



The Water Chronicles

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Installation of the perfect Irrigation System.

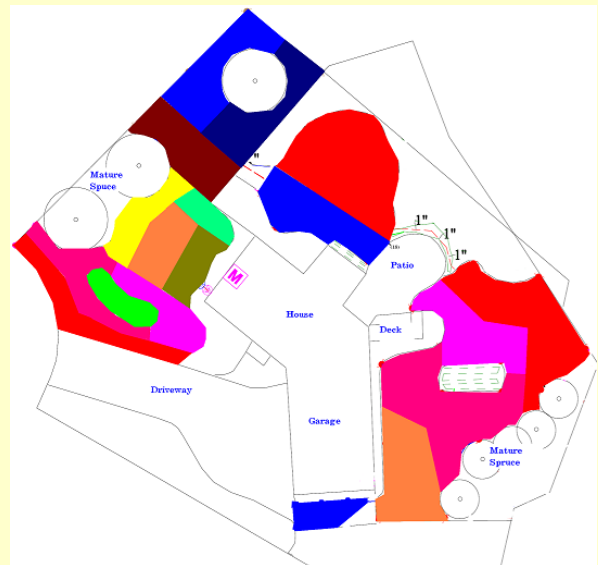
Earlier this spring I was invited to a conference which was being sponsored by Hydrologic, an Irrigation supplier based in Minnesota with several outlets across the Midwest. The concentration of the conference was the promotion of a new concept which Hydrologic had been developing for 2 years. The concept that Hydrologic was working on, was how can we develop and promote the installation process and guidelines to certify an irrigation system which would save the average customer up to 65% on their water usage. After 2 years of development, Hydrologic developed HC3, which means Hydrologic Certified Conservation Contractor. This program combined a class that any contractor could take on their own time Online. A test to certify that the contractor learned the material and a rigorous requirement in the way an HC3 system would be designed, installed and programmed. I enrolled in the program which took 2 weeks to study and then took a 3 hour test. After certification, Hydrologic provided sales materials and DVD's to help with the sale of an HC3 system. In May I met with a customer in Minnetonka. They were concerned that their system was leaking because of the excessive amount of water it used last season. After looking at the 22 year old system, we came to the conclusion that it was ready to be replaced. We offered them the possibility of installing an HC3, which would help to save them more than 8000 gallons of water each month. Even though the cost of the installation would be higher, they decided to make the investment that would pay them back. The design process was difficult due to the slopes and changing shade conditions throughout the property. In order for the installation to be qualified for HC3, the property had to be broken up into hydrozones. Hydrozones would change according to shade, sun, soil, slopes and hardscapes. These areas would be broken apart and were not allowed to be irrigated on the same zone. Because this property had so many changes in it's hydrozones, the system would require 20 zones of irrigation, including two zones of drip. The original system had 8 zones of irrigation and much of it was overgrown by 20 year old bushes and trees. A hydrozone map was first created. A design was created to match up to the hydrozones. Installation started shortly after the design was approved.

80 psi minimum was required for all pipe used. All pipes had to be plowed in at a minimum of 10 inches of depth in order to allow for cultural management such as aerification. A master valve was also installed after the point of connection. This keeps the mainline from being pressurized when not in use. When systems begin to age, small leaks can develop in the mainline which are undetectable and can cause for the loss of thousands of gallons of water each year.

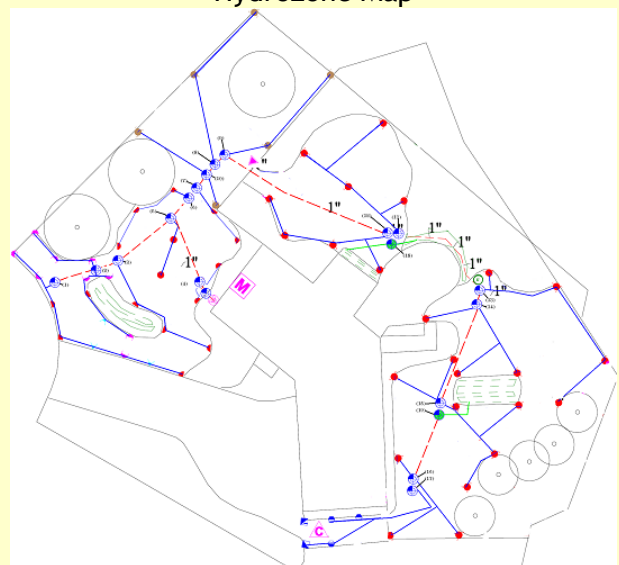
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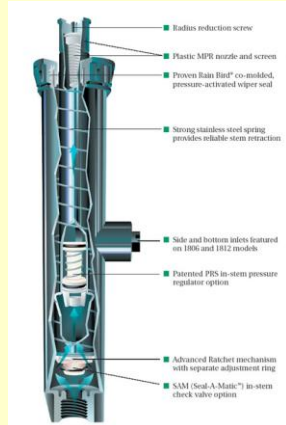


Hydrozone Map



Actual Layout

Irrigation heads were all equipped with check valves to prevent low head drainage. It is estimated that 500 gallons of water are lost each time the system runs due to low head drainage.



Spray Head



5000 Plus

The irrigation heads which were used were Rainbird's top of the line 1804 Spray Head and 5004 Plus. Each of them had the ability to control the amount of water which was used at each individual head, dependent on distance and coverage that was needed.

Once the system was installed in the ground, the most important water saving utility was needed, the controller. HC3 requires a smart system which uses on site or near site weather monitoring. The system also needed to take in all information, such as soil, shade, slope and plant type. Weather measurements required were, temperature, wind, rain and Evapotranspiration. Evapotranspiration is the loss of moisture from the soil and plant material. A 24 hour reading is used to create a new balanced irrigation schedule every day or for most communities every other night. We chose Weathermatic to take care of this. The controller came equipped with it's own weather station and had the ability to control the 20 zones we had installed.



Smartline 1620 Irrigation Controller



Wired Weather Station

The final process to certify an HC3 system is to have it Audited by a third party representative. The audit would measure the output of all of the zones. This is done through using collection gauges throughout each zone.



If any of the collectors within the same zone collect less than ½ of the water of the baseline average, changes to either the nozzle or the sprinkler placement must be made to correct the problem. If all of the zones pass the Audit, the system can then be certified.

A typical 7 zone system takes approximately 30 man hours to install. This system took almost 120 man hours to install.

The Contractor for this install was Bob Officer of Irrigation Management in Buffalo MN. The Sub Contractor was Chris Vasecka of Use Your Water Right in Clearwater MN. Don Grove was the Liaison for Hydrologic in Plymouth MN.

For more information on HC3 go to www.hc3smart.net. To get information on cost estimate of installation go to www.irrigationmgt.com or www.useyourwaterright.com.

HC3 may not be a system used by everyone, but the concepts and equipment can be retrofitted into any existing system to create incredible water savings, ultimately saving you money on your water bills.



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