COUNTRY CLUB

BOARD OF TRUSTEES - LAKE LIMERICK COUNTRY CLUB

July 17, 2004 9:00

MINUTES

I. ROLL CALL:

President Tom Taylor, Vice President Scott Carey, Treasurer Esther Springer-Johannesen, Secretary Shirley Toner, Trustees Don Nichols, Dick Sirokman, Pat Feist, Mike Powter, and Tony Paradise. Keith Smith and Pat Chaussee were excused.

Guest attending: John Botton, Irv Layton, Darrell Winans, Vern Hadsall, Lisa Carey, Gail Gagner, Ron Gruszuzynski, Chris Johannsen, Rosemary Wilson and JoeAnne Paradise

Employees: Marianne Koch, George Duffin, and Jerry Thompson.

II. GUESTS FROM THE FLOOR: Request to be added to the agenda, none

III. APPROVAL OF MINUTES:

A motion was made by Scott Carey, seconded by Dick Sirokman and passed as follows with no nays:
To accept the minutes of June 19, 2004

IV. FINANCIAL REPORT: Esther Springer-Johannesen Treasurer

Esther has sent out for bids from different insurance companies, however she noted that currently we are paying an extremely low price for our bar coverage and changing policies may cost the club more then the savings in other areas. We have dropped the collision on the vehicles, which are not used on the roadways (except to cross the roads).

The delinquent accounts (members dues and water) are still too high.

Discussion on getting the lots, (which LLCC has reclaimed due to default of dues) sold in order to regenerate the dues being lost.

A motion was made by Dick Sirokman, seconded by Pat Feist and passed as follows, with no nays:
To put excess lots up for auction.

Sheila Hedlund has contacted the insurance agent in trying to get the health insurance to run October to September versus January to December, in order to coincide with the clubs budget.

V. CONSENT AGENDA: (Committees motions)

Addition to the consent agenda motion by the Architectural Committee for the board to approve the addition of Jeannette and Tim Re to the architectural committee.

A motion was made by Scott Carey, seconded by Pat Feist and passed as follows with no nays:
To accept the committee members as listed including Jeanette and Tim Re.
Jim Nutt, Theresa Taylor, Charmaine Miller, Pat Feist Tillie Waldron Lavina Brown, Tom Taylor and Tim & Jeannette Re.

Question regarding deep cleaning time for staff in kitchen as well as vacation time, possibility of delaying until the 14th, which is a Friday for reopening the restaurant in January. Staffing questions were raised, and food cost. Inn committee will be asked to address whether or not there is too much staff on at one time.

A motion was made by Dick Sirokman, seconded by Scott Carey and passed as follows:
To accept consent agenda with the exclusion on the forth motion on the inn committee, which will be sent back to the inn committee.

Question on lake treatment cost and how it will be covered. Reserves and the 36.96 temporary charges should cover this year's cost.

VI. OLD BUSINESS:

- Well 6 review: Kirk Osborne reviewed the well #6 process to-date. The bid meeting the close on Friday and they were higher then expected. Semcon will go over present a spreadsheet, and investigate the contractors. There will be a water meeting with Semcon on Tuesday the 27th to go over the information.

VII. REPORTS:

- Lake treatment report to-date:
- Sheriff update.

VIII. NEW BUSNESS:

1. Jerry Thompson on irrigation system. Jerry Thompson (our greens manager) presented an in-depth report on the cost savings, which an irrigation system could generate. He asked the board to please consider when doing the budget.
2. Fire works on and around the 4th the board deferred to the sheriffs office.
3. Printer report, Esther will be going over with Sheila Hedlund. On the merits and cost of upgrading the printer in the office.
4. Quarterly financial meetings, it was discussed that quarterly financial meetings open to the members would be a great idea, however do to the legal suit pending, our attorney suggest this be delayed.
5. Dress code for bar and restaurant, deferred to the inn committee.

IX. Manager Comments:

The employee handbook is being reviewed, Scott Carey will report on in August.

X. CORRESPONDENCE: NONE

XI. ANNOUNCEMENTS:

XII. MOTION TO CONVENE TO CLOSED SESSION:

A motion was made by Dick Sirokman, seconded by Esther Springer-Johannesen and passed as follows with no nays:

To convene to closed session for employee matters.

XIII. CLOSED SESSION: (The closed session may only include matters dealing with personnel matters; legal counsel or communication with legal counsel; and likely or pending litigation of an owner to the association.) Personnel and Legal

XIV MOTION TO RECONVENE TO OPEN SESSION:

A motion was made by _____, seconded by _____ and passed as follows with no nays:

To reconvene to open session

XV MOTION TO ACCEPT ALL CLOSED SESSION MOTIONS:

A motion was made by _____, seconded by _____and passed as follows with no nays:

To accept the motions of closed session.

XIV. MOTION TO ADJOURN MEETING:

A motion was made by _____, seconded by _____ and passed as follows with no nays:

To adjourn at _____

Costs and reasons we need an irrigation system.

- Water is the resource of the future. With a new system we would be able conserve our water usage through more control and proper timing.
- LABOR is a huge expense. I employ 2 full time 40 hour a week employee's to water the course from June through September. This costs the club right around $13,000 dollars a year. With a new system that expense is eliminated.
- The cost of hauling the sprinklers around (we all know gas is not cheap). The wear and tear on the vehicle's that are used. The costs for these items is around $5,000 dollars a year when you start figuring all the fuel, maintenance, parts, and added labor.
- Lost revenue. How much are we losing by having sprinklers running during play or having a brown golf course. It's hard to compete with other courses in our region for the golfers dollar when visually their course looks better.
- The current system is old so far this year alone we have had 35 breaks I turned the system on 4/6. Each time it breaks we have a minimum down time of 2 hours.
- We have had 2 major problems with the pump house valve's this year. It has caused us to lose 5 day's of watering on top of the $1700 to fix the valve. This problem is caused by the up and down spikes in pressure.
- The current system is inadequate in coverage which causes the grass to burn up and turn brown which is both unsightly and costly.
- Timing of the irrigation. It's best to irrigate in the middle of the night when temperatures at are there coolest and the wind is down. Under the current system we rely on human timing and water in the early morning which effects both play and are maintenance practices. Computer control vs. Human control the computer runs the program for the amount of time you program it to run. Human control might water to much or not enough. The other problem we have is golfers turning off the sprinklers to play their shot and not turning them back on.
- The cost of replacing our current out of date sprinklers is around $115.00 a piece. The cost to replace a new electric valve in head sprinkler is around $85.00 a piece.
- Are we watering in our fertilizers and fungicides in properly? I would say that we have some control on the greens. The rest of the course we do not and can not water in fertilizer properly. Can we use less fertilizers and fungicides on the course with a new system? Yes
- With the current system we have a mix of several different size pipes which we can not keep an inventory of. With a new system we are talking about 3 sizes which is a lot easier to keep an inventory of.
- Wear and tear on the pumps. With our current system we have a lot of up and down pressure spikes. Which causes the pumps to turn on and off. With a new system you set the programs to run maximum sprinklers with maximum efficiency which leads to less water, less electricity, and a more smooth and steady operation of the pumps.
- With our current system we water for 8 hours or more on a daily basis not counting the members that water at night with hoses that are on the course. With a new system the water time will be 5-6 hours at night this will prolong the life expectancy of our pumps.

The Importance and Added Value Of an Automatic Irrigation System.

There are two issues I believe need to be considered when discussing this issue.

#1. We are in a very competitive business.
Every player who visits our course compares it to the others they play and if we are not on an equal or better than others in the area in the area of course condition as well as other factors then we are apt to lose those players to the other courses. An irrigation system is a key factor in this. If we are burned out during the prime playing season then we are not going to be competitive with the other courses in the area.

#2 We hare having a very good year in golf revenue and I belive the course condition is a major factor in that. If we expect to continue that then we must make the effort to keep the course in the very best condition possible.

As proof of what I have stated. During this past week I visited Meadowmere golf cousre on Baimbridge Island.Last year at this time their course was burnt out as bad or worse than ours ever was. This past winter they installed an automatic system. The course is green from wall to wall. Their outside play is up considerably to the point that they are planning on increasing daily fees. They anticipate outside play will bring in $185000.00 this year with daily fees only slightly higher than ours.

TERRY O'HARA

and solved on an individual basis after an assessment of all related factors. The concentrations of individual constituents must be known before water quality can be properly evaluated. In the case of sodium as well as of several other salts, the indirect effects on the soil and the direct effects on turfgrass growth must be considered. There also is a question of the combined effects from several salts. For example, high concentrations of both sodium and bicarbonates are especially undesirable. Similarly, it is difficult to set precise limits on the maximum acceptable sodium level because its reaction is influenced by the quantity of calcium and magnesium in the soil, and the salt content of the irrigation water.

A lengthy discussion on managing problem irrigation waters is beyond the scope of this chapter, particularly when each environment is unique and must be evaluated separately. In most cases, however, marginal irrigation water can be used for golf course irrigation if practices such as (a) acid or gypsum injection or (b) gypsum, sulfur, or other chemical amendments are added to the soil.

TYPES OF IRRIGATION SYSTEMS

There are three types of turfgrass irrigation systems in use on golf courses in North America: (a) automatic, (b) semiautomatic, and (c) less commonly, manual quick-coupler. All are basic forms of aboveground irrigation. The automatic irrigation system is by far the most popular type being installed on today's golf course. The comparative advantages and disadvantages of each type of system for golf course use are discussed in this section.

Automatic Irrigation System

An automatic irrigation system is comprised of fixed pop-up sprinkler heads automatically activated by control valves based on signals from a satellite, usually operated from a master controller (Figure 9.5). Most modern automatic irrigation systems have computerized controls with the appropriate software for (a) monitoring net radiation, air and soil temperature, relative humidity, and wind speed as sensed at one or more microenvironmental stations sited on the golf course, (b) calculating the daily evapotranspiration (ET) rate of the turf(s) based on the appropriate prediction model, and (c) activating appropriate irrigation sprinklers based on flow management concepts. The valves are operated by electric or hydraulic controls. The controls in turn may be activated electrically or by radio signal. That is, the specific day, time of day, and operating duration may be established for any one or more of the control valves, each of which controls one or more sprinklers. The automatic irrigation system may or may not be integrated with a soil moisture sensing device and an on-site microenvironmental monitoring station.

Although the automatic irrigation system is automatic in terms of operating the heads at the time water is applied, experience has proven that it requires regular programming and maintenance. Nevertheless, it is by far the most effective type of golf course irrigation system installed today. When properly designed, engineered, installed, and operated, it has the capability of irrigating a golf course in the most timely and water-efficient manner. In this situation, a continually overwatered golf course is the fault of the superintendent.

Automatic irrigation has the initial appeal of greatly reducing labor costs for the actual irrigation activity. This supposition is met to a degree. However, an automatic system still requires substantial labor for maintenance, repair, and fine adjustment of the program. The golf course superintendent also must devote time to irrigation decisions and ensuring proper programming of the control units. The cost for repair and parts may increase after 5 to 10 years.

What are the advantages of an automatic, electronically operated irrigation system? First and foremost, this type of system places the essential control of golf course turf irrigation directly with the most competent individual on the green staff—the golf course superintendent or an appointed representative. Second, there is more precise timing of each sprinkler head in operation.

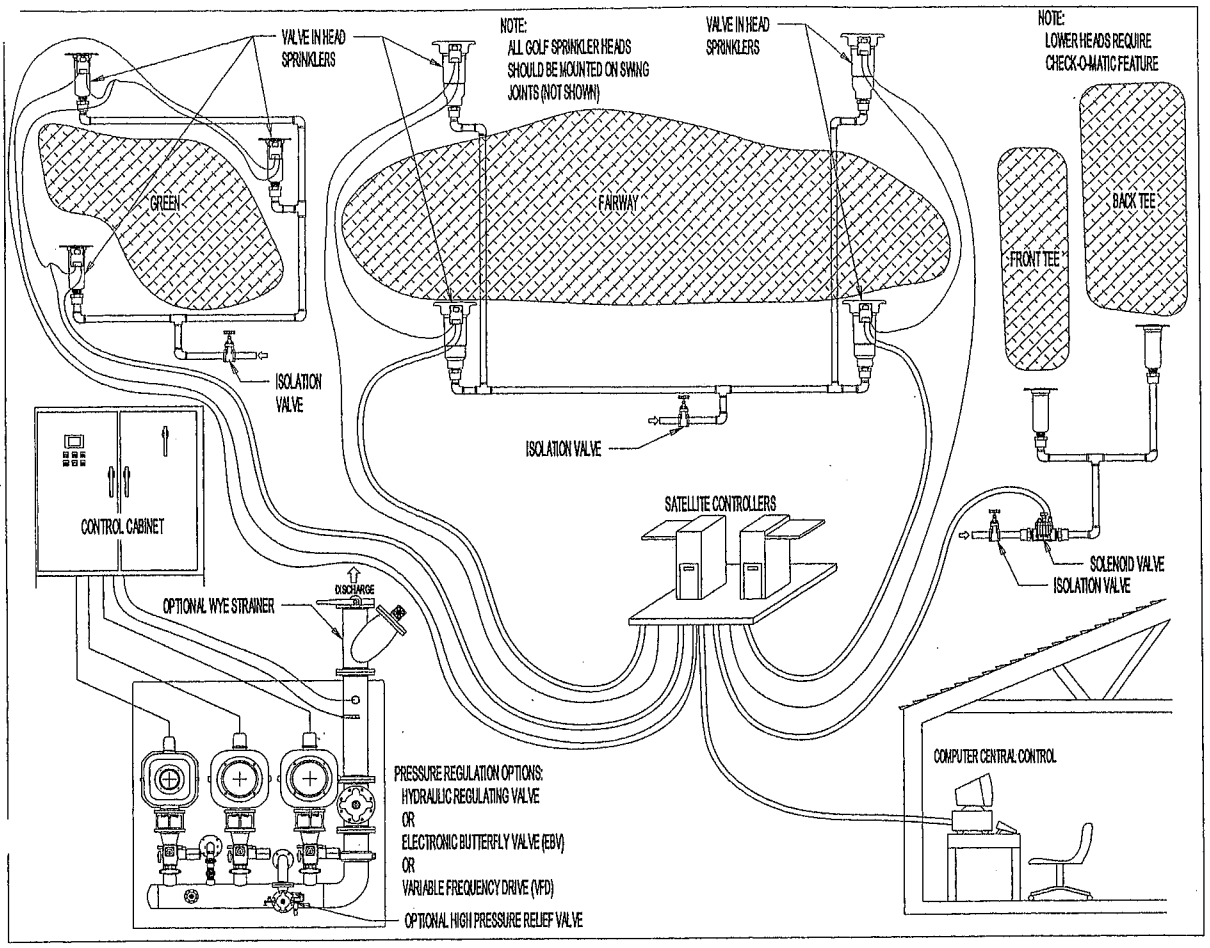

Figure 9.5. Diagram of the key components of a golf course automatic irrigation system. (Courtesy of T.J. Emmerich and Associates.)

When a green requires 15 minutes of water it receives 15 minutes, not 10 or 20. Therefore, a properly designed, engineered, installed, and operated automatic system brings greater control and dependability to irrigation practices. This in turn promotes water conservation, since only the appropriately prescribed amount of water is applied at each irrigation. A third advantage is that an automatic system does not require one or more night irrigator(s).

Even fully automatic irrigation systems require some quick-coupling valves and keys, typically 2 valves at each putting green, preferably off separate laterals, 1 to 2 valves at each tee, and at intervals of 200 to 300 feet (61–91.4 m) along fairways, to provide a manually activated source of water for emergencies and other uses.

An automatic irrigation system is the most expensive type to purchase and install. Thus, there is a tendency to cut costs, which leads to compromises in the design of the system and later to difficulties in irrigation coverage and flexibility. This tendency must be avoided.

Semiautomatic Irrigation System

A semiautomatic irrigation system consists of valves that respond directly to a manually operated remote control switch or valve. Such a system usually is installed on golf courses where

There are sensors available for determining soil moisture. In the past, these units have proven impractical as an extension of the automatic irrigation system under most field conditions. The amount of soil area sampled is so limited, the golf course soils and microclimate are so variable, and the rooting depth and cutting height of various turfgrasses are so different on different golf courses that it is difficult to use soil moisture sensors for comprehensive monitoring.

One low-cost approach for approximating water use to help in making irrigation decisions consists of an evaporative pan that indicates the evaporative demand of the atmosphere on a daily basis. The amount of irrigation water applied is based on a percentage of the pan evaporation rate, which varies with the turfgrass species/cultivar. The pan should be read at the same time daily and the original water level reestablished. This approach presents problems and is much less accurate than the Modified Penman Turf Model used in conjunction with a microenvironment sensing station and computer with an appropriate software program.

When to Irrigate

There are three dimensions to a turf irrigation strategy. They are (a) maintenance watering, which consists of replacing water in the root zone, (b) environmental watering, which involves relatively light applications for a number of different purposes, and (c) watering-in fertilizers, preemergence herbicides, and certain fungicides and insecticides.

The preferred time of day for maintenance irrigation of most golf course turfs, from an agronomic standpoint, is the late nocturnal period and early morning. However, limitations of some irrigation systems may dictate irrigating for the full nocturnal period on 2 consecutive nights to fully cover an 18-hole course. Irrigations should be scheduled so soils are not at or near saturation when intense traffic is anticipated. This minimizes the potential for soil compaction and ensures optimal playing conditions.

Midday maintenance irrigation has several disadvantages, including (a) the potential for unsatisfactory water distribution patterns due to the higher winds common at midday, (b) a higher amount of water loss by direct evaporation to the atmosphere, and (c) inconvenience to golfers. Irrigation in late afternoon or early evening also has disadvantages in that the turf remains moist throughout the nocturnal period, thus increasing the potential for fungal spore germination and invasion, with subsequent disease development.

A specific frequency of irrigation cannot be suggested on an absolute basis. Frequency is dictated by the existing turfgrass species, rooting depth, environmental status, and soil conditions. It may range from daily on putting greens in midsummer, to 3 to 5 times per week on tees during the summer, to once every 7 to 14 days during the spring and autumn on fairways. Similarly, no one diurnal time is always best because of numerous interactive factors.

A light, daily environmental irrigation is frequently applied to putting greens just prior to dawn, especially if the root zone has an adequate infiltration rate. This serves the dual purpose of a light irrigation plus removal of dew, exudates, or frost that may have formed on the turfgrass surface. This approach offers more favorable playing conditions in early morning and eliminates the need for such manual procedures as poling or hose-dragging of greens prior to mowing.

During summer heat and water stresses, watering of putting greens and even tees may be necessary at midday, particularly for cool-season turfgrasses. This very light, midday watering technique is termed **syringing**. It may be used to correct a turfgrass stress, such as wilt or heat, so the turf may survive until normal irrigation during the nocturnal period. When the turf wilt potential is high, the superintendent or the assistant superintendent should inspect all greens and tees daily near midday, and sometimes twice daily during extreme heat stress when the turfgrass root system is quite short. Syringing must be done whenever wilt is imminent. Any delay could mean an extensive loss of turf, particularly

IRRIGATION WATER VOLUME, FLOW, AND WEIGHT FORMULAE

VOLUME

1 acre-inch	=	43,560 cubic inches
	=	27,154 gallons
1 acre-foot	=	43, 560 cubic feet
	=	325,851 gallons
1 gallon	=	231 cubic inches
	=	0.134 cubic feet
7-1/2 gallons	=	1,728 cubic inches
	=	1 cubic foot
1 million gallons	=	3.07 acre-feet
1 billion gallons	=	1,000 million gallons

FLOW—VOLUME

1 million gallons per day (mgd)	=	694.4 gallons per minute
	=	1.5 cubic feet per second
	=	1,120 acre-feet per year
1 billion gallons per day (bgd)	=	1.12 million acre-feet per year
1 cubic foot per second	=	1.98 acre-feet per day

WEIGHT

1 gallon of water at 62°F	=	8.34 pounds
1 cubic foot of water at 39.1°F	=	62.43 pounds
1 pound of water at 62°F	=	0.1199 gallon

when the turf is composed of annual bluegrass or bentgrass.

Amount of Water to Apply

The golf course superintendent should attempt to apply an amount of water equivalent to that removed from the soil since the last irrigation to field capacity. The exception to this model is when irrigating sodic and saline soils, and especially when saline water is used. The amount of water removed is determined by the quantity of water lost to the atmosphere through evapotranspiration plus the water percolated downward through the soil in a free gravitational mode. The actual amount of water applied also depends on the water retention characteristics of the soil. Fine-textured soils have a higher water retention capability than coarse-textured sandy soils, unless a perched hydration zone is created by the construction method.

Over-irrigation must be avoided. If continued on a long-term basis, it causes serious declines in the soil oxygen level, root growth, and overall turfgrass quality and it increases the potential for disease development and soil compaction. In addition, over-irrigation is wasteful, since much water may be lost through surface runoff and gravitational percolation. Turfgrass symptoms of over-irrigation include a yellowish, chlorotic appearance, thinning of the stand, algae, and increased annual bluegrass (*Poa annua*) encroachment.

An important dimension in irrigation is the rate of water application per unit of time. It should be adjusted to the maximal rate at which water enters the soil, termed the infiltration rate. The infiltration rate may range from as low as 0.05 inch

Night

The amount of water lost as a result of evaporation is lower at night because of reduced wind movement, cooler temperatures, and higher humidity. Reduced wind also allows for a better water distribution pattern. Night may be a more convenient time in some situations, particularly if an automatic irrigation system is used. Evening or night irrigation has less chance of interfering with the use of the turf area and disrupting scheduled management practices. Irrigating at night also allows adequate time for internal soil drainage. Since wet soil is more prone to compaction than dryer soil, this additional drainage time can be particularly important on highly trafficked turf.

One serious drawback of night irrigation is that disease activity may increase on turf watered at night. Fungal spore germination and fungal penetration into plant tissue requires several hours of free water on the leaves of the turf, so reducing evaporation can make turf more susceptible to disease.

Midday

Midday or mid-afternoon irrigation has its own advantages and disadvantages. First, as much as 50 percent of the applied water may evaporate before it even hits the ground. Disease activity resulting from free-standing water is greatly reduced, but if the water application rate exceeds the infiltration rate or if a drainage problem exists, the turf may be subject to scald. Scald is the scorched appearance of turf that has been submerged or partially submerged on bright, sunny days, when water temperature increases to a point that injures plant tissue. In addition, because of more wind, sprinkler water distribution patterns may be disrupted. Midday watering may also interfere with the intended use of the site.

Morning

Early morning irrigation combines several of the advantages of night and midday watering. For example, winds are reduced, humidity is high, and solar radiation is low. These factors help to reduce evaporation. Early or mid-morning irrigation also avoids prolonged free water on the turfgrass leaves, discouraging disease development. Reduced wind movement allows proper water distribution from the sprinkler. There is also less chance of interfering with the use of the area. Finally, the application of water in the morning removes guttation water from the surface of the plant tissue.