

RICHMOND GOLF
CLUB

BUNKER REPORT
NOVEMBER 2008



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Brief History of Golf and Bunker Development

In the rules of golf, a bunker is described as “an area of bare ground, often a depression, which is usually covered with sand”. These traps of sand or grass serve as obstacles to impose a penalty on a player.

The history of bunkers is linked to the origins of golf itself. The early history of golf is clouded in mystery, but is believed to go back six centuries when the game was played along the ground. The game, from start to termination, could consist of any number of holes and was played in local parks, royal gardens. Open fields, wastelands' or whatever was available. The main criterion for a game of golf was for the site to be interesting and a challenge, rather than to consider the fairness to players.

The modern era of golf started with the founding of golf links on the linksland of Scotland, England and Ireland. This land, by definition is neither land nor sea Instead it is a blessed strip of sandy waste, formed by the receding sea, where the weathered sands are cast in parallel ridge and valleys forming minor pattern of hillocks and hollows, fertilized by seagulls, sown by wind born grass seeds mowed by rabbits.

The linkslands of the 1500's were dotted with many bowl-shaped depressions. On hardening of the ground the golfer's ball would bounce towards the centre of the depression, hence localizing and concentrating the traffic. Over a period of time the bases of these basins became worn away and wind abuse soon gave way to sand blown pits.

These depressions soon developed into deep holes or bunkers. This natural sand trapping led to a hazard being incurred incurred by the golfer, which placed him/her at a distinct disadvantage to his/her opponent.

Although most of the bunker of the day appears to be natural, there is some speculation that the old cunning Scots constructed and placed the bunkers deliberately for strategic play

Permanent golf course came into vogue during the early and mid 1500's. One of the courses established then, St Andrews is now considered the shrine of golf.

In 1764 St Andrews reduced its course from twenty – two holes to eighteen holes. This was to become a significant date because seventy years later, eighteen holes became the standard number.

There was a revival of interest in golf during the early 1800's which led to course spreading throughout world BT the late 1800's.

During the ensuing years golf course went through numerous developmental stages.

1866 – The first professional greenkeepers were hired which initiated a whole new concept to golf courses.

1898 – The rubber wound ball was invented and gained acceptance during 1901. This new ball allowed the addition of 50 meters to the carry of the ball. This event had a tendency to shorten the relative distance of the course and resulted in changes in golf architecture. The difficulty of designing course challenging for both long and cohort hitter was thus immensely increased and the strategic placement of bunkers started to appear.

Bunker design had its most dynamic changes from WWI onward because of the incorporation of drainage. So this is what you see in today's bunkers good design bunkers and free draining bunkers with great play ability.

Bunkers at Richmond Golf Club

Golf is continually evolving in the response to high tech equipment, more sophisticated maintenance standards and techniques and the escalating demands of golfers for specific playing conditions. Nowhere has this been more evident than in the placement, design, construction and maintenance of bunkers. Only a decade ago, bunkers were thought of as hazards to be avoided because of the difficulty of playing out of them, owing to the unpredictable nature of their playing conditions. However today's bunkers are a highly maintained and precisely constructed at a cost that can exceed that of a green.

There is often controversy when plans are released for the members perusal about bunker placement, how penal the bunker should be, the shape and size and the number of bunkers needed etc. almost every golfer has a strong opinion on these topics. There is no right or wrong answers but only what the decision makers at the time feel is best for their course.

When we are considering building a bunker it is essential that a course architect is hired so the bunker is built to a plan that will be playable and functional as well as adding continuity to the course. This is best illustrated by the 4th fairway bunker and the four bunkers on the 17th approach. These bunkers all designed by the same architect are practical, easy to maintain and visually pleasing in contrast to the 8th green side bunkers which were built in house and without a architects involvement. They are time consuming to maintain due to the constant washing out affect on the bunker faces through incorrect positioning of the shed lines. There are unplayable lies in these bunkers as well as the problem with the mating, all of which could have been avoided through the use of an architect.

To solve the bunker issue here at Richmond a bunker renovation program should be implemented with the bunkers in the worst condition to be renovated first. An architect would be hired and he would go through all the bunkers placing the bunkers into categories such as –

- *Bunkers to be fully redesigned and constructed*
- *Bunkers with some redesigning and construction*
- *Bunkers that can be gutted and new drainage added*
- *Bunkers that are fine*

The Issues

From discussions on course and my own observations, the main issues regarding the condition of the bunkers are;

Drainage

- *This is influenced by the ability of water to move down through the sand profile away from the bunker playing surface, and then to a drainage system that removes the water completely*

Surface hardness

- *This is directly related to the ability of the sand to dry out, with excessive moisture retention leading to compacted bunker floors that limit the ability of the golfer to get their club through the sand under the ball.*

Maintenance time

- *Due to the constant battle with poorly constructed bunker and drainage in many bunkers, a disproportionate amount of time is required to spend preparing the bunkers to an acceptable standard.*
- *This issue is compounded by the rainfall, topography, soil and surface and surface water movement through the golf course that consistently challenges the drainage of the bunkers.*
- *Bunkers are raked with a combination of hand raking and machinery raking and when conditions are ideal can be completed in three-nine hours by 2 staff members. (mid week)When bunkers are wet from irrigation or normal course drainage, or damage by rain events, routine bunker maintenance can take between 1 to 2 days for four staff members.*

Presentation

- *Bunker presentation is compromised due to the limited time resources available for maintenance budget retraces due to the factors listed above.*
- *Presentation is further compromised by the constant depositing of leaf litter, and the reduced maintenance focus allowing weeds to establish readily throughout the bunkers.*

Resources

Richmond Golf Club employs five full time ground staff plus full time mechanic & two casual staff over summer period. Taking into account normal working conditions (38 hour working week , annual leave, sick leave etc), this allows for a budget of approximately 11,856 human resource (HR) hours per year, or approximately 228 HR hours per week.

Review / Recommendations

The following is a review of the entire bunker through the course following inspection.

- *1st bunker - front face needs redesigning*
- *2nd Bunker – needs redesigning as do all the mounds around the bunker as you can't see the bunker from the tee. No drainage at all in this bunker. The back half of the bunker is by far too narrow.*
- *3rd bunkers – front bunker has major drainage problems as do the two side bunkers*
- *4th Bunkers – fairway bunker is excellent, two bunkers around the green are fine except have poor drainage*
- *6th Bunkers – we have installed sand trapper on the steep faces of the right hand bunker, this will aid in the sand staying on the face.*
- *7th Bunkers - all bunkers need total reconstruction and design. No drainage in the bunkers*
- *8th Bunkers - all bunkers need to be redesigned and constructed.*
- *9th Bunkers – we have started installing sand trapper on the steep faces.*

- 10th Bunkers - the bunkers are not that bad some drainage is needed to the front left bunker and some redesign needed as some parts of the bunker are narrow.
- 11th Bunkers – like the bunker on the first both bunkers need the face reconstructed and design.
- 12th Bunkers - all bunkers need reconstructed (we have plan for reconstruction all the bunker drawn up by Peter Williams)
- 13th Bunker - needs drainage.
- 14th Bunker - needs total reconstruction and designing.
- 15th Bunkers - both bunkers need draining
- 16th Bunkers - total reconstruction and designing. (we have plans for reconstruction the bunkers drawn up by Peter Williams)
- 17th Bunkers - best bunkers on the course
- 18th Bunker - needs drainage.

Summary

Routine maintenance of the existing bunker can take up 3-9 hours for 2 staff members, and ideally would be performed three times per week, utilizing as many as 54 HR hours per week. This represents close to 24% of the HR hour budget, and is far in excess of a suggested sustainable benchmark figure of less than 10% for routine bunker maintenance. Practices such as edging and refurbishment also need to be taken into account.

Due to local climate, soil types and topography, the bunkers are heavily reliant on drainage to provide a sustainable playing surface. A systematic approach to upgrading drainage 80% of bunkers needs to be developed through increasing and replacing or refurbishing sub-surface drainage system.

Clearly there is a disproportionate amount of time required to maintain the current bunkers to an acceptable standard. It is becoming increase hard to maintain the existing bunker number on current staff levels, especially when numerous bunkers serve primarily as ball retention features.

Bunker Costing

- ***Bunker Sand \$ 39.50 Ton (Average 60ton per bunker)***
- ***10mm Gravel \$50.00 Ton (Average 15ton per bunker)***
- ***Washed Riversand \$50.00 Ton (Average 15ton per bunker)***
- ***Sand Trapper \$1,017.50 Roll cover 52sq/m***
- ***Shade Cloth 1800mm Roll \$622.50 Roll cover 54sq/m***
- ***Landscape V – Staple \$135.00 Box of 400***
- ***100mm Socket Agg Pipe \$264.00 100m Roll***
- ***65mm Socket Agg Pipe \$429.00 200m Roll***
- ***100mm Storm Water Pipe \$27.17 6m Length***
- ***65mm Storm Water Pipe \$27.50 6m Length***
- ***100mm Y Junctions \$4.12 Each***
- ***65mm Y Junctions \$4.12 Each***
- ***300mm x 300mm Drainage Pits \$23.80 Each***
- ***300mm x 300mm Drainage Grate \$28.15 Each***
- ***600mm x 600mm Drainage Pits \$106.70 Each***
- ***600mm x 600mm Drainage Grate \$133.10 Each***
- ***Machinery Hire***
- ***Labor***

Note: This is a cost of materiel to drainage bunker as of November 2008

Conclusion

In concluding this report it is my belief that we start implementing the course master plan which was drawn up by Peter Williams this will resolve all the problems in regards to the bunker at Richmond golf club. It is my belief that golf is forgetting those bunkers are hazards don't hit your ball in there and there will

Not be a problem. Bunkers are costing the same amount of money to maintain as Greens & tees which is a big problem for this club. Greens are our bread and butter not bunkers so we need to get this master plan up and going and invested in the further of Richmond Golf Club and be around for 110 more years.

I trust this information is of some benefit. Please do not hesitate to contact me should you have any further questions.

Sincerely

*Mark Williams
Course Superintendent*

