

For discussion

**Legislative Council Panel on Home Affairs
Management and Maintenance of the Hong Kong Stadium Turf Pitch**

Purpose

This paper reports on the management and maintenance of the Hong Kong Stadium (the Stadium) turf pitch, and provides an update on the review of and the related improvement works to the pitch.

Background

2. The Stadium (formerly known as the Government Stadium) was built in 1952. It was redeveloped by the Hong Kong Jockey Club (HKJC) in 1992 and re-opened in 1994, when the HKJC engaged Wembley International to operate the Stadium. In 1998, the then Urban Council took over the management of the Stadium and carried out re-turfing work. The Stadium was handed over to the Leisure and Cultural Services Department (LCSD) following the latter's establishment in 2000.

Usage of the Stadium

3. The Stadium is the main venue for staging major international sports events, including the annual Hong Kong Rugby Sevens and international football matches. The Stadium is also used for holding major community, charity and religious events, such as the Hong Kong Scout Rally, reunification celebration events, the kick-off ceremony of Walk for Millions and evangelical services. During the last playing season (i.e., from September 2012 to August 2013), over 30 football matches, the Hong Kong Rugby Sevens 2013, the British & Irish Lions Hong Kong 2013 (Lions Match) and four major community activities were held at the Stadium. Maintenance work is carried out on non-event days to keep the turf in good condition.

4. The Stadium management normally reserves at least seven days between matches for turf repair and maintenance. If two matches are held on the same day, restoration work will take no less than 14 days before the next scheduled activity takes place. Applications are received from the main users of the Stadium, including the Hong Kong Football Association (HKFA) and the Hong Kong Rugby Football Union (HKRFU) prior to the start of the annual playing season, and are processed on the basis of these criteria as far as practicable. Nevertheless, since the schedules of participating teams of major events and other considerations such as television broadcasting requirements need to be taken into account, a more frequent schedule of events may occur occasionally.

The Current Arrangement for Turf Maintenance

5. Routine turf maintenance of the Stadium is carried out by LCSD staff. There are established maintenance procedures, including watering and mowing depending on the weather and growing conditions of the grass, fertilising and aerating the soil every fortnight, and applying pesticides once a month. However, most of these maintenance works cannot be done on rainy days. Turf maintenance is also carried out after each match depending on the damage caused. The pitch currently uses Bermuda grass, a warm-season turf species that grows slowly or even becomes dormant in winter. As a complement, ryegrass which is a cool-season turf species is also used in winter months to maintain the quality and coverage of the turf. To achieve better results in the changeover of seasonal grasses, the Stadium is normally closed in winter (from December to January) and summer (from June to August) for large-scale turf restoration work to facilitate turf recovery. All members of the six-man team responsible for maintaining the turf of the Stadium have either received in-house horticulture training or attended training courses conducted by turf experts commissioned by the department. Their work is supervised by officers of the Leisure Services Manager Grade at the Stadium, two of whom have obtained professional qualifications in turf maintenance and management.

6. To enhance the effectiveness and efficiency of turf restoration after major events and to further improve the quality of the pitch, LCSD commissioned an independent consultant in June 2012 to advise on its turf maintenance work. Over the past year, the Stadium staff has undertaken maintenance work in accordance with the recommendations and technical advice of the consultant. The quality of the pitch turf met the requirements of the International Rugby Board when two major rugby events, namely the Hong Kong Rugby Sevens 2013 and the Lions Match, were held in March and June this year. The damage caused by the two matches to the turf was relatively slight, compared to that in previous years.

Football Matches held in July 2013

7. LCSD noted in September last year that the HKFA might organise international friendly football matches in July this year. It was subsequently confirmed in January this year that four matches under the Barclays Asian Trophy (BAT) would be played by three English Premier League Teams and one local football team on 24 and 27 July, whilst another exhibition match between Manchester United and Kitchee would be played on 29 July. Given the packed schedule of five matches over six days and the fact that July is a typhoon and rainy season in Hong Kong, the department expressed its concerns in writing to the HKFA that the turf might not be able to recover in such a short period of time and therefore could not guarantee that the turf quality would fully meet the organiser's expectation. Considering that it was a valuable opportunity for four English Premier League Teams to come and play in Hong Kong at around the same time, the HKFA decided to stage the events as scheduled. In order to facilitate the matches, LCSD extended the turf consultant contract from June to mid-August this year so that expert advice would be available

for turf restoration after the Lions Match on 1 June and during the series of football matches in late July.

8. After the Lions Match on 1 June and on the advice of the consultant, the Stadium staff carried out enhanced maintenance work by aerating the soil more frequently to improve permeability and drainage and stepping up the pitch levelling work in June and July. The aim was to get the pitch better prepared for the five matches to be held in late July. Unfortunately, the rainfall this summer (particularly in May and June) in Hong Kong was particularly high. A large amount of water accumulated in the top soil of the turf. There was a heavy downpour on 24 July 2013 (Wednesday), the first day of the series of BAT matches. After discussion with the three English Premier League teams, the organiser of the event, i.e., the HKFA, decided that the match should go ahead as the Stadium was at capacity with nearly 40 000 spectators at that time; in addition, there was an overseas audience waiting for the broadcast of the match. The match was eventually played on a saturated pitch under heavy rain, causing serious damage to the turf.

9. The torrential rain continued for two days after 24 July. On the advice of the LCSD turf consultant, the HKFA and the English Premier League representatives, the Stadium staff took immediate remedial measures by aerating the soil to improve the drainage of the turf, replacing the topsoil of the turf which had become sodden and muddy with sand and covering the pitch with a tarpaulin to avoid further damage to the turf pitch. Despite these efforts, it was impossible to restore the turf within one or two days. Under great pressure to complete the large-scale topdressing work under a tight time-frame, the Stadium staff failed to sieve impurities from the sand thoroughly. When this problem was detected, LCSD immediately deployed additional hands to remove the impurities from the pitch. The remaining two BAT matches were held on 27 July as scheduled. As weather conditions improved on 28 and 29 July, the Stadium staff made considerable efforts to restore the pitch. Although the turf had not been restored to a desirable state, the organiser considered it suitable for staging matches and the Manchester United match was held on the evening of 29 July.

Possible Factors Causing the Problem

10. After the match in late July, LCSD immediately reviewed the incident and the pitch problem of the Stadium, and followed up on various improvement works. The conclusion was that there was a combination of unfavourable factors leading to the undesirable pitch condition for the football matches in July 2013. The main factors included the state of the turf pitch, the prolonged adverse weather conditions, the packed event schedule, and the ability of Stadium staff to respond to unforeseen circumstances during major competitions.

(a) State of the turf

11. As pointed out by the LCSD turf consultant, limited sunlight exposure due to the physical environment and the roof cover over the East and West flanks of the Stadium have hindered the growth and quality of the turf. The pitch has been used

for 15 years since it was laid in 1998, and with the passage of more than a decade, a considerable amount of organic matter has accumulated in the top soil, leading to poor surface drainage, which in turn has rendered the pitch less durable and more susceptible to damage in adverse weather conditions. The pitch can only cope with normal summer rainfall and a relatively even booking schedule (allowing at least seven days between two matches for turf maintenance and restoration). After prolonged rainfall, excessive surface water cannot drain away quickly, making the pitch unable to cope with a tight schedule of events.

(b) Prolonged adverse weather conditions

12. The rainfall in Hong Kong this summer was particularly high with 509.3 mm and 438.6 mm recorded for May and June respectively, which was almost double the rainfall of 277.7 mm and 261.5 mm for the same period last year. Heavy and persistent rain not only affected the schedule of routine turf maintenance, but also undermined the effectiveness of the maintenance and restoration works carried out on the pitch during that period. Moreover, the continuous and heavy downpour between 22 and 27 July, i.e., from two days before up until the completion of the BAT matches, left puddles of water on the pitch. The Hong Kong Observatory recorded the highest rainfall of the month between 24 and 26 July, ranging from 30 mm to 70 mm per day and totaling 150 mm. Thunderstorm warnings were issued during the same period. Under these adverse weather conditions, rain water accumulated in the aged top soil could not drain away in time, and the pitch quickly became saturated and muddy during the matches.

(c) Packed schedule of events

13. Five football matches were played at the Stadium in six days in late July. In addition to the packed schedule, the matches were held in the rainy season when the Stadium was normally closed for major maintenance work. The pitch was not able to recover properly with such a schedule.

(d) Ability of venue staff to respond to emergencies

14. LCSD agree that there is a need to improve the ability of its venue staff to respond to emergencies during major competitions, enabling them to take remedial measures and prepare the manpower, equipment and materials for such measures. Moreover, the incident manifested the inadequacy of the Stadium in terms of suitable manpower and equipment to cope with emergencies that may occur during major events.

Review and Improvement of the Turf Pitch

15. To address the above problems, the LCSD is now considering improvements to the management and maintenance of the turf pitch in three areas: to formulate short-, medium- and long-term measures to enhance the quality of the turf;

to review the hiring arrangement for and scheduling of events with a view to striking a better balance between maintaining the quality of the turf and meeting user demand; and to review the manpower arrangement for the management and maintenance of the turf pitch, enhance the technical support and training, and strengthen the emergency response capability of the Stadium staff.

(a) *Enhancing pitch quality*

16. To enable local First Division football matches to be played at the Stadium this season, LCSD carried out intensive restoration work as a short-term improvement measure immediately after the matches in July. After working on the restoration for over a month, the pitch quality was restored to a level that could meet the requirements of the First Division matches and the Stadium reopened on 21 September. By late October, four matches had been held at the Stadium, including an international football match on 15 October between Hong Kong and United Arab Emirates in the AFC Asian Cup 2015 Qualifiers. The HKFA and the football teams were generally satisfied with the turf quality after the restoration work.

17. As for the medium- and long-term improvements, LCSD set up an Expert Group on the Hong Kong Stadium Turf Pitch (Expert Group) in late August to work on recommendations to improve the quality of the turf. The Expert Group comprises local and Mainland turf experts, representatives of the HKJC, the HKFA, the HKRFU and relevant government departments. The composition and terms of reference of the Expert Group are at the **Annex**. Over the past two months, the Expert Group has convened two meetings, conducted a site inspection of the Stadium and attended two briefing and exchange sessions. Expert Group Members discussed in detail various issues, including the current condition of the turf, the management and maintenance approach, and various medium- and long-term improvement options, including replacing the top layer of the turf pitch, reconstruction of the entire turf system (including the drainage and irrigation systems), and adopting different grass species and designs of turf system. Having studied in detail test data on the current condition of the stadium pitch and its expected usage, the Expert Group recommended that, as a thorough improvement measure and to enhance the long-term quality and durability of the pitch, the entire pitch should be reconstructed, including redesigning and replacing the drainage and irrigation systems, and replacing the entire soil structure and the turf. Consideration should also be given to make use of available advanced technology to install ancillary facilities such as growth lights and ventilation systems to promote healthy turf establishment. As the reconstruction would involve an in-depth and comprehensive technical study of the design of the turf pitch, construction techniques and the choice of grass species, the pre-construction preparatory work would take longer than just replacing the top layer of the turf pitch. Taking into account factors such as the timing of major sports events to be held at the Stadium (e.g., the Hong Kong Rugby Sevens) and the optimal season for construction work, the Expert Group estimated that reconstruction could start in 2015 at the earliest. The experts considered that if a more aggressive approach to turf maintenance were adopted, and hiring arrangements and the scheduling of events were handled with caution, the

Stadium pitch should be able to cope with the major sports events to be held in the coming year or so.

(b) Venue hiring arrangement and scheduling of events

18. Regarding the hiring arrangements for the venue, LCSD aims to give priority to maintaining the quality of the Stadium turf pitch. In this regard, the department will meet the main users of the Stadium to discuss the scheduling and frequency of events and activities, the months for holding events, and the conditions of use of the venue so as to minimise the damage to the turf. The aim is to avoid causing excessive damage to the turf or compromising the turf maintenance work whilst seeking to satisfy the needs of different parties in the scheduling of events. LCSD is exploring specific measures and updating the conditions of use of the venue. All users of the Stadium will be required to take feasible and reasonable measures to prevent unnecessary damage to the turf. The measures include: avoiding as far as possible the erection of stages and other structures on the turf pitch for community events; avoiding as far as possible hiring of the Stadium for sports events during the rainy season in July and August and during the large-scale turf maintenance work carried out in summer so as not to affect the progress of turf recovery (for sports events which have to be held during the above periods, open training sessions should not be held in the Stadium as far as practicable); and scheduling evenly the events to be held during the year as far as possible so as to allow sufficient time for turf repair and restoration between matches. LCSD will submit proposed improvement measures to the Expert Group for further discussion and consultation with the relevant organisations.

(c) Manpower arrangement, technical support and response to emergencies

19. LCSD will improve the management of the turf pitch on various fronts, such as setting up a specialised in-house team to provide further professional advice and technical support for the maintenance of all the natural turf pitches managed by the department. LCSD will also provide staff with more in-depth training courses on turf maintenance and purchase advanced equipment and tools to enhance turf maintenance work. Meanwhile, the department is conducting a review of the manpower and organisation structure of the Stadium management to meet the requirements for the management and maintenance of the turf pitch in future. Complementing these will be a review of the contingency plans of the Stadium, which aims to enhance the ability of venue staff to respond to emergencies concerning the turf pitch during major events.

Way Forward

20. In response to the recommendations of the Expert Group as outlined in paragraph 17 above, LCSD will follow up on the specific arrangements for the full reconstruction of the turf system of the Stadium pitch, including exploring the time

required for the reconstruction work, its estimated cost and implementation schedule. The department will continue to consult the Expert Group on the detailed arrangements, with a view to expediting the planning of and preparation for the reconstruction works and starting the works as early as possible. When drawing up the schedule of works, the department will seek to minimise the impact on major large-scale sports events held at the Stadium. Meanwhile, the Stadium has adopted an enhanced turf maintenance programme and a stricter approach to scheduling events and activities. LCSD will keep the situation under review to ensure that the quality of the turf pitch can meet the requirements for major sports events in the interim.

Advice Sought

21. Members are invited to note the content of this paper and offer their views on the management and maintenance of the turf of the Stadium.

**Home Affairs Bureau
November 2013**

**Expert Group on the Hong Kong Stadium Turf Pitch
Terms of Reference**

- (1) To advise on the **medium-term improvement measures** for the turf pitch of the Hong Kong Stadium so that a complete re-turfing of the pitch can be carried out in the second quarter of 2014; and
- (2) To advise on the **long-term improvement measures** for the turf pitch, including the need for re-designing and replacing the existing pitch system.

Expert Group on the Hong Kong Stadium Turf Pitch Membership

Chairman

Director of Leisure and Cultural Services

Official Members

Assistant Director of Leisure Services (2)

Assistant Director of Electrical and Mechanical Services (2)

Chief Property Services Manager (1), Architectural Services Department

Chief Leisure Manager (Passive Amenities), Leisure and Cultural Services Department (LCSD)

Non-Official Members

Professor CHAU Kwai-cheong

Dr Eric LEE Yin-tse

Professor Jimmy Zhang Ju-min

Mr John Ridley, Director of Racing Operations / Mr Pako Ip, Executive Manager (Tracks), Hong Kong Jockey Club

Mr Mark Sutcliffe, CEO of Hong Kong Football Association

Mr Robbie McRobbie, Head of Rugby Operations, Hong Kong Rugby Football Union

Secretary

Senior Staff Officer (HQs) of LCSD