TECHNICAL MEMORANDUM

TO:	The City of McCall, Idaho
FROM:	Roland Rocha, P.E. Luise Winslow E.I.
DATE:	August 25, 2023
SUBJECT:	McCall 6 Subdivision
JOB NO.:	733-23-02.2023.08.14

Bowen, Collins, and Associates has reviewed the proposed McCall 6 Subdivision projected water demands. We offer the following observations and comments for your consideration:

Anticipated Number of ERUs:

Based on the layout provided by David Evans and Associates, this development will have 6 single family homes. The ERUs are anticipated to have the following demands:

Average Day Demand (ADD): **1** gpm
Maximum Day Demand (MDD): **3** gpm
Peak Hour Demand (PHD): **5** gpm

This is based on the assumption that each single-family home represents one ERU and the ERU values are 0.17 gpm, 0.44 gpm, and 0.81 gpm for average day, maximum day, and peak hour demands respectively.

The following figures illustrate the project vicinity and the proposed site plan reviewed.

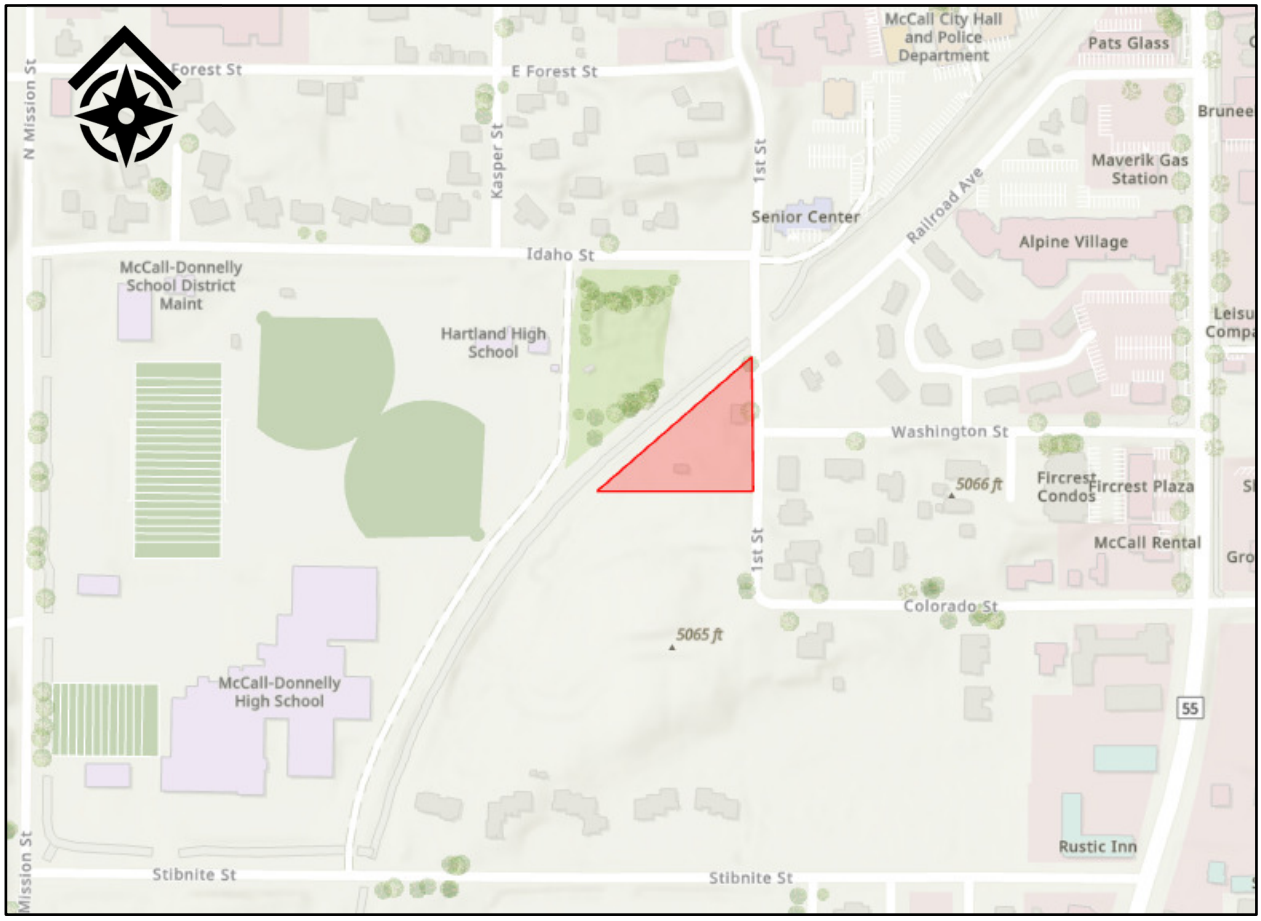

Figure 1. Project Vicinity

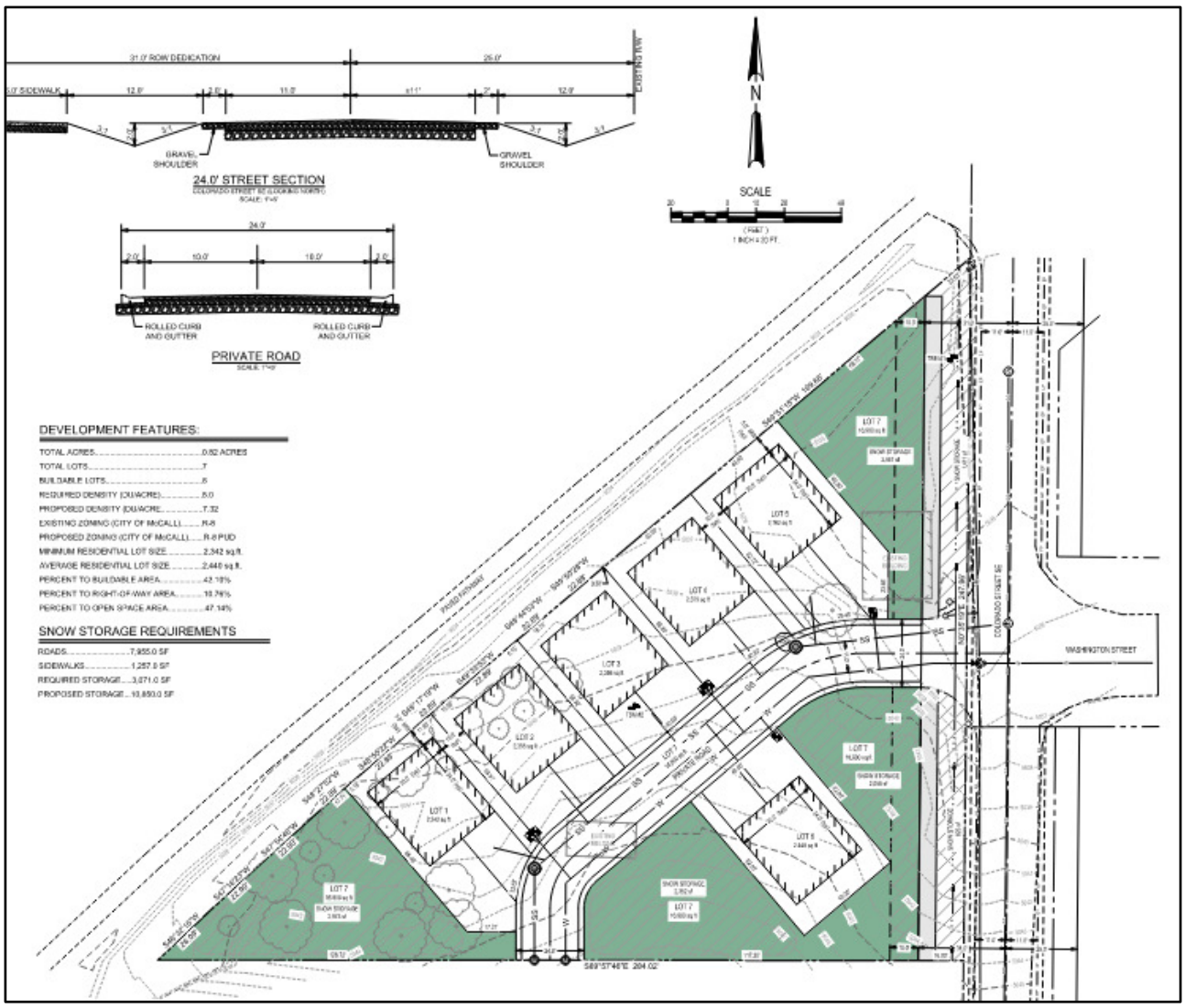

Figure 2. Proposed Site Plan Reviewed.

Demand Increase and Declining Balance:

Accounting for recently proposed developments at the Airport, MDSD staff housing, Pinedale Development, Ponderosa State Park, and the Simmons Street Townhomes, the City's current MDD is 2,418 gpm. This development will bring the new MDD to **2,421** gpm.

The City's current PHD is 4,583 gpm. This development will bring the new PHD to **4,587** gpm.

Based on the current estimate of McCall's firm supply of 3,516 gpm, the water system has the capacity to support this development with 1,095 gpm of firm supply remaining. This is sufficient to support an estimated 2,490 future ERUs.

Model Results for Anticipated Water Pressures:

The development was added to the City's existing water model and evaluated for system pressures. The proposed layout is a single 8-inch water main running through the development connected with a connection to the distribution to the north and a dead end to the south. The McCall 6 subdivision was evaluated independently from the proposed Wood Moor Crest Subdivision.

The additional demand from this development is not likely to create a noticeable difference in water pressure for the existing residents in the area. The maximum day demand water pressures in the development will range from **57-63 psi** assuming a 5 psi buffer. Peak hour demand pressures will be approximately **54-60 psi** assuming a 5 psi buffer. This is above the state required 40 psi for peak hour demands.

To reduce pipe deterioration and head loss it is generally recommended that pipe velocities do not exceed 7 fps, in this case pipe velocities during both the maximum day demand and peak hour demand will be less than 7 fps.

Model Results for Available Fire Flow:

Under the proposed pipeline layout and conditions, the safe available fire flow to the development is **875 gpm**. The model assumes fire flow is delivered under a maximum day demand scenario.

The proposed Wood Moor Crest Subdivision is located immediately south of McCall 6 and includes an 8-inch water main running though the development. If developers connected the dead end in McCall 6 to the Wood Moor Crest pipeline, they could increase available fire flow in both subdivisions.

Summary of Recommendations:

Figure 3 illustrates the recommendations. Loop the proposed dead end to improve water quality and water pressures and increase available fire flow to 1,500 gpm. This can be accomplished a few different ways:

1. Extending the dead end to connect with 1st Street and increase the existing 6" pipe along 1st Street to at least an 8" pipe. A 12" inch pipe is better for the overall system. This larger pipe should extend across the development frontage along 1st Street to Park Street.
2. Connecting the dead end to 8" water main near McCall Donnelly Highschool. This could be done in conjunction with the proposed Wood Moor Crest Subdivision

Thank you,

Roland Rocha, PE

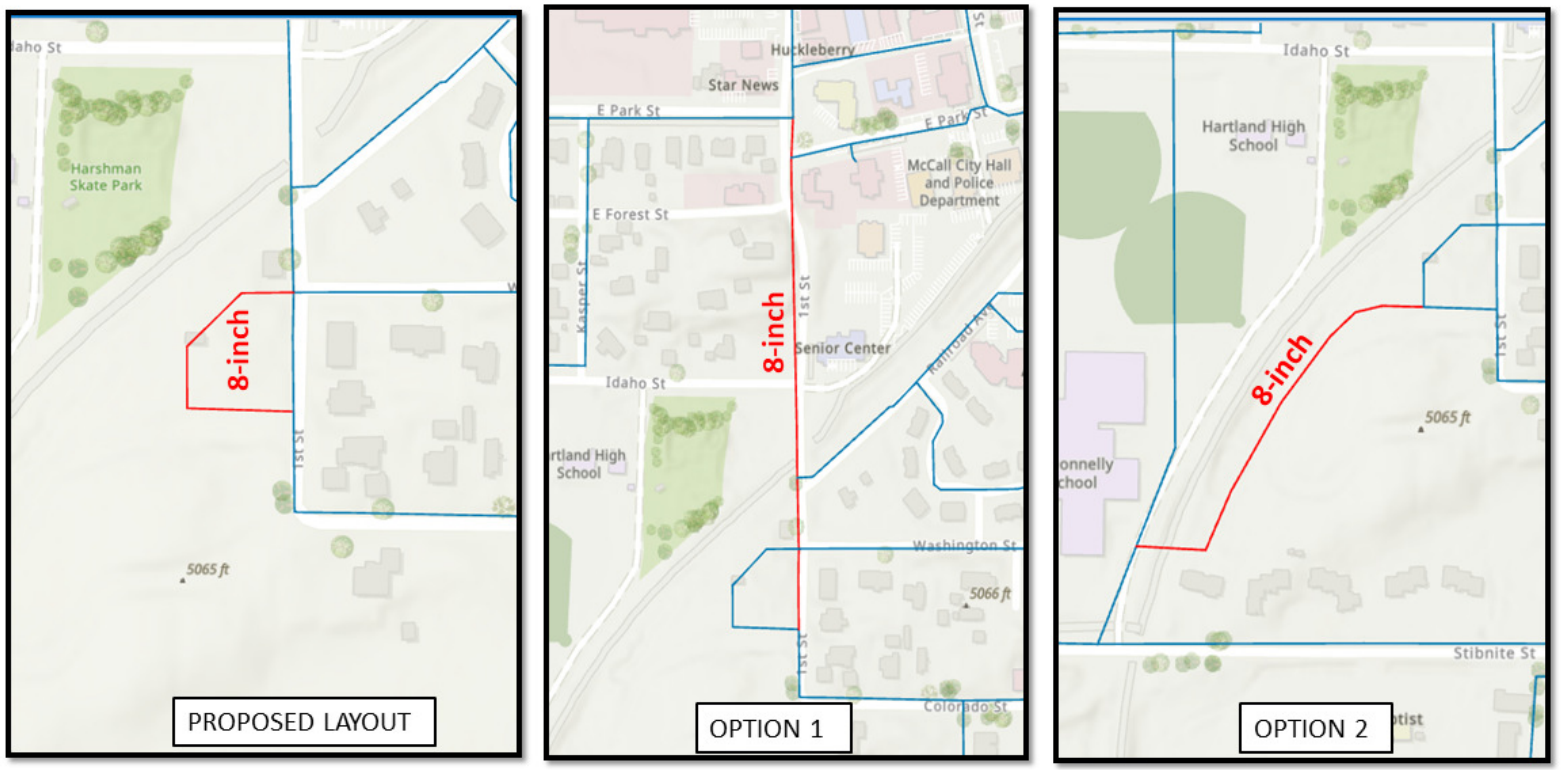

Figure 3. Model Results and Recommendations.