



Kau Sai Chau Golf Academy

Project Profile
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June 2014

The Hong Kong Jockey Club

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One Sport Road, Happy Valley, Hong Kong.

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Figure 1.1 Location of the Project

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Appendix A Summary of Public Comments

1 Basic Information

1.1 Project Title

The title of this project is “**Kau Sai Chau Golf Academy**” (hereinafter referred to as “the Project”).

1.2 Purpose and Nature of the Project

The Jockey Club Kau Sai Chau Golf Course is a community project between HKSAR Government and The Hong Kong Jockey Club (HKJC) to promote the game of golf to the people of Hong Kong. The proposed Golf Academy will provide a public educational resource for people with an interest in a career in golf, either as professional golfers or in the golf management industry.

The North Course was opened in December 1995, the South Course in 1996 and the East Course in 2008. Development of the North and South Courses was carried out before enactment of the Environmental Impact Assessment Ordinance (EIAO) and although the project is classified as an exempted project a detailed Environmental Impact Assessment (EIA) was carried out (Ref. No. EIA-037/BC)¹. In 2008 a third course was opened on the east side of the island. The East Course named as “Proposed Extension of Public Golf Course at Kau Sai Chau, Sai Kung” is a designated project, with an EIA conducted in accordance with an EIA Study Brief (AEIAR-091/2005)². An environmental permit was issued for the construction and operation of the East Course on 28 November 2005.

The Project represents development within the North and South Courses, assessed in EIA-037/BC. It comprises:

- Construction of a Golf Academy (with single lane access road) in two teaching blocks , supporting facilities and overnight hostel accommodation;
- Golf practice areas immediately in front of the classrooms to support teaching and training;
- Realignment of South Course holes 11 to 14 to create space for the Golf Academy; and
- Upgrading of the sewage treatment plant to accept Golf Academy flows.

This Project is considered as a material change to an exempted project, with physical addition or alteration to the designated project. A Project Profile (Application no. DIR-234/2014) was submitted under Section 5(10) of the Ordinance on 2 January 2014, seeking approval from the Director of Environmental Protection for the permission to apply directly for an environmental permit. The Project Profile was exhibited for public inspection in early January 2014. Public comments on ecological issues were raised and are summarised in **Appendix A**. In response to the public comments and to follow the requirements as stipulated in Section 5.2 of the Technical Memorandum on Environmental Impact Assessment Process issued under EIAO (EIAO-TM), HKJC withdrew the application for permission to apply directly for an environmental permit on 14 February 2014 and prepared this Project Profile to apply for an EIA Study Brief, in accordance with Annex 1 of EIAO-TM, with a view to particularly addressing these issues in an EIA study.

¹ Environmental Impact Assessment Reports Placed under Section 15(1)(f) of the Ordinance - EIA-037/BC

² EIA Reports Approved under the Ordinance - EIAO Register No.: AEIAR-091/2005

¹ 311368/ENP/ENL/06/B 16 June 2014
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1.3 Name of Project Proponent

The Project Proponent is The Hong Kong Jockey Club (HKJC). The Project will be operated by the Jockey Club Kau Sai Chau Public Golf Course Ltd. (JCKSCPGCL), an independent company set up by HKJC to manage and operate the golf facility on Kau Sai Chau.

1.4 Location and Scale of Project and History of Site

1.4.1 Location and Scale of the Project

The Golf Academy will be located on Kau Sai Chau Island, Port Shelter, Northeast New Territories as shown in **Figure 1.1**. The Project is in the centre of the island within the existing South Course.

Once completed the Project will occupy approximately 10 ha of land within the existing South Course, which represents some 4% of the total existing golf course area of approximately 250 ha. There will be conversion of around 1.5 ha of unmanaged land to managed turf in order to accommodate the Golf Academy practice areas. The Golf Academy building will occupy about 0.5 ha while a new 600 m long single lane access will be provided to link the Golf Academy to the existing Jetty and Clubhouse via the existing access road. The remaining areas of around 2 ha comprise realignment of four existing holes to create space for the Golf Academy and the associated practice areas.

The Golf Academy comprises 2,000 m² of teaching space, 2,700 m² of accommodation and 500 m² of supporting facilities in a footprint of approximately 5,000 m² (0.5 ha). In comparison, the existing Kau Sai Chau administration and maintenance facility occupy 6,500 m² and 3,000 m² respectively (0.9 ha) within the 250 ha of existing golf course development. The two storey front block contains the teaching areas and overnight student accommodation; the three storey rear block is set into the hillside and comprises staff and hostel accommodation (building height ranging between 7.6 m to 17.6 m from ground levels due to undulating topography of the site). Daily occupancy of the Golf Academy facilities will be approximately 310, comprising staff, students and golfers. This compares to the 860 total of staff, golfers and visitors who currently use Kau Sai Chau golf course facilities each day.

Holes 11 to 14 of the existing South Course will be realigned to create space for the Golf Academy. A safety net will be established at the north of the proposed short game practice area to protect the golfers and staff during use of the practice facility. An industry standard safety net will be used, which is commonly used internationally and locally in golf driving ranges and courses (including EPD's driving range at Shuen Wan in Tai Po) and as well as other sporting venues including in football, cricket and baseball grounds. The following table identifies the works required, while **Figure 1.2** shows the general layout plan of the Project.

Table 1.1: Details of Hole Realignment and Practice Areas

Hole	Existing Situation	Future
11	Short hole falling within footprint of Golf Academy	Relocated 200 m south. Becomes a tee and green without intervening fairway
12	Existing tees become greens for hole 13.	New tees constructed close to hole 11 new green.
13	Existing green becomes tee for hole 14	New green replaces old tees of hole 12.
14	Existing tees realigned south to accommodate practice area	New tees replace old green of hole 13.
Practice North	Scrubland / upper section of driving range	Driving and practice areas immediately in front of the Golf Academy (direct access).
Practice South	Access tracks and scrubland south of Hole 13	Putting practice area, immediately behind Golf Academy

In order to optimise the footprint and reduce earthworks, HKJC has requested that Lands Department vary the Kau Sai Chau Government Land Allocation (No SK446) by extending the southern boundary (See **Figure 1.2**) to add a strip of land of approximately 120 m by 30 m (0.4 ha). This will accommodate the relocation of hole 11, with the land between the tee and green returned to natural vegetation. On completion over 75% (0.3 ha) of the extended land allocation will be returned to natural vegetation, which is considered to be a minor change to the existing conditions.

1.4.2 Site History

During 1939 to 1975, Kau Sai Chau Island was an artillery target practice range. The northeast tip of the island has historically been used as a burial site. These land uses created conditions where fires and physical damage to topsoil led to significant erosion on the north end of the island. Construction of the Golf Courses re-contoured these areas of heavy erosion and served as an effective firebreak reducing incidence and impact of hill fires.

1.4.3 Ecological Improvement

The environment on Kau Sai Chau has been monitored continuously since initial Golf Course construction was completed in 1995. The latest annual ecological monitoring report (to June 2013) notes that wildlife habitats have recovered from historic erosion and fire damage, and many species of native flora and fauna have re-colonised on the island.

Water ponds and lakes are prominent features of the Kau Sai Chau golf course landscape providing both habitats for wildlife and purification of treated wastewater as part of the closed loop drainage and irrigation system. The waterbirds, reptiles, amphibians and fish in these wetlands are evidence suggesting that the golf course management have created and maintain quality habitats for freshwater flora and fauna.

1.4.4 Need for the Project

The popularity of golf continues to grow and as such the development of golf in Hong Kong would benefit from dedicated training facilities combined with structured programmes. There is also a lack of community golf outreach programmes and golf industry management training programmes. The KSC Golf Courses has planned to establish a Golf Academy at KSC, with the following vision:

- To produce a world class Golf Academy;
- To introduce golf to the wider community and promote the game of golf within Hong Kong;
- To use golf as a vehicle to promote life skills, build character, self-discipline and promote healthy choices;
- To create and support a pathway to enable Hong Kong people to take up and excel in the game of golf;
- To supply qualified golf management graduates to the region; and
- To introduce new accommodation services at KSC to support the Golf Academy.

The Golf Academy, upon completion, will offer the following programmes/facilities to the public:

- Public recreation resources
- Public education resources
- Player pathway – High performance golf training
- Industry pathway – Career golf industry training

The Golf Academy will also offer the following social and economic benefits:

- Developing major tournaments of regional international standard
- Provision of a healthy sport/pastime to the public from all walks of life
- Indoctrination of proper characters and values of life to younger generation to help foster a better society in future
- Harmonization of family ties through parent-child activities
- Offering formal opportunities to people interested in pursuing a career in the golf industry
- Enhancing Sai Kung district as a centre for golfing excellence
- Enhancing the growth of the golf industry in Hong Kong and China
- Provision of full-time/part-time jobs, with higher recurrent and capital expenditure

1.4.5 Consideration of Alternatives

The Project Proponent is committed to developing a training establishment on Kau Sai Chau in the initial EIA (EIA-037/BC) and before the East Course was constructed, a Memorandum of Understanding (MoU) was signed with Government. The MoU included a commitment to establish a Golf Academy for the benefit of the community and further development of the sport of golf.

The proposed location of the Golf Academy was selected following some preliminary assessment on the alternative sites based on a set of key development criteria including:

- Maximising physical overlap of new facilities with existing facilities so as to minimise the footprint of the Golf Academy and minimise intrusion into new areas outside the existing golf course footprint;
- Minimising cut and fill earthworks and associated impacts as far as practical;

- Minimise impacts on hydrology and associated ecological impacts as far as practical;
- Minimising length of new access road(s) and associated impacts as far as practical.

Preliminary assessments on the alternative sites have been conducted and initial findings suggest a preferred location of the Golf Academy that is located at the end of the existing driving range, allowing optimisation of the land use, avoiding the need to build a new or additional driving range facility and reducing the disturbance to habitats outside the existing Golf Courses.

Through a shared use approach, initial findings suggest that this design philosophy will allow the consolidation of other facilities, such as golf ball hitting bays, classrooms, driving range, student accommodation, gymnasium and short game areas, into a more efficient overall footprint through centralisation of the critical Golf Academy elements.

1.5 Number and Types of Designated Projects to be covered by the Project Profile

As stated in **Section 1.2**, the development of the North and South Courses was carried out before enactment of the EIAO and as such the project is classified as an exempted project. The Project represents development within the North and South Courses, assessed in EIA-037/BC.

This Project is considered as a material change with physical addition or alteration on an exempted designated project. The Project comprises Items F.4 and O.1 of Schedule 2 under the EIAO, which are summarised as follows:

- Item F.4 specifies: “*An activity for the reuse of treated sewage effluent from a treatment plant.*”
- Item O.1 specifies: “*An outdoor golf course and all managed turf area.*”

1.6 Name and Telephone Number of Contact Person

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2 Outline of Planning and Implementation Programme

2.1 Project Implementation and Schedule

The HKJC is the Project Proponent responsible for the feasibility study, design and construction of the Project. The Project will be operated by the JCKSCPGCL. The Project Proponent commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the EIA study.

The design of the proposed Project commenced in Year 2012 and will be continued until early 2015. The works on site is anticipated to commence in the first quarter of 2015 subject to receipt of necessary approvals, aimed at maximising the site formation works during the dry season. Construction of the Project will be commenced upon receipt of the environmental permit with the total construction period estimated at 22 months. The Project is targeted to be completed and opened to the public in the first half of 2017.

2.2 Interaction with Others Projects

No significant interfacing with other projects has been identified by the time of preparation of this Project Profile.

3 Possible Impact on the Environment

3.1 Outline of Process Involved

3.1.1 Construction Phase

There are five key aspects to the works:

- Site Formation comprising bulk earthmoving for realignment of holes 11 to 14, Academy practice areas, golf course shaping and planting;
- Installation of a temporary batching plant;
- Construction of a temporary barging point at the existing pier;
- Construction of the Golf Academy structure and fitting out; and
- Sewage treatment plant upgrade.

3.1.1.1 Earthworks

The location of the Golf Academy has been selected to minimise the footprint. The site formation works will aim to maximise the use of dry season to minimise the chance of silt runoff due to heavy rainfall event. The works will not require special equipment other than standard earthmoving equipment.

Earthworks will include stripping and storing of topsoil for reuse, bulk excavation using excavators, haulage to fill locations, or stockpiles, and grading works with bulldozers. In the event of rock being encountered it will be broken down using excavator mounted pneumatic breakers. Suitable precautions and preventive measures for the discovery of buried or abandoned ordnance during the construction will be made. Material excavated will generally be moved to the centre and the west of the site where filling operations take place. A water bowser will be on site to ensure areas are dampened to reduce the potential for dust blow.

Turf grass establishment will use small lorries to transport sod grass to the planting area placed by hand. Small hand held mechanical tools will also be used in this operation. During planting, trees and shrubs will be established. This operation will require a small excavator to create a planting hole and light vehicles to transport trees and shrubs to the planting location.

3.1.1.2 Concrete Batching Plant

Due to its island location a small concrete batching plant will be required for construction. A small, self-contained batching plant will be erected and operated within the Contractor's compound (on the existing driving range). All deliveries of concrete from batching plant to final placement will be within the Project area. Modern batching plants are designed to avoid fugitive emissions and the stockpiles will be enclosed, covered and damped down when required. Cement will be transported from the mainland in bags on pallets, wrapped to ensure no dust emission during transport. At the batching plant cement will be transferred under controlled conditions to an enclosed hopper. No adverse impact due to dust emission is anticipated.

3.1.1.3 Temporary Barging Point

To deliver construction material onto the island a temporary barge transfer point will be required. The barging activity will be low and it is proposed that an area adjacent to the existing jetty will be used. It is close to the site of construction activity and has been operated for the purpose of unloading materials for golf course operations without incident since Kau Sai Chau commenced golfing activities in 1995. Opening an alternative site for temporary barging will create new and additional impacts including: work in currently undisturbed marine zones; construction of new temporary accesses and demobilisation on completion of works. Therefore, an alternative dedicated barging point is not preferred and has not been pursued.

Ferry access to the jetty must be maintained and if golf course visitors (pedestrians) and construction vehicles share the same main jetty, there are potential safety issues. Therefore, current practice of using an area at the landward end of the jetty for barging will be followed. A temporary platform will be constructed above the high water mark to allow material to be transferred from barges onto trucks with temporary staging at the jetty for onward transfer to the contractor's compound. The temporary platform will be constructed above the high water mark; there will be no works in the inter-tidal zone.

3.1.1.4 Golf Academy Construction

The works will not require special equipment other than standard Powered Mechanical Equipment (PME) common to Hong Kong construction projects. The Golf Academy will be constructed with plant and equipment associated with construction of a low-rise reinforced concrete building. Pre-cast concrete construction was considered but the size of the development and the island location suggests that it will not be a practical option. If appropriate, precast beams and panels may be used in the structure. Under engineering conditions that apply to Kau Sai Chau, no percussive piling work will be carried out. Mini piles, using a boring machine, may be considered in the final design of the Project.

Building construction requires erection of a tower crane, scaffolding, construction of formwork to create columns, beams, floors and ceilings. External and internal walls and infill panels will be formed in blockwork. Equipment will include electricity generators, hand held power tools, excavators, cranes, vibratory rammers for concreting activities and delivery trucks. Pipework, for water supply and sewerage transfer and electrical and telecommunications cabling, will use a small excavator to excavate and backfill shallow trenches and a lorry to bring equipment to the working area.

3.1.1.5 Sewage Treatment Plant Upgrade

The proposed upgrading works for the sewage treatment plant (STP) will be carried out within the location of the existing sewage treatment plant area. The works will not require special equipment other than standard PME common to Hong Kong construction projects.

3.1.2 Operation Phase

The Golf Academy comprises the front block and the rear block with a building footprint of 0.5 ha³. Overnight and day users of the Golf Academy (including staff, students and golfers) will number about 310 people per day. Existing use of KSC facilities is about 860 people per day. A safety net of industrial type, commonly used in other golf courses and sports ground will be required at the north of the new practice areas for the protection of golfers and staff.

The Golf Academy, upon completion, will offer the following programmes/facilities to the public:

- Player Pathway – World class coaching and golf instruction will be offered adopting a holistic approach with provision of specialist support staff in strength and conditioning; nutrition; sport psychology; biomechanics and physiology. The programmes will be delivered in cutting edge facilities for practice, and player analysis with an emphasis on creating a healthy and competitive training environment.
- Career and Industry Pathway – The Academy will partner with tertiary institutions in Hong Kong and overseas to provide Golf Management training offering Golf Business Certificate/Diploma courses, as well as a 4-year Degree Programme in Golf Management. The Programme delivery options include a combination of on-site at KSC golf courses using KSC staff and facilities for practical work and training; off-site delivery at partnering institution campus, and on-line.
- Coaching Pathway – The Academy will offer specific programmes on high performance coaching skills and knowledge, especially for KSC's own teaching professionals who will need training to enhance their skills set to deliver elite coaching under the Golf Academy.
- Golf Outreach Programme – The Golf Academy will seek partners to introduce the game to, and develop the skills of primary and secondary school students as part of their regular physical education programmes or to youths through community organisations.
- Golf Academy Accommodation – A total of 79 rooms will be available to support the operation of the Golf Academy.

3.2 Potential Environmental Impacts

The potential impacts associated with the construction and operation of the Golf Academy include air quality (dust), noise, water quality, waste management, ecology, fisheries, landscape and visual outlook and cultural heritage.

3.2.1 Air Quality

3.2.1.1 Construction Phase

During construction, activities will include site clearance, site formation, earth moving and construction of the foundation and superstructure of the building etc. which are classified as “notifiable” and “regulatory” work under the *Air Pollution Control (Construction Dust) Regulation*. According to the schedule under the

³ The existing administration building and maintenance facility occupy a footprint of about 0.95ha.

regulation, the Contractor shall implement standard dust suppression measures to control the dust emissions level.

The principal air quality impact during the construction phase will be fugitive dust. Fugitive dust will be generated from the excavation, filling, operation of a small concrete batching plant and temporary stockpiling of dusty construction materials. Dust emissions from the excavation and earthworks operation will be controlled by general good site practices, dust impact is anticipated to be minor.

3.2.1.2 Operation Phase

The Golf Academy is a public educational resource including overnight hostel accommodation and will not include activities with potential to generate significant, adverse air quality impact. Therefore no operational phase air quality impact from the Golf Academy is anticipated.

3.2.2 Noise

3.2.2.1 Construction Phase

No noise sensitive receiver (NSR) is identified within the study area for noise impact assessment, i.e. 300m from the site boundary. Therefore construction noise impacts are not anticipated.

3.2.2.2 Operation Phase

The Golf Academy is a public educational resource including overnight hostel accommodation and will not include activities with potential to generate significant, adverse noise impact. Therefore no operational phase noise impact from the Golf Academy is anticipated.

3.2.3 Water Quality

3.2.3.1 Construction Phase

No reclamation or seawall construction will be implemented under this Project. Only temporary barging point close to the seawall will be operated during the construction phase. The potential sources of water quality impact associated with the construction of the Project will be construction site runoff and drainage from land-based construction activities, and the sewage effluent from the construction workforce. Standard good site practices will be implemented in accordance with the *Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN1/94)* to avoid silt runoff to surrounding water sensitive receivers. The existing closed loop drainage system and gentle sloping site topography will drain any surface runoff back into existing North/South Courses thus avoiding any discharge to the marine environment. It is anticipated that no unacceptable water quality impact will result from the construction of the Project.

3.2.3.2 Operation Phase

The potential sources of water quality impact during the operation phase are anticipated to be as follows:

- Surface runoff from landscaped areas potentially containing pesticides or fertilizer residues; and
- Additional treated sewage discharges to reservoirs that may cause overflow to the marine environment during extreme heavy rainfall event.

The existing golf course is implementing a Turf Grass Management Plan since the opening of North and South Courses in 1995, which minimizes the need for application of fertilizer, fungicides and pesticides. Only products detailed within the Turf Grass Management Plan will be used for turf maintenance, all of which are registered with AFCD under the Pesticides Ordinance (Cap. 133). Spot spray will be implemented to reduce chemical use. The existing drainage system collects all overland and subsurface drainage and passes it through lake features to the reservoir, forming a closed loop system. The upgrade of the sewage treatment plant will treat the additional effluent to similar water quality standards as in the existing operation. Treated effluent is drained to the reservoir within Kau Sai Chau where it is recycled as golf course irrigation or toilet flushing. For this reason, the surface water and effluent generated will be self-contained within Kau Sai Chau.

3.2.4 Waste Management

3.2.4.1 Construction Phase

Construction and demolition (C&D) materials generated from the construction works including site clearance, site formation, refuse from the workforce and chemical waste will be collected, handled and disposed of according to the Waste Disposal Ordinance. Excavated materials will be reused on site as far as practicable. Therefore, there will be no unacceptable impact due to waste generation from the Project.

Operation Phase

3.2.4.2 Operation Phase

During operation phase, the main sources of waste would be general refuse and commercial waste (including food waste) generated by staffs, golfers and students consumed in the restaurants and retail facilities. Waste from the Golf Academy will be incorporated with the wastes generated from the existing golf facilities. Material that cannot be recycled and reused on-site will be bagged and regularly taken from the island to Sai Kung for disposal to a suitable facility.

3.2.5 Land Contamination

3.2.5.1 Construction Phase

The construction works will be carried out on land that has been reworked during the formation of the South Course or is undeveloped shrub land; therefore no new sources of land contamination are

anticipated. It is anticipated that there will be no contaminated soil generated due to the construction of the Project

3.2.5.2 Operation Phase

The Golf Academy is a public educational resource including overnight accommodation and will not include activities with potential to cause land contamination. Therefore no operational phase land contamination impact from the Golf Academy is anticipated.

3.2.6 Ecology

3.2.6.1 Construction Phase

Project works will affect existing turf areas, shrub land, small stream courses and the associated flora and fauna. Given that the former two habitats are locally common and readily recreatable, vegetation and shrubs will be replanted within the Project Area, the potential ecological impacts on loss of vegetation and habitats during the construction stage are expected to be minor.

The stream courses within the Project area are mainly formed by surface drainage, with intermittent and seasonal flow. Some sections dry out during the dry season. The species diversity is low with only several aquatic fauna recorded. The site formation works will cause direct loss of this habitat and associated flora and fauna. Consideration of alternative design solutions will be explored to avoid the direct impact on the aquatic fauna of conservation interest as far as practicable. Should direct impact on the aquatic fauna be unavoidable, mitigation measures including translocation, and establishment of a conservation plan for ongoing monitoring and management of any species of conservation interest is recommended.

The construction works may also cause indirect disturbance to flora and fauna within and adjacent to the Project Area. These may include dust nuisance, noise, silt runoff to downstream habitats and disturbance due to increase in human activities. Good site practices will be implemented to minimise the potential impacts on ecology.

A temporary barging point will be operated at the landward end of the jetty during the construction phase. The area selected for the barging point is currently used by barges delivering materials to the island. It is an infrequent activity occurring on average two times every three weeks. The current barging activity does not appear to be affecting the existing coral community located towards the seaward end of the jetty. There were no corals identified at the proposed barge unloading area. Therefore, no direct impact on coral is expected from barge movements during construction phase.

3.2.6.2 Operation Phase

Existing night-time lighting will be extended and operated at the Academy practice areas and hostel. The environment has already been experiencing night-time lighting from the existing fully floodlit driving range next to the administration building, and the existing lighting of the golf course operation during night time. The additional night-time lighting for the Academy practice areas will cover a much smaller area than the

existing floodlighting of the driving range and with similar operating hours. The flood lights will be turned off after the night time practice sessions. The potential night-time lighting disturbance on nocturnal species is expected to be similar to existing condition which is insignificant.

Golf course safety netting will be required for the protection of golfers and staff from being hit by golf balls during sessions at the short game practice areas. This measure has been widely adopted throughout golf courses internationally and in Hong Kong. No incident has been reported in Hong Kong on avifauna and nocturnal mammals being trapped by safety netting in golf courses. Golf course netting is made of thicker strings that are durable to absorb impact from golf balls and is visible to birds and detectable by bats, thus reducing the possibility of bird strike or bat strike on the golf course netting. Therefore, no potential impact of the golf course netting on birds and bats is expected.

3.2.7 Fisheries

3.2.7.1 Construction Phase

Construction phase impacts to fisheries could arise from silt runoff during operation of the temporary barging point at the existing jetty coastal water. The nearest marine fish culture zone is Kai Lung Wan Fish Culture Zone (FCZ), which is to the west of Kau Sai Chau. With the implementation of good site practices to prevent silt runoff during unloading activities, and the implementation of existing closed loop drainage system, it is not likely to affect the water quality of the coastal waters and indirectly affect the culture fisheries activities at Kai Lung Wan FCZ.

3.2.7.2 Operation Phase

Operation phase impacts to fisheries could arise from surface runoff from managed turfgrass areas, potential overflow of reservoir during exceptionally high rainfall period. There may also be disturbance on capture fisheries due to the associated water quality impact.

With the implementation of the existing Turf Grass Management plan and closed loop drainage system, it is unlikely to have surface runoff to the marine waters environment. The additional sewage will go through the same treatment process as for the existing operation and will be reused on-site for irrigation and as flushing water. The effluent will also be treated to a standard that exceeds the allowable quality to be discharged to the Port Shelter WCZ, in addition to the insignificant quantity and dilution effect in the reservoir. Therefore no potential impact on fisheries activities is anticipated.

3.2.8 Landscape and Visual

3.2.8.1 Construction Phase

The landscape character of the entire Project Area is a golf course within a semi-natural rural setting dominated by frequently-maintained turfed areas and natural shrub land, both of which are of low sensitivity to disturbance and highly compatible with the proposed changes. Potential impact on existing

trees would be avoided as far as practicable, where unavoidable trees affected will be transplanted or compensated according to the technical circular *DevB TCW No. 10/2013 Tree Preservation*. No unacceptable impact on landscape resources is anticipated as the construction works will be of short duration and the landscape resources will be similar upon completion of the construction.

The views of the Project Area contain high quality landscape features. The Project Area on the island of Kau Sai Chau is isolated from most visually sensitive receivers (VSRs) who are located more than one kilometre away. The exceptions are golfers and staff on Kau Sai Chau who are close to the Project Area, though their sensitivity to visual changes is low due to the temporary nature of their views and availability of alternative views. The works area will be confined during the construction phase, the visual impact due to the site formation works, stock piling of construction materials and temporary structures will be minimised by good site practices. Therefore, the temporary and short term visual impacts to the golfers and staff will be of minor significance.

3.2.8.2 Operation Phase

Potential landscape impacts during the operational phase are expected to be negligible as the landscape will largely be restored to the natural high quality environment of the existing golf courses upon completion of the works.

The primary potential visual impacts of the Project during the operational phase will be the addition of the Golf Academy and the safety netting at the northern boundary of the future practice areas. These additions are considered to be acceptable as the major geomorphic features of the island, such as Tai Leng Ridge and the Central Valley, will remain intact, thus preserving the overall landscape character of Kau Sai Chau. Also, due to the long distance between the Project Area and the locations of most VSRs (over 1km), visual impacts are expected to be negligible. Potential visual impacts to golfers and staffs on Kau Sai Chau are also considered insubstantial once the proposed works is completed and works areas reinstated.

The additional night-time lighting is considered to be similar to the existing intensity with minor increase to the coverage of floodlighting for the existing driving range for the short game practice areas of the Golf Academy. There should not be significant glare effect to the VSRs, as they are located more than one kilometre from the golf course and will have similar night view as for the existing conditions.

3.2.9 Cultural Heritage

One identified grave falls within the boundary of the Golf Academy. However a site visit by District Lands Office (DLO), JCKSCPGCL and HKJC on 28th December 2012 and subsequent document searches by DLO have confirmed that the grave had been abandoned and could be removed. Therefore, no impact is anticipated on cultural heritage sites during both construction and operation of the Project.

4 Major Elements of the Surrounding Environment

4.1 Major Existing and Planned Sensitive Receivers

The major existing and planned sensitive receivers and sensitive parts of the natural environment that might be affected by the proposed Project are summarised below and shown in **Table 4.1**.

4.1.1 Air Sensitive Receivers

The Project area considers as rural area; the only activities are golf courses operations on the northern part of the island and Kau Sai Chau Village at the southern tip of the island. Three air sensitive receivers (ASRs) have been identified within a study area 500 m from the site boundary. The ASRs are the existing golf course, the Administration Building and maintenance building on site. Beyond 500 m there is an unoccupied village of Yim Tin Tsai, a campsite on north of Kau Sai Chau and Kau Sai Chau Village, which are all over 1,000m from the site. Standard mitigation measures adopted in the construction phase can minimize the impact to the ASRs. Operation of the Golf Academy should pose no air quality impact. The original EIA predicted no impact on sensitive receivers as Kau Sai Chau was uninhabited.

4.1.2 Noise Sensitive Receivers

No Noise Sensitive Receiver (NSR) is identified within a study area 300 m from the site boundary. The existing Administration Building where staff and golfers work or congregate with acoustic insulation offices and as community uses are considered as noise tolerant uses. The representative NSRs are at least 1,000 m away from the works boundary.

4.1.3 Water Quality Sensitive Receivers

The Golf Academy and realignment of holes 11 to 14 are in the centre of Kau Sai Chau Island and all activities associated with construction are within a catchment that can only drain into the closed loop drainage system. The drainage system collects all overland and subsurface drainage and passes it through lake features to the reservoir. From the reservoir, water is re-circulated for reuse on the golf course through the closed loop irrigation system.

Other water bodies that may be affected by the Project are the small stream sections within and adjacent to the Project Area, and the coral communities recorded along the coastal marine waters along the Kau Sai Chau jetty within the Port Shelter Water Control Zone (WCZ).

The nearest marine fish culture zone is the Kai Lung Wan FCZ at the west of Kau Sai Chau.

The existing sewage treatment plant (STP) will be expanded to accommodate Golf Academy flows. All treated effluent from the STP will be directed to the existing reservoir for reuse and recycling as golf course irrigation water or as flushing water. The valves, joints and pipes for transporting the treated effluent will be clearly distinguished from those for potable water or sewage to avoid potential health and hygiene problems associated with incorrect connection of pipes.

The proposed upgrading works of the STP will be designed to conform to the same water quality parameters as is currently in place for the existing discharge content, which is also in line with the required standards stipulated in the Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage systems, Inland and Coastal Waters (EPD, 1991) under Group B inland waters with beneficial use as irrigation.

4.1.4 Ecological Sensitive Receivers

Species of conservation interest recorded within the Project Area and adjacent habitats included tree species *Ixonathes rereculata*, which is included in the current edition of “Rare and Precious Plants of Hong Kong” published by AFCD. The book notes its status in China was ‘Vulnerable’ and it had been recorded in the “China Plant Red Data Book” and “Illustration of Rare & endangered plant in Guangdong Province”. Nevertheless, the AFCD publication states that this species “can be found in various localities in Hong Kong and the populations are not under any particular threat”. Preservation of the tree species to retain in-situ will be recommended.

The freshwater shrimp *Caridina trifasciata* is considered as ‘Vulnerable’ under the IUCN Red List of Threatened Species (2014) based on the threat of over harvesting at Henquin Island near Zhuhai in Mainland China as food for aquarium fish, which has led to the decline in population. The status in Hong Kong is locally abundant in a few streams in the eastern New Territories according to Dudgeon D. (2003) and abundant in a stream on Kau Sai Chau as recorded in 2011 (IUCN Red List, 2014). Based on the recent ecological review and surveys conducted between 2012 and 2014, *Caridina trifasciata* were recorded in 5 streams on Kau Sai Chau island and 1 stream at Tsak Yu Wu outside Kau Sai Chau⁴. One of the streams with *C. trifasciata* recorded is located within the Project Area. A portion of shrimp population will be directly affected by loss of this stream section within the Project Area. Consideration of alternative design solutions to avoid the stream will be explored as far as practicable. Should direct impact on the stream be unavoidable, appropriate measures will be proposed to minimise the potential impacts on this species. Other terrestrial fauna species of conservation interest recorded within the Project Area include Greater Coucal, Black Kite and Himalayan Leaf-nosed Bat. These three species are common and widespread resident in Hong Kong whilst their optimal habitats are readily available in the vicinity of the Project Area. Potential ecological impact on these fauna species of conservation interest may include direct loss of habitats and indirect disturbance due to construction and operation of the Project.

Hard corals were recorded on existing rip rap boulders protecting the northern side of the jetty and concentrated at the seaward end of the pier. Twenty four species were recorded including two uncommon species *Coscinaraea* sp and *Favites paraflexuosa* with the remainder common and abundant in Hong Kong. No rare coral species were identified and no other marine species of conservation importance were encountered. The site selected for the barging point has historically and is currently used in a similar mode when bulky deliveries of sand, materials, equipment and operational golf course supplies are needed.

⁴ Yam., R and Cai. Y 2003. *Caridina trifasciata*. A new species of freshwater shrimp (Decapoda: Atyidae) from Hong Kong. *The Raffles Bulletin of Zoology* 51(2): 277-282

4.1.5 Fisheries Sensitive Receivers

The nearest marine fish culture zone is the Kai Lung Wan FCZ at the west of Kau Sai Chau. There are three other FCZs around the Kau Sai Chau island, namely Tiu Cham Wan FCZ and Tai Tau Chau FCZ to the east and Kau Sai FCZ to the southwest.

For capture fisheries, the western Kau Sai Chau waters were reported to have moderate level of fishing operation (100 – 400 vessels per ha) and moderately low fisheries production (100 – 200 kg/ha/year) (AFCD Port Survey 2006)⁵.

4.1.6 Visual Sensitive Receivers

The Project Area on the island of Kau Sai Chau, is isolated from most visually sensitive receivers (VSRs) who are located more than one kilometre away. The exceptions are golfers and staff on Kau Sai Chau who are close to the Project Area though their sensitivity to visual changes is low due to the temporary nature of their views and availability of alternative views.

4.1.7 Sites of Cultural Heritage

Based on desk top study and site visit conducted in August 2012, no declared monuments, graded historic buildings, sites of archaeological interest and other built heritage sites were recorded within the 100 m assessment area. However, five grave sites were recorded within 100 m from the works boundary. Out of the five grave sites, only two grave sites are located within the proposed site area, in which one has been confirmed as abandoned by DLO back in 1997. The remaining parts of the grave will be removed during construction.

A second grave site is located on the west side of the existing driving range. The upper section of the driving range will be a Contractor's compound during construction and regraded on completion. No works activity will be carried out within 15 metres of the grave and no adverse impact is anticipated. There are three other grave sites located in the 100m assessment boundary but outside the Project Area and no adverse impact is anticipated with good site practices for the construction works.

Table 4.1: Major existing and planned sensitive receivers

Type of Sensitive Uses	Sensitive Receivers / Sensitive Parts of Natural Environment
Building on island	Existing Administration Building (72 m), existing Maintenance Building (90 m)
Water sensitive receivers	Streams on Kau Sai Chau islands, the Port Shelter Water Control Zone (WCZ)
Ecological sensitive areas	Shrubland, streams, aquatic fauna inhabiting streams on Kau Sai Chau, birds and bats of conservation interest utilizing the habitats within Project Area
Fish Culture Zones	Kai Lung Wan, Tiu Cham Wan, Tai Tau Chau and Kau Sai FCZs
Visual sensitive receivers	Golf players and staff on Kau Sai Chau, hikers and visitors on Sharp Island (1,000m),

⁵ Agriculture, Fisheries and Conservation Department
<http://www.afcd.gov.hk/english/fisheries/fish_cap/fish_cap_latest/fish_cap_latest.html>

Type of Sensitive Uses	Sensitive Receivers / Sensitive Parts of Natural Environment
Sites of Cultural Heritage	seaborne travellers in Port Shelter (500m), visitors to Yim Tin Tsai (1,500m) Grave sites recorded within 100m from Project Area

5 Environmental Protection Measures to be Incorporated in the Design and Further Environmental Implications

5.1 Air Quality

5.1.1 Construction Phase

Dust control measures will be implemented in accordance to the Air Pollution Control (Construction Dust) Regulation such as adoption of good site practices, regular plant maintenance and regular watering to reduce dust emission. With mitigation measures in place, construction phase air quality impacts can be maintained within acceptable levels.

5.1.2 Operation Phase

No adverse air quality impact is anticipated from the operation of the Golf Academy or its practice areas. Therefore no specific mitigation measures are identified or required.

5.2 Noise

5.2.1 Construction Phase

Various noise mitigation measures may be applied to reduce noise levels during construction phase. Mitigation measures such as use of quiet plant, locating noisy PME away from NSRs, use of silencers and mufflers and use of noise barriers or enclosure, etc., will be implemented as required to ensure construction noise is reduced to acceptable levels.

5.2.2 Operation Phase

No adverse noise impact is anticipated from the operation of the Golf Academy or its practice areas. Therefore no specific mitigation measures are identified or required.

5.3 Water Quality

5.3.1 Construction Phase

During the construction phase, mitigation measures for water quality impacts will be implemented in accordance with the Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN1/94). Temporary drainage will also be provided to divert site runoff to the closed loop system. With mitigation measures in places, construction phase water quality impacts can be maintained within acceptable levels.

The proposed barging point will include a temporary platform, with edge bunds and erected above the high water mark, where material will pass from barge to the transit area. Loose loads will be encapsulated prior to loading onto the barge to ensure no spillage during the transfer operation. Sand which will be transferred direct from the barge by conveyor as established practice. In addition to the bunded platform, a silt curtain

will be in place during transfer operations and a stocked spill kit will be available at the barging point. With these controls of prevention (encapsulation) and mitigation (bundling on the transfer platform, silt curtain and spill kits) in place there is no opportunity for materials to enter and adversely impact on the marine environment.

A small area where the site access road joins the exiting clubhouse access road is outside the closed loop drainage catchment. Bunds will be installed prior to any works commencing and any water falling within the areas will be first settled and then pumped into the closed loop drainage system. Therefore no offsite migration of silty water into the marine environment is expected.

5.3.2 Operation Phase

During the operation phase, the additional effluent generated will be treated by the upgraded sewage treatment plant and treated effluent will be reused on site as irrigation and flushing water. Surplus water will be drained to the reservoir and closed-loop drainage system for retention. No additional mitigation measure is considered required.

Operational phase management of turf grass will follow a Turf Grass Management Plan, prepared for the original North and South courses. This plan has been refined over time and has operated successfully for over 20 years. All turf grass associated with the practice areas and realigned holes of the Project will be within the closed loop drainage system catchment. Therefore no offsite impact is expected.

5.4 Waste Management

5.4.1 Construction Phase

During the construction phase, measures that may be implemented to manage the waste generated from the Project site includes preparation of a Waste Management Plan, on-site sorting and reuse of C&D materials, implementation of a trip-ticket system and appropriate handling, storage and disposal of chemical waste in accordance with the Waste Disposal (Chemical Waste) (General) Regulations.

5.4.2 Operation Phase

The Golf Academy will continue the current practice at Kau Sai Chau to source separate waste, recycle where possible and transport bagged waste to the mainland for disposal. There is no on-island disposal facility and this would continue after the construction of the Golf Academy.

5.5 Land Contamination

Cut and fill during the earthworks will be balanced; there will be no import and export of material. Small amounts of construction waste will be generated during the construction of the Golf Academy, primarily packaging will need to be removed from site.

5.6 Ecology

5.6.1 Construction Phase

During the construction phase, impact on flora/fauna species of conservation interest will be avoided as far as possible. Where it is practicable, mitigation measures such as translocation and compensation of tree species to be affected and re-vegetation of habitats after construction will be provided. Indirect construction disturbance will be minimised through fencing off works areas and implementation of good site practices.

Should direct impact on species of conservation interest be unavoidable, translocation of the possibly affected freshwater shrimp species *Caridina trifasciata* will be recommended prior to commencement of construction phase of the Project. A translocation plan will be established and to be agreed with the Authority for translocate the affected shrimp population within Kau Sai Chau, to minimise any potential disturbance as far as practicable. A conservation plan will also be established for the ongoing monitoring and management of this species, to both review the effectiveness of the mitigation measures and provide rectification where necessary. Implementation of good site practices and other environmental mitigation measures would also minimise the indirect disturbance on ecology during construction.

5.6.2 Operation Phase

Night-time flood lighting will be switched off after the night-time practice sessions to minimise light spill causing indirect disturbance to nocturnal wildlife.

The design and extent of the safety netting will be minimised as far as practicable, whilst affording necessary safety, to further reduce the physical barrier effect on flying animals.

With the implementation of the proposed measures, the potential ecological impacts of the Project are expected to be minimal and acceptable.

5.7 Fisheries

With the implementation of good site practices and mitigation measures to control water quality impact, no specific fisheries mitigation measure is considered required.

5.8 Landscape and Visual

5.8.1 Construction Phase

During the construction phase, appropriate mitigation measures will be adopted to minimise the landscape and visual impacts such as trees to be retained on site should be protected by site confinement, use of naturally toned hoardings and early introduction of landscape treatments.

5.8.2 Operation Phase

Sensitive design of buildings and structures will be adopted to minimise visual impacts. Appropriate colours and tones will be used for hard landscape to harmonise with the surrounding environment. Compensatory tree planting will be provided for felled trees. Disturbed areas will be reinstated by re-vegetation. After the full establishment of the Kau Sai Chau Golf Academy, it is anticipated that the landscape amenity and visual context of the site will be enhanced.

5.9 Cultural Heritage

One grave site within the existing golf driving range will be fenced off from the Contractor's compound during the construction phase. It is recommended that no works shall be allowed within 15 metres of the grave site as a precautionary measure.

5.10 Comment on Further Implications

5.10.1 Public Consultation and Public Interest

For the development of North and South Courses, a detailed EIA, namely, "Kau Sai Chau Development EIA (Final Report) (March, 1994)", has been carried out and submitted to the Government and the Advisory Council on the Environment (ACE) for review and endorsement (Document EIA-037/BC). The EIA document is placed in the EIAO Register Office of EPD and available for the public to review upon request. During the EIA studies, the Project Proponent consulted with fisheries groups in the area, presented the project to the ACE and to Legislative Council. Since opening of the Golf course, there has been ongoing informal consultation with local fisheries groups and the District Board. The Project Proponent has also engaged in consultation and dialogue with Government Departments, local interest groups and Green conservation groups over the project proposals.

A Project Profile: PP-110/2000 - Proposed Extension of Public Golf Course at Kau Sai Chau, Sai Kung was submitted on 21 December 2000 by the Hong Kong Jockey Club. Public inspection was carried out between 22 December 2000 and 4 January 2001. An EIA Study Brief was issued by the Director of Environmental Protection (DEP) in January 2001 (ESB-064/2000). A detailed EIA study was carried out according to the Study Brief requirements and was submitted with an Executive Summary and an Environmental Monitoring & Audit Manual (AEIAR-091/2005). The EIA report was available for public inspection during the period between 6 September and 5 October 2005. During the period, 6 sets of public comments were received by the DEP. The EIA was approved without conditions on 14 November 2005.

The proposed Golf Academy Project has been presented at the meeting of the Sai Kung District Council Working Group for Tourism ("WGT") on 24 January 2014. The main purpose was to present the proposed Golf Academy Project and invite members' views and seek their support. After discussion, the meeting gave its unanimous support to the Project. With the full support of the Working Group the current stage of local consultation on the Golf Academy Project has been completed. However, the management of the

Golf Course looks forward to providing regular updates on the progress and implementation of the Project to the local community through future meetings with elected representatives on the WGT.

A Project Profile: DIR-234/2014 – Kau Sai Chau Golf Academy was submitted on 2 January 2014 by the Hong Kong Jockey Club for application of permission to proceed directly to apply for an environmental permit. Public inspection was carried out between 3 and 16 January 2014. Public concerns on three ecological issues were raised during the public inspection period, these included:

- The significance of the impact on the freshwater shrimp species *Caridina trifasciata* due to the direct loss of stream habitat was uncertain;
- The potential barrier effect of the safety netting to be established for the practice area on the nocturnal flying fauna was uncertain; and
- The potential disturbance impact of night-time lighting for the practice area on the nocturnal fauna was uncertain.

The details of the public comments received for the Project Profile submitted in early January 2014 were summarised in **Appendix A**.

Consultation with the conservation groups has been conducted on 22 May 2014. The main purposes were to present the proposed Golf Academy Project, share the background information and existing environmental conditions for seeking initial views for achieving a sustainable project development. The conservation groups suggested that alternative design solutions should be explored, to avoid ecologically sensitive habitats prior to consideration of minimisation measures for potential adverse environmental impacts. The Project Proponent looks forward to providing updates on the EIA findings and mitigation proposals for further discussion with the conservation groups during the course of the study.

This Project Profile is prepared for providing information listed in Annex 1 of the EIAO-TM for applying of an EIA Study Brief for addressing the public concerns especially for the particular ecological issues.

6 Use of Previously Approved EIA Reports

6.1 Exempted Project under the EIAO

The initial development of two 18 hole golf courses was carried out before the enactment of the EIA Ordinance. However Environmental Studies were carried out and submitted to Government and the Advisory Council on the Environment (ACE). Therefore the project is identified as an exempted project under EIAO with the EIA Reports placed under Section 15(1)(f) of the Ordinance (Document EIA-037/BC).

The endorsed report “Kau Sai Chau Development EIA (Final Report, March 1994)” covered impacts and mitigation for the construction and operation of the North and South courses, driving range and ancillary facilities (the administration building, maintenance facility and ferry and construction of a reservoir to provide irrigation water). Other reports included ecological surveys (July 1994) and a Turf Grass Management Plan, included in an operations manual entitled “Hong Kong Golf Course Handbook: Environmental Considerations for the Design, Construction and Operation” (July 1994).

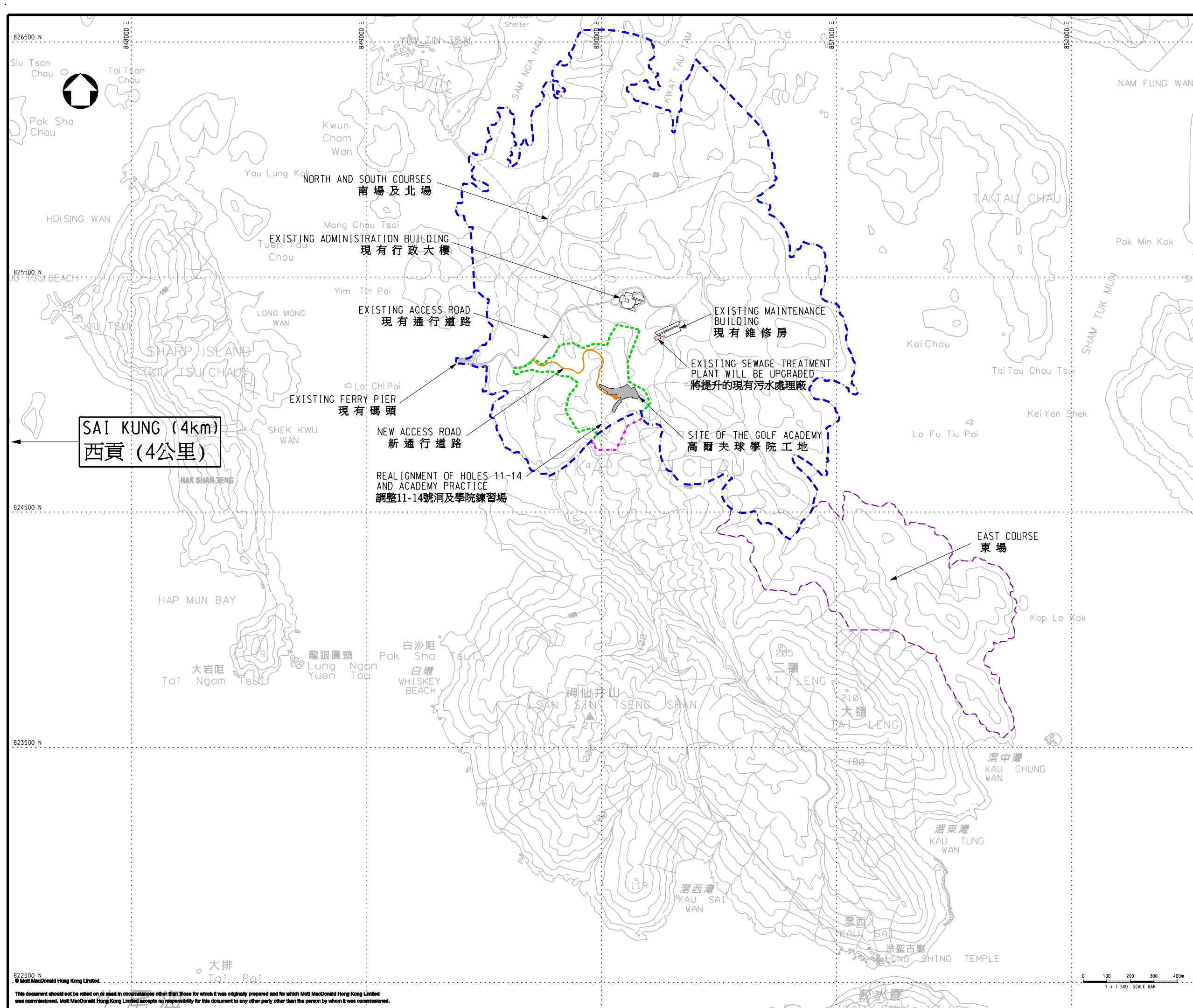
6.2 EIA Reports Approved under the EIAO

A second EIA for golf courses on Kau Sai Chau was prepared under the requirements of the EIAO. The second EIA was for a golf course on the east side of the Island. In addition to the design and operation of the 18 hole golf course the operational facilities were extended to include (i) a small desalination plant to provide additional irrigation water and (ii) extension of the existing wastewater treatment facility and the reuse of its effluent for golf course irrigation.

A Project Profile: PP-110/2000 - Proposed Extension of Public Golf Course at Kau Sai Chau, Sai Kung was submitted in December 2000 and subsequently a Study Brief was issued (ESB-064/2000) in January 2001. The output of the EIA studies (AEIAR-091/2005) comprised an Executive Summary, EIA Report and an EM&A Manual. The EIA was approved without conditions on 14 Nov 2005 and the Environmental Permit (AEP-224/2005) was issued on 28 November 2005 and Variation of the Environmental Permit was issued on 17 August 2006.

Key features of the EIA were for the construction and operation of an 18 hole golf course, a closed low flow drainage system, desalination plant, a temporary barging facility and the reuse of treated effluent for irrigation purposes.

Figures




Notes

Key to symbols

- - - PROPOSED SITE AREA
擬建工地
- - - PROPOSED BOUNDARY EXTENSION
擬議延伸邊界
- - - EXISTING GOLF COURSE BOUNDARY
現有高爾夫球場邊界

Reference drawings

PI	JUN 14	MING	FIRST ISSUE	VW	AFK
Rev	Date	Drawn	Description	Chk'd	App'd



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Client



香港賽馬會
The Hong Kong Jockey Club



濠洲西貢
The Jockey Club
Public Golf Course
賽馬會-公眾高爾夫球場

Project

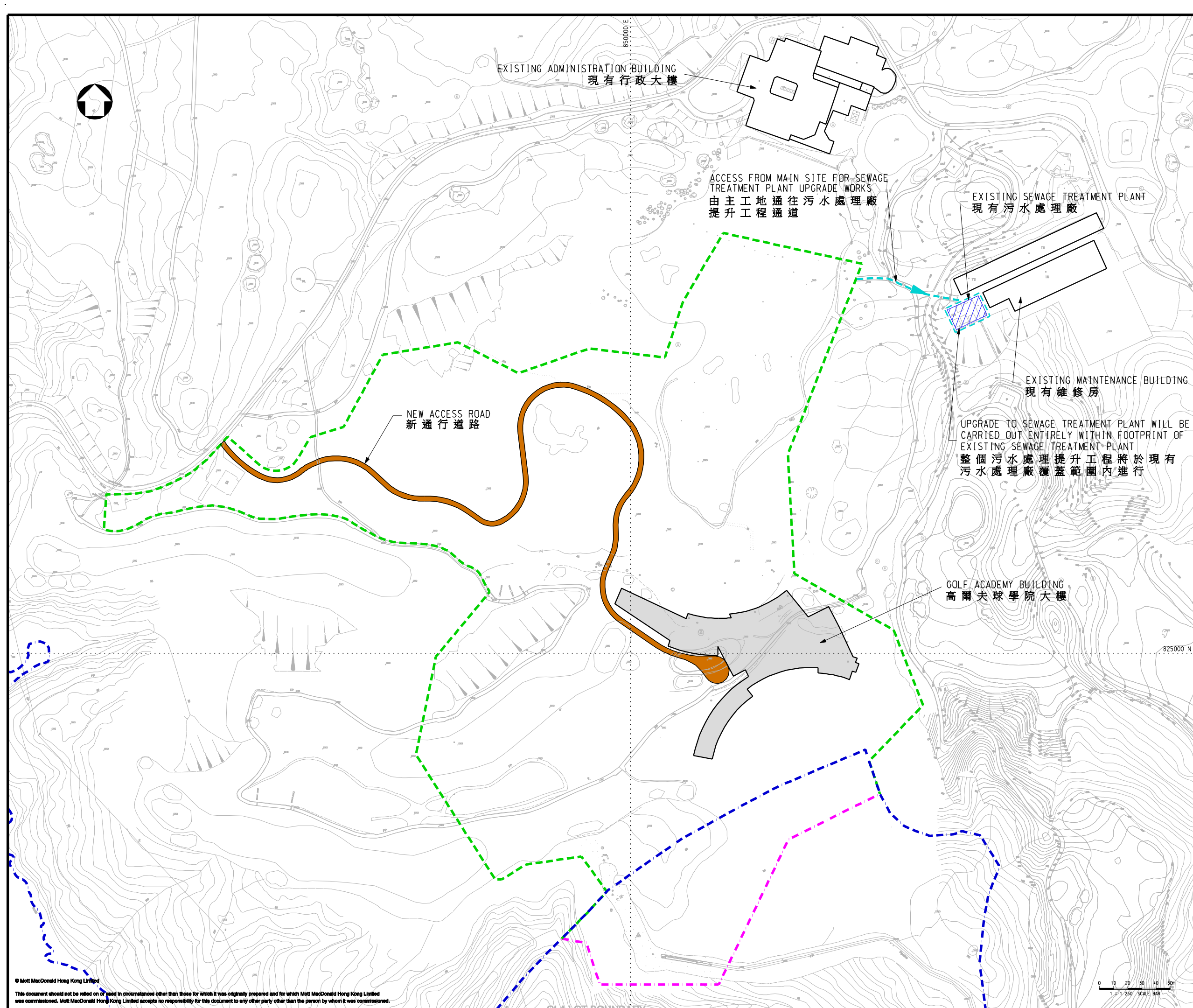
KAU SAI CHAU GOLF ACADEMY
濠洲西貢高爾夫球學院

Title

LOCATION OF THE PROJECT
項目位置

Designed	LC	Eng check	JC
Drawn	MING	Coordination	JC
Dwg check	LC	Approved	AFK
Scale at A1	1:7500	Status	PRE
Drawing Number		Rev	P1

FIGURE 1.1 圖 1.1



Notes

- Key to symbols**
- - - PROPOSED SITE AREA
擬建工地
 - - - PROPOSED BOUNDARY EXTENSION
擬議延伸邊界
 - - - EXISTING GOLF COURSE BOUNDARY
現有高爾夫球場邊界

Reference drawings

PI	Date	Drawn	Description	Ch'k'd	App'd
P1	MAY 14	MING	FIRST ISSUE	JC	AFK

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The Hong Kong Jockey Club

Kau Sai Chau
The Jockey Club Public Golf Course
新界第一公眾高爾夫球場

Project

KAU SAI CHAU GOLF ACADEMY
滙西洲高爾夫球學院

Title

GENERAL LAYOUT PLAN
總平面圖

Designed	VW	Eng check	JC
Drawn	MING	Coordination	JC
Dwg check	VW	Approved	AFK
Scale at A1	1:1250	Status	PRE
Drawing Number	FIGURE 1.2		圖 1.2

Appendix

Appendix A: Summary of Public Comments

Summary of Public Comments Received for the Project Profile submitted for Application for Approval to Apply Directly for an Environmental Permit (Application No. DIR-234/2014)

The Hong Kong Jockey Club received several ecological concerns during the public inspection period in January 2014, summary of the comments are listed as below:

1. The public supported that the development of a teaching facility linked to the public golf course would benefit youngsters interested in this sport, but have the following concerns which relate to the level of detail of the ecological impact assessment provided in the Project Profile.
2. The freshwater shrimp species *Caridina trifasciata* was recorded in some natural stream sections within the Project Area. According to the IUCN Red List, this species can only be recorded in five streams in Hong Kong and one stream in mainland China and thus it is considered to be Globally Vulnerable. Kau Sai Chau is a hot spot for this shrimp species. There were public concerns on the potential stream habitat for this shrimp species to be lost due to the construction and implementation of the project, as some of the stream sections are within the proposed project area and the detailed baseline condition was uncertain. The public suggested that detailed ecological baseline condition should be provided for evaluation of the ecological importance of the flora, fauna and habitat found; the identification, prediction and evaluation of impacts and appropriate measures should be proposed to protect the stream courses on Kau Sai Chau, as the island is the hot spot of the shrimp. The public also suggested a monitoring programme should be formulated for the shrimp and off-site mitigations such as minimization of polluted runoff to the stream should be recommended.
3. The vertical safety netting will be established for the practice area within the Project Area, potential barrier effect to the nocturnal birds and flying mammals on the Kau Sai Chau was uncertain. Assessment of the effect of the vertical net on nocturnal animals, such as bats and owls should be conducted. Mitigation measures should be proposed where appropriate.
4. Nocturnal fauna (i.e. owls, nightjars) have been recorded on the Kau Sai Chau island, potential disturbance impact of night time flood lighting proposed in the practice area was uncertain from the ecological baseline information. Assessment of the effect the night time lighting on nocturnal animals, such as bats and owls should be conducted. Mitigation measures should be proposed where appropriate.