

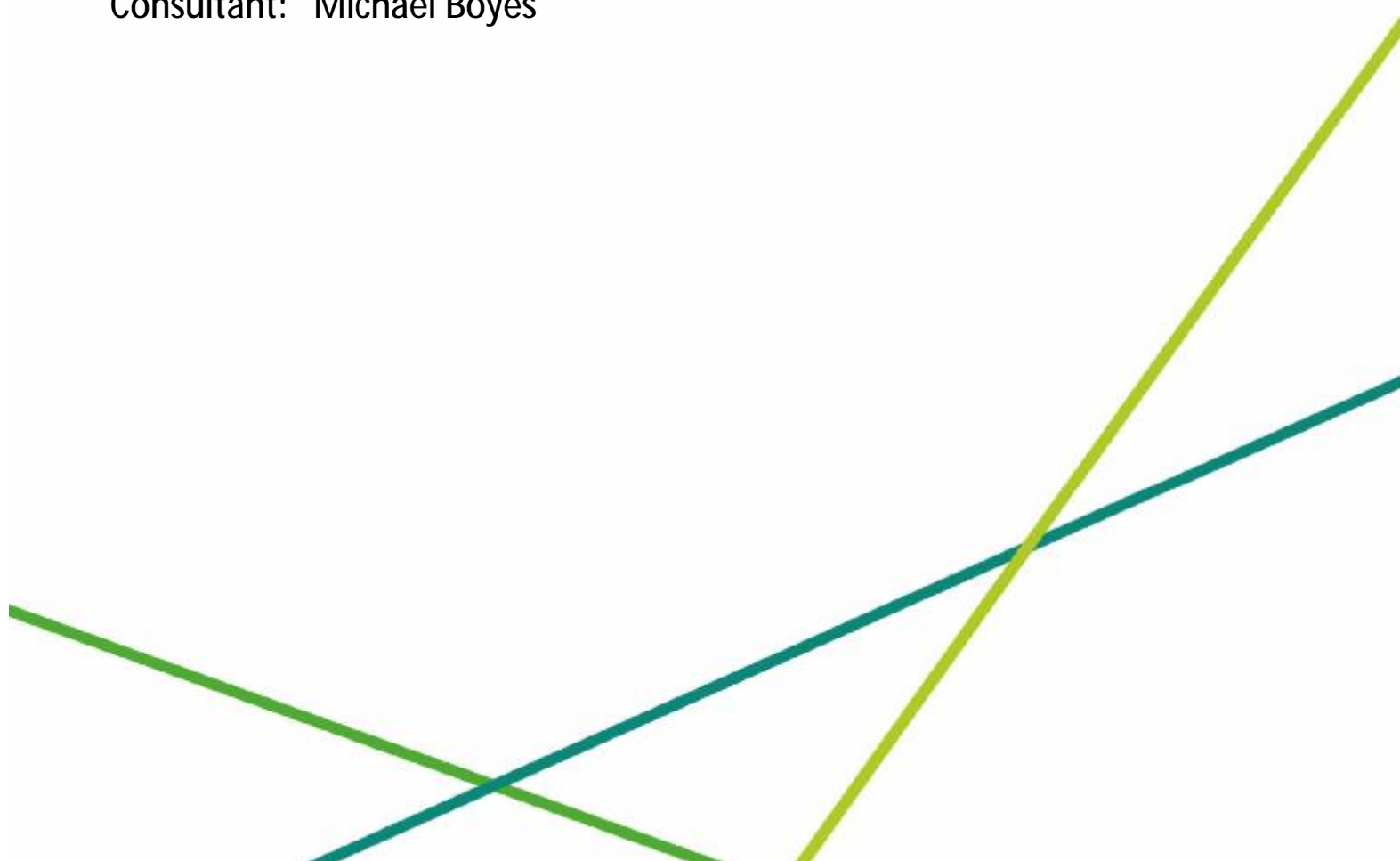


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RETFORD GOLF CLUB

Advisory Report on the Golf Course

Report Date: 29th August 2019
Consultant: Michael Boyes



Date of Visit: Thursday 8th August 2019

Visit Objective: To assess agronomic condition of the golf course and make recommendations for ongoing improvements.

Present: Carl Pigott – Head Greenkeeper, Michael Boyes – Turfgrass Agronomist, STRI

Weather: Sunny with partial cloud cover (17°C).

Headlines

- General golf course presentation was good on the day of the visit and greens performance was noted to be excellent. The grass sward on the putting surfaces remains dense and healthy, with no signs of disease scarring, and root mass development and extension are very good at approximately 120mm. Improvements can also be seen on the problematic 1st green although this does not negate the previous recommendation for the installation of pipe drainage.
- Plans are in place for the use of the JD Aero Core utilising a 13mm diameter tine for aeration in September 2019 with projected introduction of some 30-35 tonnes of sand. This will take annual sand top dressing applications to the greens to a total of approximately 100 tonnes for the year. Inspection of the soil profile on greens reveals good sand integration already so this will all only help to improve thatch degradation throughout the profile, improve drainage characteristics and surface performance.
- The relatively new 16th green continues to progress, and supplementary nutrition has been provided in the form of a 15:0:26 granular feed in the week prior to the visit in order to supplement the requirements of a relatively juvenile green. Some ingress of moss is evident in the turf base and this is thought to be largely as a result of the adjacent woodland causing shading and moisture retention in the top of the profile. It is thought this can be eradicated through the use of iron-based products and subsequent verti-cutting operations to remove the dead material.
- The greens approaches continue to recover slowly from the impact of the drought stresses of the 2018 summer but the continued absence of any automatic irrigation provision in these key areas restricts progress. A reported extension of greens maintenance practices into these areas to include solid tine aeration, sand dressing and seeding will help to further refine the transition from fairway to green. Proposed improvements to the irrigation system as a whole should incorporate extension of pipe work and installation of dedicated sprinkler heads to service these areas in the long term.
- Tees continue to be well-presented and exhibit strong and healthy grass sward with ample teeing area and good surface levels. Good management of these key areas is evident in examples such as the shaded 4th tee where good surfaces have been maintained despite restricted growing conditions.
- The recovery of fairways from the drought conditions of last year is significant following the acquisition of a dedicated slit seeder (Vredo). Of particular note is the 14th where appropriately timed seeding and the necessary protection of the area in recovery has yielded excellent results in the main. However, localised raised areas of the profile will require further attention once ground and weather conditions are conducive to successful seed strike.
- Despite some excellent bunker work across the site in recent times, the remaining sand hazards require attention to identify those that can be successfully reshaped, reduced in size or even filled in and regrassed to improve aesthetics and playability, reduce maintenance practices and enhance the strategy with which the course is played without impacting design intent. One such example is on the Par 3 - 4th hole where the expansive bunker could constitute conversion to three smaller pot bunkers which allows greater access and maintainability.
- Extensive plans for the reconstruction of the 11th tee, discussed in the previous visit, have been submitted for approval by the Club to be carried out by the greenkeeping team in house during the forthcoming winter. This will enhance the already attractive 11th hole to provide a teeing area and a good variation in teeing levels, whilst incorporating the aforementioned stone gabion wall.

Key Actions

- Undertake proposed hollow core aeration of greens during September 2019 utilising 13mm diameter tine to a maximum of 100mm deep followed by the incorporation of some 30-35 tonnes of sand top dressing. Monitor surface recovery to assess the requirement for further light dustings of sand to fill any surface blemishes and completely fill tine holes from operation.
- Continue to undertake routine micro pencil tine aeration (i.e. 6mm Ø solid tine) whilst weather and ground conditions are conducive on greens to keep the profile open and aerated to facilitate gaseous exchange. If the weather is particularly compliant, apply light dustings of sand following the operation.
- Make provision for organic matter level laboratory analysis during early spring 2020 to ascertain the requirements with the regards to greens renovations for the year.
- Whilst growth conditions remain strong, continue to adopt a balanced nutritional programme for the greens based on regular applications of liquid fertiliser to spoon feed in accordance with the requirements of the grass plant. Make provision for a possible granular fertiliser supplementation to strengthen the grass plant leading into the autumn/winter.
- When ground conditions and weather are conducive to successful seed strike, undertake localised aeration and overseeding in areas of worn approach and fairways to promote recovery from the legacy of the drought conditions of summer 2018. Ensure provision is made for water to optimise the success of the overseeding operation.
- Readdress requirement for essential upgrades of the irrigation system.
- Undertake planned works on the redevelopment of the 11th tee complex during the forthcoming winter.
- Schedule the next STRI visit for early spring 2020 to assess progress and make provision for greens renovation programme.

Photo Observations and Comments



Figure 1: Presentation of the golf course was very good on the day of the visit and the greens were observed to be performing well.



Figure 2: Greens display a strong, healthy and dense grass sward with no signs of disease or other surface imperfections.



Figure 3: Inspection of the soil profile on the greens revealed a good sand integration which will aid the degradation of thatch and improve overall drainage characteristics.



Figure 4: Areas on the relatively new 16th green exhibit an ingress of moss.



Figure 5: The 9th green approach was indicative of a number across the course at Retford Golf Club which have been impacted by the drought stresses of 2018 and a lack of irrigation provision.



Figure 6: Similarly, the 5th approach provides a poor transition from the fairway to green. The green irrigation is reported to be poor and the required upgrades should include extension to irrigate the approach to facilitate potential improvements.

Photo Observations and Comments (continued)



Figure 7: The tees are generally well-presented despite challenging growing conditions as exhibited on the shaded 4th tee shown above.



Figure 8: The 11th tee is marked for substantial reconstruction over the coming winter to incorporate stone gabion walls, new steps and extensive re-levelling and re-turfing.



Figure 9: Recovery from the drought stresses of summer 2018 on the fairways, as illustrated on the 8th fairway above, is excellent.



Figure 10: Some localised, raised areas of the fairway profiles, as seen on the 14th hole, still display a thinning of grass cover. Increased renovative practices are required.



Figure 11: Certain bunkers, as evident at the 11th greenside, have lost shape over time and would benefit from reconstruction from an aesthetic, playability and ease of maintenance viewpoint.



Figure 12: Other examples, such as the expansive sand hazard on the Par3 4th hole, could be greatly improved by conversion into three smaller “pot” bunkers with ample grassed area in between each.

Photo Observations and Comments (continued)



Figure 13: The acquisition of a dedicated tractor-mounted slit-seeder (Vredo) has proved an invaluable addition to the fleet at Retford GC, and in particular in the recovery of the fairways.



Figure 14: The success of the Vredo slit-seeder is evident across the site and will play a key part in annual overseeding practices for many years to come.

Recommendations

Greens

- The well-established nutritional programme based on the use of Microflow 12:0:7 in conjunction with Propel R wetting agent and plant growth regulator as required has provided an excellent foundation to nutritional inputs which is exhibited in the strong, dense and healthy sward evident on the greens across the course at Retford Golf Club. The Course Manager's expertise is pivotal in the process by providing nutritional inputs that are solely in line with the requirements of the grass plant and avoiding any peaks and troughs in growth patterns and reflective cutting operations. By adopting a sensible practice, the total nitrogen inputs to the greens will not exceed the maximum 90kg/ha which has been identified as the target ceiling for the year.
- The relatively juvenile 16th green, based on a sand construction, has a separate fertiliser requirement due to the lack of nutrient retention within the profile. A supplementary 15:0:26 controlled released granular has been applied as prescribed to deliver the supplementary nutrition required during its infancy and it is essential that at this stage this green is viewed in isolation to facilitate its development in line with the remaining putting surfaces across the course.
- Maintain the present height of cut (i.e. 3.5mm) for the remainder of the season to promote a strong grass sward, not prone to undue stresses by inappropriate lower heights of cut. By promoting an upright growth pattern, the regular incorporation of light sand applications helps to improve surface drainage and performance.
- Undertake the proposed hollow core aeration during September 2019 via the JD Aero Core utilising a 13mm diameter tine to a depth of approximately 100mm. This programme is designed to be flexible and adjusted accordingly depending on the level of material removed to ensure that any good rootzone is retained within the profile and not removed unnecessarily. As such the suggested settings are only a guideline and the expertise of the Course Manager and staff will identify the optimum depth for removal. Some 30-35 tonnes of sand top dressing is planned for incorporation during this process taking the total for 2019 to in excess of 100 tonnes of sand for the year so far.
- Continue to supplement renovation practices on greens with regular solid pencil tine aeration (i.e. 6mm diameter tine) to further improve drainage characteristics and allow the incorporation of further sand top dressing. As previously advised, any aeration practices planned for the 16th green should be undertaken in a cautious manner due to the relatively low level of organic matter present in the profile on this new surface. Aim to undertake further light dustings of sand in the weeks that follow the greens renovations in order to further degrade thatch at the surface and iron out any surface imperfections whilst filling the tine holes to the surface.
- Make provision for laboratory testing of organic matter levels in early spring 2020 to assess the programme for renovation practices during the season next year. As identified above, there are a range of aeration and material removal operations available and the following table has again been included to show the options which can be adopted to target the area of the profile which is retaining any organic matter accumulation. To this end, the process becomes more of a bespoke operation rather than routine practice taking place year-on-year in order, to focus the efforts with the least removal of beneficial material and the greatest impact on the areas of horizons in the profile which are presenting a challenge with regards to drainage characteristics and surface performance. As previously identified, the decision is one for the Club as far as equipment and staffing levels availability, weather patterns and the golfing calendar.

Impact of Tine Size & Spacing & Surface Area Impacted by Core Aeration and De-thatching					
Tine Size Ø (mm)	Spacing (mm)	No. Holes per m ²	Area Impacted by 1 Tine (cm ²)	% Surface Area Impacted	No. of Aerations Needed to Impact 20% of Surface
6	25 x 25	1,550	0.316	4.91	4.1
6	25 x 50	775	0.316	2.45	8.1
6	50 x 50	388	0.316	1.23	16.3
9	25 x 25	1,550	0.710	11.04	1.8
9	25 x 50	775	0.710	5.52	3.6
9	50 x 50	388	0.710	2.76	7.2
12	25 x 25	1,550	1.265	19.63	1.0
12	25 x 50	775	1.265	9.82	2.0
12	50 x 50	388	1.265	4.91	4.1
16	25 x 25	1,550	1.981	30.68	0.7
16	25 x 50	775	1.981	15.34	1.3
16	50 x 50	338	1.981	7.67	2.6
Deep scarify 3 mm blades	25 x 25	N/A	N/A	14.10	1.4
As above 2 mm blades	25 x 25	N/A	N/A	7.80	2.6

Taken from the July/Aug 2001 Ed. of USGA Greens Section Record, Vol. 39 No. 4

- As previously suggested, the rotation of micro solid pencil tine aeration in conjunction with regular sarel rolling helps to keep the profile open for gaseous exchange and incorporation of sand. The spinning disc top dresser unit facilitates the introduction of light sand dressings at every opportunity, accompanying aeration practices or simply as a separate light dressing operation to help to dilute organic matter in the base of the turf and help to improve surface smoothness, trueness and overall green speed. Following the proposed renovation practices in September, the annual application for 2019 with regards the sand top dressings will exceed 100 tonnes and the aim with further light dustings is to achieve an overall target by the end of the year of in excess of 120 tonnes. Current maintenance practices and renovation operations on greens could even facilitate an annual target of 150+ tonnes in the future.
- Despite noted improvements to the 1st & 15th greens with regards to sand integration and improved soil profile, the need remains for installation of dedicated pipe drainage to alleviate inherent problems under extremely inclement conditions. The impact of disease outbreaks and subsequent scarring was encouragingly low at the time of the visit but it is suggested that knowing the history of these problematic surfaces it would be prudent to make provision for installation of dedicated drainage systems at the first available opportunity when budgets are available and ground and weather conditions are conducive to the works. This is particularly pertinent for the 1st green as it is the introduction for members and visitors alike to the course at Retford Golf Club.

Green Collars and Approaches

- A number of the green collar and approaches display the legacy of the drought stresses of summer 2018 and highlight the limitations of the previously identified shallow construction and restrictions on irrigation provision. Encouragingly greens maintenance practices are being extended into these immediate areas to provide a smoother transition from fairway to green and incorporate operations such as aeration, sand top dressing and overseeding.

- Undoubtedly the missing piece of the jigsaw in this occasion is the provision of specific irrigation dedicated to the approach areas and any proposals for upgrade of the irrigation system must incorporate the extension of the pipework and installation of dedicated sprinkler heads for these key playing areas in order to promote and sustain a strong healthy grass cover which performs as expected.

Tees

- The tees across the course at Retford Golf Club continue to be well-presented with a strong dense grass cover, good surface levels and adequate teeing area. A granular 14:2:7 fertiliser has been applied during May to sustain the sward and has provided good longevity of nutritional delivery.
- Plans are in place to undertake a solid tine aeration during September/October 2019 with the associated incorporation of heavy sand top dressing to optimise surface levels and promote good drainage characteristics.
- Extensive plans have been submitted for the redevelopment of the 11th tee and the proposed works will add substantially to this already excellent hole. It is envisaged that the vast majority of works will be undertaken in-house to include the extension of the tee and incorporation of a stone gabion wall and new staircase. Said works are planned for the forthcoming winter 2019/2020.

Fairways

- The impact of the oppressive conditions of summer 2018 were evident across the course during our visit earlier in the year. Despite trial operations to affect recovery, the results were limited with the exception of the 14th fairway where the Vredo disc seeder brought in on trial had been utilised intensively. Subsequently, the Club have invested in their own Vredo disc seeder and extensive works have been undertaken across the impacted areas of the course to promote restoration of full grass cover and ensure safeguarding against future damage from drought conditions.
- A considered programme of aeration, overseeding and appropriate fertiliser has been implemented very successfully across the course at Retford. Where appropriate (i.e. 2nd fairway) the whole fairway has been overseeded in a number of different directions, in conjunction with fertiliser applications and appropriate delivery of wetting agents and recovery is complete. In other areas more localised treatments have been applied, again in conjunction with appropriate wetting agent applications and sufficient nutritional inputs, and recovery is well advanced. On particular raised areas of the profile, both within fairways and on green approaches, some further localised treatments will be required once conducive weather and ground conditions return in order to maximise seed strike and filling-in of grass cover.
- Where appropriate protection of the affected area has been implemented (i.e. 14th fairway), the greatest success of the operations has been brought to fruition.
- The acquisition of the Vredo overseeding unit has proven pivotal in the success of the operations this year but it is proposed that this aeration, wetting agent programme, fertiliser inputs and overseeding practices are adopted as an annual operation to ensure there is a strong grass cover in all of the fairways across the course to safeguard against returning drought conditions in the future. Although it is appreciated that there is an element of cost to this, it should be incorporated in any budgetary requirements as the impact of severe hot and dry summers can be devastating.
- As previously advised, the supplementation of the fleet with a tractor mounted rake (i.e. Terrarake) would also prove beneficial to promote an upright growth pattern in the grasses which comprise the fairway sward and remove any other dead plant matter which is chocking out the base of the turf grass plant.

Bunkers

- Previous works on the 7th and 10th holes have yielded excellent results with regards to improvements which can be made to existing sand hazards. As previously advised, an audit of the remaining bunkers would prove highly beneficial to assess if any further examples would benefit from reduction in size, reconstruction, reshaping or even infilling and re-grassing to ease maintenance practices and even enhance the strategy with which the course is played without interfering with design intent.

Woodland Management

- As with the bunkers, an audit of the woodland around the site at Retford Golf Club is recommended to identify specimens which have a negative influence on key playing areas (i.e. greens and tees) or present a genuine Health & Safety risk. Key works to date has already yielded positive results with regards to turf health and by formulating a future plan the works can be compartmentally incorporated as part of each year's winter works programme.

Irrigation System & Moisture Management

- Improvements to the irrigation system are essential to ensure appropriate and correct delivery of adequate water to key playing areas across the course. Inefficiencies in greens irrigation network have led to inconsistencies within particular greens and replacement is advised at the earliest opportunity to promote parity across all of the playing areas. As previously highlighted, during upgrades of the existing provision, the opportunity should be taken to extend the present network of irrigation into other key areas (i.e. greens approaches) in order to further develop and support these areas to provide the means to promote a stronger, fine turf playing surface. Any overseeding practices and refinement of the sward in these areas hinges on the availability of irrigation water and this would be considered a sound investment for the future.
- Continue to use the moisture meter to measure soil volumetric water content across the greens in order to identify frailties in the existing irrigation provision and adjust the system accordingly. In lieu of extensive enhancement of the irrigation system, compartmental upgrading and replacement of sprinkler heads may be more appropriate in the shorter term.

Signed

A handwritten signature in black ink, appearing to read "M. Boyes", written in a cursive style.

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