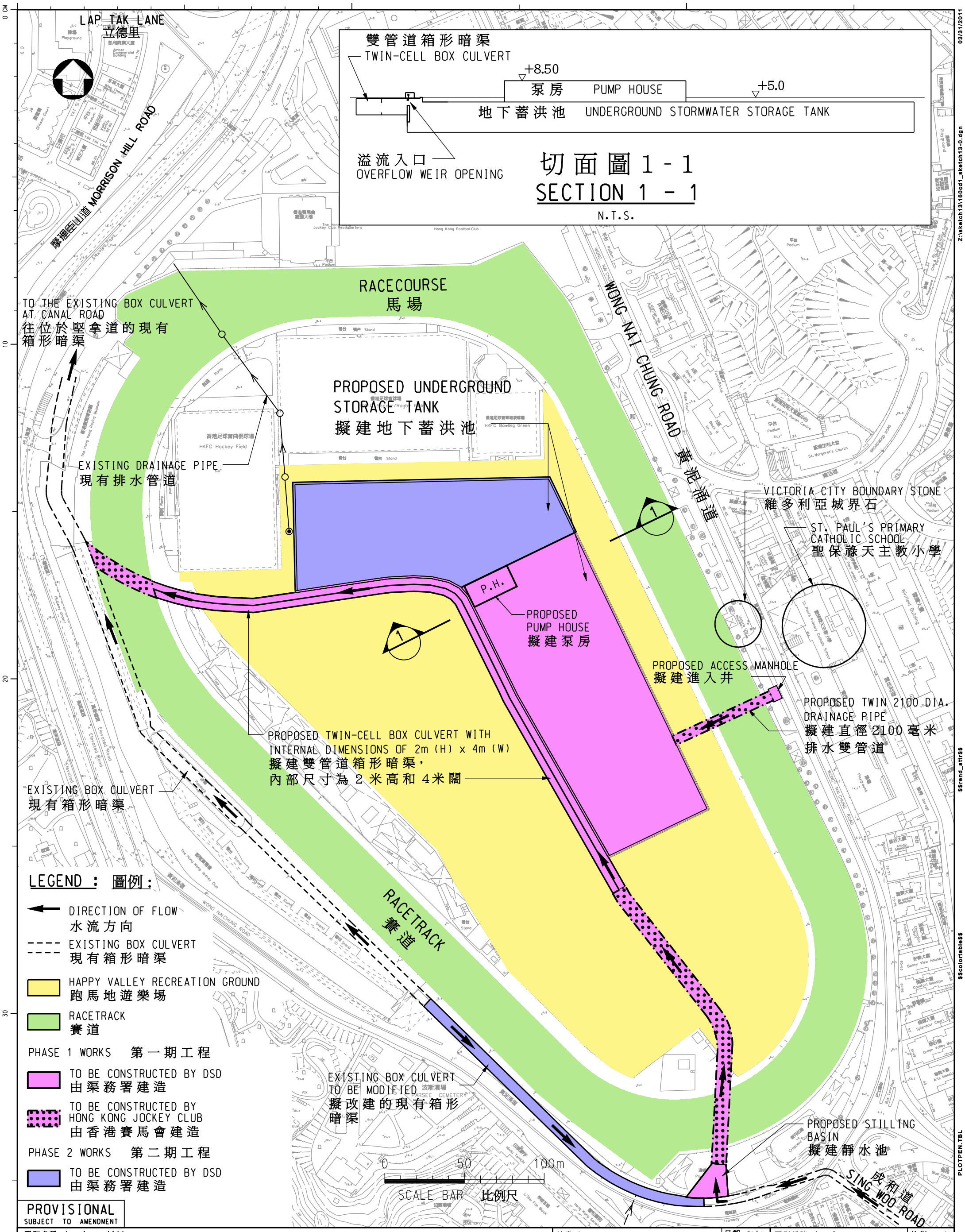
24. We estimate that the proposed works will create about 270 jobs (240 for labourers and another 30 for professional/technical staff) providing a total employment of 14 500 man-months.

WAY FORWARD

25. We plan to seek the support of the Public Works Subcommittee for upgrading **160CD** to Category A in June 2011.

Development Bureau
April 2011

ENCLOSURE 附件



LEGEND : 圖例 :

- DIRECTION OF FLOW 水流方向
- EXISTING BOX CULVERT 現有箱形暗渠
- HAPPY VALLEY RECREATION GROUND 跑馬地遊樂場
- RACETRACK 賽道

PHASE 1 WORKS 第一期工程

- TO BE CONSTRUCTED BY DSD 由渠務署建造
- TO BE CONSTRUCTED BY HONG KONG JOCKEY CLUB 由香港賽馬會建造

PHASE 2 WORKS 第二期工程

- TO BE CONSTRUCTED BY DSD 由渠務署建造

PROVISIONAL
SUBJECT TO AMENDMENT

圖則名稱 drawing title

工務計劃項目第160CD號跑馬地地下蓄洪計劃 - 工程施工安排

PWP ITEM NO. 160CD HAPPY VALLEY UNDERGROUND STORMWATER STORAGE SCHEME - CONSTRUCTION PROGRAMME

繪畫 drawn	C. K. WONG	日期 date	23.02.11
核對 checked	Y. H. LEUNG	日期 date	23.02.11
批核 approved	Y. H. LEUNG	日期 date	23.02.11
部門 office	排水工程部 DRAINAGE PROJECTS DIVISION		

圖則編號 drawing no. 160CD-SK-13

比例 scale N.T.S.

香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

A3 420x297