

Preparing for a Rainy Day

Scott MacGregor describes life working on a course construction in Kuala Lumpur

Having grown up in St Andrews, I started my golf industry work during the construction of the Duke's course, overlooking the town where I learned many aspects of what is involved in building a golf course

After grow in, I was delighted to be given the chance to join the Duke's greenkeeping team and was eventually given responsibility for running the irrigation system. During this time I also studied Greenkeeping and Course Management, part-time at nearby Elmwood College. Then I worked for an irrigation installation contractor installing systems throughout the UK.

Later, while visiting friends in Kenya, I played several courses and spoke to some of the local staff. I was told that one course in Nairobi was about to start reconstruction and that the South African designer was looking for

a Construction Manager. I was lucky enough to be in the right place at the right time and was offered the job.

After several very enjoyable and interesting years in Kenya (Giraffes walking across the fairways), I was offered the same role working for a Malaysian golf course construction contractor. The move was then made to Kuala Lumpur to start the reconstruction of the Royal Selangor Golf Club.

The 45 hole Royal Selangor Golf Club is a private club based in the centre of Kuala Lumpur and is the oldest golf club in the country. It was established in 1893 by coffee planters and currently has a membership of 6000. It covers an area of 137 Ha.

Since 1998 most areas of the golf course have stunning views of the Petronas twin towers which until 2004 were the tallest building in the world at 452m. The

clubhouse is located only two km from the base of these towers.

The club regularly hosted the Malaysian Open with the last event held there in 2002. With many other new courses opening in the area and in Malaysia as a whole, the members decided a redesign was required.

Another major reason for undertaking the redesign was to alleviate the serious drainage problems experienced on the site, especially during the traditional monsoon seasons. Yearly rainfall in Malaysia averages 2500mm (4262mm fell during construction in 2006) and with the monsoon rains sometimes dropping over 100mm in less than one hour, the course would be unplayable and maintenance impossible for many hours after the rains had stopped.

The Kuala Lumpur City Council also have a six metre wide monsoon drain which runs through



INSET ABOVE TOP:
Stolons spread on the green



INSET ABOVE: Tee filling

parts of the course. The exit of this drain from the course was deliberately designed as a bottle neck so that the golf course would act as a "holding pond" during heavy rain. This was to help avoid the city and nearby roads from flooding, but was obviously not a popular situation with the members.

The result of this for the golf club was that many areas of the course were underwater, and when the storm water drained away the course would be covered in much upstream rubbish.

The request made of the Architect, was to raise the quality, playing conditions and strategies of both courses.

Prior to the reconstruction of the Royal Selangor Golf Club, the greens were Tifdwarf and the tees, fairways and roughs were Cow grass.

The new courses consist of Tifeagle (*Cynodon Dactylon*) on

the greens and Seashore Paspalum (*Paspalum Vaginatatum*) on the tees and fairways. The roughs remain Cow grass (*Paspalum Conjugatum*).

CONSTRUCTION

Work commenced in August 2005 and the programme was such that at all times the members would have 18 holes to play on. Planning on a redesign as opposed to a new build is completely different. Consideration of the members who are still playing golf within the site is obviously critical.

Delivery and storage of materials, safety for golfers and construction staff (from stray golf balls), heavy vehicle access and dust and silt control have to all be planned in an alternate way. Many a time, to keep on schedule after rain delays, work would continue under spotlights late into the night.

Greens

The greens (sizes from 371m²-910m²) were constructed to USGA specifications with 5% peat and 3% Zeolite mixed in. (Total area of greens, 2.5Ha)

Tees

3 Tees per hole were constructed either square or rectangular with subsurface drainage and 300mm of sand rootzone. (2 Ha)

Fairways

Fairways were first sod cut to retain the existing Cow grass for relaying in the roughs. Top soil was then stripped and stockpiled in suitable locations. After shaping was completed, the top soil was brought back and a 200mm compacted layer spread on the sub grade. (47Ha)

Bunkers

The bunkers, which proved the trickiest for the experienced

MAIN: The aftermath of a heavy downpour of rain on the splendid course



construction team, were to “have regular irregularities” in the faces and edges. This was to retain the feel and character of the previous bunkers. A total of 167 bunkers were built on the 36 holes. (Bunkers 2.1Ha)

The bunkers were rough shaped by Excavators, D3 dozer and Bobcat, then the regular irregularities and fine shaping would be finished by hand tools. It took several holes of shaping and reshaping before this was mastered and the architect was satisfied.

Sod and Stolon Nursery

The existing 9 hole course within the site had its Bermuda grass fairways converted to Seashore Paspalum, to be used as a nursery for sodding the surrounds of the Greens, Tees, Bunkers and lake slopes. This was intensively top dressed and fertilised after sod cutting and after approx 12-14 weeks could be sod cut again. (Nursery 4Ha)

Lakes

One existing lake was enlarged and four new lakes were excavated (Total area of new lakes 4 Ha) thus increasing the water storage capacity by 120,000,000 litres. Despite the very high annual rain-

fall, periods of drought had been experienced in the past and this additional capacity will be crucial in the future.

Earthworks

The first nine holes were constructed during the wettest period in Kuala Lumpur for 40 years so progress was frustratingly slow and most of the initial shaping had to be carried out by Excavators. During one prolonged wet period when tipper trucks could not operate we had six excavators in a line passing excavated material to fill fairway mounds.

Not the most economically way to construct but under the monsoon conditions, progress, albeit slow, had to continue.

Drainage

The subsurface drainage pipes ranged in size from 100mm perforated HDPE to 150mm - 600mm solid HDPE and reinforced concrete pipes.

All surface drainage led to 300mm greenside or 600mm fairway catch basins. Due to the very high rates of rainfall and slow discharge of water on this relatively flat site, all catch basin surrounds as well as many other areas such as landing zones etc were “sand capped”, which is

basically a network of subsurface 100mm drainage pipe installed in the sub grade soil with 200mm of tested sand laid on top.

Where budgets allow, fully sand capped courses are very common in this region.

Machinery & Staff

Machinery and staff numbers would change greatly at different times of the project, at peak times there would be:

3-4 Dozers of varying sizes (D6, D5, D4 or D3). 8 Excavators. 10 Tipper trucks. 120 General workers comprising of 30-45 Indonesian workers experienced in golf course construction and the remaining inexperienced workers were from Thailand, Vietnam, Philippines and Bangladesh.

GROW IN

Greens

The greens were grassed with an Ultra dwarf Bermuda grass, Tifeagle. This was shipped in refrigerated containers from neighbouring Thailand.

The Tifeagle would be spread on a moist root zone preferably in the late afternoon or early evening.

With some greens 900m² plus, and grass (in transit for many days and then delayed clearing



INSET ABOVE TOP: Gravel layering green

INSET ABOVE: Green cutting

MAIN: Set beside the course, are the Petronas twin towers, which until 2004 were the tallest building in the world at 452m



Customs and Agricultural inspections) being unloaded in the heat of midday, we would commence hand watering the root zone immediately as the Tifeagle hit the sand. Daily temperatures are fairly constant in Malaysia at about 33-36°C, all year round. This temperature is taken in the shade, and one particular day when a thermometer was left on a green, the temperature hit 44°C.

A Sand pro with disc harrow attachment would immediately travel over the green to insert the sprigs into the root zone.

Hand watering almost constantly would be necessary for the first few weeks. Rolling would then begin before the first cut at 8mm, usually about 15 to 18 days after the stolons were spread.

Height of cut would gradually be reduced to about 3.5mm although at the lower heights any sign of stress and the cutting height would be raised.

It is generally recognised that Tifeagle needs eight hours of full sunlight in ideal growing conditions. Kuala Lumpur, however, is located in a valley and as such had many overcast days and combined with the heavy rainfall and very high humidity (Ave 80- 90%), disease problems were never far away. There was also an annual

period of one to two months when burning to clear land across the Malacca Straits in Indonesia would cause a haze which also reduced visibility and sunlight.

Weekly heavy topdressing after the first cut, reducing to fortnightly lighter topdressings were carried out by hand.

Infestations of Army worms were also common so a granular pesticide applied occasionally with the weekly fertiliser or a curative spray was also required.

Regular slicing of the edges was required to stop the Paspalum encroaching onto the green.

Tees & Fairways

The tees and fairways were stolonised with Seashore Paspalum which was either imported from Thailand or harvested from the nursery.

The steeper slopes and swales would then have shade cloths spread over the stolons and pinned. All catch basins would have a vertical mesh barrier about 400mm high installed around them.

The mesh barrier was necessary as prior to the laying of the shade cloth and the stolons rooting, any of the regular rains could and very often did wash away a whole fairway of newly spread grass. At least this way you could collect

most of the grass from around the catch basins and spread again and again until rooting.

Heavy initial top dressings by hand then by machine, weekly fertilising for the first six weeks then fortnightly would soon give uniform coverage.

Army worms were again a problem and could destroy areas in an evening if not spotted early. Many times after spraying, on would come the rain and the process would have to be repeated.

As Paspalum is a high salt tolerant grass, diluted salt was sprayed regularly as a selective weed killer and also to keep the cow grass from encroaching at the fairway edge.

Handover to Course Superintendent

All areas had a 12 week grow in after which time they were handed back to the club. This allowed the clubs staff to start their own maintenance programs ready for reopening to the members.

I am now working in South Africa, on a Gary Player design 18 hole new build golf course estate. With an annual rainfall of only 500mm it is great to no longer worry about heavy rain regularly disrupting planning and destroying days of work.



INSET ABOVE: Bunker shaping



about the author

For further information about the author, or regarding this article please contact:
Scott MacGregor at:
swmacgregor@gmail.com