

Hong Kong Jockey Club

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**Main Arena of the 2008  
Olympic Equestrian  
Event**

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Executive Summary

Hong Kong Jockey Club  
**Main Arena of the 2008 Olympic Equestrian Event**  
Environmental Impact Assessment Report  
Executive Summary

December 2005



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ST/R/S/HK/022	Tentative Layout Plan

## 1. INTRODUCTION

### 1.1 Scope of EIA Study

Ove Arup & Partners (Arup) was commissioned by the Hong Kong Jockey Club (HKJC) to undertake an Environmental Impact Assessment (EIA) for the Main Arena of the 2008 Olympic Equestrian Event in accordance with the requirements of the Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO) and the study brief (Ref No. ESB-136/2005). The scope of the EIA study includes the assessments of air quality impact, noise impact, water quality impact, waste management implications and landscape & visual impact during construction / reinstatement and operational phases. The site selection, construction methodologies, requirements of EM&A, and environmental outcomes of the Project have also been detailed in the EIA report.

In accordance with item O.7, Part 1, Schedule 2 of EIAO, the Main Arena for 20,000 spectators is a Designated Project (DP) under the category of “*an outdoor sporting facility with a capacity to accommodate more than 10,000 persons*”. Table 1-1 gives an account of the DP and non-DP parts of this study and Drawing No. ST/R/S/HK/022 shows the project layout plan on the site.

**Table 1-1:** DP and non-DP parts of the EIA

Designated Project	Non-Designated Project
Main Arena for 20,000 spectators	Logistic Compound, Food & Merchandise, Spectator Entry & Broadcast Compound, Stable Complex (including a veterinary), Various Training Arenas

### 1.2 Site Selection

A number of alternative sites for staging the Equestrian Event have been considered during the site selection stage. The sites having been considered include:

- A number of green field sites including the Old Kai Tak Airport
- Kau Sai Chau Golf Course
- Happy Valley Racecourse
- Penfold Park and Hong Kong Sports Institute (HKSI)
- Beas River Country Club in association with Hong Kong Golf Course (HKGC)

These sites were evaluated against the requirement specified by IOC, FEI and BOCOG, respectively. After a comprehensive review and detailed inspection of the sites, the following combination of sites were selected for staging the equestrian event in Hong Kong:

- HKSI in association with Penfold Park as the Core Venue for Dressage and Show Jumping; and
- Beas River Country Club in association with HKGC as the venue for Cross Country event.

### 1.3 Description of Project

The Project Proponent proposes to construct and operate a Main Arena with the capacity to accommodate about 20,000 spectators and supporting back of house facilities for the Olympic Equestrian Events at HKSI.

The venues will be operational for one month during the main Olympic event, with the competition expected to last from between 10 to 14 days. 14 days after the Olympic Events, the Paralympic competition will be staged, which will last for a few days. The Paralympic Event is open to paid spectators estimated to be less than 10,000.

The 2008 Olympic and Paralympic Equestrian Events would be staged on 3 sites in Hong Kong. Apart from HKSI, the existing Penfold Park and Hong Kong Golf Club would also be converted to Event Venues. Stables and training facilities will be provided on the Penfold Park site whereas HKGC will be converted for the Cross-country Event.

The projects at Penfold Park and HKGC were confirmed to be exempted designated projects and statutory submissions under EIAO would not be required if the proposed works on these two sites do not constitute a material change.

Since the Penfold Park site is located adjacent to the proposed Project site, cumulative impacts arising from the activities on the Penfold Park site during construction / reinstatement and operational phases were assessed.

#### 1.4 Project Timetable

One year before the actual Olympic Events, the site will be occupied for the Test Event, which is used by all divisions of the Olympic Organising Committee to test their organisational capabilities for the Games and Event Management to trail the equine facilities and the footing (riding surface) of the Main Arena, Stables and Training Facilities. These mock up events are known as the ‘Test Event Mode’, and limited public access will be given.

The implementation of the proposed Project is scheduled from July 2006 to January 2009. Table 1-2 gives the tentative project timetable and phasing.

**Table 1-2:** Project timetable and phasing for the Project

Task	Start	Finish
Pre- Test Event Construction	July 2006	June 2007
Test Event	August 2007 (2 weeks)	
Post Test Event Construction	September 2007	June 2008
Olympic Event	August 2008 (2 weeks)	
Paralympic Event	September 2008	
Reinstatement of HKSI	October 2008	January 2009

## 2. AIR QUALITY IMPACT

### 2.1 Construction / Reinstatement Phase

Construction activities will involve general site formation; drainage and sewerage works; utilities services, roadworks and horse walkways construction works; and construction of temporary Main Arena, training arena and stables. Construction dust impact was assessed to be minor and could be effectively controlled by implementing the procedures and requirements specified in the Air Pollution Control (Construction Dust) Regulation.

Cumulative construction dust impacts caused by concurrent projects have been assessed, based on the latest information. The potential cumulative impacts from the modification works in Penfold Park for the Olympic Event are considered to be minor and insignificant. With the

implementation of the effective dust suppression control and good site practice, adverse cumulative construction dust impact is not anticipated.

## **2.2 Operational Phase**

### **2.2.1 Vehicular Emissions**

Operational air quality impact due to increased vehicular emissions as a result of increased traffic volume is not expected given that the 20,000 spectators will arrive at the venue by public transport, which is substantially less than the 50,000 spectators that attend the Sha Tin Racecourse on a typical racing day, noting no horse racing will take place at Sha Tin during the Olympic events.

### **2.2.2 Odour Impact from Stables**

An odour patrol survey was conducted on existing stables around Sha Tin Racecourse by specialists from the Polytechnic University. The results of the survey concluded that odour was insignificant at a distance of approximately 100m from the existing stable boundary. Given the smaller scale of the new Stable Complex and the greater separation distance to the nearest ASR (more than 250m), it is concluded that the potential odour impact from the new Stable Complex will be insignificant. In addition, the full-enclosure design of the proposed stable and the installation of odour removal system, including carbon filter at the exhaust of ventilation system of the new Stable Complex will further eliminate any potential of odour impact. It is concluded that the cumulative odour impact caused by the new stables within the study area will be insignificant.

## **2.3 Residual Air Quality Impact**

With the implementation of appropriate dust mitigation measures and stable management practices, no residual air quality impact is anticipated during the construction / reinstatement and operation phases of the Project.

## **3. NOISE IMPACT**

### **3.1 Construction / Reinstatement Phase**

Potential impacts on Noise Sensitive Receivers (NSRs) during the construction phase will arise mainly from Powered Mechanical Equipment (PME) to be operated. The construction works would include general site formation, drainage, sewage work and construction of the temporary Main Arena, training arena and the stable complex.

Assessment results indicate that construction noise impacts at some of the NSRs would exceed the criteria under “unmitigated” scenario. Suitable noise mitigation measures are therefore proposed in the EIA study to minimise the construction noise impact. These include:

- Good site practices to limit noise emissions at the source;
- Use of quiet plant and working methods;
- Use of site hoarding as noise barrier to screen noise at low level of NSRs;
- Use of movable noise barriers to screen noise from relatively static PMEs; and
- Scheduling of construction works outside school examination periods in critical area.

With the implementation of the above recommended mitigation measures, the predicted construction noise level will be reduced to within the noise criteria.

Cumulative construction noise impacts caused by concurrent projects have been assessed, based on the latest information. The cumulative impacts due to the modification works in Penfold Park for Olympic Equestrian Event are not significant. Hence, no additional mitigation measures are required under the Project.

## **3.2 Operational Phase**

### **3.2.1 Fixed Noise Sources**

Fixed noise sources during operational phase are Mechanical Ventilation and Air-Conditioning (MVAC), Air Handling Unit (AHU) and Chiller Plant. It is anticipated that these fixed noise can be adequately controlled by the installation of acoustic silencers. The detailed design should also incorporate the following good practice in order to minimise the operational noise nuisance on the neighbouring NSRs:

- Louvres should be orientated away from adjacent NSRs where possible, preferably onto Sha Tin Racecourse which are less sensitive; and
- Direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosures should be allowed for in the design.

### **3.2.2 Crowd Noise and Public Address (PA) System**

Significant crowd noise from the competition at the Main Arena is not anticipated due to the generally quiet nature of the equestrian events. The assessment is based on the assumptions that the Main Arena would only be used for equestrian event (excluding activities, such as concerts, involving the use of large-scale sound amplifying system) and the equestrian competition will not start earlier than 0700hr and will not extend beyond 2300hr. The detailed design of PA system should incorporate the following practice in order to minimize any impact on the neighboring NSRs.

- To use a cluster of small power loudspeakers instead of a few large power loudspeakers;
- To use directional loudspeakers and orientate them to point towards the audience and away from the nearby noise sensitive receivers; and
- To include a “Limiter” device in the PA system to restrict the upper bound of the output sound level.

## **3.3 Residual Noise Impact**

Construction / Reinstatement noise and Operational noise arising from the Project can be mitigated by implementing the proposed mitigation measures. Residual noise impacts are not anticipated. In order to ensure compliance of the operational noise with the TM’s stipulated noise standard, the requirement for carrying out a noise commissioning test for all major fixed noise sources should be included in the Contract Document.

## **4. WATER QUALITY IMPACT**

### **4.1 Construction / Reinstatement Phase**

Potential water pollution sources have been identified as construction runoff, sewage from site workforce and drainage diversion. With the implementation of the necessary and proper site controlling measures, no adverse water quality impact is anticipated.

Construction activities would be carried out concurrently at Penfold Park for the 2008 Olympic Equestrian Event. Site control measures to be in place on the Penfold Park site to control site runoff and sewage from workforce would be virtually the same as those to be adopted for the HKSI site.

### **4.2 Operational Phase**

There would be no increase in runoff due to the increase in permeability as there would be no change in catchment area and the total impermeable area. The existing drainage downstream of the proposed connection will be upgraded to the current design standard to ensure a sufficient capacity to cater for the surface runoff from the site. A low flow interceptor system will be provided to intercept the first foul flush of the surface runoff from the proposed stables, thus improving the water quality of the effluent to Shing Mun River Channel. The Catchment area of the low flow interceptor drainage system covers the area of the Main Stable Complex but not the temporary facilities of competition arena, holding arena, warm-up arena, etc. as they would be reinstated. Sand traps would also be provided to prevent the siltation of the drainage system.

Temporary toilets would be provided during the operation period of the Olympic Event. Sewage from these temporary toilets will be conveyed to existing sewerage system by existing sewers on the HKSI site. A new sewer running along the access path of Shing Mun River Channel is proposed to convey sewage from the new stables to the existing public sewers.

With the implementation of the recommended measures, no adverse water quality impact is anticipated during the operational phase of the Project.

In addition, the turf management plan currently adopted by Penfold Park would remain unchanged during the period. No new chemicals such as fertilizers and pesticides would be introduced on the site. Therefore, no cumulative water quality impact is anticipated as a result of the concurrent projects.

### **4.3 Residual Water Quality Impact**

With full and strict implementation of the recommended mitigation measures for drainage and sewerage system, no unacceptable residual impacts on the water quality are anticipated.

## **5. WASTE MANAGEMENT IMPLICATIONS**

### **5.1 Construction / Reinstatement Phase**

The quantity and timing for the generation of waste during the construction / reinstatement phase have been estimated. Assessment result shows that only a limited amount of C&D waste will be generated. The waste management implications arising from the Project is therefore considered not significant. Measures, including the opportunity for on-site sorting and reusing excavated fill materials (stored in stockpiles) are recommended to minimise the surplus disposal off-site.

Recommendations have been made for the Contractor's implementation during the construction / reinstatement phase to minimise waste generation and any off-site disposal.

## **5.2 Operational Phase**

The types and quantities of waste that would be generated during the operational phase have been assessed. Assessment result shows that only a limited amount of waste would be generated from the new stables and by the spectators during the event. With the implementation of proper waste management procedures, the waste management implications of the Project would only be of short term and insignificant.

## **5.3 Residual Impacts**

With the implementation of recommended mitigation measures, adverse residual waste management implications are not anticipated for both the construction/reinstatement and operational phases.

# **6. LANDSCAPE AND VISUAL IMPACTS**

## **6.1 Landscape Impacts**

Impacts on landscape resources will be acceptable. The only notable impacts will be the loss of turf lawns during the construction and operational phases. This will be partially mitigated in future when the turf of the Athletics Arena is reinstated. Approximately 33 trees will require felling, while 53 will be transplanted. In total 628 trees will be retained, including the three trees with diameters at breast height over 1m. To compensate for the loss of 33 trees due to felling, more than 80 new trees will be planted. Beneficial impacts are expected by enhancing landscape areas and the installing synthetic sports fields after the Paralympic Event.

Impacts on character of landscapes will be acceptable. The HKSI site is currently characterised by its sports facilities and landscape resources. Trees in particular will undergo a character change during the construction phase. This change will be mitigated to ensure landscape resources are preserved as far as possible. Particular attention will be given to protect trees during the construction phase. The operational phase will return the character of the site to a sports venue, though the nature of sports will change to equestrian. The site's character will after reinstatement largely be comparable to the present.

## **6.2 Visual Impacts**

Some glare impacts from the floodlights at the Main and Warm-up arenas are expected. This is due to the required upgrading of existing floodlights to enable camera recordings of the Olympic Equestrian events for broadcasting purposes. The upgrading will be to an illuminance level of 2000 lux which is an Olympic requirements. The impact at the HK Jockey Club Staff Quarters, which is the nearest residential VSR group to the Main Arena will be moderate. As such anti-glare baffles and visor shields will be used. These impacts will occur during the Olympic and Paralympic competitions. The floodlights will be retained for future use by HKSI, with the lux level reduced to achieve an illuminance level comparable to that of the adjacent racecourse. The duration of the impacts is therefore temporary.

## **7. ENVIRONMENTAL MONITORING AND AUDITING REQUIREMENTS**

Detailed requirements of the EM&A programme will be described in the EM&A Manual. Measurements and activities that shall be conducted in accordance with the requirements in the EM&A Manual are summarised in the following:

- baseline monitoring on noise, air quality & water (to be agreed by EPD);
- impact monitoring on noise, air quality & water (to be agreed by EPD);
- remedial actions in accordance with the Event and Action Plan within the time frame in cases where specified criteria in the EM&A Manual are exceeded;
- logging and keeping records of the details of monitoring results;
- preparing and submitting monthly EM&A Reports

## **8. CONCLUSION**

An EIA Report has been prepared to satisfy the requirements given in the EIA Study Brief No.: ESB-136/2005 and the Technical Memorandum on Environmental Impact Assessment Process. All the latest design information has been incorporated into the EIA process. Aspects that have been considered in this EIA Report include:

- Site Selection
- Description of construction methodology
- Air Quality Impact
- Noise Impact
- Water Quality Impact
- Waste Management Implications
- Landscape and Visual Impact Assessment
- Environmental Management Plan
- Environmental Monitoring and Auditing

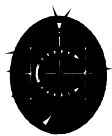
The EIA Report has predicted that the Project would be environmentally acceptable and in compliance with environmental standards and legislation during the construction / reinstatement phase and operation phase with due implementation of mitigation measures, environmental monitoring and audit programme.



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**ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS**  
 FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALING  
 ANY DISCREPANCY BETWEEN EXISTING BUILDING AND PLANS TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT

REVISIONS		
REV. AMT	REVISION DESCRIPTION	DATE



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PROJECT  
**2008 OLYMPIC EQUESTRIAN VENUES**

PACKAGE

SITE  
**HKSI**

TITLE

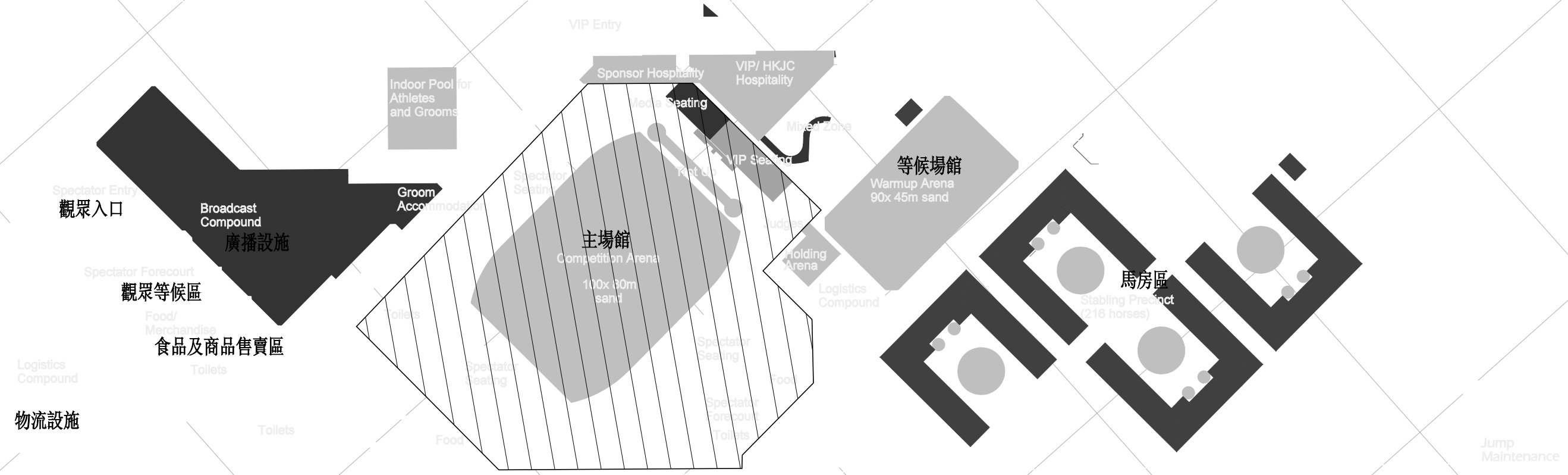
**TENTATIVE LAYOUT PLAN**

DWG NO. **ST/R/S/HK/022** REV.

PROJECT NO. **24469** SCALES **1:2000 @ A3**

PLOT DATE **28 NOV 2005** DRAWN BY **FAI**

CHECKED **ST** VERIFIED **ST**



**Legend 圖例**

**Project Boundary**  
 工程項目範圍

**Designated Project Boundary**  
 指定工程項目範圍



物流設施

觀眾入口  
 觀眾等候區  
 食品及商品售賣區

廣播設施

主場館

等候場館

馬房區

Jump Maintenance