



Monkstown Golf Club

Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: 31st August 2016
Consultant: Conor Nolan



Monkstown Golf Club

Date of Visit: Thursday 25th August 2016

Visit Objective: To objectively measure greens playing quality in addition to review of overall course condition and provision of general advice on maintenance issues throughout the course.

Present: Mr M Travers – Course Superintendent, Conor Nolan – STRI Ltd

Weather: Dry and sunny, 21°C

Headlines

- The putting surfaces offered a very good level of smoothness upon measurement, although the best were those that were out in the open.
- Thanks to excellent green's topdressing they were of nice firmness.
- Bentgrass is thankfully increasing to all greens (bar the 12th), although there is a desire for browntop bentgrass to increase as well.
- The 3rd green was affected by Take-All Patch disease.
- The aprons offered better grass cover, helped by the moderate rainfall levels, most probably.
- The tees were beautifully firm and very well grassed.
- Fairways offered very good ball support. Earthworm casting after a period of recent rainfall reflected their vulnerability to casting. The future is to build a nice compliment of fescue which will reduce casting and provide even better playing conditions.
- Shade along the upper fairways was very evident on the day.

Key Actions

- Overseed the greens, aprons and approaches well in September. Staggering of the treatment is required given the addition of ryegrass to the aprons/approaches.
- Be mindful of the need to keep growth levels to a minimum on greens to favour the spread of introduced grasses from seed. Density and smoothness should not be compromised at the same time.
- Improvement of sunlight penetration of the 12th greens is essential if it is to progress in line with the majority of greens.
- Maintain the current approach to tees management.
- Targeting of more earthworm active fairways when sanding is encouraged in the autumn.
- Remove trees along the fairways on the upper holes in particular to increase airflow across the site etc.

Objective Measurements

Measurement	Average	Target Range
Soil Moisture (%)	% (27.9-30.5)	15-25%
Hardness (Gravities)	Gravities (97-100)	85-110 g
Smoothness (mm/m)	16.43-18.47 mm/m	<25 mm/m
Trueness (mm/m)	8.19-11.41mm/m	<10 mm/m
Green Speed	8 ft 8in-8 ft 12in	8.5-9.5 ft
Organic Matter 0-20 mm (%)	2.9-3.2%	3-3.5%
Organic Matter 20-40 mm (%)	2.2-2.5%	<4%
Soil pH	6.5-6.6	6.0-7.0
Phosphate (P ₂ O ₅)	40-42mg/l	10-30 (mg/l)
Potassium (K ₂ O)	49mg/l	15-30 (mg/l)

Key: In Target Marginal Variance Out of Target

Photo Observations and Comments



Figure 1: The very good 4th green of approximately 50% creeping bentgrass. It was in contrast to the most shaded 12th green, with just the odd spot of bentgrass found to it. The 12th green wasn't as true or as smooth as the other measured 5th and 16th greens, which were of much higher bentgrass population. Overall smoothness was very good while trueness could have been better if the vigour was a little lower (on this occasion) and the texture of the bentgrass more refined. However, the less refining that occurs the more the bentgrass spreads!



Figure 2: Large increase to the bentgrass population on the 15th, as seen by the grey/blue toned patches of grass. The increase is due to reduced nitrogen input year on year.



Figure 3: Fusarium patch disease spots on the 17th only affecting annual meadowgrass, justifying the promotion of better grasses such as the unaffected creeping bentgrass in the photograph. Focus going forward shall be to establish a browntop bentgrass population as well, and some fescue. Promotion of fescue on the 3rd is especially important given its vulnerability to dryness and Take-all patch disease.



Figure 4: Triplex marking on the clean-up cut on the 7th, most probably due to summer verti-drain aeration with 13mm diameter tines. Note the darker colour to the triplex marks where more bentgrass was found due to the higher effective height of cut. Note also the slightly spotty edge to the apron. Aprons were better this year, although the vigour is that bit strong to allow seedlings of fescue compete from overseeding.



Figure 5: Weakness noted to the right of the 17th apron due to dryness. Not many such spots were found on the course.



Figure 6: Very good definition noted to the 18th green complex, which was quite typical.

Photo Observations and Comments (continued)

	
<p>Figure 7: Weakening of the bunker edge on the 6th complex due to sand displacement from raking.</p>	<p>Figure 8: Very good grass cover and vigour seen to the 2nd which was typical of all tees.</p>
	
<p>Figure 9: The 12th tee viewed back to the 11th green displaying a nice balance between trees and sunlight penetration, unlike further down the 12th fairway where tree density is too great.</p>	<p>Figure 10: Better topdressing of the 6th tee is hard to imagine. All were at that level where sampled which translated in to very good firmness and traction.</p>
	
<p>Figure 11: The definition of the fairways was very good while the lie quality was good also. Verticutting and the lower 12.5mm height of cut together with a good body of grass contributed to the quality. Overseeding would only work to the more droughty parts of the 2nd and 10th however at the moment.</p>	<p>Figure 12: The end of the 13th fairway offering wonderful lies thanks to a drier section favouring fescue dominance. Keep an eye on it with regard to earthworm casting in the months ahead. Casts should be smaller and fewer.</p>

Recommendations

Greens

- Apply nitrogen every 2-3 weeks at 0.4g/m² (9kg/hectare of urea) to maintain the current density and vigour until temperatures drop to 6-12 Celsius. Lower the amount of urea when adding iron for colour as there is a possibility that the iron, if deficient, when added is encouraging growth. The right growth level is one that allows the good grasses to spread, minimises accumulation of organic matter and delivers as little friction as possible with good density. At higher levels of nitrogen trueness is especially comprised if annual meadowgrass is at significant levels. Switch to occasional application of ammonium sulphate at 20-25kg/hectare during the cooler months.
- While phosphate and potassium levels are adequate until next year sometime it would be wise to add a micronutrient package that includes manganese to help strengthen (lignify) the roots against Take-all patch mycelia. Apply according to the label twice per year
- One final application of Primo Maxx shall occur for this year before overseeding to help absorb sand. Whether or not it will help absorb the higher quantity planned at time of overseeding or not remains to be seen. Next year we may dispense with Primo Maxx so that a truer understanding of growth rates is achieved, based on nitrogen inputs only. It is the nitrogen level that has most influence on the spread of the finer grasses and on trueness.
- Avoid mowing the clean-up cut more than 2-3 times per week with the triplex mower.
- Use aeration as last year i.e. intervene if increased ponding is noticed or if greens become too hard.
- The current approach to sanding should remain and is serving you very well i.e. applications are made every two weeks supplying a year-end total of 230 tonnes. Rates shall vary depending upon growth rates, with less applied in the cooler months.
- Lightly verticut every now and then, even on occasion next spring to keep the bentgrass somewhat refined. Grooming would be preferred if groomers were available, although the less there is of grooming/verticutting etc. the more the bentgrass spreads.
- Overseed the patches of Take-all disease with fine red fescues (slender and chewings) as soon as you can, using a cut down hand fork to prepare the surface holes, before scattering seed. Use a reasonably weighted piece of artificial turf to move the seed to the holes. In addition to promoting fescue on the 3rd the prevention of drying out is crucial. In that regard the immediate procurement of a good quality moisture meter is agreed. Maintain the moisture content on the 3rd between 20-25% and the rest between 15-25%. That applies to all greens when watering so that they are not over or under watered. Overwatering will favour the annual meadowgrass and moss spread.
- Overseed with browntop bentgrass (e.g. Manor, Arrowtown and Greenspeed) together with chewings (e.g. Musica) and slender creeping red fescue (e.g. Viktorka and Barcrown) in September (mid to late). Bring up the depth of the 'pots' to within 5mm of the surface by applying sand. Seed should then be scattered using a spinner fertiliser spreader (not dimple seeder). Sow at low rates of 60-80kg/hectare. Remember that one of the key parts of the process is to work the seed into the holes using an artificial tee mat turned upside down, and attached to a golf buggy, under dry conditions. Two passes should be sufficient to work the seed into the holes. Once the seed is worked into the holes or 'plant pots' sand to fill the holes. Follow with more sand in the days after to perfect smoothness. Encouragement of the better grasses is favoured for many reasons but most of all due to the reduced vulnerability to diseases and the reduced demand subsequently for fungicides. Fungicide use is being restricted more and more throughout Europe with widespread bans coming in to place within a few years in some countries.
- The height of cut for the low season should begin to rise after overseeding. Aim to reach a height of cut of 6.0mm by early November to favour the finer grasses and young seedlings emerging after seeding.
- In terms of fusarium patch disease suppression a preventative approach should be taken for the autumn. Essentially products should be timed to give the greatest longevity of control. In that regard a 'systemic' such as Heritage Maxx can be applied at the end of September, followed three weeks later with Banner

Maxx or Headway. Repeat three weeks later with the latter before switching to Interface during cooler periods, if needed. Use low water volumes of 300 litres per hectare. Use of phosphite when fertilising or every 2-3 weeks during the autumn together with dew dispersal agents are also encouraged to help reduce disease incidence. Apply the dew dispersal agent at 75% of the labelled rate when dew is forecast in the autumn months. If nitrogen levels are low as they should be, the products mentioned above will last longer.

Green Aprons and Approaches

- It was agreed that overseeding of the aprons and approaches in September shall occur a week before the greens are done. Use 16-18mm diameter solid tines to prepare the 'plant pots'. Use mid green cultivars of 50% dwarf ryegrass (e.g. Barolympic, Chardin, Bargold and Dickens 1) and 50% slender creeping red fescue (e.g. Viktorka or Barcrown). This is a key objective if the aprons/approaches are to move to another level.
- The current vigour should be lowered somewhat so that fescue from upcoming overseeding has a better chance of surviving. For next year that would mean dispensing with the granular fertiliser application in late spring. Application of nitrogen as urea (main growing season at 20kg/hectare) and ammonium sulphate (between 6-12 Celsius, 25-50kg/hectare) out through the sprayer on a regular frequency would give more control at a lower level but provide sufficient uniformity and ball support.
- I repeat the need to budget for a greens grade triplex mower for mowing of aprons in the years ahead if the best texture is to be presented.
- Lower the height of cut after the visit to 10mm and maintain at that height year round unless soft conditions cause marking.
- Removal of excessively sandy bunker edges and replacement with fresh turf together with loamy topsoil needs to occur on a rotating basis to most bunkers.

Tees

- The current approach to management with regard to granular fertiliser should remain during the main season together with ammonium sulphate application in the lower season. Apply ammonium sulphate at 50-75kg/hectare on occasion in the low season as and when needed.
- The approach to sanding is superb and should remain. There is nowhere better!

Fairways

- Maintain the current 12.5mm height of cut for the main season before raising to 16-18mm for the slower growing months. The height is only elevated to help overcome the effects of earthworm casts.
- Verticutting again once or twice before good growth slows in the autumn is supported to keep building the body at the base of the sward and to suppress Yorkshire fog.
- Applications of ammonium sulphate are due on occasion over the slower growing months as for tees.
- Overseed the droughty area on the 10th with 30% dwarf perennial ryegrass, 35% slender creeping red fescue and 35% chewings fescue seed in late September. Sow at 80-100kg/hectare with the Blec dimple seeder.
- Sanding at varying rates should continue when applying the remaining 800 tonnes of Wexford sand for this year. Higher amounts are needed to target the fairways of higher silt and clay content at the top of the profile. Obvious candidates include the 2nd and 3rd. It will take a few years yet to create sufficiently sandy conditions to justify overseeding with fine red fescues, which are the future means of reducing earthworm casting. By reducing earthworm casting better quality of lies are presented in the damper periods while the quality of cut is retained for longer.

- Serious tree removal is justified to the upper holes to improve airflow and drying across the site as well as enhancing the interest level. Dark corridors should be avoided and compare poorly with large gaps in the tree lines in terms of interest. Larger gaps allowing sunshine and air movement enhance better drying of the turf to reduce dew levels while frost is removed more quickly. Good air movement in general reduces disease incidence. A balance needs to be sought which is a challenge for many clubs.

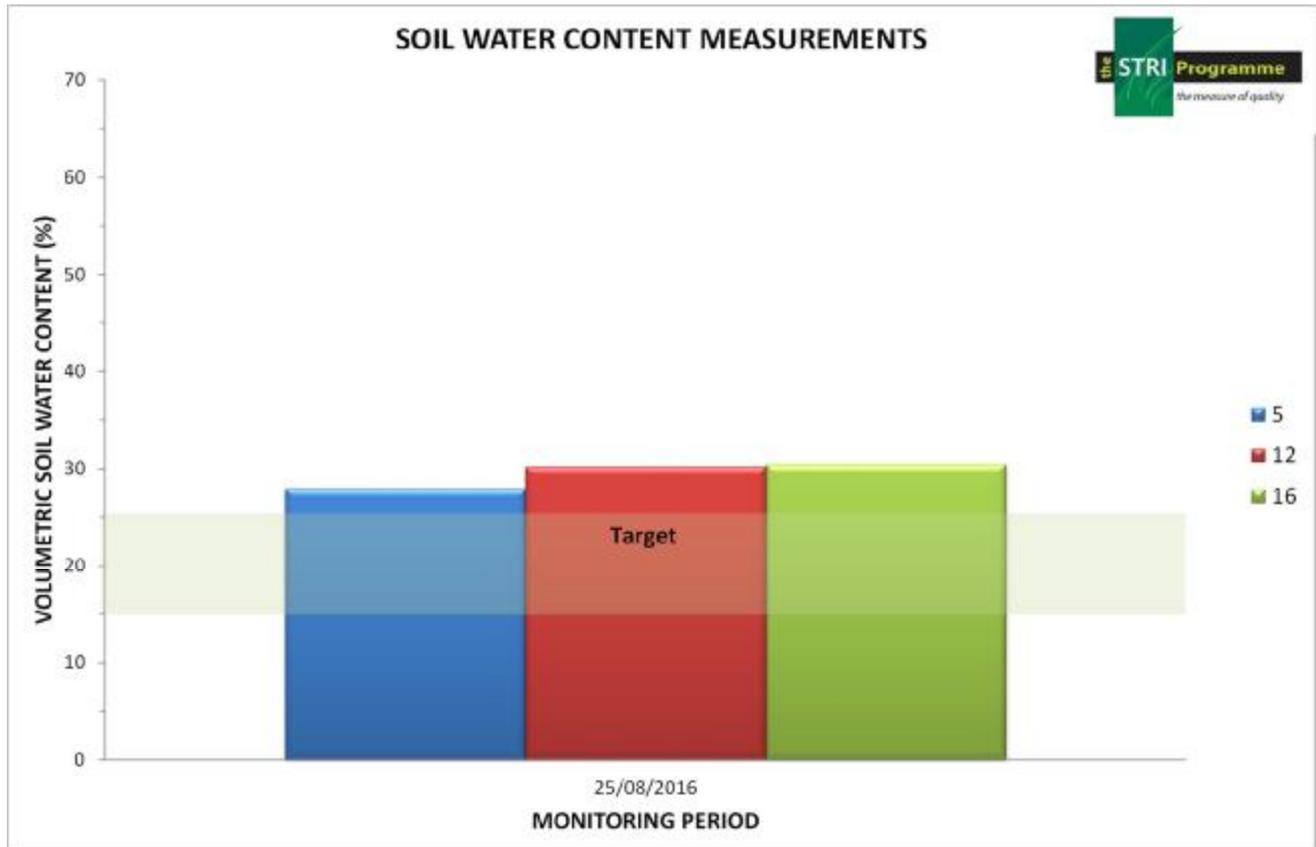
Signed

A handwritten signature in black ink that reads 'Conor Nolan'.

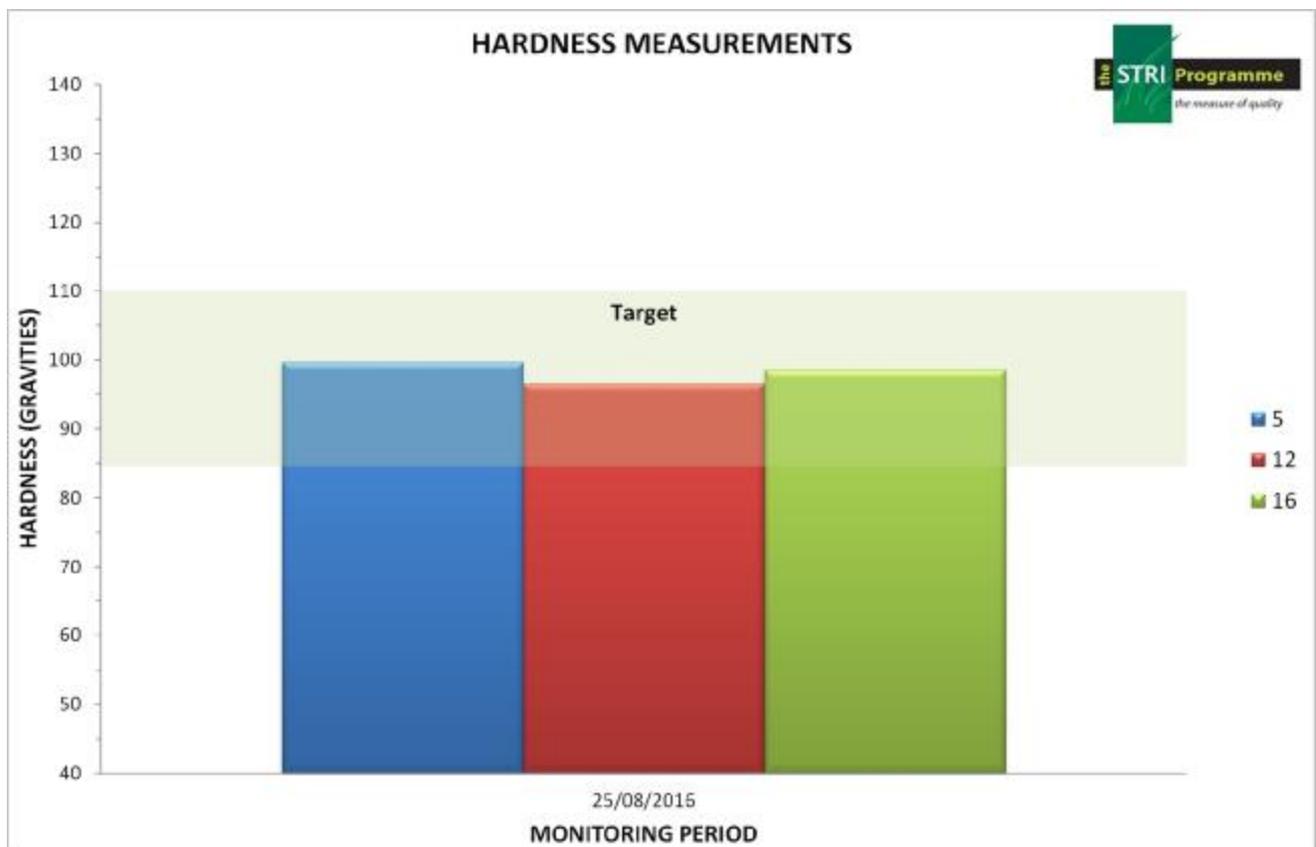
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STRI is completely independent and has no alliances to commercial products, services or contractors. This ensures that our design, project management and advisory services provide the best solutions for each individual client.

Objective Data

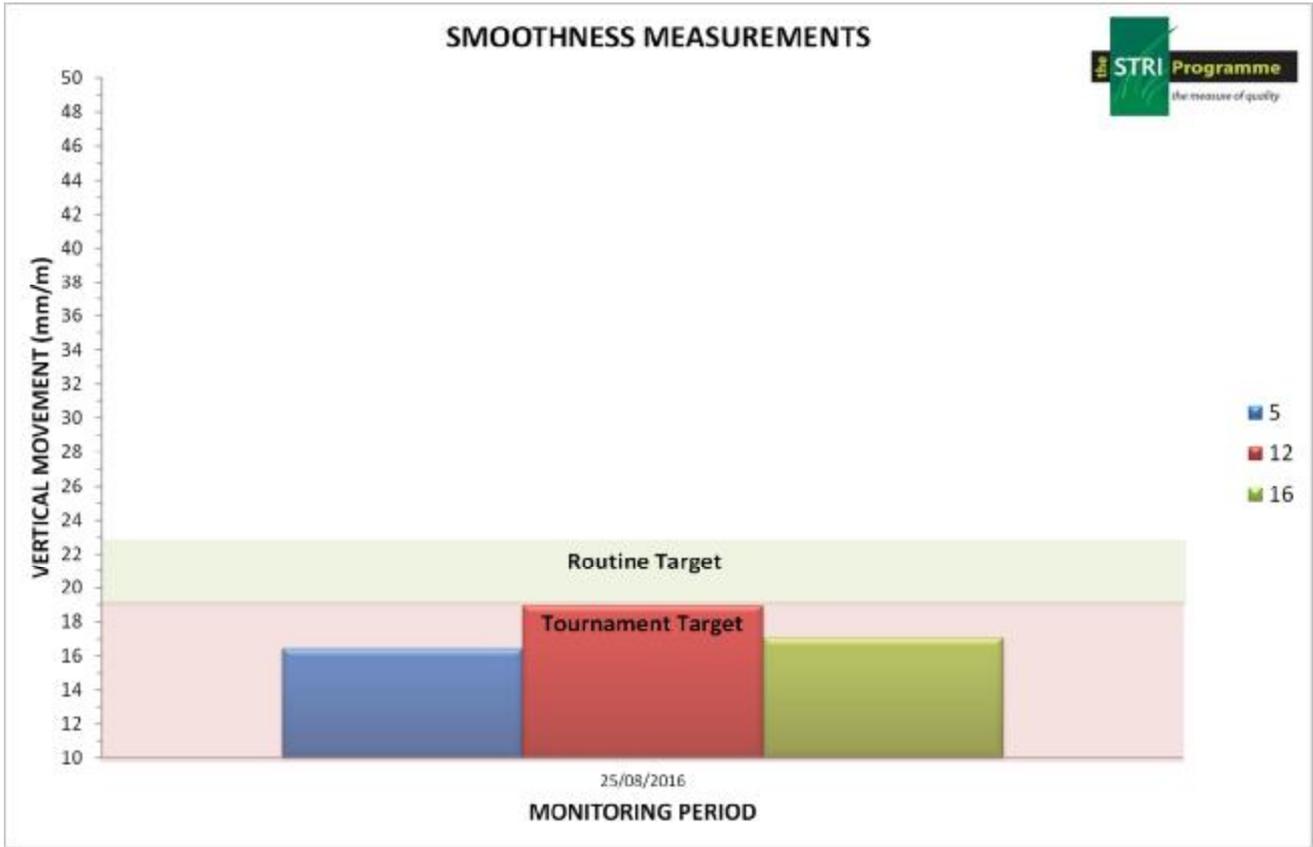


Objective Data Graph 1:

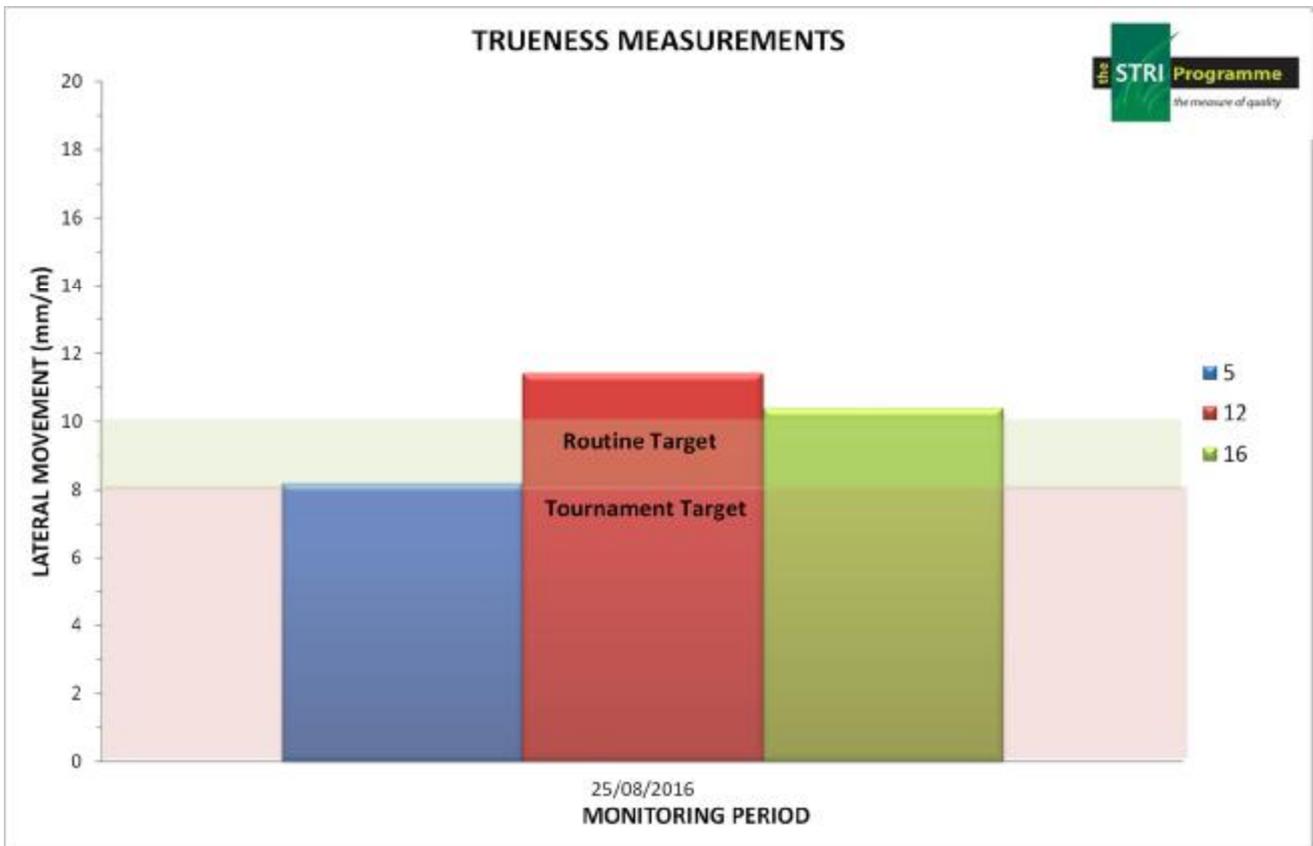


Objective Data Graph 2:

Objective Data (continued)

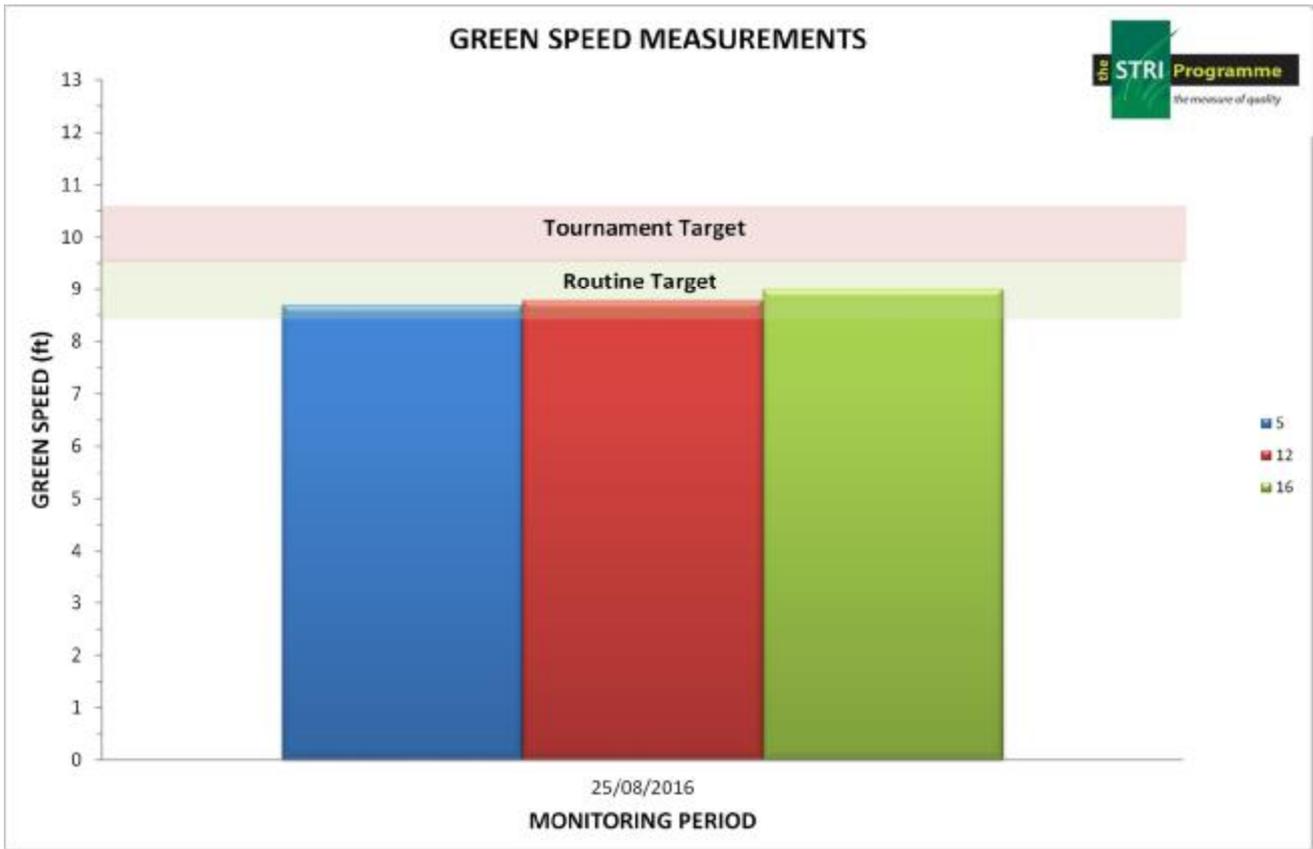


Objective Data Graph 3:



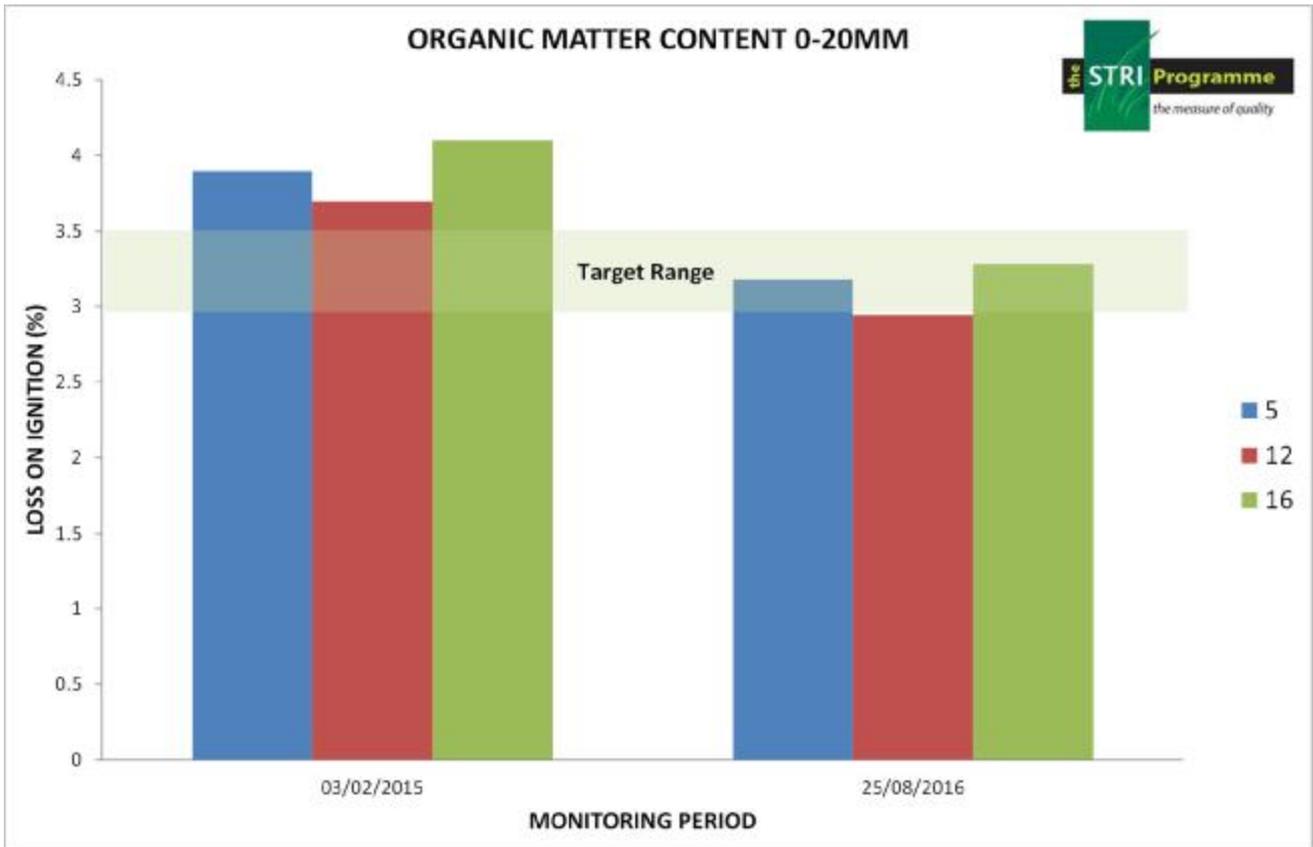
Objective Data Graph 4:

Objective Data (continued)

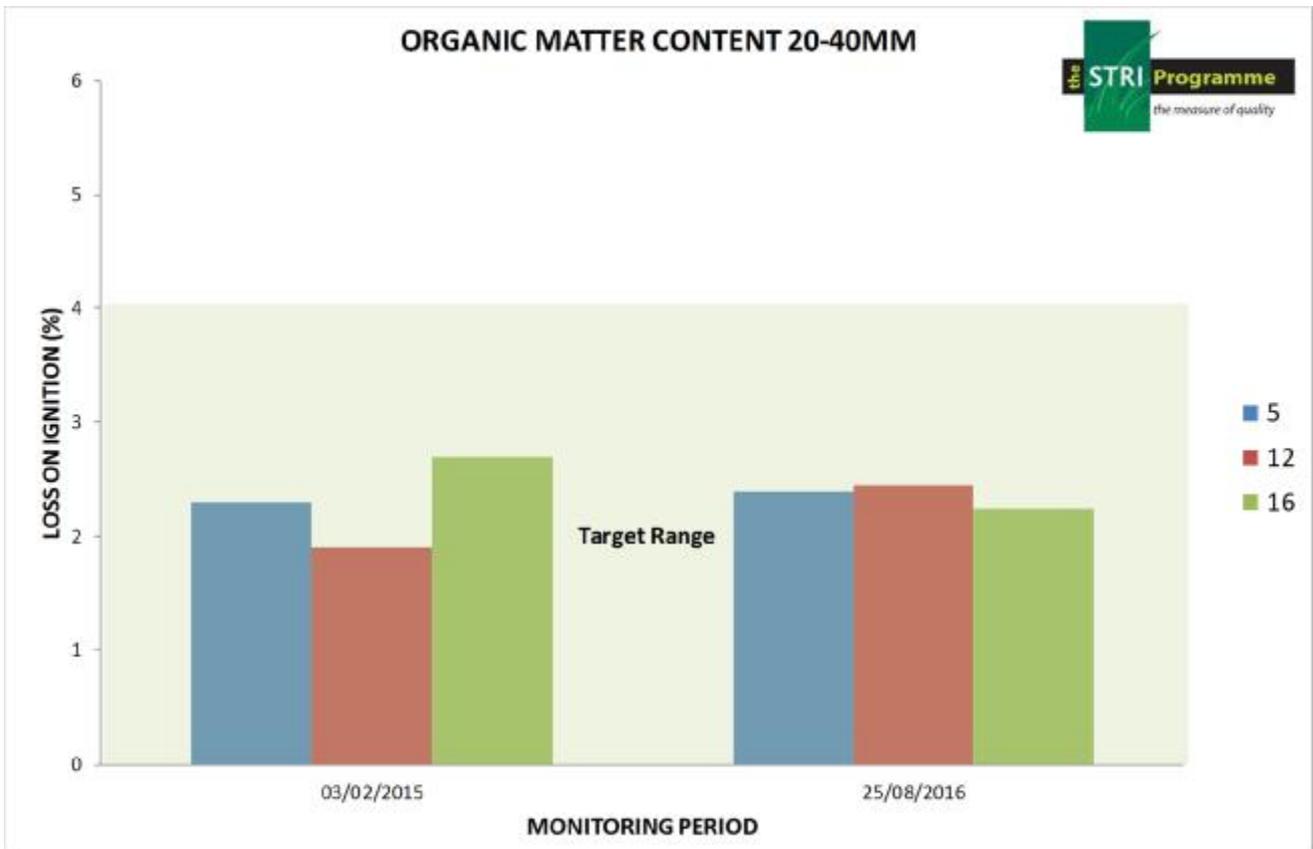


Objective Data Graph 5:

Soils Laboratory Data

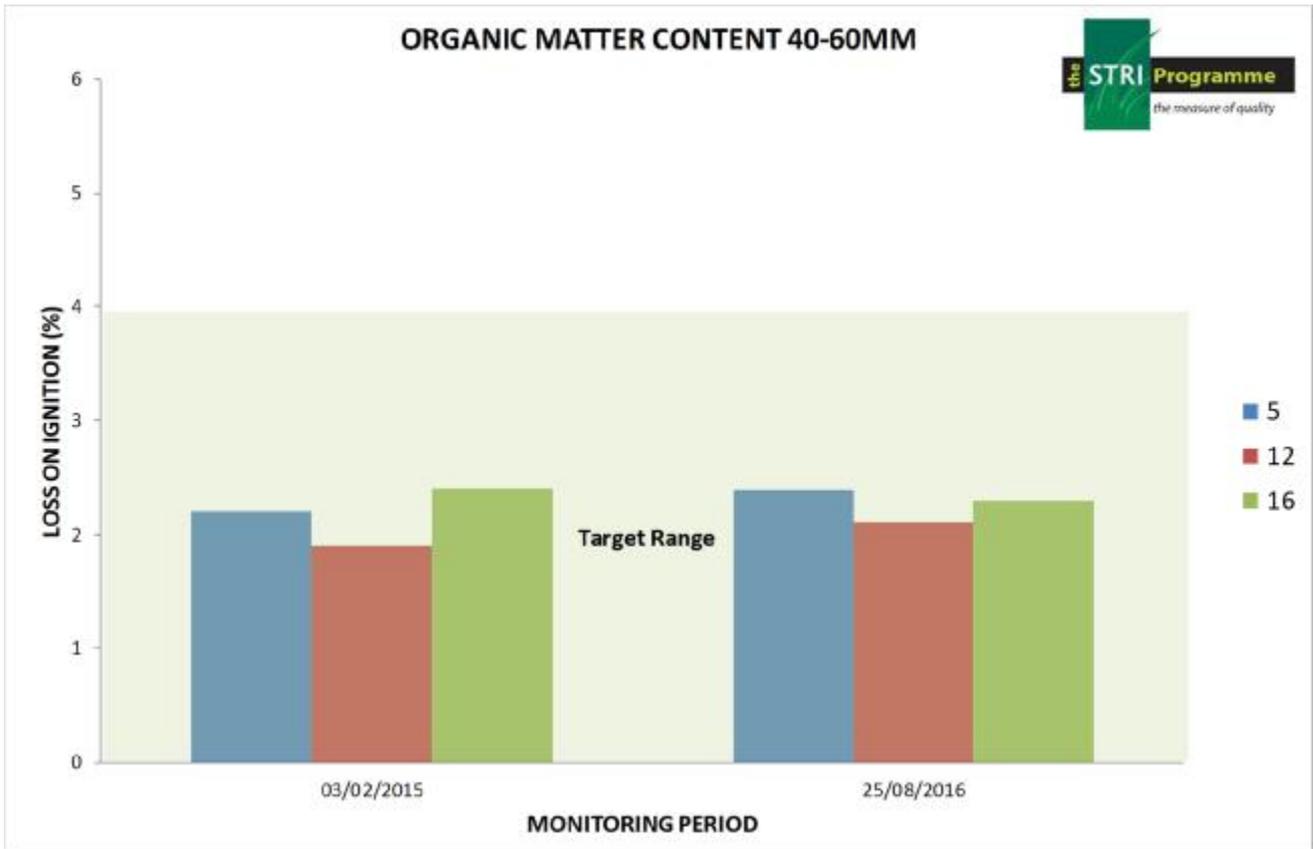


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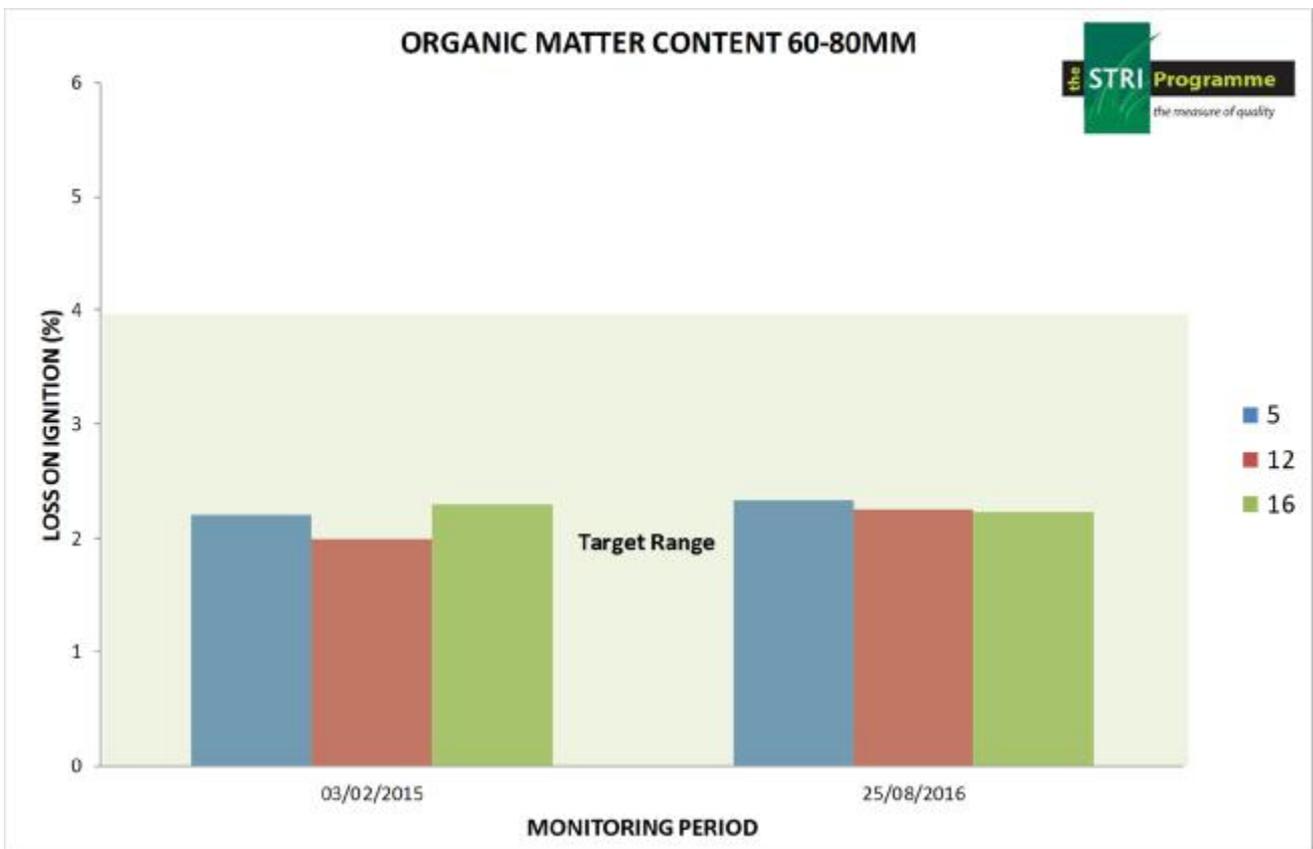


Soils Laboratory Graph 2:

Soils Laboratory Data (continued)



Soils Laboratory Graph 3:



Soils Laboratory Graph 4:

ORGANIC MATTER CONTENT

CLIENT: MONKSTOWN GC
ADDRESS: PARKGARRIFFE,
MONKSTOWN, CO. CORK,
REP OF IRELAND

DATE RECEIVED: 25/07/16
DATE REPORTED: 10/08/16
RESULTS TO: CN

TEST RESULTS AUTHORISED BY:
Michael Baines, Laboratory Manager

CONDITION OF SAMPLE UPON ARRIVAL: MOIST

SAMPLE NO	DESCRIPTION	LOSS ON IGNITION (%)*
A15074/1	5 0-20 mm	3.2
	20-40 mm	2.4
	40-60 mm	2.4
	60-80 mm	2.3
A15074/2	12 0-20 mm	2.9
	20-40 mm	2.5
	40-60 mm	2.1
	60-80 mm	2.3
A15074/3	16 0-20 mm	3.3
	20-40 mm	2.2
	40-60 mm	2.3
	60-80 mm	2.2

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



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

Testing Certificate 2159 - 01

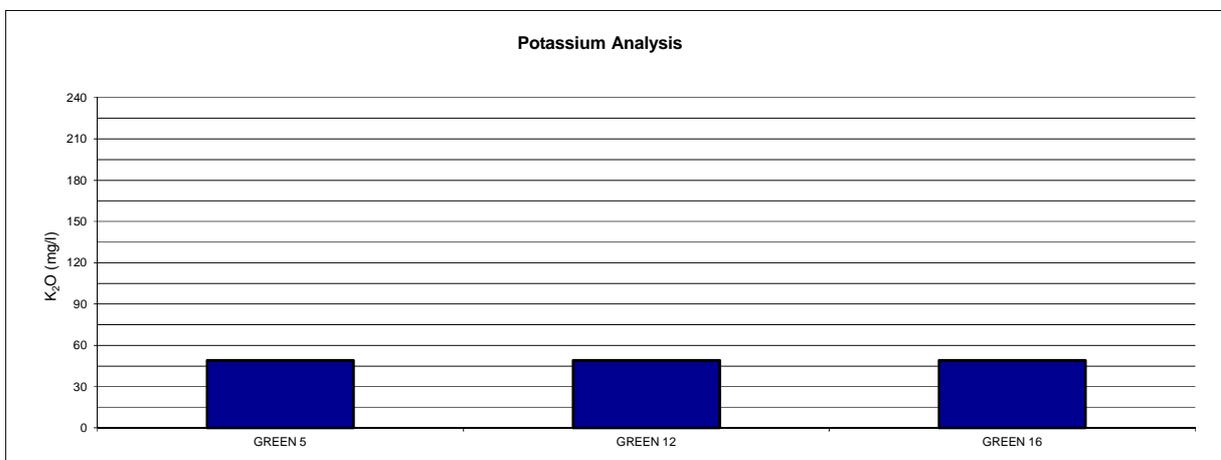
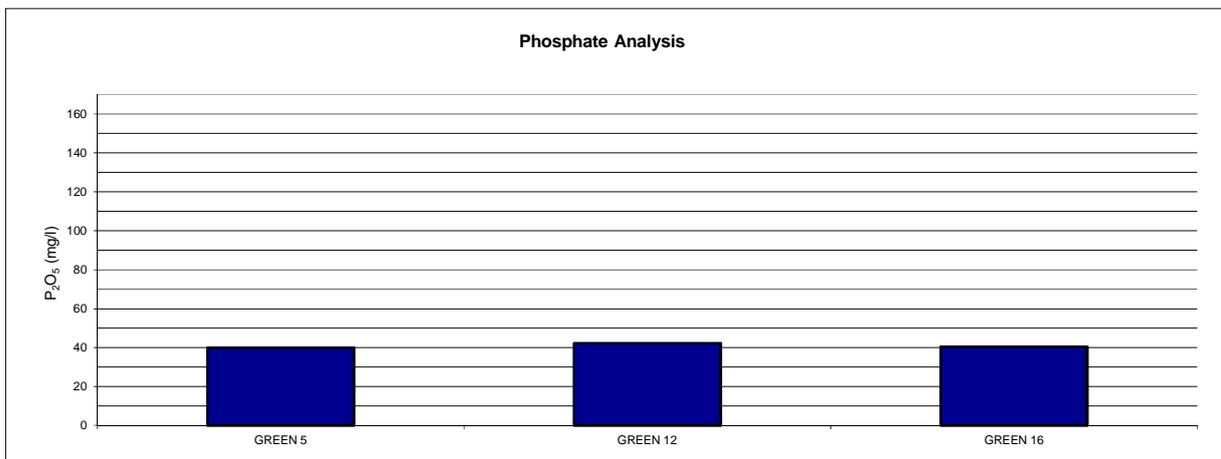
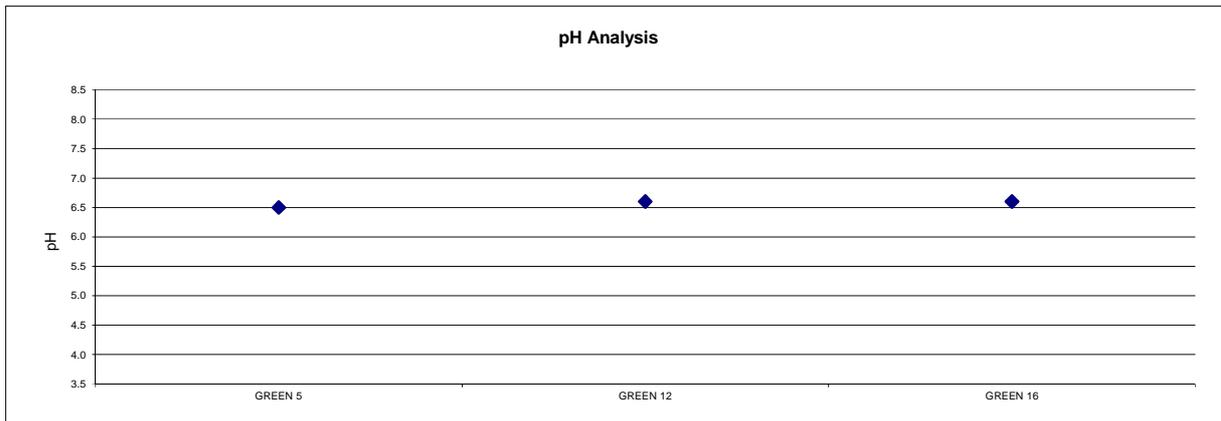
STRI

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SOIL CHEMICAL ANALYSIS

MONKSTOWN GC

Date: 25/07/16



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