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MEMORANDUM VIA ELECTRONIC MAIL

TO: Ms. Dawn Collins, Town Administrator
Town Board of Trustees
Town of Palmer Lake

DATE: April 10, 2023

FROM: Mark A. Morton, P.E.
GMS, Inc., Consulting Engineers

RE: Town of Palmer Lake
Preliminary Engineering Report (PER) – Supplemental Comments

GMS, Inc. is providing supplemental comments to the Water System Improvements PER delivered to the Town last year. Initial comments addressing the major discussion points of the PER were issued by GMS to the Town in a memorandum dated August 16, 2022. The supplemental comments in this memorandum are being provided to reemphasize the major points of the PER, as well as address additional information that has been discussed in workshops held with the Town Board and staff in recent months. In order to assist the Town in selecting the direction forward with the Water System Improvements project, we are providing the following thoughts:

As stated in the previous memorandum, the Town Board of Trustees ultimately has the responsibility of selecting the total scope of work for the Water System Improvements project which meets the Town's short-term and long-term water system needs. As such, it is recommended that the total scope of the Water System Improvements project be selected to address the needs of the Town for the 20-year planning period. As with the previous memorandum, we have broken down our comments into the major Water System categories for the Town's consideration.

A. WATER SUPPLY AND TREATMENT

1. A new Arapahoe well is a top priority for establishing the Town's firm water supply capacity.
 - a. The installation of a new well will address the Town's short-term needs of redundancy and reliability, as well as long-term needs if growth is experienced.
 - b. The Town currently has a large portfolio of ground water rights, the new well will be covered by the existing water rights and will not require any additional water rights to be acquired.
 - c. A new Arapahoe well would supply the existing groundwater water treatment plant (GW-WTP)

2. The existing GW-WTP may require upgrades depending on the radium levels of the new and existing wells.
 - a. The GW-WTP currently provides iron and manganese removal only, which does not classify it as a required compliance facility.
 - b. Radium levels in the existing wells A-2 and D-2R are currently less than the 5 Picocuries per liter (pCi/L), with 5 pCi/L being the compliance level.
 - c. Radium levels in wells drilled into the Arapahoe and Denver aquifers have shown historically rising levels, and are expected to increase in the future.
 - d. If the radium level of the existing wells, or a new well, raise above the 5 pCi/L compliance level, this will trigger the GW-WTP into being classified as a required compliance facility, which requires a redundant treatment train be installed to maintain capacity.
 - e. If radium levels rise above 5 pCi/L in the wells within the 20-year planning period, the GW-WTP will be equipped for the new classification of a required compliance facility.
 - f. If radium levels do not reach the 5 pCi/L in the wells in the 20-year planning period, the GW-WTP will have additional capacity for other uses.

B. DISTRIBUTION SYSTEM

1. Replacement of the remaining lead joint piping within the Town's distribution system has been a top priority, and should continue to be a top priority in the Water System Improvements project.
2. Distribution system piping segments which are older, or known to be problematic, should be prioritized in the project in order to proactively mitigate future system repairs within the 20-year planning period.
3. For the dead-end line segments in the distribution system, constructing looped waterline connections would provide greater water circulation and redundant feed options should a waterline break occur.
4. Due to cost constraints, the smaller looping recommendations (County Line Road and East-West Loop) may provide the best cost benefit ratio of the looping recommendations.
5. The larger Red Rock Ranch looping recommendation may provide long term opportunities for service and cost recovery due to the potential developable area near its alignment.

C. STORAGE CAPACITY

1. The Town currently has adequate storage capacity in the existing storage tanks, additional tank construction is not required at this time.

D. FUTURE LINE EXTENSIONS

1. In addition to the looping recommendations in the PER, future line extensions were proposed to serve potential future developmental areas, as well as certain areas where private wells are prevalent.
2. If future line extensions are considered, the Town can assess an additional connection fee to be collected when developable lands connect to these water line extensions in order to recover the cost for the Town's initial installation.
3. Alternatively, the Town can elect to have the future developable areas build the infrastructure at their cost and at their time of development.

We trust the items above provide additional beneficial information to the Town for its consideration in selecting the direction for the Water System Improvements project. If there are questions or clarifications required, please feel free to contact us at your convenience.