State of Utah

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Department of
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DIVISION OF DRINKING WATER
Kenneth H. Bousfield, P.E.
Director

July 17, 2013

Ryan Cathey, P.E.
NV5, Inc.
5217 South State Street, Suite 300
Murray, UT 84107

Dear Mr. Cathey:

Subject: **Review Comments**, Summit at Powder Mountain PRUD, Phase 1 Distribution System (DS001), System #29028, File #9318

This is not plan approval.

On March 18, 2013, the Division received the preliminary engineer design plans and draft Hydraulic Model Report for the distribution system waterlines (DS001) for Phase 1 of the Summit at Powder Mountain PRUD from you. The Division provided some review comments on the preliminary design in a meeting on May 9, 2013. The Summit Group's Master Plan shows the development of 2500 estate homes, condos, town houses, and cabins. The Phase 1 of the Summit at Powder Mountain PRUD has plans for 154 lots.

Our understanding of the project for the distribution system is the installation of a 16-inch water main in the roadway which will become a county road to deliver water to four areas in Phase 1, and the waterlines to supply connections in each of the four areas. Separate projects deal with development of water sources from drilling one or more wells and the construction of a storage tank.

We have reviewed the preliminary plans and specifications for distribution system for Phase 1 for conformance with the applicable portions of Utah's Administrative Rules for Public Drinking Water Systems in R309, and determined that the following items need to be address in order to complete the plan review:

1. The Division will offer comments on preliminary designs and plans, but the Division grants plan approval for construction of new drinking water infrastructure only on review of final construction drawings and specifications. Please submit a complete set of final construction drawings and specifications in order for the Division to do its formal plan review and issue a plan approval letter once the plans and specifications are verified to comply with the Drinking Water rules. See R309-500-6 of the Utah Drinking Water

Rules.

2. R309-550-5(1) requires the distribution system to be designed to maintain minimum pressures as required in R309-105-9 at all points of connection. According to hydraulic model, there is one area referred to as "the Ridge" where the minimum system pressure during peak day demand would be slightly less than the required 40 psi if the storage tank was near empty. The fire authority is requiring the system to maintain 250,000 gallons of fire water storage, so the slightly less pressure should not normally be a problem. R309-105-6(2)(e) allows the Director to grant an exception to the rules if for some reason a rule requirement cannot be met, and an alternative is proposed which is equally protective of human health. In this case, it is not possible to locate the storage tank at a higher elevation to gain additional system pressure. Please submit a letter to the Director asking for an exception to the pressure requirements for the specific lots at the Ridge.

3. R309-550-5(5) requires the location of fire hydrants to be consistent with the International Fire Code which the State of Utah has adopted. The Division defers to the local fire authority to determine if the fire hydrant locations are acceptable. The drawings do not clearly identify the locations of the fire hydrants. Please provide drawings showing the fire hydrant locations. It would be helpful if you could also provide a letter from the Weber County Fire Marshall indicating he has reviewed and agrees with the location of fire hydrants.

4. R309-550-6(1) requires that all materials which may contact drinking water to be certified as meeting the requirements of NSF Standard 61. The specifications or plans need a statement addressing this requirement. Specifically, the specifications need to clearly identify the pipe materials for the project and to require all pipes to be appropriately stamped with the NSF logo to permit field verification.

5. R309-550-6(6) requires water mains at high points, where air can accumulate, to provide provisions to remove air by means of air relief valves or hydrants. From the profile drawings of the roads and water lines, it appears that there are high points in the water lines where are air relief valves are needed. See drawings 2.07 and 2.09. Please add the appropriate air relief valves in the profile drawings.

6. R309-550-7(1) requires minimum separation of water mains and sewer lines of at least ten feet horizontal distance and water mains must be at least 18 inches above sewer lines. There is a general statement in drawing 1.1, utility note #18. However, the 66' Right of Water Section in drawing 2.09 shows the water main and pressure sewer line being buried at the 6' minimum burial depth. The water main tees off to supply water for Road A and must cross the pressure sewer line. This appears to be a conflict in maintaining the 18 inch vertical separation where the water main and pressure sewer line cross. Similar situations are shown in drawings 2.10, 2.11, 2.13, 2.14. 2.15, and 2.16 of the preliminary civil plans. Please address the water/sewer crossings in all drawings and show how the 18 inch vertical separation requirement will be complied with.

7. R309-550-8(2) and (3) have requirements for bedding and backfill materials. The specifications do not clearly identify bedding and backfill materials. The rules require that backfill material for plastic pipe have a maximum particle size of ¾ inch to surround the pipe. Please specify the material that will be used for bedding and backfilling the pipe.

8. R309-550-8(4) requires that under no circumstance shall the pipe or accessories be dropped into the trench. Please add this requirement to your plans.

9. R309-550-8(8) requires that installed pipe shall be pressure tested and leakage tested in accordance with AWWA Standard C600. Please add this requirement to your plans.

10. R309-550-8(9) requires that the open ends of all pipelines under construction be covered and effectively sealed at the end of each day's work. Please add this requirement to your plans.

11. R309-550-8(10) requires that new water mains and appurtenances should be disinfected in accordance with AWWA Standard C651and the water in the mains to have bacteriological tests to confirm the water to be free from contamination. Please add this requirement to your plans.

12. The Roadway and Utility Construction Drawings that were submitted via email have not been revised and updated to reflect the relocation of the storage tank to Hidden Lake. When you submit the complete set of final construction drawings and specifications to the Division, please include the revisions for the new tank location.

13. There are at least two PRV vaults shown on the drawings with details shown on Drawing 5.01. The details show a sloped floor to a drain, but do not show where the drain line goes to. It is strongly recommended that the drain line be a "drain to day light" with a #4 mesh screen on the discharge to prevent rodents entering.

14. R309-511 requires that a hydraulic model be prepared and a hydraulic model report be submitted to the Division when there is an expansion of an existing water system. The draft Hydraulic Model Report that was submitted on March 18, 2013, covered the existing system, the proposed system for Phase 1 of the PRUD, and future phases outlined in the Master Plan. Since the existing system and the proposed system for Phase 1 will not be hydraulically connected at this time, the Division recommends that the Hydraulic Model Report be limited to only Phase 1 of the PRUD. The Hydraulic Model Report can be amended and expanded in the future to cover the interconnection to the existing system when the time comes and future phases outlined in the Master Plan. Please include several model runs of worst case scenarios, including peak day demand and fire flows, to demonstrate that adequate pressures and flows are maintained.

15. It is noted that waterline plans for six lots (1, 2, 3, 4, 9, and 10) were not included in the plans that were submitted. It appears that these lots would be served with a branch waterline in the common driveway serving these lots. It is also noted that waterline plans to serve 15 nest cabins on lot 36 at the Ridge and to serve 20 nest cabins on lot 103 at the Village were not included in the submittals to date.

If you have any questions regarding this letter, you can contact me either by phone at (801) 536-0054 or e-mail bhart@utah.gov.

Sincerely,

Bob Hart

Bob Hart, P.E.
Environmental Engineer III

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