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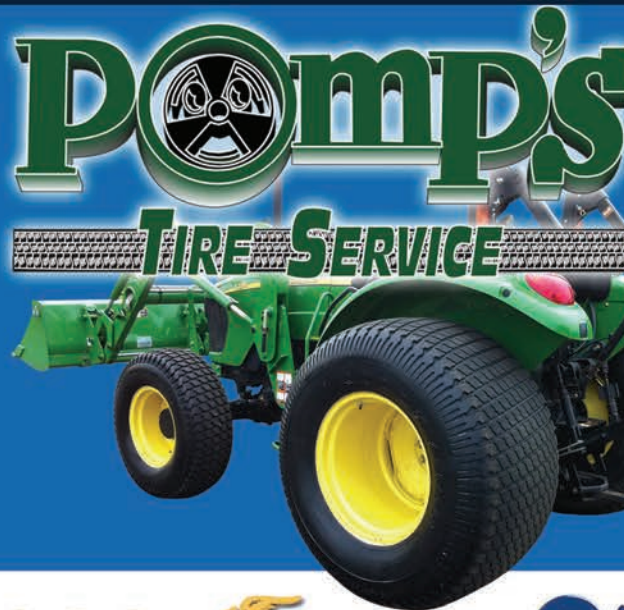
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**2015 Toro Greens Master Flex 2100**  
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grass catcher  
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464-844 hours



**2013 Toro Grounds Master 4500D**  
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Cool Top  
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**2011 Jacobsen LF-1880 Turbo 4WD**  
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2012 John Deere TE Gator Electric (Low Hours) Accu-Pro  
Reel Sharpener Foley United Bedknife Grinder  
2012 Toro 5 Gang Great Shape  
2010 Jac AR3 1800 Hours \$10,000  
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2010 Toro 3150 3WD 8 Blade  
2010 EZ-GO Beverage Cart  
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John Deere 8700 or 7700 Reels \$5000  
Toro Greens Rollers \$2000  
2009 Toro 4000 2200 Hrs \$22,000  
2011 John Deere 1200H Trap Rake \$7500  
(2) Turfco Blowers \$5500/ea  
2012 Toro 3500 Good shape!! \$20,000  
(10) 2011 Jacobsen 322 Eclipse Walking Greensmowers  
(10) 2010 Toro Flex 21 Walking Greensmowers  
(5) 2011 John Deere 220 Walking Greensmowers w/trailers  
(4) 2011 John Deere 260 Walking Greensmowers w/trailers  
2011 Toro 5800 Sprayer



2006 Foley 670 Bedknife Grinder, 2006 Foley 632 Reel Grinder  
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2013 Cushman Turf Truckster Have  
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2011 John Deere 8500 4WD,  
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2009 Jacobsen AR522  
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2013 Toro ProCore  
**Call for Price (Have 2)**



2009 Toro 5210 2WD  
**\$13,000 ea**



Toro 3500D Great Shape!  
**\$12,000**



2012 John Deere 8800 Med.  
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2013 Jacobsen GPlex  
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# NEWS

## From Around the Industry

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### Spring Irrigation Pump Station Service

In the Northeast, we have completed painting tee markers, benches, etc. ... only a month away from getting out and cleaning up the course from a long winter - and we can't wait. But what about the pump station?

Avoiding the pump station service, because of its complexities, can be a crippling mistake. Yearly preventative maintenance can save money by avoiding costly breakdowns.

The most common mistake that a superintendent can make is not to contract an authorized service technician to perform annual check-ups, diagnostics and preventative maintenance. A preventative checklist of pump station data may insure that the station is ready for the spring with the records available for comparison to prior year's services. Are the pumps producing similar flow to past years? Motor winding insulation value and resistance can be tested with an meg-ohm meter to insure that it is not degrading.

It is good idea to have a qualified technician conduct an efficiency audit to ensure that money is not being wasted on electricity in these trying budgetary times. The audit can help determine expected service life of the system and may present opportunities to optimize efficiency.

In-experience and untrained service may result in costly mistakes for the goal of saving money, such as not cleaning filters. Same with any mechanical devise. You would not think of skipping oil changes in your truck till 30,000 miles for the "savings". Preventive maintenance is good, done wrong can be more harmful than helpful.

The importance of regular service should not only be Spring or Fall, but once a week a visit to the pump house to observe the pump and motor vibrations, leaks and smells that differ from the norm. An early inspection of the balance of hours on motors, a decline in pumping capacity of the pumps or excessive vibration on the motors may literally save your position. Keep notes

and a checklist of power, performance, electrical inspection and test data. Seasonal events such as algae blooms will affect filter maintenance.

Motor and pump controls should be upgraded before they fail, technical advances in PLC's and electrical components may make upgrades a smart decision. Keep the pump station clean of debris and wildlife to insure proper cooling, extending service life.

You cannot afford to have your system fail during the hot summer months - when you need the water without interruption. Spring startups and services to insure the pumping equipment is ready for the hard summer months and saving money by increasing efficiency in water usage, motor and control upgrades.

A list of services provided by that are performed and reported back to the superintendent includes:

- Vibration test on each pump
- Lube bearings
- Inspect and tighten any leaking joints
- Test, adjust pressure relief valves
- Change oil in wet sump motors only
- Meg test on each motor
- Test and review PLC operation; make corrections and updates
- Check manual valves
- Pump packing adjusted
- Inspect, clean component filters
- Control cabinet inspection, including tightening of any connection points
- Inspection/cleaning of cooling components
- Test all fuses and circuit breakers
- Dynamic flow test
- Check amp test - all motors; examine intake screens for debris
- Hydraulic valves (including Cla-Valves), need periodic service, cleaning and adjustment

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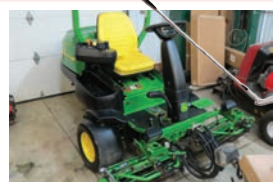




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## Mechanical Aspects of Golf

by Brian Duffy

### Bearings More Than Just Spinning Your Reels Part 2

Over the past few months I have been writing about the maintenance of reels. This month is part two of Bearings more than just spinning your reels.



If you have a one year old grandchild like I do, I am sure you may have heard the children's song "The Wheels on the Bus". The wheels on the bus go round and round, round and round all through the town. That's is all we want, is the reels on our

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mower to go round and round all through the season. Just like the bearings in the bus wheels, the mower reels all need a little TLC sometime. This TLC may be any of the following combination of lubrication, adjustment or even replacement.

As you service your reels you may find the bearings are worn or damaged beyond the basic need of lubrication and adjustment. They are in need of replacement. You ask the question, "How will I remove the bearing and what tools do I need?" When you are unsure how a bearing is held in place refer to the parts break down or manufactures repair manual. The tools needed for bearing removal and installation, range from the following list. This list is not meant to intimidate, but, just a combination of tools you may need for different situations. The odds are prior to the actual bearing removal, other components will need to be removed first such as a drive pulley or gear, hydraulic motor, bearing cover or housing etc. Please use common sense and wear safety glasses and protective gloves.

- Safety Glasses
- Work Gloves
- Shop towels
- Internal/external snap ring pliers
- Pliers or side cutters to remove cotter pins and castle nuts
- Hammer
- Punch set
- Internal/external pullers
- Blind housing puller kit
- Deep groove ball bearing puller
- Reversible jaw pullers.
- Slide hammer puller
- Cutting torch set for the worst case scenario of having to cut out a bearing to remove it
- Assorted bearing and race driver set
- Arbor press
- Torque wrench

After using proper tools, the failed bearing is now in hand and it is time to identify the bearing.



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Remember last month I touched on the description of the numerous different types and style of bearings. The easiest way to identify a bearing is by the fine print on the side of bearing that denotes the manufactures name and the bearing part number. One example of a common bearing used in a reel assembly is a Timken branded tapered roller bearing and race. As seen in the attached picture the bearing cone is part number part number LM11949 and the bearing race is LM11910. The combination of these two part numbers are also referred to as a bearing Set #2. Many common sizes of bearing cones and races are but together is specific numbers sets. Within the bearing industry The Timken numbering system is often used by other bearing manufactures to designate the same bearing type and size in their own product line. With these part numbers in hand it is easy to get the correct replacement when ordering. In the case where the bearing part number is worn away or missing, the next step is to measure the bearing dimensions with a caliper. A digital caliper is the easiest

to read and can be purchased for less than \$20 dollars. The digital readings are easily toggled between fractional, decimal and the metric scale. Generally two to three different measurements are needed to determine the bearing replacement part number. The inside diameter, outside diameter and the width. Many ball bearings are built to Metric dimensions and other times a combination of Metric and US Standard. The inside diameter maybe US Standard with a metric outside diameter dimension or vice versa. A fourth measurement to be taken is on a plain bearing that also has flange on one end. Plain bearing with a flange will resemble a top hat. See the enclosed picture of using caliper reading of the dimensions needed to identify a bearing size.

Knowing the type of bearing plus the information obtained with the caliper the proper replacement bearing can now be selected. All this identification and measuring may seem excessive but is required when the identifying numbers are not known. Keep the new bearings in their packaging until ready for use. This packaging keeps them dry and free of dirt. With the new replacement bearing in hand it's now time to install. Sealed bearing such as a roller ball bearing is pre lubricated and ready to install. An unsealed roller bearing and tapered roller bearing need to be pre packed with high quality bearing grease prior to installation.

If a bearing is installed without being pre lubed it may result in accelerated wear and failure. I am an advocate of the use of synthetic grease. Bearing life will definitely be extended. The pre lubing

or packing bearing can be accomplished by hand packing forcing the grease into the bearing using fresh grease in the palm of your hand or bearing packing tool that quickly fill the new bearing with grease. A bearing packer can be purchased from any auto parts store or industrial supply house.

Thoroughly clean the bearing housing or components that the bearing is to be installed into. Dirty old grease will contaminate the new grease and again accelerate and shorten bearing life. Inspect the machined surface of the bearing shaft for damage and wear. A new bearing will not perform properly if installed onto or into worn or damage components. Replace worn out grease/oil seals at the same time to keep water and contaminants out.

After the bearing is installed follow the manufacturer's recommended procedure for bearing end play and preload. Use the correct torque on related fasteners. With the new bearings installed it's time to grind the reels and make the final set up.

Attention to the details now will produce beautiful results and mowing season is just around the corner. I have just scratched the surface here on the subject of bearings. Feel free to submit your comments or question to Brian Duffy at [mxk92@yahoo.com](mailto:mxk92@yahoo.com) ■



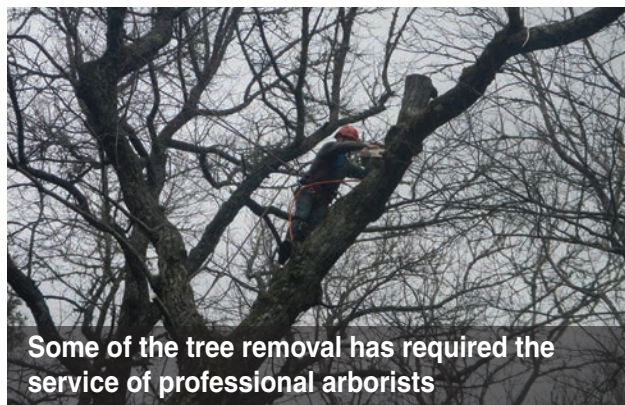
Brian Duffy's career spans thirty five plus years in the golf industry. With a diverse background of working on golf courses and turning wrenches on all types of equipment. Plus teaching Golf Course Equipment Mechanics and progressing into turf equipment sales and service. For any questions, comment or ideas contact me at [mxk92@yahoo.com](mailto:mxk92@yahoo.com)



# Tree Work and Stump Removal

One of the main projects for this winter has been tree removal and trimming back underbrush and rhododendrons. While I have detailed the trimming and removal in past posts, I have not adequately detailed the scope of the project that we have undertaken.

Over the years a significant amount of trees have encroached on the playing area. Some of these trees started out as volunteers and some have been there for years. However, the nature of the tree removal has been to remove trees that are either decayed and dying or because they inhibit turf growth due to excessive shade. By the time we are done, we will have removed about 100 large trees, primarily on the front nine.



Some of the tree removal has required the service of professional arborists

Felling 100 large trees is in itself a major project for our staff, but the work doesn't stop once the trees are down. After the trees are down, they are cut up and the branches sent through the chipper. If it is a



Split firewood for heating the maintenance building and material being readied to be hauled away.

hardwood, we cut the wood and split it into firewood where we use it to heat the maintenance facility. If it is a softwood then we chip what we can and the rest is hauled off to the dump

Once the tree is removed we are left with the stump. If the stump is off in the woods, then we cut it flush and leave it. If it is within the turf, then we remove the stump. Generally, a large hole needs to be dug

to get the stump loose so that it can be removed. The resulting hole is filled in with dirt and sod is installed. The stump is then hauled away to the dump. Some of the larger stumps can take nearly a day to



Roots being pruned from a large oak stump.



A large hole needs to be dug to remove the stump

remove. Leaving the stump is not an option (even if we grind it down) as the decaying wood makes growing grass difficult and eventually causes a hole to form.

This has been a major undertaking for our staff but one that will reap benefits far into the future. Those that have seen our work have been excited about what they see.

From the blog of Fred Gehrisch, CGCS at Highlands Falls Country Club <http://highlandsfalls.blogspot.com/>



## A behind the scenes look at golf course maintenance



December 2017 was a gorgeous month at Sandpines. We had quite a bit of play, which was a nice change from December 2016. Consequently, the agronomy staff spent the majority of the time preparing the golf course for daily play. Typically, we have a few more slow days in December and there is more time for projects. It was a welcomed change to say the least.



Believe it or not, we actually had to hand water greens in December. This was a first ever at Sandpines. There were enough dry spots on greens with no rain in the forecast that we felt it best to play it safe and give them a little water. Sandpines received less than 5 inches of rain for the month of December. You can check out Sandpines monthly rainfall by clicking on the precipitation history page if you are into that sort of thing.



The picture above is from late November. Black Friday to be exact. It's not to often you can play golf in short sleeves the day after Thanksgiving in Florida. I would love to make it an annual tradition. Hopefully the weather will cooperate next year.

January's weather hasn't been quite as good, although there have been some beautiful days.



# Where Does the Time Go

It just occurred to me that I'm starting my 12th season as the golf course superintendent at Bailey Ranch Golf Club! Where does the time go? Winter is often a time for reflection. How well did we do last year? Were there things we didn't do as well as we would have liked? What can we improve upon for the next year? But as I sit here thinking about the last 11 years, I can't help but think about all the progress we've made in this department. Progress, despite challenges that seemed overwhelming at times. Ice storms, historic droughts, winterkill on fairways, vandalism, equipment breakdowns, constant irrigation system failures, greens renovations, cart path repairs, bunker conversions and renovations, and bridge renovations were just a few of the challenges we faced with minimal staffing and limited resources. This was just within the first 4 years!

Thinking back upon all these challenges brings to mind all the people that have helped make it possible. Over the past 11 years, we've had various full-time staff come and go, and over 100 part-time and seasonal staff members come through and leave their mark on this place. The support of our Director of Golf, Corey Burd, and the Golf Shop, lead by our Head Professional Jeff Moore, has been invaluable and we have always felt like a team. Even through all the stress, there never was a time when it felt like we didn't have their support. Not to mention the unwavering support from the other departments within the City of Owasso. There is such a wealth of expertise at the City and they have helped us in numerous ways: project design assistance from the engineering department, construction equipment from public works, irrigation and drainage assistance from public works, loaner tractors from the Parks department, and countless other opportunities. There can be no doubt we wouldn't be where we are without their support!

Facing these challenges head on was daunting at times, and often seemed to be too much, but we put our heads down and got through it together. When I first got to Bailey Ranch, the golf course had been neglected for quite a while and therefore the condition of the golf course was volatile. Conditions were good when the weather cooperated and bad when it didn't. Anyone who has lived in this area for any length of time knows the weather is very unpredictable, and due to this, we struggled to be consistent the first few years I was here. Now, I can honestly say we have come out the other side with a much more sustainable golf course. We aren't as prone to the whims of nature, and we have created a product that is much more consistent throughout the year. This has been my greatest pleasure, to create a product that our members and guests can enjoy, and be proud of. At the beginning of each year, I get excited for what the new year will bring, and this year is no exception. I am excited for the chance to make Bailey Ranch even better in 2018 than it was in 2017!

As always, see you on the course!

From the blog of Superintendent Chris Cook at Bailey Ranch Golf Club, <http://baileyranchgolfmaintenance.blogspot.com/>



However, we were able to get a few of the projects done that we started in December.

Cart path edging was recently completed. Chuck and Thaddeus did the lions share of the edging, with Aaron and Mark contributing as well. The finished product looks really nice.

Quite a bit of brush and salal mowing was completed as well. The dry days allowed us to get more mowing done than usual. The mower we use doesn't work very well in wet conditions, needless to say we didn't get much brush and salal mowed last year.

We have been dealing with a few irrigation challenges. A few leaks and broken valves have been repaired. Some weren't very fun to deal with. As always, Jerry did a nice job heading up those projects and getting them completed.

We also put out different rakes that were acquired from Oswego Lake Country Club. The rakes are used, but they provide a much better playing surface than our old rakes.

We are still in the process of looking for a mechanic. Dennis has been doing a nice job keeping us up and running in the interim. Thaddeus and Chuck have also helped out in the shop from time to time.



From the blog of Eli McGallian Superintendent at Sandpines Golf Links, <http://sandpinesturf.blogspot.com/>







# Reynolds Golf and Turf

Award-Wining Results Provide the Proof



Serving golf course operators and sports turf professionals across Indiana, Ohio, Kentucky and West Virginia, Reynolds Golf and Turf has emerged as a leading provider of new and used turf equipment, on-site and in-shop service and maintenance parts to keep turf fleets operational year-round.

From its locations in suburban Indianapolis, Xenia, Ohio (near Dayton) and Nicholasville, Kentucky (near Lexington), the John Deere Golf retailer has earned its place on the priority list for turf teams by offering a unique approach to equipment sales and support.



"We know course operators and turf pros have a number of choices when buying equipment or choosing a partner to maintain their fleet," said Michael Bode, manager of Reynolds Golf and Turf. "That's why our team's mission every day is to earn the opportunity to serve as the trusted partner for customers – whether that is helping select the right piece of equipment for the job,"



providing expert service or getting the right part delivered fast to minimize downtime."

The commitment to serve customers is more than a passion for Bode and his team. It's literally the company's vision.

"Our vision is to be the best dealer by uniting our team around a shared passion to serve, and we're doing it," Bode said.

### The company's award-winning results provide the proof.

Turfco named the Reynolds Golf and Turf its dealer of the year in 2016, and John Deere Golf named Bode its Manager of the Year in 2016. And, for the past two years in a row, the parent company of Reynolds Golf and Turf, regional John Deere retailer Reynolds Farm Equipment, was one of the top performing John Deere Ag and Turf dealers in the country.

"Reynolds Golf and Turf is a step above the competition. They take the time and do whatever is necessary to assist the customer in meeting the needs of their course," said Brad Pugh, Country Club of Terre Haute.

In addition to selling John Deere Golf equipment throughout the region, the company also sells and services a full-line of allied turf solutions, including products from Berhard, Buffalo, Lastec, Progressive, Redexim, Stihl, Tru-Turf, TurfCo, Ventrac, Wiedenmann and more.

"Every course and every turf operation is different," Bode said. "That's why we've invested the time and diligence to build a portfolio of products from the best brands in the industry that ensures we can provide the right equipment for the right job, every time."

That also includes used equipment, he said.



The company sells most makes of used golf and turf equipment from its Indiana, Kentucky and Ohio locations and also operates UsedGolfandTurf.com where it sells used golf and turf equipment online 24 hours day.

For more information, visit [www.UsedGolfandTurf.com](http://www.UsedGolfandTurf.com) or [www.ReynoldsFarmEquipment.com](http://www.ReynoldsFarmEquipment.com).



# NEWS

## From Around the Industry

For More News, Visit [GolfCourseTrades.com](http://GolfCourseTrades.com)

### Scientists: New Zoysia Grass is Ideal Putting Surface

Texas A&M AgriLife Research licenses DALZ 1308 for production

Writer: Gabe Saldana, 956-408-5040, [gabe.saldana@ag.tamu.edu](mailto:gabe.saldana@ag.tamu.edu)  
Contact: Dr. Ambika Chandra, 972-952-9218, [ambika.chandra@ag.tamu.edu](mailto:ambika.chandra@ag.tamu.edu)

A first-of-its-kind zoysia grass hybrid promises superior putting green performance and quality while requiring fewer inputs compared to other warm-season turfgrasses on the market, said Dr. Ambika Chandra, Texas A&M AgriLife Research turfgrass breeding program leader in Dallas.

The new variety, tested as DALZ 1308, produced average roll distances above 9 feet in industry standard roll-distance research trials. Golf courses now testing the new zoysia report averages of 12 feet — an ideal roll for tournament play by golf industry standards between 9 feet and 13 feet, Chandra said.

“This is a next generation, ultra-dwarf, super-fine textured, greens-type zoysia grass,” she said. “It’s genetically dark green with high shoot density, which produces a superior quality putting surface.”

Zoysias, compared to other warm-season turfgrasses, generally produce higher quality turf with fewer inputs like mowing, nutrients and chemicals due to their natural tolerance to disease, insects, shade and salinity stress, Chandra said. Their comparative low maintenance could help higher-quality putting greens become viable and sustainable for golf courses with limited budgets and human resources.

“The problem with putting green zoysias historically is that they’re known to roll too slow for tournament play,” she said. “DALZ 1308 solves that.”

The exclusive national license for production and sale of the variety is held by Bladerunner Farms of Poteet, which is working to establish fields of the new

turf. The company will grant sub-licenses to select producers across the U.S.

“I believe that the use of zoysias for greens will prove to be the next big thing in golf and that 1308 will lead the way,” said Bladerunner Farms owner David Doguet.

DALZ 1308 also represents a scientific breakthrough in its standing as the first hybrid developed specifically for putting greens by crossing two different turfgrass species, zoysia minima and zoysia matrella.

Chandra will discuss the genetics, development, evaluation and performance of greens-type zoysia grasses at Bladerunner Farms on Feb. 6 — part of the Golf Industry Show in San Antonio.

“We believe we’re going to see an increased use in zoysias for putting greens across the country with the release of DALZ 1308,” she said.

Go to <https://dallas.tamu.edu/research/turf/> and contact Chandra for more information on DALZ 1308. Contact Doguet by going to <http://www.bladerunnerfarms.com> for information on sub-licensing the variety. ■

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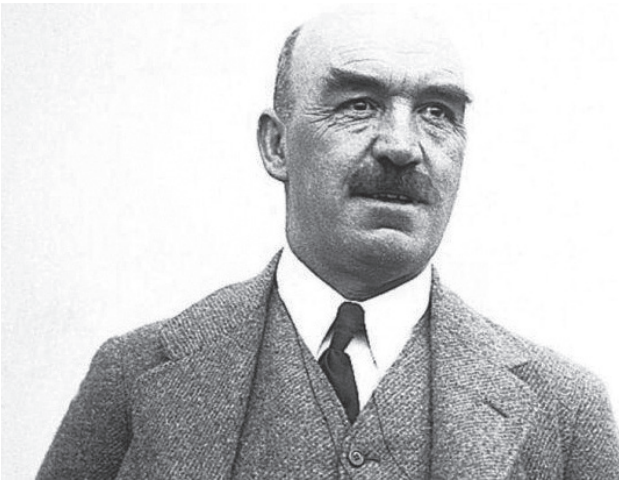
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# Part 4: Pioneers of the Golf Industry - Alister MacKenzie

by Jeff Shelley

*Editor's Note: This is the fourth in a series of articles about the people who helped pioneer, promulgate and popularize the game of golf.*



After Francis Ouimet and Bobby Jones helped bring golf to the American masses, someone needed to take the lead on the design and construction of the new courses that followed in the wake of the game's sudden acceptance.

Ouimet's win in the 1913 U.S. Open launched the "Golden Age of American Golf." Nowhere was that more evident than in this startling statistic: At the time of Ouimet's historic victory over the great Harry Vardon at The Country Club in Brookline, Mass., there were an estimated 350,000 American golfers. Ten years later, that total had risen to 2 million. Golf had emerged from the shadows as a pastime of the privileged few and was now open to everyone.

The number of public and private golf courses in the U.S. grew from fewer than 750 before 1913 to nearly 6,000 by 1930. Several notable golf architects burnished their reputations during these heydays, including Charles Blair Macdonald, Alister MacKenzie, H.S. "Harry" Colt, Seth Raynor, George C. Thomas, Willie Watson, A.W. Tillinghast, and Donald Ross.

It's arguable whether MacKenzie or Ross, a Brit and Scotsman, respectively, was more influential and "pioneering" in their fields, as each made an indelible mark. Before relocating to the U.S., Ross served as an apprentice under Old Tom Morris at St. Andrews. The Dornoch native was responsible for designing or redesigning approximately 400 courses in the U.S., including such illustrious layouts as Pinehurst No. 2, East Lake (Bobby Jones's home course), Seminole and Oakland Hills, along with many public and municipal venues, most located east of the Continental Divide.

Ross exhibited a flair for routing golf holes over their natural sites, usually with a minimum of earthmoving. He was a founding member and the first president of the American Society of Golf Course Architects, and in 1977 was admitted posthumously (Ross died in 1948 at Pinehurst) to the World

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Golf Hall of Fame. The Donald Ross Society is based in West Hartford, Conn.

Born in 1870 in Yorkshire, MacKenzie had an entirely different background than Ross. He was a doctor who enlisted as a civilian surgeon with England's Somerset Regiment during the Boer War at the turn of the 20th Century. But instead of treating injured soldiers, he became a camoufleur, someone who designed and built military camouflage during that era. Famously, this background became a key element of MacKenzie's renown as an innovative golf course architect.

MacKenzie started playing golf in his late 20s and was a member of several clubs. His first course design, in 1907, was The Alwoodley Golf Club in Leeds. Before the course opened for play, MacKenzie's fellow founding members thought that some of his concepts were too radical, so they brought in Colt for a second opinion. But Colt grasped that MacKenzie's ideas were similar to his own, and wholeheartedly endorsed the project.

MacKenzie reached broader fame in 1914 after his design for the 18th hole at the upcoming Lido Golf Club on Long Island was selected as the best in a contest by England's Country Life magazine. That course, designed by Macdonald and built by Raynor, continues to have near-mythical status among golf's cognoscenti despite closing during the Great Depression.

In 1919, with fellow golf architect Charles Allison, MacKenzie and Colt formed the London-based design firm of Colt, MacKenzie and Allison. But the group disbanded in 1923, reportedly over ego clashes between MacKenzie and Colt, and MacKenzie set out on his own.

In 1920, MacKenzie wrote the first of his two books, Golf Architecture. In that seminal tome, he equated the ties between his camoufleur work and the creation of enchanting golf courses. "The chief object of every golf course architect worth his salt is to imitate the beauties of nature [and presumably also the hazards] so closely as to make his work indistinguishable from nature itself."

MacKenzie's portfolio is much thinner than Ross's. And, instead of seeking to fit golf holes to a particular site, the good doctor wasn't averse to shifting thousands of yards of dirt to fulfill his vision. Between the courses at Alwoodley and his final masterpiece in 1933, Augusta National Golf Club, MacKenzie designed just over 50 courses. But he plied his craft on four continents, creating some of the most iconic and sublime golf courses on the planet: Cypress Point (called the "Sistine Chapel of Golf" by former USGA president Sandy Tatum), Augusta National, Valley Club in Montecito (California), Crystal Downs in Michigan and the West Course at Royal Melbourne.

Cypress Point, Augusta National and Royal Melbourne are perennially ranked among the top-10 golf courses in the world.

MacKenzie also reworked the original Old Tom-crafted Lahinch in Ireland and designed Burning Tree in Maryland, Ohio State's Scarlet Course, St. Charles Country Club in Winnipeg, and Titirangi in New Zealand.

Ironically, Ross was originally pegged by Augusta National co-founder Bobby Jones to design the new course in Georgia. But then, fortuitously for MacKenzie, Jones lost a first-round match in the 1929 U.S. Amateur at Pebble Beach to Johnny Goodman. With his



The Alwoodley Golf Club in Leeds      Photo Credit Getty Images



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Pebble Beach to Johnny Goodman. With his week out West suddenly free, Jones played MacKenzie's then-new Cypress Point layout several times and chatted frequently with the architect.

That experience on the central California coast changed everything for MacKenzie and Jones, co-designers of Augusta National. In a 1986 book entitled *A Golf Story*, author and historian Charles Price wrote, "Ross was a notorious individualist, and Jones wanted a course with his designs incorporated into it, not a course entirely of someone else's."

Among MacKenzie's designs is Pasatiempo in California, where he lived out the final years of his life in a cottage beside the sixth fairway. In January 1934, he died of a heart attack at age 63, two months before the inaugural Masters Tournament. His ashes were spread over the Santa Cruz layout.

Unfortunately, MacKenzie found it difficult

to get paid for his work at Augusta National, and he and his wife Hilda struggled financially before he passed. "I have been reduced to playing golf with four clubs," he pleaded in a letter to Augusta National, as noted in *The Making of the Masters*, a book by David Owen commissioned by the club. "I am at the end of my tether, no-one has paid me a cent since last June, we have mortgaged everything we have and have not yet been able to pay the nursing expenses of my wife's operation."

Sixty years after MacKenzie died, his grandson, Raymund Haddock, unearthed an old book manuscript co-written by the great architect and his stepson, Tony Haddock. The *Spirit of St. Andrews* provides golf course architects and golf-architecture fans insights into the great doctor's thought processes.

Longtime golf writer and editor George Peper wrote of that lost treasure, published by Sleeping Bear Press in 1995: "Much of its content is timeless. MacKenzie never minces

words, and his views on golf, golfers, and courses remind us that he was not only a brilliant architect but one of the most provocative characters the game has produced."

During his relatively brief but remarkable life, MacKenzie realized the salubrious benefits of golf, especially while he was an active medical practitioner. "How frequently have I, with great difficulty, persuaded patients who were never off my doorstep to take up golf, and how rarely, if ever, have I seen them in my consulting rooms again!" he proclaimed.

MacKenzie's legacy lives on, not only in the form of his enduring creations but in how modern-day golf architects seek to imbue their courses with both strategy and artistic beauty.

There are two versions of the Alister MacKenzie Society: one in America founded in 1988 and a UK-based version started in 1999. The camoufleur, doctor and famed golf course architect took his rightful place in the World Golf Hall of Fame in 2005. ■



Jeff Shelley has written and published nine books as well as numerous articles for print and online media over the past 30 years. The Seattle resident is the co-founder of the Northwest Golf Media Association and board president of First Green, an international, nonprofit program that provides environmental and STEM education outreach using golf courses as environmental learning labs. [jeff@fairgreenspublishing.com](mailto:jeff@fairgreenspublishing.com)



# My personal reflection on finding Highlands Country Club...

by Brian J. Stiehler, CGCS, MG

There are a lot of things about working at a country club that are unique. Certainly every job has unique aspects to it, but this business really is built on relationships...the relationships with fellow staff, vendors and most importantly, the members. Highlands Country Club's greatest asset is its membership which dictates the culture of the club and its atmosphere. In the 18 seasons I've spent at Highlands CC, these relationships are special to me. I often think back to 18 years ago (2000) when it all began.

I was a 22 year old, soon-to-be college graduate. Other than extended internships, I wasn't exposed to the real world just yet. I did have the fortune of discovering a career at a young age in addition to a great support system in a mother and father that mentored and coached me along the way. Late fall during my senior year at Penn State, I started receiving interest from several different Clubs as an Assistant Superintendent. A Club and US Open venue in Michigan, a Discoveryland Company project in Texas and Highlands CC were 3 solid possibilities. There was always something about HCC that felt like the right fit for me. It's that gut feeling we get that you have to learn to trust. Ironically, one of my Penn State classmates was born and raised in Franklin, NC and spent several years working at Highlands CC under superintendent, Andy Laughridge- also a Penn State graduate. Since the early 1980's, each HCC superintendent was a graduate of Penn State, the oldest and most prestigious Agronomy program in the world. The HCC/PSU relationship is a tradition in its own right! In November of that year, I learned from my classmate that HCC was in fact looking to hire an Assistant Superintendent. I immediately sent my resume to be considered.

In December of 2000, the Club flew Hilary and me from State College, PA to Asheville where we rented a car and drove to Highlands. This was our 3rd trip to Highlands...we learned of the area the year prior when I worked at Augusta National (again, all Penn State relationships). In fact, we were married in Augusta, GA in July of 2000 and then spent our honeymoon in Highlands! That December was my official interview for the assistant superintendent position...the job I really wanted! The Superintendent at the time, Eric Shomaker, interviewed two other people for the job as well. I knew I would fit exactly what HCC was looking for but I also knew the other people being interviewed...both of which were great guys. After Christmas of that year, I finally received the letter I was hoping for! I remember the excitement seeing the envelope with the Highlands CC logo on it. In it was a letter from Eric, offering me the position. It was the easiest decision I ever had to make, with the full support of my wife. That same year, I was named a GCSAA Scholar which included an all-expense paid trip to the Golf Industry Show...held in Dallas, TX that year. Eric and I kept in constant communication those following months and I planned to meet up with him in Dallas. A week before going to Texas, Eric told me there is someone else who wants to meet me and spend time with me. Keep in mind, I'm just a young college student and I felt Highlands CC was going out of their way to make sure I was the right fit and was content in

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my decision...everyone involved was first class all the way. It just so happened that other person was Yancey Stribling, then Highlands CC Green Committee Chairman. I was blown away by this gesture...the HCC green chairman was going to fly to Dallas to meet me, the new assistant superintendent! He made the trip that February, flying to Dallas from their Aspen, CO home. We spent the day together, walked the trade show floor and had dinner. I went back to Penn State and recall telling the story to my fellow classmates who couldn't even begin to relate to my experiences of being hired by HCC. It was because of that first impression I got from Yancey- and the way he treated me, that Highlands CC would always be the place I wanted to be. In March of that year, Hilary and I came to Highlands during spring break. It gave me the opportunity to work with the staff for a week and get to know everyone. That week, we went to dinner a few times with Greg and Rita, Eric and his wife and of course, Yancey. Everywhere we went, it was like being with a celebrity. He seemed to know everyone. Like me, everyone was naturally drawn to his likeable personality. He was a special man. I remember all the stories he would tell too- from his elaborate Lionel train set in his basement to the times he and his father came to Highlands CC when he was just a boy. If you knew Yancey, you probably heard the story of him and his father, standing on #18 tee. His father told him he would buy him a sleeve of Spaulding Dot golf balls in the golf shop if he cleared the lake. He teed it up and successfully crossed the hazard. That sleeve of golf balls became a treasured possession of his. He could see how proud he made his Dad...one of the best feelings anyone could have! It was stories like this that made me realize how special this Club is. This property was a huge piece of the lives and memories of its members...a scenario that happens to make for the most successful and healthy clubs in the world.

In 2003, after 3 seasons at HCC, I had the opportunity to be a superintendent. After all, that was my goal...spend 3 years max as an assistant superintendent and then off to bigger things. Champion Hills Club in Hendersonville, NC gave me that opportunity. It is a great place too, but certainly didn't have the culture or pedigree as Highlands CC. That position was short lived. Hilary and I purchased a home and moved to Hendersonville in January 2004. Three

months later on a cold March morning, my phone rang. I was standing on #14 tee at Champion Hills when Greg Crawford called and explained that Eric accepted the Superintendent position at a new Club being built in Cashiers, Mountaintop GC. Greg's question was: "What would it take to get you back?" At the time I was trying to play it cool and tell myself to use my negotiating skills and play hardball. The truth was...it was a done deal before Greg even finished the question! It was the 2nd easiest decision I ever had to make (the first was coming to HCC in 2000). I learned later that Yancey took an article he had read about the Head Greenkeeper of the Old Course at St. Andrews (who I worked for in 1999) being hired in that position at the young age of 24 years old. In 2004, I was 25 years old. Twenty five year olds typically don't land Superintendent positions at a Highlands CC caliber Club. But it was a General Manager and a former HCC Green Chairman who had the confidence in my ability to do the job. It's these relationships that I feel like I worked hard to earn but I've always been tremendously grateful for. Yancey made a copy of that article and took it to Greg and said if St. Andrews can hire a 24 year old, we can hire a 25 year old!

In all of our lives, there are people that come and go. There are others who come and have an impactful presence in our life; it's like they were sent at just the right moment. There are about 6-10 people in my life that I can say that about. I consider myself fortunate to get to work with three of those people every day and have for the last 15-18 years. To me, Yancey Stribling was one of those people.

Going back to where I started with this post...the turf life and specifically Highlands CC, has given me the opportunity to meet some great people, many who helped shape my life and my career. Highlands Country Club has given me the ability to grow professionally, raise a family, travel, create wonderful memories, build a staff that's second to none, live a wonderful quality of life all while living close to my parents (Greenville, SC). It couldn't have been scripted any better for me. In 2000, I had no idea it would have turned out as well as it did, but my gut told me it would and I trusted it...for someone not known for their patience, I'm most proud of this fact. For a long time, Yancey Stribling was the face of Highlands CC to me. His passion for the golf course and how he treated Hilary and me was a huge part of why I wanted to be at Highlands CC and why I have such loyalty for this great Club. Like everyone, I miss him. For me, there will always be a void at Highlands CC without him because of this history. I'm forever grateful because I had the opportunity to know him. When I ride around the golf course, there are so many memories and stories of the many projects he was involved with that I will always treasure.

I hope that one day I can have that same impact on someone starting out in their career.

From the blog of Brian J. Stiehler, CGCS, MG at Highlands Country Club ■



# NEWS

From Around the Industry

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## Jacobsen Launches New HF600



Jacobsen, a Textron Specialized Vehicles brand, is pleased to introduce the new HF600, which features revolutionary versatility by giving operators the choice to mow with three, four or five reels. This unique functionality delivers the exclusive combination of the industry's widest fairway cut and narrowest transport width in its class.

Offering unrivaled flexibility, the HF600 has the capability to mow expansive fairways, the precision to trim around trees and bunkers, and the durability to master the deepest roughs. Additionally, the HF600 has the ability to perform scalp down with ease.

"The HF600 delivers the unrivaled quality of cut customers expect from Jacobsen equipment paired with revolutionary versatility to perform more tasks with a single mower," said Michael Parkhurst, Vice President, Golf for Textron Specialized Vehicles Inc., which

designs and manufactures Jacobsen turf-care equipment. The company also manufactures E-Z-GO golf cars and Cushman utility vehicles under its Textron Golf umbrella.

The HF600 is equipped with a powerful 65hp Kubota diesel engine, ergonomic seat and controls mounted on an adjustable armrest, making operation easy and efficient. ■

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PART NAME	REPLACES OEM #	PRICE
USED 12V Fuel Shut Off Solenoid	338289	\$75
NEW Replacement Water Pump	107-0129, 115-1561	\$159
NEW Water Pump Gasket	98-7784	\$9
NEW Kubota Cylinder Head	108-7055	\$1,469
NEW Cylinder Head Gasket Set	N/A	\$165
NEW Glow Plug Controller	98-7611	\$155
NEW 12V Electric Cooling Fan	114-8385	\$249
NEW Fan Clutch	104-2212	\$179

### Hydraulics



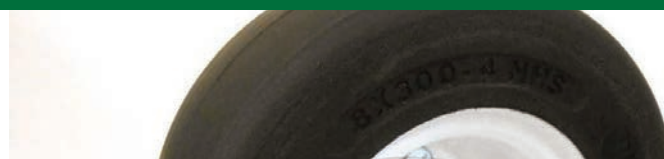
PART NAME	REPLACES OEM #	PRICE
USED Hydraulic Cylinder	99-8159, 105-3822	\$104
USED Reel & Deck Motor	105-972, 105-9820, 117-5141	\$395
USED Hydraulic Reel Motor	TCA15598	\$269
USED Hydraulic Reel Motor	TCA12090	\$269
NEW Hydraulic Reel Motor	123285, 4143249	\$249
NEW Seal Repair Kit	92-8863	\$38
NEW Hydraulic Reel Motor 2 Port	105-9770	\$188
NEW Hydraulic Reel Motor 3 Port	93-1375, 112-9200, 108-6487	\$249

### Cutting Units



PART NAME	REPLACES OEM #	PRICE
USED Pull Link ASM	108-6542	\$20
USED Grass Catcher Frame	11M7082, TCA12076	\$31
USED Grass Catcher Hook Bracket	14M7400, TCA15549	\$39
USED Lift Yoke w/Ball, Bracket & Pin	MT6233, MT6295, TCA16879	\$133
NEW Bed Bar Pivot	19-9820	\$14
NEW Roller Rebuild Kit	114-5430	\$89
NEW Roller Rebuild Kit	107-1595	\$39
NEW Textron Envirodeck Cutting Unit	N/A	\$500

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PART NAME	REPLACES OEM #	PRICE
NEW Flat Free 8" Smooth Tire & Wheel	several	\$59
NEW Golf Car Tire	several	\$39
NEW 18x9.5-8 4 Ply Smooth Tire	110-5133, 28-3680	\$59
NEW 18x9.5-8 4 Ply Super Turf Tire	119-3516	\$53
NEW 20x10-10 4 Ply Ribbed Tire	94-5261	\$69
NEW 26.5x14-12 4 Ply Turf Tire	several	\$151
NEW Flat Free 8" Smooth Tire & Wheel	several	\$59
NEW 11x4-5 Smooth Flat Free Tire & Wheel	4252390	\$79

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~ Dean Piller, Golf Course Superintendent,  
Cordova Bay, British Columbia, Canada

*"We saved 6,500,000 gallons last year using Magnation. I see results from the field and sprayers to my showerhead. Magnation maximizes our iron supplement and gives our turf that deeper green to "pop" for important events. We've installed Magnation on all of our fields and buildings to help with mineral scale buildup, and for our landscape. We've lost a few trees from our municipal high-salt water, however where Magnation is installed, the trees are thriving."*

~ Phil McQuade, Dick's Sporting Goods Park  
Commerce City, Colorado

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## INDUSTRY INSIGHT

# Magnation Water Technologies

by Andrew Penner



Water. It's the most important natural resource on earth. We need it for everything. We need it to survive. Without water, life (and, yes, golf!) are not possible. And, of course, we have a limited supply of it. Wasting it is not wise. The future of the human race depends on our ability to manage it well.

And, when it comes to the golf industry, there is no other "issue" that is more important – perhaps more worrisome – than water. It's been this way for years and, if we keep going on the same trajectory, it's only going to get worse. Ask any golf course superintendent on the planet, the subject of water – where to

get it, the cost, the quality, etc. - is constantly on their mind. Making smarter decisions on how to manage this precious resource is paramount. And, for this reason, companies such as Magnation – "The Leader in Chemical-Free Water Softening Treatment" - are fast-becoming key "players" in the water "game."

Of course, water - as the turf on thousands of golf courses around the world will testify (if it could) - is not created equal. As the saying goes, "Water is water except when it isn't." The value of rainwater – soft, pure, nutrient-rich, perfectly pH balanced H<sub>2</sub>O from the heavens – far outweighs, outperforms, the "stuff" we typically spray from irrigation pipes.

Unless it's "softened," irrigation water is typically loaded with hard-water molecule clusters that are full of minerals and gasses. Not only does this hard water cause excess scale buildup and corrosion in the irrigation system (not to mention more friction, more energy use, and more irrigation breaks!), but the quality of the turf will suffer. Dry spots, poor moisture retention, poor soil quality, tied-up nutrients, high salt levels, unhealthy turf colour, and so on, are "normal" problems associated when untreated irrigation water is used. Bottom line,



your turf will not, to borrow a U.S. Army slogan, "be all that it can be."

"Sadly, many superintendents are accustomed to only treating the symptoms," says Mike Jenzeh, CEO and President of Magnation, "and they don't address the root of the problem, which is poor water quality. Adding more fertilizer, watering more often, hand-watering dry spots, using chemicals to counter a salt problem, overusing wetting agents, these are typically just Band-Aid solutions. The only way to really solve the problem, permanently, is by fixing the water. And, with Magnation, this fix is surprisingly simple."



Yes, rain-like water is where it's at. And, through their unique filtration systems, that's what Magnation Water Technologies is in the business of providing.

So what, exactly, are the benefits for golf courses using water with rain-like characteristics? Magnations softened, rain-like water more easily penetrates soil, helps soil retain moisture, stimulates soil nutrients, enhances plant growth, reduces irrigation requirements by 20%, and much more. Golf courses actually save water – and money! – by making their water work much more efficiently for their turf.

How is this done? Thanks to their relatively small, sleek and robust passive, inline systems (they are typically installed in pipes, but can also be fitted for hoses, sprinklers, irrigation heads, and so forth), which are engineered with specially calibrated magnetic resonators and geometry in a top quality casing, previously unusable saline water is transformed. Essentially, the water is turned to water with the life-giving characteristics of rain. It becomes soft, productive, and energized water that will improve soil infiltration, bust salts, and improve overall soil health.

Although often skeptical at first, numerous superintendents and turf industry professionals from around North America are now touting the virtues of using a Magnation system. The ROI is typically one year and the maintenance-free, chemical-free, energy-free system's expected lifespan is up to 20 years. The company also offers a two-year money back guarantee.

"We reduced our wetting agent and fertility inputs by 25%," says Dean Piller, Golf Course Superintendent at the Cordova Bay GC in British Columbia, Canada. "We reduced our hand-watering and we also reduced the amount of water we needed to purchase from the municipality by 15%. We have experienced substantial savings on our budget. Savings in water, savings in labor, savings in wetting agents and fertilizers."

The substantial savings in water is, undoubtedly, one of the most attractive aspects of using Magnation products. For example, at the Dick's Sporting Goods Park in Colorado, 6.5 million gallons of water were saved in 2017 by using the Magnation system.

"During one of the driest and hottest seasons on record, we ended up saving an average of 80,000 gallons of water per night. That's 2.4 million gallons of water over the course of a month. Needless

to say, we're extremely pleased with the results," says Piller.

Jason Hooper, the Golf Course Superintendent at the Quilchena Golf & Country Club, also in British Columbia, has a similar story. "We incorporated Magnation on our hand-watering hoses this year and observed a remarkable improvement in infiltration rates and a significant reduction in localized dry spots. The results were instantaneous. I was skeptical at first, but now I can say with confidence that Magnation does make a difference."

Obviously, many other industries – agriculture, landscape, residential, industrial, etc. – are benefiting with Magnation's technologies as well. (According to Jenzeh, the golf industry and sports turf management is close to their hearts but just a minor portion of their business.) One commercial business, which installed a system in their central water system, noticed their entire plumbing system – including toilets, sinks, taps, and so on – was performing better. And, with fewer deposits in the water, even their coffee was tasting better!

But, ultimately, every superintendent wants to wake up in the morning (with good coffee!) and realize that the turf he/she is responsible for is healthy and holding up well. Those nagging problems – such as dry spots, salinity, poorly performing irrigation equipment, and unhealthy turf – are what makes sleep (and job security!) a worrisome issue.

With Magnation's chemical-free water softening treatment systems, you can do more with considerably less. Our most precious resource, water, is conserved, money is saved, and your turf "can be all that it can be." And that's a slogan both soldiers and superintendents can get behind. ■



Andrew Penner is a freelance writer and photographer based in Calgary, Alberta, Canada. His work has appeared in many leading golf publications throughout North America, including Golf Magazine, Golf Digest, The Golf Channel, Golf Canada, and SCOREGolf Magazine. Contact Andrew at [andpenner@shaw.ca](mailto:andpenner@shaw.ca)

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## INDUSTRY INSIGHT

# Miller-Leaman Filtration

by Andrew Penner



It's 5:30 AM and Shady Holler GC Superintendent, Wade Greengrass, is making a quick round on the course to make sure the night watering went off without a hitch. It's been bone-dry for weeks and the irrigation system has been pushed to the limit. To make matters worse, the contaminants in the reclaimed water ponds have been starting a revolution, of sorts. Nasty algae blooms, slugs, snails and other critters of many makes and models have been taking up residence. With no decent filtration

system in place – and a number of burst pipes and clogged sprinkler heads that have wreaked havoc in recent days – Greengrass fears his dreaded nickname, "Weed Nograss," might be coming back to haunt him.

Without a doubt, broken pipe and clogged heads can be a superintendent's worst nightmare. And, in this day and age - with reclaimed water a common scenario in the irrigation "game" - getting that water to flow and fly smoothly can be a paramount concern. A good filtration system can be a life-saver. And a job-saver. (Or, at the very least, a "nickname" saver.)

Yes, the "Wade Greengrass" example is fictional. (Shocking, I know.) But the premise (making the early morning rounds with fingers crossed, hoping no breaks and bubbled turf will rear their ugly heads) is certainly something many superintendents can relate to.

Founded in 1991, Miller-Leaman, Inc. is one of the go-to names when it comes to reliable, innovative filtration systems. While they manufacture three flagship filtration/strainer systems, their products - which can be custom-made and professionally installed depending on each unique situation – are utilized in dozens of different industries. Agriculture, marine, plastics, food processing, and



power generation are just a handful of examples. However, for the turfgrass industry, they also have an "ideal" product that is geared for the problems often associated with reclaimed water.

"Our automatic Turbo-Disc Series is the most dependable, long-term barrier to organic and inorganic suspended solids that exist in reclaim/reuse water applications," says David Romeo, Sales Manager for the Florida-based company. "Miller-Leaman offers a complete line of filters with the capability of fabricating manifolds and connections to fit into any existing piping system. With over 27 years of experience in manufacturing filtration





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products, Miller-Leaman has the know-how and credibility to deliver high-quality filtration products to our customers.”

A growing golf and residential community district in Florida, which is one of the leading states when it comes to reclaimed water use, is an excellent example where utilizing a Miller-Leaman Turbo-Disc system has made a world of difference.

The Dunes Community Development District – which is located on Florida's Palm Coast and includes Hammock Dunes, Island Estates, and Ocean Hammock – is a sprawling, 2,120-acre development that, a number of years ago, needed some “help” when it came to their reclaimed water system. With only a coarse strainer and no other filtration system installed, problems were quick to develop.

Naturally, when the reclaimed water - which was used to irrigate residential properties, common areas, and two golf courses - flowed into the open storage ponds, it quickly deteriorated. Exposed to direct sunlight and the open atmosphere, it didn't take long for sediment, algae, mussels, blood-worms and other creatures common to reclaimed water ponds, to form. The outcome? Constantly plugged sprinklers.

Their first attempt to alleviate the problem was the installation of 15 manual filters in various zone locations. And, to some extent, this worked. The plugged sprinkler issue went away. However, the manual filters were extremely labor intensive, often needing cleaning on a daily basis. The Dunes Utilities sought out a number of filtration technologies, which would, hopefully, solve the plugging issue and do so without the significant labor/maintenance costs.



Enter Miller-Leaman. The Turbo-Disc Filter, which is particularly well-suited for organic contaminants often found in open reclaimed water ponds (or, for that matter, any surface water applications), was the obvious choice. Unlike a screen filter, which is two-dimensional, the filter media of the Turbo-Disc is three-dimensional. As a result, it is able to filter out soft, fibrous contaminants much more effectively as water passes through the disc media.

Additionally, as the differential pressure across the filter system reaches an adjustable set point, the backwash cycle is initiated and the Turbo-Disc Filter sequentially flushes each filter housing until the entire filter system is clean. So, bottom line, no manual cleaning is necessary.

Ultimately, it was determined that a large central filtration system was the most cost-effective

approach for the Dunes Community Development District. Miller-Leaman worked closely with the staff on-site and customized the system to their needs. For example, due to their proximity to the ocean and the corrosive environment, an upgrade to Type 316 stainless steel was necessary. Also, due to the inevitable growth of the community, the system was designed with modules so it could easily be expanded as water demand would increase. Long story short, a custom, cost-effective, adaptable system has proven to be the long-term answer the Dunes Development was looking for.

“Similar to a computer left unprotected by anti-virus software, an irrigation system with no protection from dirt and debris is bound to fail,” says Romeo. “And, when the system fails, damaged turf, excessive repair costs, extra energy costs, and plenty of headaches are bound to ensue.”

However, “protected” systems will give golf course superintendents peace of mind. With a state-of-the-art Turbo-Disc Filtration system from Miller-Leaman, golf course superintendents can wake up in the morning and be confident their “thirsty” greens, tees, and fairways have been given that life-giving “drink” they need. And every golfer who steps foot on the property can be pleased with the condition of the turf and how it plays. And not conjure up bad nicknames for the guy (or gal) in charge of the grass, or lack thereof! ■



Andrew Penner is a freelance writer and photographer based in Calgary, Alberta, Canada. His work has appeared in many leading golf publications throughout North America, including Golf Magazine, Golf Digest, The Golf Channel, Golf Canada, and SCORE Golf Magazine. Contact Andrew at [andpenner@shaw.ca](mailto:andpenner@shaw.ca)



# What Drains Better than Air?

by Linda Parker

If you ask Michael Bean what's the most difficult part of his job as the Director of Sales at AirField Systems, he will smile, shake his head and say, "The only hard part is getting people to believe the system's as good as it really is.

"It's hard to convince people," Michael explained, "that there's bunker drainage that won't be clogged by fines and that they can install without having to rework their clogged herringbone system. That is, until they try it.

The panels typically arrive at your course on a fifty-three-foot trailer, palatized and ready for installation. Because there is no gravel drain field involved in the installation process, you avoid the problem of heavy dump trucks compacting your soil. Once in place, any overage of the panels can be trimmed with either tin snips or a circular saw with a no-melt, plastic-cutting sawblade. Superintendents typically find, however, that meticulous shaping is not necessary. They run the geocells only over the

inch of your project. Given that the area of an AirDrain part is one-inch high and has a 92 percent air void, drainage is only limited by the exit drains, and by what is above the grid or geocells.

In response to the question of how fast drainage will occur, AirDrain Systems tested its grids using the ASTM D 4716 Hydraulic Transmissivity Standard Test Method. Michael summarized the results of the test as follows:

*The testing was done using plates on top and bottom of the AirDrain part, setting them to the required slope and adding water from the high side of one end down the slope. AirDrain was draining so fast they (the testing team) had to modify their testing equipment to accommodate the volume of water AirDrain could move!*

*As it turns out, there is practically no resistance to drainage using the AirDrain grid. The most important factor to consider is the percentage of slope that the AirDrain is sitting on. To put this in perspective of rainfall, AirDrain can handle anything that Mother Nature throws at it. On a nearly completely flat surface (one-half percent slope) AirDrain will drain over 171 inches in an hour. AirDrain can also hold .576 gallons of water per square foot, if needed. until it can evacuate to the perimeter exit drains.*

## SUPERINTENDENTS: AIRDRAIN BUNKER DRAINAGE SYSTEM'S BIGGEST FANS

Despite the value and influence of academic research and field testing, nothing speaks to the effectiveness of a product as strongly as the endorsement of people who put it to work at their facility, watching how it functions day in and day out, under a variety of weather and playing conditions. Golf course superintendent, Andy Thibault, is starting his tenth year at The Greens Country Club in Oklahoma City.

The good-news story of The Greens is that it is



"I recommend that golf course superintendents pick the worst draining bunker on their course and install the AirDrain bunker drainage system. Then call me back in three months because I know from experience that they'll be ready to order enough product to re-do the rest of their course."

Why does the AirDrain bunker drainage system inspire Michael with such confidence? With rigorous scientific testing behind it and the enthusiastic endorsement of golf course superintendents and turf managers, the AirDrain system is a solution to believe in, delivering cost-effective, maximum drainage from a bunker floor that is ninety-two percent air.

And after all, what could possibly drain better than air?

## SIMPLE SYSTEM. BOUNTIFUL BENEFITS.

AirDrain geocell drainage layers are manufactured from 100% recycled copolymer with the impact modifier metallocene added, qualifying the material as a "no break" plastic. Each pallet covers approximately 798 square feet of surface area. Installation is simple and can be handled by your course maintenance crew, eliminating the cost of additional labor.

flatter surfaces of their bunkers, making the already-easy installation process even easier.

## THE TEST THAT SHOWS 'REAL WORLD' DRAINAGE CAPABILITY

Golf course architects, engineers and others often ask, "How fast will the AirDrain grid drain?" Michael explained, "AirDrain delivers 100 percent vertical drainage under every





a thriving private facility that sees over 35,000 rounds of golf annually, including playing host to a full schedule of fundraiser and chapter tournaments, local events and in some years, select Women’s Oklahoma Golf Association (WOGA) competitions. With tennis, swimming and a busy schedule at the recently renovated clubhouse, there’s always something going on at The Greens.

Frequently, Andy finds that his biggest challenge is scheduling. “We work hard to keep the balance between maintenance requirements and membership activities, said Andy. “I tell my guys, mowing is easy. Scheduling is the hard work.”

**A Quick Nine with: Andy Thibault, Golf Course Superintendent The Greens Country Club**

*Let’s start with some basics:*

- 1. Where did you go to school? Kansas State University, BS in Agriculture, Majored in Horticulture and Specialized in Golf Course Management.
- 2. What or who led or inspired you to become a superintendent? Love the game of golf and have a passion for the outdoors.

*And more about you:*

- 3. Are you married, single or somewhere in-between? Married
- 4. Do you have children, and if so, how many? Yes, 1 girl & 1 boy
- 5. Do you have pets? Yes, 3 dogs (Sam, Rosie Murphy Mayhem (the trouble-maker!))

*On the job:*

- 6. What is your biggest challenge at your golf course? Scheduling maintenance activities, as we are very busy country club. Good communication between the Pro Shop and Golf Course Maintenance is vital and then communicating any scheduled activities to our members.
- 7. What do you love most about your job or your facility? I love working outside and seeing the fruits of our labor. I have always loved being outside, working, hunting or playing a round of golf!

*Off the clock:*

- 8. What’s the best round of golf you ever played and where? My best round of golf was two under at Shady Bend Golf Course in my hometown of Osborne, KS. It’s where my passion for the game and career grew.
- 9. Next to golf and your family, what’s your favorite way to spend your free time? I love to get away and go fishing or hunting when I have the chance. It’s my way of relaxing and re-energizing myself.



**EMBRACING THE CHALLENGE HEAD ON**

Throughout the year, Andy’s crew fluctuates in size from six or eight workers to about fifteen during the busy summer months. Although the season at The Greens typically gets underway by early April, Oklahoma’s sometimes mild winters mean that golfers may be on the course through December. Recognizing that the demands of a growing facility are the best kind of problems for a superintendent to have, Andy points out that he is, “taking the challenge head on.”

“We get good feedback from our members and they are appreciative of all the improvements we continue to make,” said Andy. “This year, we converted from Bent to Champions G12 and we’ve had all the trials that go along with making that change. But we are looking forward to the consistency the G12 will bring to our course and we can’t wait for spring to see how far we can push the grass.”

Although the course once had as many as a dozen poorly draining bunkers, Andy chose, at first to implement the AirDrain drainage system on only a few of the most problematic bunkers. Using his winter crew, Andy and his team were easily able to rework a bunker in about four or five days, while still keeping pace with the rest of their workload.

“We approached the use of AirDrain with an open mind and we quickly realized how very effective this system is,” Andy said. “We can get one to three-inches of rain, yet we’ll have no wash out. With AirDrain bunker drainage, we saw a huge improvement in the quality and consistency of the sand.

“After using our own crew to replace bunkers, working on a few each year in our off season, this year we decided to do all the remaining 39 bunkers. We brought in a company to excavate the sand, just to make the process move faster. You can easily do the work inhouse, but with a small crew, it just takes longer.

“By using the contractor to speed up the process, the work was completed, start to finish, in three to four weeks. And the thing I like most about it, is that we will never have to replace it. Over time, the only problem you will have will be your sand, which you can change out.

“The members have loved the bunkers with the AirDrain system. They recognized the difference from day one and appreciated that the sand didn’t have any wet or dry areas, just as they appreciate all the improvements we continue to make. I can’t wait to see where we’re going next.”

**EFFECTIVE AND AFFORDABLE**

Andy’s praise of the AirDrain system is no doubt music to Michael Bean’s ears, but it’s also a tune Michael is accustomed to hearing. He knows that once a superintendent tries the bunker drainage system on one bunker, AirDrain Systems will be hearing from that superintendent again.



And as if the understanding that nothing drains better than air isn’t enough to sell the product, Michael loves to point out the affordable price. “The great thing about our bunker is that not only is the whole floor a drain, but the AirField bunker drainage systems costs 30 percent of what most other bunkers systems cost.”

Learn more about AirField Systems at <https://airfieldsystems.com> ■



Linda Parker has been writing professionally since the 1980s. With clients in finance, sports, technology, change enablement, resorts and nonprofit global initiatives, Linda helps organizations communicate their stories in meaningful ways to the people they most want to reach. She has authored, ghostwritten or contributed to more than a dozen nonfiction books. Linda is a member of the Authors Guild and the Golf Writers Association of America. You can connect with her at [Linda@GlindaCreative.com](mailto:Linda@GlindaCreative.com)

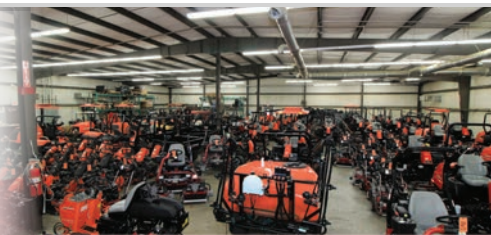




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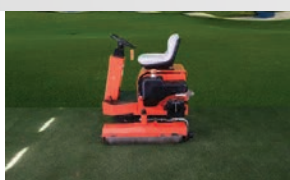
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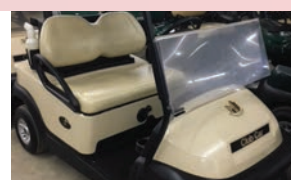
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## Stewarding History - Meadow Club's Sean Tully

by Jay Flemma



As I took a deep breath and savored the crisp, wine-sweet, forest-fragrant air, the October sun's rays began their last golden stretch across Alister Mackenzie and Robert Hunter's Meadow Club. Tall trees cast long autumn shadows against the Northern California mountainside, a stark contrast to the burnished amber fescue and verdant fairways. And iridescent fringes of vermillion illuminated Mount Tamalpais in a crown of glory.

It was a moment of grace that every ardent golfer treasures; when golf transcends the scorecard, the traffic of the world vanishes, and  
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the player is left with just the soothing warmth of the course as it embraces him with its Old World charm.

Presented in perfect harmony with its surroundings, the Meadow Club is one of the most eminently natural courses you'll find anywhere, a mountaintop reverie. There is a timeless feel to the course, a dryad loveliness, and with the right kind of eyes, you can see the coats and ties of the Golden Age players mingling with the Ecco and Puma crowd of today's era, and every generation between.

Perhaps there's no more appropriate person to lead Meadow Club into the 21st Century than their head superintendent, Sean Tully. Tully is also a golf historian, and his scholarship is renowned as sage by the game's ruling authorities, Tully having written the definitive work on many western courses, including Olympic Club and Valley Club of Montecito. He even sits on the prestigious USGA Architecture Archives Committee, researching and collecting the great historical treasures of the game.

"It's important to study golf history and architecture because that tells you not only how a

course was designed to be played, but maintained. You learn not only how he wanted the course to be defended, but how it should be presented," Tully declares. "That helps supers, greens committees, and future architects evaluate what ideas should be embraced when changes are being considered to a golf course and what changes should be avoided."

During his career, Tully has made some profound discoveries, occasionally turning accepted history on its ear. One of his most impressive revelations – a few say "controversial" – was that fabled San Francisco Golf Club may not be the







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A.W. Tillinghast masterpiece that many scholars make it out to be.

“They claim it’s a Tillinghast, but he was just one of the many brushes that made changes to the design,” Tully expounds intelligently. “The original architects were three members. Then several unknown hands came in, perhaps even Willie Locke who become head professional from 1918-21.”

Tully further explains that while Tillinghast came in and made changes – most notably to the bunkering – so too did William Bell.

“There are at least three different architects’ style bunkers, maybe more. Plus, the routing was finished before Tillinghast even came in, and that’s the foundation of the entire course – of any course!”

Even Tully’s own family isn’t immune to his fact-checking and historical revision. Indeed, his entire career as an historian may have been triggered by an old family saw he was forced to debunk.

“I grew up in Wisconsin and my father was a fine amateur player who qualified for the Greater Milwaukee Open in 1961. The family used to tell

this story about how Dad beat out Jack Nicklaus for the final spot in the tournament, but when I researched that in the Milwaukee Journal-Sentinel, I found out that Nicklaus didn’t have to qualify - he had a sponsor’s invite. The story just wasn’t true. I loved the mythology, but as a historian that’s the kind of thing I’m trying to refute.”

With such an eye towards both accuracy and authenticity, no club could ask for a better steward for its Mackenzie course. Tully fully understands that Mackenzie’s legacy is precious, quintessentially important to American golf, Meadow Club especially so because it was Mackenzie and Hunter’s first collaboration in North America.

The Club needed Tully’s particular historical expertise. The intervening decades had not been kind. Mackenzie and Hunter’s design opened in 1927, but by the 1940s Harold Sampson was already at work adding bunkers. He was followed by, among others, Robert Muir Graves and Forrest Richardson. By the time Tully arrived in 1999, trees loomed ominously over fairways, green sizes dwindled from indifferent mowing patterns, and bunkers had been added like bakers put buttercream frosting flowers on a cake.

“They poured gravy all over the golf course,” Tully sneered acidly, and he’s right.

But in 1999 the club righted the ship and chose minimalist Mike DeVries four others, (including Rees Jones). It was around then that Tully





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Continued from page 27

## Stewarding History - Meadow Club's Sean Tully



began his 17 year career at the club (thus far), nine years as Assistant Superintendent before ascending to the top spot eight years ago. Tully, his team, and DeVries set to work right away; about 400 trees were removed, opening up wide vista all across the property.

"Meadow Club is a prime example of some Mackenzie's design theories, and they need to shine. He wanted long views across his golf courses because he liked to tie in features of one hole with those of a hole off in the distance," he stated.

Some call the concept "the Principle of Natural Harmony," where a feature on the hole will mimic a feature off in the distance. At Meadow Club, **28 - GolfCourseTrades** April 2018

you'll this when you stand in the fourth fairway. On one side of the fairway the bunkers on that hole line up with the bunkers on the fifth hole. On the other side of the fairway, the bunkers in the fourth fairway line up with bunkers on the 14th hole.

"That's not by accident. It's meant to get in your mind by putting the visual in your head," explains Tully. "Those bunkers are not just eye candy. It also shows why you don't put trees behind greens."

Meadow Club is also at the vanguard of two other important sustainability movements in golf – the conservative use of water and the sharing of adjacent fairways with no rough.

"We understand not everything has to be green," confides Tully. "Drought forced us to use less water, and we made it work. We kept the course a little drier, and the response of the members was, 'Wow! This is great!' Our goal is not to get a certain color, but to get a playable, fast and firm conditioning – what shade it is doesn't matter."

Moreover, by shaving all the rough between fairways, not only will balls roll into bunkers more easily, but wider fairways translates to more playing angles. In particular the side-by side par-5s at 13 and 15 share an Elysian Fields-like

double fairway, similar to what you'd find at St. Andrews or Old Town Club. Goofy slices may end up in bunkers on the wrong hole.

But Tully and team's greatest success is the masterful job of making the course blend seamlessly with its natural setting, downright radiant. just as Mackenzie would have presented it. One of the brightest stars in the Mackenzie constellation, Meadow Club deserves to be spoken of in the conversation of Mackenzie's greatest courses, along with Cypress Point, Valley Club, and Augusta National.

"What a place for me to do my two favorite things," Tully beams. "Historical research and managing trees!"

You can follow Sean on Twitter at @tulfescue and @meadow1927 ■

When not reporting live from major sports championships or researching golf courses for design, value and excitement, multiple award-winning sports writer Jay Flemma is an entertainment, Internet, trademark, and banking lawyer from New York. His clients have been nominated for Grammy and Emmy awards, won a Sundance Film Festival Best Director award, performed on stage and screen, and designed pop art for museums and collectors. Twitter @JayGolfUSA





## From Around the Industry

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### Harrison Bay Eagle Cam Project

It is with great sadness that I report the passing of Eloise, the original female bald eagle at the Harrison Bay Eagle Cam project. She was spotted on the nest cam Saturday with an injury under her right wing. On Sunday Harrison Bay State Park rangers responded to a local land owner reporting an eagle in distress. She was captured and taken to the University of Tennessee Veterinary College for treatment but did not survive her injuries.

We have, as viewers of HBEC, had the distinct pleasure of watching her care for her nest and territory. From watching her direct her mate Elliott as to where each and every stick should be placed around the nest perimeter to carefully and delicately rolling her eggs and feeding her chicks without the slightest chance of injury to them with her razor sharp beak or talons to protecting her nest from predators or other eagles that would like to take over, it has been a true gift to witness this.

Since 2010 Eloise has laid 12 eggs of which 10 successfully hatched and fledged from our nest to take to the skies and fly free. Along that path we have had several close calls or frights including the premature branching and fledging of HB5 which lead to a capture and rehabilitation stint at the American Eagle Foundation before being released back at the golf course. HB5 Flies Free Again

Watching Eloise care for her eaglets was a tremendous honor. There were so many times where she would shelter them from rain and snow and stay awake all night long to make sure they were safe and sound. It has truly been a blessing to get to see this magnificent animal in its natural envi-

ronment and she will not soon be forgotten.

As many of you may remember Eloise left the nest last year and was replaced by Eliza. Why this happened no one knows and we feared the worst but hoped for the best and we were all thrilled when she returned this year to reclaim her rightful place as the queen of HBEC.

Our eagle cam is a glimpse into nature at its rawest form. We have witnessed all the elements that makes life, life. From birth to death, caring to pain, anger to love, all of these elements have been on direct display and many of them hurt. We will miss seeing Eloise "boss" Elliott around about where to place the "furnishings" around the nest, seeing her care for her eaglets in the tender caring way she did, and being taken back by that distinct, heavy browed stare she had.

The Harrison Bay Eagle Cam (<http://harrisonbayeaglecam.org>) will continue to function as an educational conduit to allow interested viewers to garner a view of an active bald eagle nest in the wild. Elliott, as his natural instincts tell him to continue his species, has returned to the nest this afternoon with Eliza, the female that took Eloise's place last year. We can only hope for continued success of the nest and for many more eaglets to be fledged in the years to come to fill the skies.

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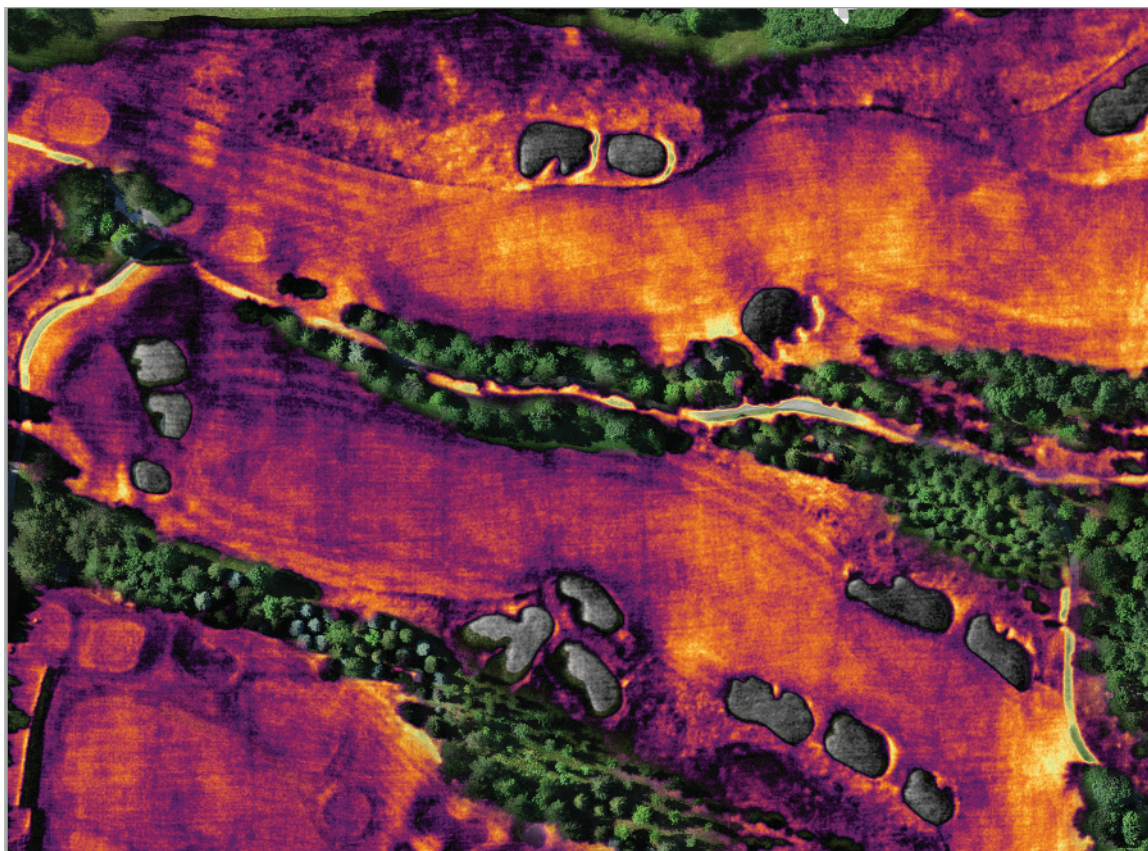
# The Legalities of Droning

by James Peverill

If you're a golf course superintendent, it's not unreasonable to assume that you, or perhaps members of your crew, are currently playing around with a drone on the property. They are amazing tools, these drones, and great fun. But most golf course personnel (superintendents included) tend to treat their drones as something of a novelty or diversion. There's nothing inherently wrong with that, but the frivolity of that usage doesn't limit the legal requirements or liabilities involved.

Because my company provides golf course superintendents with drone-enabled multi-spectral and thermal imagery, we're intimately acquainted with the relevant laws and insurance procedures. I'd love to tell you how our data helps clients save money on water usage, establish chemical-application efficiencies, and ward off potential turf disease. But that's not what this column is about.

Our client clubs need not worry about the legal and liability issues surrounding drone usage because those responsibilities fall to us, the vendor. Even so, all superintendents should better understand their own obligations in these areas. What our company does, professionally, and what you're doing recreationally might be apples and oranges, but the same rules and risks apply to everyone.



## Legality

Many folks are under the impression that if they aren't selling drone services to someone — if they're just messing around with a drone on a privately owned golf course — the Federal Aviation Administration (FAA) doesn't really care. Well, that's not the case. If you or someone on your staff is operating a drone on your course, that is not "recreational" usage according to the FAA. It is professional/commercial usage because money is being exchanged at your facility in order for golfers play the course, or for members to belong to the club where this drone operation is

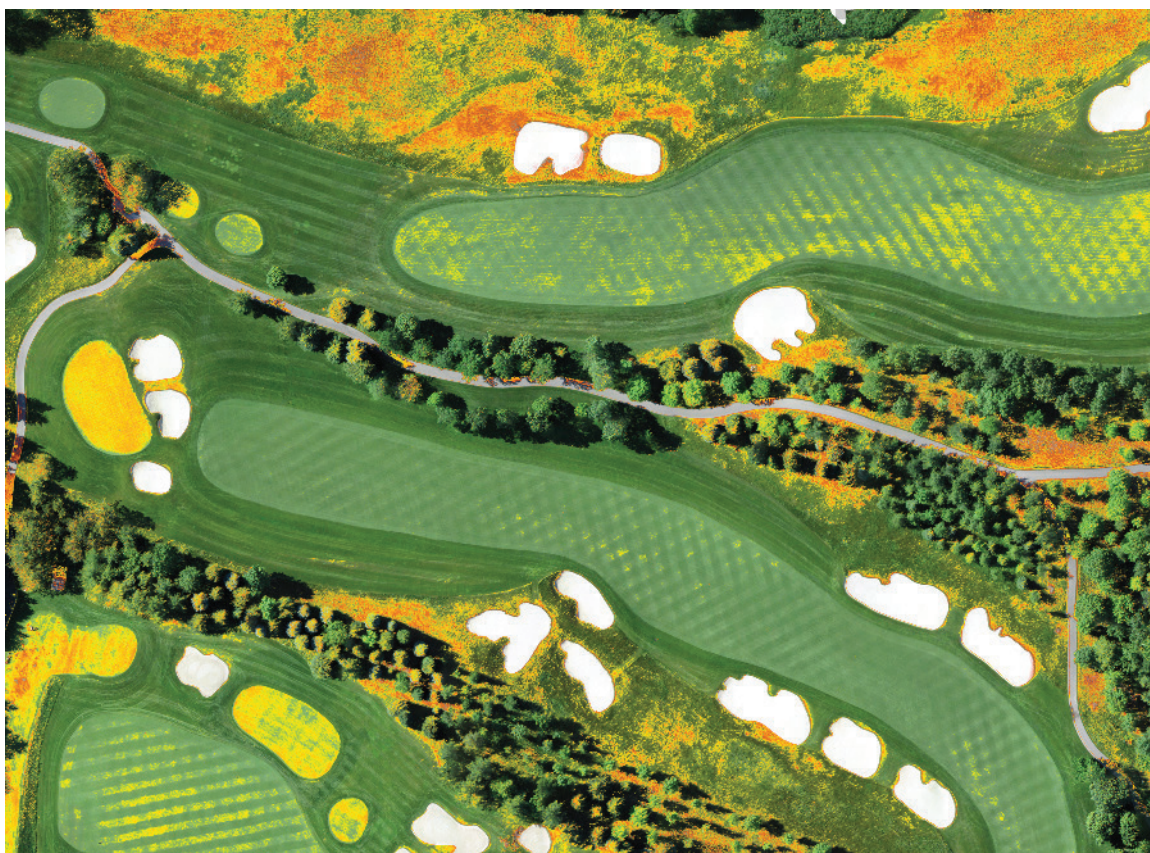
taking place. Accordingly, whoever is operating that drone on your course is required to obtain FAA licensing.

There are two ways to achieve this. The first is obtaining a 333 Exemption from the FAA. Essentially, the FAA has created an exemption for an aircraft with no pilot on board. However, to operate under this exemption, a licensed aircraft pilot is required on the ground to operate the drone.

As my Chief Business Development Officer Justin McClellan is fond of saying, "I haven't run across too many assistant supers with their pilot's license." Most people don't have one, to be fair. And that's why the FAA, in September 2016, created Part 107 of the Federal Aviation Regulations, which stipulates that would-be operators of commercial drones must first pass a remote pilot exam, which requires probably 10-16 hours of study and a fee to take the test.

The priority here is safety: Each time that person puts a drone up, the FAA requires the licensed operator to first assess current weather conditions and determine if there are any temporary air-space restrictions in place (just in case the president is speaking at some nearby high school). This remote pilot is also responsible for performing a safe, emergency landing, if necessary. If your course is less than 5 miles from an airport, you are likely within airspace controlled by air-traffic control. Accordingly, you'll need a Part 107 Airspace Waiver or Airspace Authorization, which clears the licensed operator to fly in that controlled air space.

For do-it-yourselfers, there are a few good apps that provide weather and airspace restrictions, and the burden here isn't gigantic. As a company,





we handle all this stuff for our client clubs, and we do so by essentially deputizing the superintendent or someone on his/her staff as the designated remote pilot. We supply him/her with an online study course and pay their test fee. When they pass, they are legal under Part 107 and serve as our on-site remote pilot to verify weather and look for other aircraft.

Of course, the FAA doesn't have its own police running around, making sure everyone with a drone is flying in compliance, which helps explain why there are so many folks flying their drones casually, without a license. All the same, if some airline or Cessna pilot reports someone on your staff, or God forbid there's a crash? Well, don't say I didn't warn you.

**Liability & Insurance**

Here's a good way to think about drone usage and insurance: Your current club/course policy surely covers your maintenance crew and the fact they operate mowers, climb in and out of bunkers, etc. But what about climbing and pruning trees? My guess is you'd be dubious — and quickly call the insurance company to account for that specialized activity.

That's an anecdotal way of saying that drone operation is almost certainly not covered under your current club policy.

Again, our clients don't have to worry about this. Our drone activity on and above their properties is entirely accounted for under coverage maintained by my company's insurance. Let me tell you about that coverage — not to brag, but because it will inform the way you should be thinking about casual-but-commercial drone use at your club.

My company maintains a general, corporate liability policy for our employees who drive cars, visit course sites, drive Gators, do survey-type work, etc. But that policy does not cover the drone-operation aspect of our work. We have a separate policy for each individual drone we own. Every time we put a new one into service, we call the insurance company, supply the serial number, and pay a bit more. Our insurance vendor frankly doesn't care too much what the FAA rules are; he priced our policy after assessing and evaluating our drone systems, operating practices and experience.

In short, if someone on your maintenance crew is flying a drone at the club, call your insurance company

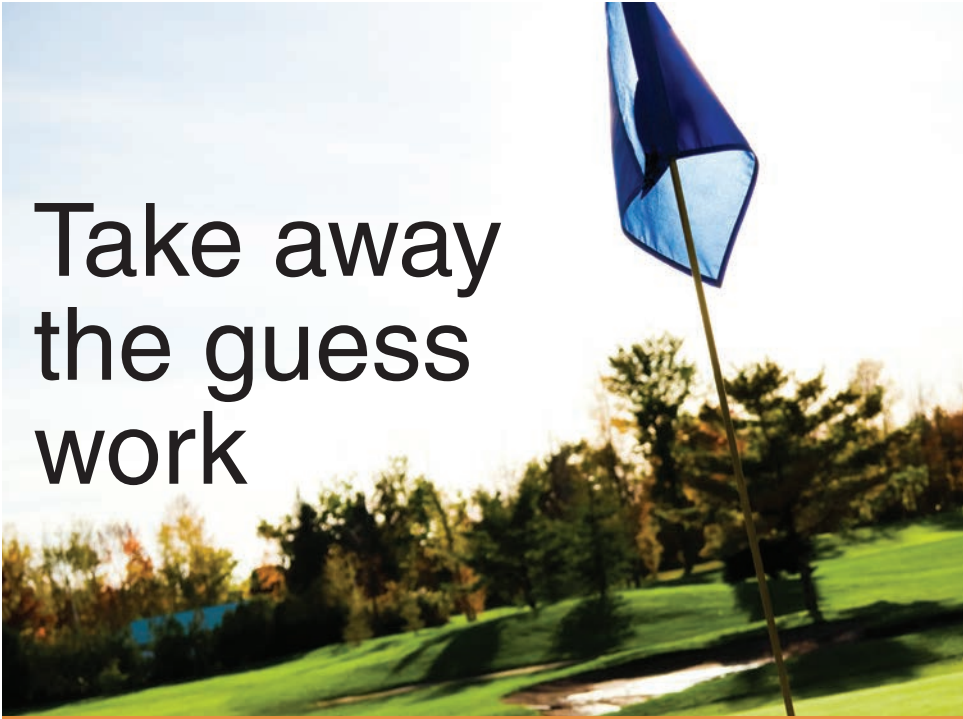
and get this covered. Or ground the drone until such time that you do.

Here's the good news: Our original drone-specific quote was pricey, but when the adjuster came out and observed/assessed the way we do things, he cut our rate in half. Golf usage is pretty low risk; courses are sparsely populated compared to many places where folks might wish to fly drones. But here's the sobering news: Our example and the example of you and a member of your crew flying a drone casually are, again, apples and oranges. Our drones are flown by software. We fly the same pre-programmed GPS flight patterns every day. Our battery voltage is monitored continually — if it's running too low to complete a flight, the drone automatically returns home. In other words, there is very little chance of pilot error, or hitting a tree, or crash landing and putting anyone at risk.

I don't want to belittle or condescend to amateur drone enthusiasts; our company is almost entirely drone enthusiasts. This year we are expanding our drone operations to about 50 different courses across North America, and we're frankly thrilled to find someone on staff, at a new client club, who knows something about drone operation. That person is invariably enthusiastic about what we're doing and easier/cheaper to train for eventual licensing.

But if that enthusiast isn't licensed and the club's insurance doesn't account for specific risk, I'd politely direct this employee to fly somewhere else recreationally, at his own risk. ■

*James Peverill is chief executive officer at GreenSight (www.greensight-ag.com), a Boston-based technology firm whose drone-enabled golf course service provides superintendents actionable evapotranspiration, plant health and application-efficiency information on a daily basis.*



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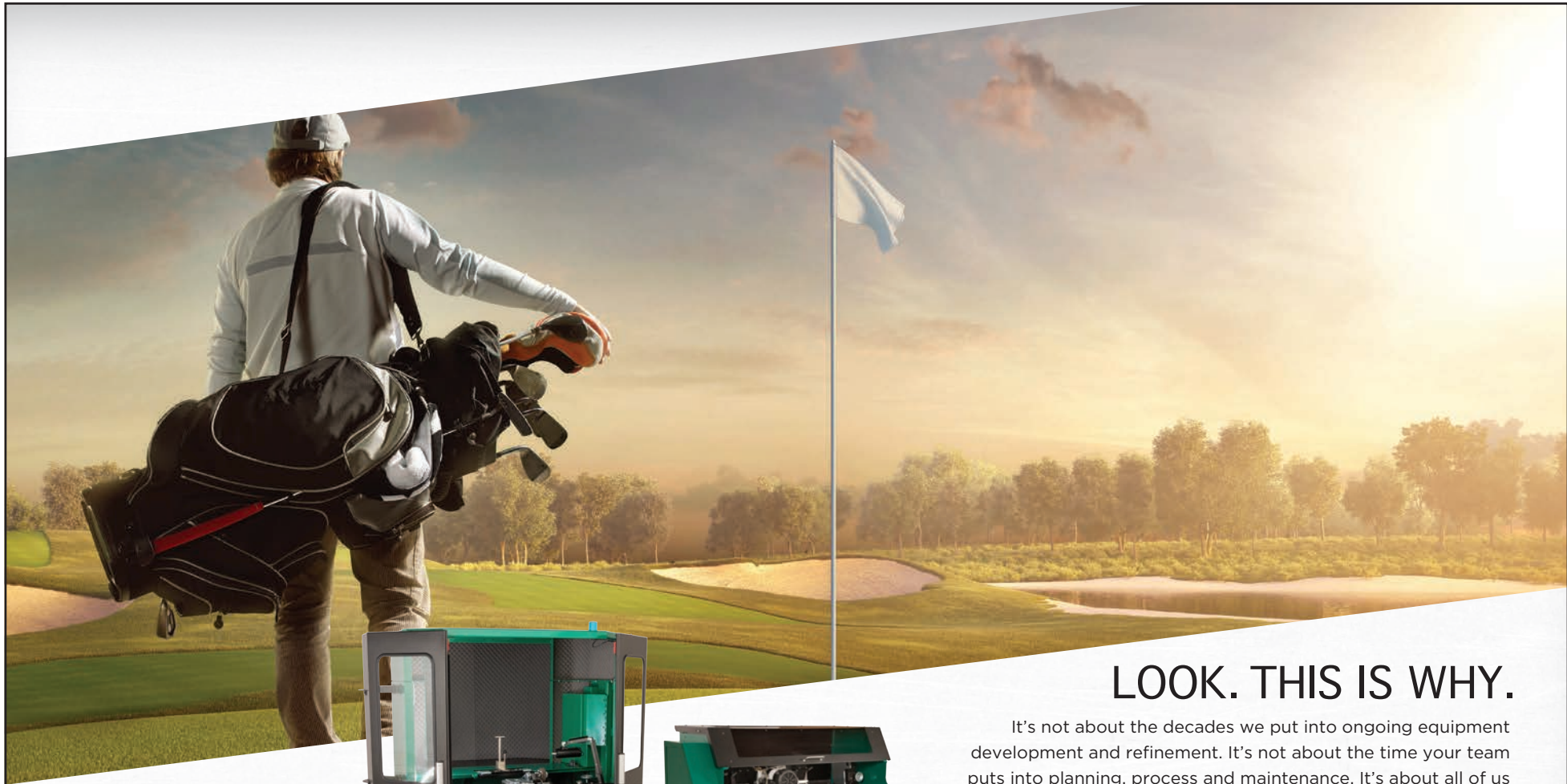
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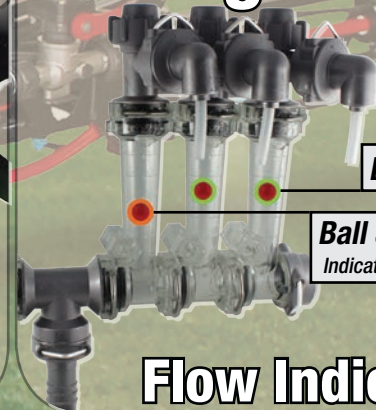
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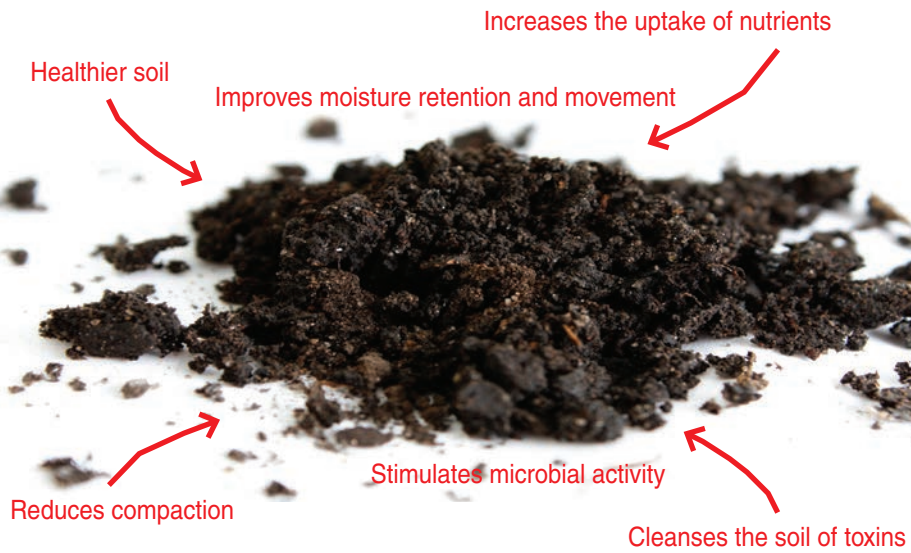


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