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Turf Advisory Service Report

Gabriola Island Golf Club

October 18, 2003

Att:

Mr. Graham Mules, President
Mr. Frank Gregge, Greens Chairperson
Mr. Bill Smith, Golf Professional / General Manager
Mr. Craig Robertson, Golf Course Superintendent

It was a pleasure to visit Gabriola Island Golf Club. The recommendations found in this report reflect both new and basic technologies and techniques that can assist in providing your players with the best possible playing conditions within budgetary considerations. During my consultation many strong points were seen at the course. I reviewed various aspects of the course and operations with key individuals involved with the club. From a players point of view I was extremely impressed with the layout of the golf course. The golf course was well spaced out and there were definitely nine different holes to enjoy. I would say this is truly one of the hidden gems for the golf islands, and especially Gabriola Island. Mr. Bill Smith has to where many different hats at an operation such as yours, and he is truly a unique individual. He is very proud of the accomplishments of all those involved to raise Gabriola to the level that all of you enjoy today. He brings a knowledge base second to none in Canada with his years of experience and his ability to make strangers feel welcomed. Secondly, I was very impressed with Mr. Craig Robertson and his ability to make miracles happen with limited resources. It takes pure dedication to make things happen with limited resources.

The main topics of discussion included existing operations for the club, golf course maintenance program course equipment, course conditions, tees, greens, fairway drainage, #3 green, #5 green. Should you have any questions concerning this report or visit, please do not hesitate contacting me.

Tees

Observations. During my time on the course I was able to view all the tee surfaces on course. Mr. Robertson has already improved some of your problematic tees and he was in the process of renovating tee # 3. Some of the existing tee renovations have made dramatic improvements.

Recommendations. The following can help tee renovation projects and also improve existing problematic tees.

- **Overseed existing tees that are wearing thin.** There have been great improvements in grass varieties over the last decade, and these can help out thing tee surfaces.
popular blend is Champion seed, which is a combination of 3 different perennial ryegrasses, SR 4100, SR 4200, SR 4050. Each of these has A their own strong characteristics, but when combined together they can combat many turf related stress such as shade, moisture, traffic, and drought.

Thinning turf #1 tee

These grasses can be incorporated into the tee during aeration, or late spring and early fall. Since labour is lacking, divot pails can be also placed out on problematic tees as well. The pails contain sand, seed, and a source of organic matter such as peat. They should have a lid to keep irrigation water out. During summer time seed can germinate as early as 3 days inside the buckets, so it is recommended to replace the divot material once per week. These pails should only be placed out on course during the growing season, normally from May 1st – October 1st. To help germination it is recommended to use a starter fertilizer at half the cost of a starter fertilizer you can use monamonium phosphate 11-48-0 with Humic Acid ($20/bag). It should take approximately 3 bags to do all of your tees.

- **Thin out trees causing excessive shade on tees**. Some of the growing conditions are extremely difficult especially shaded greens and tees. It is very important for all turf to receive morning sunlight. Your 4th tee is shaded on three different directions. If possible thin out the crowns of some of the trees. As well you can root-prune 18" deep outside the drip line of the fir trees. The use of a trencher can cut easily through roots; soil that is removed from the trenching process can be placed back into the trench. Evergreen trees have the ability to produce massive spreading roots systems. An evergreen has the ability to produce roots that spread as far as the tree is tall.

#4 Tee thin turf

- **Make sure new tee construction or renovation is wide enough for triplex mowers.** Triplex mowers need a minimum 20 ft to turn gradually. If the width of the tee is to narrow the tires and the cutting units tend to shift along the ground causing repeated stress on these sharp turns. Also during this time it is recommended that all new tees be built with a surface grade of 1% from front to back to allow for adequate drainage.

 # 3

 # 3 Tee renovation

- **Intensify cultural practices.** With a limited labour budget, I'm not sure how Mr. Robertson can aerate tees at least twice a year, but it is highly recommended. The tees are receiving almost 30,000 rounds per year, mowing equipment, and foot traffic standing on the tee while waiting. Proper fertility and on going overseeding should help the tee surfaces. With this type of compaction, it makes it very difficult for turf to survive.

- **Change sand used during aeration.** I would recommend using concrete sand. It is coarser than your existing sand. One of the main areas of concern is the quality of sand you are currently using. You are currently using non-spec sand, which has a wide variety of particle sizes, but most detrimental is the amount of fine particles in this sand. The amount of fines in this sand, these will cause a decrease in air and water and they are also very susceptible to compaction. I have reviewed the particle analysis for the concrete sand from Hub City Paving & Gravel, and it meets the proper specifications.

Greens

Observations. I was impressed with the different greens throughout the course. The greens were thick, healthy, and they rolled well. After the heavy rainfall, they were very wet, and I had a chance to review the drainage profile. There were a few problematic greens, as well as I noticed fungus on two of the greens.

Recommendations.

- **Change sand source for greens**. You are currently using non-spec sand on greens. This particular sand is very detrimental to the health and longevity of all of your greens. I would recommend using concrete sand on these greens. This sand is coarser in texture and will help improve the porosity of the growing profile. If you decide to adopt a regular topdressing program, then I would suggest switching to U.S.G.A. spec sand.

#3 Green Drainage Problems

This sand is fine enough to brush into your greens without damaging greens mowers. The particle distribution is consistent so it will not impede air and water movement on through the growing profile.

- **Continue Deep-tine Aeration**. This type of aeration is very beneficial for greens, especially soil based greens. It allows water movement into the subgrade of green. With the use of proper sand, you can rejuvenate problematic greens. I would recommend this procedure at least once per year. It would be beneficial if aeration depth could reach a minimum 7 inches.

Verti-Drain Aerator

- **Frequent Topdressing Program**
One of the most beneficial cultural programs a golf course can do is a light frequent topdressing every two weeks. I understand that this may not be reality at this time due to budget and labour constrants. However, if you are looking for firm greens, faster greens, and lower mowing heights, this would be the first place you would start. It is important that you use a U.S.G.A. spec sand. The sand helps smooth out the putting surface, protects the crown of the grass plant so you can mow lower, and it improves air and water movement through the profile. I understand the lack of labour Mr. Robertson has at this time.

Light Frequent Topdressing

He would require a minimum of four staff in peak season to perform this on a consistant basis. If the club is looking to make major improvments on the greens, this would be the starting point.

- **Root-prune out side of tree drip-lines**.
Mature trees on golf courses have extensive root systems that compete for water and nutrients. If a trench is cut approximately 18" in depth around the drip-line of the tree, you will cut down tree root competition. The trenches can then be backfilled with the material that is pulled out. There are root barrier products that can be placed in the trench to impede re-growth of new roots back on tees or greens. These are costly measures with limited success. You could root prune problematic trees near greens or tees every five years, and have great success.

Trenching around drip-line

Most evergreen trees produce root systems no deeper than 18 ". The top picture shows the drought that tree roots cause on turf. One year later the second picture illustrates the success of root pruning, the turf on the right is healthy and full, and the turf on the left of the trench is thin from competing fir tree roots.

Healthy turf on the right side

- An ideal location for root pruning would be at the back of 3 green. This area would also benefit installing lateral drains that would lead up to the back left of the green and tie them into the drain between 3 green and 4 tee.

Root pruning & drainage needed

- ***Curtain drainage***. Installation of curtain drains in areas that are causing surface water to run on desirable areas such as greens and tees. It would be advisable to switch to a finer stone such as 3/8" torpedo rock. The macropore space is smaller than your existing 1" drain rock that you are using. You can backfill the drain to the surface if large volumes of water are expected. If not, then I would suggest backfilling the trench with coarse washed sand. This will intercept water moving laterally underground. Some of your existing drains are back filled with soil right to the surface, allowing water to move over top of the drain rather than down into the drain.

Surface curtain drain

- **Drainage Renovation**
  Existing drains can be renovated with a trencher. Using a probe to identify location of drain and rock, use marker paint to lay out trenching pattern, use trencher to dig soil that is covering drain rock, remove soils and back fill trench to the surface with coarse washed sand.

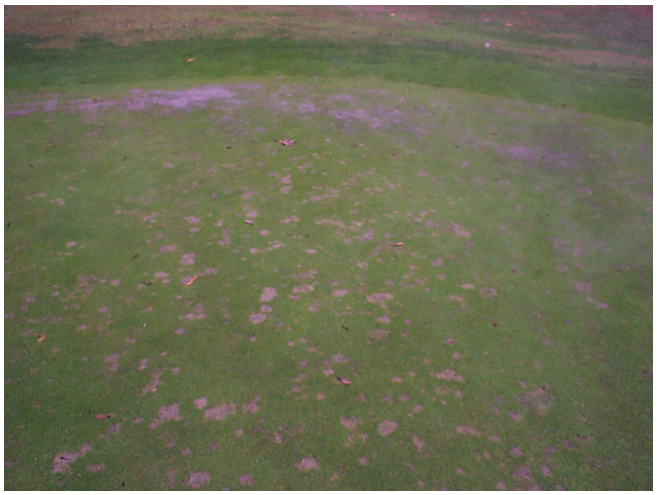
Drain opened up because it is backfilled with soil and ineffective

- **#5 Green Replacement.**

It is advisable to rebuild #5 green. You can possibly move the green further back and up to the right. It is very important for all turf to receive sunlight, especially morning sunlight. This green is in a pocket were very little light or can move to the green. A new green is normally planted with creeping bentgrass. Because this type of grass in 35% less photosynthetically efficient than annual bluegrass, it will struggle to mature. I would then recommend removing trees that are blocking morning sunlight. If this in not feasible I would then suggest to thin out the canopy of trees or top trees that are blocking the morning sunlight. Doing the above mentioned will also improve air movement.

Shaded 5th green

When a green grows in this type of microclimate it becomes susceptible to disease infection. As the picture illustrates, Fusarium Patch has moved in to the surface and severely damaged the green putting surface. This damage will remain until next spring when conditions favour new growth. It would be advisable in future to use this green as your ***signal green*** for disease monitoring. Once early disease symptoms show up on this green, it would be advisable to treat all of your greens. I would suggest a combination of two fungicides, one being a contact fungicide to control the active disease, and the second being a systemic fungicide that will protect the green from future infection. The mix would be 6 oz or 180 grams of Manzate DG (contact) with 2 oz or 60 grams of Senator (systemic) in 1.5 gallons or 6 litres of water per 1,000 sq. ft. Fusarium Patch normally shows up when morning dew is starting to from early September and can last until early May.



Fusarium Patch Damage

If a new green is constructed, I would suggest using at least 10” of a U.S.G.A. spec amended sand. Besides putting subgrade drainage in this profile I would suggest putting a curtain drain at the top of the green to intercept surface water trying to run on or into the green surface. If there is not a drainage ditch to exhaust the water to, you can dig a gravel bed in ground in a lower location from your curtain drain. I have talked to Mr. Robertson about the greens construction process, and he has a clear understanding on the process.

- **Drainage**

Continue working on drainage around problematic areas on the course. In this particular case on (***3 green, pic. 1)***, the low area of the green is left side. All water moves across the greens surface and below ground it hits an interface between sand on the green and soil on the collar, blocking the water; it is forced to the surface. This is also problematic because this is your traffic area to the next tee. Traffic is forced through this area that is normally wet therefore compounding plant health problems. As a result the growing medium becomes anaerobic with the oxygen levels being depleted to 20% of normal capacity. Once this happens you are faced with a build up of hydrogen sulfide. This buildup of gas is toxic to root systems and you are faced with an undersized root system and poor quality turf. The growing medium then develops "***Black Layer"(green 3 pic 2*****)** under the root system causing shallow roots. This picture also illustrates the water sitting under the surface. Even though there is sand in this profile, it is not spec and does not allow water movement very easily. On the picture ***(green 3 pic 3)*** you can see the layering problems from black layer. Roots will not penetrate the layer because of the build up of hydrogen sulphide and roots are less than an inch in depth.

Green 3, pic. 1

Green 3 pic, 2

Recommendations

You should be able to make considerable improvements on # 3 green by implementing deep-tine aeration a minimum twice per year. If the aerator can be set with a kick action to loosen the subgrade, that would prove beneficial. The aeration holes should be filled with concrete sand from Hub City, it has an ideal particle profile to improve water infiltration. I would suggest adding a curtain drain at the perimeter of the green between the sand and soil interface. Adding short laterals that would enter into the green approximately 6 ft in length will also help remove water from the profile. These changes will improve the porosity of the growing medium and help air and water movement, therefore impacting the buildup of black layer.

Green 3 pic. 3

- **Damage On Perimeters**

Various locations on greens and tees perimeters are thin and even void of turf.

Damage on putting green

Recommendations.

This damage is caused from mower cleanup pass. The mower is turning tight and actually has a skidding motion causing excessive stress on these areas. Some of the areas such as your putting green should be expanded to accommodate a triplex mower cleanup pass. The area could be lightly topdressed and gradually mown down to green height. A common practice on golf courses is not perform a cleanup pass every second or third mowing to give the turf break from this stress.

Fairways

Observations Overall I found the fairways to be in great condition. The fairways are uneven which makes it difficult to mow any lower. Mr. Robertson has done an exceptional job grooming the golf course with the limited equipment he has.

#9 Fairway

Recommendations.

Fertility rates are little on the low side Average fairway fertility programs receive a minimum 2.5 lbs of actual nitrogen per 1,000 sq. ft. annually. You are currently putting on less than 1 lbs. of N. An increase would promote healthier stand of turf. I have asked Evergro Canada to perform some soil tests for me at no cost to your club.

Once I receive the tests I can better make recommendations to your fertility program and lime recommendations.

Other Recommendations

Budgetary

Equipment

Long Range Planning

Summary

It was a great pleasure for me to play your course and review Gabriola Island Golf Course. The membership should be proud of the golf course they have and the fine work that has been done since its opening. I commend the great work Mr. Bill Smith and Mr Craig Robertson have done. It is easy to look at other operations and see things that you may want, but they come at a cost. With Mr. Smith's expertise I think you can continue to promote your course and increase revenues through outside tournaments or club functions involving guest revenue. These revenues can be used to protect the investment in your golf course. I truly understand how price sensitive a small community can be to dues increase. The single most important change you can make is the use of your sand. I would seriously consider developing a long range plan to identify needs that may pop up.