

The logo for STRI (Scottish Turf Research Institute) features the letters 'STRI' in a bold, white, sans-serif font. The text is set against a dark green rectangular background. To the right of the text, there are several thin, white, curved lines that suggest the texture of grass blades.

STRI



# Haggs Castle Golf Club

## Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: 15<sup>th</sup> June 2016  
Consultant: Ian Craig

## Haggs Castle Golf Club

Date of Visit: 15<sup>th</sup> June 2016

Visit Objective: To review the prevailing condition of the course, take further objective measurements from the indicator greens and confirm ongoing maintenance requirements.

Present: Mr Jim Callaghan – Club Manager  
Mr Scott Ballantyne – Course Manager  
Mr Ian Craig – STRI Ltd

Weather: 15°C overcast & showery

### Headlines

- The golf course is in superb condition with high levels of presentation throughout.
- Green performance is very good with targets achieved across all indicator greens for most test parameters.
- Drainage remains a key issue to a number of greens and this is compromising surface firmness to certain surfaces.
- Organic matter accumulations remain high through the upper 20mm of the soil profile.
- The new maintenance facilities are superb and a far better working environment for the greenkeepers.

### Key Actions

- Graden operation to be carried out in autumn on all greens
- Overseeding with browntop bent to be carried out in conjunction with the Graden work.
- The 10<sup>th</sup> green should be prioritised for drainage work during the winter. Additional drainage work can also be considered to the 3<sup>rd</sup>, 4<sup>th</sup> & 14<sup>th</sup> greens.
- Gentle raising of pH is required to the greens.
- The 15<sup>th</sup> tee should be extended and effectively doubled in size in order to spread wear and tear.

### Objective Measurements

Measurement	Average	Target Range
Soil Moisture (%)	38.4% (range )	15-30%
Hardness (Gravities)	90 Gravities (range )	85-110 g
Smoothness (mm/m)	20.8 mm/m	<25 mm/m
Trueness (mm/m)	6.5 mm/m	<8 mm/m
Green Speed	9 ft 2 in	9-10 ft
Organic Matter 0-10 mm (%)	8.0%	4-6%
Organic Matter 10-20 mm (%)	5.9%	<4%
Soil pH	4.4	5.0-6.0
Phosphate (P <sub>2</sub> O <sub>5</sub> )	13mg/l	>10 (mg/l)
Potassium (K <sub>2</sub> O)	71mg/l	>30 mg/l

Key: In Target Marginal Variance Out of Target

## Photo Observations and Comments



Figure 1: General grass cover, botanical composition and texture were superb.



Figure 2: The 2<sup>nd</sup> green has had additional overseeding throughout the previous 12 months and grass cover to this surface was notably improved on last year.



Figure 3: The area between the 6<sup>th</sup> green and 7<sup>th</sup> tees is subject to significant wear and tear during the wetter winter months and quality of grass cover is notably compromised.



Figure 4: Compromised grass cover to the 6<sup>th</sup> green surround is giving rise to discrepant lies which is having a negative impact on the short game.



Figure 5: The 10<sup>th</sup> green is particularly prone to waterlogging and this is severely compromising performance. Drainage work to this green should be prioritised for the upcoming winter.



Figure 6: The 13<sup>th</sup> hole has been re-modelled over the previous winter, with the addition of new bunkers presenting a new challenge to the bigger hitters.

## Photo Observations and Comments (continued)



Figure 7: The alterations to the 13<sup>th</sup> green involved an extension of the putting surface using turf from the approach. This section requires additional inputs and refinement in order to perfect the ball roll qualities.



Figure 8: The 15<sup>th</sup> hole requires an iron tee shot for most players. The resultant damage and limited size of this tee means that loss of grass cover is a regular occurrence with limited time for recovery.

## Recommendations

### Greens

- The greens responded well to the initial spring granular fertiliser applications and adequate growth was established. The current programme of fortnightly foliar fertiliser applications along with Primo Maxx growth regulator is now working well in delivering consistent growth and performance.
- Texture to the greens has been established now with routine verti cutting and the greens now demonstrate a well textured sward. Texture should now be retained with verti cutting as required but not necessarily on a routine basis.
- Routine sand topdressing should be applied throughout the growing season in order to continually dilute organic matter as it accumulates at the surface. An annual topdressing total of 150 tonnes/ha should be applied.
- Soil testing indicates that organic matter accumulations remain excessive through the upper soil profile and a further treatment with the Graden sand injection scarifier would be recommended for the autumn.
- Soil pH was found to be low and it would be important to begin a programme aimed at gently raising this from the current 4.4 to a more suitable 5-5.5. A low soil pH will begin to lock up soil available nutrients and will also begin to reduce the natural breakdown of organic matter leading to accelerated accumulations and softer surfaces. Look to apply a calcium carbonate or dolomitic lime product to the greens in the spring. The greens should be closely monitored in the short term as disease activity may be triggered by a sudden increase in soil pH.
- Browntop bent populations to the greens continue to increase as a result of excellent success with the overseeding unit on the Graden. This process should be repeated again this year.
- The 10<sup>th</sup> green is notably the wettest on the course and drainage work to this surface should be prioritised for the upcoming winter. Pipe drainage of the green itself will be necessary, tying into existing drains in the approach. A large contributing factor to the moisture content of this green is however, water running on from the surrounds. Some subtle reshaping and the installation of catch basins in the hollows to the rear of the green will help to intercept much of this surface water before it reaches the green.
- Whilst the 10<sup>th</sup> green must be the priority for drainage work over the winter, other potential drainage projects that could be considered, time allowing would be the rear sections of the 3<sup>rd</sup>, 4<sup>th</sup> & 13<sup>th</sup> greens.
- The newer sections of the 13<sup>th</sup> green will require some additional fertiliser applications and more intensive refinement by way of verti cutting and grooming in order to develop a finer texture and perfect putting qualities.

### Tees

- The tees are generally in very good condition with good grass cover and surface levels. Some of the smaller tees were seen to be struggling for recovery from play owing to sub optimal growing conditions and high levels of traffic. The 15<sup>th</sup> is a very good example of this. Although a par 4, this hole generally requires an Iron from the tee and the size of the surface is such that only 1 week's worth of marker placements are available. This, combined with poor growing conditions through spring and early summer have resulted in poor grass cover to this surface. This tee should be extended to the right, effectively doubling the size and doubling the number of potential marker placements thereby allowing more time for recovery and restoration of grass cover.

## 6<sup>th</sup> Green Surround

- The area to the left of the 6<sup>th</sup> green tends to suffer badly from heavy foot traffic and during the wetter winter months, this gives rise to soil compaction and eventually a loss of grass cover. Restoration of a suitable grass cover to this area should involve both verti draining to relieve compaction and hollow coring to allow for soil exchange and overseeding. The area should be overseeded with a good quality perennial ryegrass seed and topdressed with the spoil from the Ibrox pitch currently stockpiled in the yard. This sand based material will help to provide better structure to the soil. The material is also vert nutrient rich and will help to improve the strength and health of the turf.
- Throughout the season compaction should be alleviated with regular verti drain operations and consideration should also be given to the use of the Air2G2 air injection unit which should help to relieve some of the deeper seated compaction.
- In the long term, construction of a winter tee or use of the forward tee during the winter months as well as some strict traffic management should help to minimise unnecessary wear to this surround, thereby preserving grass cover in the spring.

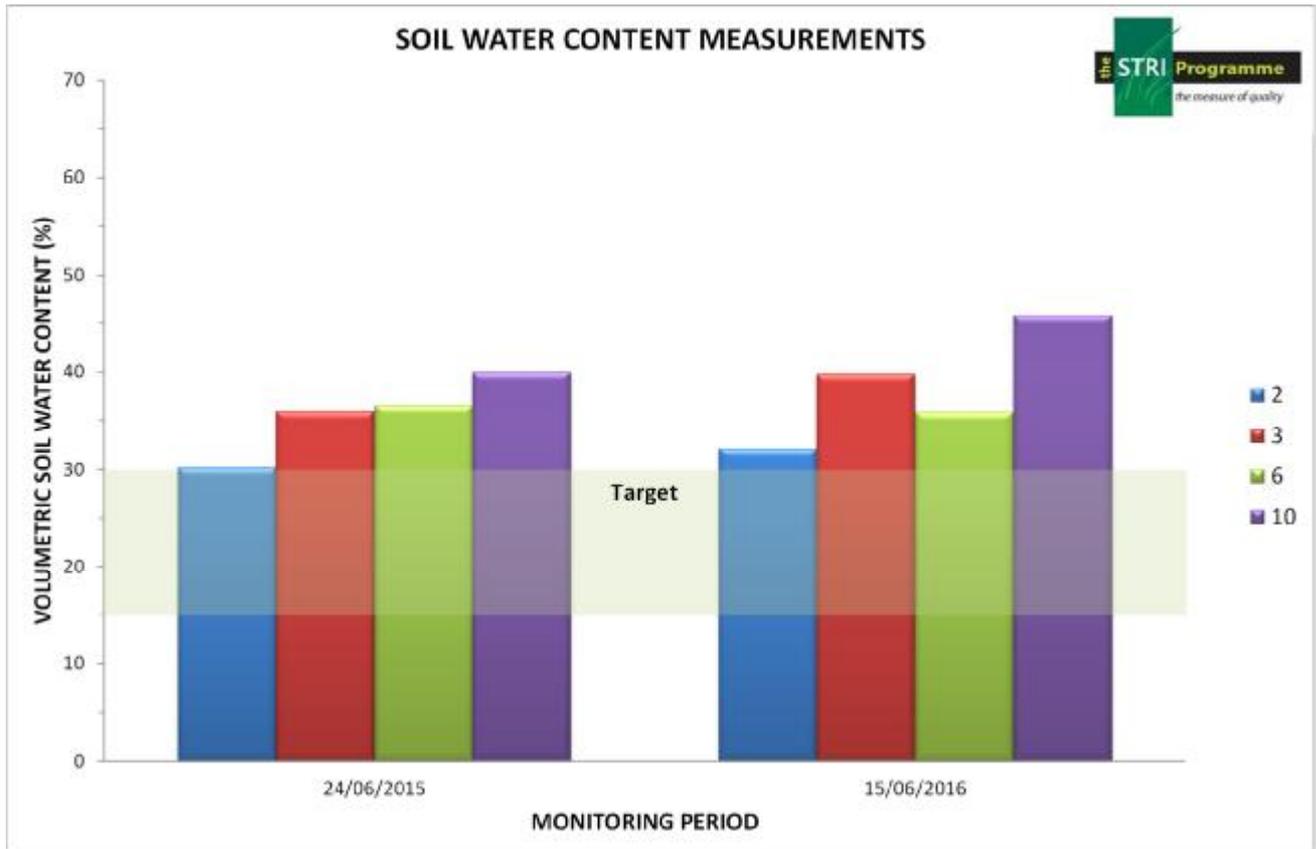
Signed



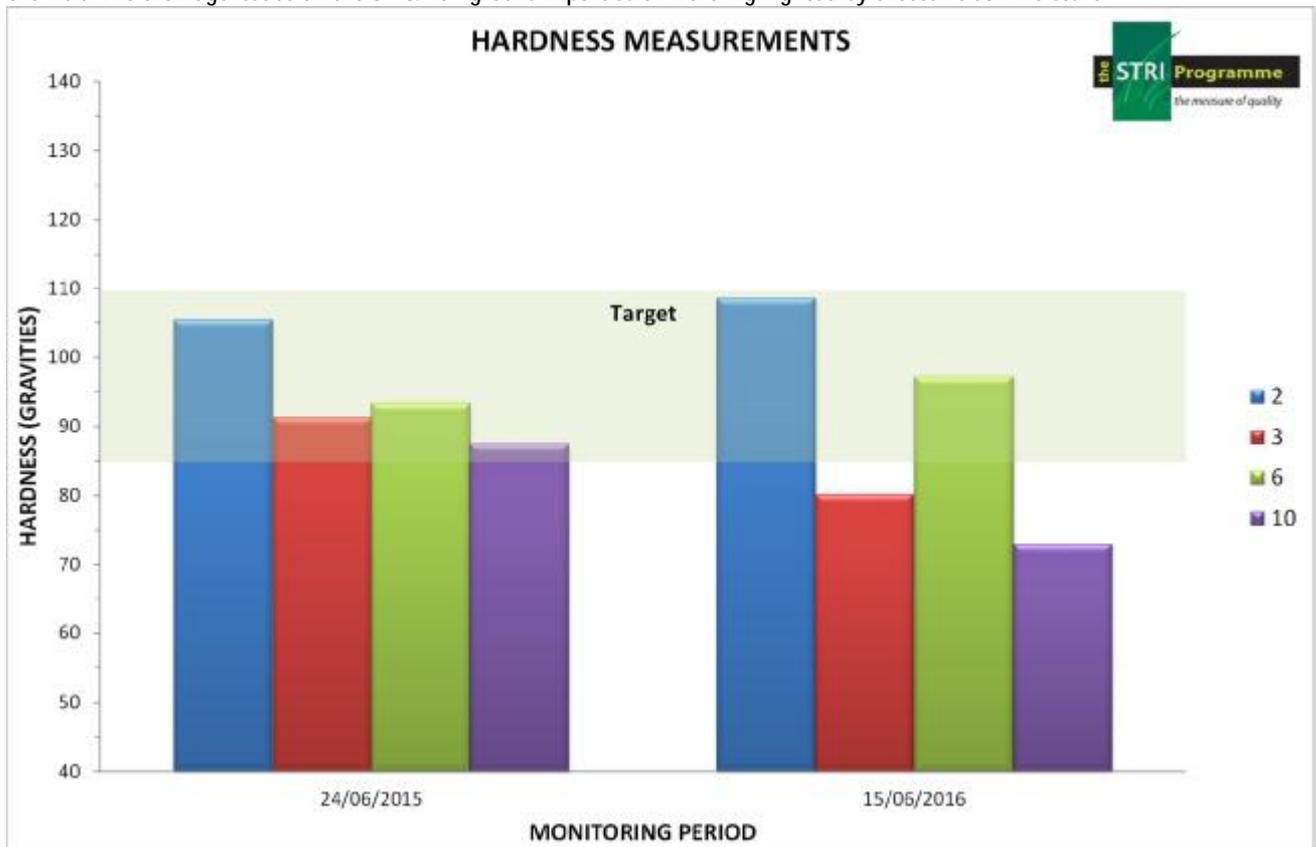
Ian W Craig BSc (Hons), MBPR  
Turfgrass Agronomist, STRI Ltd

STRI is completely independent and has no alliances to commercial products, services or contractors. This ensures that our design, project management and advisory services provide the best solutions for each individual client.

# Objective Data

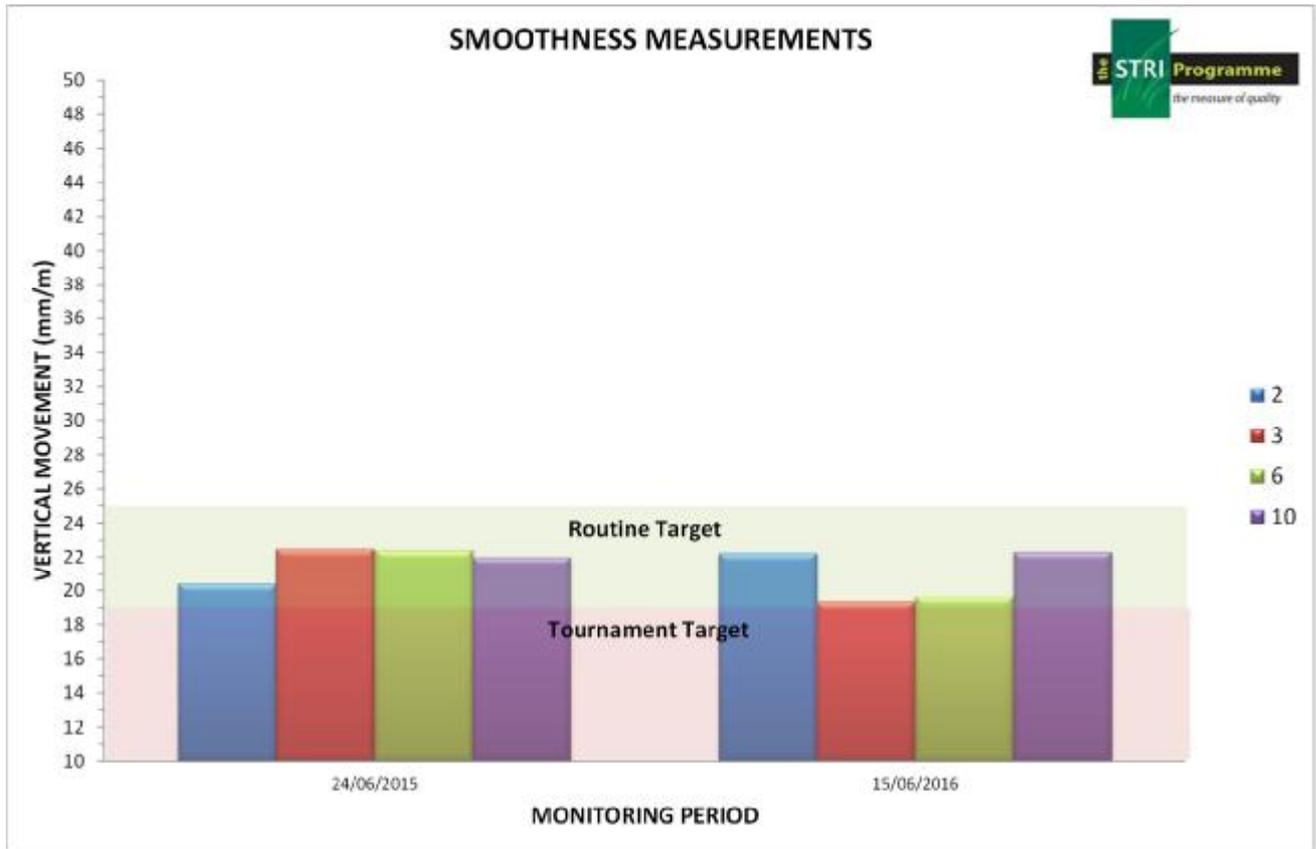


Objective Data Graph 1: Soil moisture was out of target across all indicator greens in response to heavy rain showers on the day of the visit. The drainage issues on the 3<sup>rd</sup> & 10<sup>th</sup> greens in particular were highlighted by excessive soil moisture.

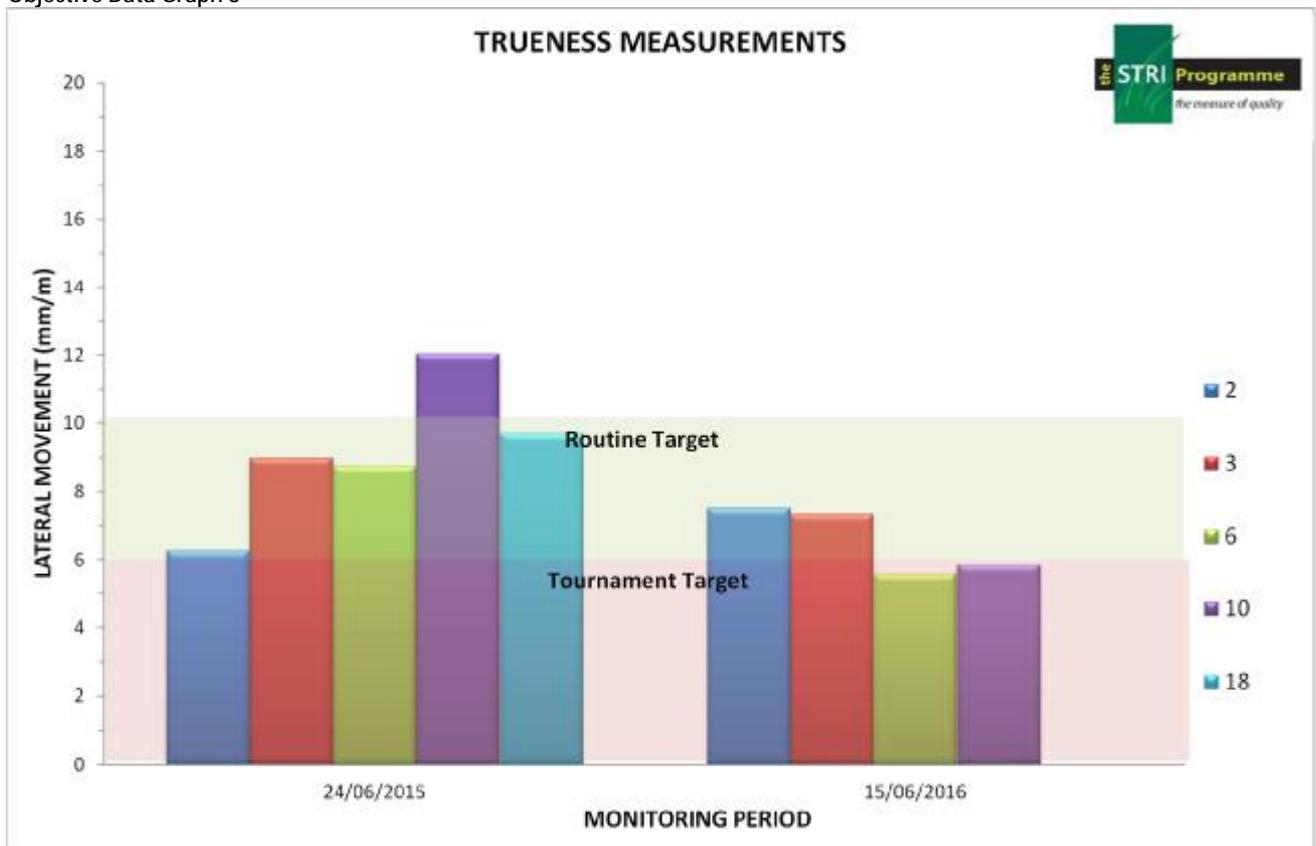


Objective Data Graph 2: The surface hardness is directly influenced by soil moisture and the above data graphs clearly illustrate this. The wettest greens, 3<sup>rd</sup> & 10<sup>th</sup>, are significantly out of target for firmness.

# Objective Data (continued)



Objective Data Graph 3



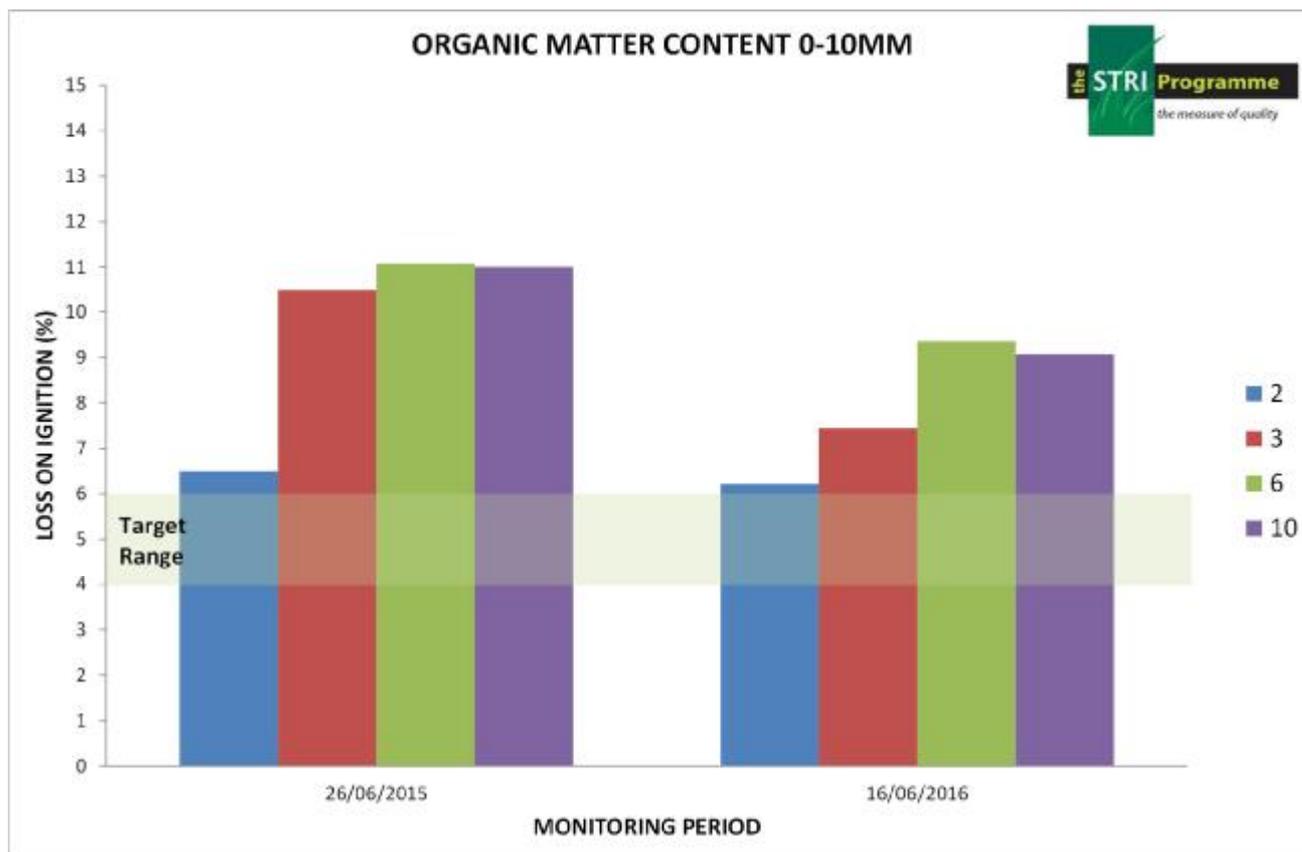
Objective Data Graph 4: Smoothness and trueness figures were excellent with all indicator greens comfortably within the routine target range and some inside the very challenging tournament range.

## Objective Data (continued)

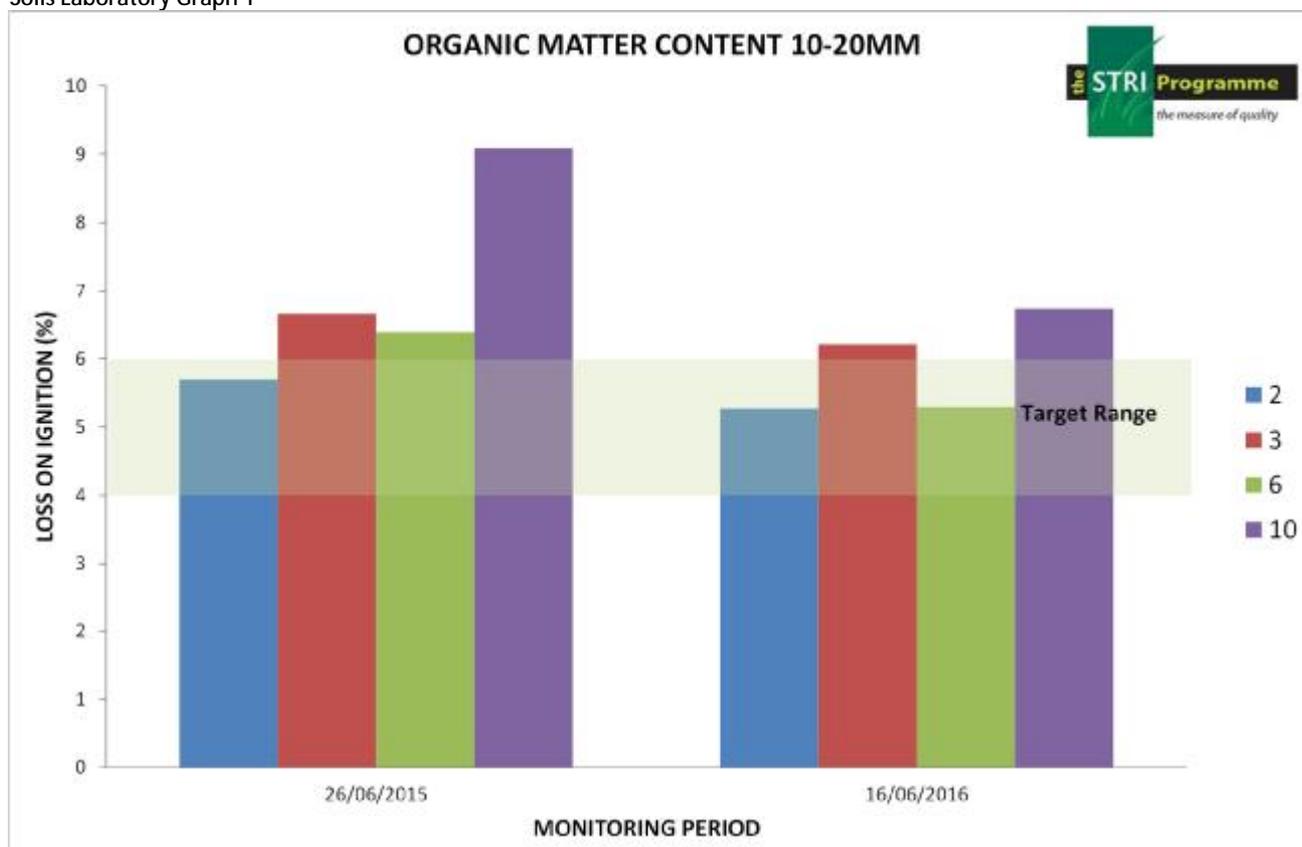


Objective Data Graph 5: Green speeds were all within the routine target range if a little inconsistent. Greater levels of consistency can be achieved by more regular use of the Stimp meter and bespoke use of the Tru-turf roller.

# Soils Laboratory Data

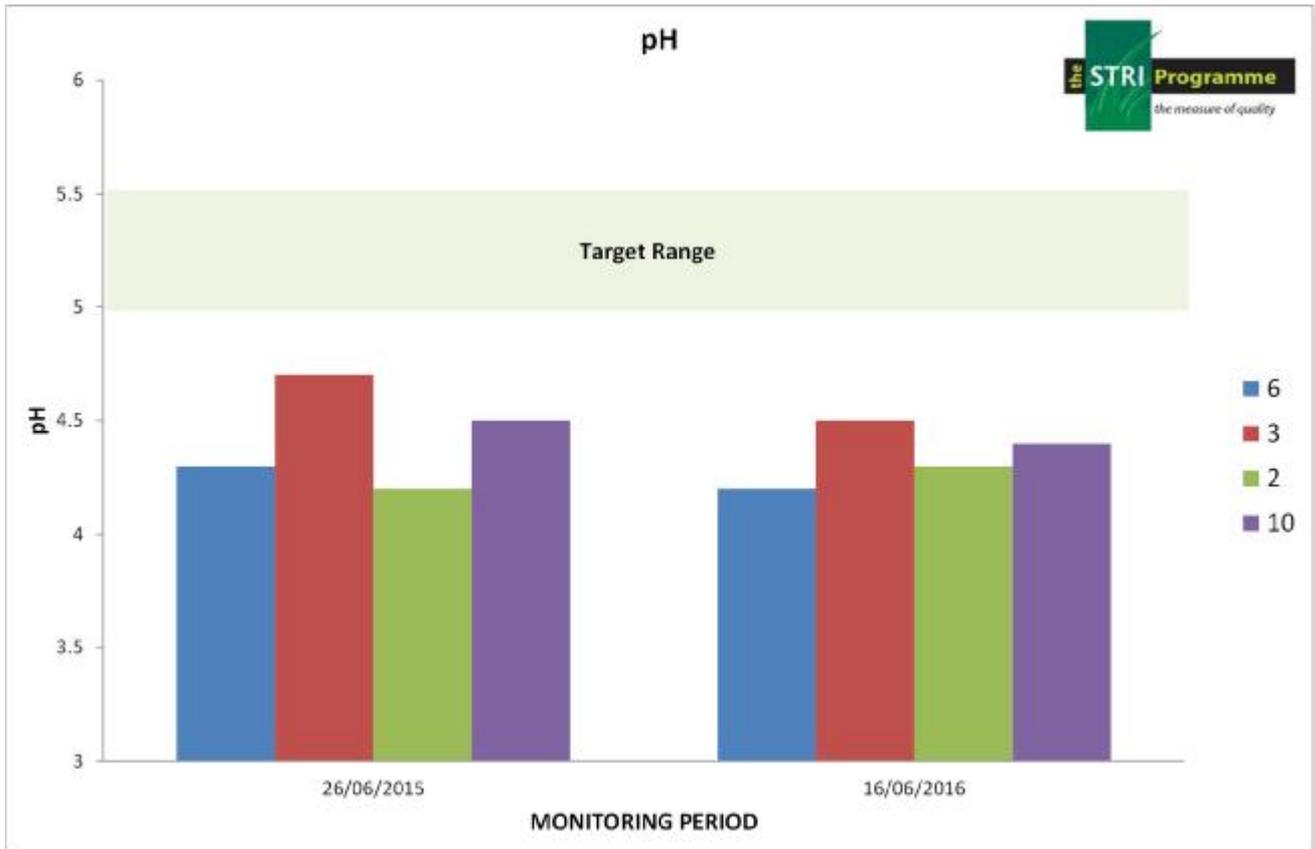


Soils Laboratory Graph 1



Soils Laboratory Graph 2: organic matter accumulations through the upper 20mm of the soil profile have reduced in the last 12 months, however remain excessive and a further Graden operation is required for the autumn.

# Soils Laboratory Data (continued)



Soils Laboratory Graph 3: Soil pH is too low and will require gentle raising over the next couple of years.

## ORGANIC MATTER CONTENT

CLIENT: HAGGS CASTLE GC  
ADDRESS: 70 DUMBRECK ROAD,  
DUMBRECK,  
GLASGOW, G41 4SN

DATE RECEIVED: 17/06/16  
DATE REPORTED: 28/06/16  
RESULTS TO: IWC

TEST RESULTS AUTHORISED BY:  
Michael Baines, Laboratory Manager

CONDITION OF SAMPLE UPON ARRIVAL: MOIST

SAMPLE NO	DESCRIPTION	LOSS ON IGNITION (%) <sup>*</sup>
A14970/1	2 0-10 mm	6.2
	10-20 mm	5.3
	20-30 mm	3.4
	30-40 mm	2.3
A14970/2	3 0-10 mm	7.4
	10-20 mm	6.2
	20-30 mm	4.7
	30-40 mm	3.3
A14970/3	6 0-10 mm	9.3
	10-20 mm	5.3
	20-30 mm	3.9
	30-40 mm	3.2
A14970/4	10 0-10 mm	9.1
	10-20 mm	6.7
	20-30 mm	4.9
	30-40 mm	3.4

\* ASTM F1647-11 Standard Test Methods for Organic Matter Content of Athletic Field Rootzone Mixes (Method A)



Testing Certificate 2159 - 01

THE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED



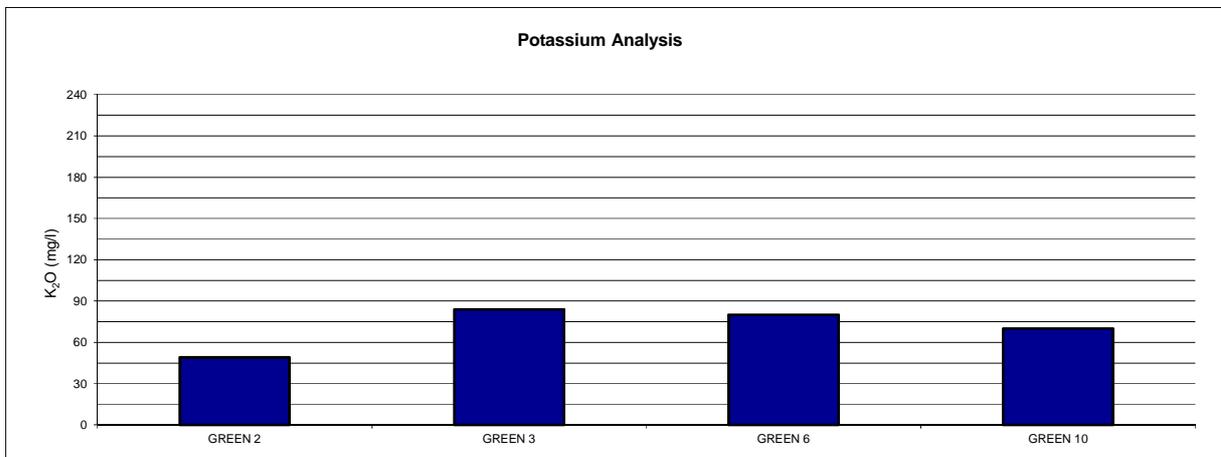
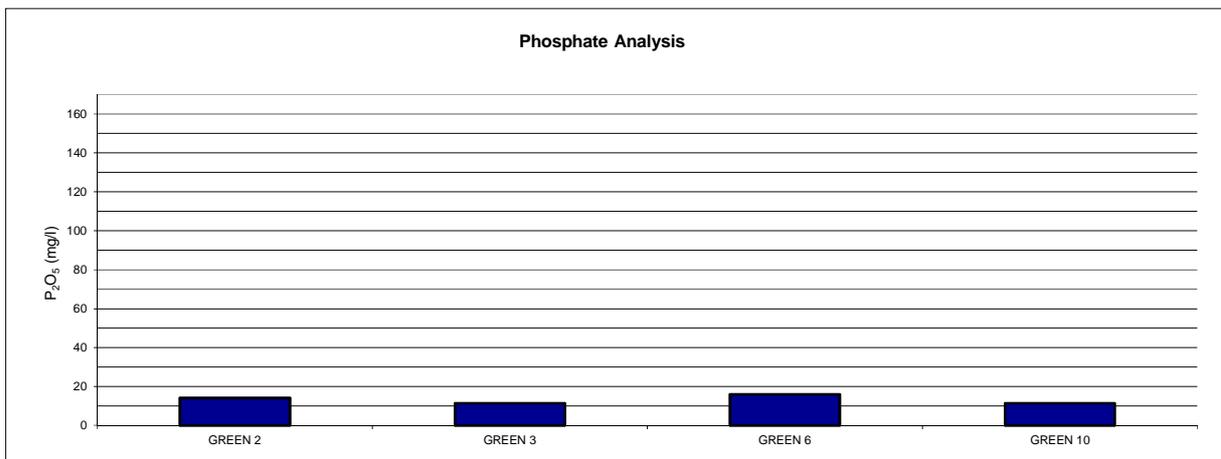
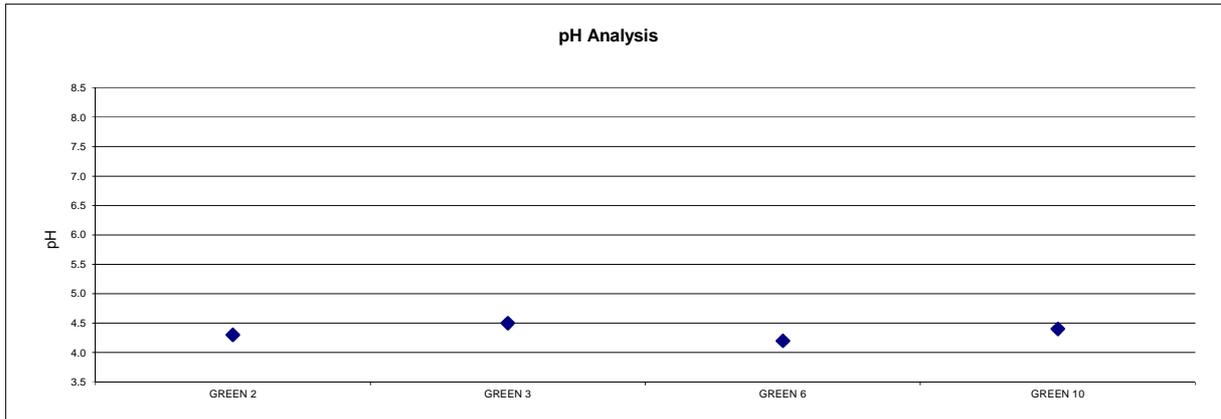
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**SOIL CHEMICAL ANALYSIS**

**HAGGS CASTLE GC**

**Date: 17/06/16**



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