

Staff Report

TO: Board of Directors

FROM: Chip Close, Director of Water Operations

DATE: October 11, 2023

SUBJECT: Smartsville Irrigation System End of Life Expectancy

WATER OPERATIONS

RECOMMENDATION:

Receive information regarding end of life for the Smartsville Irrigation System and make a recommendation to staff to replace or abandon.

BACKGROUND:

In 1925, the District purchased the Excelsior Water and Power Company, including all delivery systems and water rights. The agreement (authorized by the Railroad Commission) came with an obligation to provide water service to the customers that existed at the time of purchase. This obligation continues in perpetuity and is why the District continues to provide water service outside boundaries to portions of Yuba County.

The area that makes up the town of Smartsville is included in this agreement and has been provided with NID raw water since the 1925 execution of the agreement. In 1971, the District constructed a water treatment facility to supply the large number of in-home uses within the town. The addition allowed for potable water use in the homes, while also providing raw water for irrigation needs.

In 1996, the District was forced to upgrade the water treatment plant to meet regulatory standards. In addition to improved treatment processes, the plant's capacity was increased to facilitate a transfer of all residential customers to treated water service only. This was to eliminate the redundant raw water service. (Attachment A "Long Range Plan for Smartsville").

The plant upgrade was completed in 2002, and regulatory and capacity needs for the future of the town were in place except for fire flow. Limitations in the treated

water distribution piping did not allow for adequate fire flow, so the District continued to maintain the raw water system to supply a number of raw water fire hydrants. In 2009, the District completed its expansion of the treated water distribution system and installed a fire flow pump to address treated water flow limitations. The raw water hydrants were eliminated.

While the treated water system is now complete, the District has elected to continue providing raw and treated water systems until the raw water system fails.

In 2022, the raw water main experienced a leak that was difficult for the crews to repair. Once exposed, the pipe was found to be paper thin and lacked enough material for repairs (Attachment B). In order to make it through the irrigation season, a section of pipe had to be replaced (Attachment C). This year the raw water pipeline experienced two additional leaks, with each becoming more challenging to repair due to the degradation of the pipe. The increased frequency of leaks is a clear indication the pipeline is in failure mode and will need to be replaced or abandoned.

Before making a recommendation, staff reviewed the individual raw water use and compared that to the cost of switching to treated water use. The findings showed that 18 of the 20 customers were using such a small amount of raw water that the cost of switching to treated water would be a wash. The lack of raw water use is evident when comparing raw meter reads and the lack of greenery observed in aerial imagery during summer (Attachment C). Switching to treated water may present a financial issue for two of the larger parcels that use more water. However, the majority of the customers on the raw water pipeline would not see a substantial change in fees if switched to treated water. Therefore, staff recommends abandonment for the 2024 irrigation season.

Quick Facts

- The raw water distribution system serves 20 parcels
- The raw water pipeline is roughly 2,700 ft in length
- Parcels range in size from 0.12 acres to 18 acres with a majority being less than .50 acres (see Attachment D)
- The raw water pipeline traverses through private property and under the existing roadway
- All parcels have treated water accounts, or have access to treated water connections
- Cumulative raw water usage for the 18 metered parcels was:
 - 3.0 acre-feet in 2021 (equivalent to 1/3rd of a miner's inch)
 - 2.0 acre-feet in 2022 (equivalent to 1/4 of a miner's inch)
- Parcels are outside the District therefore delinquent bills cannot go to the tax roll for collection

BUDGETARY IMPACT:

The financial/budgetary facts are summarized as follows:

- The revenue collected from the Smartsville raw water system over the last three years is as follows:
 - \$6,416 to date in 2023
 - \$4,555 In 2022
 - \$3,442 In 2021

- The rough cost estimate for the replacement of the raw water system is \$850,000

Based on the facts above, the time required for revenue to cover replacement costs (based on 2023 revenue) would be 131 years.

It is estimated that switching all residential customers to treated water would not increase the cost of water use. The two large parcels that utilize more water will experience an increase, however, the actual increase is unknown as these raw water services are not metered.

Attachments: 5

- Attachment A - Memo - Long-range Plan for Smartsville
- Attachment B & C - Irrigation Pipeline Degradation and Repair Photos
- Attachment D – Aerial Imagery
- Attachment E - Smartsville Raw Water System Parcel Map

Attachment A

MEMORANDUM

To: Project Review Committee
Jim Chatigny, Ben Barretta, Tim McCall, Robin Lantz,
Terry Mayfield, Tess Andrews

From: Terry Mayfield

Re: **This is our long-range plan for the Smartsville Water System based on your comments**

Date: May 29, 1998

I would like to summarize the District's long term plan for the Smartsville's water systems. This plan was developed from discussions with staff, discussion at the Project Review Committee and discussion at the Administrative Practices Committee.

The long term goal is to supply Smartsville from the treated water system. This will be accomplished by a step or phased approach.

- Step 1 - Will eliminate the raw water meters by connecting the raw water plumbing to the treated water services on each parcel (20 customers). This will allow the District to eliminate reading of raw water meters, eliminate a rate schedule and reduce the number of backflow prevention devices in the system. This step cannot be completed until the 2" treated water line is replaced on O'Brien Street. When this line is replaced it should be engineered and upsized for future loop and fire flow considerations. The District would continue to maintain the raw water system that serves two raw water orificed customers (Gann 1½ M.I., Litchfield ½ M.I.) and provide water to the three fire hydrants in Smartsville.
- Step 2 - When the raw water piping has spent its useful life, a decision will have to be made with respect to the two raw water customers unless they terminate service before that time. In either event, in order to abandon the raw water pipe, it will be necessary to address the fire flow issue. A decision will have to be made with respect to matching the existing fire flow or improving the fire flow. Once that decision is made it will require a study by Engineering to determine our course of action. It should be noted that the plumbing for a booster pump to accommodate fire flow was included in the treatment plant upgrade.


Terry

Attachment B



Attachment C



10/2023
1985 2023

Attachment D



20

Image © 2023 Airbus

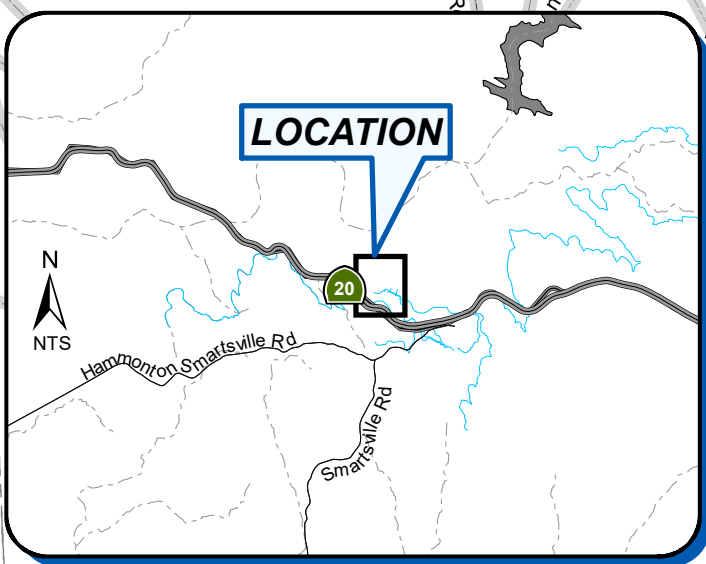
Google Earth

Imagery Date: 6/8/2023 39°12'29.21" N 121°18'17.44" W elev 570 ft eye alt 3266 ft

1985

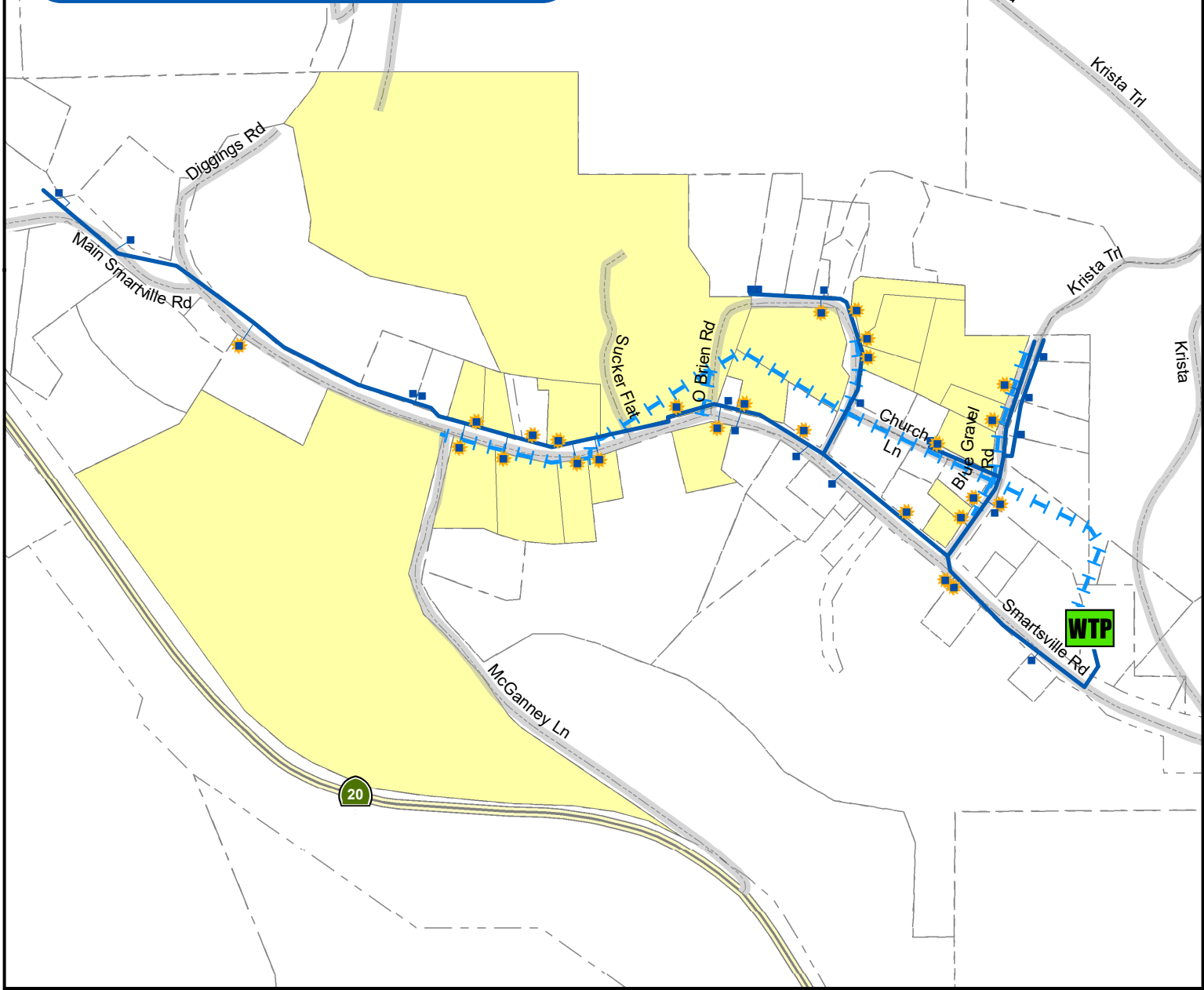
7

Attachment E



Legend

- Parcels with Raw Water
- |—|—| Smartsville Irrigation Pipeline
- T/W Meter
- ☀ T/W Meter w/Check
- Treated Water Pipe



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SMARTSVILLE WATER SYSTEM AND PARCELS SERVED RAW WATER



Date: 9/26/2023
 Drawn By: L. HAMMER

NEVADA IRRIGATION DISTRICT
 NEVADA COUNTY -- PLACER COUNTY
 GRASS VALLEY, CALIFORNIA

Scale: 1" = 400' @ 8.5x11
 Sheet: 1 of 1