



Province of British Columbia

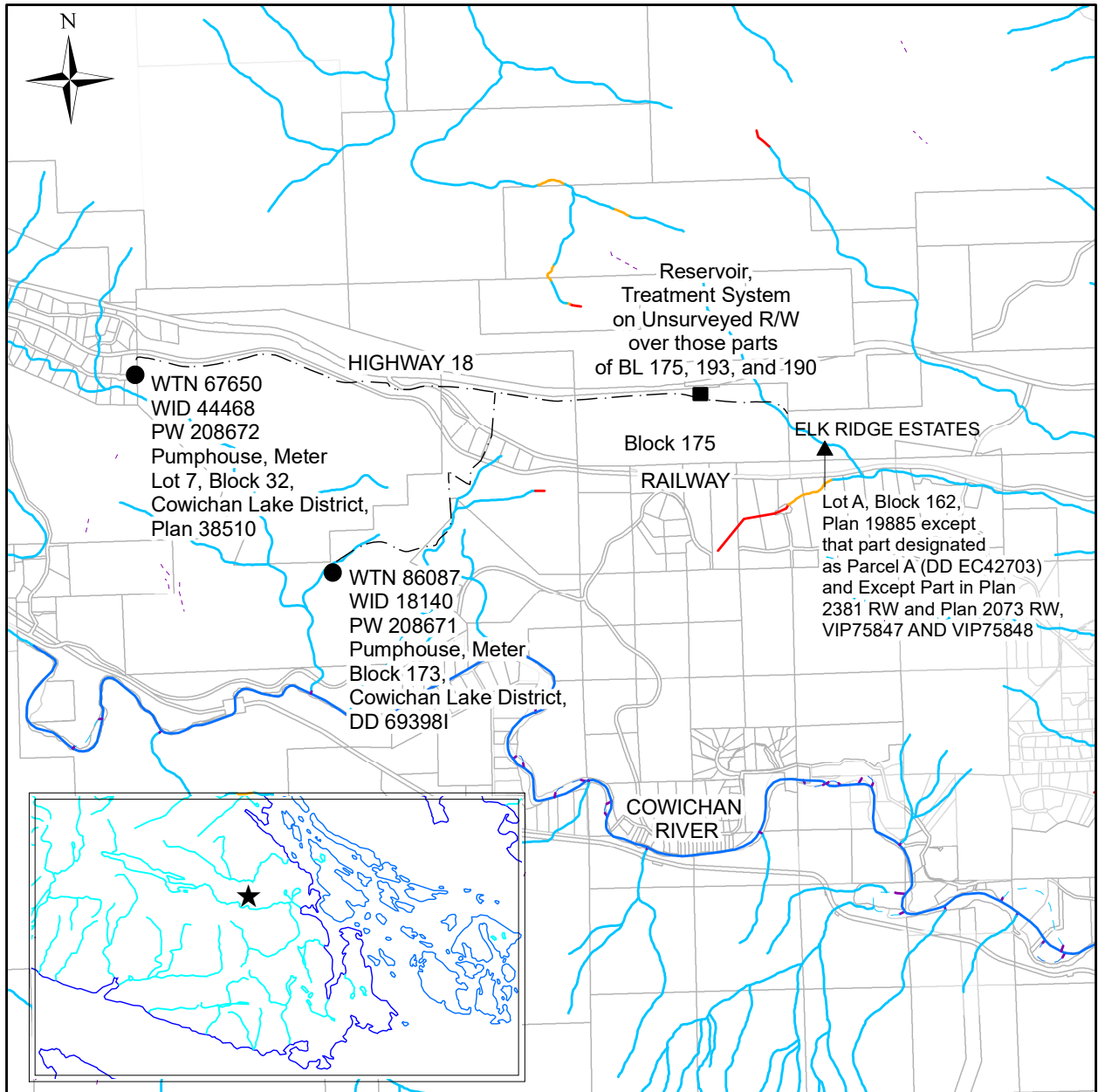
Water Sustainability Act

CONDITIONAL WATER LICENCE

The owners of the land to which this licence is appurtenant are hereby authorized to divert and use water as follows:

- a) The aquifer on which the rights are granted is comprised of unconsolidated materials within the Cowichan Watershed (COWN – Cowichan) located at approximately 61.3 metres (201 feet) and 94.5 metres (310 feet) depth below ground surface.
- b) The points of well diversion (WTN 67650 and WTN 86087) are located as shown on the attached plan.
- c) The date from which this licence shall have precedence is June 1, 2017.
- d) The purpose for which this licence is issued is waterworks - other.
- e) The maximum quantity of water which may be diverted for waterworks - other purpose is 492,750 cubic metres per year, which will be allowed in phases, and provided the maximum daily volume does not exceed 2,700 cubic metres.
- f) The period of the year during which the water may be used is the whole year.
- g) The land upon which the water is to be used and to which this licence is appurtenant is Lot A, Block 162, Seymour District, Plan 19885, except that part designated as Parcel A (DD EC42703), and except part in Plan 2381 RW and Plan 2073 RW, VIP75847 and VIP75848.
- h) The authorized works are two wells, two pumphouses, two meters, pipe, treatment facility/system, reservoir and distribution system which shall be located approximately as shown on the attached plan.
- i) Prior to construction of the works authorized under clause (h) of this licence, the licensee must:
 - (1) Ensure that the plans for the works to be constructed are signed and sealed by a professional engineer registered in the Province of British Columbia (referred to as the Design Engineer);

- (2) Ensure that a professional engineer in the Province of British Columbia (referred to as the Construction Engineer) supervises the construction of works;
 - (3) Submit to an Engineer, under the *Water Sustainability Act*, the following:
 - a. plans that show the general arrangement of works to be constructed,
 - b. criteria for the design of the works to be constructed,
 - c. criteria for the operation of the works to be constructed, and
 - d. a schedule for the construction of works;
 - (4) Prepare an Environmental Management Plan for the management and mitigation of construction impacts. The plan shall be prepared to the satisfaction of an Engineer under the *Water Sustainability Act*; and
 - (5) Obtain written leave to commence construction from an Engineer under the *Water Sustainability Act*.
- j) The construction of the said works shall be completed and the water shall be beneficially used prior to December 31, 2029. Thereafter, the licensee shall continue to make regular beneficial use of the water in the manner authorized herein.
 - k) Prior to diversion and use of initial volume of water (Phase A) authorized in clause (e) the licensee must:
 - (1) Develop an adaptive water monitoring and operation plan suitable to determine the nature of potential impacts, as a result of pumping, to the source aquifer, connected sources, and senior water rights holders, to the satisfaction of the Water Manager under the *Water Sustainability Act*;
 - (2) Upon acceptance of the adaptive water monitoring and operation plan, obtain written leave to commence the diversion and use of water from the Water Manager under the *Water Sustainability Act*; and
 - (3) Implement the adaptive water monitoring and operation plan. Prior to diversion and use of subsequent volumes of water (Future Phases) authorized in clause (e) the licensee must obtain written leave to commence the diversion and use of water from the Water Manager under the *Water Sustainability Act*, subject to the results of the adaptive water monitoring and operation plan that identifies impacts in (k)(1).
 - l) The licensee shall use a measuring device and/or a method of calculation to measure and record the volume of water diverted under the licence, to the satisfaction of an Engineer under the *Water Sustainability Act*.
 - m) The licensee shall retain records of the water volume diverted under this licence for inspection upon request by an Engineer under the *Water Sustainability Act*.



WATER DISTRICT: Victoria
 PRECINCT: Duncan
 LAND DISTRICT: Seymour
 WATERSHED: COWN - Cowichan

Signature: Cali Meli
 Date: March 15, 2024

LEGEND:

Scale: 1:50,000
 Point of Diversion: ●
 Map Number: 92B.071.3.4
 Pipe: - - - - -

C.L.: 505532
 FILE: 20013159

The boundaries of the land to which this licence
 is appurtenant are shown thus: —————



File: 20013159

March 15, 2024

VIA EMAIL: ehdconsulting@shaw.ca; michelle.pressman@cvrd.bc.ca

Elk Ridge Estates Ltd.
c/o Ian Chadwick
EHD Engineering Ltd.

Cowichan Valley Regional District
c/o Michelle Pressman, Development Services

Subject: Elk Ridge Monitoring Objectives

Dear Elk Ridge Estates Ltd. and Cowichan Valley Regional District,

Elk Ridge Developments Inc. (Elk Ridge) was issued Conditional Water Licence 505532 on March 15, 2024. This water licence was granted as a result of a groundwater licence application for a proposed residential subdivision located in the Paldi area of the Cowichan Valley. WTN 67650 (Elk Ridge Well) is located at 6501 McLean Road in Skutz Falls, approximately 5 km west of the proposed development. The Elk Ridge Well will connect to the development via a pipeline.

Cowichan Tribes has future water resource needs for a freehold parcel and for parcels of interest as identified by the Province and Cowichan Tribes, necessitating Cowichan Tribes' reliable access to the water resources in Aquifer 1287. In a formalized Agreement between Elk Ridge and Cowichan Tribes, the parties agreed to share the water resources accessed through any water licence granted as a result of the application by Elk Ridge from Aquifer 1287. An equivalent volume was then added to the water licence application for Cowichan Tribes' future uses. WTN 86087 (Crown Well), also situated in Aquifer 1287, was also added to the water licence application as another point of diversion. It is located on Crown land approximately 3.5 km west of the Elk Ridge development. The Crown Well would connect to the main pipeline.

Full buildout for Elk Ridge and Cowichan Tribes could result in an estimated diversion of 492,750 m³ per year (maximum daily diversion of 2700 m³ per day) for “waterworks” purpose, serving 1000 dwellings with up to 500 secondary suites, plus commercial use up to 100,000 ft².

The Cowichan Valley Regional District (CVRD) is the water licence co-applicant. Concurrent to the Province’s adjudication of the water licence application, the CVRD is considering incorporating the planned development into a water service area. Upon takeover approval, the CVRD would become the sole licensee and the water use purpose would need amendment to become “waterworks – local provider”.

Hydrogeological review to-date has determined the following:

- Based on pumping test results the aquifer appears to be highly productive; however, effects of pumping were noted at significant distance from the pumping well.
- There is lack of understanding of the interaction between shallow Aquifer 178, the underlying confined Aquifer 1287, bedrock Aquifer 182, and Cowichan River.
- Where groundwater may be hydraulically connected to Cowichan River, the effects of pumping are expected to be minor. However, stream temperature may be impacted if groundwater contributions to Cowichan River are intercepted by pumping.
- The effects of long-term climate change on groundwater recharge and water availability have not been considered within preliminary studies to-date in this area.

Clause (k) of Conditional Water Licence 505532 requires the licensee to develop an adaptive monitoring and operations plan to the satisfaction of the Water Manager prior to commencing diversion of water for Phase A. Clause (i) requires the issuance of leave to commence construction of works and Clause (k) requires the issuance of leaves to commence diversion of water from the Water Manager for Phase A and future phases. The leaves to commence diversion for future phases are subject to the results of the adaptive monitoring and operations plan.

This phased approach to diversion of water, supported by monitoring, is intended to address uncertainty around the long-term sustainability of the licensed volume, and potential impacts to connected sources and senior water rights holders that could not adequately be addressed through field testing and desktop assessments prior to issuance of the licence. Monitoring outcomes will inform future phases of water use.

The purpose of this letter is to provide guidance on the intent and objectives of monitoring as well as reporting expectations. However, the adaptive monitoring and operations plan should be developed by a Qualified Professional and should include their objective recommendations on how best to meet the intent of the monitoring.

Monitoring Objectives and Guidance

The following guidance and objectives should be considered in the development of the adaptive monitoring and operations plan:

1. Assess the long-term sustainability of the groundwater resource, as demonstrated through groundwater level monitoring. This may be achieved by:
 - Selecting observation monitoring wells that are completed in Aquifer 178, Aquifer 1287, and Aquifer 182 (bedrock).
 - Investigating seasonal aquifer drawdown and seasonal aquifer recovery.
2. Determine impacts to licensed users and hydraulically connected streams. This may be achieved by:
 - Selecting observation wells that are sufficient to detect drawdown impacts to neighboring users as a result of pumping.
 - Monitoring water temperature on the north side of Cowichan River near Marie Canyon to address temperature requirements for fish.
3. Identify and characterize potential interactions between WTN 67650 (Elk Ridge well) and WTN 86087 (Crown well), when pumped independently and simultaneously.
4. Evaluate effects of cumulative groundwater withdrawals by measuring flows from each supply well for consideration in overall cumulative impacts over time.
5. Provide annual reporting of collected data to support monitoring objectives, and to support modifications to the program as necessary.

Monitoring Frequency

Continuous monitoring rather than monthly spot measurements, with a frequency of hourly to daily (no less frequent) to ascertain seasonal variability and observe drought-related impacts is recommended.

Reporting Requirements

Reporting of data collection and interpretation is required annually, at minimum, and should include but is not limited to:

- Any link between aquifer water levels and streamflow of Cowichan River.
- Aquifer drawdown and recovery/recharge observations.
- Interpretation of declines or increases observed in groundwater.
- The influence of regional cycles (e.g., Pacific Decadal Oscillation) versus pumping.
- Any difference in water temperature in Cowichan River resulting from changes in seepage from bedrock in the Marie Canyon area.
- Any interference between WTN 67650 (Elk Ridge Well) and WTN 86087 (Crown Well) when pumped independently and simultaneously over time, including long-term aquifer sustainability when pumping both wells.

- A stacked hydrograph of water levels and water use (pumping rate) over time along with precipitation records to ascertain potential impacts and causes for those impacts (e.g., time lag in recharge, etc.).
- The ability for Aquifer 1287 to sustain *continued* pumping from WTN 67650 (Elk Ridge Well) and WTN 86087 (Crown Well).
- The ability for Aquifer 1287 to sustain *additional* pumping from WTN 67650 (Elk Ridge Well) and WTN 86087 (Crown Well).
- Potential mitigative measures.

Annual reporting is intended to ensure monitoring is meeting the intent of the adaptive monitoring and operations plan and to allow for adaptation of the plan if necessary. Any revision of the plan must be submitted to the Water Manager for acceptance.

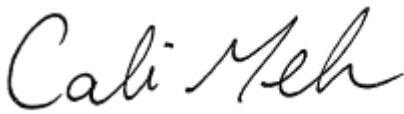
Yours truly,



Cali Melnechenko
Water Manager

cc: Cowichan Tribes

- n) The licensee must operate the works authorized under clause (h) above in accordance with:
- (1) procedures ordered by a Water Manager under the *Water Sustainability Act*, including any order for the regulation of the diversion, rate of diversion and use of water as may be required for the preservation of fish and aquatic ecosystems and for the provision of flow for the maintenance of environmental flow needs; and
 - (2) any amendment of the procedures ordered by a Water Manager under the *Water Sustainability Act*.

A handwritten signature in black ink, reading "Cali Melh". The signature is written in a cursive, flowing style.

Cali Melnechenko
Water Manager