**Turn obstacles to development into positives of challenging design**

**By JOHN F. HARBOTTLE**

What must it have been like to create golf course masterpieces back in the days of Alister Mackenzie and George C. Thomas? To perceive a piece of land and visualize the layout of 18 holes of golf, your thoughts largely unfettered by environmental constraints that may have a significant impact on the finished product. We can only imagine what it must have felt like to create golf masterpieces such as Cypress Point and The North Course at The Los Angeles Country Club, much less what these courses would look like if built today.

The early designers were not faced with a multitude of environmental regulations which pose challenges for contemporary designers. But to assume that these constraints only serve to restrict what designers can do today would lead to missed opportunities to create great courses on sites considered environmentally sensitive. Even in the face of daunting restraints, there are strategies for constructing challenging and enjoyable courses.

Building courses in the 1960s requires careful consideration of wetlands, wildlife habitat, archaeological and water resources and endangered plant species. As the American Society of Golf Course Architects works in a cooperative effort with the Allied Associations of Golf and environmental groups to draft a set of environmental principles that will help promote golf course development, one fact is already evident: Golf is an environmentally responsible development alternative.

Environmentally friendly courses should have minimal, discernable impacts on the sensitive areas, situations where impacts are necessary, mitigation plans are required. Working with sensitive sites is not always easy, and restrictions may weigh heavily on a course's playability. Nonetheless, various strategies may be implemented to ensure that the quality and playing experience are preserved without harming the environment.

It is never too early to start communicating with permitting agencies to understand their needs. Their help is necessary to formulate a design which will develop into a quality project. When sensitive elements are associated with a project, a team of consultants is needed to assess the various elements and determine what impact the course would have on those areas. A team of experts in biology, archaeology, geology and hydrology should conduct field reconnaissance and map the sensitive areas to use in planning the course layout.

Such a team was assembled for to plan The Golf Club at Genoa Lakes, a project on a sensitive site outside South Lake Tahoe, Nev. Situated near the Carson River, the site was a natural for early settlement, serving as the gateway to San Francisco for the old wagon train trail. The land on which the golf course was built is a mixture of high desert savannah, wetland and riparian woodland habitat.

Wetlands and wildlife habitat were significant. Meetings were held with such permitting agencies as the Army Corp of Engineers and state Department of Fish and Wildlife to verify the exact location of sensitive areas. The meetings helped to arrive at design solutions that would neither decrease the quality of the golf course nor harm sensitive areas. Initially, course drainage was not allowed to flow directly into any wetland or wildlife habitat area. But we determined that drainage could pass through a small, natural grass buffer zone and then into the sensitive areas. The buffer zone filtered fertilizer and pesticides from runoff. This was of great benefit as the wetlands became natural hazards incorporated into the course design.

The buffer areas also helped preserve wildlife habitat, creating a fringe that developed refuge and food sources for birds and small animals. The dense vegetative edge also speeded play, since balls hit into the hazard were irretrievable. What was once a design obstacle enhanced the course's character, developing a nature look with the natural vegetation.

Of more than 200 acres allocated to the course, only 120 acres are irrigated and, of that, about 80% is left as undeveloped natural vegetation.
Continued from previous page

100 acres are maintained. All wetlands and wildlife habitat were preserved and integrated to create aesthetic, natural hazards and corridors for the course. To ensure that sensitive areas were linked to maintain circulation corridors for the wildlife, several new wetland and riparian areas were created. These wetlands are roughly 100 acres of specific habitat, including wetland, riparian and savannah landscapes. Again, a team of experts was assembled to ensure the habitats were properly located and developed. Also, a critical concern was linkage, enabling the wildlife to migrate, nest and feed throughout the areas.

Golf course drainage was not allowed into sensitive areas. Buffer areas were developed to prevent any adverse impacts. Careful and thoughtful planning of the course around and within the sensitive areas protected the quality of the playing experience.

The Savannah Course at Stevinson Ranch Golf Club is another successful example of golf course construction within a sensitive site. About two hours southeast of San Francisco, this project is in the Audubon Sanctuary Program. Again, the key was to preserve and design around the significant wetland and habitat areas. At Stevinson Ranch, the course actually wrapped around sensitive areas, creating a huge wildlife sanctuary. Golfers can bird watch many different species.

Although we did not physically impact any habitat while building the course, permitting the project was contingent on mitigation. In other words, in order to build the project, we had to agree to create roughly 100 acres of specific habitat, including wetland, riparian and savannah landscapes. Again, a team of experts was assembled to ensure the habitats were properly located and developed. Also, a critical concern was linkage, enabling the wildlife to migrate, nest and feed throughout the areas.

Golf course drainage was not allowed into sensitive areas. Buffer areas were developed to prevent any adverse impacts. Careful and thoughtful planning of the course around and within the sensitive areas protected the natural process and added to the character, as well playing characteristics of the course.

A good design process entails careful analysis of sensitive areas; developing a team of consultants to create solutions that preserve the environment and enhance the course; and working carefully with permitting agencies to keep everyone informed and understanding guidelines. It entails implementing strategies in a conscientious and conservative way and ensuring that neither the quality of the course nor the environment is diminished with the final product.

Using the proper strategies allowed us to know that the voters believed in the same thing we have believed in throughout our 26-year existence... that the game should come first, and that the players are most important for the future growth of the game.