

# GPS Mapping Always Keeps Washington County RWD No. 1 Infrastructure Up-To-Date

**W**ashington County RWD No. 1 is located in northeast Kansas, covering roughly 25 percent of the land in Washington and Marshall counties. Similar to many other RWDs in Kansas, the district was constructed in the mid-1970s, to serve 493 meters; the water source was from four wells. The district provides and maintains water for the three unincorporated communities of Bremen, Hollenberg, and Herkimer, and also wholesales water to the incorporated communities of Hanover and Morrowville. Today the district serves 760 customers. Approximately 25 percent of the original solvent weld pipe has been replaced. Four new well fields have been installed giving the district 16 wells. Four elevated storage tanks today provide adequate pressure and backup supply compared to the three standpipes that were part of the original construction.

Manager Darrell Schlabach, and long-time KRWA director, took over operation duties for the district in 1989. In working for Hanover Electric prior to becoming a full-time employee, Darrell was fairly familiar with the district's infrastructure, as Hanover Electric was the contractor for all new line installs, leak repairs, etc. But as any new operator can attest, there is a lot more out there in the system that you don't know about than you believe you know. This was especially the case for Darrell as Washington RWD 1 had grown tremendously in a relatively short period of time, even doubling in size in 1982. With each expansion project came a new set of as-built plans for that respective project, leaving him with about six totally different sets of maps to have to refer to in order to figure out the location of facilities. Those maps were not very helpful with



**Darrell Schlabach, Manager at Washington RWD No. 1, Office Manager Pam Goeckel and Operator Jeff Schlabach, appreciate having the large wall map that previously was displayed on six different sets of as-builts. The map measures 125 inches by 84 inches. The board of directors also appreciates having the visual available to discuss the locations of projects.**

showing how or where these expansions tied onto the existing system according to Darrell. Whenever unknown areas such as this revealed themselves with a leak or other problem, it was recognized that there had to be a better way to archive the data than penciling in notes on one of the sets of maps. It was also determined that having one set of accurate maps containing the entire district would be of great value. When KRWA added GPS mapping to its list of services in 2002, Darrell believed that this would be a great avenue for the district in meeting their goal of not only having a complete set of maps, but digitally archiving years of locational notes or by taking GPS points on measurements.

## Data collection of more than 17 years . . .

KRWA began collecting data for Washington RWD 1 in 2003, with Darrell and his son Jeff, who began working full time for the district in 1999. Darrell and Jeff typically drive KRWA Mapping staff throughout the district while collecting data. That makes for an efficient use of time as KRWA mapping services are billed on an hourly rate. Every meter, valve, flush valve, all line locations such as road crossings and visible trench scars in pastures have been collected. Water lines with tracer wire were also collected. At the completion of the data collection phase, the water lines were digitized with reference to old system maps and the GPS data that was



**The graphic shows the district's water lines KRWA collected in April 2020. The pipeline is installed behind an old service station. A leak on the original 2 ½-inch line caused the district to replace the line in this area due to the terrain and knowing that more leaks would surely occur. Washington RWD 1 has been plagued with many leaks on solvent weld pipe since it was installed in the mid-1970s**

collected. After draft maps were reviewed, KRWA staff conducted the final correction phase with Darrell and Jeff at Washington RWD 1's office in Hanover. 'Final corrections' entail going through the draft maps and making all of the needed corrections on

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a laptop, and collecting any additional data that may have been missed, or where recent extensions, etc. were made since the last data collection. A large 125-inch by 84-inch wall map and map book was then printed in 2004 for the district. The mapbook needed to be split into two books, a north half and a south half, due to the significant geographic area the district covers.

Though the original mapping project for Washington RWD 1 was completed in 2004, KRWA has continued to provide mapping services for the district at least every other year since. Depending on how much expansion or line replacement has occurred, the district requests KRWA to come over and collect new data when they think it is enough to take a full day. Just last month I collected two years' worth of newly installed infrastructure for them. It should have taken a full day, but an emergency occurred with a well meter saddle breaking apart causing a leak that looked similar to Old Faithful. That emergency repair resulted in the data collection going into two half-days of work. Darrell requested a replacement for the extra-large wall map, which the district references frequently for documenting the locations of leaks. Whenever the district repairs a pipeline, a bright pink sticker with the date it was repaired is placed on the location on the wall map. This is a very beneficial practice, in that it is quite easy for the board of directors to see what is going on with the system each month, especially since the map is on the wall adjacent to the directors' meeting table.

I also updated the district's digital files in Google Earth, which Operator Jeff is using more and more. KRWA did not provide updated mapbook pages because Darrell and Jeff and Office Manager Pam Goeckel rely on the use of Google Earth. If they ever choose to print any pages that have updates, the updated data is always there and those new pages can be printed at any time.

KRWA has worked on more than 360 projects for RWDs and cities in Kansas that have prioritized accurate and up-to-date mapping with GPS and GIS. Just making the move to having data collected and having a GIS is a step in the right direction, but no one can maximize the benefits without keeping the data up-to-date. If a RWD or city replaces half of their water lines, and the data in their GIS doesn't reflect these changes, why even have a GIS to begin with? What good would the GIS be to a newly-hired operator going out to do locates if the system's maps still show the old water line location on the other side of the road?

Though the GIS that KRWA offers is quite modest with Google Earth, it is free and should the RWD or city choose to take it to the next step to an editable software, their data will always be available to them to do so. If your water, wastewater, gas, electric or other utility is interested in having facilities digitally mapped and readily available, then I hope that you will consider KRWA's experience in successfully completing hundreds of projects across the state. Give me a call at 785.336.3760 or email to me at mark@krwa.net with any questions, etc. concerning a potential GPS mapping project.

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