

Our Man in Hong Kong

The Hong Kong Cricket Club is 155 years old and is one of the oldest cricket clubs in the world. It is also used for lawn tennis, croquet, football, netball and general recreation. Curator, Ricky Aitken, relates the re-construction of the ground undertaken last year...

The challenge of working in Hong Kong as a Cricket Curator has proved to be both challenging and rewarding. The club site has an annual rainfall of around 3,000mm. The temperatures are extremely variable – during the winter months they can be as low as 6 degrees with no rainfall, and summer temperatures can be as high as 36 degrees, with rainfall as high as one metre in a month. Turf management skills need to be finely tuned. The cricket ground is a unique set up where one corner is taken up by a lawn bowling green and another

taken up by an artificial tennis court, which are both utilized during non cricket match times.

In the winter of 2004, the committee of the Hong Kong Cricket Club unanimously agreed that the time was right to upgrade the cricket ground with a full reconstruction.

The current location, in the highlands of Hong Kong, has been the club's home for the past 30 years. It was relocated from a popular location in the heart of the city. During the relocation in the 1970s, the Hong Kong Government prepared a site, by filling a valley in-between two mountains.

The fill used for the site was poor quality, causing turf management to be difficult. The associated problems with the existing ground were poor turf selection and quality, lack of drainage, poor performing growing medium, excess black layer, uneven surface falls, localized undulations and poor performing irrigation system.

When the planning process began, considerations revolved around the difficult climatic conditions, along with the type of construction that would best

suit the club's needs. Consideration was given to a full USGA construction, however it was decided that a modified Californian-type construction was more suited to our needs. The growing medium, the drainage, and the turf species were considered the three most important factors in the reconstruction, in order for the ground to be able to deal with the conditions and high usage from

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members. Determining the best selection of turf species was not an easy choice. Thought was given to a whole range of warm season grasses. After much deliberation, Seashore Paspalum was selected because of its ability to handle both warm and cool season temperatures; short dormancy during coldest period of the year; ability to recover from wear; ability to handle long periods of low light intensity, and its ability to present as well as any cool season grass.

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continued > A southern China nursery was contracted to grow the turf, where we made regular inspections to ensure a reasonable standard of turf was reached.

We also looked at the growing medium. A Brisbane-based company, Greenway Solutions, was employed to provide technical support in developing an ideal growing medium. We were looking to create a high-quality growing medium that could cope with the Hong Kong rainfall, but also wanted to create a medium that provided the chemical and biological characteristics of a natural soil. It was decided to create a custom blend to be mixed off-site and it was obvious that the

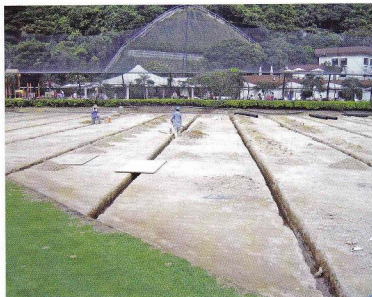


The beginning of the project, excavation of the soil based ground



Completion of the drainage and laying of the growing medium on top

base of the medium would have to be sand that met the USGA standard. Three main products were incorporated with the sand to make up the final growing medium. The first was Profile Greens, a ceramic product that uses Illite clay and amorphous Silica as its base mineral. It has a very high Cation exchange capacity, a particle size that meets USGA specification and is a very similar



Excavation of the drainage trenches at 3m spacings

product to Zeolite. It was used so the pore space of the sand was balanced, ensuring that percolation of the final root zone mix would not be reduced after incorporating the other two amendments. This was incorporated into the sand at a rate of 10%. The second product was Enviroorganics, a fully composted organic fertilizer that uses cattle manure as its organic source. This was incorporated into the sand at a rate of 5%. The third product added was Humate, a readily available carbon source that boasts

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continued > a 70% Humic Acid content.

This was incorporated into the sand at a rate of 1%. Both Enviroorganics and Humate were added to the sand in order to create microbe food sources to stimulate essential microbial activity and soil biological cycles for a healthy a root zone environment. The three amendment products made up 16% of the final root growing medium mix and were incorporated three times through a mixing plant off-site, which eventually made up the humongous growing medium.

It's not unusual to receive a metre of rain within a calendar month, so drainage was an important factor. A drainage rate of 25mm of rainfall per hour was set as the drainage design rate. In order to put in place a drainage system to cope with 25mm of rainfall per hour, Hooghoudt's formula was used, taking into consideration the soil profile depth, the drainage pipe spacing, and the infiltration rate of the

growing medium that would be used. The calculation told us that we needed to construct a soil profile to a depth of 250mm, using a drainage pipe spacing of 3 metres. The next phase of the planning process was to identify an irrigation system. A maintenance-friendly Rain Bird system using 7005 heads was chosen because of their ease of adjustment and lasting qualities.

After being put out to tender, Asian Sportsturf Consultants were awarded the contract as the committee had the full confidence that ASC had the skills and resources to carry out the project with the necessary degree of accuracy.

The contract period was 12 weeks and commenced at the end of March, 2005. There was approximately 2,200m³ of soil excavated from the site to make way for the new ground. The sub-base was graded with a laser operated grader to achieve the 1% fall from the centre pitch area to the boundary as per the specification. The drainage was 'cut in' to the compacted sub-base using a trenching machine at 3 metre spacing, using a half herringbone drainage design. The lateral drainage pipes used were 100mm ADS perforated pipe and the lateral pipes were connected into a 200mm ADS perforated pipe that acted as a catcher drain for the lateral pipes that surrounded the edge of the ground. All trenches and pipes carried a fall of 1%, and all trenches were backfilled with 5-7mm washed aggregate. Due to the nature of old sub-base soil, there were many difficulties during

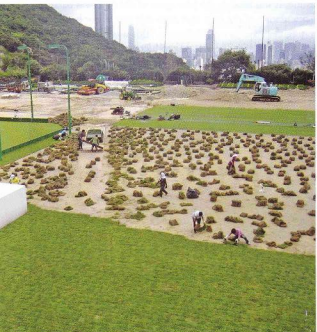


Start of the sub-base levelling

the trenching process, with rocks needing to be 'jackedhammered' out of the drainage lines. The installation of the irrigation system was incorporated at the same time as the drainage system, but in separate trenches.

On completion of the drainage and irrigation system, the pre-mixed root zone was transported in from the mixing site and spread in two layers of 125mm. It was consolidated at the conclusion of each layer with lightweight machinery and heavy irrigation to avoid any movement or disruption to surface levels at a later date. Once the entire growing medium was in place, the final levels were obtained using a laser level to mirror the sub-base levels, which is a 1% fall from the cricket square to the boundary. The turf was laid over a period of 5 days – the turf was lightly rolled upon completion and received its first cut within 5 days of being laid. The ground was open within four weeks of completion.

The project was completed 10 days under the contract period. In the month that followed, there was 900mm of rainfall which posed no problems for the drainage system.



Completion of the final levels and start of the turf laying