

Dr H2O on Irrigation

Blow, I just hit a mainline with the excavator!

Farms change hands, irrigation company staff move on and memories fade and then we suddenly have no idea of what our irrigation infrastructure is. Last week I turned up to see how one of our crews were getting on putting a new mainline in. Coming over the hill the excavator appeared to be at the wrong end of the paddock. On arriving in the paddock it was clear the excavator driver had hit a mainline with the digger. No fault of his or the farm manager's - they had no idea it was there and all efforts to choose a safe route had been made. To rub salt in the wound the mainline was part of a ring-main and the guys had to find 6 pumps on the farm to stem the flow. Many gates later, and after several phone calls for directions, the water was off and the mainline repaired.

Speaking with the manager later that afternoon he made the comment "everything is a surprise on this farm" and this is a story I hear time and time again. In this case the farm was purchased a couple of season ago and little accurate information on the irrigation system was available. While inconvenient and expensive hitting pipes, the bigger issue arises when it becomes time to do upgrades or extensions to the system and, as designers, we don't have a clear starting point to work from. When the infrastructure is above ground it is easy to access. We can count K-Line pods, figure out what the sprinkler pack on a pivot is, but once the system is in the ground or down a well it can be very difficult, if not very expensive to get at. Many of the problems I see on-farm in terms of irrigation systems not operating as expected, result from extension designs based on inaccurate or incomplete information. Assumption is not really a word that should be used in relation to irrigation design as it is a recipe for disaster, but lack of information tends to see assumptions creep in.

Keeping all this in mind, why is the information not always provided? The focus is always to get water on. In the irrigation industry at this time of the year companies are running around madly commissioning schemes and, once water is on, they move on as quickly as they can to help get the next farmer up and running. Often little thought is given to documenting the systems in terms of "As Built Details" and when the hectic pace settles the focus can easily turn to next season rather than tidying up the season past. For our utilities contracts it is the norm to have to provide "as built" documentation before receiving final payment and maybe farmers should be incorporating retentions in their contracts to cover provision of all "as built" details? Many companies will have at least Mapping Grade GPS systems (accurate to 0.5- 1m) that are ideal for recording the location of all mainlines, hydrants, pumps and other important features of your system. They can then easily provide a map (and preferably an electronic file in document exchange format) locating all pipe size and pressure ratings. Details on the pumps, including depth, rising column size, motor size and the related pump curves should also be included. Then as the purchaser of the system you have the security of being able to locate all your pipes, but, more importantly when changes are required any designer can access the details to determine

what is required to alter the system. The advantage of GPS mapping is that elevation data is included which is critical for all except the most perfectly level properties.

However, as a final note, there is nothing for free in this world, so please recognize the value in this service when comparing offers from different companies. While a concept design prepared before construction is a very good guide, the reality of what actually happens during construction can be a little different as the design is interpreted during construction. What looks OK on a screen may need modification to allow for the actual site conditions and this is where accurate mapping can be very important. Take my example at the start. No maps provided when the farm was purchased showed a mainline on that side of the fence!

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