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# What to look for when buying an irrigation system

**F**irstly some good advice from John Ruskin, the philosopher, written some 100 years ago; *"It is unwise to pay too much, but it's worse to pay too little. When you pay too much, you lose a little money - that's all. When you pay too little sometimes you lose everything, because the thing you bought is incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot - It can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, And if you do that, you'll have enough to buy something better."*

Getting value for money is a delicate balance; the purchasing of an irrigation system is no exception.

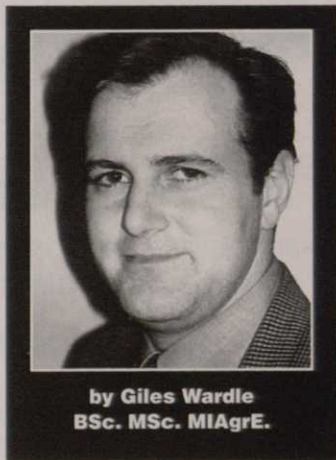
The awarding of an irrigation installation contract requires the assessment of a multitude of factors.

So what are the things to look out for in an irrigation salesman's presentation?

Specialist golf irrigation materials (sprinklers, control systems, solenoid valves etc.)

This is where the irrigation salesman has a field day. It provides the basis of his armoury to persuade the customer to buy his products. These components are the most visible parts of the irrigation system and the ones that bear the name of the manufacturer whom he represents or for whom he is the distributor/agent.

No two sprinklers or controllers



by Giles Wardle  
BSc. MSc. MIAgrE.

are the same and therefore there are numerous differences in terms of the features of the products on offer that the salesman can use to show his products in a better light. As every greenkeeper knows, the benefits of these features according to the salesman are that his sprinklers are more energy efficient, require less maintenance and apply water more uniformly. His control system is more "flexible", easier to use, more reliable and, the most common claim of all, saves you water.

Because of the wide range of equipment available, very often people and specially committees can get bogged down and spend too much time deciding on which manufacturer or model of sprinkler, valve or controller is the best. Often insufficient consideration is given to the other major facets of an irrigation system (design, installation, service).

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# What to look for when buying an irrigation system

'It is wise to ask for references from the tenderers...'

True, the specialist irrigation products are crucial to the success of an irrigation system, however it is important to remember the old adage that the "system is greater than the sum of its parts". While the individual components are of paramount importance; their incorporation into a system design is of greater significance.

By and large all manufacturers of golf irrigation equipment produce quality materials, since golf is at the vanguard of irrigation technology. The important aspect in choosing the specialist irrigation equipment is to choose the right type of sprinkler and controller rather than the make. There are numerous products available but only a handful of manufacturers; the name on the sprinkler lid is of less importance than the type, model and performance of the sprinkler.

Since irrigation manufacturers and distributors are in the business of selling the specialist irrigation components, they will spend more time selling the benefits of their latest all-singing-and-dancing products than the other facets of the system that are equally as important and collectively more important. These are....

## Irrigation System Design

Golf course irrigation system design involves more than just hydraulics calculations and is as much an art as a science. As such, like all engineering disciplines, there are no such things as wrong designs and right designs, rather good designs and bad designs.

Consequently if you give the course plans to three engineers you will get three completely different designs. These designs will be very difficult to compare equitably when choosing which one to buy. If the golf club or developer chooses to invite tenders on the basis of "design and build", then he would be wise to give tenderers at least a performance specification to adhere to when designing their system. Otherwise the task of choosing which tender will be reduced to choosing which design; two completely separate matters. While you may decide which is the best design, you will have no way of knowing if it is the most competitive.

A performance specification obviously will vary according to the layout of the course, the type of course, the climate, the soil, the topography, the grass species

utilised etc. However a performance specification should detail the following;

- The design water application (ie. the peak water requirement in mm/day)
- The design irrigation cycle (the time in which the above must be applied to avoid disrupting daytime play, commonly 9-10 hours)
- The areas of playing surface to be watered
- The pumping plant location
- The type of system (e.g block system or valve-in-head)
- The materials to be used (e.g type of sprinkler, controller, MDPE or uPVC pipe etc)
- The method of installation (e.g. trenching/mole-ploughing)
- The pumping plant (minimum No. of pumps, fixed-speed/variable-speed etc).

It is a testament to the fact that creative input is required in irrigation system design that even with a performance specification the designs submitted are likely to differ. The alternative option is to invite tenders from prospective contractors for a single specific design, undertaken by an independent engineer. This will ensure competitive tendering.

## Non-specialist materials (pumping plant, pipework, cable, ancillary items)

The pump and pipes are the heart and arteries of an irrigation system. The hydraulic design of an irrigation system is, therefore, fundamental to its long term performance and reliability, not only in terms of the amount of water the system is capable of applying

but also the running costs and maintenance requirement.

However this is often the least discussed topic between salesman and customer, partly because this is the facet that the layman is most poorly equipped to discuss. The modern day golf architect, golf director or greenkeeper is technically very aware and well informed. However hydraulic design does not, nor should, form part of his technical competence.

It is rare to find an irrigation system that has been over-designed in terms of pipework and pumping plant but not uncommon to find one over-specified in terms of specialist irrigation equipment. Not surprisingly, since the pipework and pumping plant return smaller profit margins to the irrigation manufacturer, distributor or contractor than the specialist equipment that bears their name.

It is not uncommon for a golf course to employ a permanent member of the greenkeeping staff whose sole duties are to tend to the maintenance requirement of the irrigation system. Probably the greenkeepers biggest headache during the irrigation season is to repair pipe bursts. This is the one failure of a bad irrigation system which has the most serious consequences since pipe bursts can result in damage to the course, disruption of play, loss of water, temporary shut down of the irrigation system, which in turn disrupts irrigation scheduling and may cause drought-stress to the turf if the damage is not repaired quickly.

Often a customer, fearing this

scenario, will ask for a longer guarantee on the system, five years instead of one or two. However this should not really offer peace of mind, because an irrigation system should last a lot longer than five years. Good hydraulic design is worth much more than a guarantee. The customer should therefore ensure that the system has been designed by a competent and qualified engineer with experience of golf irrigation design. Installation and After-sales Service

A chain is only as strong as its weakest link. Often the weak link in an irrigation system is poor installation. There is nothing more annoying than paying for poor, defective or incomplete work particularly when you've paid for quality materials and good design.

Often the tenderers are well-known and respected irrigation contractors with good reputations. However this may not always be the case. It is wise to ask for references from the tenderers and in most cases they will provide several references in their sales literature.

The references, not surprisingly, will comprise the most recent and prestigious installations they have undertaken. However it is important to note that the majority of problems arising from a poor standard of installation occur either during construction, whence they are ironed out before handover, or many years later. Checking up on a recent reference therefore is unlikely to yield a negative response in terms of the contractor's standard of workmanship (unless of course they are really bad). It could be more informative to check up on old references.

The British Turf & Landscape Irrigation Association has a code of practice for irrigation design and installation; ensure the contractor adheres to it.

When assessing tenders it would be prudent to ascertain the contractors ability to provide after-sales service. Do they have a maintenance department or is maintenance undertaken by the installations staff? Do they offer a service & maintenance contract? How fast can they respond to a call-out? Are spares and replacements charged at list prices or are they discounted? Do they stock spares or are they only stocked by the manufacturer or distributor?

**No golf course in the world has more right to call itself "Old" than Musselburgh Old Links which is the oldest existing golf course in the world. As Scott MacCallum found out, like many humans of a certain age, it is having a facelift.**

There are many old golf courses in the world. A great many at clubs which have enjoyed successful centenary years where stops are pulled out, pro-ams held and commemorative pullovers produced. A very rare few have had 200th anniversary celebrations but Musselburgh Links can top them all as it has the distinction of being the oldest existing golf course in the world.

To the casual observer there would be nothing to differentiate Musselburgh from many other of Scotland's links courses, except for the fact that it is ringed by a racecourse, but closer examination reveals a piece of golfing land with a history to trump anywhere else in the world and a group of people whose devotion to the well being and advancement of Musselburgh links is unstinting.

Among them are Alistair Patterson, Head Greenkeeper, and Jim Frame, a long standing member of Old Musselburgh and a man who has done much to make the local authority aware of the need to invest in the restoration and preservation of the course.

As befits a part of the country which has such a relationship with the history of the game you shouldn't be surprised by anyone or anything you meet and the first person I bumped into during my visit was Archie Baird, who informed me that he was married to the great grand daughter of Willie Park, the first Open Champion and himself a Musselburgh man. Archie, who is curator of the Golf Museum in Gullane, also showed me the gold watch chain, finished by a gold miniature golf ball, which was passed down to Archie from the great man and which proudly adorns his jacket.

He was visiting the course as he knew construction work was being carried out and was hoping that some old gutties might be dug up.

Yes, you did read correctly, there is construction work being carried out on the oldest golf course in the world... but don't worry.

Making alterations to such a rare piece of history would, you would think, be akin to adding Dormer windows to the Great Pyramid of Gizza, rewriting the ending to Hamlet to make it a little less tragic or replacing the

clock tower of Big Ben with a digital face. At Musselburgh, though, the work has become necessary due to work on the racecourse and it is an ideal opportunity to make some changes and improvements to the course. And a very good job Alistair Patterson and the local council are making of them.

Speaking in the Musselburgh Old Golf Club, which was the original home of the Royal Burgess Golf Club now based in Edinburgh and regarded as arguably the oldest golf club in the world, Alistair and Jim talk with pride about the course.

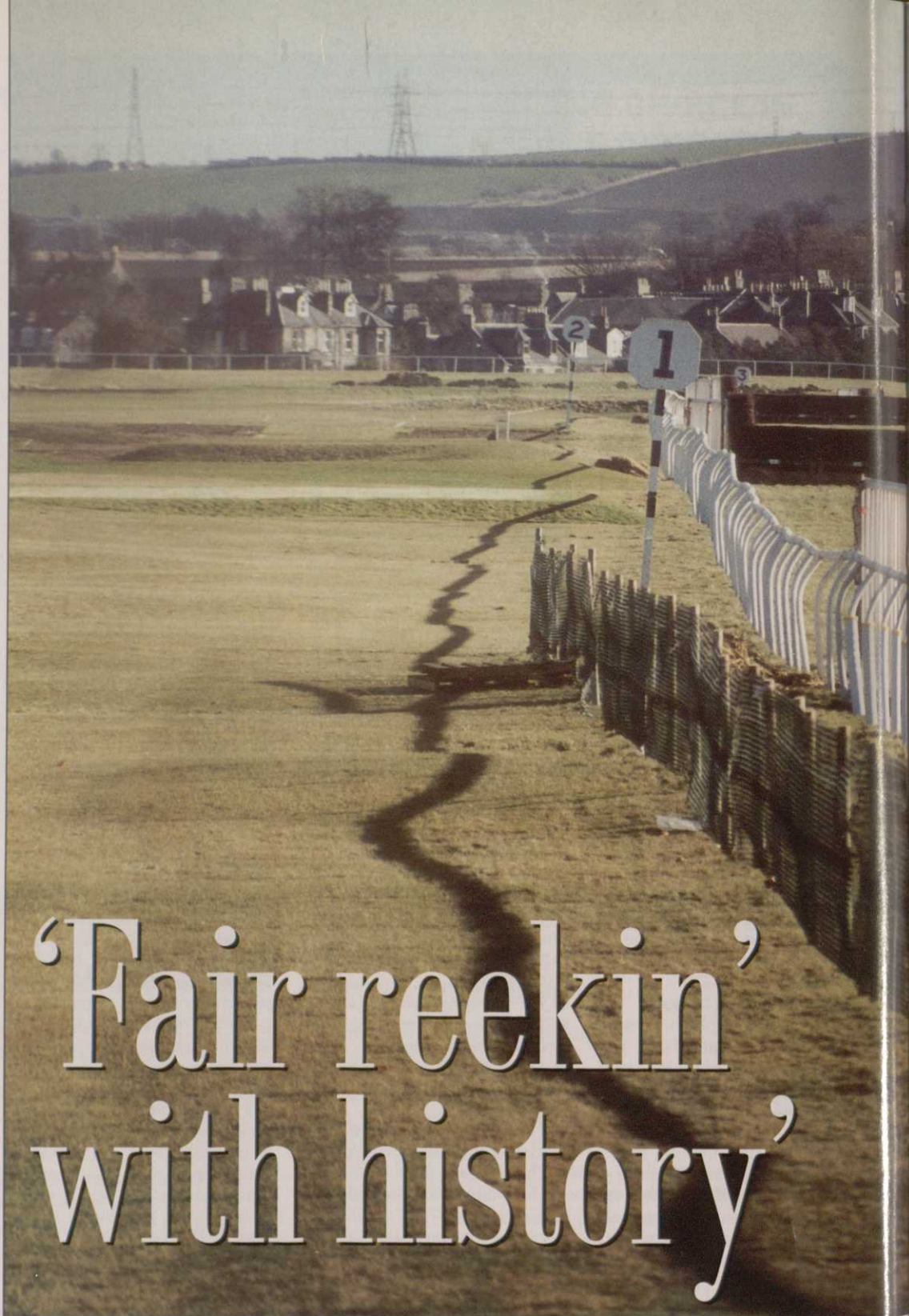
"It is recorded in the minutes of Royal Musselburgh Golf Club that it was the first course to have holes properly cut out and one of the original hole cutters can be seen at the Royal Musselburgh Clubhouse," explained Alistair, who has worked on the course with his apprentice for the last 18 months.

Another first was the universal adoption of the rule "playing the ball as it lies" after it had been first in use at Musselburgh, while the first ever women's golf competition was held at Musselburgh on New Year's Day, 1811 when a creel and skull was competed for

by the fish wives of the community. The first caddies were based in Musselburgh.

"If this was in America it would be hallowed ground, an institution where your grandfather would have to put your name down to join. The Americans treasure golf history and when they come here they absolutely drool. We take far too much for granted," said Jim.

Like many things where the past is clouded over by the mists of time it is difficult to pin an exact date on when golf was first played on Musselburgh Links but the earliest record of golf being



# 'Fair reekin' with history'

played on the links was 1567 when Mary Queen of Scots was accused of playing golf a few days before her surrender. Now you can be pretty sure she wasn't the first person to play there so you can certainly knock a few years off that figure.

Perhaps Musselburgh's heydays were when it was home to the Honourable Company of Edinburgh Golfers – which now resides at Muirfield – and the Royal Burgess when the gentry, including Lords and judges would arrive in Musselburgh by train from the city and then race to get to the tee first. Failure to build up a sufficient head of steam could result in a three hour wait to tee off.

"It was quite a fair old canter from where the old railway station was to the course and apparently there were some unbelievable sights," said Jim.

But that was then. What is Musselburgh like now?

Well, as I said at the beginning the links is shared with Musselburgh race course, which was established in 1816 and for much of the time since then it has been the race course which has held sway when any difficult decisions have been taken.

Some of the rails are taken down to assist the golf when there isn't a race meeting – there are around 20 a year – but if you concentrate on the individual holes and forget about the race course you will see some wonderfully pure golfing land.

The greens are small and the tees are low – the height of a greenkeepers boot – as the traditional way was for the golfer to see all the undulations from ground level. It also kept costs down.

It is Musselburgh's undulations and subtle slopes and borrows, however, which make any golfer not spoon fed on target golf and dart board greens drool.

Until recently the layout of the 9 hole course hadn't changed drastically from the time that James Braid had put his mark on Mother Nature's original course but the development of the jump and hurdles track on the race-course saw the demise of what was regarded as Musselburgh's best hole – a humdinger of 510 yards down the right hand side of the course.



Long standing member Jim Frame, left and Alistair Patterson, Head Greenkeeper

It would be fair to say that the golf course had been neglected over a period of years before Alistair's arrival.

"The maintenance was done by gardeners and they cut out a hole and mowed an area around it once a week," explained Jim.

"The race course influence predominated within the council at that time but now the golfing interests have blossomed and people have become aware of just what they have here. It is something which is unique and deserves loving care, kindness and all the work that can be done on it. That took a bit of work and hard persuasion but eventually we convinced them of the treasure they had," said Jim who, during the walk of the course, uttered the immortal phrase that the place was "fair reekin' with history".

The money which became available totalled around £100,000 and came from the European Sports Development Fund, Lothian and Edinburgh Enterprise and the sports budget of the local council.

The new work which includes a completely new closing hole, new tees, alterations to the shape of greens and numerous new bunkers, has been carried out with aim of preserving the "feel" of the place.

"Nothing that has been done or will be done on the course will in

any way affect the ambiance of the place and the charm of this old fashioned links golf course," said Alistair.

"Even the new bunkering which has been put in is pot bunkering and we are going back to the old fescues, which are using around them and this will be left to grow wild and be as natural as possible."

Alistair and his apprentice are employed by Groundcare, the company which won the contract under Compulsory Competitive Tendering, and it is fellow Groundcare employees who can be called upon, usually in evenings, to assist with some of the construction and maintenance work.



Mrs Forman's famous watering hole

"When I first came here last April I was turfing bunkers and tees and the Groundcare team was coming in after the men had finished their work in the parks and gardens on overtime to help raking soil and pegging out tees. Some of these are 420 square yards and we needed help to get them done," recalled Alistair.

"The construction work began in May and during the dry summer as soon as the turf went down it had to be hand watered. I prefer the old system because I reckon with hand watering you can put the water where you want it. During the summer we had to keep the sprinkler on late and pop out at 10 o'clock to see if it was still there!"

The new dog leg 9th hole which replaces the drivable – for the bigger hitters – par 4 was conceived following a site visit by a local professional who confirmed the thinking of many of the locals who had visualised the same hole for themselves but been too modest to voice it publicly.

The new hole is into the prevailing wind and boasts seven or eight new bunkers, a cluster of which are around the landing area.

"We felt that the current 9th was a soft finishing hole and we felt there should be a good test to finish off the round," explained Jim.

"We have tried to preserve all the subtle little contours on the fairways and we are delighted that the council has asked for the views of the club at every stage and a great many of our ideas have been taken on board.

One of the most famous parts of the golf course is the 4th hole known as "Mrs Forman's". At the far end of the course, Mrs Forman's is a pub at the back of the 4th green which boasted, until for some inexplicable reason it was stopped, a special "golfers' window" which made Mrs Forman's the most famous watering hole in golf.

The construction work is due to be completed in April and it will be a couple of seasons before the big differences are noticed.

"The fairways were ver-tidraind and top dressed for the first time ever last year. In the next few seasons we're going to get the golden rough back and the bluebells are coming though

## 'Firm but fair is how we want the greens'

and we'll start seeing the skylarks again," said Alistair with almost poetic zeal.

He is adamant about the type of playing conditions he wants to create.

"Firm but fair is how we want the greens and the same with the fairways.

"I'm trying to make all the greens uniform. If I were to shave them I'd have a lot of trouble in the winter so I'll keep a little cover on them but I reckon you can get fast green greens."

Alistair, whose father was Head Greenkeeper at among others Luffness, is revelling in his chance to create something special at Musselburgh.

"I just live across the road from the golf course and I know the history of the course. I feel I can play a part in that history and if I do it well it's going to benefit the golfers as well as myself and we're going to get a lovely links course back. It's more of a hobby than a job for me.



Jim Frame knew he would embarrass his Head Greenkeeper when he said, "he's a gem and we're very fortunate to have him. He's got a real feel for the place and he's put in a tremendous

amount of work."

It is perhaps a little optimistic to think that the latest renovation work will stand for another 420 years but it has certainly improved the course.

Alistair Patterson with one of the features of the old course: the greens are small and the tees are the height of a greenkeeper's boot - as the traditional way was for the golfer to see all undulations from ground level.



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# Inside the STRI



At the hub: Anne Wilson, External Affairs Manager with the central filing system

**The Sports Turf Research Institute is an institution in the truest sense of the word but what really goes on on a day to day basis? Scott MacCallum paid it a visit.**

Everyone knows of the STRI. Most people actually know that it stands for the Sports Turf Research Institute. A fair proportion know that it is based in Bingley and that it produces the rankings of grass seed every year in "Turf Grass Seed". But how many people actually know what

else the Institute does, how many people it employs and how it all began?

It may surprise you to know that the STRI has a staff of 60 split into several departments. There are turfgrass agronomists, including eight regionally based throughout the UK and Ireland, a chemistry laboratory, a pathology laboratory, a soil physics and a cultivar team, a construction team, a golf course architect, an ecologist, a team of groundsmen and administrative staff.

"We are fundamentally a

research centre and service and information provider," explained External Affairs Manager, Anne Wilson. "First and foremost we are a provider of information and secondly we supply a service through the information we provide."

The Institute has widened its remit since it was originally established, on its present site at Bingley, by the R&A and the Home Golf Unions in 1929 as The Board of Greenkeeping Research.

Then it was purely for golf and it was not until 1951, when it became the Sports Turf Research

Institute, that it was expanded to include other sports as it was seen that what was appropriate for golf turf was also appropriate for other sportsturf.

"We are the national centre within the UK for sports and amenity turf and are internationally recognised for the research that the Institute does. Mike Canaway and Steve Baker work closely with the United States Golf Association Greens Section and Steve was on the Advisory Committee for the recent revision of the USGA Greens Construction Guidelines.

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