From: Laura Friend
To: [redacted]
[redacted]
RE: Mitchel Kroetsch RA23022 and RA23022A Review-Second Submission Request
Date: Wednesday, April 9, 2025 12:52:00 PM

Hello Mr. Kroetsch, this email confirms I have received your email today, dated April 9, 2025 with a PDF letter attached dated March 11, 2025 and which you say was emailed to me on March 12, 2025. I cannot find a record of receiving an email with a letter attached from either yourself or from Envirowest on March 12, 2025.

I have the letter now and will distribute it and your email of today to the eligible parties.

Laura Friend
Manager, Board Reviews, NRCB
Laura.Friend@nrcb.ca
(403) 297-8269

Classification: Protected A

From: r[redacted]
Sent: Wednesday, April 9, 2025 9:21 AM
To: Laura Friend <Laura.Friend@nrcb.ca>
Subject: Re: Mitchel Kroetsch RA23022 and RA23022A Review-Second Submission Request

Good morning Laura, below is a letter from the engineer that was sent in on march 12 to answer the boards questions, my apologies as I guess I should have confirmed it was received not sure what happened but it was sent in.

As for construction, it is not complete it is ongoing, area 1 is nearing completion, 11 pens are done, catch basin 1 is complete and has synthetic liner installed. 6 of the pens are currently being used to house cattle from our cow calf operation, roughly 300 heifers, and 200 bull calves as well as 40 herd bulls. Please let me know if the pdf from envirowest comes through thanks.

Sent from my iPhone

On Apr 8, 2025, at 3:58 PM, Laura Friend <Laura.Friend@nrcb.ca> wrote:

Please refer to the attached letter.

This email has been blind copied to Mitchel Kroetsch, Arthur Congdon, Heidi Rohe, Thomas Rohe, Lorraine Congdon, Norman Congdon, Dallas Oberg, Ruth and Bob Burke, Nancy and Richard Hewson, and John Congdon.

Laura Friend
Manager, Board Reviews, NRCB
Laura.Friend@nrcb.ca
(403) 297-8269

Classification: Protected A

<20250408-Kroetsch RA23022 and RA23022A Review-NRCB Letter to Eligible Parties-Second Submission Request.pdf>

ENVIROWEST
ENGINEERING

P.O. Box 4248
Ponoka, AB.
T4J 1R6
Telephone: 403-783-8229
Facsimile: 403-783-5222

March 11, 2025

NRCB Reviews Manager
Delivered via email: laura.friend@nrcb.ca

Attn: Laura Friend

Re: Board Review of Decision to Permit a Confined Feeding Operation (CFO) operated by Mitchel and Lindy Kroetsch in Flagstaff County

Dear Laura Friend,

Envirowest Engineering (Envirowest) has prepared a written submission on behalf of the Operator, Mitchel and Lindy Kroetsch, of a new beef feeder/finisher CFO in Flagstaff County, under Approval RA23022 and Amendment Approval RA23022A to address requests for further information or clarification from a division of the Natural Resources Conservation Board.

1. **Confirmation of the method used to determine the depth to the water table, why this method was chosen, and the risks associated with using this method.**

   A piezometer (1" diameter PVC pipe) was installed in the centre of each catch basin. The depth to the water table was measured by a Professional Engineer using a Heron Instruments Inc. Water Level Meter inserted into the piezometer. The Water Level Meter is a measuring tape specifically designed for groundwater professionals, which has a moisture-sensing probe fixed to the end. When water is encountered, an audible beep is emitted. The depth to water from the top of the piezometer is noted, and the height of the piezometer above the ground surface is also noted. The height of the piezometer is then subtracted from the depth to water from the top of the piezometer in order to obtain an accurate depth to the water table from the ground surface.

   This method was chosen, as it is a standard measuring technique utilized by any professionals requiring accurate depths to water.

   The risks associated with this method of measurement include human error in measuring both the depth to the groundwater and the height of the piezometer. However, this margin of error is considered to be in the hundredth of a metre, and is thus very minimal.

   There is also an inherent margin of error in any instrument, however, this margin of error is also considered to be very minimal.

2. **How the catch basins and barrier are expected to protect the quality of the surface water.**

   Catch basins are designed to collect and store impacted surface water, to ensure that it is not migrating off-site or to other areas of the site that are not protected. The synthetic liner in the catch basin ensures that all impacted surface water remains in the catch basin and will not impact the soil or groundwater. The barrier proposed mitigates damage to the catch basin liner.

3. **How the size of the catch basins was determined.**

   As per Section 5.2 of the Site and Soil Assessment – Amended (Envirowest, 2024), the proposed area of contributing run-off is determined (assessed from the dimensions of the solid manure storage facility), and local precipitation data is obtained from the Schedule 2 Table 1 of the Standards and Administration Regulations (AOPA), which then informs the total storage capacity required. The overall capacity of the catch basin refers to the size of the catch basin, including a required 0.5 m of freeboard, the storage capacity reflects the size without the freeboard. Catch basin sizes are determined to provide more storage capacity than required (1:30 year rainfall).

   Wherever possible, the most conservative factors are utilized for determining catch basin sizing. For example, the depth to groundwater was measured to be 3.69 m for Catch Basin 1, and 3.96 m for Catch Basin 2. However, a depth of 3.69 m was utilized to determine the depths of both catch basins (2.7 m) to ensure that the most conservative depth was used.

4. **Whether the design of the catch basins effectively mitigates any adverse effects that could be experienced with water table fluctuations during the year.**

   The bottom of the catch basin synthetic liner is designed to be 1.0 m minimum above the water table. As the catch basin is synthetically lined, and as catch basins are designed solely to collect overland impacted surface water, there will be no interaction between the catch basin contents and the groundwater, therefore, the design of the catch basins is deemed effective to mitigate adverse effects from water table fluctuations.

   It is industry standard in Alberta to operate under the assumption that the average water table will fluctuate within 1.0 m. It is in Envirowest's practical experience that in general this assumption remains valid.

   As the AOPA standard requires a 1.0 m distance from the base of the liner to the water table, it can then be concluded that it is rare for the water table to interact with the base of the liner. If under unprecedented climatic circumstances, should this occur, the liner will lift with the water table creating 'bubbles' or lifting. Long-term exposure to these conditions may cause wear on the liner.

5. **How the construction condition requiring a minimum distance of 1.0 metre from the bottom of the catch basin to the water table at the time of construction will be met through measurement and verification.**

   To ensure the minimum distance is met, the depth to water will be measured in both installed PVC piezometers prior to construction. The depth to water will be measured using the same Heron Instruments Inc. Water Level Meter and the same method described in point #1. It is recommended that construction occur within the same season as the measurement of the water table occurred. However, if unusual precipitation events occur between the time of measuring and the time of construction, it is recommended that the depth be re-measured.

6. **Whether other mitigation measures should be considered during construction to mitigate possible water table fluctuations.**

   In addition to the recommendations in point #5, ideally, depth to the water table should be measured in the spring, when the groundwater table is presumed to be at its highest. This ensures the most conservative measurement is utilized during construction.

   Where feasible, it is recommended that the same Professional Engineer measure the depth to the water table using the same Water Level Meter to help limit variability in measurements.

Closure

Envirowest Engineering is pleased to submit this written submission on behalf of the Operator associated with Approval RA23022 and Amendment Approval RA23022A.

We trust that this report meets your present needs. Please feel free to contact the undersigned with any questions or should you require additional information.

Respectfully submitted,

March 11, 2025

Prepared by:
Leah Predy, P. Ag.
Envirowest Engineering

Reviewed by:
Emily J. Low, P.Eng.
Envirowest Engineering

PERMIT TO PRACTICE
2206165 ALBERTA LTD.

RM SIGNATURE: _____

RM APEGA ID #: 110373

DATE: March 11, 2025

PERMIT NUMBER: P014810

The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

2206165 Alberta Ltd. o/a Envirowest Engineering
Association of Professional Engineers and Geoscientists of Alberta
Permit to Practice No. P14810