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December 4, 2019
Mayor Judith R. Nissula
City of Cascade
PO Box 649
105 S Main St
Cascade, Id 83611

RE: Response to Schiess & Associates November 21, 2019 Opinion of Impact Letter

Dear Mayor Nissula:

I agree with Paul Scoresby's, PE, findings expressed in Schiess & Associates Opinion of Impact of Cascade River Ranch Development letter dated November 21, 2019 (attached) and offer the following clarification and considerations:

In their current conditions, the City's drinking water and sewer systems do not have enough capacity to provide the number of services identified by the Development, but their capacities can be increased adequately with proper planning and use of service availability fees (SAFs). If the City approves the Development, planning, design, and construction of drinking water and sewer facility improvements must be coordinated with the recording of each phase of the development.

Drinking Water.

In his November 21, 2019, letter to the Mayor, Paul Scoresby, PE, identified an immediate need for a Facility Planning Study (FPS) and new supply well.

1. An FPS will identify the most cost effective, environmentally sound method of upgrading the drinking water system to achieve and maintain compliance with state and federal standards. It would include a water model and additional information to quantify storage requirements and fire flows. It may also identify other long-term needs.

   The City is eligible for DEQ funding to prepare an FPS, and should submit a Letter of Interest in January 2020. If the City is awarded DEQ funding to prepare the FPS in 2020, identified improvements may be constructed by 2021.

   With an FPS prepared to DEQ standards, the City may be eligible for a low interest loan from DEQ to construct needed facility upgrades.

2. A new supply well is required to meet the current users' demand. The Development increases the current supply deficiency, but implementation of irrigation restrictions can mitigate the supply deficiency while an FPS is completed and a new supply well is developed.

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The City should expect 3 years or more to construct a new supply well If the City intends to use DEQ grants and low interest loans. This allows for DEQ funding of an FPS, completion of the FPS, and allocation of a low interest construction loan, design, and construction of the new well.

3. When the drinking water system (Supply wells, storage, & distribution) was constructed, it was constructed to serve current and future customers. The portion of the system required for future customers is called reserve capacity. SAFs are collected from new users to pay for reserve capacity. It is important to note that the Water SAFs for the development include more costs than the portion of the new supply well needed to serve the development.

   The Development Agreement should clearly state when and how many SAFs will be collected. It is imperative that the City collect full SAFs for all approved connections so that those funds can be used to plan, design, and construct reserve capacity to replace the recently allocated capacity. We recommend collection of SAFs upon approval of each phase of the development. All SAFs for a given phase should be collected before recording that phase.

4. To meet fire code requirements, the water system must provide minimum fire flows. While it is reasonable to assume that the 12-inch water main will provide adequate fire flow to the Development, this should be verified with a water model prior to approval of the development.

5. Because the City intends to assume ownership of and responsibility for the drinking water distribution system within and connected to the development, the system shall be designed and constructed to City and DEQ standards. The City shall be given an opportunity to review and approve plans and specifications and observe construction prior to accepting drinking water facilities.

Wastewater

In his November 21, 2019, letter to the Mayor, Paul Scoresby, PE, stated that the sewer treatment plant can serve the Development with modest improvements and adequate collection facilities.

1. The sewer treatment plant's capacity can be expanded to adequately serve the Development by adding aeration. Aeration can be added in a relatively short time frame (3-6 months) if necessary because it has already been identified in previous planning documents, requires little design, and requires little time to install.

   A sewer Facility Planning Study is needed identify when to implement the most cost effective, environmentally sound upgrades to the sewer treatment plant (including, but not limited to, aeration) to maintain compliance with state and federal standards.

2. Because the City intends to assume ownership of and responsibility for the wastewater collection system within and connected to the development, the system shall be designed and constructed to City and DEQ standards. The City shall be given an opportunity to review and

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approve plans and specifications and observe construction prior to accepting wastewater facilities.

The existing wastewater collection line between the development and sewer treatment plant should be modeled to determine if it can serve the existing users and Development at full build out prior to approval of the Development. The City may require the developer to replace this line if required to properly serve the Development.

3. As with the drinking water system, wastewater SAFs are collected from new users to pay for reserve capacity. It is important to note that the Wastewater SAFs for the development include more costs than the aeration needed to serve the development.

   The Development Agreement should clearly state when and how many SAFs will be collected. It is imperative that the City collect full SAFs for all approved connections so that those funds can be used to plan, design, and construct reserve capacity to replace the recently allocated capacity. We recommend collection of SAFs upon approval of each phase of the development. All SAFs for a given phase should be collected before recording that phase.

Conclusion

As the owner of the Drinking Water and Wastewater Systems, The City of Cascade is responsible for maintaining, operating, and upgrading those systems to serve current and future users in compliance with state and federal standards. If the City approves the Development, it will be obligated to serve current users and all users within the proposed development.

T-O Engineers and Schiess & Associates have identified specific system upgrades that can be implemented to serve current users and the Development, but Planning (Facility Planning Studies) and design remain to be completed before the most cost effective and, environmentally sound upgrades can be implemented. Planning is also required to ensure that required upgrades are completed before additional users exceed the systems' capacity.

Wastewater and Water SAFs have been established for new users to pay for reserve capacity required to serve them. Upon approval of the Development, the City assigns reserve capacity to the new users within the development. SAFs should be collected when the development is approved so that SAFs can be used to plan for, design, and replace reserve capacity.

After reviewing T-O Engineers Cascade Water and Sewer System Impact Studies (November 15, 2019 memos) and Schiess & Associates Opinion of Impact dated November 21, 2019, we recommend the following course of action:

1. City submit Letters of Intent (LOIs) to DEQ in January 2020 for funding to complete Water and Wastewater Facility Planning Studies
2. City implement irrigation restrictions by spring of 2020
3. City begin Water FPS July 1, 2020 (dependent on DEQ funding) with the intent to develop new supply well

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4. City begin Wastewater FPS to meet IPDES compliance schedule and serve Development connections (if the Development is approved)
5. If the Development is approved, require City acceptance of all water and wastewater facilities within each phase prior to recording each phase
6. Require that a water model indicate that the City's 12-inch water line serving the Development can provide required fire flows prior to approval. Specify who is responsible for completing the water model in the Development Agreement
7. Require that the existing wastewater collection line between the development and sewer treatment plant be evaluated to determine if it can serve the existing users and Development at full build out prior to approval. Specify who is responsible for completing the evaluation in the Development Agreement
8. If the Development is approved, collect Water and Wastewater SAFs upon approval

If you have any questions, please contact me at 208-559-2663

Sincerely,

HORROCKS ENGINEERS
Trevor Howard, PE
City Engineer

Cc: Schiess & Associates

Attachments: Schiess & Associates Opinion of Impact of Cascade River Ranch Development letter dated November 21, 2019

Schiess & Associates
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November 21, 2019

Mayor Judith R. Nissula
City of Cascade
P.O. Box 649
105 S. Main St.
Cascade, Idaho 83611

Re: Opinion of Impact of Cascade River Ranch Development and associated Review of T-O Engineers Cascade Water and Sewer System Impact Studies (memos)

Dear Mayor Nissula:

We have reviewed T-O Engineers' City of Cascade, ID Lagoon System Upgrade memo dated November 15, 2019 (attached) and City of Cascade Water Supply and Storage Assessment memo dated November 15, 2019 (attached) and have the following comments.

These comments augment the preliminary review comments made by Schiess & Associates, regarding the addition of the Cascade River Ranch Development (Development), by letter to the City dated June 11, 2019.

Wastewater

The City's wastewater treatment plant can accommodate the Development, as described in T-O Engineers' November 15, 2019 memo, by coordinating system upgrades with phasing of the Development. The City's sewer availability fees assessed to each new user will be adequate to pay for their share of treatment improvements at the treatment plant.

Our earlier opinion of the impacts to the City sewer collection and treatment system remains basically unchanged. We agree with the findings of the T-O Engineers' memo regarding treatment. Modest incremental improvements to the treatment plant, funded by existing user fees and sewer availability fees, should enable the City to expand capacity (add mechanical aeration) to continue to serve the City and the entire Development.

The Development will require a lift station and pressure sewer line connected to an existing pressure sewer line and gravity line in the existing collection system. We suspect that the portion of the existing collection system that will service this Development may be at or near capacity at full buildout. The impact on the existing collection system from the point of connection to the final lift station should be modeled to verify this preliminary assessment. The City may require the Development to upgrade gravity sewer lines outside of the Development to provide adequate capacity if proven to be necessary. The new lift station, pressure sewer line, and gravity sewer line within the Development should be designed and constructed to meet the City's requirements and DEQ wastewater rules. The City should require review of the construction documents and provide inspection during construction of these facilities.

Although T-O Engineers' November 15, 2019, memo identifies potential treatment system upgrades, a Sewer Facility Planning Study will be required to determine which upgrades should be implemented, and when to implement them. The City should apply for grant funding in early January 2020 to complete a Sewer Facility Planning Study. A current study will help the City comply with the soon to be issued IPDES permit and will be critical if the City approves the Development.

Drinking Water

The City's potable water system can accommodate the Development, but the City must take action to properly meet current summertime maximum day demands and to meet additional demands that will gradually accumulate from the Development.

To provide water to the current users, the primary well operates non-stop and the backup wells supplement the output of the primary well a few hours a day during the months of July and August (personal communication with the system operator). This does not meet the requirements of Paragraph 17 of IDAPA 58.01.08.501 of the Idaho Drinking Water Rules. The City should take immediate actions to correct the situation by implementing modest, short-term irrigation restrictions and completing a Water System Facility Planning Study. The study will surely recommend construction of another supply well.

Since the Development is proposing a self-operated, non-potable sprinkler irrigation system independent of the City's drinking water system, the per-user demand on the system from those in the Development will be small compared to users who rely on the drinking water system for in-house use and outside irrigation. But the large number of new users proposed for this Development aggregate into a significant impact. Although T-O Engineers estimated per capita use of those in the Development of 120 gpcd, we believe that 100 gpcd would be acceptable. Using 100 gpcd and the same peak factor used in the T-O memo, the Development would require 220 gpm of additional maximum day demand supplied by a new well at buildout. The Development appears to have a minimal impact to required storage.

If the City implements modest, short-term irrigation restrictions, completes a Water System Facility Planning Study, and develops another supply well, the water system will be able to supply in-home use to the entire Development with full source redundancy. After the new well is constructed, the modest, short-term water restrictions could be dropped. Water availability fees collected from new connections and existing user fees will pay for their share of developing an additional supply well.

It is reasonable to assume that the City's 12-inch water line along SH-55 will provide adequate distribution and fire flow to the Development at full build-out. This should be verified with a calibrated water model. Calibrated water models are valuable planning tools for water system operators and routinely included in facility planning studies. These facilities should be designed and constructed to meet the City's requirements and DEQ drinking water rules. The City should require review of the construction documents and provide inspection during construction of these facilities.

Summary
In our opinion, the City's wastewater and drinking water systems will be able to serve the Development with proper planning, collection of water and sewer availability fees, and coordination of needed improvements with development phasing.

The City should submit Letters of Interest for DEQ planning funds in January 2020 for the water and sewer systems. If the Development is approved, its water and sewer demands should be included in the facility planning studies.

Please feel free to contact us if you have any questions.

Sincerely,

Paul H. Scoresby

Paul H. Scoresby, PE

Cc: Horrocks Engineers

Attachments: T-O Engineers' City of Cascade, ID Lagoon System Upgrade memo dated November 15, 2019
T-O Engineers' City of Cascade Water Supply and Storage Assessment memo dated November 15, 2019