

Gourock Golf Club

Report on Proposed Course Improvement Works

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Present

Hugh Logue - Course Manager

Jay Dobson - Consultant Turfgrass Agronomist

Perspective

Gourock Golf Club like many in the West of Scotland, has had to deal with some fairly serious issues over the last few years, not the least of which is a notable and well recorded increase in rainfall totals. As an example the total for the first 12 days of April 2016 is approaching 75mm or 3 inches. This compares with the average monthly total for April of 62.9mm. In isolation this means little, however the Glasgow average for the period 1981-2010 is 1124mm, this total being comfortably exceeded over the last few years. Monthly, seasonal and local rainfall totals also appear to be increasing, December 2015 for instance having 370mm (15 inches) comparing to the monthly average of less than half this figure. In addition to this, rainfall incidents now appear more intense with larger totals falling over shorter periods. Lowering temperatures in late autumn and winter also means that there is less evaporation and cumulative rainfall also increases the likelihood of high water tables and saturation. The upshot of this change in rainfall patterns means that golf clubs are now having to look at how their courses are managed with a view to keeping them available to the members for play and to the greens staff for maintenance.

From our discussions, it would appear that Gourock GC have always been proactive in managing and improving the course. Some fairly extensive work

to improve and rebuild greens and to improve wetter areas of the course including fairways and traffic routes were all noticeable at inspection. This proactive approach to these changes in climatic conditions and the impact of increased rainfall on the golf course has already improved matters markedly, however it is always important to keep moving matters forward and our inspection and this report form the basis for the next steps.

Background

Gourock golf club is laid out on land above the town and has spectacular views of the Clyde Estuary and the Argyll hills. Underlying geology is that of 'Clyde Plateau lavas,' some of this rock being found close to the surface in number of areas of the course, impacting on maintenance, management and drainage. The land and vegetation classification is that of 'moorland' or 'low moor heath,' with a mix of indigenous vegetation such as birch, rowan and gorse as well as planted trees to delineate fairway margins. Some of these have also create problems with existing drainage where there has been tree root ingress in pipework. This can be seen on holes 1, 2, 9, 11, 12, 13, 15, 16 and 18.

The fairways have been worked on extensively over time by the greens staff, standard maintenance including vertidrainage, slitting, scarifying, moss control, pH control, growth regulation and field woodrush management being carried out throughout the year. In tandem with this, project work to greens, tees, surrounds, approaches and fairways has also been carried out and it has to be said that this work has had a significant positive impact around the course. However this work has also been hindered by the weather conditions over the last couple of years.

Despite this however, management of the extensive areas of the course (fairways, semi-roughs) always has to be driven by available resource and because of this, most golf clubs find it difficult to implement programmes of improvement on these large areas.

So, current problems with fairways, surrounds, approaches and semi roughs are very much a result of changes in weather patterns and increased rainfall

onto what is essentially indigenous (albeit managed) moorland grassland. This is an extremely difficult environment to manage due to a deep surface layer of organic matter (thatch) which is often saturated and anaerobic (without air). This restricts the activity of natural thatch reducers such as fungi and bacteria and this in tandem with acidic, impermeable soils, further hinders the natural breakdown of organic matter, leading to a cycle which is difficult to break.

Inspection

Inspection took place following some further heavy rainfall which was positive in allowing us to review some of the current issues. Samples were taken from a number of fairways around the course, this confirming a similar set of circumstances on nearly all.



Fig. 1 Profile sample, 18th fairway.

The 18th fairway could be described as 'saturated and mobile underfoot in places' at inspection. As can be seen from the attached photograph, the upper 50-60mm (>2 inches) was dominated by a notably yellowed and saturated layer of variable organic matter. This overlay a dark, anaerobic (without air) layer which along with the organic matter smelled strongly of hydrogen sulphide (H₂S). This is an indicator of the activity of sulphate reducing bacteria

(undesirable and inefficient) and also of further acidification. Below this (>120mm) was a fairly uniform grey, fine textured, silty clay soil. This showed little aggregation or structure and was compacted in places and fairly dry, due to its generally impermeable nature and the water perched in the thatch above.

Inspection of fairways where work had already been carried out by the greens staff to drain and improve them showed a better set circumstances, e.g. 6th (thatch stripped and drained) and 8th (previously drained). However even here the thatch layer was holding moisture and reducing the effectiveness of the drainage.

The 2nd fairway had also had work carried out to improve it, with an area stripped, re-rootzoned and re-turfed to the lhs centre being much firmer. However the area from the tee walkway through the lhs of the fairway was extremely mobile underfoot in places (possibly indicating failure of old field drains) and would certainly require remedial work as a a priority.

As above, number of areas around the course also showed impact from failed field drainage, common on old sites, as remedial drainage will inevitably fail for any number of reasons including loss of levels in old pipe runs, collapse, silting, inappropriate drainage aggregate or contamination and tree root ingress in pipework. Unfortunately areas where any of these are suspected require excavation for inspection before new drainage is put in place.

Priorities

As with all things, prioritising the works required is in itself a priority. However at our original meeting we discussed carrying out work to heavily scarify, sand top dress and recover as many fairways as we could, in as short a timescale as would be allowed by the weather, resource and the day to day workings of the course. As to the scarifying process, this should involve demonstration of potentially suitable scarifiers (Weidenmann Super 600, Koro) to ascertain performance parameters and to allow assessment of effectiveness with differing surface conditions. There will also be a requirement for a seed drill following scarification works and this should also be costed. We are also attempting to

source a suitable (and suitably priced) sand to allow the required amounts of sand top dressing to be returned following scarification, helping to further dilute the organic matter, firming up the surfaces.

In addition, the 2nd, 6th and 8th fairways were identified as short term goals and we would support this.

The 2nd fairway was targeted as having the lhs stripped down to the tee path (to remove the heavy thatch layer), drain and, root zone and re-turf as appropriate. The drier rhs to have a programme of intensive scarifying and sand topdressing.

The 6th fairway was also targeted for scarifying, sand slitting and topdressing, with the 8th having similar work.

In addition to the above, drainage works were identified as being required on the 1st, 12th, 13th and 18th fairways in tandem the tree root contamination (including semi rough on 1, 18) and also the above noted 2nd, 14th and 15th.

Resources

Currently all work is carried out by the greens staff, however the extensive nature of the proposed works would certainly require the purchase of equipment (scarifier, large spinning disc top dresser) as well as use of existing equipment by existing staff, which may require increasing.

As to drainage works, these will be priced accordingly and comparably by specialist sports turf contractors. Outline specifications at present rely on laterals at a maximum of 5m centres on local areas with reductions to 3m (and/or with slits) on smaller areas. All areas would require scarification and further topdressing prior to and post this work. All lateral pipework should be minimum 100mm diameter, perforated plastic pipe with appropriate falls. Aggregate backfill and top out for drainage works is specified as 6-2mm double washed stone, topped out with Devilla medium coarse sand. Sand slits should be excavated with a minimum 50mm overlap above the stone.

It should be noted that existing work by the greens team is fairly extensive and work such as greens reconstruction should be supported and continued. It is important therefore to have sufficient manpower available to continue these and other works as well as maintaining and preparing the golf course for play.

Options

Essentially a number of issues require clearing up as we go through the process. Equipment requires assessment and demonstrating before purchase, internal works such as the 2nd fairway and contractor driven drainage work requires pricing. However the works assessed at inspection fall roughly into five categories:

- Scarification on an as yet undecided frequency followed by sand top dressing and recovery of the existing sward
- Heavy scarification followed by oversowing and sand topdressing
- Strip heavy thatch areas, remove arisings, install drainage where required, sand top dress, ameliorate (to be decided), apply amendments (to be decided)
- Excavate failed drainage, re-drain, reinstate. Option to scarify if surface conditions allow
- Install drainage to water shedding areas on green fronts (to be further discussed)

Timing of Works

The nature of the proposed works makes it imperative that these are carried out within the growing season (June July, August, September). This should hopefully allow works to be carried out when conditions are drier, reducing potential damage on haul roads, aiding recovery on scarified areas and allowing for better germination and establishment of seedlings.

Summary

- Rainfall and weather patterns in west/central Scotland are now impacting negatively on golf courses in the region.

- This is noticeable on courses of all classifications, however those on heavier soils are more likely to have issues associated with water retention and drainage, creating issues with maintenance and playability.
- Golf clubs are now investing more heavily in improvements to the more extensive areas of their courses such as fairways and semi roughs as these areas are seen as the main factors limiting availability for play.
- Gourock golf course is laid out soils associated with moorland and low moor heath. This means there is a lack of topsoil depth, little structure, low permeability, acidity and low fertility. In addition the natural build up of highly water retentive fibre and thatch above makes saturation common and surface stability a localised issue.
- Management and reduction of the fibre, it's dilution with sand topdressing and the installation of appropriate drainage are planned.
- In addition, remedial drainage on previously drained areas to improve performance is planned. Areas where drainage has failed have also been identified for reinstatement.
- Additional and more extensive work to strip and remove heavily thatched areas, heavy sanding to re-establish levels and re-turfing will also be carried out.
- These works will be in addition to existing course maintenance work, which will continue to focus on greens reconstruction and improvement as well as ongoing project work. Current fairway maintenance protocols should be continued.

Jay S Dobson NDTs (Dist).

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