Advisory Report on the Golf Course

Sale Golf Club

Report Date: 28th September 2012

Consultant: Emma Beggs



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Report Title	Advisory Report on the Golf Course
Sports Facility Name	Sale Golf Club
Date of Visit	20th September 2012
Visit Objective	To review prevailing conditions on site and to offer advice on on-going management
Present	Mr John Dixon – Chairman of Green Committee Mr Christopher Boyce – Honorary Club Secretary Mr John Stubbs – Past Captain Mr Chris Leonard – Competitions Chairman Mr Chris Hulme – Head Greenkeeper Mrs Emma Beggs – Turfgrass Agronomist - STRI

Executive Summary

- Weather patterns in 2012 have been truly appalling. April was the wettest on record whilst May remained cool and wet. June was then another record breaking month for rainfall with cool, cloudy weather continuing. July was then another exceptionally wet month with rainfall disrupting many outdoor events. August continued to be dominated by low pressure weather systems with cool, cloudy conditions and high rainfall persisting well into September.

- Clearly the location of Sale Golf Course on the flood plain of the River Mersey, on poorly draining soils and in addition being situated in an area of the country with particularly high rainfall levels, has meant that wet saturated ground conditions have been an on-going problem throughout the season. The emphasis has needed to be on keeping the course open and playable under extremely difficult conditions. It would appear that the greens have performed surprisingly well through this difficult year and the course has been kept open throughout.

- I am delighted to hear that the club have taken delivery of new John Deere maintenance equipment which has included a new greens mower, fairway mower, banks and tees machine as well as the addition of a bunker-rake and a Weiderman Terraspike Verti-drain machine as well as a Gator utility vehicle.

- Opportunities for routine maintenance and in particular aeration and top dressing treatments have been severely restricted and less aeration and less top dressing have been carried out than would be usual during the year.

- Winter project work over the 2011/2011 winter included re-levelling, extending and re-turfing the 1st tee and introducing a new half way around the 18th tees and through the carry area.

- With the club celebrating their Centenary next year, the emphasis must be on presenting the course in optimum condition throughout 2013.

Greens

Review of Maintenance Treatments

The strobilurin fungicide applied in autumn 2011 worked extremely effectively. As a result disease activity was minimal through the autumn and winter period with very little scarring occurring. Aeration treatments have included verti-draining with narrow diameter tines last November followed by slitting through the winter period.

The fertiliser treatment has consisted of an initial fertiliser application of analysis 4:0:8 (NPK plus 3% Mg & 4% Fe) in spring. This has been followed up by 3 applications of a combination Primo-Maxx, Triple Seaweed and 25:0:0 (NPK) Microflow liquid fertiliser.

There has been no hollow coring carried out this year and indeed verti-draining has been confined to localised problem areas such as the left hand side of the 9th green. In spring approximately 30 tonnes of top dressing was applied before ground conditions became too wet. Since then it has not been possible to top dress the greens.

There has been no requirement for applications of fungicide this summer even though warm and wet ground conditions have been conducive to disease activity. Additional rolling has been carried out to help maintain pace and trueness/smoothness of greens although again this has been restricted by overly wet conditions. I am pleased that the irrigation pump was repaired last year although there has been no requirement for irrigation system this season!

Conditions Found & General Comments

This visit was completed immediately after a period of heavy rainfall and clearly this affected site conditions on the day of the visit. Greens were assessed at the end of the fertiliser cycle and the final application of the 4:0:8 analysis fertiliser product was scheduled to be applied in the next few days. Greens generally were weaker than seen previously as a result of being continually wet. Swards remain a blend of annual meadow grass and bent grass and certainly the bent grass component of the turf would appear to be gradually increasing in response to the maintenance practices including lower levels of nitrogen. Encouragingly there was only a small amount of disease noted including fusarium patch disease activity through the back of the 7th green and a small amount of anthracnose noted on the walk off areas at the 1st & 2nd greens. It is likely that the anthracnose has occurred in response to lower fertiliser inputs and inadequate aeration on high wear areas.

Some of the greens were completely saturated with surface water which has persisted for many months, these greens included the 1st, 7th, 9th & 13th. Some of these areas are occurring on the edges of greens where run off is prevented by contour mounding effectively acting as a dam to surface runoff. Examples of this were seen at the 1st and the 5th greens. Certainly there would be benefit in reshaping the mounding through the lower sections to allow water to flow away from putting surfaces unhindered. This work may not be feasible in the autumn before Centenary, but it should certainly be incorporated into the programme for winter 2013.

The 7th green was probably in the worst condition with extensive surface water present. I understand that it was totally flooded a number of weeks ago following an exceptionally heavy downpour. Suggestions as to how this may be tackled are included below.

Photograph 1 – The 7th Green has been under water for extended periods throughout the season.

Beneath all the greens with the exception of the 8th (and probably the 6th although this was not inspected) thatch or organic matter has built up through the base of the sward this growing season. Through the upper 25mm of the profile was evidence of old leaf and root material and this was particularly concentrated at the immediate base of the sward. A typical core is shown in photograph 2 below.

It is important to physical remove some of this thatch, open up soil profiles and incorporate top dressing over the course of next year to re-establish appropriate growing conditions. It is critical to avoid excessive thatch building up otherwise overly soft water retentive disease prone surfaces will develop.

I Know that it is the Centenary next year, however it is important to allow a full and effective aeration programme to be carried out over the next 12 months if we are to try and give every opportunity for presenting the golf greens in optimum condition for this important year. Sadly the impact of this year's weather will undoubtedly affect the quality of surface which can be produced next season and will necessitate a greater amount of work that we would usually expect. This aeration work is required to offset the sealing and compaction which occurs on waterlogged soils under conditions of play and maintenance such as mowing.

Photograph 2 – Typical soil conditions with thatch accumulation within the immediate upper profile.

Greens Recommendations

Aeration

As soon as possible and ideally to coincide with a period of drier weather, hollow core the sand based greens and verti-drain the rest of the soil based constructions employing half inch diameter tines. It is important to carry out some form of aeration work to improve growing conditions whilst we still have growth and before we can expect further rain. You may find that solid tining after verti-draining will help to re-establish surface levels, try this and assess before extending to all greens.

Slit the greens as often as ground conditions permit between now and mid-December aiming for one pass every 2 weeks or so in one general direction.

Next year, the aim should be to solid tine monthly between March & September.

Micro hollow core on at least two separate occasions ideally in May & September during periods of strong growth when this can be followed with top dressing. Next August schedule verti-draining hopefully to coincide with a period of dry weather to fracture and fissure soils and rootzones through to depth.

An additional and recommended option would be to bring in an outside contractor such as Danvic or Bancroft to carry out surface scarification using the Koro during the August maintenance week.

Disease Management

Go ahead within the next few days with the planned application of a Strobularin fungicide. This is an effective way of minimising the potential for disease activity through the autumn months when disease pressures are at their greatest. This application should give in the region of 6 weeks of improved resistance. Bearing in mind wet conditions and thatch levels, there would be benefit in making another application of fungicide at this time. If the turf is still clear of disease activity then make an application of Sygenta's contact plus fungicide Medallion TL.

Make sure that all spraying is carried out in accordance with manufacturer's instructions and spraying regulations following completion of the COSHH Assessment. It would also be sensible to have an application of Chipco Green (a contact fungicide) in stock to swiftly shutdown any disease activity which should occur during mid-winter when growth rates are slow if not non-existent.

It is critical to keep well on top of disease activity this autumn bearing in mind the Centenary celebrations will be starting in early spring. Disease damage can be swift therefore it is important that all staff keep a careful watch for disease over the next couple of months to try and retain full grass cover through all areas.

Fertiliser Applications

Go ahead with the planned final fertiliser application using the 4:0:8 plus 4% Fe Scotts Invigorator product you have in stock. This should be the last nitrogen containing fertiliser product applied this year. Having calculated the amount of nitrogen in the Microflow product at your application rate of 20 litres per hectare, it would appear that 4.6g per m^2 or 46kg per hectare of nitrogen have been applied to the greens this season. This falls at that lower end of the range usually recommended of between 5g - 7g of nitrogen per m^2 for soil based established greens. Next spring follow a similar programme, however depending on growth and recovery you could look to make a second spring application of the Scotts Invigorator product, making applications both in March and April/early May before reverting to the liquid products used this season.

Top Dressing

Budget for a minimum of 100 tonnes of top dressing for next year. Hopefully weather and ground conditions will be far more favourable and allow light applications to be made throughout the growing season. In spring, there will be benefit to making additional top dressing applications if time permits to speed up the rate at which surface levels are improved following winter play.

Green Speed

As long as more typical weather resumes next year we could reasonably expect that drier ground conditions would result in firmer, drier putting surfaces. Under these conditions the turf iron could be used on a weekly basis in conjunction with mowing to present fast well-paced greens for main competitions. Some clubs alternate rolling with cutting on following days to reduce mowing pressure on the turf. The clubs which have adopted this approach do seem to have an improved sward density particularly going into the autumn months. Next season start off by omitting mowing on the quietest day of the week and replacing with rolling instead and assess benefits.

7th Green Drainage

I understand that there is already a comprehensive drainage system in place beneath the 7th green, but clearly surface water is not managing to infiltrate into the pipe drainage below. This green has had standing water across the surface for prolonged periods and we need to find a way of more effectively moving surface water to underlying pipe drainage.

You may find that improving drainage on the 7th fairway and deepening the ditch results in moving water away from this putting surface more readily. It may be that once more normal conditions return that water can infiltrate quickly enough into the pipe drainage particularly if verti-draining can be carried out on occasion and especially when ground conditions are dry.

Monitor performance next year and if there are still concerns about surface drainage then we could look to introduce gravel banding as was used on the 12th green to move surface water swiftly into underlying pipe drainage.

Other Points of Discussion

Tees

As you look to improve presentation for Centenary year, aim to increase the amount of maintenance carried out on tees. A suitable programme was set out within the last report and I would refer you to page 8 of that document for detailed information. Certainly if budgets permit, the introduction of a wetting agent programme and more regular blanket top dressing should bring about improvements in turf cover.

Fairway & Rough Management

This golf course is situated on a fertile floodplain and consequently under periods of wet, warm weather the rate of grass growth is very fast. I understand that issues have arisen this season due to the length of grass clippings following repeated cutting of wet turf surfaces. Current heights of cut through both fairway and rough areas appear to be most appropriate and these should be maintained to ensure that you retain good definition around the site.

Consideration is currently being given to introducing Primo-Maxx for particularly strong growing areas next season to maintain playability and presentation without having to increase mowing frequencies. There is a significant amount of useful information made available by Syngenta on their Greencast website www.greencast.co.uk, here there is a downloadable pdf document covering use of Primo on fairways which will contain additional information.

Drainage

There are already plans in place to introduce catchwater drains and new pipe drainage to tackle persistently wet areas highlighted by this season's weather. It is critical that the club find effective ways to get water off the site and away from playing surfaces as quickly as possible.

Drainage projects this winter should include installing a drain on the surround at the 9th green to move water ideally towards a positive outfall, and at least into the copse behind to reduce damage to the left hand side of this green.

Photograph 3 – Persistent wet area located through the left hand side of the 9th green.

I have enclosed in Appendix 1 leaflets covering STRI recommendations for both catchwater and pipe drainage to provide some further reference material when planning drainage schemes.

It will also be necessary to investigate the remaining wet area on the left banking of the 12th fairway. This fairway has undoubtedly improved enormously following the drainage installed two seasons ago, however the remaining wet area needs to be looked at to ensure that all water through this area is being moved effectively into installed drainage.

Drainage work should also include pipe drainage into the 7th fairway to move water away from landing zones and approach areas. There is drainage already installed, however it would appear this has been compromised by age, verti-drain treatments and tree roots. In conjunction with this work, it would be worth investigating with the depth of the ditch down the left hand side can be increased to increase the amount of water which can be carried. Clearly the effectiveness of this ditch as an outfall will ultimately control the success of drainage installed into this fairway.

The course being situated on such flat low lying ground does make it extremely difficult to move water to positive outfalls. Should the club wish to have further specialist advice than STRI do have drainage consultants available. For information about our fees and services please contact Rob Everett at Head Office on 01274 565131.

It is hoped that it will be possible to arrange for an outside contractor to complete fairway scarification again this autumn. Removing thatch from the base of the fairway turf does improve the rate at which water will infiltrate into underlying drainage where this is present. Scarification also

helps to improve turf vigour and presentation which is clearly important in the lead up to the Centenary.

It is also recommended that the club have an outside contractor to verti-drain all fairways this autumn. This will also help to improve growing conditions and offset surface compaction which will undoubtedly have occurred particularly on concentrated traffic walkways.

Budgets permitting, aim to sand localised wet areas and landing zones in conjunction with verti-drain treatments. During periods of strong growth and under dry conditions, sand should be applied at a rate of between 1-2 kg per m^2 although this rate may need to be adjusted downwards in light of prevailing growth. Sand should be brushed well down tine holes and off the immediate turf surface. Programmes of fairway verti-draining and sanding can be extremely effective at helping to improve surface drainage, although this is likely to take 3 or 4 years of this continued approach before significant improvements can be seen.

I trust you will find the above report covers the issues discussed during the course walk, however if you have any questions or require further help or advice, please do not hesitate to contact me. My STRI office number is 0151 342 7832 and my email address is emma.beggs@stri.co.uk.

Signed

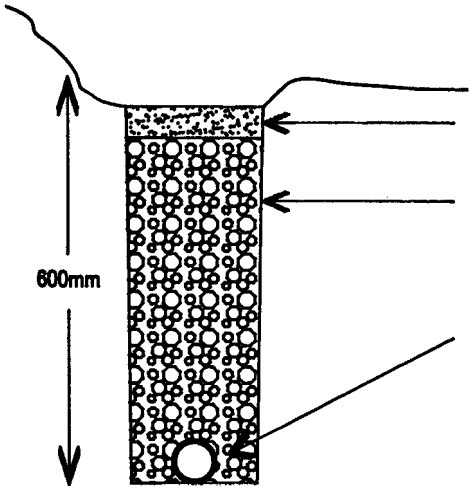
Emma Beggs, BSc (Hons), MBPR, RIPTA
Turfgrass Agronomist

APPENDIX 1

Construction of Catchwater/Cut-Off Drain

The purpose of a catchwater drain is to intercept any flow of water that might enter an area over the surface or along water bearing strata. Such a drain is often useful for intercepting water around the perimeter of a playing field, a golf green or tee. Catchwater drains are usually located at the toe of banks or slopes, i.e.

For full effect, catchwater drain trenches should be filled with permeable material usually up to within 25 mm of ground level. The requirements of the sport, however, may dictate that a turf cover is maintained above the drain so that play is not interfered with, e.g. around golf greens.



50–75 mm coarse sand blinding layer brought to within 25 mm of the surface.

6–10 mm diameter hard aggregate, e.g. gravel.

Perforated plastic drain pipe of 80 mm diameter or nearest equivalent. Pipe generally laid to a minimum 600 mm depth to invert in a trench 150 mm minimum width.

There should be a fall on the drain of no less than 1 in 200 and it should be connected to a positive outlet.

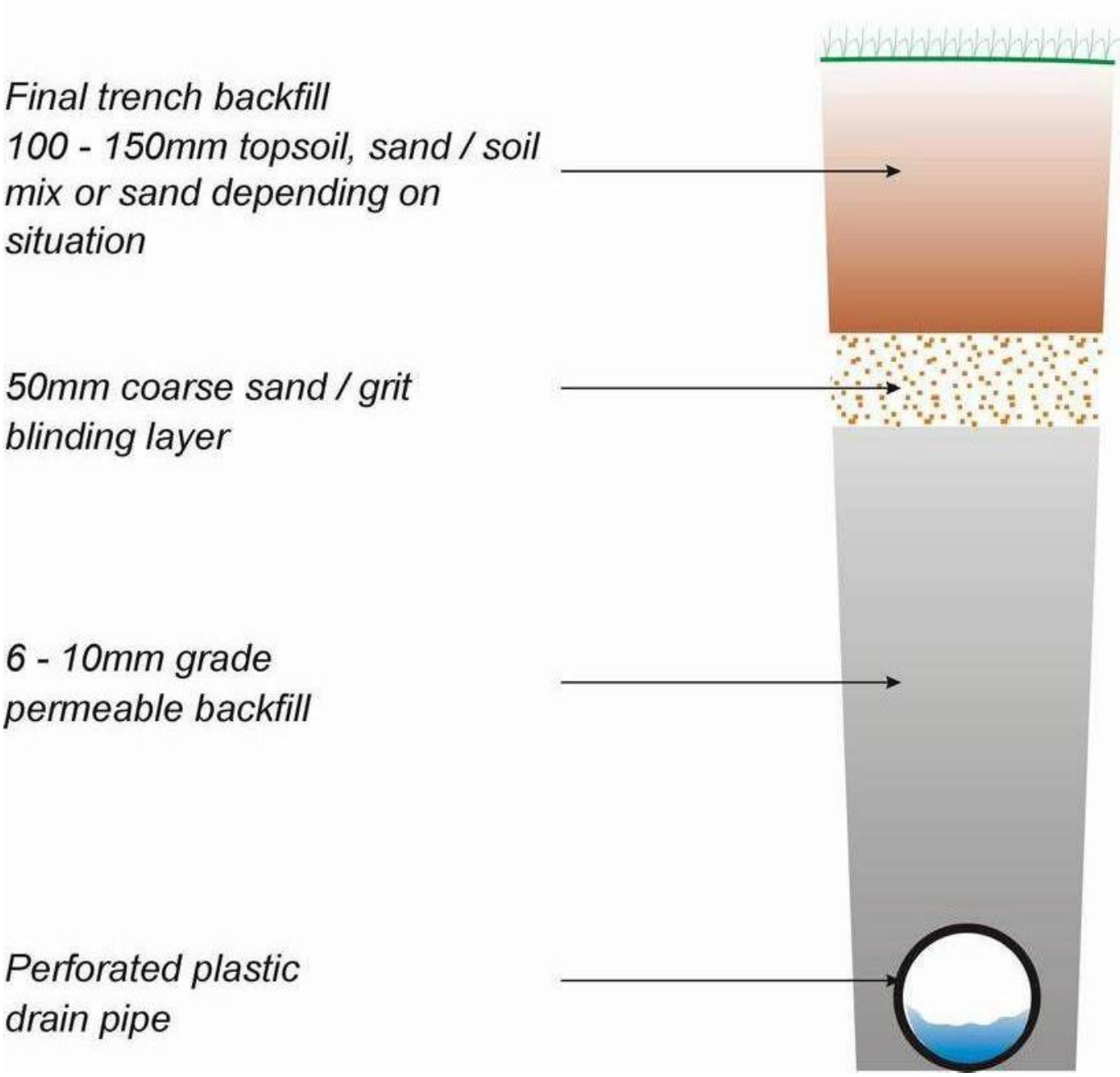
N.B. If a turf cover is required over the drain line, then the turves should be laid slightly dished to hold water.

In executing the works, take recognition of and comply with all statutory Health and Safety Regulations.

This information sheet is of a general nature and is intended only to outline the basic information. Such information is not intended to constitute a specification or comprehensive guidance in relation to any project/subject which should only be undertaken after consultation with those holding appropriate qualifications. The STRI employs persons so qualified who can provide advice and/or relevant specifications. The STRI accept no responsibility or liability for any claims arising from work carried out pursuant to this leaflet.

If you would like further information, please contact the Head of Advisory Services at the STRI – Tel: 01274 565131

Cross Section Through Typical Pipe Drain



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