

## **15 ENVIRONMENTAL OUTCOMES**

### **15.1 Sensitive receivers protected from Ecology and Water quality impacts**

15.1.1 Within the study area of the proposed third golf course, the major environmentally sensitive receivers are streams and marine water. For the identified sensitive streams, buffer zones on both sides of the streams and no contact with of natural streams are proposed to preserve the their integrity. Due to the playability and accessibility of the some of the proposed golf holes, bridges need to be constructed over the identified sensitive streams. The short bridges are designed for low traffic load of golfers and golf carts. In order to protect the streams, no contact with of the natural streams at these areas is proposed during and after the construction of the bridges. The whole buffer zones will be maintained throughout the construction and operational phases of the proposed third golf course. The proposed bridge design blends into the natural characteristics of the proposed golf course and provides an aesthetically pleasing appearance to eliminate visual impacts.

15.1.2 To protect the streams and the marine water quality, a closed low flow drainage system is proposed and golf course runoff will be eventually diverted to the existing reservoir for irrigation purpose (except Hole 5 and part of Hole 6). For Hole 5 and part of Hole 6, preventive mitigation measures are proposed by (i) installation of a filter system in underground catchpits of the proposed drainage system (to remove nutrients and pesticides) and (ii) use of environmentally friendly biopesticides to control turf diseases and insects at Hole 5 and part of Hole 6 before runoff enters the existing wetland (marsh). In addition, runoff from the South Course Holes 1, 7 and 9 of the existing golf course will be channeled back to the existing reservoir by the proposed closed low flow drainage system. This will reduce the pollutant load on the existing wetland during the operational phase of the proposed third golf course because the currently runoff from these Holes flows directly into the wetland.

15.1.3 Kau Sai Chau is a remote island with a small number of residents and the adjacent four Fish Culture Zones areas will be well protected by the proposed mitigation measures.

### **15.2 Key Outcomes**

15.2.1 The whole concept of the collection of golf course runoff by the proposed closed low flow drainage system will facilitate water recycling, reuse and reduction in the future operational phases of the proposed third golf course. One of the environmental advantages of implementing this Project is the benefit accruing to vegetation at previously inaccessible sites, thus improving landscape and habitats. According to the records of existing golf courses, there are virtually no hill fires and therefore ecologically sensitive areas can be well preserved and protected in the future.

15.2.2 The proposed third golf course is adjacent to the existing golf courses at Kau Sai Chau. Major elements of infrastructure support are already available in the existing golf courses (administration building, maintenance building, sewage treatment works and potable water

supply). These facilities will be shared or extended to cater for additional requirements for the proposed third golf course. Maximizing the utilisation of the existing golf course facilities for the proposed third golf course means that there is no need to build similar supporting facilities at other alternative sites, thus minimizing the less environmental impact.

15.2.3 Unlike the first two courses where Bermuda grass was being used, the proposed third course will be turfed with *Seashore Paspalum*. This grass is salt tolerant which means less fresh water will be needed for irrigation in future. In addition, it is more resistant to diseases and insects. Reductions in pesticide and fertilizer applications are expected during the operational phase of the proposed third golf course.

15.2.4 Preliminary golf course designs included construction of a reservoir for irrigation purposes at one of the sea inlets, but this has been ruled out after consideration of alternative options to minimize ecological and visual impacts during construction and operational phases of this Project. In order to provide sufficient irrigation water to the proposed third golf course during dry periods, a desalination plant has been incorporated into the Project. With this installation, the supply of irrigation water can be proactively managed depending on usage, compared to a fixed volume of an inland reservoir, thus consuming water in a more effective manner.

15.2.5 The site is currently undeveloped, comprising scrubland and incised stream courses. There are several areas where the former use as an artillery firing range has removed the thin surface vegetation and allowed rainwater to wash out soil. The proposed golf course will restore the scarred area. The vegetation will reduce erosion and sedimentation to adjacent waters. The habitats on the island will be enhanced by the proposed landscape works.

### **15.3 Key Environmental Problems**

15.3.1 The key environmental problems involve the dust, water and ecology impacts during the construction phase and water quality impact during the operational phase of the proposed third golf course.

15.3.2 The EIA study has critically assessed the overall acceptability of environmental impacts which are likely to arise as a result of the construction and operation of the proposed third golf course. Where necessary and practicable, the EIA study report has specified the conditions and requirements for the detailed design, construction and operation of the Project in order to mitigate environmental impacts to an acceptable level.

15.3.3 The EIA study has demonstrated the acceptability of any residual impacts from the Project and the protection of the adjacent residents, fish culture zones and environmentally sensitive resources. EM&A monitoring works have been recommended for implementation before and during construction to verify the expectations of the EIA study and the effectiveness of the recommended mitigation measures.

## **15.4 Environmental Protection Measures**

15.4.1 With the benefits of the recommended mitigation measures, no unacceptable residual environmental impacts are expected. Details of the implementation schedule of the recommended mitigation measures are summarized in Chapter 14.