

**For Information**

**Legislative Council Panel on Environmental Affairs**

**Information Paper on Issues Related to  
the Harbour Area Treatment Scheme, Stage 2**

**Purpose**

In response to requests made by Members at the EA Panel meeting on 22 January 2007 this paper provides additional information to address the following issues relating to the Harbour Area Treatment Scheme (HATS) Stage 2:

- (a) Land issues in relation to HATS Stage 2B;
- (b) Rationale for reviewing the timing for implementation of HATS Stage 2B in 2010-2011; and
- (c) Need for chlorination/dechlorination when the Administration proceeds with HATS Stage 2B.

**Land issues in relation to HATS Stage 2B**

2. The total area of the Stonecutters Island Sewage Treatment Works (SCISTW) is 10.6 hectares of which only about 2.3 hectares scattered over several locations within the site are available for the expansion and upgrading of the treatment facility, including the works to be constructed under Stage 2A. The studies and trials recommended by the International Review Panel in 2000 concluded that even a very compact treatment plant could not be accommodated on the limited available land within the existing site. As an alternative, the studies identified an adjacent site zoned for “Other Specified Uses (OU)” annotated “Container Related Uses” (Annex A). As a result, it was proposed that the biological treatment plant under Stage 2B should be constructed underground to allow the “container related” facility to be constructed above it, so maximizing the efficient use of valuable land.

3. Although the land for Stage 2B at Stonecutters Island was earmarked for the biological treatment plant, to realize the objective of co-development complex planning, interface and development issues need to be sorted out. We

may need to submit a planning application for consideration by the Town Planning Board for an “Amendment of Plan” under Section 12A of the Town Planning Ordinance to allow the permanent co-development use of the site. In order to do that, we need to finalize the essential fundamental details concerning the future co-development use. This is a complex process and discussions within Government are still ongoing. Our aim is to resolve all the issues in time for the review of the timing of HATS Stage 2B, scheduled for 2010-11 (see below).

### **Rationale for reviewing the timing for implementation of HATS Stage 2B in 2010-2011**

4. Based on the findings of the Environmental and Engineering Feasibility Studies (EEFS) recommended by the International Review Panel the Government has accepted the need for HATS Stage 2B ultimately, when sewage flows, and hence the pollution loading, build up in the future. While the EEFS concluded that chemically-enhanced primary treatment (CEPT) and biological treatment of all HATS sewage is essential for protecting the water quality of the harbour in the long term, and the intention of the Government is to take the recommendation forward, a phased approach to the implementation of Stage 2, with completion of the first phase, i.e. Stage 2A, in 2014 and a review of the timing of Stage 2B in 2010-11, is considered necessary bearing in mind the following:

- There are uncertainties about the rate of future population growth, and hence sewage flow build-up, in the harbour area;
- The capital investment for a biological treatment plant of such a scale will be huge and it will require additional land allocation; also the operating cost for Stage 2B is estimated to be about \$700m per year, which would have to be borne by users of sewage services; and
- The provision of CEPT and disinfection for the whole HATS catchment will enable us to achieve most of the Water Quality Objectives (WQO).

5. As previously advised in CB(1) 222/05-06(01) distributed in November 2005, the Government will regularly review the planning parameters

and the results from the water quality monitoring that keep track of water quality trends. The findings so far indicate that actual population and sewage flow increases at present are rather modest and there is no indication that there would be a sudden acceleration in either, that might result in a sudden deterioration in water quality. Based on the latest information compiled under the HATS Stage 2A Environmental Impact Assessment (EIA) study the current sewage flow estimate for the “ultimate” development scenario is 2.45 Mm<sup>3</sup>/day, some 13% less than that estimated in the EEFS.

6. The CEPT currently employed at SCISTW has performed reliably since the plant’s commissioning in 1997. It removes 80% of suspended solids, and 70% of organics (in terms of five-day biochemical oxygen demand) from sewage, and such performance is equivalent to 80% of that of a biological treatment process. The same process will be adopted for HATS Stage 2A which, when completed in 2014, will provide treatment to the untreated sewage being at present discharged from the northern and western coasts of Hong Kong Island into the harbour. At that time, we believe that there will be further improvement in our harbour water quality.

7. In view of the good performance of the SCISTW and the lower-than-expected population growth rate it currently appears unlikely that further upgrading of the treatment level would be needed before the latter half of the next decade. It is the Government's plan to provide Stage 2B as the final configuration for HATS. Taking into account the information in hand concerning population growth, sewage flow and changes in water quality, the need for gathering additional field data on the planning parameters for Stage 2B, and the length of time needed for going through the pre-construction processes and actual construction of Stage 2B, a review should be conducted in 2010/11 to take advantage of the additional data collected while allowing sufficient lead time for putting Stage 2B in place when it will be needed.

8. To ensure public awareness of the planning process, we have undertaken to report regularly to the Advisory Council on the Environment (ACE) on the levels and trends of the key parameters and seek the Council's advice as to whether we need to adjust the date for a possible review.

**Need for chlorination/dechlorination when the Government proceeds with**

## **HATS Stage 2B**

9. The completion of HATS Stage 1 brought about a general improvement in harbour water quality, with significant improvements particularly in the eastern part of the harbour. However, the western waters deteriorated due to the lack of disinfection facilities in HATS Stage 1. A large volume of undisinfected effluent is discharged through a single outfall, thereby affecting the water quality of the waters around the outfall and beyond. This discharge of undisinfected effluent coupled with the existing local discharges of untreated sewage resulted in the closure of four more beaches in the Tsuen Wan area following the full commissioning of the HATS Stage 1 in December 2001.

10. The results of water quality modeling conducted under the on-going EIA Study for the provision of disinfection facilities for HATS Stage 2 have shown that bacteria levels in the western harbour and the Tsuen Wan beaches would further deteriorate as a result of the projected increase in sewage flows in the harbour area and the commissioning of Stage 2A if disinfection is not provided. The need for disinfection has been clearly demonstrated.

11. Regarding the second phase of Stage 2, the advance disinfection facilities (ADF) EIA water quality modeling results show that with the implementation of Stage 2B, compliance with the relevant WQO at most of the beaches without the provision of disinfection should be achievable. However, it is important to note that modeling cannot fully predict the high variability of some factors (e.g. salinity, natural ultra violet radiation and wind) that affect the density of *E. coli* in the receiving waters. Therefore, planning for disinfection is necessary in order to ensure consistent compliance with the WQO. In fact, the Report of the Public Accounts Committee (PAC) of the Legislative Council on the Director of Audit's Report No. 42 (2004), requested the Administration to *"take into account the high bacteria level of the effluent discharged from the Stonecutters Island Sewage Treatment Works in planning the further stages of HATS, and in evaluating the options for providing a permanent disinfection facility in the long term"*.

12. Following up on the PAC report the Drainage Services Department commissioned consultants to examine the different options for provision of a disinfection facility for HATS and to conduct an EIA. Various disinfection technologies have been considered but the only one that can be installed

reasonably quickly (within two to three years) so as to allow early improvements in water quality and hence early reopening of the Tsuen Wan beaches, is chlorination followed by dechlorination. While the environmental impact assessment for this technique has yet to be concluded, all the indications are that the impacts on water quality should be acceptable.

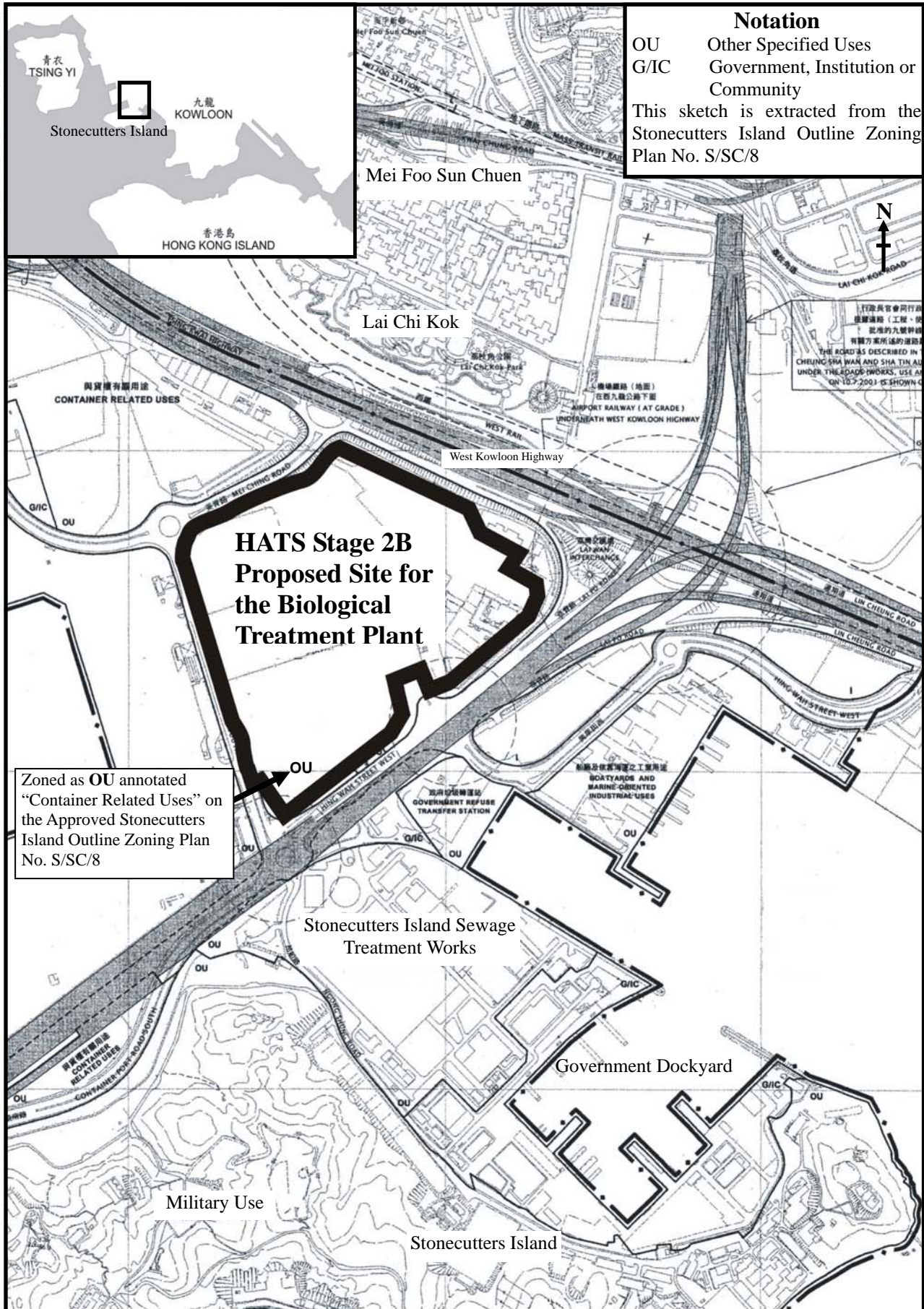
13. While the results of the studies conducted to date are encouraging, whether chlorination/dechlorination will indeed be adopted as the disinfection technology will ultimately depend on the outcome of the Environmental Impact Assessment Ordinance (EIAO) process when the final report of the ADF EIA study is submitted to the EIAO Authority for approval later this year. A period for public comment is part of the EIAO process and the advice of ACE will be sought on the acceptability of the proposed disinfection technology before the Authority makes a final decision.

## **Conclusions**

14. The Administration is confident that the land issues surrounding the co-use of the land for HATS Stage 2B are not insurmountable but the many interfacing issues would take time to resolve. The Administration is committed to the implementation of biological treatment at the co-use site adjacent to the existing SCISTW and the exact timing for mounting Stage 2B will depend on the changes in the planning parameters which are being monitored closely. The phasing of Stage 2 will result in further improvements in the water quality of Victoria Harbour and early re-opening of the Tsuen Wan beaches which were closed as a result of HATS, while maximizing cost-effectiveness under the publicly-supported polluter-pays principle.

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Environmental Protection Department  
March 2007



**HATS Stage 2B – Land Requirement for the Biological Treatment Plant**