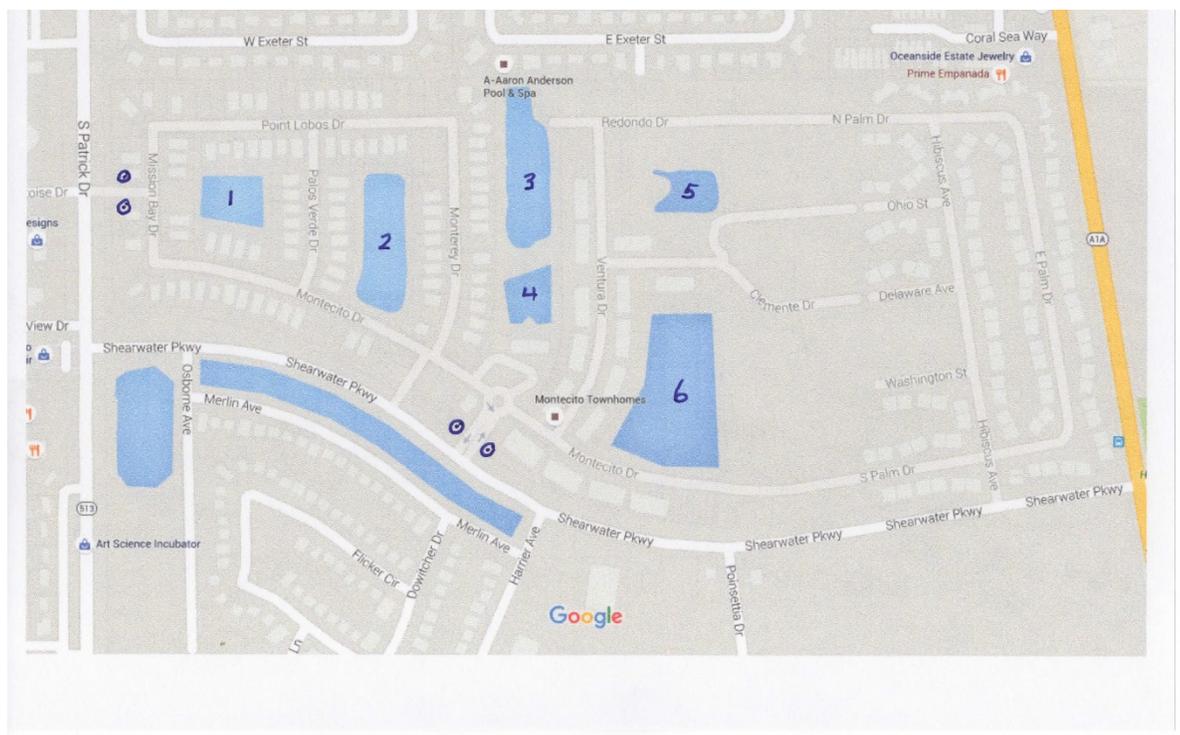


Montecito Ponds Report (corrected 6 August 2017)

Purpose: To provide information to residents so that they may better understand the issues related to the ponds in our community development district.

History and description: During the initial development of Montecito, prior to 10 May 2006, six ponds were excavated by the developer for the purposes of providing water for irrigation of the community's landscaping and for their beauty. The location of the ponds is shown in the diagram below



During creation of the ponds, underground equalizer pipes were placed which interconnect them. (These are not shown on the diagram.) The purpose of the equalizer pipes is to keep the water in the ponds at the same level. During the past year (as part of the phase 2C development

of the remaining townhomes' section), pond number 5 was enlarged in an east-ward direction, approximately doubling its size from that shown in the diagram.

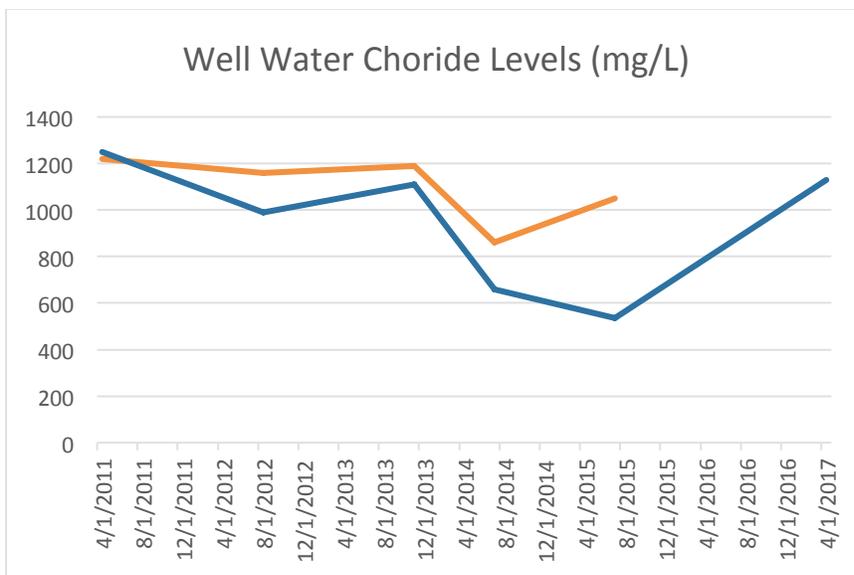
Water enters the ponds in two ways: rainwater runoff (via the storm sewers on the streets) and by two underground artesian wells, one emptying into pond number 2 (well #2) and one emptying into pond number 3 (well #3). Water leaves the ponds by evaporation and by pumping for irrigation. Irrigation pumps are located on pond number 2 and pond number 3. When the ponds were created, it was anticipated that rainfall would be the primary source of water to maintain adequate levels. The volume of water which enters the ponds from the wells is regulated by the Saint Johns River Water Management District and limits on it are specified in the consumptive use permit (CUP) that is issued by this government agency. The initial CUP was issued on 10 May 2006 (I believe to the developer and to Satellite Beach Partners) and it was transferred to the Montecito CDD on 21 October 2009. With the exception of a prolonged drought, the permit limits the addition of well water to the ponds (from all sources combined) to a volume of 30 gallons per minute. Importantly, the CUP mandates regular monitoring and reporting of both the levels and chemical composition of the water in the ponds. Notably, the volume of water that can be added to the ponds from the wells is small and alone would not be expected to keep the water levels adequately high to serve our irrigation needs on an ongoing basis.

Following hurricane Matthew in October 2016, the ponds were replete with water. However, since then, we have experienced a prolonged drought with inadequate rainfall to keep up with both evaporative and irrigation losses. Accordingly, pond water levels have been low. During the months of April and May 2017, based on a CUP allowance of additional water to the ponds from our wells, inflow of water from

those sources was increased to between 60 and 85 gallons per minute in an attempt to keep up with unavoidable losses. Subsequently, well water inflow was reduced to 30 gallons per minute beginning in June 2017 to comply with our CUP and currently is turned off (for reasons which I will discuss below.)

The water in our ponds is brackish. That is, it contains minerals (including sodium chloride). As such, it cannot be used for drinking but, as long as the total chloride concentration is not too high (<1,100 mg/L), it can be used to irrigate our lawns and flora. If the total chloride concentration in the pond water exceeds 1,100 mg/L, it may damage and/or kill the grass and other vegetation if used for irrigation.

Historically, we have always had chloride in our well and pond water. Shown in the graphs below are the values for well water chloride concentration dating back to 2011.



(Well 2 is the golden graph and well 3 is the blue graph.)

On 12 July 2017, the chloride concentrations (mg/liter) in our well water and pond water were as follows:

well 2 -- 1,250, pond 2 – 700, well 3 -- 1,700, and pond 3 -- 1,000.

What do these figures mean? First, they verify that our well and pond water is significantly 'salty.' Although the water in the ponds is still usable for irrigation, the water for the townhomes (pond number 3) is approaching the cutoff level for safe use. Second, even if we were allowed to increase well water inflow into the ponds, for which we would have to obtain permission from the Saint Johns Water Management District (by a request for modification of our CUP), it would worsen the chloride levels therein. An additional problem with increasing well water inflow is that it may contribute to saline (salt) intrusion into the aquifer which feeds the wells. If such were to occur, we might permanently lose well water as a supplemental source for our irrigation needs.

What are the 'take home' messages? First, we must receive adequate rainfall to maintain adequate water levels in our ponds. Second, the total chloride concentrations of our ponds, especially pond #3, are close to making the water unusable for irrigation without the risk of damaging or killing the vegetation. Third, we cannot just increase the well water inflow to compensate for the lack of natural precipitation that we are experiencing because of the high chloride concentration in the well water. Fourth, there will be challenges obtaining adequate water to irrigate the additional common areas and private lawns being created in the phase 2C townhomes development, which is ongoing presently.

Much work has gone on 'behind the scenes' on which I have not reported here. (To have done so would have made an even longer report.) Suffice it to say that our mandatory CUP inspection and renewal application (orchestrated by our district engineer) has been completed and approved. Mike Knapp, a Montecito resident and an experienced hydrogeologist, has been actively involved in measuring well and pond water chloride concentrations and advising myself and

our district engineer on our best options going forward. (He has been assisted importantly by Suzanne Harper and David King of the SJRWMD.) Randy McGrath, our facility coordinator, has been instrumental in measuring well water flow rates and arranging for the installation of a new flow meter on one of our wells and calibration of the flow meters for both wells. Jason Pilon of BrightView Landscaping has helped install the appropriate spigot for accurate sampling of well water on well #3 and has been informed of the well and pond water chloride concentrations to guide use of this water for irrigation purposes.

If there are any errors in this report, I take sole responsibility for them.

James Bourdeau

Montecito Board of Supervisors Seat #3