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Sheep River Regional Utility Corporation c/o Foothills County 309 Macleod Trail P.O. Box 5605 High River, AB T1V 1M7

# Attention: Harry Riva-Cambrin SRRUC CEO

Dear Mr. Riva-Cambrin:

## Re: 21-01ASP Colts Crossing – Bylaw 2025-102 Application for Area Structure Plan – External Circulation

Sheep River Regional Utility Corporation (SRRUC) has requested that MPE a division of Englobe (MPE) comment on the Application for Area Structure Plan (ASP) that was circulated by the Town of Diamond Valley, with respect to the SRRUC waterworks system as it applies to water supply, water licence capacity, and constraints on the system. A total of eighteen (18) documents were submitted. This review focused on the documents specifically related to water servicing as it pertains to the SRRUC raw water and treatment system.

#### **Proposed Development Water Demands**

Two of the documents submitted detailed projected water demands, including a *Preliminary Servicing Strategy*, April 25, 2022, and a *Preliminary Servicing Report Colts Crossing Rev2*, November 4, 2024, both prepared by Stantec as supporting documentation to the ASP application.

The following summarizes the projected water demands from those documents:

1. In the *Preliminary Servicing Report*, the following water criteria was noted:

Total Residential Population	4,305
Work Population	384 jobs
<b>Residential Average Daily Water Demand</b>	315 L/c/d
Average Day Demand	1,477 m <sup>3</sup> /d
Maximum Day Demand	3,250 m <sup>3</sup> /d
Peak Hour Demand	68.4 L/s

May 8, 2025 File: N:\2065\001-07\L03-1.0 2. In Preliminary Servicing Report Colts Crossing Rev2, the following water criteria was noted:

Phase 1 Residential Population	1,128
Phase 1 Work Population	367 jobs
<b>Residential Average Daily Water Demand</b>	315 L/c/d
Phase 1 Average Day Demand	471 m <sup>3</sup> /d
Phase 1 Maximum Day Demand	1,036 m <sup>3</sup> /d
Phase 1 Peak Hour Demand	78 m <sup>3</sup> /hr (21.7 L/s)

#### Phases 1

#### Phases 2 to 5

Phase 2-5 Residential Population	3,566
Phase 2-5 Work Population	367 jobs
<b>Residential Average Daily Water Demand</b>	315 L/c/d
Phase 2-5 Average Day Demand	1,239 m <sup>3</sup> /d
Phase 2-5 Maximum Day Demand	2,726 m <sup>3</sup> /d
Phase 2-5 Peak Hour Demand	206 m <sup>3</sup> /hr (57.2 L/s)

The demands required to accommodate the projected development area, based on the above servicing report (Rev 2) are approximately:

- Average Day Demand 1,710  $m^3/d$  (471  $m^3/d$  + 1,239  $m^3/d$ )
- Maximum Day Demand 3,762  $m^3/d$  (1,036  $m^3/d$  + 2,726  $m^3/d$ )
- Peak Hour Demand 78.8 L/s (21.7 L/s + 52.7 L/s)

The following sections provide a review of the SRRUC raw water and water treatment system to determine if capacity is available for the proposed development.

#### SRRUC Raw Water System

The raw water system utilizes a series of groundwater wells under the influence of the Sheep River in addition to a Seasonal Direct Intake. Raw water is pumped from the source infrastructure to a raw water reservoir prior to being treated.

In total, the Town of Diamond Valley has seven water licences with a total annual diversion of approximately  $1,470,000 \text{ m}^3/\text{yr}$ . In 2024, the total amount of water diverted through the SRRUC raw water infrastructure attributable to the Town's licences was approximately  $697,000 \text{ m}^3$ . Note that the annual usage in the Town has varied historically over the years and there have been years where annual diversion rates have been up to approximately  $823,000 \text{ m}^3/\text{yr}$ .

In addition to the annual diversion allotment, each well/intake is restricted by a maximum pumping rate. The actual pumping rates in each of the wells is impacted by the levels in the river as they are directly connected. Additionally, several of the licences have Instream Objectives (IOs) on them, resulting in the need to cease pumping altogether in times of low water flow/level in the Sheep River. As the pumping rates are affected by the river conditions, operationally the infrastructure is restricted based on river levels and drought conditions. Given these restrictions, the full annual allocation may be limited by the pumping infrastructure in any given year.

## **SRRUC Water Treatment System**

In 2015, upgrades to the Water Treatment Plant located in the Town of Diamond Valley were completed. As per the *Water Treatment Plant and Mechanical Upgrades Preliminary Design Report*, December 20, 2012 the water treatment plant was to be upgraded to accommodate the demands in the following table. A portion of the capacity was allocated to the Town of Diamond Valley with the remaining portion allocated to Foothills County.

	Town of Diamond Valley	Foothills County
Total Population	7 989	915
Average Daily Water Demand	410 L/c/d	
Average Day Demand	3,275 m <sup>3</sup> /d	375 m <sup>3</sup> /d
Maximum Day Demand	6,550 m <sup>3</sup> /d	750 m <sup>3</sup> /d
Peak Hour Demand	152 L/s	17 L/s

Based on SRRUC's 2024 Annual report, an average day demand of 1,653 m<sup>3/</sup>d of potable water was distributed to the Town of Diamond Valley in 2024. Similar to the raw water, the volume of water produced does vary from year to year and demand may be higher in certain years than others for the Town. Given the average flow rate for 2024, the water treatment system would have capacity to treat approximately  $1,622 \text{ m}^3/\text{d} = 1,653 \text{ m}^3/\text{d} = 1,653 \text{ m}^3/\text{d}$  at an average day flow rate.

### Conclusion

Given the projected potable water demands for the proposed ASP area (Average Day Demand of 1,477  $m^3/d$ ), this would result in the requirement of approximately 539,105  $m^3/yr$  of potable water. Raw water volumes in excess of the potable water needs would be anticipated to account for water treatment losses, such as backwash water.

Based on the available water licences, there is allocation for future development within the Town; however, the raw water infrastructure (wells/intake/pumps) are limited in the amount of raw water that is capable of being diverted through the physical infrastructure. Should this development proceed, it is recommended that SRRUC continue to review options to increase pumping capabilities in the wells/intake to maximize the diversion capability of the system. While the raw water reservoir provides for some raw water storage during drought years, consideration should be given as to whether the existing storage is sufficient to support an increased population during drought years.

Based on the above design conditions of the Water Treatment Plant, there would be capacity to accommodate this development. However, in this review, no consideration has been given to other developments and/or densification that may occur in the Town now or in the future.

Should this development proceed, it is recommended that SRRUC require that the projected water demands be submitted to SRRUC for review as each phase of the development proceeds to subdivision approval for evaluation, confirmation of available capacity and approval of available water allotment.

The review of submitted documents does not constitute approval of the developments preliminary design. Conformance with local municipal, provincial and other regulatory authorities remains the responsibility of the developer.

## Closure

If clarification or more information is required, please do not hesitate to contact the undersigned at 403-219-6319.

Yours truly,

## MPE a division of Englobe

Hardy Gill

Jill Hardy, P.Eng. Project Manager

JH:vv